AN-NAJAH NATIONAL UNIVERSITY
FACULTY OF GRADUATE STUDIES

# *RAINFALL - RUNOFF PROCESS AND MODELLING FOR SOREQ STREAM SUBBASIN NEAR JERUSALEM*

PREPARED BY
MAZIN HUSNI BARAKAT

SUPERVISED BY

Dr. HAFEZ SHAHEEN
Dr. ANAN JAYYOUSI

*Submitted in Partial Fulfillment of the Requirements for the Degree of Master in Water and Environmental Engineering, Faculty of Graduate Studies, At An-Najah National University at Nablus, Palestine.*

# *RAINFALL - RUNOFF PROCESS AND MODELLING FOR SOREQ STREAM SUBBASIN NEAR JERUSALEM*

PREPARED BY

MAZIN HUSNI BARAKAT

May, 2000

*This thesis was defended successfully on May,28 th, 2000 and approved by:*

| **Committee Members** | **Signature** |
|---|---|
| 1. Dr. Hafez Shaheen | ..... |
| 2. Dr. Issam A. Al-Khatib | ..... |
| 3. Dr. Anan Jayyousi | ..... |
| 4. Dr. Numan Mizyed | ..... |

**Dedicated to my parents,**

**wife and son {Majd}**

# ACKNOWLEDGMENTS

During the preparation of this thesis, I had the opportunity to be assisted by many individuals. My sincere thanks to Dr. Hafez Shaheen and Dr. Anan Jayyousi for their valuable help and guidance in all the aspects involved in this study. Also for the staff at our company "Tahal Consulting Engineers" for their useful assistance.

My sincere gratitude for my parents, brother, sisters, and my wife for their encouragement which gave me the strength to continue.

# TABLE OF CONTENTS

## List of Abbreviations

| Symbol | The Meaning |
|---|---|
| A | Watershed area |
| Dt | Rainfall duration |
| I | Rainfall Intensity |
| IDF | Intensity-Duration-Frequency |
| $K_r$ | Hydrograph ressecion constant |
| n | Manning Coefficient |
| P | Precipitation |
| Q | Flow (Runoff) |
| $r_d$ | Excess rainfall |
| SCS | U.S. Soil Conservation Services |
| $T_c$ | Time of Concentration |
| U.H. | Unit Hydrograph |
| $V_d$ | Area under Hydrograph |
| W,Φ | Infiltration indices |

# List of Tables

# List of Figures

# Abstract

The Unit hydrograph and SCS methods were used here to simulate the runoff coefficient and the lag time from the mountainous sub-catchment of the Soreq stream near Jerusalem using the data obtained during the period 1957-1994 for frequency analysis and IDF curves. Data obtained during the period 1994-1996 were used for the rainfall-runoff analysis.

The investigated area is situated near Jerusalem in the watershed of the Soreq and Rafaim streams that flow toward the Mediterranean. The drainage area studied is 167 $km^2$ after excluding the urban area from the stream origin until the Beit Zayit (dam) reservoir.

Intensity-Duration-Frequency curves were developed for this area by analyzing the historical data of the two rainfall stations using the Gumbel distribution. These curves can be used as a reference for the determination of rainfall intensity for different return periods to be used for drainage systems design.

Some of the problems related to the study area are that the two western outlets of the raw sewage system of Jerusalem, discharge towards Soreq stream. This sewage flow which is the flow measured at Hartov station during the dry periods along the Soreq stream is considered as a base flow all along the study. According to these measurements, considerable amounts of sewage water infiltrate along the Soreq stream.

Representative events were analyzed during the study period in order to have an indication of the real amount of excess rainfall that causes the runoff. For each event the area under the direct runoff hydrograph ($V_d$) was calculated for the derivation of the excess rainfall.

For the infiltration rate, the $\phi$ and W index methods were used. The average value of the $\phi$ index was 16.77mm/hr. While the average value of the W index was 3.27mm/hr.

The runoff measured was about 0.3 % of the measured rainfall due to the high percolation rate into the karstic layers of the area. On the other hand, for each event the recession constant $K_r$ was evaluated .The average value of this constant for the above events was 0.9925.

Unit hydrographs for these events were obtained. Each unit hydrograph of the above events have a different duration. The lag time measured for these events has an average of 609.25min, while using the equations of the SCS method the average was 334.11min. This situation arises the problem of the sewage flow along the stream, which makes the runoff including the sewage deposits flow slowly towards the outlet. These results may be approximated by assuming that the lag time of this watershed equals the time of concentration, instead of 0.6 of the time of concentration as the SCS method suggests.

# Chapter 1

## Introduction

Rainfall-Runoff models are the backbone of almost all-urban and rural stormwater management studies, whether the emphasizes on mitigation of flooding problems or on alleviation of stormwater pollution. Both objectives require estimates of stormwater flows. The obvious way of obtaining these estimates is by direct observation of urban runoff events. However the difficulty of collecting information of large flows caused by rare and intermittent storm events has led engineers to take indirect route-deriving runoff estimates from more plentiful and easily-analyzed rainfall information, and using rainfall-runoff models. Unit Hydrograph and SCS methods are used in this study for utilizing rates of rainfall and runoff.

These models are applied here to simulate a unit hydrograph of the mountainous sub-catchment of the Soreq stream near Jerusalem using the data obtained during the period 1957-1994 for frequency analysis and IDF curves. Data obtained during the period 1994-1996 were used for the rainfall-runoff analysis. The investigated area is situated near Jerusalem in the watershed of the Soreq and Rafaim streams that flow toward the Mediterranean. Soreq stream is an ephermal stream (carry only a direct surface runoff) originates at the Judean mountains then flows through the hilly region of Hulda and finally into the coastal plain. The combined drainage area of both Soreq and Rafaim streams from their origin until the Hartov station is 245 $km^2$. The drainage area studied is 167 $km^2$ after excluding the urban area from the streams origin until the Beit Zayit (dam) reservoir.



The rainfall data were obtained from the Israel Meteorological Service from data recorded in meteorological stations; Beit Meir and Beit Jamal. Evaporation and temperature data were obtained from Atarot station and Beit Jamal stations respectively. Runoff data at the catchment outlet was obtained from the hydrometric station of the

Israel Hydrological Service at Hartov. Intensity-Duration-Frequency curves were developed for this area from historical data of the two rainfall stations.

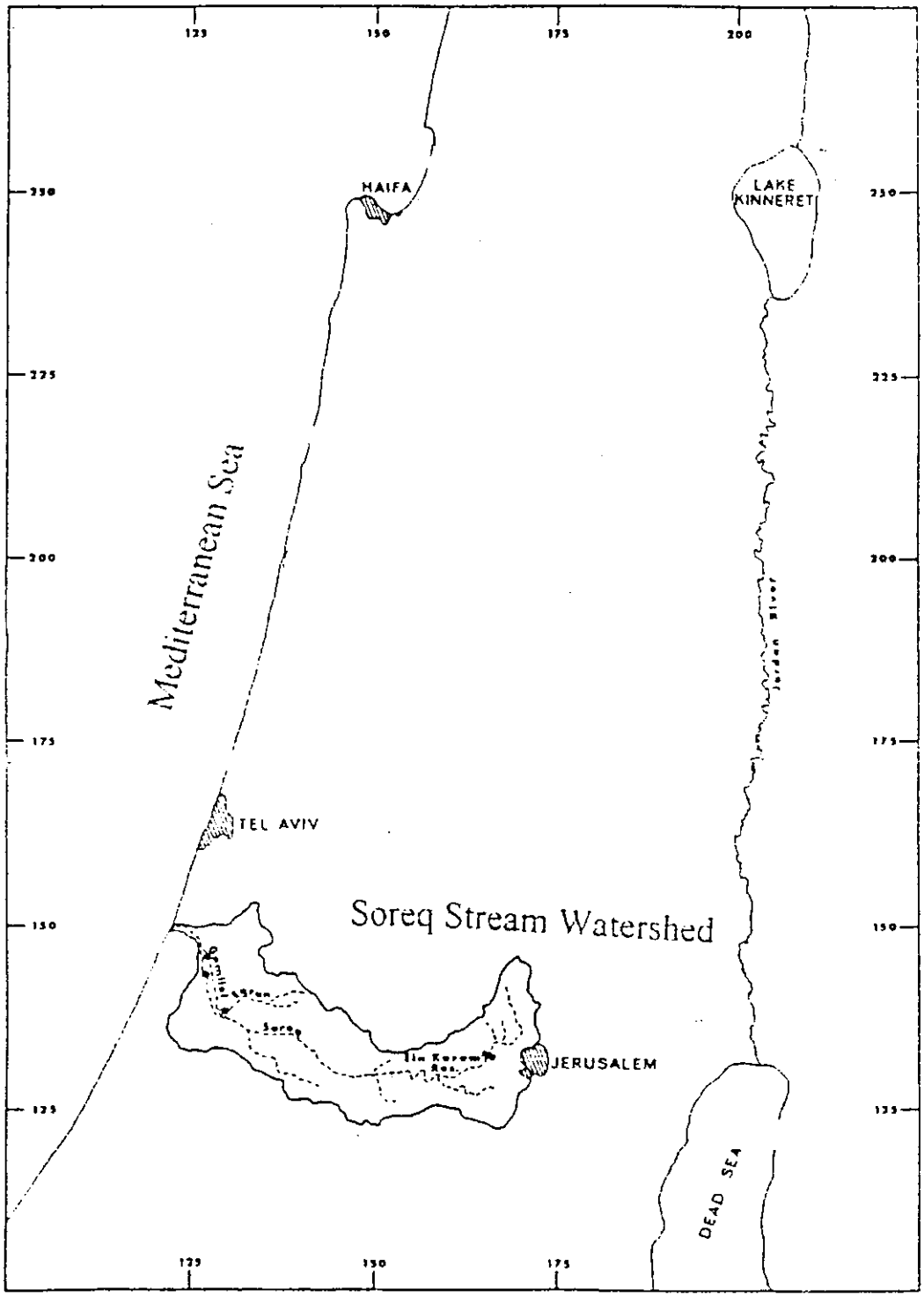
Representative events were analyzed during the study period in order to have an indication of the real amount of excess rainfall that causes the runoff. The runoff measured was about 0.3 % of the measured rainfall due to the high percolation rate into the karstic layers of the area. The unit hydrograph model was used to simulate the runoff hydrograph of the watershed resulting from the excess rainfall.

## 1.1 Study Area

### 1.1.1 Location

The investigated area is situated near Jerusalem in the watershed of the Soreq and Rafaim streams. Fig.1 shows the location of the Soreq watershed which starts near Jerusalem and continue flowing toward the Mediterranean. As shown in Fig.2; in the study subbasin, Soreq stream starts at the central watershed of the Judean Mountains near Atarot, north of Jerusalem until it reaches the Hartov station, then flows through the Hilly region of Hulda and finally into the Coastal plain. The valleys of the stream are wide in the mountains narrowing down towards the coastal plain. The runoff data at the catchment outlet were obtained from the hydrometric station of the Israel Hydrological Service at Hartov. The combined drainage area of both Soreq and Rafaim streams is 245km$^2$ until the Hartov hydrometric station, of which 78km$^2$ are intercepted by the Beit Zayit reservoir near Jerusalem. Appendix1 shows the data obtained for the Beit Zayit reservoir during the study period 1994-1996.All over the study duration this reservoir was not over topped, and all the surface runoff coming from the urban area of Jerusalem is stored behind this dam. For this reason, the area behind this reservoir was not considered in the analysis of the runoff measured at the Hartov station. Therefore the net area considered in the study is 167km$^2$. The Soreq mountainous subbasin area was chosen for the application of a hydrologic model due to the availabilty of the input data needed, and the representative conditions and components throughout the subbasin.

Fig. 1: Soreq Stream Watershed – Location Map



### 1.1.2 Topography

The Soreq stream runs through three different topographic regions as shown in Fig.2a: 1.The mountainous area (which is the study area); 2.The foothills area; 3.The coastal plain. The deeply incised, meandering stream mountainous area starts at elevation of about +700m (above m.s.l) at Atarot near Jerusalem and leave the area at elevations of +250 at Hartov station, about 28 km due to the west of Jerusalem. The gradient of the stream in this relatively high-lying area is about 14m/km as can be seen from Fig.3.

### 1.1.3 Hydrogeology

Rainfall regularly occurs during the winter months (October-April) and amounts to about 500-600 mm in the average year. Some of the problems related to the study area is that the two western outlets of the raw sewage system of Jerusalem, serving about 75% of the population, discharge towards Soreq stream. The stream carries the sewage flow to a distance of about 50km to the coastal plain aquifer. The detailed information about the population and the amount of wastewater discharge into the Soreq stream watershed in shown in Table 1.

This sewage flow which is the flow measured at Hartov station during the dry periods along the Soreq stream is considered as a base flow all along the study. The measured amounts of sewage at the watershed outlet are shown in Appendix 2. These data show that the average flow during 10-12/1994 was 0.042 $m^3$/sec or 3665 $m^3$/day, while during 1-12/1995 the average flow was 0.054 $m^3$/sec or 4686.1 $m^3$/day. During 1-4/1996 the average flow was 0.05 $m^3$/sec or 3910.6 $m^3$/day . This can show that considerable amounts of sewage water infiltrate along the Soreq stream.

According to the geological map of Jerusalem area, and the geological cross section along this area; all the geological layers are from the Judea group. These formations composed of carbonated rocks; limestones and dolomites with Karstic features. Intercalation of chalk and marl as well as patches of residual "terra-rossa" cover the entire area.

Table1: Wastewater flow to the Soreq stream

| | Population | | Quantity of waste water discharge * | | | |
|---|---|---|---|---|---|---|
| | 1995 | 2000 | Daily 1995 | Daily 2000 | Yearly 1995 | Expected Yearly- 2000 |
| Western watershed Soreq (north) Ramallah | 20,000 | 38,000 | 1.80 | 4.56 | 0.66 | 1.67 |
| Givat Za'ev | 10,000 | 14,000 | 1.4 | 2.24 | 0.51 | 0.82 |
| Al-Ram- West Kufr Aqab Qalandia | 11,700 | 31,400 | 1.64 | 5.02 | 0.60 | 1.83 |
| Jerusalem | 136,600 | 213,000 | 11.12 | 34.00 | 6.98 | 12.44 |
| Mivaseiret Tsion | 5,000 | 10,000 | 0.70 | 1.60 | 0.26 | 0.58 |
| Rafa'im (south) Jerusalem | 200,000 | 266,400 | 28.0 | 42.62 | 10.2 | 15.6 |
| Bethlehem- West | 6,300 | 10,000 | 0.63 | 1.45 | 0.23 | 0.52 |
| Beit Jala | 13,700 | 21,700 | 1.37 | 3.15 | 0.50 | 1.15 |
| Bitar | 12,400 | 38,080 | 2.52 | 7.68 | 0.92 | 2.8 |
| **Total of Soreq watershed** | **415,700** | **642,580** | **57.18** | **102.32** | **20.86** | **37.41** |

*All the sewage discharges are in thousand cubic meters for daily data, and in million cubic meters for yearly data.

Fig. 2a: Soreq Stream Watershed

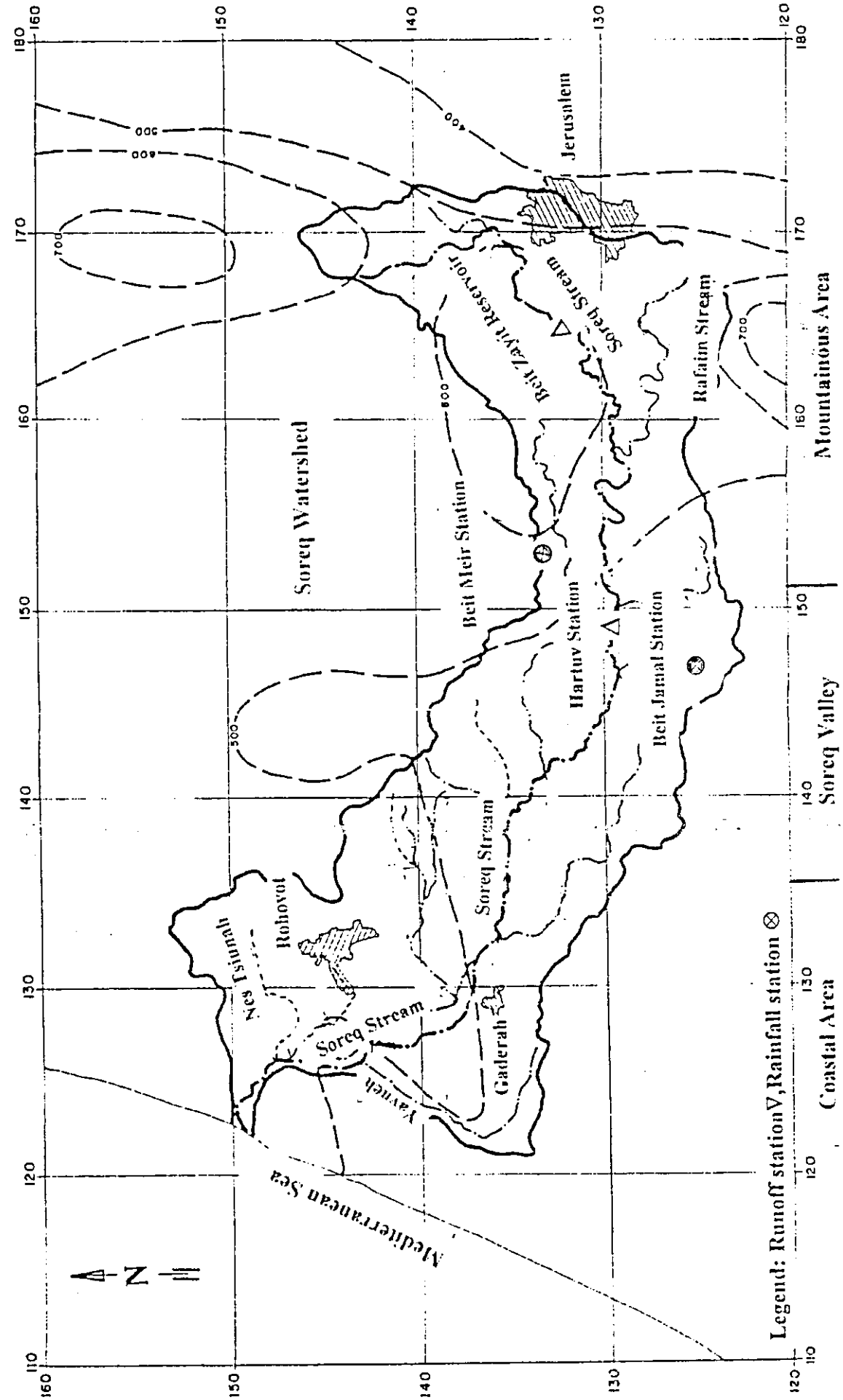
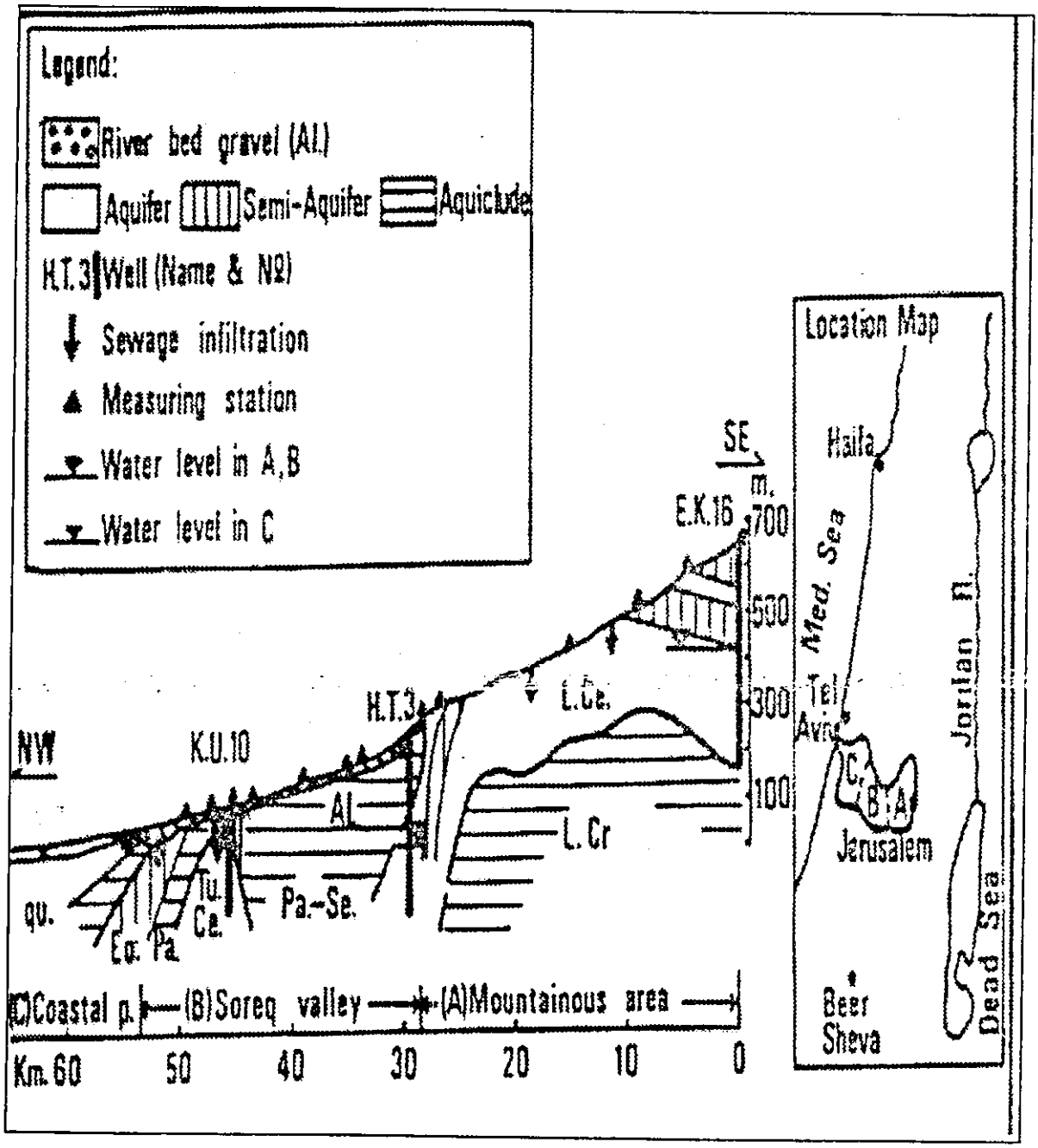


Fig. 3: Hydrological Cross Section along Soreq Stream



# Chapter 2
# Study objectives and methodology

## 2.1 Introduction

By using models we can better understand or explain natural phenomena and under some conditions we can make predictions in a deterministic or probabilistic sense. In designing water-resource systems and in evaluating the effects of land management techniques we require models derived from the social sciences as well as models of hydrologic systems. The Unit Hydrograph and SCS methods were applied here to study the rainfall-runoff process of the mountainous sub-catchment of the Soreq stream near Jerusalem. The Soreq mountainous subbasin area was chosen for the application of a hydrologic model due to the availabilty of the input data needed, and the representative conditions and components throughout the subbasin.

Intensity-Duration-Frequency curves were developed for this area from historical data of the two rainfall stations (Beit Meir and Beit Jamal). Representative events were analyzed during the study period using Unit Hydrograph and SCS methods in order to simulate a unit hydrograph of the watershed, and to have an indication of the real amount of excess rainfall that causes the runoff.

Some of the problems related to the study area are that the two western outlets of the raw sewage system of Jerusalem, discharge towards Soreq stream. This sewage flow which is the flow measured at Hartov station during the dry periods along the Soreq stream is considered as a base flow all along the study. According to these measurements, considerable amounts of sewage water infiltrate along the Soreq stream.

## 2.2 Objectives

One objective of watershed modeling is to gain a better understanding of the hydrologic phenomena operating in a watershed and of how changes the watershed may affect these phenomena. Another objective of the watershed modeling is the generation of synthetic sequences of hydrologic data for facility design or for use in forecasting. Most hydrograph generation techniques share a common mass balance to produce runoff. The following represents the main objectives of the study.

- Intensity-Duration-Frequency curves will be developed for this area by analyzing the historical data of the two rainfall stations using the Gumbel distribution. These curves can be used as a reference for the determination of rainfall intensity for different return periods.

- Representative events will be analyzed during the study period in order to simulate a unit hydrograph of this watershed.

- For the infiltration rate, the $\phi$ and W index methods will be used. The W index is a refinement of the $\phi$ index in that the time considered in the calculation of this index is the total time of the rainfall event.

- For each event the recession constant $K_r$ will be evaluated for the events selected .

- Unit hydrographs for the events will be obtained. The SCS Triangular Hydrograph analysis procedure will be used for further verification of the time of concentration for the available events.

## 2.3 Methodology

To achieve the above objectives, the rainfall and the runoff data taken from the measurement stations in Soreq basin will be analyzed. The analysis will consider the rainfall as input. The excess rainfall is determined by subtracting infiltration, which equals the direct runoff of the watershed. The rainfall and infiltration rates are assumed to be uniformly distributed over the basin.

The data is first analyzed to produce the IDF curves. Gumble distribution and the relation between short duration rainfall intensities and annual rainfall were both used to develop the IDF curves. Gumble distribution was used for its simplicity and publicity. It is the most used distribution for rainfall and runoff data analysis specialy for annual figures.

By summing up the rainfall increments through time, a cumulative rainfall hyetograph, or rainfall mass curve is produced. This curve is divided into intensity segments according to the slope differences, in order to determine the excess rainfall.

For the infiltration rate, the $\phi$ and W index methods will be used. The $\phi$ index is an average rate of infiltration derived from a time-intensity graph of rainfall in such a manner that the volume of rainfall in excess of this rate will equal the volume of rainfall runoff. On the other hand, the W index is a refinement of the $\phi$ index in that it excludes the surface storage and the retentions, and the time considered in the calculation of this index is the total time of the rainfall event.

Rainfall excess represents the fraction of rainfall which gives rise to the direct runoff hydrograph overland flow. The relation between the excess rainfall and the direct runoff was evaluated using the U.H. theory.

As a further analysis of the runoff hydrograph, the recession coefficient was found.

Recession curves often take the general form of

$$Q = Q_0 K_r^{\ t} = Q_0 e^{-\alpha t} \qquad (2.1)$$

Where $Q_0$ is the flow at any time, Q is the flow at any time later, $K_r$ is the recession constant which is less than unity, e is the napierian base, and $\alpha = -\ln K_r$.

The basic unit hydrograph is simply produced by dividing ordinates of the direct runoff hydrograph by the runoff depth (area under the direct runoff hydrograph expressed as an equivalent catchment depth). The Unit Hydrographs are developed for the different duration as per rain event.

It is desirable that more than one unit hydrograph be derived for a catchment in order that a more typical average unit hydrograph may be developed for application. In applying the basic unit hydrograph technique to produce composite direct runoff hydrographs from excess rainfall hyetographs the linearity principle is utilized.

# Chapter 3
# Literature review

## 3.1 Theoretical background

Some of the rainfall-runoff models are physically based using hydraulic equations whereas others use unit hydrographs or conceptual systems or a combination of these three techniques. When the appropriate hydrologic model has been selected, it can be used to predict possible hydrologic inputs to structural components of a water- resource system.

The design variables of the components or the number, location, and type of components can then be changed and the system performance evaluated so that the optimum solution can be found.

The real processes are quite complex, and the concepts combine and gloss over many different mechanisms. The *black box model* focuses upon inputs and does not deal explicitly with physical workings of the transformation process. This process may be described by a relatively simple, intuitive model (such as the rational method) or a complex, statistical time-series procedure. In both cases the model can be calibrated by establishing a statistical regression relationship between the rainfall input and the runoff output. The model has two parts; The *loss model* describes the removal or abstraction of "losses", those portions of the rainfall which are infiltrated or evaporated, and so are not directly converted to runoff. The remaining "rainfall excess" is then inputted to a routing

model, which describes the attenuation of flowrates due to the delays and storage effects which occur as runoff is concentrated and transported from various parts of the catchment. A *physical process model*, which is intended to represent real processes mathematically. This identifies and closely describes particular mechanisms, such as interception of rainfall on grass and leaves of trees. To allow for aerial distribution of flows, catchments can be divided into sub-catchments arranged as cascade or series, or as branched network. Human developments cause significant modifications to catchment surfaces and flow paths. Impervious areas reduce infiltration, thus increasing surface runoff and depleting sub-surface flows. (Haan, 1982)

Until the 18th century, drains and canals were designed by trial and error because there were insufficient information to derive methods to specify appropriate design flowrates. Progress came with the development of the Chezy channel friction formula in France in 1770s and the collection of the meteorological data in Europe in the early 19th century. In the 1840s the Mulvaneys developed the rational method for flow estimation, inventing a recording raingauge to measure intensities. From the design flowrates, a channel or pipe size could be established using hydraulic equations such as the Chezy or Manning formulae. For design of sewers in the 19th century, several formulae were derived to determine rates of stormwater runoff ingress. Empirical formulas of this type were developed from observations at particular locations, and some were published as general procedures. Since rainfall intensities were the main input, the method was portable to any location where rainfall data was available. (Haan, 1982)

The rational method allowed for catchment effects when selecting the time of concentration and runoff coefficient. It employed the formula :

$$Q = \frac{C.\ I.\ A}{360} \qquad (3.1)$$

where Q is the calculated flowrate ($m^3/s$), C is the dimensionless runoff coefficient, I is the rainfall intensity (mm/h) corresponding to a particular duration and average recurrence interval (ARI), and A is the area of the catchment involved (ha).

Associated with the rational method was the development of design rainfall data. As information accumulated, a strong relationship between intensity and storm duration became apparent. Talbot in the U.S. and others developed the intensity- duration-frequency (I-D-F) relationship which provided the basic probabilistic rainfall information for the rational method, and established a statistical basis for design, using the average recurrence interval or return period as the measure of frequency of failure.(Linsley, 1982)

Research on rainfall-runoff theory from the 1930s to the 1960s provided a strong foundation for the development of watershed hydrology. Notable advances included Sherman's unit hydrograph method (1932), synthetic unit hydrographs, Horton's infiltration theory, the development of time- area procedures, and the routing models. These were followed by the cascade reservoir model of Nash and Dooge's general theory of unit hydrographs. The Stanford Watershed Model of Crawford and Linsley, released in the late 1950s, was the first widely-used computer simulation program, influencing

many later models. In the sixties, studies were carried out on cascades and branched systems of reservoirs. In general design work, the major advance following the rational method was the development of computer models for drainage system design and analysis. The U.K. Transport and Road Research Laboratory (TRRL) Method, was introduced in 1963. It was widely used for design in the U.K. and became the basis for other models, notably ILLUDAS and ILSAX. Also of seminal importance was the Stormwater Management Model (SWMM) introduced in 1971, a comprehensive model combining hydrology with pollution transport modeling. (Geoffrey, 1996)

Progress continued in the seventies with notable developments being the application of kinematic wave theory to flows across planes (, analysis of catchment and urbanization effects. With the increasing importance of stormwater detention storage, methods of modeling detention basins were incorporated into hydrological methods and models. Several models applicable both to larger urban areas and rural areas were released in the 1970s, including HEC-1 (Hydrologic Engineering Center, 1981), TR55 (U.S. Soil Conservation Service, 1975), the Australian "runoff routing" models such as RORB (1995) and RAFTS (1996). These modeled effects of urbanization and systems of detention storages. Despite the success of rainfall-runoff models in providing a generally - accepted basis for design of infrastructure works, there are still limitations to the modeling of rainfall-runoff processes. (Geoffrey, 1996)

The major problems are described below:

1. *Insufficient Data* - The greatest limitation on urban hydrological models comes from the lack of data. The answers produced by designers are based on data which are often inadequate in accuracy and quantity. Shortage of data particularly limits the preparation of statistical estimates for design, where ten or more years of data is desirable. While rainfall data are frequently available for such periods, runoff records of this length are scarce. The required data are extreme and rare events, rather than the frequent storms which are sufficient to calibrate deterministic simulation models.

2. *Variability of rainfall inputs* - Simulation studies involving recorded storms usually display a very scatter when comparing model estimates of flow peaks and volumes to those actually recorded. Although errors may be due to faulty instruments and procedures, the most likely source of this scatter is rainfall variability. While most design procedures assume rainfall depths are uniform over a catchment, there is an evidence that depths are often quite variable, even over catchment smaller than 1 $km^2$.

3. *Insufficient temporal detail* - Urban stormwater flow simulation models frequently operate at 5 or 10 minute time steps, even though the response times for small sub-catchments may be less than 5 minutes. This practice occurs because design rainfall data are seldom available for shorter durations. In rational method design the lack of suitable I-D-F date below 5 minutes creates a barrier at this duration. The use of crude time steps effectively "pre-routes" the rainfall input data. The longer the time step, the more the averaging or blurring effect, and the lower the peak flows.

5. *Model incompatibility* - Models applied at the different catchment scales have usually developed independently, and it is very difficult to obtain consistent answers when

results from a number of small units are aggregated and compared with results from a single, large unit which includes them all.

Watershed hydrology over the last 15 years has been static, with no major theoretical steps forward being obvious. Hillslope processes have provided a useful direction in general hydrology, but they have had little application in urban areas. It appears that the need for information databases has diminished, and that improved communication vehicles such as internet have reduced the need for special information transfer programs. Models comparison no longer seems to be a vital issue. Rainfall problems are still important and difficult to resolve, and new issues such as stormwater infiltration for source control have arisen. For rural catchments, design flowrates or discharges are usually required only at the catchment outlet, to determine the size of a culvert or dam spillway. However, estimates are required throughout watershed drainage systems. Designers tasks commonly involve using models to determine appropriate flows and using more rigorous models to analyze systems where the components characteristics are fixed. A significant problem for many models, is the determination of the time of concentration. (Geoffrey, 1996)

### 3.1.1 Time of Concentration.

When a model is defined to characterize translation of precipitation as a function of time into rainfall excess, the only remaining process requiring characterization in order to simulate a runoff hydrograph concerns time lags associated with water flowing to the outlet. While this could theoretically be done by using rigorous hydrodynamic equations, the application of these boundary-value dependent equations to a natural watershed with its infinite flow patterns is clearly impractical. Instead, a single, conceptually simple parameter was introduced for the purpose of integrating all flow induced time delays. That parameter was the time of concentration, the time for runoff from the hydrologically most remote point in the watershed to flow to the outlet.

While a time of concentration parameter is conceptually straightforward, the assignment of a numeric value to a term which encompasses so many complex physical conditions of a watershed is subject to substantial inaccuracies. One of the first, and still most widely used, relationships proposed for use with ungaged watersheds was developed primarily for flow in well defined channels by C. E. Ramser.(Chow, 1964)

$$T_c = 0.02\, L_c^{0.77}\, S_c^{-0.385} \qquad (3.2)$$

where:

$T_c$ = time of concentration, min

$L_c$ = length of channel reach, m

$S_c$ = average slope of channel reach, m/m.

This relationship tends to correlate poorly with gauged runoff measurements of the time of concentration for very small (less than 5-sq. km.) catchments. This result should be expected since small catchments are dominated by overland (shallow) flow conditions rather than having a well defined network of channels. Kerby developed a flow travel time based upon an overland flow equation:

$$T_c = \left| \frac{2.2\, n\, L_o}{S_o^{0.5}} \right|^{0.467} \qquad (3.3)$$

Where:

$L_o$ = length of overland flow, m

$S_o$ = slope along that path, m/m

n = Manning-type roughness coefficient

When applied on a watershed scale, this overland flow phase effectively has a maximum travel time because erosion experiments and other field and laboratory investigations have consistently shown that overland flow conditions can seldom be maintained for a distance longer than 100-150 meters. Almost all surface runoff starts out not as channel flow, but as shallow flow over a surface. Thus, the equation recommended to compute a time of concentration is the sum of the above equations:

$$T_c = 0.02\, L_c^{0.77}\, S_c^{-0.385} + \left| \frac{2.2\, n\, L_o}{S_o^{0.5}} \right|^{0.467} \qquad (3.4)$$

Overland Flow Roughness Coefficients

(Chow, 1988)

| Surface | n |
|---|---|
| Smooth, impervious surface | 0.02 |
| Smooth, bare packed soil | 0.10 |
| Poor grass, cultivated row crops of moderately rough bare soil | 0.20 |
| Pasture or average grass | 0.40 |
| Deciduous timberland | 0.60 |
| Timberland with deep forest litter or dense grass | 0.80 |

For our watershed the value of n used is 0.19. (Azmon, 1992)

The second half of the above equation has a maximum value regardless of watershed

size because of the upper limits specified for $L_o$. On the other hand, as the size of a watershed increases the maximum length of channel flow, $L_c$, tends to continually increase. This implies that, as watershed size becomes large, the channel flow portion of the time of concentration equation will dominate the overall value. Thus, the above equation is recommended for all watersheds since it is more appropriate for small areas and is also entirely valid for large areas. (Hammer, 1981)

A couple of additional precautions relative to computing $T_c$ values for actual watersheds should be mentioned. First, it is necessary to determine the maximum travel time for water to move along any flow path to the outlet, not just the time or travel along the physically longest path. While these are often one and the same, for watersheds with more than one major tributary it may be necessary to calculate a travel time for more than one flow path in order to determine which has the longest travel time (because of different slopes and roughness values along each path). Secondly, it is not a correct procedure to break the channel flow reach into smaller segments and then sum the resulting travel times that could be computed by applying the channel flow part of the time or concentration equation to each channel segment. Instead, sum the total length along the channel and use the fall along the total channel length to compute the channel slope, $S_c$. This segmenting of a channel reach into small pieces and then adding travel times is not correct because or non-linearities in the $T_c$ equation.(Chow, 1964)

### 3.1.2 Choice of models

A model or a system as complex as a small watershed will describe individual components with varying detail. Some components may have a strong theoretical basis, whereas others are rather crude approximations. This is a natural part or model development. As we gain more knowledge about a particular component, we tend to replace the empirical, lumped models with physically-based distributed elements. There is a limit to this process, however, because theoretical, distributed formulations require

more input data and more computer time for simulation.(Rankivi, 1979)

In most situations there will be several alternative models that could be used. The choice of the best model depends to a large extent on the problem. Obviously the best model changes as the problem changes. Objective methods of choosing the best model have not yet been developed, so this choice remains a part or the art of hydrologic modeling. Dawdy and Lichty (1968) suggest four criteria that can be used to choose between alternative models:

1. **Accuracy** or prediction, 2. **Simplicity** of the model, 3. **Consistency** or parameter estimates, 4. **Sensitivity** of results to changes in parameter value.

Accuracy of prediction or system outputs is obviously very important. It is desirable that models developed by research be tested in such a manner that error statistics are known. All other factors being equal, the model with minimum bias and error variance would be superior. Simplicity refers to the number or parameters that must be estimated and the ease with which the model can be explained to clients or public bodies.(Viessman, 1989).

All other factors being equal, one should choose the simplest model. Consistency of parameter estimates is an important consideration in developing conceptual models using parameters estimated by optimization techniques. If the optimum values or the parameters are very sensitive to the particular period or record used, or if they vary widely between similar watersheds, the model will probably be unreliable. Finally, models should not be extremely sensitive to input variables that are difficult to measure.

Even though the above criteria are related, and obtaining an unambiguous ranking is impossible, they should be considered when a model is being chosen. In most situations there will be several alternative models that might be used. The final choice or the "best" model will depend on the problem, the resources available to the analyst, the time frame available, the input resources available, and experience. (Miller, 1977)

### 3.1.3 Rainfall-runoff models

The selection, analysis and use of recorded hydrographs for direct simulation purposes are reflected in variations of the unit hydrograph technique. This technique, which assumes a linearity of the transfer function, is computationally attractive and often sufficiently accurate. Unit hydrograph techniques may be applied to synthesize hydrographs either from recorded rainfall events or from specific return period storms extracted from intensity-duration-return period curves and hypothetical time distribution patterns. (Chow, 1988)

Catchments having appreciable channel storage effects, or subjected to short duration, high intensity rainfall, give rise to well-formed skewed bell-shaped flood hydrographs. For a given catchment the duration of the hydrograph tends to be relatively constant and independent of the storm duration. Peak flows tend to be proportional to the flow volume in excess of the baseflow. Recognizing the above characteristics of flood hydrographs, Sherman (1932) proposed the basis for the unit hydrograph theory. The unit hydrograph is defined as the hydrograph of direct runoff (runoff less baseflow) resulting from 1 unit of rainfall excess falling uniformly over the basin at a constant rate during a specified period of time. Application of this technique presupposes five assumptions:

1.Rainfall is spatially uniform over the drainage basin during the specified time period.

2. The rainfall rate is constant.

3.The time base of the hydrograph of direct runoff is constant.

4. Discharge at any given time, for the same time base, is directly proportional to the total amount of direct runoff.

5. The hydrograph reflects all combined physical characteristics of the given drainage basin.

In applying the technique, events selected for generation of the characterstic unit hydrograph should be single peak hydrographs resulting from widespread, high intensity storms of short duration. This is particularly necessary for smaller catchments whose hydrographs tend to replicate variations in rainfall intensity. In addition, the rainfall

duration must not exceed the time of concentraion of the catchment. With regard to assumptions inplicit in the theory, as set out above, the following general comments are germane to each condition in the order given:

1. In order to ensure reasonably uniform spatial distribution of rainfall, the catchment should not be too large. If the area exceeds approximately 5,000 $km^2$, it should be sub-divided into sub-basins with channel routing.
2. In order to satisfy the requirement of constant rainfall intensity, the rainfall duration should be short. This assumption is not necessary for the instantaneous unit hydrograph.
3. The base time of the direct runoff hydrograph is usually unknown and depends on the method of base flow separation used.
4. The proportionality of ordinates of the direct runoff hydrograph assumes the principle of linearity or superposition, i.e. that excess rainfall effects are additive.
5. The assumption that the hydrograph reflects the influence of catchment characteristics assumes a time invariance of the catchment. This means that the catchment is always assumed to behave in the same manner to a given rainfall event, independent of season, prior rainfall or, in the longer term, any hydrologically significant physical modifications. This assumption is particularly restrictive in small agricultural catchments.(Sherman, 1932)

### 3.2 Abstractions and climatic factors

For many watersheds, infiltration is the most important hydrologic component determining the shape of the runoff hydrograph from the area. The major controlling factors are: soil type, surface crusting, season of the year, antecedent moisture conditions, rainfall hyetograph and subsurface moisture conditions. Soil type is the prime factor to consider when modeling moisture infiltration. Soil typing is simply a classification scheme used to characterize certain physical properties of a particular soil. If the classification is accurately done, soils with similar physical characteristics will be

identified by the same type "name" regardless of geographic location. Thus, soils of the same type name should have similar infiltration characteristics. The second item affecting infiltration is surface crusting. Experiments have indicated the first few millimeters of the soil profile have a profound influence upon the rate at which water can infiltrate (Hammer, 1981). Any factor which affects the surface crust will have an influence upon infiltration. Three important subcategory factors are: cultural practices, the type of vegetation (because it protects the soil surface from raindrop impact) and rainfall intensity itself (because this has a strong bearing upon the size of raindrops that occur).

The average size of raindrops generally tends to increase with increasing rainfall intensity. Larger drops have a higher energy and tend to do more damage to the surface structure, thereby affecting the surface crust.

Season of the year has particularly marked effects on infiltration, not only because it affects vegetation, but because the presence or absence of frozen ground is critical. It is possible for frozen ground to have a non-zero infiltration rate. This rate depends on the nature of freezing, moisture content of the soil at the time it was frozen, soil type and other factors. Certainly freezing will normally drastically decrease the rate of infiltration, but some water will usually infiltrate.

The rate at which water infiltrates into the soil profile is highly dependent upon the moisture content present in that soil. Consequently, antecedent moisture conditions, i.e. the amount of moisture present at the beginning of a storm event, will greatly influence infiltration rates during that storm.

The rainfall hyetograph itself also influences infiltration properties. Soil at a particular moisture content has the capacity to infiltrate water at a certain rate. This is referred to as its infiltration capacity. However. it may well be that the rate of rainfall at that time is less than the infiltration capacity of the soil. Obviously, water cannot infiltrate into soil

faster than the rate at which it is being supplied. So even though a soil has a high infiltration capacity, the actual rate of infiltration may be limited by the rate at which water from rainfall and surface runoff from adjacent areas is coming onto the area. Therefore, unsteady rainfall rates during which the supply fluctuates below and above the infiltration capacity greatly complicate predictions of instantaneous infiltration rates. In our case here, W and Φ indices are used for the measurement of the infiltration rate throughout the rainfall events.

### 3.3 Manning Coefficient along Soreq stream

The analysis of a different series of measurements along Soreq stream over the decade 1971-1981 indicates that the values of *n* (Manning Coefficient) which are accepted in a cross-section are lower by an order of magnitude from those which are accepted for relatively long reaches. This conclusion is of importance for the determination of the Manning coefficient of roughness for the purpose of planning. The average surface flow in Soreq stream at Yesodot station amounted to 2.68MCM during the year's 1967/1968-1981/1982, about 2% of the rainfall on the catchment area. This is due to the quick percolation of rainfall and probably also to incipient stream flow into the semikarstic calcareous outcrops.

As a conclusion of the study; for the long reaches of the mountainous region there is an accepted coefficient in the range of 0.13-0.19. A possible explanation for these high values is given by the hydraulic conditions along the stream defined as follows: (1) the meanders along the stream; (2) the Rocky River bed including small pools and waterfalls. (3) Vegetation along the stream banks; (4) the accumulation of sewage sediment along the streambed. For the defined cross-sections in the mountainous region, the range of the Manning coefficient of roughness is 0.124-0.156, for the foothills it is 0.04-0.046. For our study case the value of manning coefficient will be taken as 0.19. (Azmon, 1992)

### 3.4 Percolation of sewage into Soreq watershed

A hydro-gecological study has been carried out on the percolation of the Jerusalem sewage flow in the Soreq stream (D. Gilad, 1981). The mean infiltration rate in the mountainous Karstic aquifer, along 28-km stream flow, has decreased from 9cm/day in 1972 to 5 cm/day in 1979. The two western outlets of the raw sewage system of Jerusalem, serving about 2/3 of the population, were constructed in 1962. The volume, which drained into the Soreq stream at the time of the study (1979), was at a rate of 12 MCM/year. For the year 2000, the expected sewage flow is about 21 MCM as shown in Table 1.

Since the beginning of the measurements the sewage discharge through the outlets had increased from 21.380 $m^3$/day in 1972 to 33,320 $m^3$/day in 1979. In 1995 the daily sewage discharge increased to about 57100 $m^3$. This amount is expected to reach an amount of 102600 $m^3$/day in the year 2000. Assuming that the measured discharges represent the sewage flow throughout the entire year, the annual increased volume would range from about 8 MCM to about 12 MCM respectively. Sewage losses in the mountainous region have decreased during the years. In the autumn of 1979 sewage losses reached 13% of the inlet discharge, namely 4440 $m^3$/day or 1.6 MCM /year. After reducing the evapotranspiration along 28 km of the stream flow, the annual infiltration volume is 1.25 MCM. Infiltration rate in the mountainous region has decreased from 9.4 cm/day in 1972 to 4.9 cm /day in 1979. The apparent reason is the accumulation of organic matter on the streambed.

As a summary of the above, considerable amounts of sewage water infiltrate along the Soreq stream. According to the measurements in 1979 the annual infiltration volume which percolated into the mountainous karstic aquifer is 1.25MCM app. The infiltration rate in this region has decreased from 9.4 cm/day in 1972 to 4.9 cm/day in 1979.

### 3.5 Intensity -Duration-Frequency relationships

One of the first steps in many hydrologic design projects, such as in urban drainage design. is the determination of the rainfall event or events to be used. The most common approach is to use a design storm or event that involves a relationship between rainfall intensity (or depth), duration, and the frequency or return period appropriate for the facility and site location. In many cases, the hydrologist has standard intensity-duration-frequency (IDF) curves available for the site and does not have to perform this analysis. However, it is worthwhile to understand the procedure used to develop the relationships. Usually, the information is presented as a graph, with duration plotted on the horizontal axis, intensity on the vertical axis, and a series of curves, one for each design return period. The intensity is the time rate of precipitation, that is, depth per unit time (mm/h or in/hr). It can be either the instantaneous intensity or the average intensity over the duration of the rainfall, The average intensity is commonly used and can he expressed as:

$$\mathbf{i = P/ T_d} \qquad (3.5)$$

where P is the rainfall depth (mm or in) and $T_d$ is the duration, usually in hours. The frequency is usually expressed in terms of return period, T, which is the average length of time between precipitation events that equal or exceed the design magnitude. When local rainfall data are available, IDF curves can be developed using frequency analysis. A commonly used distribution for rainfall frequency analysis is the Extreme Value Type 1 or Gumbel distribution . For each duration selected, the annual maximum rainfall depths are extracted from historical rainfall records, then frequency analysis is applied to the annual data. These calculated values are plotted for each return period against the storm duration on a log-log paper to produce the required IDF curves for this watershed.

# Chapter 4
# Data availability and analysis

## 4.1 Precipitation

### 4.1.1 Introduction

The input to most hydrologic models is precipitation. The proposed use of a hydrologic model dictates the needed detail and complexity of precipitation input. Economic considerations usually determine whether the desired sampling detail is actually achieved. For example, data from a single standard raingage may be sufficient to determine average annual or seasonal rainfall on a small watershed. A network of recording gages is needed to describe the variation of precipitation in time and space. Data from a network of recording gages may be needed to estimate flood peaks, erosion, and sedimentation from individual events, or spatial variability of runoff production. Other hydrologic measurements, like temperature, humidity, solar radiation, evapotranspiration, and antecedent soil moisture, may be needed as well as precipitation for accurate water balance calculations.

Rainfall data for this study was obtained from data recorded in the meteorological stations Beit Meir and Beit Jamal during the study duration 1994/1995 - 1995/1996. Rainfall events were distributed throughout the months October until April. The data from Beit Jamal station was used in the rainfall - runoff analysis because the data available from Beit Meir station was only daily data. Rainfall data measured at Beit Jamal station is shown in Appendix 3.

Average daily rainfall data during the study period is shown in Appendix 8 and Fig.4 for Beit Meir and Beit Jamal stations. This data was analyzed in order to obtain the monthly rainfall distribution and the monthly rainfall percentage annually.

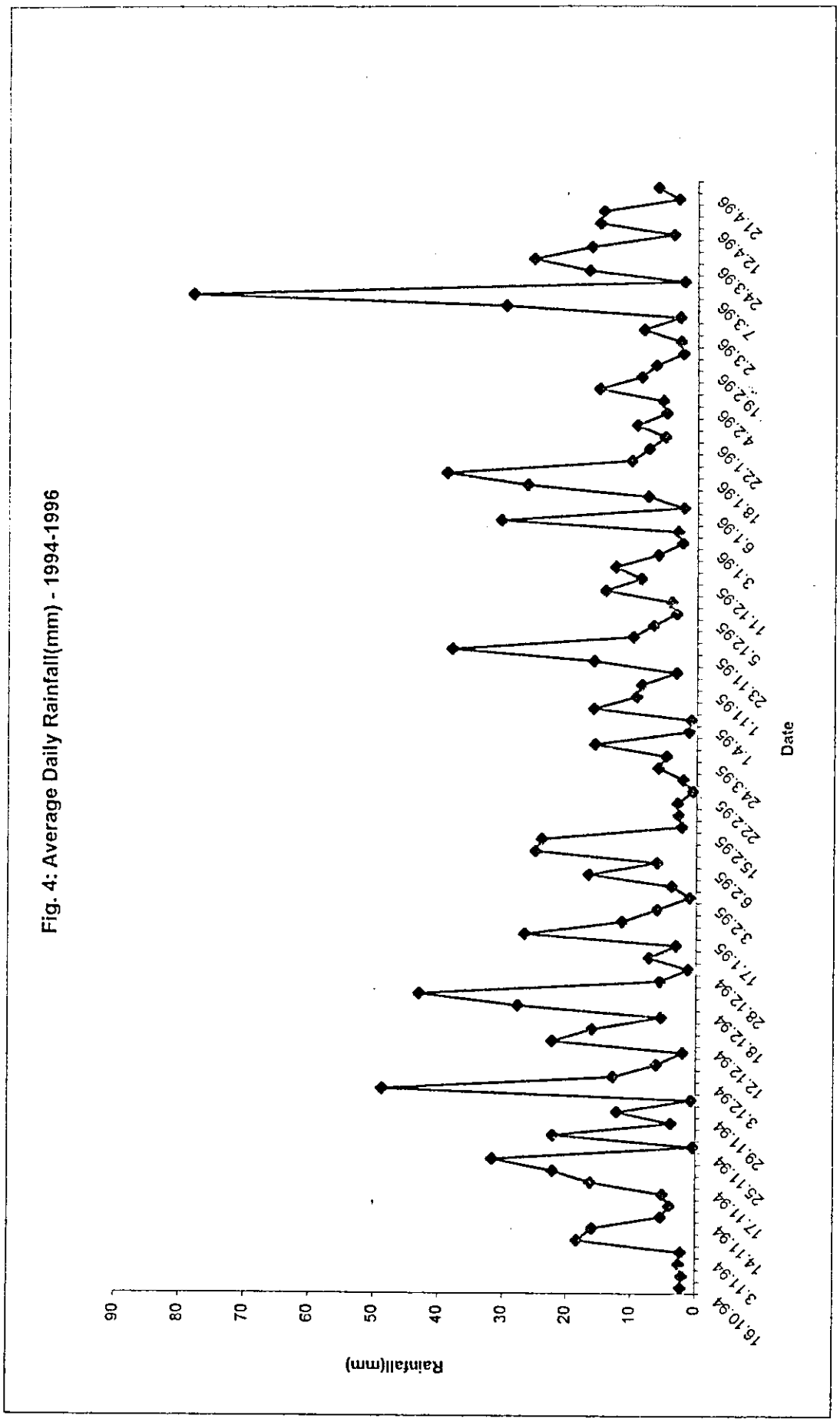



Fig. 4: Average Daily Rainfall(mm) - 1994-1996

During the 1994/1995 winter the average depth of the annual rainfall measured at the above-mentioned stations was 617mm (average annual rainfall over the Soreq Stream watershed is about 600 mm (1951-1980). 0.8% of the rainfall (4.8 mm) fell in October1994, 34.7% (214.2 mm) in November, 34.2% (211.1 mm) in December, 7.1% (44.1 mm) in January, 13% (80.3 mm) in February, 5.3% (32.6 mm) in March, and 4.9% (30 mm) in April 1995 as shown in Appendix 9 and Fig.5.

During the 1995/1996 winter the average depth of the annual rainfall measured at the above-mentioned stations was 570.4 mm. No rainfall fell in October1995, 13.2% (75.5 mm) in November, 9.8% (56 mm) in December, 28.1% (160.4 mm) in January, 7.6% (43.1 mm) in February, 35.9% (205 mm) in March, and 5.3% (30.5 mm) in April 1996 as shown in Appendix 9 and Fig.6.

### 4.1.2 Extreme Value Distributions

The study of extreme hydrologic events involves the selection of a sequence of the largest or smallest observations from sets of data. For example, the study of peak flows uses just the largest flow recorded each year at a gauging station out of the many thousands of values recorded. Since these observations are located in the extreme tail of the probability distribution of all observations from which they are drawn (the parent population), it is not surprising that their probability distribution is different from that of the parent population. There are three asymptotic forms of the distributions of extreme values, named Type I, Type II, and Type III, respectively. Gumble distribution is used for its simplicity and publicity. It is the most used distribution for rainfall and runoff data analysis specialy for annual figures.

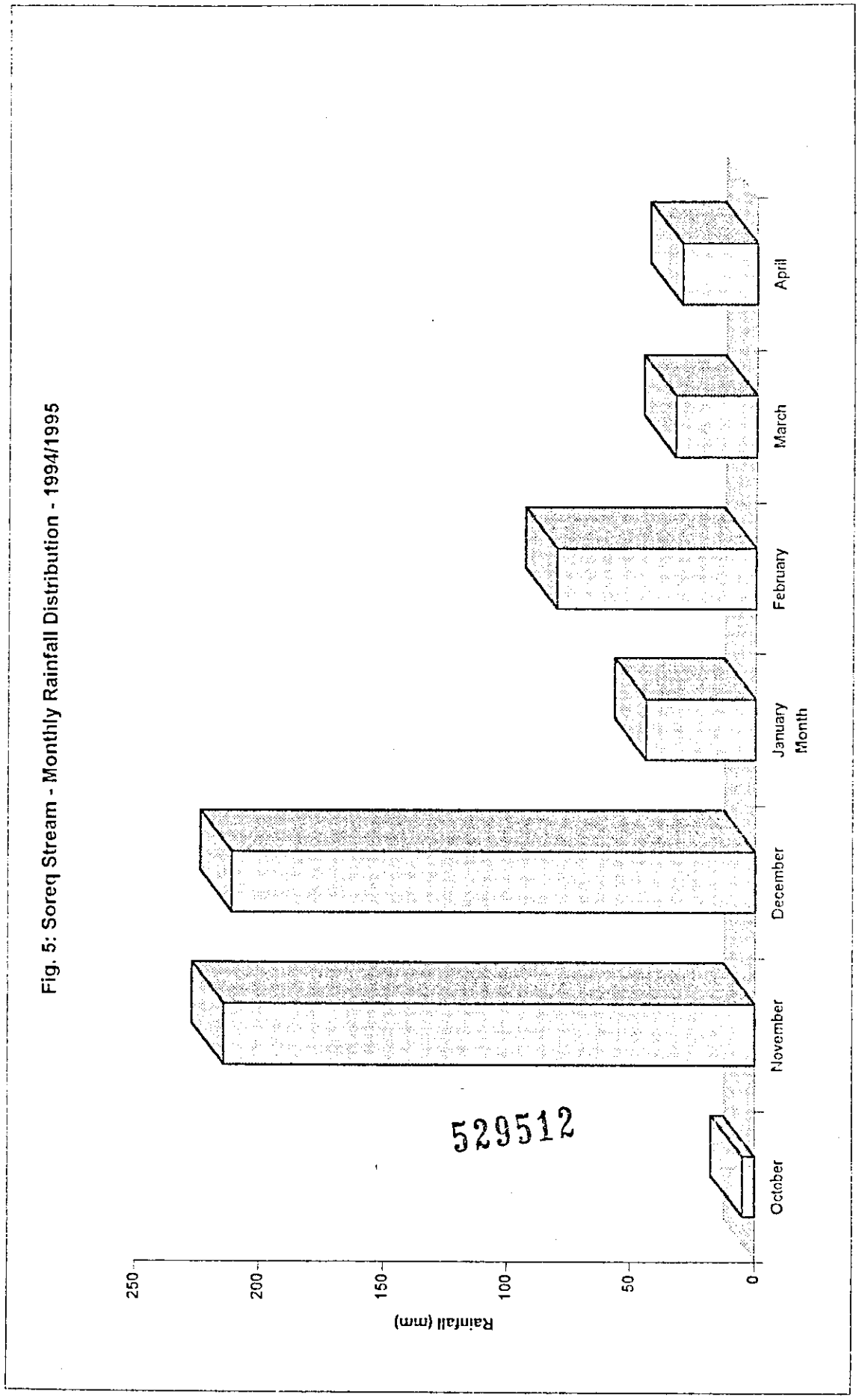
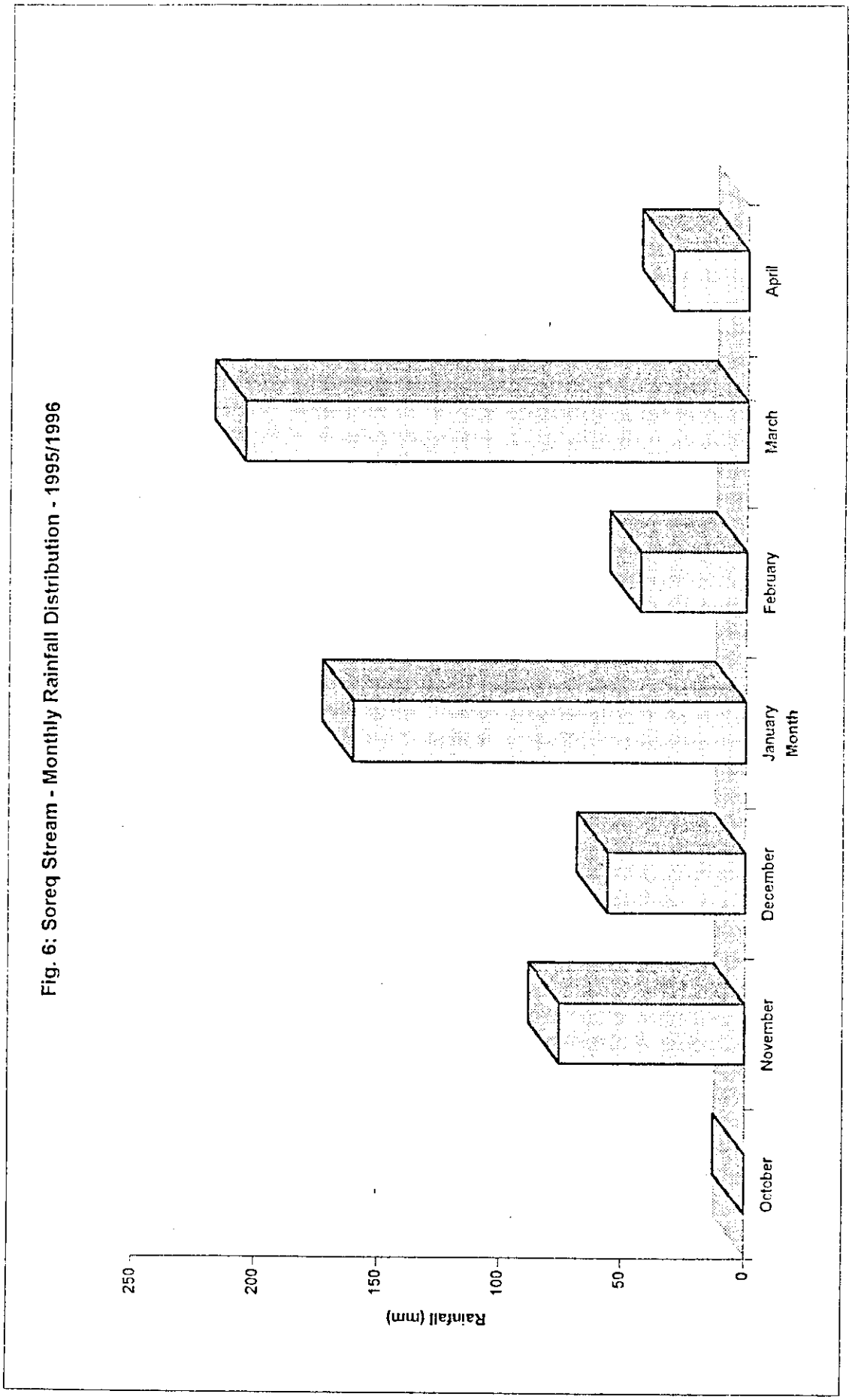



Fig. 5: Soreq Stream - Monthly Rainfall Distribution - 1994/1995



The Extreme Value Type I (EVI) probability distribution function is:

$$F(x) = \exp\left[-\exp\left(\frac{-x - u}{\alpha}\right)\right] \quad (4.1)$$

The parameters are estimated as

$$\alpha = \frac{[(6)^{0.5}]}{\pi} * s \quad (4.2)$$

$$u = \bar{x} - 0.5772\alpha \quad (4.3)$$

The parameter **u** is the mode of the distribution (point of maximum probability density).

A reduced variate **y** can be defined as:

$$y = \frac{x - u}{\alpha} \quad (4.4)$$

Substituting the reduced variate into F(x)

$$F(x) = \exp\left[-\exp(-y)\right] \text{ ; Solving for } y: \quad (4.5)$$

$$y = -\ln\left[\ln\left(\frac{1}{F(x)}\right)\right] \quad (4.6)$$

The probability of occurrence of an event in any observation is the inverse of the return period :

$$P(X \geq x_T) = 1/T \quad (4.7)$$

$$1/T = 1 - P(x < x_T)$$

$$= 1 - F(x_T), \text{ So } F(x_T) = \frac{T - 1}{T} \quad (4.8)$$

and, substituting into $y_T$

$$y_T = -\ln\left[\ln\frac{T}{T - 1}\right] \quad (4.9)$$

For the EVI distribution , $x_T$ is related to $y_T$ by:

$$x_T = u + \propto y_T \quad (4.10)$$

For the Extreme Value Type I distribution, Chow (1953) derived the expression

$$K_T = -\frac{[(6)^{0.5}]}{\pi} * \left(0.5772 + \ln\left[\ln\frac{T}{T - 1}\right]\right) \quad (4.11)$$

And,

$$x_T = \bar{x} + K_T s \quad (4.12)$$

Extreme value distributions have been widely used in hydrology. They form the basis for the standardized method of flood frequency analysis in Great Britain (Natural Environment Research Council.1975). Stream rainfalls are most commonly modeled by the Extreme Value Type 1 distribution (Beard, 1962).

### 4.1.3 Application of Gumbel distribution

For Beit Meir station, the average and the standard deviation for each set of data of specified return period were determined. These values were substituted in the above equations of the Gumbel distribution. As shown in Appendix 10, the average annual rainfall depth for 5 min. storm duration was found to be 41.67 mm with a standard deviation of 13.91mm. The average annual rainfall depth for 10 min duration was 29.06 mm with a standard deviation of 10.52mm. The average annual rainfall depth for 15 min duration was 20.47 mm with a standard deviation of 8.34mm. The average annual rainfall depth for 20 min duration was 16.06 mm with a standard deviation of 7.48mm. The average annual rainfall depth for 30 min duration was 11.06 mm with a standard deviation of 7.46mm. The average annual rainfall depth for 50 min duration was 4.06 mm with a standard deviation of 5.43mm.

Using frequency analysis, for the rainfall data available for each station, IDF curves were developed by using the Extreme Value Type 1 (Gumbel distribution). Frequency analysis was applied to the annual maximum rainfall depths extracted from historical rainfall records for each return period. These values are shown in Tables 2 and Table 3 for Beit Meir and Beit Jamal stations.

Figures 7 and 8 show this information by presenting it on a log-log paper graph, with duration plotted on the horizontal axis, intensity on the vertical axis, and a series of curves, one for each design return period. These calculated values of $x_T$ are plotted for each return period against the storm duration to produce the required IDF curves for this watershed.

**Table 2: Beit Meir station**

**Design max.precipitation intensities(mm/hr) for various durations and return periods**

**Duration (min)**

| Return period(yr) | 5 | 10 | 15 | 20 | 30 | 50 |
|---|---|---|---|---|---|---|
| (T=2) | 39.38 | 27.33 | 19.10 | 14.83 | 9.83 | 3.16 |
| (T=5) | 51.68 | 36.62 | 26.48 | 21.43 | 16.42 | 7.96 |
| (T=10) | 59.82 | 42.78 | 31.36 | 25.81 | 20.79 | 11.14 |
| (T=25) | 70.10 | 50.56 | 37.53 | 31.33 | 26.30 | 15.15 |
| (T=50) | 77.73 | 56.33 | 42.10 | 35.43 | 30.39 | 18.13 |
| (T=100) | 85.30 | 62.06 | 46.65 | 39.50 | 34.46 | 21.09 |

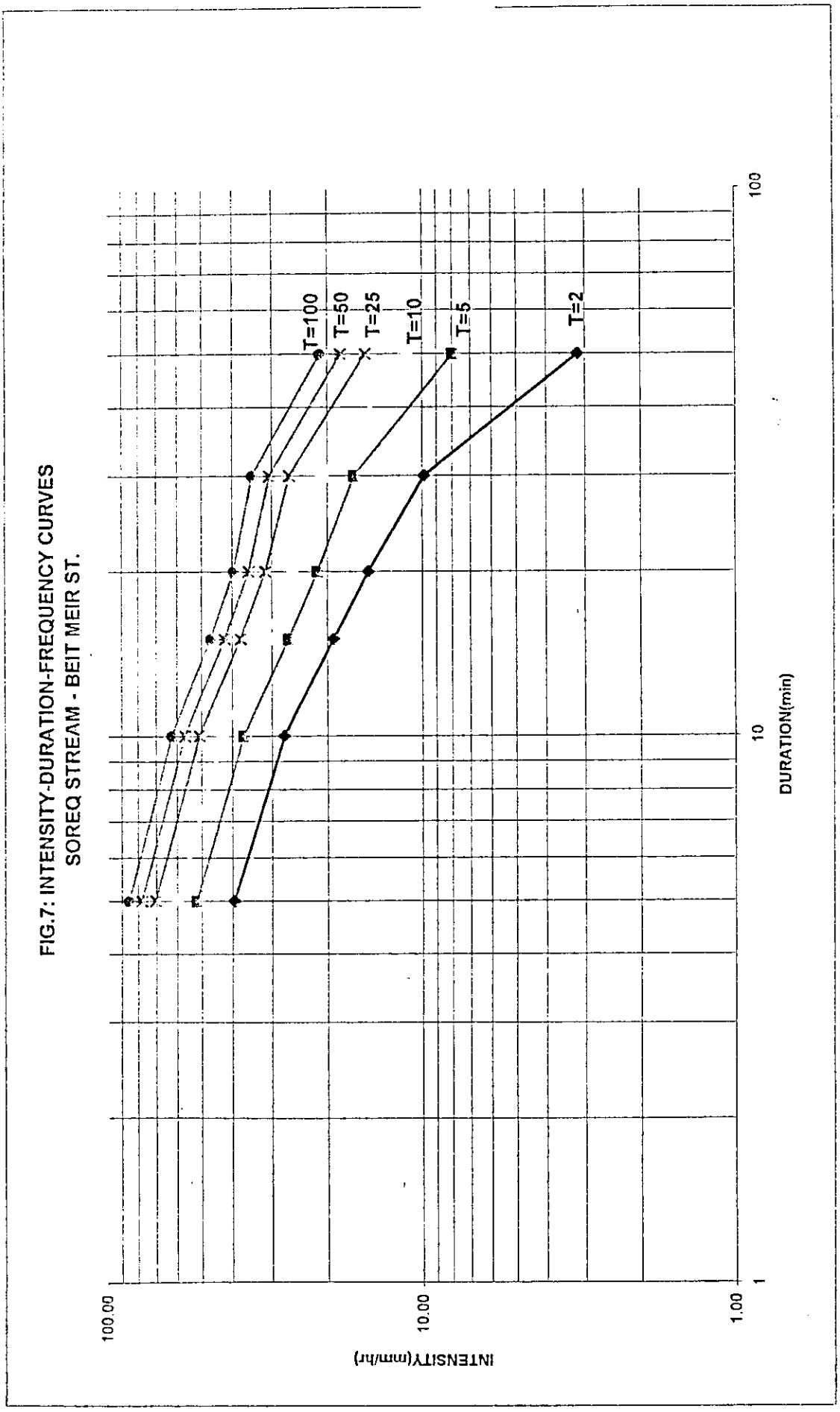
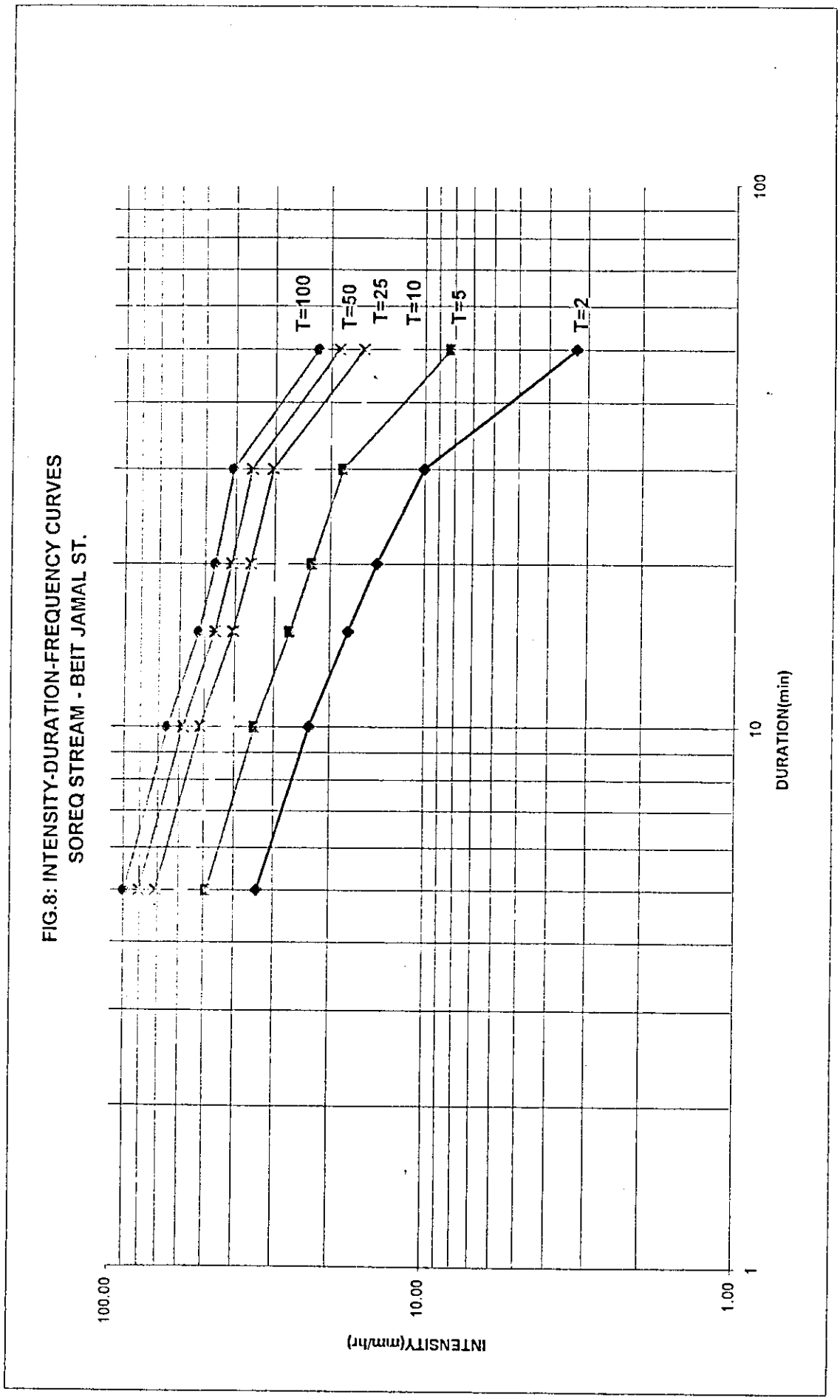


**Table 3: Beit Jamal station**

**Design max.precipitation intensities(mm/hr) for various durations and return periods**

**Duration (min)**

| Return period(yr) | 5 | 10 | 15 | 20 | 30 | 50 |
|---|---|---|---|---|---|---|
| (T=2) | 33.76 | 23.13 | 17.45 | 14.17 | 10.01 | 3.26 |
| (T=5) | 48.62 | 34.34 | 26.65 | 22.75 | 18.18 | 8.23 |
| (T=10) | 58.46 | 41.77 | 32.74 | 28.43 | 23.59 | 11.52 |
| (T=25) | 70.89 | 51.15 | 40.44 | 35.61 | 30.42 | 15.68 |
| (T=50) | 80.12 | 58.11 | 46.16 | 40.94 | 35.49 | 18.76 |
| (T=100) | 89.27 | 65.02 | 51.82 | 46.22 | 40.52 | 21.82 |



## 4.2 Runoff

### 4.2.1 Introduction

Surface runoff is that portion of precipitation which during and immediately following a storm event, ultimately appears as flowing water in the drainage network of a watershed. Such flow may result from direct movement of water over the ground surface, precipitation in excess of abstraction demands, or it may result from emergence of soil water into drainage ways.

A stream flow or discharge hydrograph is a graph or table showing the flow rate as a function of time at a given location on the stream.In effect, the hydrograph is "an integral expression of the physiographic and climatic characteristics that govern the relations between rainfall and runoff of a particular drainage basin"(Chow, 1964).

### 4.2.2 Runoff Hydrograph

For convenience it has been customary to consider the total flow to be divided into only two parts: direct runoff and base flow. Runoff data at the catchment outlet was obtained from the hydrometric station of the Israel Hydrological Service at Hartov as shown in Appendix 4. The sewage flow which is the flow measured at Hartov station during the dry periods along the Soreq stream is considered as a base flow all along the study. The sewage flow along the stream was considered as a base flow and was subtracted from the total runoff to obtain the measured direct runoff hydrograph. The measured amounts of sewage at the watershed outlet are shown in Appendix 2. These data show that the average flow during 10-12/1994 was 0.042 $m^3$/sec or 3665 $m^3$/day, while during 1-12/1995 the average flow was 0.054 $m^3$/sec or 4686.1 $m^3$/day. During 1-4/1996 the average flow was 0.05 $m^3$/sec or 3910.6 $m^3$/day . This can show that considerable amounts of sewage water infiltrate along the Soreq stream.

A typical hydrograph resulting from an isolated period of rainfall consists of a rising limb, crest segment, and a falling limb, or recession. The shape of the rising limb is influenced mainly by the character of the storm which caused the rise. The point of inflection on the falling side of the hydrograph is commonly assumed to mark the time at which surface inflow into the channel system ceases. Thereafter, the recession curve represents withdrawal of water from storage within the basin. Recession curves often take the general form of

$$Q = Q_0 K_r^{\ t} = Q_0 e^{-\alpha t} \qquad (4.13)$$

Where $Q_0$ is the flow at any time, Q is the flow at any time later, $K_r$ is a recession constant which is less than unity, e is the napierian base, and $\alpha = -\ln K_r$.

From the runoff data, four representative events were analyzed for the rainfall-runoff modeling. These rainfall events are shown in Appendix 11, and the runoff events are shown in Appendix 12.

These events are also shown in the following figures:

Event 1: Fig. 9a. (Rainfall data), Fig. 9b (Runoff data).

Event 2: Fig. 10a. (Rainfall data), Fig. 10b (Runoff data).

Event 3: Fig. 11a. (Rainfall data), Fig. 11b (Runoff data).

Event 4: Fig. 12a. (Rainfall data), Fig. 12b (Runoff data).

For each event as shown in the above tables, the area under the direct runoff hydrograph ($V_d$) is calculated for the derivation of the excess rainfall. Excess rainfall ($r_d$) is calculated by dividing the area under the direct runoff hydrograph by the area of the study area which is 167 $km^2$. These values are shown in Appendix 12 for the different events.

On the other hand, for each event the recession constant $K_r$ is evaluated as shown in Appendix 14. The average value of this constant for the above events is 0.9925.

Rainfall mass curve in the above events as shown in figures 9a, 10a, 11a, and 12a is divided into intensity segments according to the slope differences in order to obtain the effective rainfall intensity for the calculation of the effective rainfall and losses for each event as shown Appendix 13 for the above events.

### 4.2.3 Abstractions and climatic factors

For many watersheds, infiltration is the most important hydrologic component determining the shape of the runoff hydrograph from the area. The major controlling factors are: soil type, surface crusting, season of the year, antecedent moisture conditions, rainfall hyetograph and subsurface moisture conditions. In our case here, W and Φ indices are used for the measurement of the infiltration rate throughout the rainfall events as shown in table 4.

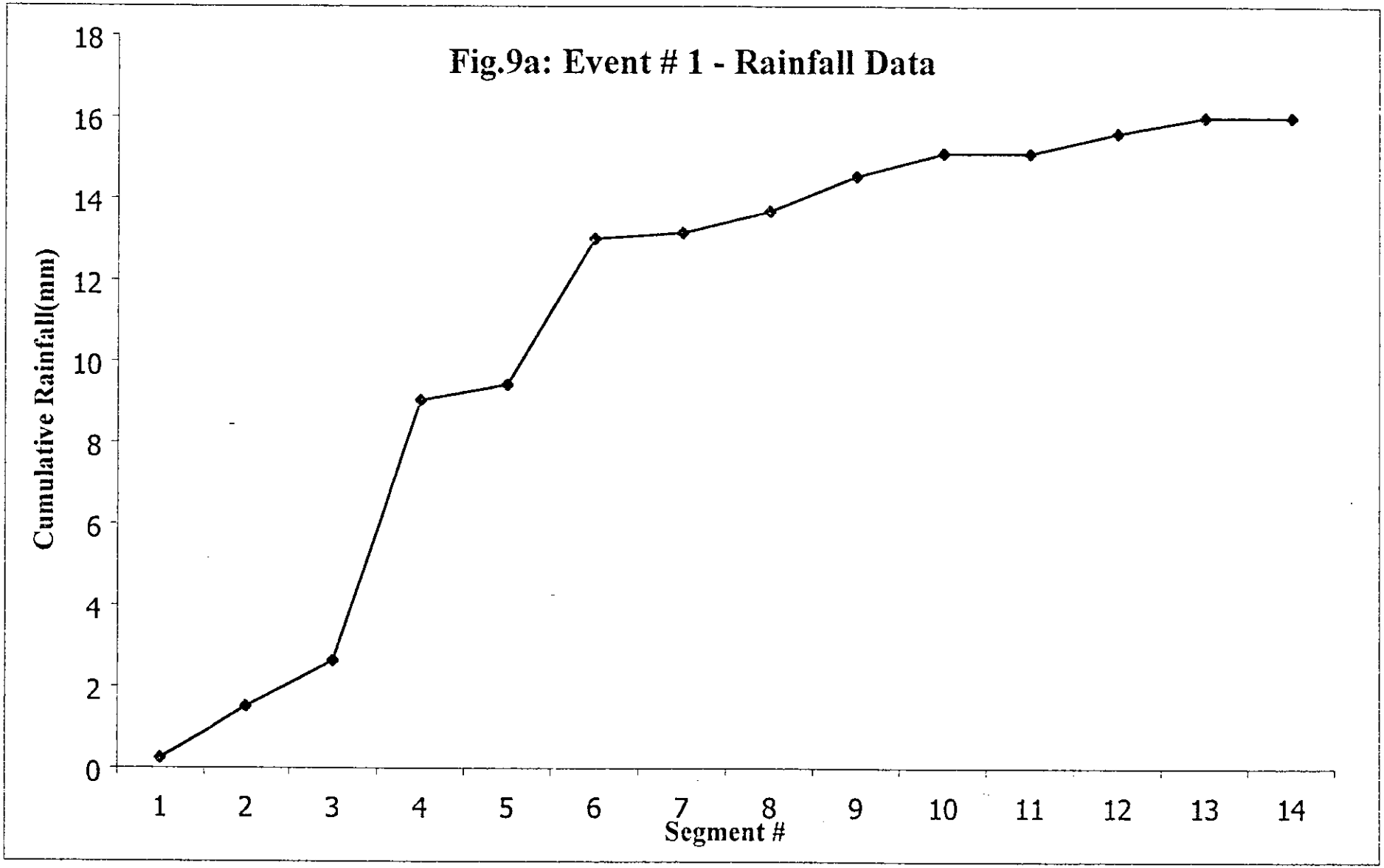
For each event, the values of total rainfall, maximum rainfall intensity, its duration (Dt), and total event duration (Total Dt) are taken from Appendix 13. The value of excess rainfall ($r_d$) is taken from Appendix 11.

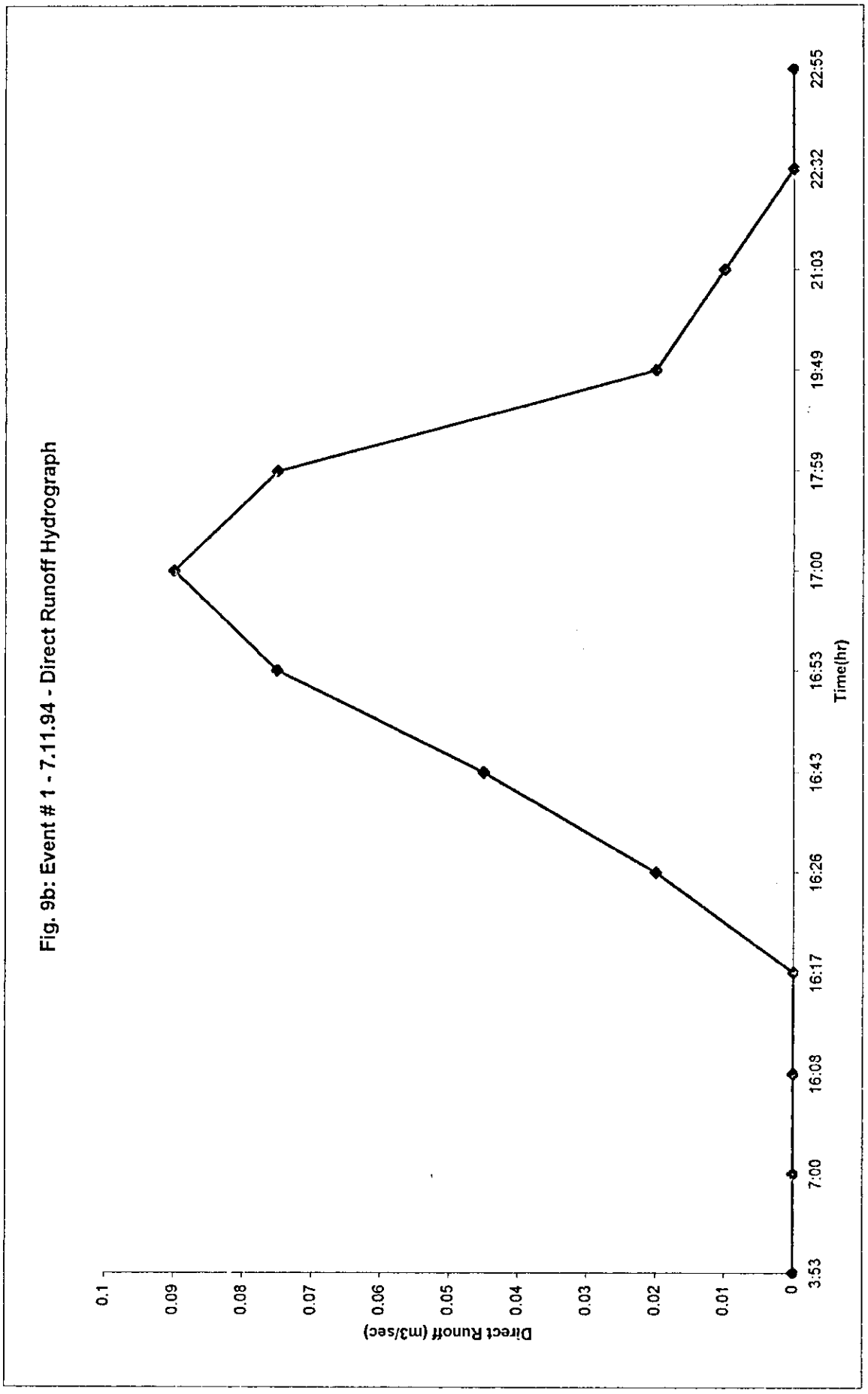
Excess rainfall (Effective) = (Max. Intensity - Φ ) * Dt
Where, Effective rainfall intensity = Max. Intensity - Φ
Get Φ = Max. Intensity – (Excess rainfall / Dt)
Runoff Coefficient = (Effective rainfall intensity * Dt) / Total rainfall
Total Losses (mm) = Total rainfall - Excess rainfall
W index (mm/hr) = Total Losses / Total Dt

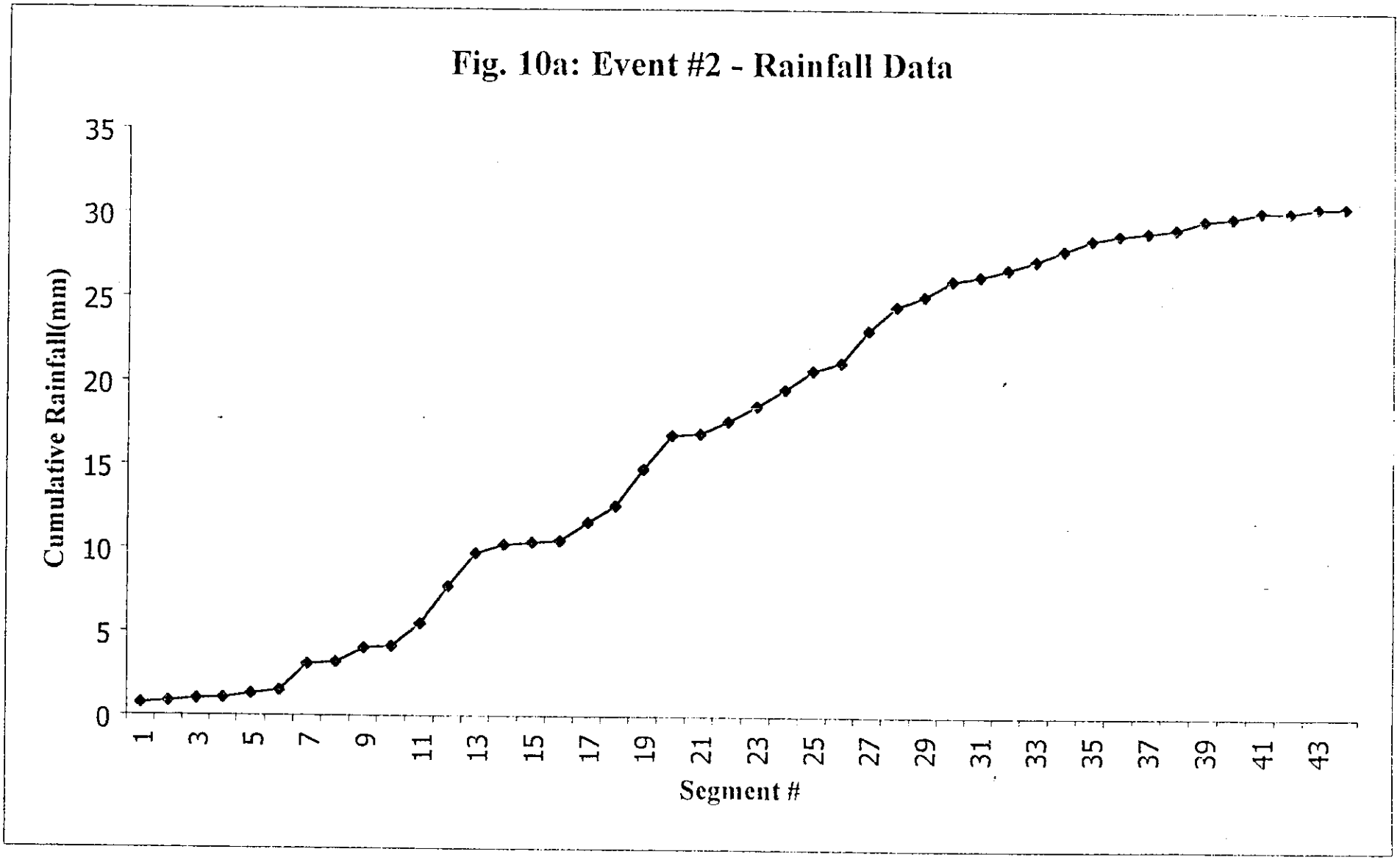
Daily Evaporation data during 1994/1995 is shown in Appendix 4, and during 1995/1996 is shown in Appendix 5. Daily maximum and minimum temperature data during the period 1994/1995 is shown in Appendix 6, while data for 1995/1996 is shown in Appendix 7. Evaporation and temperature data were obtained from Atarot station and

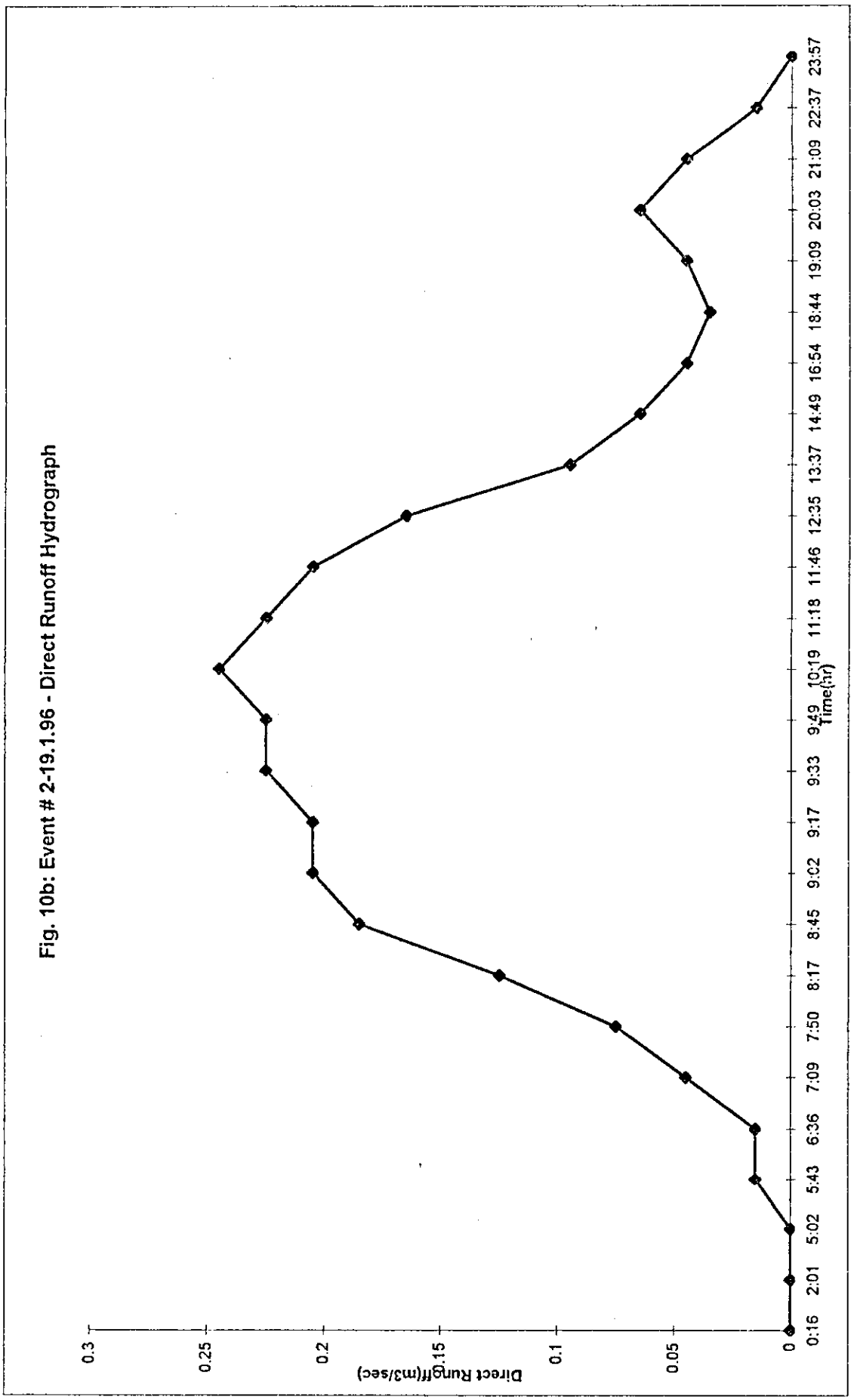
maximum temperatures, minimum temperatures and measured average monthly evaporation during that period are shown in Table 5. Figures 13 and 14 show the average daily maximum and minimum temperatures measured at Beit Jamal station during the period 1994/1995 and 1995/1996. On the other hand, figures 15 and 16 show the average daily evaporation measured at Atarot station in the above period.

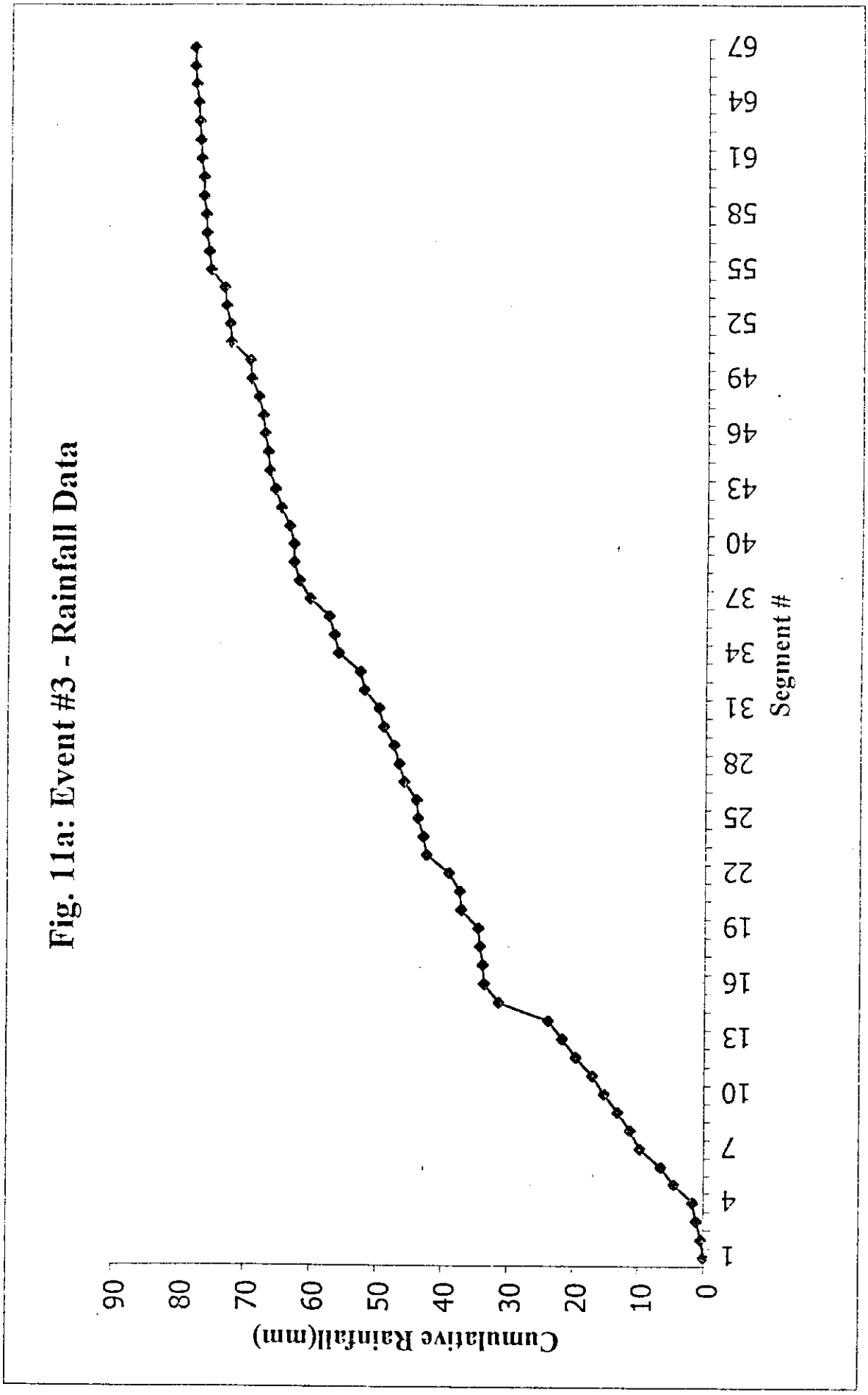
During this study, the losses taken into consideration are considered mainly as the infiltration losses. This is due to the fact that evaporation losses are very small compared to the infiltration losses. On the other hand, the method used for separating the losses includes the total losses. i.e. both evaporation and infiltration losses. For this reason, evaporation was considered in estimating the total losses.











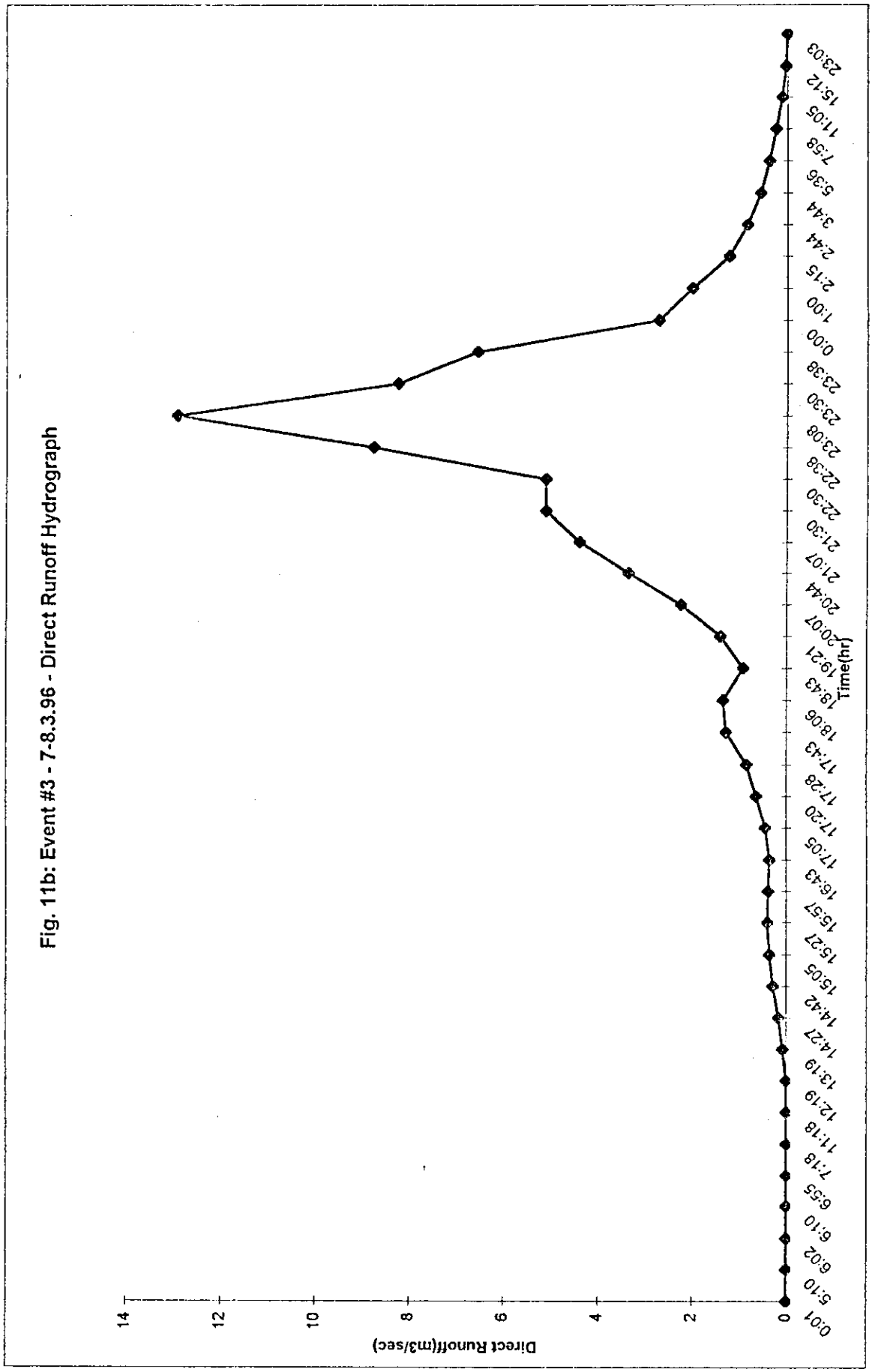
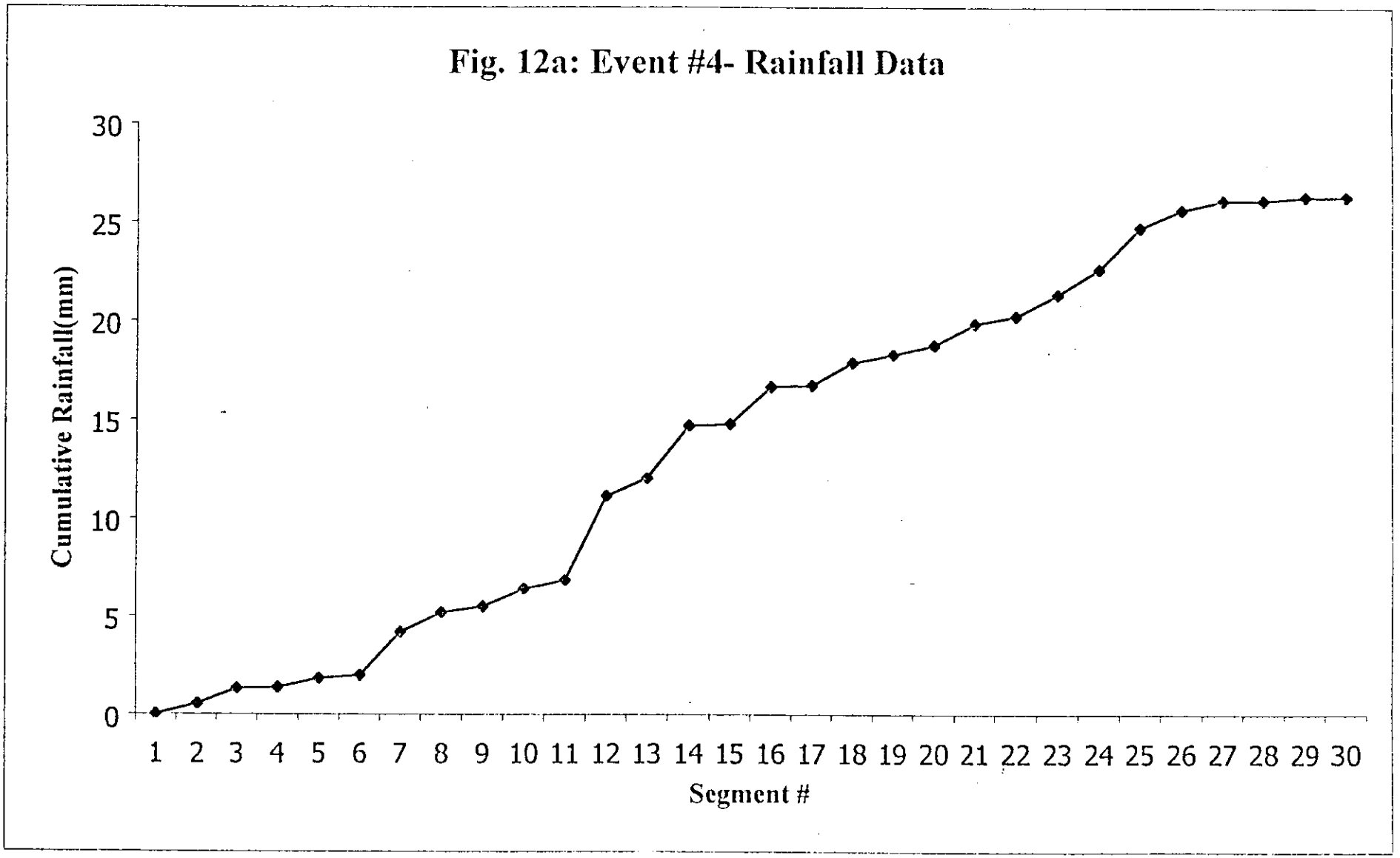



Fig. 11b: Event #3 - 7-8.3.96 - Direct Runoff Hydrograph



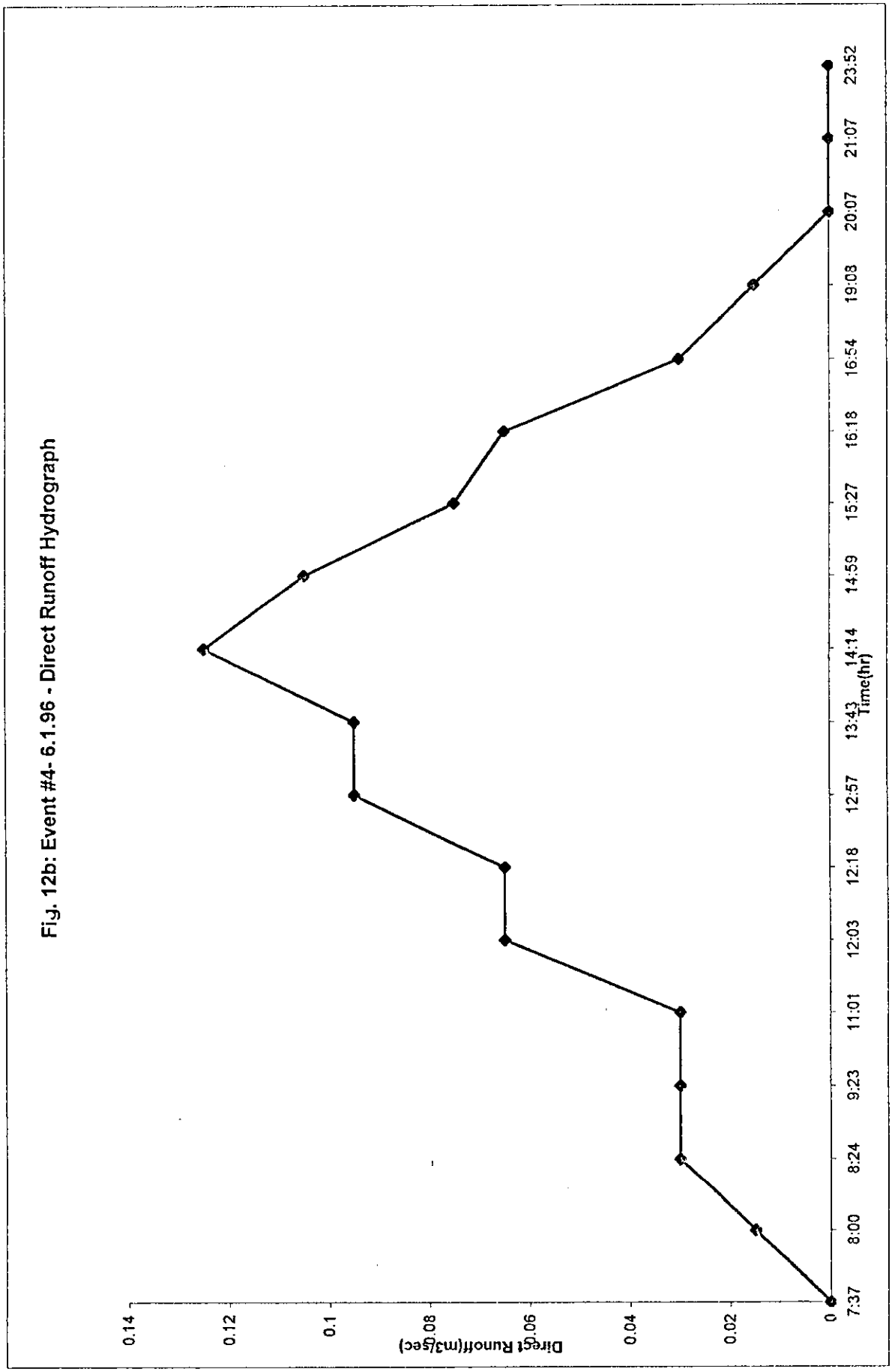



Fig. 12b: Event #4- 6.1.96 - Direct Runoff Hydrograph

# Table 4: Infiltration Indices Computation

| | Total rainfall | Φ index | Eff. Intensity | Eff. Dt | Eff.Rain | Runoff | Total Dt | Total Loss | W index |
|---|---|---|---|---|---|---|---|---|---|
| | (mm) | (mm/hr) | (mm/hr) | (hr) | (mm) | Coeff.% | (hr) | (mm) | (mm/hr) |
| **Event # 1** | 16.86 | 27.81 | 0.021 | 0.23 | 0.00483 | 0.0286 | 4.67 | 16.86 | 3.61 |
| **Event # 2** | 30.51 | 17.26 | 0.115 | 0.3 | 0.0345 | 0.1131 | 16.86 | 30.48 | 1.81 |
| **Event # 3** | 76.7 | 8.25 | 0.164 | 4.84 | 0.79376 | 1.0349 | 16.29 | 75.91 | 4.66 |
| **Event # 4** | 26.29 | 13.74 | 0.0232 | 0.57 | 0.013224 | 0.0503 | 8.76 | 26.28 | 3.00 |
| **Average** | | **16.77** | **0.08** | | | **0.3067** | | | **3.27** |

Table 5: Average monthly Temperature and Evaporation

| Month | Max. Temperature $^0C$ | Min. Temperature $^0C$ | Evaporation (mm) |
|---|---|---|---|
| 9.94 | 32.9 | 21.1 | 5.94 |
| 10.94 | 31.1 | 20.1 | 4.26 |
| 11.94 | 20.1 | 13.2 | 2.27 |
| 12.94 | 15.7 | 8.5 | 1.69 |
| 1.95 | 16.4 | 8.7 | 1.83 |
| 2.95 | 17.1 | 9.2 | 2.13 |
| 3.95 | 20.2 | 10.3 | 3.45 |
| 4.95 | 23.5 | 11.8 | 4.78 |
| 5.95 | 28.1 | 15.0 | 6.60 |
| 9.95 | 32.0 | 19.9 | 6.24 |
| 10.95 | 27.8 | 16.8 | 4.33 |
| 11.95 | 21.9 | 12.8 | 3.06 |
| 12.95 | 18.0 | 10.1 | 1.67 |
| 1.96 | 16.4 | 9.20 | 1.78 |
| 2.96 | 18.2 | 9.60 | 2.54 |
| 3.96 | 18.3 | 9.70 | 3.1 |
| 4.96 | 23.1 | 11.9 | 4.34 |

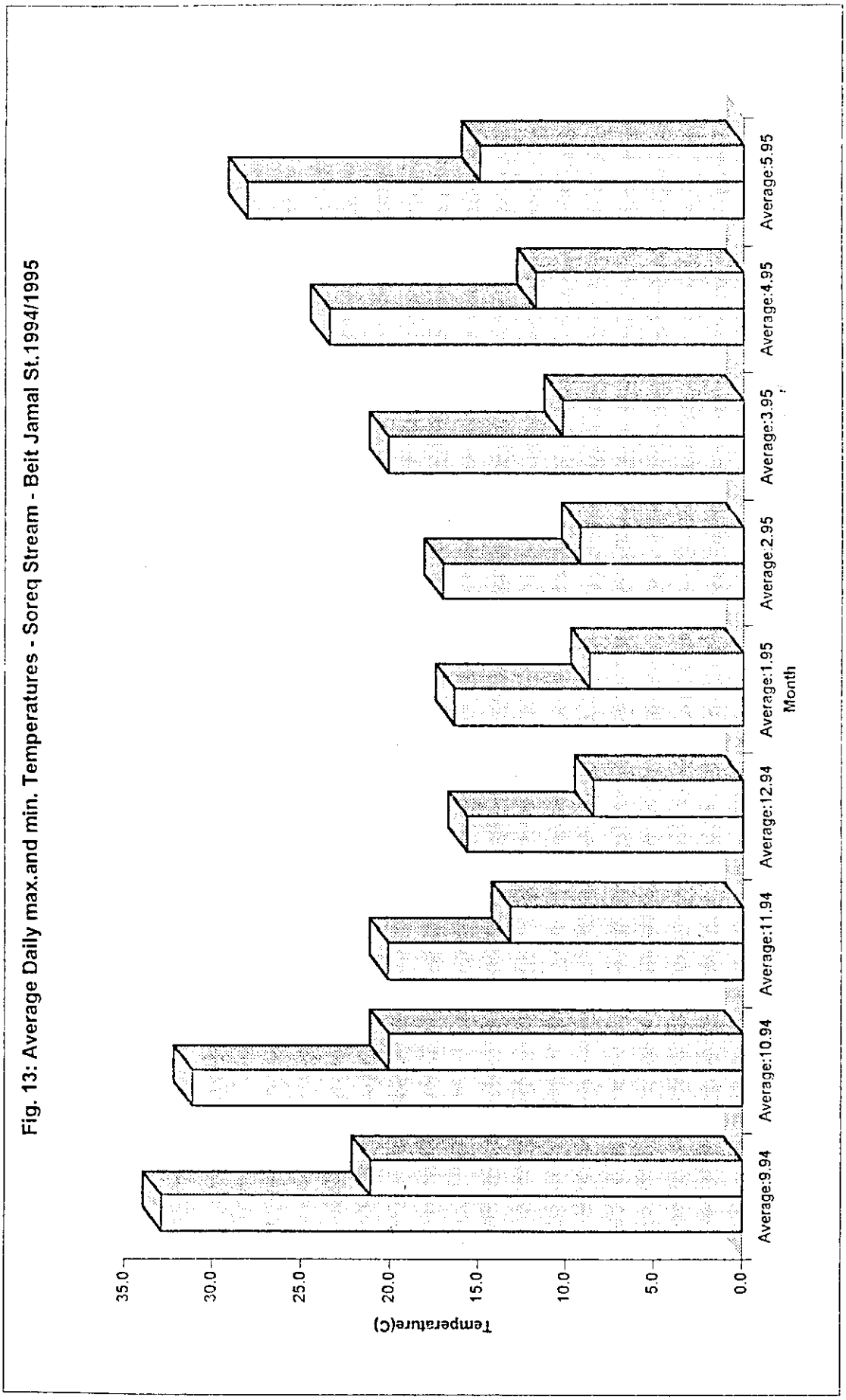



Fig. 13: Average Daily max.and min. Temperatures - Soreq Stream - Beit Jamal St.1994/1995

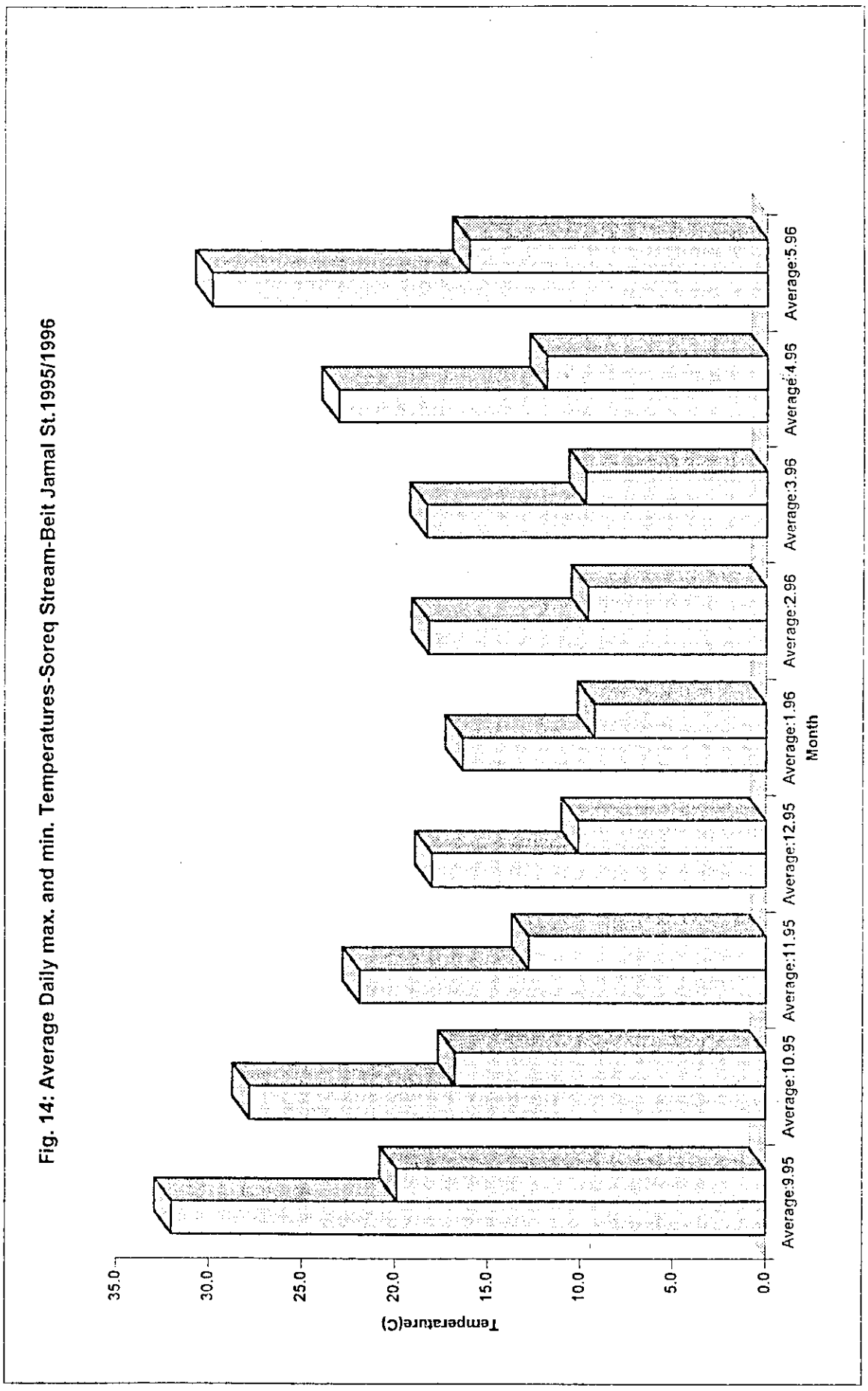
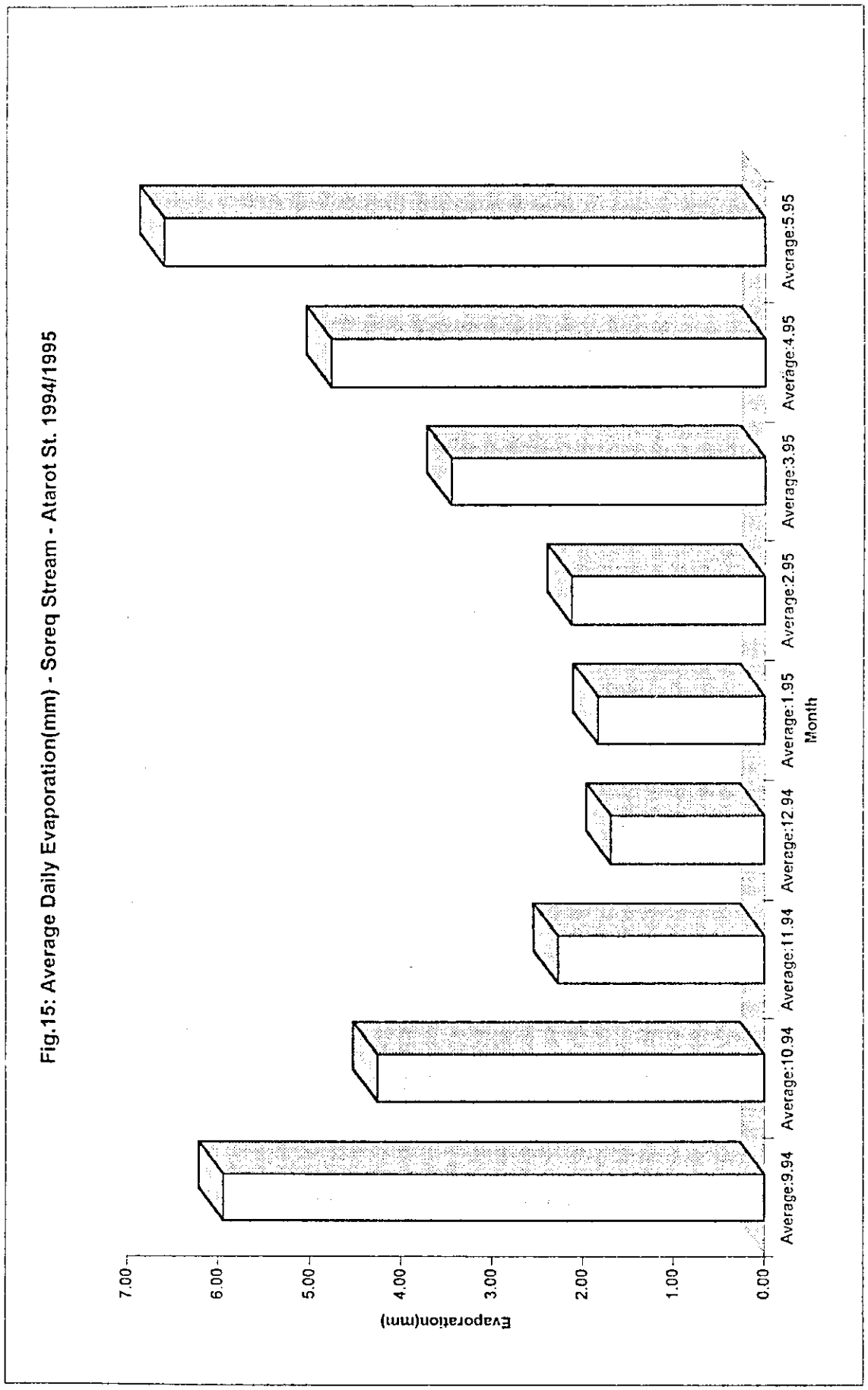



Fig. 14: Average Daily max. and min. Temperatures-Soreq Stream-Beit Jamal St.1995/1996



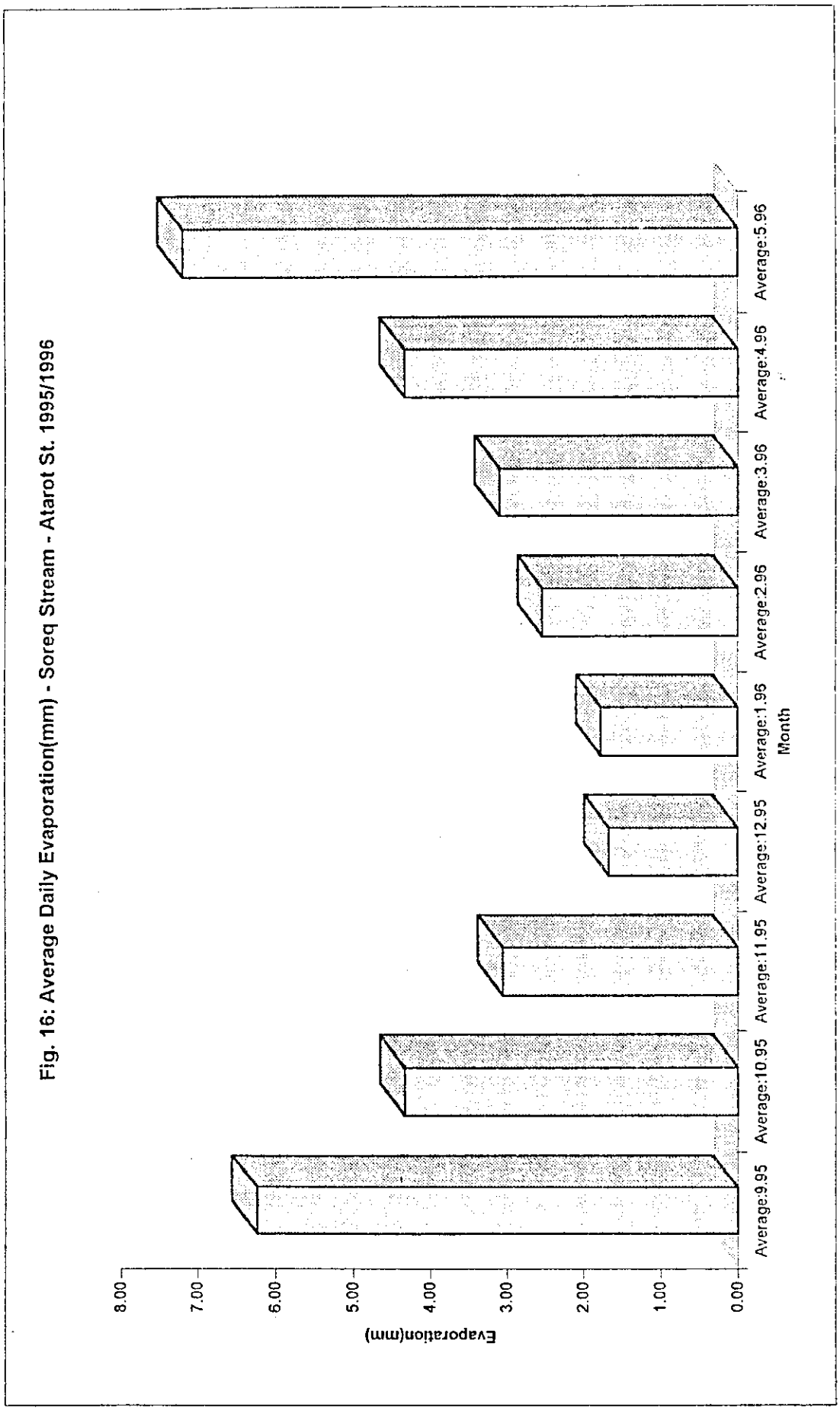



Fig. 16: Average Daily Evaporation(mm) - Soreq Stream - Atarot St. 1995/1996

# Chapter 5
# Rainfall-Runoff models

## 5.1 Introduction

The unit hydrograph technique which assumes a linearity of the transfer function, is computationally attractive and often sufficiently accurate. Unit hydrograph techniques may be applied to synthesize hydrographs either from recorded rainfall events or from specific return period storms extracted from intensity-duration-return period curves and hypothetical time distribution patterns.

## 5.2 Unit Hydrograph

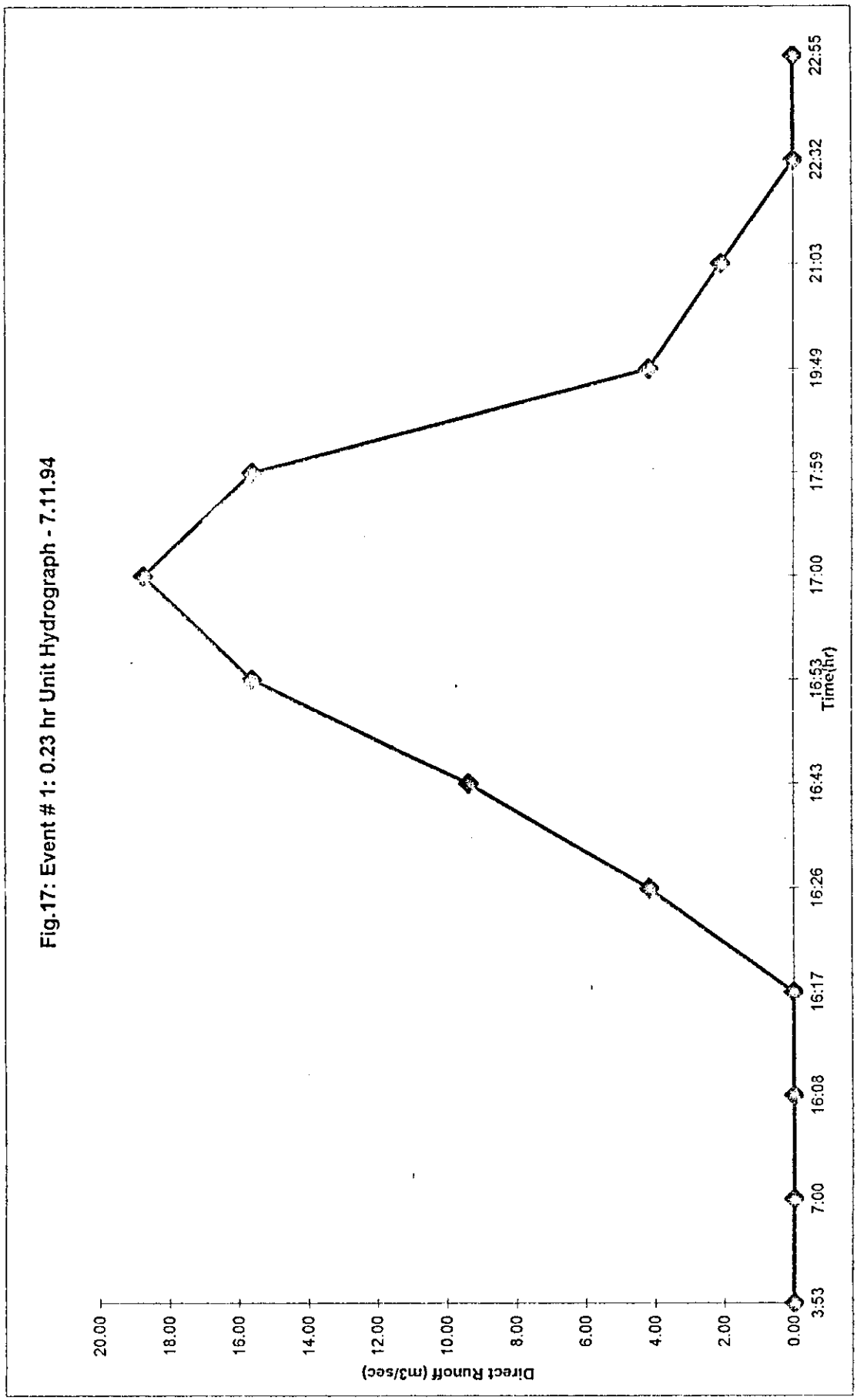
### 5.2.1 Introduction

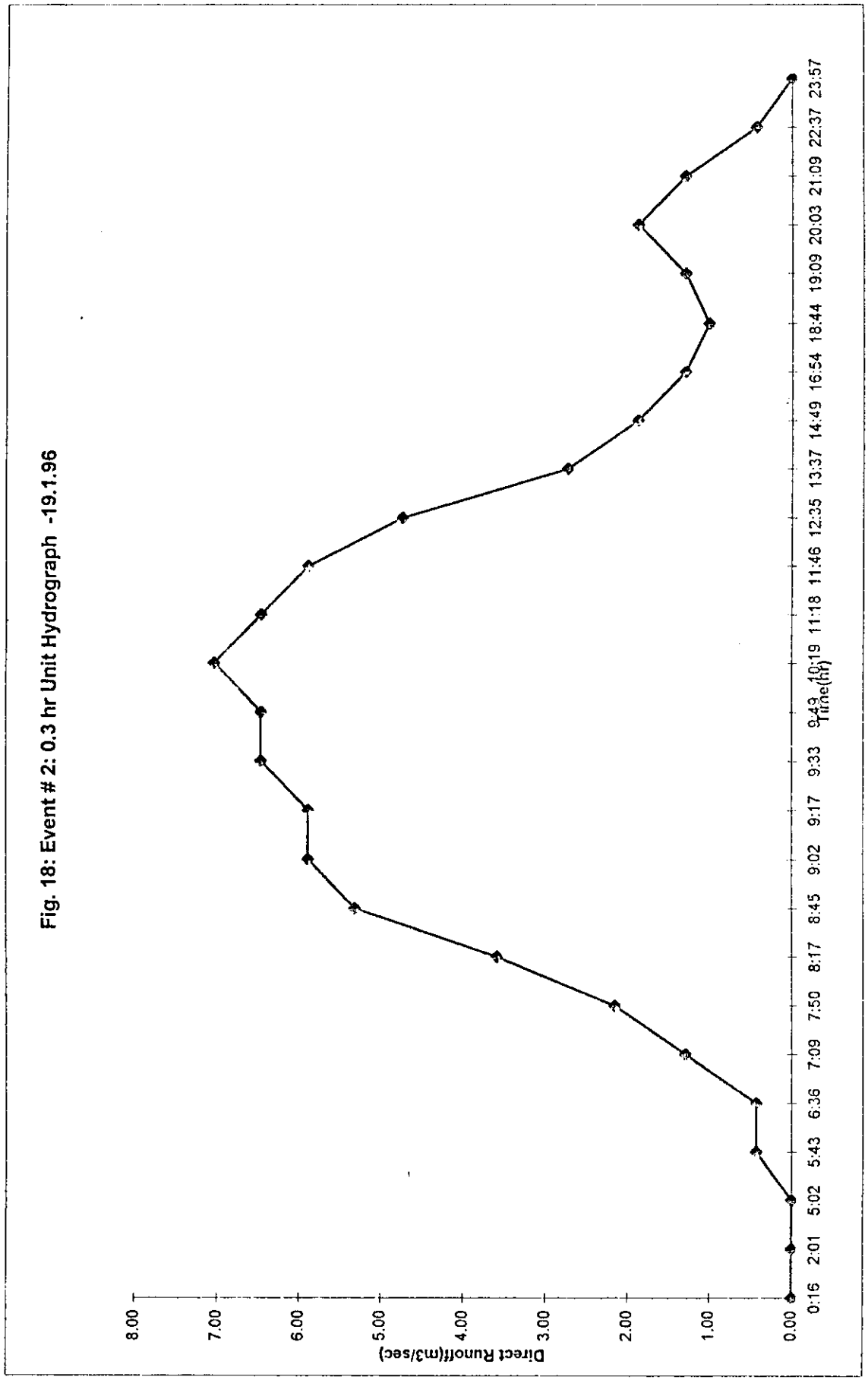
The unit hydrograph is defined as the hydrograph of direct runoff (runoff less baseflow) resulting from 1 unit of rainfall excess falling uniformly over the basin at a constant rate during a specified period of time. Having selected a recorded discharge hydrograph and the concomitant rainfall hyetograph for analysis, it is necessary to separate out the rainfall excess hyetograph and the direct runoff hydrograph prior to establishing the unit hydrograph.

### 5.2.2 Model application

For the selected events, the values of the direct runoff are divided by the excess rainfall obtained in the runoff analysis. The depth of the direct runoff in the unit hydrograph is checked by dividing the total volume by the area of the watershed studied and found to be 1.00mm as required.

These calculations for each event are shown in Appendix 15 . Unit hydrographs for these events are shown in figures 17, 18, 19, and 20. Each unit hydrograph of the above events have a different base time. For this reason it was difficult to apply the S curve method for the evaluation of an average unit hydrograph.





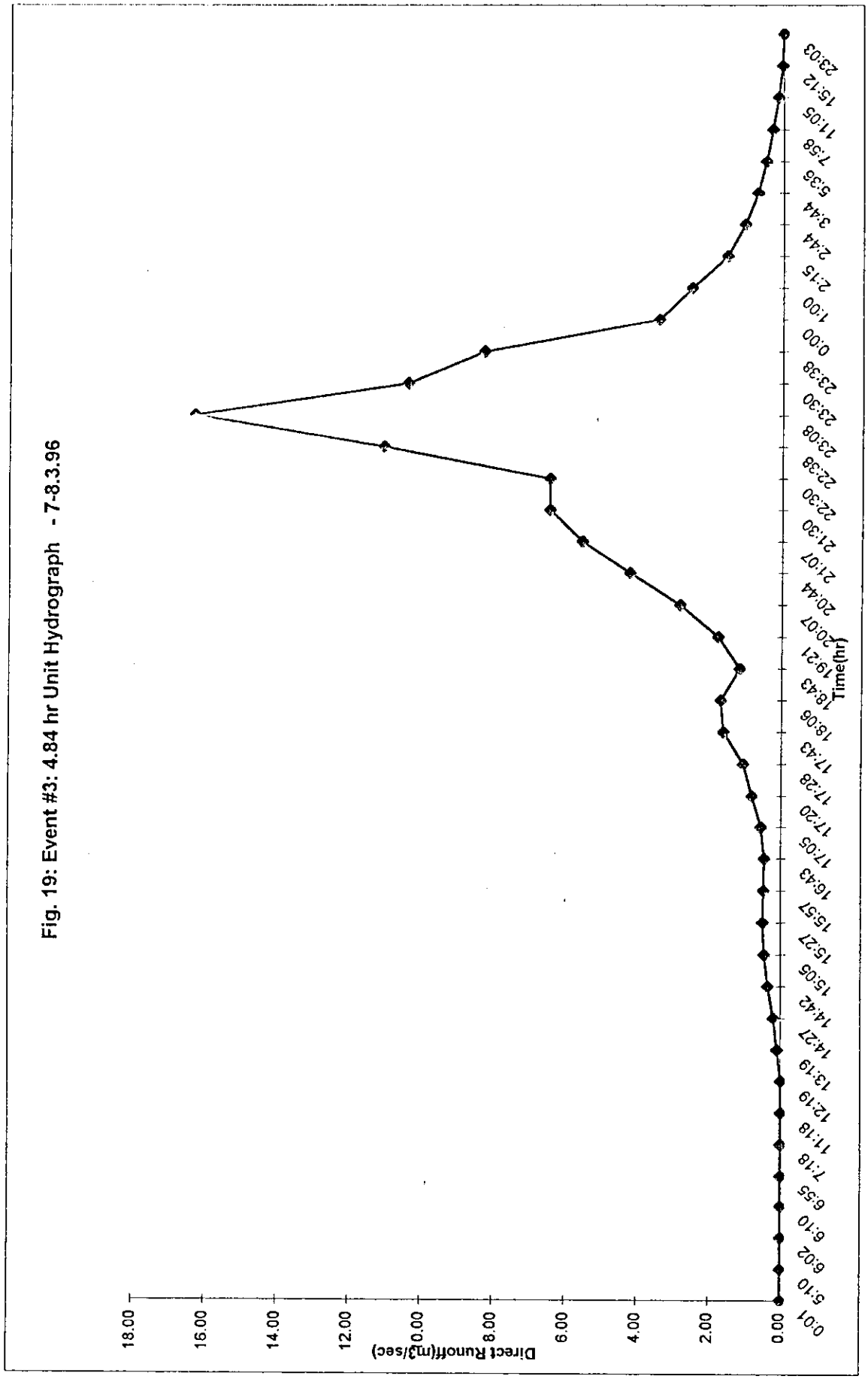



Fig. 19: Event #3: 4.84 hr Unit Hydrograph - 7-8.3.96

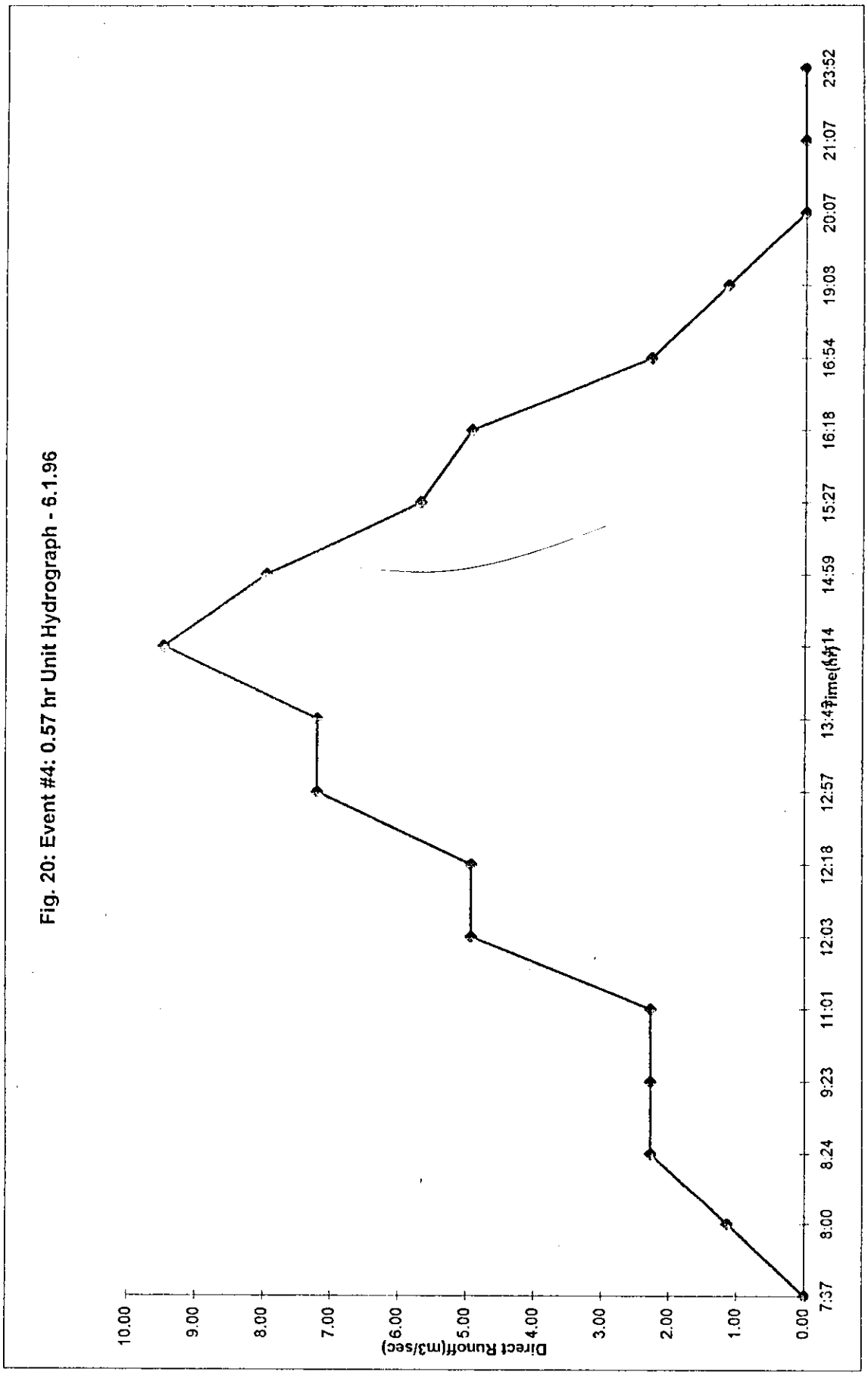



Fig. 20: Event #4: 0.57 hr Unit Hydrograph - 6.1.96

## 5.3SCS (Triangular) Synthetic Hydrograph

### 5.3.1 Introduction

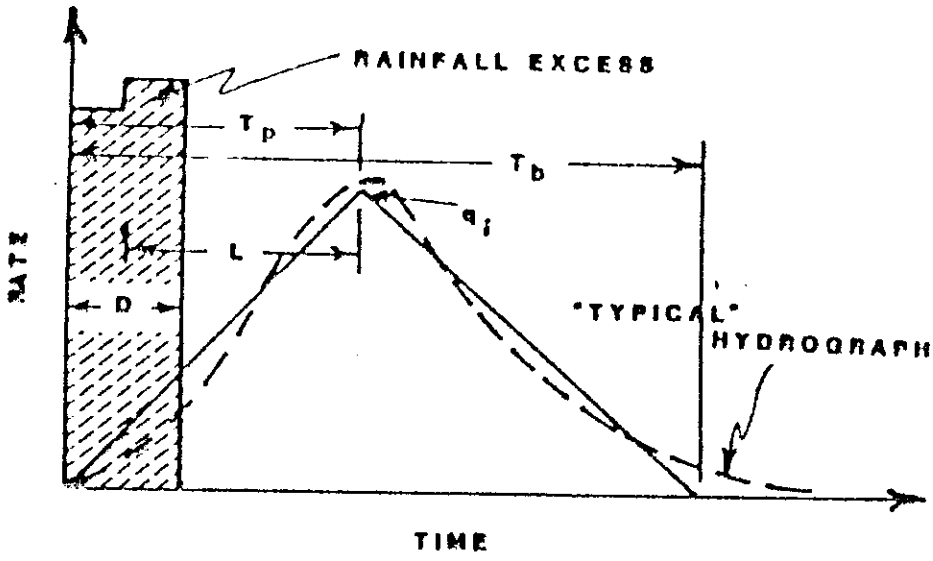
For many catchments, rainfall and concomitant runoff recordings do not exist, or the small size of the catchment makes difficult the application of unit hydrograph techniques described above. Chow (1964) provides detailed descriptions for deriving synthetic unit hydrographs from catchment physiographic characteristics for use in such cases.

A more commonly used practice in small catchments is one developed by the U.S. Soil Conservation Service which uses a triangular shaped approximate the unit hydrograph. It is probably the most widely used of currently available methods for predicting a complete runoff hydrograph from ungaged agricultural watersheds. The triangular hydrograph procedure, which constitutes the flow routing portion of the analysis, is based upon the assumption that a time distribution of the manner in which storm rainfall is translated into rainfall excess, i.e. surface runoff volume, is available. Thus, normal application procedures involve first applying a Direct Runoff analysis, also developed by the Soil Conservation Service, to obtain this necessary direct runoff distribution.(Linsley, 1982)

### 5.3.2 Model verification

The following figure (Fig. 21) serves as a conceptual model of how an increment or rainfall excess is translated by a watershed's hydraulic processes into an incremental runoff hydrograph. It is the basis for the SCS Triangular Hydrograph analysis procedure. This model is based upon empirical observation of how natural watersheds "typically" respond to rainfall in excess of the rate at which it can infiltrate.(Chow, 1988)

**Fig.21: Typical SCS Triangular Unit Hydrograph**




Certain quantities can by defined from the triangular hydrograph based on the fact that rainfall excess must, by definition, equal runoff volume. The lag, L, is defined as the time between the centroid of the rainfall excess and the peak of the triangular unit graph of runoff. The base of this unit graph is called $T_b$. The runoff rate, $q_i$ is the peak instantaneous rate resulting from the application of rainfall excess.

Strictly on the basis of empirical relationships established from examining unpublished data from a large variety of watersheds and storms, certain correlations have been established between watershed characteristics and these three parameters. L and $T_b$ were

correlated to the time of concentration of a watershed. That data indicated the lag time, L, was approximately 0.6 of the time of concentration for many watersheds. $T_b$ has been found experimentally to be approximately 2.67 times the time to peak, which is actually D/2 + L. Where gaged runoff records are available, these coefficients may be determined specifically for the watershed of interest; otherwise, the above values are recommended for ungaged catchments. Interrelationships required to transform an incremental volume of runoff into an incremental runoff hydrograph may be summarized as:

$$L = 0.6\ T_c \tag{5.1}$$

$$T_p = D/2 + L \tag{5.2}$$

$$T_b = 2.67\ T_p \tag{5.3}$$

$$q_i = (2.08 * A) / T_p \tag{5.4}$$

Where:

A = watershed area, $km^2$

D = rainfall excess period, min

L = lag time from centroid of rainfall to peak runoff, min

$q_i$ = peak runoff rate, $m^3/s$

$T_b$ = base time of hydrograph, min

$T_c$ = time of concentration, min

$T_p$ = time to peak for hydrograph, min

Once models have been selected for the hydrograph shape (triangular), time to peak and base time, the peak rate of runoff may be computed. The area under the hydrograph is the volume of runoff and it must be equal to the rainfall excess. Equating these two quantities yields a relationship for the peak rate of runoff equation. Because the time of concentration is influenced by numerous physical characteristics of a catchment, it represents, in some crude sense, an overall indication of all hydraulic transfer properties of the catchment. At least, as should be apparent from the last set of equations, that is the manner in which it is used by the Triangular Hydrograph analysis; as the single integrator

and parameter which defines the manner in which direct runoff, i.e. rainfall excess, is translated into a hydrograph.

### 5.3.2 Model application

The first step in the analysis is to find the time of concentration by applying the equation(3.4).

$$T_c = 0.02\, L_c^{0.77}\, S_c^{-0.385} + \left| \frac{2.2\, n\, L_0}{S_o^{0.5}} \right|^{0.467}$$

where $L_c = L_0 = 28$ km

$S_c = S_o = 14$ m/km

$n = 0.19$

Time of Concentration for this watershed = 482.6 min.

$T_p$ = time to peak for hydrograph, min = 0.6 *482.6 = 289.6 min.

$T_b$ = base time of hydrograph, min = 2.67 * 289.6 = 773.2 min. = 12.9 hr.

$q_i = (2.08 * A) / T_p$

$A = 167$ km$^2$

As shown in Table 6, the average value of the peak discharge is 64 m$^3$/sec.cm.

The lag time measured for these events had an average of 609.25min, while using the equations of the SCS method the average was 334.11min. This situation arises the problem of the sewage flow along the stream, which makes the runoff including the sewage deposits flow slowly towards the outlet. These results may be approximated by assuming that the lag time of this watershed equals the time of concentration, instead of 0.6 of the time of concentration as the SCS method suggests.

## Table 6: SCS Model Computation

**Measured for the**

**selected events**

| | Max. Runoff | Max. Intensity | Lag Time | Lag Time | Dt - Eff. | Dt - Eff. | L=0.6Tc | Tp | Tp | qi |
|---|---|---|---|---|---|---|---|---|---|---|
| | Time | Time | (hr) | (min) | (hr) | (min) | (min) | (min) | (hr) | $m^3/sec$ |
| **Event # 1** | 17:01 | 9:13 | 7.47 | 467 | 0.23 | 13.8 | 289.56 | 296.46 | 4.941 | 70.30 |
| **Event # 2** | 10:19 | 1:20 | 9.00 | 540 | 0.3 | 18 | 289.56 | 298.56 | 4.976 | 69.81 |
| **Event # 3** | 23:28 | 11:02 | 12.06 | 726 | 4.84 | 290.4 | 289.56 | 434.76 | 7.246 | 47.94 |
| **Event # 4** | 14:14 | 2:58 | 11.44 | 704 | 0.57 | 34.2 | 289.56 | 306.66 | 5.111 | 67.96 |
| **Average** | | | | **609.25** | **1.49** | **89.10** | **289.56** | **334.11** | **5.57** | **64.00** |

# Chapter 6

# Conclusions and Recommendations

## 6.1 Conclusions

The Unit Hydrograph and SCS methods were used in this study for utilizing rates of rainfall and rates of runoff. These models were applied here to simulate a unit hydrograph of the mountainous sub-catchment of the Soreq stream near Jerusalem using the data obtained during the period 1957-1994 for frequency analysis and IDF curves. Data obtained during the period 1994-1996 were used for the rainfall-runoff analysis.

Rainfall regularly occurs during the winter months (October-April) and amounts to about 500-600 mm in the average year. The average annual rainfall measured during the winter 1994/1995 was 617mm, and 570.4mm during 1995/1996 winter.

Intensity-Duration-Frequency curves of different durations were developed for the catchment area. These curves can be used as a reference for the determination of rainfall intensity for different return periods to be used for designing drainage systems.

The main problem related to the study area is that the two western outlets of the raw sewage system of Jerusalem discharge towards Soreq stream. This sewage flow which is the flow measured at Hartov station during the dry periods along the Soreq stream is considered as a base flow all along the study. According to these measurements, considerable amounts of sewage water infiltrate along the Soreq stream.

Representative events were analyzed during the study period in order to have an indication of the real amount of excess rainfall that causes the runoff. By summing up the rainfall increments through time of the rainfall data of these events, a rainfall mass curve was produced.

For each event the area under the direct runoff hydrograph ($V_d$) was calculated for the derivation of the excess rainfall. For the infiltration rate, the $\phi$ and W index methods were used. The average value of the $\phi$ index was 16.77mm/hr. While the average value of the W index was 3.27mm/hr. The runoff measured was about 0.3 % of the measured rainfall due to the high percolation rate into the karstic layers of the area.

The recession constant $K_r$ was evaluated for each event. The average value of this constant for the above events was 0.9925.

Based on the analysis the Unit hydrographs for the events were obtained. Each unit hydrograph have a different duration. These unit hydrographs can be used to develop the Instantaneous Unit Hydrograph using the S curve method.

The lag time measured for these events has an average of 609.25min, while using the equations of the SCS method the average was 334.11min. This situation arises the problem of the sewage flow along the stream which makes the runoff including the sewage deposits flow slowly towards the outlet.

Despite the success of rainfall-runoff models in providing a generally accepted basis for design of infrastructure works, there are still limitations to the modeling of rainfall-runoff processes. The major problems are: Insufficient Data, Variability of rainfall inputs, insufficient temporal detail, and Model incompatibility

## 6.2 Recommendations

As a result of the whole study, the following recommendations are seen important and vital for the continuation of the research in the field of rainfall-runoff modeling of watersheds in the Palestinian Territories.

1. It is recommended to evaluate the flow in the Soreq valley as a source for water. The problem of sewage is to be solved after the late construction of the Jerusalem wastewater treatment plant. The amount of water flowing during winter time can be evaluated as a potential source for irrigation downstream.

2. More rain events are required to be studied in order to develop and calibrate a comprehensive rainfall-runoff model for the stream. Instantaneous Unit Hydrograph can be developed accordingly and employed as a package for modeling.

3. The applicability of the developed Unit Hydrograph on similar watersheds in the Palestinian Territories is recommended to be evaluated. This can be done in a sense of developing a representative model of these watersheds.

4. The lag time of the studied events showed deviation from that of the SCS method. This problem was overcome by assuming that the time of concentration equals the lag time. Therefore it is recommended to evaluate the applicability of the SCS method parameters on similar mountainous watersheds. The conditions and limitations of the SCS model should be evaluated in this region.

# References

1. Azmon,B. (1992). Manning Coefficient of roughness - a case study along Soreq stream, 1971-1981. **Journal of Hydrology**, 132;361-377.

2. Beard, L. R, (January 1962). **Statistical methods in Hydrology.** U.S. Army Crops of Engineers.

3. Chow V. (1964). **Handbook of Applied Hydrology.** New York: McGraw-Hill Book Company.

4. Chow V. and Mays L. (1988). **Applied Hydrology.** New York: McGraw-Hill Book Company.

5. D. Gilad and Azmon,B. (1981). Percolation of domestic sewage into Soreq stream. **Journal of Studies in Environmental Science**, 17.

6. Geoffrey, O' Loughlin., Wayne Huber, Bernard Chocat. (1996). Rainfall – Runoff Processes and Modelling. **Journal of Hydraulic Research,** 34.

7. Haan C. T. and Johnson H. (1982). **Hydrologic Modeling of Small Watersheds**. U.S.A.

8. Hammer, Mark J. and Mackichen, Kenneth A. (1981). **Hydrology and Quality of Water Resources.** New York: John Willey & Sons.

9. Linsley, Ray K., Kahler, Max A., and Paullus, Joseph L. H. (1982). **Hydrology for Engineers**. London: McGraw-Hill Book Company.

10. Ministry of Agriculture Water Commission Hydrology Service, 1994-1996, **Hydrology Year Book of Israel**, Jerusalem.

11. Miller, Irwin and Freund, John E.(1977). **Probability and Statistics for Engineers (2nd Edition).** Englewood Cliffs: Prentice - Hall.

12. Rankivi, Arved J.(1979). **Hydrology.** Oxford: Pergamon Press.

13. Sherman, L.K. (1932). **Stream flow from rainfall by Unit Hydrograph method.** Engineering News Records, vol. 108, p.501-505.

14. Viessman, Warren J.K., and Lewis, Gray L., and Knapp John W.(1989). **Introduction to (3rd Edition).** New York: Harper and Row..

# APPENDIX - 1

## Beit Zayit Reservoir - Data Record

Station number :18107

Name of stream and station :Soreq- Beit Zayit Reservoir

Drainage area at the gauging site ($Km^2$) - A=78

Coordinates of the gauging site : X=164.80 Y=131.90

Gage height of zero flow in ephemeral streams ( Elevation related to Israel P.L.D) = +537.0

Station equipment :control structure ,water level recorder , staff gauge

**Symbols:**

Water level(m)=H

Discharge($m^3$/sec)=Q

Monthly max.discharge($m^3$/sec)=M

Monthly min.discharge($m^3$/sec)=m

Monthly flow volume($10^6m^3$)=V

Annual flow volume($10^6m^3$,mm)=VY

Known max. discharge($m^3$/sec)=MK

Annual max. discharge($m^3$/sec)=MY

Station number :18107
Name of stream and station :Soreq- Beit Zayit Reservoir
Period of observation : 94/95

| Day/Month | 10 | 11 | 12 | 1 | 2 | 3 |
|---|---|---|---|---|---|---|
| 1 | | | 0 | | | |
| 2 | | | 1.04 | | | |
| 3 | | | 4.23 | | | |
| 4 | | | 0.61 | | | |
| 5 | | | 0 | | | |
| 6 | | | | | | |
| 7 | | | | | 0 | |
| 8 | | | | | 0.86 | |
| 9 | | | | | 0.53 | |
| 10 | | | | | 0 | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | 0 | | | |
| 19 | | | 4.72 | | | |
| 20 | | | 1.68 | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | 1.51 | | | | |
| 25 | | 0.09 | | | | |
| 26 | | 0 | | | | |
| 27 | | 0.11 | | | | |
| 28 | | 0.34 | | | | |
| 29 | | 0.053 | | | | |
| 30 | | | | | | |
| 31 | | | | | | |
| M | | | | | | |
| m | | | | | | |
| v | 0 | 0.182 | 1.06 | 0 | 0.12 | 0 |
| VY | $1.36*10^6$ m3 | | | | | 17mm |
| | Q(m3/sec) | | H (m) | | | Date |
| MY | No Flood | | 549.78 | | | 20/12/94 |
| MK | 36.7(Flood) | | 550.53 | | | 02/04/1992 |

Station number :18107
Name of stream and station :Soreq- Beit Zayit Reservoir
Period of observation : 95/96

| Day/Month | 12 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | 0 | | |
| 7 | | | | 7.43 | | |
| 8 | | | | 3.8 | | |
| 9 | | | | 0.1 | | |
| 10 | | | | 0 | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | 0 | | | | |
| 18 | | 0.49 | | | | |
| 19 | | 2.84 | | | | |
| 20 | | 0.16 | | | | |
| 21 | | 0 | | | | |
| 22 | | 0 | | | | |
| 23 | | 0.03 | | 0 | | |
| 24 | | 0.11 | | 0.14 | | |
| 25 | | 0 | | 1.67 | | |
| 26 | | | | 0.46 | | |
| 27 | | | | 0.07 | | |
| 28 | | | | 0 | | |
| 29 | | | | | | |
| 30 | | | | | | |
| 31 | | | | | | |
| M | | | | | | |
| m | | | | | | |
| v | 0 | 0.314 | 0 | 1.181 | 0 | 0 |
| VY | 1.5*10$^6$ m3 | | | | | 19 mm |
| | Q(m3/sec) | | H (m) | | | Date |
| MY | No Flood | | 548.92 | | | 9\3\96 |
| MK | 36.7(Flood) | | 550.53 | | | 02/04/1992 |

# APPENDIX - 2

## Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 01/10/94 | 0:00 | 2.19 | 0.04 | 3456.0 |
| 03/10/94 | 0:00 | 2.19 | 0.04 | 3456.0 |
| | | **Average 10.94** | **0.040** | **3456.0** |
| | | **St.Dev. 10.94** | **0.000** | **0.0** |
| 01/11/94 | 13:00 | 2.16 | 0.01 | 864.0 |
| 01/11/94 | 13:00 | 2.16 | 0.01 | 864.0 |
| 01/11/94 | 17:09 | 2.17 | 0.02 | 1728.0 |
| 02/11/94 | 9:33 | 2.17 | 0.02 | 1728.0 |
| 02/11/94 | 16:56 | 2.16 | 0.01 | 864.0 |
| 02/11/94 | 17:19 | 2.17 | 0.02 | 1728.0 |
| 03/11/94 | 2:05 | 2.17 | 0.02 | 1728.0 |
| 03/11/94 | 3:21 | 2.18 | 0.03 | 2592.0 |
| 03/11/94 | 9:29 | 2.18 | 0.03 | 2592.0 |
| 03/11/94 | 15:36 | 2.17 | 0.02 | 1728.0 |
| 04/11/94 | 23:26 | 2.18 | 0.03 | 2592.0 |
| 06/11/94 | 8:43 | 2.16 | 0.01 | 864.0 |
| 06/11/94 | 20:51 | 2.16 | 0.01 | 864.0 |
| 07/11/94 | 2:59 | 2.16 | 0.01 | 864.0 |
| 07/11/94 | 3:53 | 2.17 | 0.02 | 1728.0 |
| 07/11/94 | 7:00 | 2.17 | 0.02 | 1728.0 |
| 07/11/94 | 16:08 | 2.16 | 0.01 | 864.0 |
| 07/11/94 | 22:55 | 2.17 | 0.02 | 1728.0 |
| 08/11/94 | 0:32 | 2.16 | 0.01 | 864.0 |
| 09/11/94 | 16:59 | 2.16 | 0.01 | 864.0 |
| 09/11/94 | 17:14 | 2.16 | 0.01 | 864.0 |
| 10/11/94 | 16:39 | 2.16 | 0.01 | 864.0 |
| 10/11/94 | 17:10 | 2.18 | 0.03 | 2592.0 |
| 10/11/94 | 22:40 | 2.17 | 0.02 | 1728.0 |
| 11/11/1994 | 3:55 | 2.17 | 0.02 | 1728.0 |
| 11/11/1994 | 5:03 | 2.17 | 0.02 | 1728.0 |
| 11/11/1994 | 7:26 | 2.17 | 0.02 | 1728.0 |
| 11/11/1994 | 10:03 | 2.16 | 0.01 | 864.0 |
| 11/11/1994 | 17:18 | 2.16 | 0.01 | 864.0 |
| 11/11/1994 | 17:28 | 2.18 | 0.03 | 2592.0 |
| 12/11/94 | 1:06 | 2.18 | 0.03 | 2592.0 |
| 12/11/94 | 3:06 | 2.17 | 0.02 | 1728.0 |
| 12/11/94 | 19:21 | 2.16 | 0.01 | 864.0 |
| 12/11/94 | 19:37 | 2.17 | 0.02 | 1728.0 |
| 13/11/94 | 0:00 | 2.17 | 0.02 | 1728.0 |
| 13/11/94 | 0:00 | 2.17 | 0.02 | 1728.0 |
| 13/11/94 | 2:45 | 2.17 | 0.02 | 1728.0 |

## Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 13/11/94 | 3:32 | 2.19 | 0.04 | 3456.0 |
| 13/11/94 | 10:08 | 2.17 | 0.02 | 1728.0 |
| 13/11/94 | 17:08 | 2.16 | 0.01 | 864.0 |
| 13/11/94 | 17:19 | 2.19 | 0.04 | 3456.0 |
| 13/11/94 | 21:03 | 2.18 | 0.03 | 2592.0 |
| 14/11/94 | 7:33 | 2.18 | 0.03 | 2592.0 |
| 14/11/94 | 10:03 | 2.17 | 0.02 | 1728.0 |
| 14/11/94 | 17:10 | 2.17 | 0.02 | 1728.0 |
| 14/11/94 | 17:35 | 2.18 | 0.03 | 2592.0 |
| 15/11/94 | 6:28 | 2.18 | 0.03 | 2592.0 |
| 15/11/94 | 12:20 | 2.17 | 0.02 | 1728.0 |
| 15/11/94 | 17:05 | 2.17 | 0.02 | 1728.0 |
| 20/11/94 | 2:37 | 2.18 | 0.03 | 2592.0 |
| 20/11/94 | 3:23 | 2.19 | 0.04 | 3456.0 |
| 20/11/94 | 3:46 | 2.2 | 0.05 | 4320.0 |
| 20/11/94 | 5:54 | 2.2 | 0.05 | 4320.0 |
| 20/11/94 | 9:23 | 2.19 | 0.04 | 3456.0 |
| 20/11/94 | 12:37 | 2.17 | 0.02 | 1728.0 |
| 20/11/94 | 17:22 | 2.17 | 0.02 | 1728.0 |
| 20/11/94 | 17:38 | 2.18 | 0.03 | 2592.0 |
| 20/11/94 | 17:41 | 2.21 | 0.065 | 5616.0 |
| 20/11/94 | 23:56 | 2.2 | 0.05 | 4320.0 |
| 21/11/94 | 7:49 | 2.2 | 0.05 | 4320.0 |
| 21/11/94 | 11:18 | 2.19 | 0.04 | 3456.0 |
| 21/11/94 | 12:17 | 2.18 | 0.03 | 2592.0 |
| 21/11/94 | 17:31 | 2.17 | 0.02 | 1728.0 |
| 21/11/94 | 17:40 | 2.19 | 0.04 | 3456.0 |
| 21/11/94 | 17:58 | 2.21 | 0.065 | 5616.0 |
| 22/11/94 | 8:44 | 2.21 | 0.065 | 5616.0 |
| 22/11/94 | 11:49 | 2.19 | 0.04 | 3456.0 |
| 22/11/94 | 17:33 | 2.17 | 0.02 | 1728.0 |
| 22/11/94 | 17:43 | 2.19 | 0.04 | 3456.0 |
| 22/11/94 | 17:52 | 2.21 | 0.065 | 5616.0 |
| 23/11/94 | 0:00 | 2.21 | 0.065 | 5616.0 |
| 23/11/94 | 0:00 | 2.21 | 0.065 | 5616.0 |
| 23/11/94 | 4:45 | 2.21 | 0.065 | 5616.0 |
| 23/11/94 | 7:38 | 2.21 | 0.065 | 5616.0 |
| 23/11/94 | 8:15 | 2.21 | 0.065 | 5616.0 |
| 23/11/94 | 16:08 | 2.17 | 0.02 | 1728.0 |
| 24/11/94 | 23:40 | 2.16 | 0.01 | 864.0 |
| | | **Average 11.94** | **0.029** | **2463.0** |
| | | **St.Dev. 11.94** | **0.017** | **1481.8** |
| 02/12/94 | 17:08 | 2.16 | 0.01 | 864.0 |
| 03/12/94 | 8:00 | 2.21 | 0.065 | 5616.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 03/12/94 | 8:00 | 2.21 | 0.065 | 5616.0 |
| 05/12/94 | 7:30 | 2.21 | 0.065 | 5616.0 |
| 18/12/94 | 22:00 | 2.21 | 0.065 | 5616.0 |
| 18/12/94 | 22:00 | 2.21 | 0.065 | 5616.0 |
| 20/12/94 | 18:00 | 2.21 | 0.065 | 5616.0 |
| 20/12/94 | 18:00 | 2.21 | 0.065 | 5616.0 |
| 26/12/94 | 10:45 | 2.2 | 0.05 | 4320.0 |
| 26/12/94 | 10:45 | 2.2 | 0.05 | 4320.0 |
| 26/12/94 | 12:00 | 2.2 | 0.05 | 4320.0 |
| 26/12/94 | 16:45 | 2.19 | 0.04 | 3456.0 |
| 26/12/94 | 17:06 | 2.21 | 0.065 | 5616.0 |
| 27/12/94 | 9:11 | 2.21 | 0.065 | 5616.0 |
| 27/12/94 | 13:58 | 2.19 | 0.04 | 3456.0 |
| 27/12/94 | 16:58 | 2.19 | 0.04 | 3456.0 |
| 27/12/94 | 17:10 | 2.21 | 0.065 | 5616.0 |
| 28/12/94 | 9:09 | 2.21 | 0.065 | 5616.0 |
| 28/12/94 | 13:40 | 2.19 | 0.04 | 3456.0 |
| 28/12/94 | 16:48 | 2.19 | 0.04 | 3456.0 |
| 28/12/94 | 17:08 | 2.21 | 0.065 | 5616.0 |
| 29/12/94 | 9:06 | 2.22 | 0.08 | 6912.0 |
| 29/12/94 | 14:15 | 2.2 | 0.05 | 4320.0 |
| 29/12/94 | 16:22 | 2.2 | 0.05 | 4320.0 |
| 29/12/94 | 16:50 | 2.21 | 0.065 | 5616.0 |
| 29/12/94 | 22:04 | 2.21 | 0.065 | 5616.0 |
| 29/12/94 | 22:33 | 2.22 | 0.08 | 6912.0 |
| 30/12/94 | 8:02 | 2.22 | 0.08 | 6912.0 |
| 30/12/94 | 14:19 | 2.2 | 0.05 | 4320.0 |
| 30/12/94 | 16:42 | 2.2 | 0.05 | 4320.0 |
| 30/12/94 | 17:02 | 2.22 | 0.08 | 6912.0 |
| 30/12/94 | 19:54 | 2.22 | 0.08 | 6912.0 |
| 31/12/94 | 1:23 | 2.22 | 0.08 | 6912.0 |
| 31/12/94 | 12:24 | 2.2 | 0.05 | 4320.0 |
| 31/12/94 | 19:01 | 2.2 | 0.05 | 4320.0 |
| 31/12/94 | 19:22 | 2.21 | 0.065 | 5616.0 |
| | | **Average 12.94** | **0.059** | **5076.0** |
| | | **St.Dev. 12.94** | **0.015** | **1315.9** |
| | | Average 1994 | 0.042 | 3665.0 |
| 01/01/1995 | 2:58 | 2.22 | 0.08 | 6912.0 |
| 01/01/1995 | 8:28 | 2.22 | 0.08 | 6912.0 |
| 01/01/1995 | 14:21 | 2.2 | 0.05 | 4320.0 |
| 01/01/1995 | 16:36 | 2.2 | 0.05 | 4320.0 |
| 01/01/1995 | 17:05 | 2.21 | 0.065 | 5616.0 |
| 02/01/95 | 9:17 | 2.22 | 0.08 | 6912.0 |
| 02/01/95 | 14:33 | 2.2 | 0.05 | 4320.0 |

## Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 02/01/95 | 16:26 | 2.2 | 0.05 | 4320.0 |
| 02/01/95 | 16:39 | 2.22 | 0.08 | 6912.0 |
| 03/01/95 | 8:37 | 2.22 | 0.08 | 6912.0 |
| 03/01/95 | 14:09 | 2.2 | 0.05 | 4320.0 |
| 03/01/95 | 16:23 | 2.2 | 0.05 | 4320.0 |
| 03/01/95 | 16:59 | 2.22 | 0.08 | 6912.0 |
| 04/01/95 | 8:27 | 2.22 | 0.08 | 6912.0 |
| 04/01/95 | 13:51 | 2.2 | 0.05 | 4320.0 |
| 04/01/95 | 16:36 | 2.2 | 0.05 | 4320.0 |
| 04/01/95 | 16:41 | 2.22 | 0.08 | 6912.0 |
| 05/01/95 | 8:17 | 2.22 | 0.08 | 6912.0 |
| 05/01/95 | 13:56 | 2.2 | 0.05 | 4320.0 |
| 05/01/95 | 16:33 | 2.2 | 0.05 | 4320.0 |
| 05/01/95 | 16:54 | 2.22 | 0.08 | 6912.0 |
| 06/01/95 | 0:00 | 2.22 | 0.08 | 6912.0 |
| 06/01/95 | 0:00 | 2.22 | 0.08 | 6912.0 |
| 06/01/95 | 8:30 | 2.22 | 0.08 | 6912.0 |
| 06/01/95 | 16:45 | 2.2 | 0.05 | 4320.0 |
| 06/01/95 | 17:14 | 2.22 | 0.08 | 6912.0 |
| 07/01/95 | 0:51 | 2.23 | 0.095 | 8208.0 |
| 07/01/95 | 5:43 | 2.22 | 0.08 | 6912.0 |
| 07/01/95 | 13:51 | 2.2 | 0.05 | 4320.0 |
| 07/01/95 | 18:44 | 2.2 | 0.05 | 4320.0 |
| 07/01/95 | 19:28 | 2.21 | 0.065 | 5616.0 |
| 08/01/95 | 8:27 | 2.22 | 0.08 | 6912.0 |
| 08/01/95 | 14:35 | 2.2 | 0.05 | 4320.0 |
| 08/01/95 | 16:42 | 2.2 | 0.05 | 4320.0 |
| 08/01/95 | 17:04 | 2.22 | 0.08 | 6912.0 |
| 09/01/95 | 8:56 | 2.22 | 0.08 | 6912.0 |
| 09/01/95 | 13:19 | 2.2 | 0.05 | 4320.0 |
| 09/01/95 | 16:34 | 2.2 | 0.05 | 4320.0 |
| 09/01/95 | 17:03 | 2.22 | 0.08 | 6912.0 |
| 10/01/95 | 9:32 | 2.22 | 0.08 | 6912.0 |
| 10/01/95 | 13:17 | 2.2 | 0.05 | 4320.0 |
| 10/01/95 | 16:47 | 2.2 | 0.05 | 4320.0 |
| 10/01/95 | 17:09 | 2.22 | 0.08 | 6912.0 |
| 11/01/95 | 9:01 | 2.22 | 0.08 | 6912.0 |
| 11/01/95 | 13:39 | 2.2 | 0.05 | 4320.0 |
| 11/01/95 | 16:54 | 2.2 | 0.05 | 4320.0 |
| 11/01/95 | 17:16 | 2.22 | 0.08 | 6912.0 |
| 12/01/95 | 9:45 | 2.22 | 0.08 | 6912.0 |
| 12/01/95 | 14:15 | 2.2 | 0.05 | 4320.0 |
| 12/01/95 | 16:53 | 2.2 | 0.05 | 4320.0 |
| 12/01/95 | 17:14 | 2.22 | 0.08 | 6912.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 13/01/95 | 8:58 | 2.22 | 0.08 | 6912.0 |
| 13/01/95 | 13:51 | 2.21 | 0.065 | 5616.0 |
| 13/01/95 | 16:59 | 2.2 | 0.05 | 4320.0 |
| 13/01/95 | 17:28 | 2.23 | 0.095 | 8208.0 |
| 14/01/95 | 5:27 | 2.23 | 0.095 | 8208.0 |
| 14/01/95 | 12:28 | 2.2 | 0.05 | 4320.0 |
| 14/01/95 | 18:50 | 2.2 | 0.05 | 4320.0 |
| 14/01/95 | 19:27 | 2.22 | 0.08 | 6912.0 |
| 15/01/95 | 7:56 | 2.22 | 0.08 | 6912.0 |
| 15/01/95 | 13:41 | 2.2 | 0.05 | 4320.0 |
| 15/01/95 | 16:41 | 2.2 | 0.05 | 4320.0 |
| 15/01/95 | 17:10 | 2.22 | 0.08 | 6912.0 |
| 16/01/95 | 8:55 | 2.22 | 0.08 | 6912.0 |
| 16/01/95 | 13:10 | 2.2 | 0.05 | 4320.0 |
| 16/01/95 | 16:40 | 2.2 | 0.05 | 4320.0 |
| 16/01/95 | 17:09 | 2.22 | 0.08 | 6912.0 |
| 17/01/95 | 9:01 | 2.22 | 0.08 | 6912.0 |
| 17/01/95 | 13:39 | 2.2 | 0.05 | 4320.0 |
| 17/01/95 | 16:54 | 2.2 | 0.05 | 4320.0 |
| 17/01/95 | 17:15 | 2.23 | 0.095 | 8208.0 |
| 18/01/95 | 0:00 | 2.23 | 0.095 | 8208.0 |
| 18/01/95 | 0:00 | 2.23 | 0.095 | 8208.0 |
| 18/01/95 | 2:30 | 2.23 | 0.095 | 8208.0 |
| 18/01/95 | 4:37 | 2.25 | 0.13 | 11232.0 |
| 18/01/95 | 8:37 | 2.24 | 0.11 | 9504.0 |
| 18/01/95 | 12:31 | 2.22 | 0.08 | 6912.0 |
| 18/01/95 | 14:38 | 2.22 | 0.08 | 6912.0 |
| 18/01/95 | 15:07 | 2.24 | 0.11 | 9504.0 |
| 19/01/95 | 5:52 | 2.24 | 0.11 | 9504.0 |
| 19/01/95 | 11:47 | 2.22 | 0.08 | 6912.0 |
| 19/01/95 | 15:17 | 2.21 | 0.065 | 5616.0 |
| 19/01/95 | 15:38 | 2.23 | 0.095 | 8208.0 |
| 20/01/95 | 7:01 | 2.23 | 0.095 | 8208.0 |
| 20/01/95 | 10:17 | 2.22 | 0.08 | 6912.0 |
| 20/01/95 | 16:55 | 2.21 | 0.065 | 5616.0 |
| 20/01/95 | 17:16 | 2.23 | 0.095 | 8208.0 |
| 21/01/95 | 0:09 | 2.23 | 0.095 | 8208.0 |
| 21/01/95 | 5:39 | 2.23 | 0.095 | 8208.0 |
| 21/01/95 | 7:55 | 2.22 | 0.08 | 6912.0 |
| 21/01/95 | 18:48 | 2.21 | 0.065 | 5616.0 |
| 21/01/95 | 19:17 | 2.22 | 0.08 | 6912.0 |
| 22/01/95 | 3:32 | 2.23 | 0.095 | 8208.0 |
| 22/01/95 | 7:17 | 2.23 | 0.095 | 8208.0 |
| 22/01/95 | 10:18 | 2.22 | 0.08 | 6912.0 |

## Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 22/01/95 | 16:48 | 2.21 | 0.065 | 5616.0 |
| 22/01/95 | 17:10 | 2.23 | 0.095 | 8208.0 |
| 23/01/95 | 8:33 | 2.23 | 0.095 | 8208.0 |
| 23/01/95 | 10:48 | 2.22 | 0.08 | 6912.0 |
| 23/01/95 | 16:34 | 2.21 | 0.065 | 5616.0 |
| 23/01/95 | 17:10 | 2.23 | 0.095 | 8208.0 |
| 24/01/95 | 8:18 | 2.23 | 0.095 | 8208.0 |
| 24/01/95 | 10:41 | 2.22 | 0.08 | 6912.0 |
| 24/01/95 | 16:49 | 2.21 | 0.065 | 5616.0 |
| 24/01/95 | 17:11 | 2.23 | 0.095 | 8208.0 |
| 25/01/95 | 8:49 | 2.23 | 0.095 | 8208.0 |
| 25/01/95 | 10:49 | 2.22 | 0.08 | 6912.0 |
| 25/01/95 | 16:57 | 2.22 | 0.08 | 6912.0 |
| 25/01/95 | 17:34 | 2.23 | 0.095 | 8208.0 |
| 26/01/95 | 9:35 | 2.22 | 0.08 | 6912.0 |
| 26/01/95 | 11:14 | 2.2 | 0.05 | 4320.0 |
| 26/01/95 | 16:44 | 2.19 | 0.04 | 3456.0 |
| 26/01/95 | 17:21 | 2.21 | 0.065 | 5616.0 |
| 27/01/95 | 9:21 | 2.21 | 0.065 | 5616.0 |
| 27/01/95 | 13:37 | 2.2 | 0.05 | 4320.0 |
| 27/01/95 | 17:07 | 2.19 | 0.04 | 3456.0 |
| 27/01/95 | 17:21 | 2.21 | 0.065 | 5616.0 |
| 28/01/95 | 1:43 | 2.22 | 0.08 | 6912.0 |
| 28/01/95 | 19:01 | 2.18 | 0.03 | 2592.0 |
| 28/01/95 | 19:15 | 2.2 | 0.05 | 4320.0 |
| 29/01/95 | 9:22 | 2.21 | 0.065 | 5616.0 |
| 29/01/95 | 16:46 | 2.19 | 0.04 | 3456.0 |
| 29/01/95 | 17:00 | 2.21 | 0.065 | 5616.0 |
| 30/01/95 | 7:30 | 2.21 | 0.065 | 5616.0 |
| 30/01/95 | 7:30 | 2.21 | 0.065 | 5616.0 |
| 30/01/95 | 9:37 | 2.21 | 0.065 | 5616.0 |
| 30/01/95 | 16:43 | 2.19 | 0.04 | 3456.0 |
| 30/01/95 | 16:59 | 2.21 | 0.065 | 5616.0 |
| 31/01/95 | 10:27 | 2.21 | 0.065 | 5616.0 |
| 31/01/95 | 16:41 | 2.19 | 0.04 | 3456.0 |
| 31/01/95 | 16:57 | 2.21 | 0.065 | 5616.0 |
| | | **Average 1.95** | **0.071** | **6156.8** |
| | | **St.Dev. 1.95** | **0.019** | **1632.6** |
| 01/02/1995 | 16:23 | 2.19 | 0.04 | 3456.0 |
| 01/02/1995 | 16:54 | 2.21 | 0.065 | 5616.0 |
| 02/02/1995 | 8:37 | 2.21 | 0.065 | 5616.0 |
| 02/02/1995 | 16:28 | 2.19 | 0.04 | 3456.0 |
| 02/02/1995 | 16:44 | 2.21 | 0.065 | 5616.0 |
| 03/02/95 | 8:20 | 2.22 | 0.08 | 6912.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 03/02/95 | 16:33 | 2.19 | 0.04 | 3456.0 |
| 03/02/95 | 17:04 | 2.21 | 0.065 | 5616.0 |
| 04/02/95 | 5:10 | 2.22 | 0.08 | 6912.0 |
| 04/02/95 | 17:01 | 2.19 | 0.04 | 3456.0 |
| 04/02/95 | 17:17 | 2.23 | 0.095 | 8208.0 |
| 04/02/95 | 22:31 | 2.21 | 0.065 | 5616.0 |
| 05/02/95 | 6:00 | 2.21 | 0.065 | 5616.0 |
| 05/02/95 | 6:00 | 2.21 | 0.065 | 5616.0 |
| 07/02/95 | 0:00 | 2.21 | 0.065 | 5616.0 |
| 11/02/95 | 0:00 | 2.21 | 0.065 | 5616.0 |
| 16/02/95 | 10:00 | 2.21 | 0.065 | 5616.0 |
| 16/02/95 | 10:00 | 2.21 | 0.065 | 5616.0 |
| 16/02/95 | 18:16 | 2.19 | 0.04 | 3456.0 |
| 16/02/95 | 18:34 | 2.21 | 0.065 | 5616.0 |
| 17/02/95 | 11:34 | 2.21 | 0.065 | 5616.0 |
| 17/02/95 | 18:14 | 2.19 | 0.04 | 3456.0 |
| 17/02/95 | 18:47 | 2.21 | 0.065 | 5616.0 |
| 18/02/95 | 6:12 | 2.21 | 0.065 | 5616.0 |
| 18/02/95 | 19:41 | 2.2 | 0.05 | 4320.0 |
| 18/02/95 | 20:06 | 2.21 | 0.065 | 5616.0 |
| 18/02/95 | 21:13 | 2.21 | 0.065 | 5616.0 |
| 18/02/95 | 21:32 | 2.23 | 0.095 | 8208.0 |
| 19/02/95 | 1:50 | 2.22 | 0.08 | 6912.0 |
| 19/02/95 | 8:54 | 2.21 | 0.065 | 5616.0 |
| 19/02/95 | 17:33 | 2.2 | 0.05 | 4320.0 |
| 19/02/95 | 18:04 | 2.21 | 0.065 | 5616.0 |
| 20/02/95 | 10:13 | 2.21 | 0.065 | 5616.0 |
| 20/02/95 | 17:38 | 2.2 | 0.05 | 4320.0 |
| 20/02/95 | 17:54 | 2.21 | 0.065 | 5616.0 |
| 21/02/95 | 9:26 | 2.21 | 0.065 | 5616.0 |
| 21/02/95 | 15:43 | 2.19 | 0.04 | 3456.0 |
| 21/02/95 | 17:35 | 2.19 | 0.04 | 3456.0 |
| 21/02/95 | 17:45 | 2.21 | 0.065 | 5616.0 |
| 22/02/95 | 10:31 | 2.21 | 0.065 | 5616.0 |
| 22/02/95 | 16:18 | 2.19 | 0.04 | 3456.0 |
| 22/02/95 | 17:33 | 2.19 | 0.04 | 3456.0 |
| 22/02/95 | 17:50 | 2.21 | 0.065 | 5616.0 |
| 23/02/95 | 8:29 | 2.21 | 0.065 | 5616.0 |
| 23/02/95 | 14:54 | 2.2 | 0.05 | 4320.0 |
| 23/02/95 | 17:15 | 2.19 | 0.04 | 3456.0 |
| 23/02/95 | 17:24 | 2.2 | 0.05 | 4320.0 |
| 24/02/95 | 8:56 | 2.21 | 0.065 | 5616.0 |
| 24/02/95 | 17:13 | 2.19 | 0.04 | 3456.0 |
| 24/02/95 | 17:23 | 2.21 | 0.065 | 5616.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 25/02/95 | 4:41 | 2.21 | 0.065 | 5616.0 |
| 25/02/95 | 18:39 | 2.19 | 0.04 | 3456.0 |
| 25/02/95 | 19:03 | 2.2 | 0.05 | 4320.0 |
| 26/02/95 | 7:15 | 2.21 | 0.065 | 5616.0 |
| 26/02/95 | 7:15 | 2.21 | 0.065 | 5616.0 |
| 26/02/95 | 10:30 | 2.21 | 0.065 | 5616.0 |
| 26/02/95 | 15:58 | 2.2 | 0.05 | 4320.0 |
| 26/02/95 | 16:18 | 2.21 | 0.065 | 5616.0 |
| 27/02/95 | 7:45 | 2.21 | 0.065 | 5616.0 |
| 27/02/95 | 15:27 | 2.2 | 0.05 | 4320.0 |
| 27/02/95 | 15:54 | 2.21 | 0.065 | 5616.0 |
| 28/02/95 | 7:35 | 2.21 | 0.065 | 5616.0 |
| 28/02/95 | 15:33 | 2.2 | 0.05 | 4320.0 |
| 28/02/95 | 15:53 | 2.21 | 0.065 | 5616.0 |
| | | **Average 2.95** | **0.059** | **5136.8** |
| | | **St.Dev. 2.95** | **0.013** | **1123.7** |
| 01/03/95 | 16:01 | 2.2 | 0.05 | 4320.0 |
| 01/03/95 | 16:05 | 2.21 | 0.065 | 5616.0 |
| 02/03/95 | 8:40 | 2.21 | 0.065 | 5616.0 |
| 02/03/95 | 16:07 | 2.2 | 0.05 | 4320.0 |
| 02/03/95 | 16:19 | 2.21 | 0.065 | 5616.0 |
| 03/03/95 | 8:08 | 2.21 | 0.065 | 5616.0 |
| 03/03/95 | 16:20 | 2.19 | 0.04 | 3456.0 |
| 03/03/95 | 16:24 | 2.21 | 0.065 | 5616.0 |
| 04/03/95 | 3:28 | 2.21 | 0.065 | 5616.0 |
| 04/03/95 | 17:47 | 2.19 | 0.04 | 3456.0 |
| 04/03/95 | 18:14 | 2.2 | 0.05 | 4320.0 |
| 05/03/95 | 7:55 | 2.2 | 0.05 | 4320.0 |
| 05/03/95 | 15:53 | 2.19 | 0.04 | 3456.0 |
| 05/03/95 | 16:05 | 2.21 | 0.065 | 5616.0 |
| 06/03/95 | 0:00 | 2.21 | 0.065 | 5616.0 |
| 06/03/95 | 0:00 | 2.21 | 0.065 | 5616.0 |
| 06/03/95 | 8:23 | 2.21 | 0.065 | 5616.0 |
| 06/03/95 | 16:08 | 2.2 | 0.05 | 4320.0 |
| 06/03/95 | 16:16 | 2.21 | 0.065 | 5616.0 |
| 07/03/95 | 8:18 | 2.21 | 0.065 | 5616.0 |
| 07/03/95 | 16:10 | 2.19 | 0.04 | 3456.0 |
| 07/03/95 | 16:18 | 2.21 | 0.065 | 5616.0 |
| 08/03/95 | 8:50 | 2.21 | 0.065 | 5616.0 |
| 08/03/95 | 16:19 | 2.19 | 0.04 | 3456.0 |
| 08/03/95 | 16:20 | 2.21 | 0.065 | 5616.0 |
| 09/03/95 | 8:44 | 2.21 | 0.065 | 5616.0 |
| 09/03/95 | 16:14 | 2.19 | 0.04 | 3456.0 |
| 09/03/95 | 16:38 | 2.21 | 0.065 | 5616.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 10/03/95 | 8:17 | 2.21 | 0.065 | 5616.0 |
| 10/03/95 | 16:39 | 2.19 | 0.04 | 3456.0 |
| 10/03/95 | 16:47 | 2.21 | 0.065 | 5616.0 |
| 11/03/95 | 4:19 | 2.21 | 0.065 | 5616.0 |
| 11/03/95 | 18:11 | 2.19 | 0.04 | 3456.0 |
| 11/03/95 | 18:42 | 2.2 | 0.05 | 4320.0 |
| 12/03/95 | 8:58 | 2.21 | 0.065 | 5616.0 |
| 12/03/95 | 16:13 | 2.19 | 0.04 | 3456.0 |
| 12/03/95 | 16:36 | 2.2 | 0.05 | 4320.0 |
| 13/03/95 | 0:00 | 2.21 | 0.065 | 5616.0 |
| 13/03/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 29/03/95 | 8:45 | 2.2 | 0.05 | 4320.0 |
| 29/03/95 | 8:45 | 2.2 | 0.05 | 4320.0 |
| | | **Average 3.95** | **0.056** | **4825.8** |
| | | **St.Dev. 3.95** | **0.011** | **910.8** |
| 01/05/95 | 7:15 | 2.21 | 0.065 | 5616.0 |
| 01/05/95 | 16:59 | 2.19 | 0.04 | 3456.0 |
| 01/05/95 | 17:22 | 2.2 | 0.05 | 4320.0 |
| 02/05/95 | 0:22 | 2.2 | 0.05 | 4320.0 |
| 02/05/95 | 8:07 | 2.2 | 0.05 | 4320.0 |
| 02/05/95 | 17:13 | 2.19 | 0.04 | 3456.0 |
| 02/05/95 | 17:36 | 2.2 | 0.05 | 4320.0 |
| 03/05/95 | 0:21 | 2.21 | 0.065 | 5616.0 |
| 03/05/95 | 8:21 | 2.2 | 0.05 | 4320.0 |
| 03/05/95 | 16:58 | 2.19 | 0.04 | 3456.0 |
| 03/05/95 | 17:13 | 2.2 | 0.05 | 4320.0 |
| 04/05/95 | 9:50 | 2.2 | 0.05 | 4320.0 |
| 04/05/95 | 17:57 | 2.19 | 0.04 | 3456.0 |
| 04/05/95 | 18:35 | 2.2 | 0.05 | 4320.0 |
| 05/05/95 | 8:13 | 2.21 | 0.065 | 5616.0 |
| 05/05/95 | 17:57 | 2.19 | 0.04 | 3456.0 |
| 05/05/95 | 18:12 | 2.21 | 0.065 | 5616.0 |
| 06/05/95 | 6:42 | 2.21 | 0.065 | 5616.0 |
| 06/05/95 | 19:34 | 2.19 | 0.04 | 3456.0 |
| 06/05/95 | 19:49 | 2.2 | 0.05 | 4320.0 |
| 07/05/95 | 10:56 | 2.2 | 0.05 | 4320.0 |
| 07/05/95 | 16:56 | 2.2 | 0.05 | 4320.0 |
| 07/05/95 | 17:11 | 2.21 | 0.065 | 5616.0 |
| 08/05/95 | 8:11 | 2.21 | 0.065 | 5616.0 |
| 08/05/95 | 17:18 | 2.2 | 0.05 | 4320.0 |
| 08/05/95 | 17:33 | 2.21 | 0.065 | 5616.0 |
| 09/05/95 | 9:55 | 2.21 | 0.065 | 5616.0 |
| 09/05/95 | 17:25 | 2.2 | 0.05 | 4320.0 |
| 09/05/95 | 17:40 | 2.21 | 0.065 | 5616.0 |

## Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 10/05/95 | 10:25 | 2.21 | 0.065 | 5616.0 |
| 10/05/95 | 17:32 | 2.2 | 0.05 | 4320.0 |
| 10/05/95 | 18:02 | 2.21 | 0.065 | 5616.0 |
| 11/05/95 | 9:47 | 2.21 | 0.065 | 5616.0 |
| 11/05/95 | 17:31 | 2.2 | 0.05 | 4320.0 |
| 11/05/95 | 17:47 | 2.21 | 0.065 | 5616.0 |
| 12/05/95 | 8:09 | 2.21 | 0.065 | 5616.0 |
| 12/05/95 | 17:38 | 2.19 | 0.04 | 3456.0 |
| 12/05/95 | 18:08 | 2.2 | 0.05 | 4320.0 |
| 13/05/95 | 6:08 | 2.21 | 0.065 | 5616.0 |
| 13/05/95 | 19:44 | 2.19 | 0.04 | 3456.0 |
| 13/05/95 | 20:15 | 2.2 | 0.05 | 4320.0 |
| 14/05/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 14/05/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 14/05/95 | 10:44 | 2.2 | 0.05 | 4320.0 |
| 14/05/95 | 17:35 | 2.19 | 0.04 | 3456.0 |
| 14/05/95 | 17:51 | 2.2 | 0.05 | 4320.0 |
| 15/05/95 | 10:12 | 2.2 | 0.05 | 4320.0 |
| 15/05/95 | 14:04 | 2.2 | 0.05 | 4320.0 |
| 15/05/95 | 14:41 | 2.19 | 0.04 | 3456.0 |
| 15/05/95 | 17:33 | 2.19 | 0.04 | 3456.0 |
| 15/05/95 | 18:03 | 2.2 | 0.05 | 4320.0 |
| 16/05/95 | 10:02 | 2.2 | 0.05 | 4320.0 |
| 16/05/95 | 17:31 | 2.19 | 0.04 | 3456.0 |
| 16/05/95 | 18:01 | 2.2 | 0.05 | 4320.0 |
| 17/05/95 | 10:07 | 2.2 | 0.05 | 4320.0 |
| 17/05/95 | 17:43 | 2.18 | 0.03 | 2592.0 |
| 17/05/95 | 18:14 | 2.2 | 0.05 | 4320.0 |
| 18/05/95 | 11:27 | 2.2 | 0.05 | 4320.0 |
| 18/05/95 | 17:41 | 2.19 | 0.04 | 3456.0 |
| 18/05/95 | 18:12 | 2.2 | 0.05 | 4320.0 |
| 19/05/95 | 9:48 | 2.2 | 0.05 | 4320.0 |
| 19/05/95 | 16:24 | 2.19 | 0.04 | 3456.0 |
| 19/05/95 | 18:09 | 2.18 | 0.03 | 2592.0 |
| 19/05/95 | 18:32 | 2.2 | 0.05 | 4320.0 |
| 20/05/95 | 6:08 | 2.2 | 0.05 | 4320.0 |
| 20/05/95 | 12:00 | 2.19 | 0.04 | 3456.0 |
| 20/05/95 | 15:59 | 2.18 | 0.03 | 2592.0 |
| 20/05/95 | 19:51 | 2.18 | 0.03 | 2592.0 |
| 20/05/95 | 20:21 | 2.19 | 0.04 | 3456.0 |
| 21/05/95 | 11:35 | 2.19 | 0.04 | 3456.0 |
| 21/05/95 | 17:49 | 2.18 | 0.03 | 2592.0 |
| 21/05/95 | 18:27 | 2.2 | 0.05 | 4320.0 |
| 22/05/95 | 10:18 | 2.2 | 0.05 | 4320.0 |

## Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 22/05/95 | 17:54 | 2.18 | 0.03 | 2592.0 |
| 22/05/95 | 18:25 | 2.19 | 0.04 | 3456.0 |
| 23/05/95 | 10:38 | 2.2 | 0.05 | 4320.0 |
| 23/05/95 | 17:59 | 2.18 | 0.03 | 2592.0 |
| 23/05/95 | 18:15 | 2.19 | 0.04 | 3456.0 |
| 24/05/95 | 10:13 | 2.2 | 0.05 | 4320.0 |
| 24/05/95 | 17:49 | 2.18 | 0.03 | 2592.0 |
| 24/05/95 | 18:28 | 2.2 | 0.05 | 4320.0 |
| 25/05/95 | 9:49 | 2.2 | 0.05 | 4320.0 |
| 25/05/95 | 17:55 | 2.18 | 0.03 | 2592.0 |
| 25/05/95 | 18:25 | 2.2 | 0.05 | 4320.0 |
| 26/05/95 | 11:46 | 2.2 | 0.05 | 4320.0 |
| 26/05/95 | 18:00 | 2.18 | 0.03 | 2592.0 |
| 26/05/95 | 18:23 | 2.2 | 0.05 | 4320.0 |
| 27/05/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 27/05/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 27/05/95 | 7:14 | 2.2 | 0.05 | 4320.0 |
| 27/05/95 | 15:28 | 2.19 | 0.04 | 3456.0 |
| 27/05/95 | 20:05 | 2.18 | 0.03 | 2592.0 |
| 27/05/95 | 20:28 | 2.19 | 0.04 | 3456.0 |
| 28/05/95 | 12:12 | 2.2 | 0.05 | 4320.0 |
| 28/05/95 | 17:33 | 2.18 | 0.03 | 2592.0 |
| 28/05/95 | 18:34 | 2.2 | 0.05 | 4320.0 |
| 29/05/95 | 10:11 | 2.2 | 0.05 | 4320.0 |
| 29/05/95 | 17:47 | 2.19 | 0.04 | 3456.0 |
| 29/05/95 | 18:25 | 2.2 | 0.05 | 4320.0 |
| 30/05/95 | 10:09 | 2.2 | 0.05 | 4320.0 |
| 30/05/95 | 18:00 | 2.19 | 0.04 | 3456.0 |
| 30/05/95 | 18:38 | 2.2 | 0.05 | 4320.0 |
| 31/05/95 | 10:52 | 2.2 | 0.05 | 4320.0 |
| 31/05/95 | 17:51 | 2.18 | 0.03 | 2592.0 |
| 31/05/95 | 18:29 | 2.19 | 0.04 | 3456.0 |
| | | **Average 5.95** | **0.048** | **4106.1** |
| | | **St.Dev. 5.95** | **0.010** | **870.5** |
| 01/06/95 | 17:49 | 2.19 | 0.04 | 3456.0 |
| 01/06/95 | 18:35 | 2.2 | 0.05 | 4320.0 |
| 02/06/95 | 10:41 | 2.2 | 0.05 | 4320.0 |
| 02/06/95 | 18:25 | 2.19 | 0.04 | 3456.0 |
| 02/06/95 | 19:03 | 2.2 | 0.05 | 4320.0 |
| 03/06/95 | 2:33 | 2.2 | 0.05 | 4320.0 |
| 03/06/95 | 2:48 | 2.2 | 0.05 | 4320.0 |
| 03/06/95 | 9:02 | 2.2 | 0.05 | 4320.0 |
| 03/06/95 | 12:32 | 2.19 | 0.04 | 3456.0 |
| 03/06/95 | 20:15 | 2.18 | 0.03 | 2592.0 |

## Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 03/06/95 | 20:46 | 2.19 | 0.04 | 3456.0 |
| 04/06/95 | 11:23 | 2.19 | 0.04 | 3456.0 |
| 04/06/95 | 20:06 | 2.18 | 0.03 | 2592.0 |
| 04/06/95 | 20:52 | 2.19 | 0.04 | 3456.0 |
| 05/06/95 | 11:43 | 2.19 | 0.04 | 3456.0 |
| 05/06/95 | 16:50 | 2.18 | 0.03 | 2592.0 |
| 05/06/95 | 18:42 | 2.18 | 0.03 | 2592.0 |
| 05/06/95 | 19:05 | 2.19 | 0.04 | 3456.0 |
| 06/06/95 | 10:19 | 2.19 | 0.04 | 3456.0 |
| 06/06/95 | 17:25 | 2.18 | 0.03 | 2592.0 |
| 06/06/95 | 18:40 | 2.18 | 0.03 | 2592.0 |
| 06/06/95 | 19:03 | 2.19 | 0.04 | 3456.0 |
| 07/06/95 | 12:02 | 2.19 | 0.04 | 3456.0 |
| 07/06/95 | 18:31 | 2.18 | 0.03 | 2592.0 |
| 07/06/95 | 19:02 | 2.19 | 0.04 | 3456.0 |
| 08/06/95 | 10:38 | 2.19 | 0.04 | 3456.0 |
| 08/06/95 | 18:14 | 2.18 | 0.03 | 2592.0 |
| 08/06/95 | 18:52 | 2.19 | 0.04 | 3456.0 |
| 09/06/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 09/06/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 09/06/95 | 10:58 | 2.2 | 0.05 | 4320.0 |
| 09/06/95 | 18:27 | 2.19 | 0.04 | 3456.0 |
| 09/06/95 | 18:35 | 2.2 | 0.05 | 4320.0 |
| 10/06/95 | 8:40 | 2.2 | 0.05 | 4320.0 |
| 10/06/95 | 20:15 | 2.18 | 0.03 | 2592.0 |
| 10/06/95 | 20:31 | 2.2 | 0.05 | 4320.0 |
| 11/06/95 | 12:14 | 2.2 | 0.05 | 4320.0 |
| 11/06/95 | 18:05 | 2.19 | 0.04 | 3456.0 |
| 11/06/95 | 18:43 | 2.2 | 0.05 | 4320.0 |
| 12/06/95 | 12:18 | 2.2 | 0.05 | 4320.0 |
| 12/06/95 | 18:02 | 2.19 | 0.04 | 3456.0 |
| 12/06/95 | 18:40 | 2.2 | 0.05 | 4320.0 |
| 13/06/95 | 12:00 | 2.2 | 0.05 | 4320.0 |
| 13/06/95 | 18:06 | 2.19 | 0.04 | 3456.0 |
| 13/06/95 | 18:36 | 2.2 | 0.05 | 4320.0 |
| 14/06/95 | 12:04 | 2.2 | 0.05 | 4320.0 |
| 14/06/95 | 18:10 | 2.19 | 0.04 | 3456.0 |
| 14/06/95 | 18:48 | 2.2 | 0.05 | 4320.0 |
| 14/06/95 | 19:40 | 2.2 | 0.05 | 4320.0 |
| 14/06/95 | 19:40 | 2.2 | 0.05 | 4320.0 |
| 15/06/95 | 10:53 | 2.2 | 0.05 | 4320.0 |
| 15/06/95 | 18:06 | 2.19 | 0.04 | 3456.0 |
| 15/06/95 | 18:52 | 2.2 | 0.05 | 4320.0 |
| 16/06/95 | 11:42 | 2.2 | 0.05 | 4320.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 16/06/95 | 18:33 | 2.19 | 0.04 | 3456.0 |
| 16/06/95 | 19:03 | 2.2 | 0.05 | 4320.0 |
| 17/06/95 | 1:25 | 2.2 | 0.05 | 4320.0 |
| 17/06/95 | 1:25 | 2.21 | 0.065 | 5616.0 |
| 17/06/95 | 5:55 | 2.21 | 0.065 | 5616.0 |
| 17/06/95 | 20:36 | 2.18 | 0.03 | 2592.0 |
| 17/06/95 | 20:52 | 2.19 | 0.04 | 3456.0 |
| 18/06/95 | 12:57 | 2.2 | 0.05 | 4320.0 |
| 18/06/95 | 18:19 | 2.19 | 0.04 | 3456.0 |
| 18/06/95 | 18:57 | 2.2 | 0.05 | 4320.0 |
| 19/06/95 | 11:39 | 2.2 | 0.05 | 4320.0 |
| 19/06/95 | 16:31 | 2.19 | 0.04 | 3456.0 |
| 19/06/95 | 18:38 | 2.19 | 0.04 | 3456.0 |
| 19/06/95 | 18:46 | 2.19 | 0.04 | 3456.0 |
| 20/06/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 20/06/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 20/06/95 | 11:35 | 2.2 | 0.05 | 4320.0 |
| 20/06/95 | 19:04 | 2.19 | 0.04 | 3456.0 |
| 20/06/95 | 19:13 | 2.2 | 0.05 | 4320.0 |
| 21/06/95 | 11:23 | 2.2 | 0.05 | 4320.0 |
| 21/06/95 | 18:21 | 2.19 | 0.04 | 3456.0 |
| 21/06/95 | 19:01 | 2.2 | 0.05 | 4320.0 |
| 22/06/95 | 3:02 | 2.2 | 0.05 | 4320.0 |
| 22/06/95 | 3:18 | 2.2 | 0.05 | 4320.0 |
| 22/06/95 | 9:06 | 2.2 | 0.05 | 4320.0 |
| 22/06/95 | 15:12 | 2.19 | 0.04 | 3456.0 |
| 22/06/95 | 18:01 | 2.19 | 0.04 | 3456.0 |
| 22/06/95 | 18:34 | 2.2 | 0.05 | 4320.0 |
| 23/06/95 | 10:43 | 2.2 | 0.05 | 4320.0 |
| 23/06/95 | 17:49 | 2.19 | 0.04 | 3456.0 |
| 23/06/95 | 18:21 | 2.2 | 0.05 | 4320.0 |
| 24/06/95 | 7:05 | 2.21 | 0.065 | 5616.0 |
| 24/06/95 | 9:17 | 2.2 | 0.05 | 4320.0 |
| 24/06/95 | 15:23 | 2.19 | 0.04 | 3456.0 |
| 24/06/95 | 19:26 | 2.19 | 0.04 | 3456.0 |
| 24/06/95 | 19:51 | 2.19 | 0.04 | 3456.0 |
| 25/06/95 | 5:29 | 2.2 | 0.05 | 4320.0 |
| 25/06/95 | 6:43 | 2.2 | 0.05 | 4320.0 |
| 25/06/95 | 10:54 | 2.2 | 0.05 | 4320.0 |
| 25/06/95 | 14:57 | 2.19 | 0.04 | 3456.0 |
| 25/06/95 | 17:02 | 2.19 | 0.04 | 3456.0 |
| 25/06/95 | 17:34 | 2.2 | 0.05 | 4320.0 |
| 26/06/95 | 8:37 | 2.2 | 0.05 | 4320.0 |
| 26/06/95 | 13:23 | 2.19 | 0.04 | 3456.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 26/06/95 | 16:49 | 2.19 | 0.04 | 3456.0 |
| 26/06/95 | 17:21 | 2.2 | 0.05 | 4320.0 |
| 27/06/95 | 7:40 | 2.2 | 0.05 | 4320.0 |
| 27/06/95 | 7:40 | 2.2 | 0.05 | 4320.0 |
| 27/06/95 | 16:30 | 2.18 | 0.03 | 2592.0 |
| 27/06/95 | 17:01 | 2.19 | 0.04 | 3456.0 |
| 28/06/95 | 8:38 | 2.2 | 0.05 | 4320.0 |
| 28/06/95 | 16:13 | 2.18 | 0.03 | 2592.0 |
| 28/06/95 | 16:59 | 2.19 | 0.04 | 3456.0 |
| 29/06/95 | 9:36 | 2.2 | 0.05 | 4320.0 |
| 29/06/95 | 14:49 | 2.19 | 0.04 | 3456.0 |
| 29/06/95 | 16:26 | 2.19 | 0.04 | 3456.0 |
| 29/06/95 | 16:57 | 2.19 | 0.04 | 3456.0 |
| 30/06/95 | 8:49 | 2.2 | 0.05 | 4320.0 |
| 30/06/95 | 16:39 | 2.19 | 0.04 | 3456.0 |
| 30/06/95 | 17:48 | 2.2 | 0.05 | 4320.0 |
| 30/06/95 | 23:40 | 2.2 | 0.05 | 4320.0 |
| | | **Average 6.95** | **0.044** | **3842.9** |
| | | **St.Dev. 6.95** | **0.007** | **645.8** |
| 01/07/95 | 7:55 | 2.2 | 0.05 | 4320.0 |
| 01/07/95 | 16:30 | 2.19 | 0.04 | 3456.0 |
| 01/07/95 | 18:37 | 2.18 | 0.03 | 2592.0 |
| 01/07/95 | 19:00 | 2.19 | 0.04 | 3456.0 |
| 02/07/95 | 5:22 | 2.2 | 0.05 | 4320.0 |
| 02/07/95 | 5:45 | 2.2 | 0.05 | 4320.0 |
| 02/07/95 | 9:08 | 2.2 | 0.05 | 4320.0 |
| 02/07/95 | 16:35 | 2.19 | 0.04 | 3456.0 |
| 02/07/95 | 17:07 | 2.2 | 0.05 | 4320.0 |
| 03/07/95 | 10:58 | 2.2 | 0.05 | 4320.0 |
| 03/07/95 | 12:49 | 2.19 | 0.04 | 3456.0 |
| 03/07/95 | 17:03 | 2.19 | 0.04 | 3456.0 |
| 03/07/95 | 17:27 | 2.2 | 0.05 | 4320.0 |
| 04/07/95 | 7:04 | 2.21 | 0.065 | 5616.0 |
| 04/07/95 | 17:01 | 2.19 | 0.04 | 3456.0 |
| 04/07/95 | 17:32 | 2.2 | 0.05 | 4320.0 |
| 05/07/95 | 9:24 | 2.2 | 0.05 | 4320.0 |
| 05/07/95 | 16:52 | 2.19 | 0.04 | 3456.0 |
| 05/07/95 | 17:38 | 2.2 | 0.05 | 4320.0 |
| 06/07/95 | 9:30 | 2.2 | 0.05 | 4320.0 |
| 06/07/95 | 16:57 | 2.19 | 0.04 | 3456.0 |
| 06/07/95 | 17:21 | 2.2 | 0.05 | 4320.0 |
| 07/07/95 | 9:05 | 2.2 | 0.05 | 4320.0 |
| 07/07/95 | 17:18 | 2.19 | 0.04 | 3456.0 |
| 07/07/95 | 17:41 | 2.2 | 0.05 | 4320.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 08/07/95 | 7:41 | 2.2 | 0.05 | 4320.0 |
| 08/07/95 | 19:08 | 2.19 | 0.04 | 3456.0 |
| 08/07/95 | 19:32 | 2.19 | 0.04 | 3456.0 |
| 09/07/95 | 5:38 | 2.2 | 0.05 | 4320.0 |
| 09/07/95 | 9:46 | 2.2 | 0.05 | 4320.0 |
| 09/07/95 | 16:44 | 2.19 | 0.04 | 3456.0 |
| 09/07/95 | 17:23 | 2.2 | 0.05 | 4320.0 |
| 10/07/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 10/07/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 10/07/95 | 10:00 | 2.2 | 0.05 | 4320.0 |
| 10/07/95 | 17:15 | 2.19 | 0.04 | 3456.0 |
| 10/07/95 | 17:22 | 2.19 | 0.04 | 3456.0 |
| 11/07/95 | 11:22 | 2.2 | 0.05 | 4320.0 |
| 11/07/95 | 17:21 | 2.19 | 0.04 | 3456.0 |
| 11/07/95 | 17:51 | 2.2 | 0.05 | 4320.0 |
| 12/07/95 | 11:06 | 2.2 | 0.05 | 4320.0 |
| 12/07/95 | 17:28 | 2.19 | 0.04 | 3456.0 |
| 12/07/95 | 17:58 | 2.19 | 0.04 | 3456.0 |
| 13/07/95 | 2:28 | 2.2 | 0.05 | 4320.0 |
| 13/07/95 | 2:51 | 2.2 | 0.05 | 4320.0 |
| 13/07/95 | 8:28 | 2.2 | 0.05 | 4320.0 |
| 13/07/95 | 14:20 | 2.19 | 0.04 | 3456.0 |
| 13/07/95 | 17:13 | 2.18 | 0.03 | 2592.0 |
| 13/07/95 | 17:43 | 2.2 | 0.05 | 4320.0 |
| 14/07/95 | 10:20 | 2.2 | 0.05 | 4320.0 |
| 14/07/95 | 17:50 | 2.18 | 0.03 | 2592.0 |
| 14/07/95 | 18:20 | 2.2 | 0.05 | 4320.0 |
| 15/07/95 | 6:12 | 2.2 | 0.05 | 4320.0 |
| 15/07/95 | 13:49 | 2.19 | 0.04 | 3456.0 |
| 15/07/95 | 18:34 | 2.18 | 0.03 | 2592.0 |
| 15/07/95 | 19:42 | 2.18 | 0.03 | 2592.0 |
| 15/07/95 | 19:57 | 2.19 | 0.04 | 3456.0 |
| 16/07/95 | 11:26 | 2.2 | 0.05 | 4320.0 |
| 16/07/95 | 15:19 | 2.19 | 0.04 | 3456.0 |
| 16/07/95 | 18:04 | 2.19 | 0.04 | 3456.0 |
| 16/07/95 | 18:26 | 2.19 | 0.04 | 3456.0 |
| 17/07/95 | 10:56 | 2.2 | 0.05 | 4320.0 |
| 17/07/95 | 18:03 | 2.18 | 0.03 | 2592.0 |
| 17/07/95 | 18:18 | 2.19 | 0.04 | 3456.0 |
| 18/07/95 | 10:40 | 2.19 | 0.04 | 3456.0 |
| 18/07/95 | 17:40 | 2.19 | 0.04 | 3456.0 |
| 18/07/95 | 18:10 | 2.19 | 0.04 | 3456.0 |
| 19/07/95 | 11:10 | 2.2 | 0.05 | 4320.0 |
| 19/07/95 | 16:24 | 2.19 | 0.04 | 3456.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 19/07/95 | 18:02 | 2.19 | 0.04 | 3456.0 |
| 19/07/95 | 18:24 | 2.19 | 0.04 | 3456.0 |
| 20/07/95 | 10:31 | 2.2 | 0.05 | 4320.0 |
| 20/07/95 | 17:54 | 2.19 | 0.04 | 3456.0 |
| 20/07/95 | 18:01 | 2.19 | 0.04 | 3456.0 |
| 21/07/95 | 11:38 | 2.2 | 0.05 | 4320.0 |
| 21/07/95 | 18:31 | 2.19 | 0.04 | 3456.0 |
| 21/07/95 | 18:46 | 2.19 | 0.04 | 3456.0 |
| 22/07/95 | 0:16 | 2.2 | 0.05 | 4320.0 |
| 22/07/95 | 0:38 | 2.2 | 0.05 | 4320.0 |
| 22/07/95 | 8:15 | 2.2 | 0.05 | 4320.0 |
| 22/07/95 | 11:38 | 2.2 | 0.05 | 4320.0 |
| 22/07/95 | 17:38 | 2.19 | 0.04 | 3456.0 |
| 22/07/95 | 20:08 | 2.18 | 0.03 | 2592.0 |
| 22/07/95 | 20:15 | 2.19 | 0.04 | 3456.0 |
| 23/07/95 | 0:00 | 2.19 | 0.04 | 3456.0 |
| 23/07/95 | 0:00 | 2.19 | 0.04 | 3456.0 |
| 23/07/95 | 11:28 | 2.19 | 0.04 | 3456.0 |
| 23/07/95 | 18:19 | 2.18 | 0.03 | 2592.0 |
| 23/07/95 | 18:41 | 2.19 | 0.04 | 3456.0 |
| 24/07/95 | 10:45 | 2.19 | 0.04 | 3456.0 |
| 24/07/95 | 18:07 | 2.18 | 0.03 | 2592.0 |
| 24/07/95 | 18:36 | 2.19 | 0.04 | 3456.0 |
| 25/07/95 | 10:55 | 2.19 | 0.04 | 3456.0 |
| 25/07/95 | 17:47 | 2.18 | 0.03 | 2592.0 |
| 25/07/95 | 18:31 | 2.19 | 0.04 | 3456.0 |
| 26/07/95 | 10:35 | 2.19 | 0.04 | 3456.0 |
| 26/07/95 | 18:34 | 2.18 | 0.03 | 2592.0 |
| 26/07/95 | 18:49 | 2.19 | 0.04 | 3456.0 |
| 27/07/95 | 11:08 | 2.2 | 0.05 | 4320.0 |
| 27/07/95 | 17:29 | 2.19 | 0.04 | 3456.0 |
| 27/07/95 | 18:29 | 2.2 | 0.05 | 4320.0 |
| 28/07/95 | 11:10 | 2.2 | 0.05 | 4320.0 |
| 28/07/95 | 18:24 | 2.19 | 0.04 | 3456.0 |
| 28/07/95 | 19:09 | 2.19 | 0.04 | 3456.0 |
| 29/07/95 | 6:21 | 2.2 | 0.05 | 4320.0 |
| 29/07/95 | 10:35 | 2.2 | 0.05 | 4320.0 |
| 29/07/95 | 18:41 | 2.18 | 0.03 | 2592.0 |
| 29/07/95 | 19:56 | 2.18 | 0.03 | 2592.0 |
| 29/07/95 | 20:41 | 2.19 | 0.04 | 3456.0 |
| 30/07/95 | 6:24 | 2.19 | 0.04 | 3456.0 |
| 30/07/95 | 9:08 | 2.2 | 0.05 | 4320.0 |
| 30/07/95 | 14:00 | 2.19 | 0.04 | 3456.0 |
| 30/07/95 | 18:14 | 2.19 | 0.04 | 3456.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 30/07/95 | 18:44 | 2.19 | 0.04 | 3456.0 |
| 31/07/95 | 10:33 | 2.19 | 0.04 | 3456.0 |
| 31/07/95 | 18:17 | 2.18 | 0.03 | 2592.0 |
| 31/07/95 | 18:46 | 2.19 | 0.04 | 3456.0 |
| | | **Average 7.95** | **0.043** | **3710.8** |
| | | **St.Dev. 7.95** | **0.007** | **600.7** |
| 01/08/95 | 0:00 | 2.19 | 0.04 | 3456.0 |
| 01/08/95 | 11:35 | 2.19 | 0.04 | 3456.0 |
| 01/08/95 | 18:22 | 2.18 | 0.03 | 2592.0 |
| 01/08/95 | 18:37 | 2.19 | 0.04 | 3456.0 |
| 02/08/95 | 11:23 | 2.19 | 0.04 | 3456.0 |
| 02/08/95 | 18:03 | 2.18 | 0.03 | 2592.0 |
| 02/08/95 | 18:32 | 2.19 | 0.04 | 3456.0 |
| 03/08/95 | 11:04 | 2.19 | 0.04 | 3456.0 |
| 03/08/95 | 17:43 | 2.18 | 0.03 | 2592.0 |
| 03/08/95 | 18:05 | 2.19 | 0.04 | 3456.0 |
| 04/08/95 | 10:29 | 2.19 | 0.04 | 3456.0 |
| 04/08/95 | 17:46 | 2.18 | 0.03 | 2592.0 |
| 04/08/95 | 18:23 | 2.19 | 0.04 | 3456.0 |
| 05/08/95 | 4:29 | 2.2 | 0.05 | 4320.0 |
| 05/08/95 | 17:19 | 2.18 | 0.03 | 2592.0 |
| 05/08/95 | 18:40 | 2.18 | 0.03 | 2592.0 |
| 05/08/95 | 19:02 | 2.19 | 0.04 | 3456.0 |
| 06/08/95 | 7:00 | 2.2 | 0.05 | 4320.0 |
| 06/08/95 | 7:00 | 2.2 | 0.05 | 4320.0 |
| 06/08/95 | 11:30 | 2.2 | 0.05 | 4320.0 |
| 06/08/95 | 14:52 | 2.2 | 0.05 | 4320.0 |
| 06/08/95 | 18:00 | 2.2 | 0.05 | 4320.0 |
| 06/08/95 | 18:22 | 2.2 | 0.05 | 4320.0 |
| 07/08/95 | 4:37 | 2.21 | 0.065 | 5616.0 |
| 07/08/95 | 10:22 | 2.21 | 0.065 | 5616.0 |
| 07/08/95 | 16:37 | 2.2 | 0.05 | 4320.0 |
| 07/08/95 | 17:14 | 2.21 | 0.065 | 5616.0 |
| 08/08/95 | 11:21 | 2.21 | 0.065 | 5616.0 |
| 08/08/95 | 17:21 | 2.2 | 0.05 | 4320.0 |
| 08/08/95 | 17:36 | 2.21 | 0.065 | 5616.0 |
| 09/08/95 | 8:50 | 2.21 | 0.065 | 5616.0 |
| 09/08/95 | 13:58 | 2.2 | 0.05 | 4320.0 |
| 09/08/95 | 17:05 | 2.2 | 0.05 | 4320.0 |
| 09/08/95 | 17:50 | 2.21 | 0.065 | 5616.0 |
| 10/08/95 | 10:35 | 2.21 | 0.065 | 5616.0 |
| 10/08/95 | 17:20 | 2.2 | 0.05 | 4320.0 |
| 10/08/95 | 17:42 | 2.2 | 0.05 | 4320.0 |
| 11/08/95 | 9:42 | 2.2 | 0.05 | 4320.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 11/08/95 | 17:42 | 2.2 | 0.05 | 4320.0 |
| 11/08/95 | 18:26 | 2.21 | 0.065 | 5616.0 |
| 12/08/95 | 8:11 | 2.21 | 0.065 | 5616.0 |
| 12/08/95 | 19:26 | 2.2 | 0.05 | 4320.0 |
| 12/08/95 | 20:03 | 2.2 | 0.05 | 4320.0 |
| 13/08/95 | 12:33 | 2.2 | 0.05 | 4320.0 |
| 13/08/95 | 17:25 | 2.2 | 0.05 | 4320.0 |
| 13/08/95 | 17:48 | 2.2 | 0.05 | 4320.0 |
| 14/08/95 | 10:47 | 2.21 | 0.065 | 5616.0 |
| 14/08/95 | 17:32 | 2.2 | 0.05 | 4320.0 |
| 14/08/95 | 18:32 | 2.21 | 0.065 | 5616.0 |
| 14/08/95 | 23:39 | 2.21 | 0.065 | 5616.0 |
| 15/08/95 | 0:02 | 2.21 | 0.065 | 5616.0 |
| 15/08/95 | 9:24 | 2.21 | 0.065 | 5616.0 |
| 15/08/95 | 14:02 | 2.2 | 0.05 | 4320.0 |
| 15/08/95 | 17:39 | 2.2 | 0.05 | 4320.0 |
| 15/08/95 | 18:01 | 2.21 | 0.065 | 5616.0 |
| 15/08/95 | 19:01 | 2.21 | 0.065 | 5616.0 |
| 15/08/95 | 19:09 | 2.21 | 0.065 | 5616.0 |
| 16/08/95 | 8:23 | 2.21 | 0.065 | 5616.0 |
| 16/08/95 | 18:01 | 2.2 | 0.05 | 4320.0 |
| 16/08/95 | 18:38 | 2.21 | 0.065 | 5616.0 |
| 17/08/95 | 9:08 | 2.21 | 0.065 | 5616.0 |
| 17/08/95 | 17:53 | 2.2 | 0.05 | 4320.0 |
| 17/08/95 | 18:23 | 2.21 | 0.065 | 5616.0 |
| 18/08/95 | 0:00 | 2.21 | 0.065 | 5616.0 |
| 18/08/95 | 0:00 | 2.21 | 0.065 | 5616.0 |
| 18/08/95 | 11:14 | 2.21 | 0.065 | 5616.0 |
| 18/08/95 | 17:51 | 2.2 | 0.05 | 4320.0 |
| 18/08/95 | 18:28 | 2.21 | 0.065 | 5616.0 |
| 19/08/95 | 7:41 | 2.21 | 0.065 | 5616.0 |
| 19/08/95 | 19:41 | 2.2 | 0.05 | 4320.0 |
| 19/08/95 | 20:03 | 2.2 | 0.05 | 4320.0 |
| 20/08/95 | 11:38 | 2.21 | 0.065 | 5616.0 |
| 20/08/95 | 17:45 | 2.2 | 0.05 | 4320.0 |
| 20/08/95 | 18:15 | 2.2 | 0.05 | 4320.0 |
| 21/08/95 | 11:05 | 2.21 | 0.065 | 5616.0 |
| 21/08/95 | 17:42 | 2.2 | 0.05 | 4320.0 |
| 21/08/95 | 18:27 | 2.21 | 0.065 | 5616.0 |
| 22/08/95 | 11:10 | 2.21 | 0.065 | 5616.0 |
| 22/08/95 | 18:24 | 2.2 | 0.05 | 4320.0 |
| 22/08/95 | 18:54 | 2.2 | 0.05 | 4320.0 |
| 23/08/95 | 13:14 | 2.2 | 0.05 | 4320.0 |
| 23/08/95 | 17:59 | 2.2 | 0.05 | 4320.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 23/08/95 | 19:06 | 2.2 | 0.05 | 4320.0 |
| 24/08/95 | 5:50 | 2.21 | 0.065 | 5616.0 |
| 24/08/95 | 5:57 | 2.21 | 0.065 | 5616.0 |
| 24/08/95 | 17:48 | 2.2 | 0.05 | 4320.0 |
| 24/08/95 | 18:33 | 2.21 | 0.065 | 5616.0 |
| 24/08/95 | 21:25 | 2.21 | 0.065 | 5616.0 |
| 25/08/95 | 10:01 | 2.21 | 0.065 | 5616.0 |
| 25/08/95 | 18:30 | 2.2 | 0.05 | 4320.0 |
| 25/08/95 | 18:45 | 2.21 | 0.065 | 5616.0 |
| 26/08/95 | 6:58 | 2.21 | 0.065 | 5616.0 |
| 26/08/95 | 19:50 | 2.2 | 0.05 | 4320.0 |
| 26/08/95 | 21:34 | 2.21 | 0.065 | 5616.0 |
| 26/08/95 | 22:12 | 2.2 | 0.05 | 4320.0 |
| 27/08/95 | 12:40 | 2.2 | 0.05 | 4320.0 |
| 27/08/95 | 18:02 | 2.2 | 0.05 | 4320.0 |
| 27/08/95 | 18:47 | 2.2 | 0.05 | 4320.0 |
| 28/08/95 | 12:00 | 2.2 | 0.05 | 4320.0 |
| 28/08/95 | 18:14 | 2.2 | 0.05 | 4320.0 |
| 28/08/95 | 18:51 | 2.2 | 0.05 | 4320.0 |
| 29/08/95 | 11:34 | 2.2 | 0.05 | 4320.0 |
| 29/08/95 | 18:04 | 2.2 | 0.05 | 4320.0 |
| 29/08/95 | 19:03 | 2.2 | 0.05 | 4320.0 |
| 30/08/95 | 11:54 | 2.2 | 0.05 | 4320.0 |
| 30/08/95 | 17:54 | 2.2 | 0.05 | 4320.0 |
| 30/08/95 | 18:38 | 2.2 | 0.05 | 4320.0 |
| 31/08/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 31/08/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 31/08/95 | 12:45 | 2.2 | 0.05 | 4320.0 |
| 31/08/95 | 18:29 | 2.19 | 0.04 | 3456.0 |
| 31/08/95 | 19:45 | 2.2 | 0.05 | 4320.0 |
| | | **Average 8.95** | **0.053** | **4593.9** |
| | | **St.Dev. 8.95** | **0.010** | **865.9** |
| 01/09/95 | 18:36 | 2.19 | 0.04 | 3456.0 |
| 01/09/95 | 19:44 | 2.2 | 0.05 | 4320.0 |
| 02/09/95 | 7:59 | 2.21 | 0.065 | 5616.0 |
| 02/09/95 | 20:28 | 2.19 | 0.04 | 3456.0 |
| 02/09/95 | 20:58 | 2.2 | 0.05 | 4320.0 |
| 03/09/95 | 12:35 | 2.2 | 0.05 | 4320.0 |
| 03/09/95 | 18:50 | 2.19 | 0.04 | 3456.0 |
| 03/09/95 | 19:28 | 2.2 | 0.05 | 4320.0 |
| 04/09/95 | 7:35 | 2.2 | 0.05 | 4320.0 |
| 04/09/95 | 7:35 | 2.2 | 0.05 | 4320.0 |
| 21/09/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 21/09/95 | 0:00 | 2.2 | 0.05 | 4320.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 21/09/95 | 13:00 | 2.2 | 0.05 | 4320.0 |
| 21/09/95 | 18:14 | 2.2 | 0.05 | 4320.0 |
| 21/09/95 | 18:29 | 2.21 | 0.065 | 5616.0 |
| 22/09/95 | 10:14 | 2.21 | 0.065 | 5616.0 |
| 22/09/95 | 17:59 | 2.2 | 0.05 | 4320.0 |
| 22/09/95 | 18:06 | 2.2 | 0.05 | 4320.0 |
| 22/09/95 | 19:44 | 2.21 | 0.065 | 5616.0 |
| 22/09/95 | 19:51 | 2.21 | 0.065 | 5616.0 |
| 23/09/95 | 3:58 | 2.21 | 0.065 | 5616.0 |
| 23/09/95 | 15:21 | 2.2 | 0.05 | 4320.0 |
| 24/09/95 | 4:50 | 2.2 | 0.05 | 4320.0 |
| 24/09/95 | 5:43 | 2.21 | 0.065 | 5616.0 |
| 24/09/95 | 18:12 | 2.2 | 0.05 | 4320.0 |
| 24/09/95 | 18:50 | 2.21 | 0.065 | 5616.0 |
| 25/09/95 | 4:04 | 2.21 | 0.065 | 5616.0 |
| 25/09/95 | 17:04 | 2.2 | 0.05 | 4320.0 |
| 26/09/95 | 14:11 | 2.2 | 0.05 | 4320.0 |
| 26/09/95 | 20:03 | 2.2 | 0.05 | 4320.0 |
| 26/09/95 | 20:26 | 2.2 | 0.05 | 4320.0 |
| 27/09/95 | 4:48 | 2.2 | 0.05 | 4320.0 |
| 27/09/95 | 5:55 | 2.21 | 0.065 | 5616.0 |
| 27/09/95 | 18:25 | 2.2 | 0.05 | 4320.0 |
| 27/09/95 | 19:02 | 2.2 | 0.05 | 4320.0 |
| 28/09/95 | 10:24 | 2.2 | 0.05 | 4320.0 |
| 28/09/95 | 18:17 | 2.2 | 0.05 | 4320.0 |
| 28/09/95 | 18:47 | 2.2 | 0.05 | 4320.0 |
| 29/09/95 | 12:09 | 2.2 | 0.05 | 4320.0 |
| 29/09/95 | 18:38 | 2.2 | 0.05 | 4320.0 |
| 29/09/95 | 19:23 | 2.21 | 0.065 | 5616.0 |
| 29/09/95 | 23:38 | 2.21 | 0.065 | 5616.0 |
| 30/09/95 | 1:31 | 2.21 | 0.065 | 5616.0 |
| 30/09/95 | 4:16 | 2.21 | 0.065 | 5616.0 |
| 30/09/95 | 20:53 | 2.2 | 0.05 | 4320.0 |
| | | **Average 9.95** | **0.054** | **4665.6** |
| | | **St.Dev. 9.95** | **0.008** | **680.6** |
| 01/10/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 01/10/95 | 5:07 | 2.2 | 0.05 | 4320.0 |
| 01/10/95 | 6:00 | 2.21 | 0.065 | 5616.0 |
| 01/10/95 | 18:51 | 2.2 | 0.05 | 4320.0 |
| 01/10/95 | 18:59 | 2.2 | 0.05 | 4320.0 |
| 02/10/95 | 12:27 | 2.2 | 0.05 | 4320.0 |
| 01/10/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 01/10/95 | 5:07 | 2.2 | 0.05 | 4320.0 |
| 01/10/95 | 6:00 | 2.21 | 0.065 | 5616.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 01/10/95 | 18:51 | 2.2 | 0.05 | 4320.0 |
| 01/10/95 | 18:59 | 2.2 | 0.05 | 4320.0 |
| 02/10/95 | 12:27 | 2.2 | 0.05 | 4320.0 |
| 02/10/95 | 19:04 | 2.2 | 0.05 | 4320.0 |
| 02/10/95 | 19:19 | 2.2 | 0.05 | 4320.0 |
| 03/10/95 | 11:18 | 2.2 | 0.05 | 4320.0 |
| 03/10/95 | 19:17 | 2.2 | 0.05 | 4320.0 |
| 03/10/95 | 19:40 | 2.21 | 0.065 | 5616.0 |
| 04/10/95 | 1:32 | 2.21 | 0.065 | 5616.0 |
| 04/10/95 | 1:48 | 2.21 | 0.065 | 5616.0 |
| 04/10/95 | 3:48 | 2.21 | 0.065 | 5616.0 |
| 04/10/95 | 8:24 | 2.2 | 0.05 | 4320.0 |
| 04/10/95 | 20:22 | 2.19 | 0.04 | 3456.0 |
| 05/10/95 | 5:59 | 2.19 | 0.04 | 3456.0 |
| 05/10/95 | 7:37 | 2.2 | 0.05 | 4320.0 |
| 05/10/95 | 18:43 | 2.19 | 0.04 | 3456.0 |
| 05/10/95 | 19:14 | 2.2 | 0.05 | 4320.0 |
| 06/10/95 | 12:42 | 2.2 | 0.05 | 4320.0 |
| 06/10/95 | 19:19 | 2.2 | 0.05 | 4320.0 |
| 06/10/95 | 19:49 | 2.2 | 0.05 | 4320.0 |
| 07/10/95 | 3:19 | 2.21 | 0.065 | 5616.0 |
| 07/10/95 | 3:35 | 2.22 | 0.08 | 6912.0 |
| 07/10/95 | 21:09 | 2.2 | 0.05 | 4320.0 |
| 07/10/95 | 21:33 | 2.21 | 0.065 | 5616.0 |
| 08/10/95 | 14:53 | 2.21 | 0.065 | 5616.0 |
| 08/10/95 | 19:22 | 2.2 | 0.05 | 4320.0 |
| 08/10/95 | 19:38 | 2.2 | 0.05 | 4320.0 |
| 09/10/95 | 0:53 | 2.21 | 0.065 | 5616.0 |
| 09/10/95 | 4:30 | 2.21 | 0.065 | 5616.0 |
| 09/10/95 | 6:00 | 2.21 | 0.065 | 5616.0 |
| 09/10/95 | 14:21 | 2.2 | 0.05 | 4320.0 |
| 09/10/95 | 21:12 | 2.19 | 0.04 | 3456.0 |
| 09/10/95 | 21:35 | 2.2 | 0.05 | 4320.0 |
| 10/10/95 | 13:42 | 2.2 | 0.05 | 4320.0 |
| 10/10/95 | 17:03 | 2.19 | 0.04 | 3456.0 |
| 10/10/95 | 19:48 | 2.19 | 0.04 | 3456.0 |
| 10/10/95 | 20:26 | 2.2 | 0.05 | 4320.0 |
| 11/10/95 | 11:18 | 2.2 | 0.05 | 4320.0 |
| 11/10/95 | 19:54 | 2.19 | 0.04 | 3456.0 |
| 11/10/95 | 20:47 | 2.2 | 0.05 | 4320.0 |
| 12/10/95 | 11:53 | 2.2 | 0.05 | 4320.0 |
| 12/10/95 | 20:07 | 2.2 | 0.05 | 4320.0 |
| 12/10/95 | 20:30 | 2.21 | 0.065 | 5616.0 |
| 13/10/95 | 0:00 | 2.21 | 0.065 | 5616.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 13/10/95 | 0:00 | 2.21 | 0.065 | 5616.0 |
| 13/10/95 | 12:44 | 2.21 | 0.065 | 5616.0 |
| 13/10/95 | 20:28 | 2.21 | 0.065 | 5616.0 |
| 13/10/95 | 20:51 | 2.22 | 0.08 | 6912.0 |
| 14/10/95 | 2:06 | 2.22 | 0.08 | 6912.0 |
| 14/10/95 | 21:41 | 2.2 | 0.05 | 4320.0 |
| 14/10/95 | 23:11 | 2.21 | 0.065 | 5616.0 |
| 15/10/95 | 7:04 | 2.22 | 0.08 | 6912.0 |
| 15/10/95 | 20:17 | 2.21 | 0.065 | 5616.0 |
| 15/10/95 | 20:48 | 2.22 | 0.08 | 6912.0 |
| 16/10/95 | 4:47 | 2.22 | 0.08 | 6912.0 |
| 16/10/95 | 21:30 | 2.21 | 0.065 | 5616.0 |
| 16/10/95 | 22:00 | 2.21 | 0.065 | 5616.0 |
| 17/10/95 | 5:07 | 2.21 | 0.065 | 5616.0 |
| 17/10/95 | 6:45 | 2.22 | 0.08 | 6912.0 |
| 17/10/95 | 19:43 | 2.21 | 0.065 | 5616.0 |
| 17/10/95 | 20:29 | 2.22 | 0.08 | 6912.0 |
| 18/10/95 | 12:05 | 2.22 | 0.08 | 6912.0 |
| 18/10/95 | 19:41 | 2.21 | 0.065 | 5616.0 |
| 18/10/95 | 20:19 | 2.22 | 0.08 | 6912.0 |
| 19/10/95 | 12:55 | 2.22 | 0.08 | 6912.0 |
| 19/10/95 | 20:02 | 2.21 | 0.065 | 5616.0 |
| 19/10/95 | 20:25 | 2.21 | 0.065 | 5616.0 |
| 20/10/95 | 10:01 | 2.22 | 0.08 | 6912.0 |
| 20/10/95 | 11:24 | 2.22 | 0.08 | 6912.0 |
| 20/10/95 | 20:15 | 2.21 | 0.065 | 5616.0 |
| 20/10/95 | 20:45 | 2.22 | 0.08 | 6912.0 |
| 21/10/95 | 2:30 | 2.22 | 0.08 | 6912.0 |
| 21/10/95 | 21:58 | 2.2 | 0.05 | 4320.0 |
| 21/10/95 | 23:58 | 2.21 | 0.065 | 5616.0 |
| 22/10/95 | 6:42 | 2.21 | 0.065 | 5616.0 |
| 22/10/95 | 7:12 | 2.22 | 0.08 | 6912.0 |
| 22/10/95 | 20:11 | 2.21 | 0.065 | 5616.0 |
| 22/10/95 | 20:34 | 2.21 | 0.065 | 5616.0 |
| 23/10/95 | 8:18 | 2.22 | 0.08 | 6912.0 |
| 23/10/95 | 9:56 | 2.22 | 0.08 | 6912.0 |
| 23/10/95 | 11:55 | 2.22 | 0.08 | 6912.0 |
| 23/10/95 | 20:17 | 2.21 | 0.065 | 5616.0 |
| 23/10/95 | 20:39 | 2.21 | 0.065 | 5616.0 |
| 24/10/95 | 7:46 | 2.21 | 0.065 | 5616.0 |
| 24/10/95 | 8:31 | 2.22 | 0.08 | 6912.0 |
| 24/10/95 | 20:22 | 2.21 | 0.065 | 5616.0 |
| 24/10/95 | 20:45 | 2.22 | 0.08 | 6912.0 |
| 25/10/95 | 0:00 | 2.22 | 0.08 | 6912.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 25/10/95 | 0:00 | 2.22 | 0.08 | 6912.0 |
| 25/10/95 | 10:07 | 2.22 | 0.08 | 6912.0 |
| 25/10/95 | 10:23 | 2.23 | 0.095 | 8208.0 |
| 25/10/95 | 20:20 | 2.21 | 0.065 | 5616.0 |
| 25/10/95 | 20:43 | 2.22 | 0.08 | 6912.0 |
| 26/10/95 | 9:20 | 2.22 | 0.08 | 6912.0 |
| 26/10/95 | 9:59 | 2.23 | 0.095 | 8208.0 |
| 26/10/95 | 12:43 | 2.23 | 0.095 | 8208.0 |
| 26/10/95 | 20:25 | 2.21 | 0.065 | 5616.0 |
| 26/10/95 | 20:42 | 2.22 | 0.08 | 6912.0 |
| 27/10/95 | 11:12 | 2.23 | 0.095 | 8208.0 |
| 27/10/95 | 20:47 | 2.22 | 0.08 | 6912.0 |
| 27/10/95 | 21:21 | 2.24 | 0.11 | 9504.0 |
| 28/10/95 | 0:44 | 2.24 | 0.11 | 9504.0 |
| 28/10/95 | 1:26 | 2.23 | 0.095 | 8208.0 |
| 28/10/95 | 10:47 | 2.22 | 0.08 | 6912.0 |
| 28/10/95 | 22:36 | 2.21 | 0.065 | 5616.0 |
| 29/10/95 | 7:07 | 2.22 | 0.08 | 6912.0 |
| 29/10/95 | 7:54 | 2.23 | 0.095 | 8208.0 |
| 29/10/95 | 14:00 | 2.22 | 0.08 | 6912.0 |
| 29/10/95 | 14:00 | 2.22 | 0.08 | 6912.0 |
| 31/10/95 | 7:30 | 2.23 | 0.095 | 8208.0 |
| 31/10/95 | 7:30 | 2.23 | 0.095 | 8208.0 |
| | | **Average 10.95** | **0.066** | **5716.8** |
| | | **St.Dev. 10.95** | **0.016** | **1373.8** |
| 10/11/95 | 16:00 | 2.23 | 0.095 | 8208.0 |
| 10/11/95 | 18:00 | 2.24 | 0.11 | 9504.0 |
| 10/11/95 | 18:20 | 2.25 | 0.13 | 11232.0 |
| 11/11/1995 | 0:30 | 2.21 | 0.065 | 5616.0 |
| 11/11/1995 | 0:30 | 2.21 | 0.065 | 5616.0 |
| 23/11/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 23/11/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 23/11/95 | 12:56 | 2.21 | 0.065 | 5616.0 |
| 24/11/95 | 5:58 | 2.2 | 0.05 | 4320.0 |
| 24/11/95 | 15:55 | 2.19 | 0.04 | 3456.0 |
| 24/11/95 | 16:32 | 2.2 | 0.05 | 4320.0 |
| 24/11/95 | 23:45 | 2.2 | 0.05 | 4320.0 |
| 25/11/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 25/11/95 | 10:49 | 2.19 | 0.04 | 3456.0 |
| 25/11/95 | 18:24 | 2.18 | 0.03 | 2592.0 |
| 25/11/95 | 18:54 | 2.19 | 0.04 | 3456.0 |
| 26/11/95 | 8:13 | 2.19 | 0.04 | 3456.0 |
| 26/11/95 | 16:40 | 2.18 | 0.03 | 2592.0 |
| 26/11/95 | 17:17 | 2.19 | 0.04 | 3456.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 27/11/95 | 9:27 | 2.19 | 0.04 | 3456.0 |
| 27/11/95 | 16:48 | 2.18 | 0.03 | 2592.0 |
| 27/11/95 | 17:03 | 2.19 | 0.04 | 3456.0 |
| 28/11/95 | 10:57 | 2.19 | 0.04 | 3456.0 |
| 28/11/95 | 16:48 | 2.18 | 0.03 | 2592.0 |
| 28/11/95 | 17:03 | 2.19 | 0.04 | 3456.0 |
| 29/11/95 | 9:35 | 2.18 | 0.03 | 2592.0 |
| 29/11/95 | 9:35 | 2.18 | 0.03 | 2592.0 |
| | | **Average 11.95** | **0.051** | **4384.0** |
| | | **St.Dev. 11.95** | **0.025** | **2142.3** |
| 06/12/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 06/12/95 | 9:38 | 2.2 | 0.05 | 4320.0 |
| 06/12/95 | 9:45 | 2.2 | 0.05 | 4320.0 |
| 06/12/95 | 17:09 | 2.19 | 0.04 | 3456.0 |
| 06/12/95 | 17:38 | 2.19 | 0.04 | 3456.0 |
| 07/12/95 | 11:08 | 2.19 | 0.04 | 3456.0 |
| 07/12/95 | 17:09 | 2.18 | 0.03 | 2592.0 |
| 07/12/95 | 17:38 | 2.19 | 0.04 | 3456.0 |
| 08/12/95 | 11:00 | 2.2 | 0.05 | 4320.0 |
| 08/12/95 | 17:46 | 2.19 | 0.04 | 3456.0 |
| 08/12/95 | 18:00 | 2.2 | 0.05 | 4320.0 |
| 09/12/95 | 9:30 | 2.2 | 0.05 | 4320.0 |
| 09/12/95 | 19:39 | 2.19 | 0.04 | 3456.0 |
| 09/12/95 | 19:46 | 2.19 | 0.04 | 3456.0 |
| 10/12/95 | 10:30 | 2.2 | 0.05 | 4320.0 |
| 10/12/95 | 17:46 | 2.19 | 0.04 | 3456.0 |
| 10/12/95 | 18:00 | 2.2 | 0.05 | 4320.0 |
| 11/12/95 | 12:00 | 2.2 | 0.05 | 4320.0 |
| 11/12/95 | 16:08 | 2.19 | 0.04 | 3456.0 |
| 14/12/95 | 14:46 | 2.19 | 0.04 | 3456.0 |
| 14/12/95 | 17:53 | 2.2 | 0.05 | 4320.0 |
| 14/12/95 | 18:37 | 2.2 | 0.05 | 4320.0 |
| 15/12/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 15/12/95 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 15/12/95 | 17:55 | 2.2 | 0.05 | 4320.0 |
| 15/12/95 | 18:18 | 2.2 | 0.05 | 4320.0 |
| 16/12/95 | 9:06 | 2.2 | 0.05 | 4320.0 |
| 19/12/95 | 10:16 | 2.2 | 0.05 | 4320.0 |
| 19/12/95 | 17:43 | 2.19 | 0.04 | 3456.0 |
| 19/12/95 | 18:06 | 2.2 | 0.05 | 4320.0 |
| 20/12/95 | 10:39 | 2.2 | 0.05 | 4320.0 |
| 20/12/95 | 13:53 | 2.2 | 0.05 | 4320.0 |
| 20/12/95 | 18:07 | 2.2 | 0.05 | 4320.0 |
| 20/12/95 | 18:22 | 2.21 | 0.065 | 5616.0 |

## Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 22/12/95 | 10:11 | 2.2 | 0.05 | 4320.0 |
| 22/12/95 | 13:25 | 2.2 | 0.05 | 4320.0 |
| 22/12/95 | 17:54 | 2.2 | 0.05 | 4320.0 |
| 22/12/95 | 18:24 | 2.21 | 0.065 | 5616.0 |
| 23/12/95 | 6:36 | 2.21 | 0.065 | 5616.0 |
| 23/12/95 | 19:32 | 2.2 | 0.05 | 4320.0 |
| 23/12/95 | 20:02 | 2.2 | 0.05 | 4320.0 |
| 24/12/95 | 11:13 | 2.2 | 0.05 | 4320.0 |
| 24/12/95 | 17:41 | 2.2 | 0.05 | 4320.0 |
| 24/12/95 | 17:49 | 2.2 | 0.05 | 4320.0 |
| 25/12/95 | 10:22 | 2.2 | 0.05 | 4320.0 |
| 25/12/95 | 13:13 | 2.2 | 0.05 | 4320.0 |
| 25/12/95 | 18:04 | 2.2 | 0.05 | 4320.0 |
| 26/12/95 | 11:37 | 2.2 | 0.05 | 4320.0 |
| 27/12/95 | 13:00 | 2.2 | 0.05 | 4320.0 |
| 27/12/95 | 16:59 | 2.2 | 0.05 | 4320.0 |
| 27/12/95 | 17:36 | 2.2 | 0.05 | 4320.0 |
| 28/12/95 | 9:25 | 2.21 | 0.065 | 5616.0 |
| 28/12/95 | 9:25 | 2.21 | 0.065 | 5616.0 |
| 28/12/95 | 16:10 | 2.21 | 0.065 | 5616.0 |
| 28/12/95 | 16:33 | 2.21 | 0.065 | 5616.0 |
| 29/12/95 | 9:56 | 2.21 | 0.065 | 5616.0 |
| 29/12/95 | 16:17 | 2.2 | 0.05 | 4320.0 |
| 29/12/95 | 16:41 | 2.21 | 0.065 | 5616.0 |
| 30/12/95 | 5:56 | 2.21 | 0.065 | 5616.0 |
| 30/12/95 | 18:18 | 2.2 | 0.05 | 4320.0 |
| 30/12/95 | 18:34 | 2.21 | 0.065 | 5616.0 |
| 31/12/95 | 9:41 | 2.21 | 0.065 | 5616.0 |
| 31/12/95 | 16:26 | 2.2 | 0.05 | 4320.0 |
| 31/12/95 | 16:42 | 2.21 | 0.065 | 5616.0 |
| | | **Average 12.95** | **0.051** | **4407.8** |
| | | **St.Dev. 12.95** | **0.008** | **718.7** |
| | | **Average 1995** | **0.054** | **4686.1** |
| 01/01/1996 | 16:34 | 2.2 | 0.05 | 4320.0 |
| 01/01/1996 | 16:50 | 2.21 | 0.065 | 5616.0 |
| 02/01/96 | 9:05 | 2.21 | 0.065 | 5616.0 |
| 02/01/96 | 16:34 | 2.2 | 0.05 | 4320.0 |
| 02/01/96 | 17:05 | 2.21 | 0.065 | 5616.0 |
| 03/01/96 | 9:50 | 2.21 | 0.065 | 5616.0 |
| 03/01/96 | 16:35 | 2.2 | 0.05 | 4320.0 |
| 03/01/96 | 16:58 | 2.21 | 0.065 | 5616.0 |
| 04/01/96 | 9:06 | 2.22 | 0.08 | 6912.0 |
| 04/01/96 | 16:35 | 2.2 | 0.05 | 4320.0 |
| 04/01/96 | 16:58 | 2.21 | 0.065 | 5616.0 |

## Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 05/01/96 | 9:44 | 2.21 | 0.065 | 5616.0 |
| 05/01/96 | 16:21 | 2.2 | 0.05 | 4320.0 |
| 05/01/96 | 16:52 | 2.21 | 0.065 | 5616.0 |
| 06/01/96 | 7:37 | 2.21 | 0.065 | 5616.0 |
| 06/01/96 | 21:07 | 2.21 | 0.065 | 5616.0 |
| 06/01/96 | 23:52 | 2.21 | 0.065 | 5616.0 |
| 07/01/96 | 8:52 | 2.21 | 0.065 | 5616.0 |
| 07/01/96 | 14:22 | 2.2 | 0.05 | 4320.0 |
| 07/01/96 | 14:52 | 2.21 | 0.065 | 5616.0 |
| 08/01/96 | 8:07 | 2.21 | 0.065 | 5616.0 |
| 08/01/96 | 16:59 | 2.19 | 0.04 | 3456.0 |
| 08/01/96 | 17:30 | 2.2 | 0.05 | 4320.0 |
| 09/01/96 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 09/01/96 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 09/01/96 | 9:00 | 2.2 | 0.05 | 4320.0 |
| 09/01/96 | 17:22 | 2.19 | 0.04 | 3456.0 |
| 09/01/96 | 17:31 | 2.2 | 0.05 | 4320.0 |
| 10/01/96 | 9:31 | 2.2 | 0.05 | 4320.0 |
| 10/01/96 | 17:15 | 2.19 | 0.04 | 3456.0 |
| 10/01/96 | 17:47 | 2.2 | 0.05 | 4320.0 |
| 11/01/96 | 10:33 | 2.2 | 0.05 | 4320.0 |
| 11/01/96 | 15:47 | 2.19 | 0.04 | 3456.0 |
| 11/01/96 | 16:11 | 2.2 | 0.05 | 4320.0 |
| 12/01/96 | 9:50 | 2.2 | 0.05 | 4320.0 |
| 12/01/96 | 17:56 | 2.19 | 0.04 | 3456.0 |
| 12/01/96 | 18:04 | 2.2 | 0.05 | 4320.0 |
| 13/01/96 | 7:58 | 2.2 | 0.05 | 4320.0 |
| 13/01/96 | 19:57 | 2.19 | 0.04 | 3456.0 |
| 13/01/96 | 20:06 | 2.2 | 0.05 | 4320.0 |
| 14/01/96 | 12:14 | 2.2 | 0.05 | 4320.0 |
| 14/01/96 | 17:43 | 2.19 | 0.04 | 3456.0 |
| 14/01/96 | 17:52 | 2.2 | 0.05 | 4320.0 |
| 15/01/96 | 12:08 | 2.2 | 0.05 | 4320.0 |
| 15/01/96 | 17:30 | 2.19 | 0.04 | 3456.0 |
| 15/01/96 | 17:46 | 2.2 | 0.05 | 4320.0 |
| 16/01/96 | 11:47 | 2.2 | 0.05 | 4320.0 |
| 16/01/96 | 17:46 | 2.19 | 0.04 | 3456.0 |
| 16/01/96 | 18:02 | 2.2 | 0.05 | 4320.0 |
| 17/01/96 | 10:19 | 2.2 | 0.05 | 4320.0 |
| 17/01/96 | 17:40 | 2.19 | 0.04 | 3456.0 |
| 17/01/96 | 18:04 | 2.2 | 0.05 | 4320.0 |
| 17/01/96 | 21:49 | 2.2 | 0.05 | 4320.0 |
| 17/01/96 | 22:14 | 2.22 | 0.08 | 6912.0 |
| 20/01/96 | 8:00 | 2.2 | 0.05 | 4320.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 20/01/96 | 17:51 | 2.19 | 0.04 | 3456.0 |
| 21/01/96 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 21/01/96 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 21/01/96 | 11:15 | 2.19 | 0.04 | 3456.0 |
| 21/01/96 | 17:59 | 2.19 | 0.04 | 3456.0 |
| 21/01/96 | 18:08 | 2.19 | 0.04 | 3456.0 |
| 22/01/96 | 17:18 | 2.19 | 0.04 | 3456.0 |
| 22/01/96 | 17:56 | 2.2 | 0.05 | 4320.0 |
| 23/01/96 | 10:35 | 2.2 | 0.05 | 4320.0 |
| 23/01/96 | 17:57 | 2.19 | 0.04 | 3456.0 |
| 23/01/96 | 18:28 | 2.19 | 0.04 | 3456.0 |
| 24/01/96 | 23:47 | 2.2 | 0.05 | 4320.0 |
| 25/01/96 | 10:26 | 2.2 | 0.05 | 4320.0 |
| 25/01/96 | 18:02 | 2.19 | 0.04 | 3456.0 |
| 25/01/96 | 18:18 | 2.19 | 0.04 | 3456.0 |
| 26/01/96 | 9:58 | 2.2 | 0.05 | 4320.0 |
| 26/01/96 | 18:49 | 2.19 | 0.04 | 3456.0 |
| 26/01/96 | 18:59 | 2.2 | 0.05 | 4320.0 |
| 27/01/96 | 9:38 | 2.2 | 0.05 | 4320.0 |
| 27/01/96 | 20:44 | 2.18 | 0.03 | 2592.0 |
| 27/01/96 | 20:53 | 2.19 | 0.04 | 3456.0 |
| 28/01/96 | 13:03 | 2.2 | 0.05 | 4320.0 |
| 28/01/96 | 18:32 | 2.19 | 0.04 | 3456.0 |
| 28/01/96 | 18:49 | 2.2 | 0.05 | 4320.0 |
| 29/01/96 | 12:13 | 2.2 | 0.05 | 4320.0 |
| 29/01/96 | 18:35 | 2.19 | 0.04 | 3456.0 |
| 29/01/96 | 18:51 | 2.2 | 0.05 | 4320.0 |
| 30/01/96 | 13:23 | 2.2 | 0.05 | 4320.0 |
| 30/01/96 | 18:53 | 2.19 | 0.04 | 3456.0 |
| 30/01/96 | 18:54 | 2.2 | 0.05 | 4320.0 |
| 31/01/96 | 13:48 | 2.2 | 0.05 | 4320.0 |
| 31/01/96 | 18:40 | 2.19 | 0.04 | 3456.0 |
| 31/01/96 | 19:12 | 2.2 | 0.05 | 4320.0 |
| | | **Average 1.96** | **0.050** | **4320.0** |
| | | **St.Dev. 1.96** | **0.009** | **820.7** |
| 01/02/96 | 19:05 | 2.19 | 0.04 | 3456.0 |
| 01/02/96 | 19:14 | 2.2 | 0.05 | 4320.0 |
| 02/02/96 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 02/02/96 | 0:00 | 2.2 | 0.05 | 4320.0 |
| 02/02/96 | 3:23 | 2.2 | 0.05 | 4320.0 |
| 02/02/96 | 3:32 | 2.2 | 0.05 | 4320.0 |
| 02/02/96 | 13:18 | 2.2 | 0.05 | 4320.0 |
| 02/02/96 | 15:55 | 2.2 | 0.05 | 4320.0 |
| 02/02/96 | 16:04 | 2.21 | 0.065 | 5616.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 02/02/96 | 16:33 | 2.2 | 0.05 | 4320.0 |
| 02/02/96 | 17:26 | 2.2 | 0.05 | 4320.0 |
| 02/02/96 | 17:44 | 2.21 | 0.065 | 5616.0 |
| 02/02/96 | 17:45 | 2.22 | 0.08 | 6912.0 |
| 02/02/96 | 19:44 | 2.21 | 0.065 | 5616.0 |
| 03/02/96 | 0:30 | 2.21 | 0.065 | 5616.0 |
| 03/02/96 | 1:16 | 2.21 | 0.065 | 5616.0 |
| 03/02/96 | 3:52 | 2.21 | 0.065 | 5616.0 |
| 03/02/96 | 6:21 | 2.21 | 0.065 | 5616.0 |
| 03/02/96 | 8:52 | 2.21 | 0.065 | 5616.0 |
| 03/02/96 | 18:49 | 2.19 | 0.04 | 3456.0 |
| 03/02/96 | 20:57 | 2.19 | 0.04 | 3456.0 |
| 03/02/96 | 21:22 | 2.2 | 0.05 | 4320.0 |
| 03/02/96 | 23:45 | 2.2 | 0.05 | 4320.0 |
| 04/02/96 | 5:09 | 2.2 | 0.05 | 4320.0 |
| 04/02/96 | 6:25 | 2.2 | 0.05 | 4320.0 |
| 04/02/96 | 13:48 | 2.2 | 0.05 | 4320.0 |
| 04/02/96 | 19:16 | 2.19 | 0.04 | 3456.0 |
| 04/02/96 | 19:34 | 2.2 | 0.05 | 4320.0 |
| 05/02/96 | 0:05 | 2.2 | 0.05 | 4320.0 |
| 05/02/96 | 10:30 | 2.21 | 0.065 | 5616.0 |
| 05/02/96 | 10:30 | 2.21 | 0.065 | 5616.0 |
| 05/02/96 | 23:12 | 2.21 | 0.065 | 5616.0 |
| 06/02/96 | 23:07 | 2.21 | 0.065 | 5616.0 |
| 07/02/96 | 23:23 | 2.21 | 0.065 | 5616.0 |
| 08/02/96 | 5:41 | 2.21 | 0.065 | 5616.0 |
| 08/02/96 | 14:53 | 2.19 | 0.04 | 3456.0 |
| 09/02/96 | 7:14 | 2.19 | 0.04 | 3456.0 |
| 09/02/96 | 15:47 | 2.18 | 0.03 | 2592.0 |
| 09/02/96 | 16:10 | 2.19 | 0.04 | 3456.0 |
| 09/02/96 | 23:27 | 2.2 | 0.05 | 4320.0 |
| 10/02/96 | 6:53 | 2.19 | 0.04 | 3456.0 |
| 10/02/96 | 17:50 | 2.18 | 0.03 | 2592.0 |
| 10/02/96 | 17:57 | 2.19 | 0.04 | 3456.0 |
| 10/02/96 | 23:44 | 2.19 | 0.04 | 3456.0 |
| 11/02/96 | 2:00 | 2.19 | 0.04 | 3456.0 |
| 11/02/96 | 2:07 | 2.19 | 0.04 | 3456.0 |
| 11/02/96 | 8:25 | 2.2 | 0.05 | 4320.0 |
| 11/02/96 | 8:40 | 2.2 | 0.05 | 4320.0 |
| 11/02/96 | 9:17 | 2.22 | 0.08 | 6912.0 |
| 11/02/96 | 10:32 | 2.22 | 0.08 | 6912.0 |
| 11/02/96 | 11:48 | 2.21 | 0.065 | 5616.0 |
| 11/02/96 | 12:26 | 2.21 | 0.065 | 5616.0 |
| 11/02/96 | 12:33 | 2.21 | 0.065 | 5616.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 11/02/96 | 12:48 | 2.22 | 0.08 | 6912.0 |
| 11/02/96 | 13:56 | 2.22 | 0.08 | 6912.0 |
| 11/02/96 | 16:12 | 2.21 | 0.065 | 5616.0 |
| 11/02/96 | 18:59 | 2.2 | 0.05 | 4320.0 |
| 11/02/96 | 23:46 | 2.2 | 0.05 | 4320.0 |
| 12/02/96 | 1:39 | 2.19 | 0.04 | 3456.0 |
| 12/02/96 | 7:34 | 2.19 | 0.04 | 3456.0 |
| 12/02/96 | 16:00 | 2.18 | 0.03 | 2592.0 |
| 12/02/96 | 16:22 | 2.19 | 0.04 | 3456.0 |
| 13/02/96 | 0:03 | 2.19 | 0.04 | 3456.0 |
| 13/02/96 | 9:06 | 2.19 | 0.04 | 3456.0 |
| 13/02/96 | 16:17 | 2.18 | 0.03 | 2592.0 |
| 13/02/96 | 16:24 | 2.19 | 0.04 | 3456.0 |
| 14/02/96 | 10:01 | 2.19 | 0.04 | 3456.0 |
| 14/02/96 | 16:34 | 2.18 | 0.03 | 2592.0 |
| 14/02/96 | 16:48 | 2.19 | 0.04 | 3456.0 |
| 15/02/96 | 9:55 | 2.19 | 0.04 | 3456.0 |
| 15/02/96 | 16:35 | 2.18 | 0.03 | 2592.0 |
| 15/02/96 | 16:57 | 2.2 | 0.05 | 4320.0 |
| 16/02/96 | 0:00 | 2.19 | 0.04 | 3456.0 |
| 16/02/96 | 0:00 | 2.19 | 0.04 | 3456.0 |
| 16/02/96 | 9:59 | 2.19 | 0.04 | 3456.0 |
| 16/02/96 | 16:35 | 2.18 | 0.03 | 2592.0 |
| 16/02/96 | 16:58 | 2.19 | 0.04 | 3456.0 |
| 17/02/96 | 7:11 | 2.19 | 0.04 | 3456.0 |
| 17/02/96 | 19:02 | 2.18 | 0.03 | 2592.0 |
| 17/02/96 | 19:09 | 2.18 | 0.03 | 2592.0 |
| 18/02/96 | 9:52 | 2.19 | 0.04 | 3456.0 |
| 18/02/96 | 16:44 | 2.18 | 0.03 | 2592.0 |
| 18/02/96 | 16:59 | 2.19 | 0.04 | 3456.0 |
| 19/02/96 | 9:34 | 2.19 | 0.04 | 3456.0 |
| 19/02/96 | 16:48 | 2.18 | 0.03 | 2592.0 |
| 20/02/96 | 6:46 | 2.19 | 0.04 | 3456.0 |
| 20/02/96 | 23:21 | 2.2 | 0.05 | 4320.0 |
| 21/02/96 | 7:50 | 2.2 | 0.05 | 4320.0 |
| 21/02/96 | 16:26 | 2.18 | 0.03 | 2592.0 |
| 21/02/96 | 17:04 | 2.19 | 0.04 | 3456.0 |
| 22/02/96 | 11:01 | 2.19 | 0.04 | 3456.0 |
| 22/02/96 | 16:38 | 2.18 | 0.03 | 2592.0 |
| 22/02/96 | 16:46 | 2.19 | 0.04 | 3456.0 |
| 23/02/96 | 8:13 | 2.19 | 0.04 | 3456.0 |
| 23/02/96 | 16:50 | 2.18 | 0.03 | 2592.0 |
| 23/02/96 | 16:57 | 2.19 | 0.04 | 3456.0 |
| 24/02/96 | 3:56 | 2.19 | 0.04 | 3456.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 24/02/96 | 16:39 | 2.17 | 0.02 | 1728.0 |
| 24/02/96 | 18:39 | 2.17 | 0.02 | 1728.0 |
| 24/02/96 | 18:46 | 2.18 | 0.03 | 2592.0 |
| 25/02/96 | 9:44 | 2.19 | 0.04 | 3456.0 |
| 25/02/96 | 16:36 | 2.18 | 0.03 | 2592.0 |
| 25/02/96 | 17:13 | 2.19 | 0.04 | 3456.0 |
| 26/02/96 | 8:41 | 2.19 | 0.04 | 3456.0 |
| 26/02/96 | 16:25 | 2.17 | 0.02 | 1728.0 |
| 26/02/96 | 16:55 | 2.19 | 0.04 | 3456.0 |
| 27/02/96 | 10:00 | 2.19 | 0.04 | 3456.0 |
| 27/02/96 | 10:00 | 2.19 | 0.04 | 3456.0 |
| 27/02/96 | 16:31 | 2.17 | 0.02 | 1728.0 |
| 27/02/96 | 16:39 | 2.19 | 0.04 | 3456.0 |
| 28/02/96 | 9:49 | 2.19 | 0.04 | 3456.0 |
| 28/02/96 | 16:28 | 2.17 | 0.02 | 1728.0 |
| 28/02/96 | 16:43 | 2.19 | 0.04 | 3456.0 |
| 29/02/96 | 8:39 | 2.19 | 0.04 | 3456.0 |
| 29/02/96 | 16:40 | 2.17 | 0.02 | 1728.0 |
| 29/02/96 | 16:40 | 2.19 | 0.04 | 3456.0 |
| | | **Average 2.96** | **0.045** | **3910.3** |
| | | **St.Dev. 2.96** | **0.014** | **1207.0** |
| 01/03/96 | 17:00 | 2.17 | 0.02 | 1728.0 |
| 01/03/96 | 17:07 | 2.19 | 0.04 | 3456.0 |
| 01/03/96 | 18:23 | 2.19 | 0.04 | 3456.0 |
| 02/03/96 | 0:01 | 2.19 | 0.04 | 3456.0 |
| 02/03/96 | 13:04 | 2.18 | 0.03 | 2592.0 |
| 02/03/96 | 18:50 | 2.17 | 0.02 | 1728.0 |
| 02/03/96 | 19:05 | 2.18 | 0.03 | 2592.0 |
| 03/03/96 | 3:36 | 2.18 | 0.03 | 2592.0 |
| 03/03/96 | 10:38 | 2.18 | 0.03 | 2592.0 |
| 03/03/96 | 15:01 | 2.18 | 0.03 | 2592.0 |
| 04/03/96 | 8:57 | 2.18 | 0.03 | 2592.0 |
| 04/03/96 | 14:13 | 2.17 | 0.02 | 1728.0 |
| 04/03/96 | 17:21 | 2.17 | 0.02 | 1728.0 |
| 04/03/96 | 17:36 | 2.18 | 0.03 | 2592.0 |
| 05/03/96 | 4:08 | 2.18 | 0.03 | 2592.0 |
| 05/03/96 | 10:09 | 2.18 | 0.03 | 2592.0 |
| 05/03/96 | 17:41 | 2.17 | 0.02 | 1728.0 |
| 05/03/96 | 20:49 | 2.18 | 0.03 | 2592.0 |
| 06/03/96 | 0:27 | 2.18 | 0.03 | 2592.0 |
| 06/03/96 | 9:29 | 2.18 | 0.03 | 2592.0 |
| 06/03/96 | 17:38 | 2.17 | 0.02 | 1728.0 |
| 06/03/96 | 18:15 | 2.18 | 0.03 | 2592.0 |
| 07/03/96 | 0:01 | 2.19 | 0.04 | 3456.0 |

# Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 07/03/96 | 5:10 | 2.19 | 0.04 | 3456.0 |
| 09/03/96 | 17:14 | 2.17 | 0.02 | 1728.0 |
| 09/03/96 | 19:58 | 2.17 | 0.02 | 1728.0 |
| 09/03/96 | 20:58 | 2.18 | 0.03 | 2592.0 |
| 10/03/96 | 5:11 | 2.18 | 0.03 | 2592.0 |
| 10/03/96 | 5:34 | 2.19 | 0.04 | 3456.0 |
| 10/03/96 | 10:33 | 2.19 | 0.04 | 3456.0 |
| 10/03/96 | 18:09 | 2.16 | 0.01 | 864.0 |
| 10/03/96 | 19:23 | 2.18 | 0.03 | 2592.0 |
| 11/03/96 | 0:00 | 2.18 | 0.03 | 2592.0 |
| 11/03/96 | 0:00 | 2.18 | 0.03 | 2592.0 |
| 11/03/96 | 9:45 | 2.18 | 0.03 | 2592.0 |
| 11/03/96 | 18:26 | 2.16 | 0.01 | 864.0 |
| 11/03/96 | 18:54 | 2.18 | 0.03 | 2592.0 |
| 12/03/96 | 10:02 | 2.17 | 0.02 | 1728.0 |
| 12/03/96 | 15:27 | 2.16 | 0.01 | 864.0 |
| 12/03/96 | 19:04 | 2.16 | 0.01 | 864.0 |
| 12/03/96 | 19:40 | 2.17 | 0.02 | 1728.0 |
| 13/03/96 | 4:33 | 2.17 | 0.02 | 1728.0 |
| 13/03/96 | 6:18 | 2.18 | 0.03 | 2592.0 |
| 13/03/96 | 10:02 | 2.18 | 0.03 | 2592.0 |
| 13/03/96 | 18:20 | 2.16 | 0.01 | 864.0 |
| 13/03/96 | 18:48 | 2.18 | 0.03 | 2592.0 |
| 14/03/96 | 10:11 | 2.18 | 0.03 | 2592.0 |
| 14/03/96 | 18:07 | 2.16 | 0.01 | 864.0 |
| 14/03/96 | 18:57 | 2.18 | 0.03 | 2592.0 |
| 15/03/96 | 9:05 | 2.18 | 0.03 | 2592.0 |
| 15/03/96 | 15:22 | 2.16 | 0.01 | 864.0 |
| 15/03/96 | 18:30 | 2.16 | 0.01 | 864.0 |
| 15/03/96 | 18:43 | 2.18 | 0.03 | 2592.0 |
| 16/03/96 | 3:42 | 2.19 | 0.04 | 3456.0 |
| 16/03/96 | 20:32 | 2.16 | 0.01 | 864.0 |
| 16/03/96 | 20:53 | 2.17 | 0.02 | 1728.0 |
| 17/03/96 | 5:08 | 2.17 | 0.02 | 1728.0 |
| 17/03/96 | 5:44 | 2.18 | 0.03 | 2592.0 |
| 17/03/96 | 9:44 | 2.18 | 0.03 | 2592.0 |
| 17/03/96 | 17:55 | 2.16 | 0.01 | 864.0 |
| 17/03/96 | 18:37 | 2.18 | 0.03 | 2592.0 |
| 18/03/96 | 0:00 | 2.18 | 0.03 | 2592.0 |
| 18/03/96 | 0:00 | 2.18 | 0.03 | 2592.0 |
| 18/03/96 | 8:20 | 2.18 | 0.03 | 2592.0 |
| 18/03/96 | 18:07 | 2.16 | 0.01 | 864.0 |
| 18/03/96 | 18:26 | 2.18 | 0.03 | 2592.0 |
| 19/03/96 | 9:22 | 2.18 | 0.03 | 2592.0 |

## Sewage Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Sewage(m3/sec) | Sewage(m3/day) |
|---|---|---|---|---|
| 19/03/96 | 17:32 | 2.16 | 0.01 | 864.0 |
| 19/03/96 | 18:05 | 2.18 | 0.03 | 2592.0 |
| 20/03/96 | 8:24 | 2.18 | 0.03 | 2592.0 |
| 20/03/96 | 17:48 | 2.16 | 0.01 | 864.0 |
| 20/03/96 | 18:07 | 2.18 | 0.03 | 2592.0 |
| 21/03/96 | 9:19 | 2.18 | 0.03 | 2592.0 |
| 21/03/96 | 17:58 | 2.16 | 0.01 | 864.0 |
| 21/03/96 | 18:10 | 2.18 | 0.03 | 2592.0 |
| 22/03/96 | 9:35 | 2.19 | 0.04 | 3456.0 |
| 22/03/96 | 17:52 | 2.16 | 0.01 | 864.0 |
| 22/03/96 | 18:11 | 2.19 | 0.04 | 3456.0 |
| 23/03/96 | 4:00 | 2.19 | 0.04 | 3456.0 |
| 23/03/96 | 19:47 | 2.16 | 0.01 | 864.0 |
| 23/03/96 | 20:06 | 2.18 | 0.03 | 2592.0 |
| 24/03/96 | 5:10 | 2.19 | 0.04 | 3456.0 |
| 24/03/96 | 9:23 | 2.2 | 0.05 | 4320.0 |
| 24/03/96 | 12:24 | 2.18 | 0.03 | 2592.0 |
| 27/03/96 | 1:01 | 2.2 | 0.05 | 4320.0 |
| 27/03/96 | 8:30 | 2.19 | 0.04 | 3456.0 |
| 27/03/96 | 8:30 | 2.19 | 0.04 | 3456.0 |
| | | **Average 3.96** | **0.027** | **2323.9** |
| | | **St.Dev. 3.96** | **0.010** | **886.9** |
| 09/04/96 | 0:00 | 2.19 | 0.04 | 3456.0 |
| 11/04/96 | 12:14 | 2.2 | 0.05 | 4320.0 |
| 12/04/96 | 0:00 | 2.21 | 0.065 | 5616.0 |
| 12/04/96 | 0:00 | 2.21 | 0.065 | 5616.0 |
| 30/04/96 | 6:50 | 2.21 | 0.065 | 5616.0 |
| 30/04/96 | 6:50 | 2.21 | 0.065 | 5616.0 |
| 30/04/96 | 10:28 | 2.21 | 0.065 | 5616.0 |
| 30/04/96 | 16:51 | 2.2 | 0.05 | 4320.0 |
| 30/04/96 | 17:07 | 2.21 | 0.065 | 5616.0 |
| | | **Average 4.96** | **0.059** | **5088.0** |
| | | **St.Dev. 4.96** | **0.010** | **830.3** |
| | | Average 1996 | 0.05 | 3910.55 |

# APPENDIX - 3

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 01/10/94 | 0:00 | 2.19 | 0.04 | sewage |
| 03/10/94 | 0:00 | 2.19 | 0.04 | sewage |
| 01/11/94 | 13:00 | 2.16 | 0.01 | sewage |
| 01/11/94 | 13:00 | 2.16 | 0.01 | sewage |
| 01/11/94 | 17:09 | 2.17 | 0.02 | sewage |
| 02/11/94 | 9:33 | 2.17 | 0.02 | sewage |
| 02/11/94 | 16:56 | 2.16 | 0.01 | sewage |
| 02/11/94 | 17:19 | 2.17 | 0.02 | sewage |
| 03/11/94 | 2:05 | 2.17 | 0.02 | sewage |
| 03/11/94 | 3:21 | 2.18 | 0.03 | sewage |
| 03/11/94 | 9:29 | 2.18 | 0.03 | sewage |
| 03/11/94 | 15:36 | 2.17 | 0.02 | sewage |
| 04/11/94 | 23:26 | 2.18 | 0.03 | sewage |
| 05/11/94 | 17:49 | 2.17 | 0.02 | sewage |
| 05/11/94 | 18:06 | 2.18 | 0.03 | drainage |
| 05/11/94 | 18:15 | 2.21 | 0.065 | drainage |
| 05/11/94 | 18:25 | 2.23 | 0.095 | drainage |
| 05/11/94 | 19:02 | 2.23 | 0.095 | drainage |
| 05/11/94 | 20:00 | 2.21 | 0.065 | drainage |
| 05/11/94 | 22:06 | 2.19 | 0.04 | drainage |
| 05/11/94 | 23:43 | 2.18 | 0.03 | drainage |
| 06/11/94 | 6:43 | 2.17 | 0.02 | drainage |
| 06/11/94 | 8:43 | 2.16 | 0.01 | sewage |
| 06/11/94 | 20:51 | 2.16 | 0.01 | sewage |
| 07/11/94 | 2:59 | 2.16 | 0.01 | sewage |
| 07/11/94 | 3:53 | 2.17 | 0.02 | sewage |
| 07/11/94 | 7:00 | 2.17 | 0.02 | sewage |
| 07/11/94 | 16:08 | 2.16 | 0.01 | sewage |
| 07/11/94 | 16:17 | 2.17 | 0.02 | drainage |
| 07/11/94 | 16:26 | 2.19 | 0.04 | drainage |
| 07/11/94 | 16:43 | 2.21 | 0.065 | drainage |
| 07/11/94 | 16:53 | 2.23 | 0.095 | drainage |
| 07/11/94 | 17:00 | 2.24 | 0.11 | drainage |
| 07/11/94 | 17:59 | 2.23 | 0.095 | drainage |
| 07/11/94 | 19:49 | 2.19 | 0.04 | drainage |
| 07/11/94 | 21:03 | 2.18 | 0.03 | drainage |
| 07/11/94 | 22:32 | 2.17 | 0.02 | drainage |
| 07/11/94 | 22:55 | 2.17 | 0.02 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 09/11/94 | 16:59 | 2.16 | 0.01 | sewage |
| 09/11/94 | 17:14 | 2.16 | 0.01 | sewage |
| 10/11/94 | 16:39 | 2.16 | 0.01 | sewage |
| 10/11/94 | 17:10 | 2.18 | 0.03 | sewage |
| 10/11/94 | 22:40 | 2.17 | 0.02 | sewage |
| 11/11/94 | 3:55 | 2.17 | 0.02 | sewage |
| 11/11/94 | 5:03 | 2.17 | 0.02 | sewage |
| 11/11/94 | 7:26 | 2.17 | 0.02 | sewage |
| 11/11/94 | 10:03 | 2.16 | 0.01 | sewage |
| 11/11/94 | 17:18 | 2.16 | 0.01 | sewage |
| 11/11/94 | 17:28 | 2.18 | 0.03 | sewage |
| 12/11/94 | 1:06 | 2.18 | 0.03 | sewage |
| 12/11/94 | 3:06 | 2.17 | 0.02 | sewage |
| 12/11/94 | 19:21 | 2.16 | 0.01 | sewage |
| 12/11/94 | 19:37 | 2.17 | 0.02 | sewage |
| 13/11/94 | 0:00 | 2.17 | 0.02 | sewage |
| 13/11/94 | 0:00 | 2.17 | 0.02 | sewage |
| 13/11/94 | 2:45 | 2.17 | 0.02 | sewage |
| 13/11/94 | 3:32 | 2.19 | 0.04 | sewage |
| 13/11/94 | 10:08 | 2.17 | 0.02 | sewage |
| 13/11/94 | 17:08 | 2.16 | 0.01 | sewage |
| 13/11/94 | 17:19 | 2.19 | 0.04 | sewage |
| 13/11/94 | 21:03 | 2.18 | 0.03 | sewage |
| 14/11/94 | 7:33 | 2.18 | 0.03 | sewage |
| 14/11/94 | 10:03 | 2.17 | 0.02 | sewage |
| 14/11/94 | 17:10 | 2.17 | 0.02 | sewage |
| 14/11/94 | 17:35 | 2.18 | 0.03 | sewage |
| 15/11/94 | 6:28 | 2.18 | 0.03 | sewage |
| 15/11/94 | 12:20 | 2.17 | 0.02 | sewage |
| 15/11/94 | 17:05 | 2.17 | 0.02 | sewage |
| 15/11/94 | 17:43 | 2.17 | 0.02 | drainage |
| 15/11/94 | 18:16 | 2.2 | 0.05 | drainage |
| 15/11/94 | 21:08 | 2.2 | 0.05 | drainage |
| 15/11/94 | 23:08 | 2.2 | 0.05 | drainage |
| 16/11/94 | 0:31 | 2.2 | 0.05 | drainage |
| 16/11/94 | 1:25 | 2.21 | 0.065 | drainage |
| 16/11/94 | 2:39 | 2.2 | 0.05 | drainage |
| 16/11/94 | 4:16 | 2.2 | 0.05 | drainage |
| 16/11/94 | 6:09 | 2.2 | 0.05 | drainage |
| 16/11/94 | 10:37 | 2.18 | 0.03 | drainage |
| 16/11/94 | 17:07 | 2.17 | 0.02 | drainage |
| 16/11/94 | 17:31 | 2.19 | 0.04 | drainage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 17/11/94 | 0:46 | 2.18 | 0.03 | drainage |
| 17/11/94 | 17:31 | 2.17 | 0.02 | drainage |
| 17/11/94 | 17:42 | 2.2 | 0.05 | drainage |
| 17/11/94 | 20:20 | 2.2 | 0.05 | drainage |
| 17/11/94 | 20:58 | 2.21 | 0.065 | drainage |
| 17/11/94 | 21:52 | 2.22 | 0.08 | drainage |
| 17/11/94 | 23:59 | 2.21 | 0.065 | drainage |
| 18/11/94 | 2:43 | 2.21 | 0.065 | drainage |
| 18/11/94 | 4:07 | 2.21 | 0.065 | drainage |
| 18/11/94 | 5:15 | 2.22 | 0.08 | drainage |
| 18/11/94 | 6:30 | 2.22 | 0.08 | drainage |
| 18/11/94 | 8:27 | 2.19 | 0.04 | drainage |
| 18/11/94 | 10:34 | 2.18 | 0.03 | drainage |
| 18/11/94 | 16:56 | 2.17 | 0.02 | drainage |
| 18/11/94 | 17:13 | 2.19 | 0.04 | drainage |
| 18/11/94 | 17:29 | 2.2 | 0.05 | drainage |
| 19/11/94 | 0:29 | 2.2 | 0.05 | drainage |
| 19/11/94 | 4:58 | 2.18 | 0.03 | drainage |
| 19/11/94 | 10:49 | 2.17 | 0.02 | drainage |
| 19/11/94 | 18:57 | 2.16 | 0.01 | drainage |
| 19/11/94 | 20:14 | 2.18 | 0.03 | sewage |
| 20/11/94 | 2:37 | 2.18 | 0.03 | sewage |
| 20/11/94 | 3:23 | 2.19 | 0.04 | sewage |
| 20/11/94 | 3:46 | 2.2 | 0.05 | sewage |
| 20/11/94 | 5:54 | 2.2 | 0.05 | sewage |
| 20/11/94 | 9:23 | 2.19 | 0.04 | sewage |
| 20/11/94 | 12:37 | 2.17 | 0.02 | sewage |
| 20/11/94 | 17:22 | 2.17 | 0.02 | sewage |
| 20/11/94 | 17:38 | 2.18 | 0.03 | sewage |
| 20/11/94 | 17:41 | 2.21 | 0.065 | sewage |
| 20/11/94 | 23:56 | 2.2 | 0.05 | sewage |
| 21/11/94 | 7:49 | 2.2 | 0.05 | sewage |
| 21/11/94 | 11:18 | 2.19 | 0.04 | sewage |
| 21/11/94 | 12:17 | 2.18 | 0.03 | sewage |
| 21/11/94 | 17:31 | 2.17 | 0.02 | sewage |
| 21/11/94 | 17:40 | 2.19 | 0.04 | sewage |
| 21/11/94 | 17:58 | 2.21 | 0.065 | sewage |
| 22/11/94 | 8:44 | 2.21 | 0.065 | sewage |
| 22/11/94 | 11:49 | 2.19 | 0.04 | sewage |
| 22/11/94 | 17:33 | 2.17 | 0.02 | sewage |
| 22/11/94 | 17:43 | 2.19 | 0.04 | sewage |
| 22/11/94 | 17:52 | 2.21 | 0.065 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 23/11/94 | 0:00 | 2.21 | 0.065 | sewage |
| 23/11/94 | 0:00 | 2.21 | 0.065 | sewage |
| 23/11/94 | 4:45 | 2.21 | 0.065 | sewage |
| 23/11/94 | 7:38 | 2.21 | 0.065 | sewage |
| 23/11/94 | 8:15 | 2.21 | 0.065 | sewage |
| 23/11/94 | 16:08 | 2.17 | 0.02 | sewage |
| 23/11/94 | 16:23 | 2.18 | 0.03 | drainage |
| 23/11/94 | 16:31 | 2.19 | 0.04 | drainage |
| 23/11/94 | 17:23 | 2.18 | 0.03 | drainage |
| 23/11/94 | 19:00 | 2.23 | 0.095 | drainage |
| 23/11/94 | 20:45 | 2.23 | 0.095 | drainage |
| 23/11/94 | 21:38 | 2.25 | 0.13 | drainage |
| 23/11/94 | 21:45 | 2.24 | 0.11 | drainage |
| 23/11/94 | 22:01 | 2.19 | 0.04 | drainage |
| 24/11/94 | 10:54 | 2.18 | 0.03 | drainage |
| 24/11/94 | 11:15 | 2.26 | 0.14 | drainage |
| 24/11/94 | 11:30 | 2.28 | 0.17 | drainage |
| 24/11/94 | 11:38 | 2.28 | 0.17 | drainage |
| 24/11/94 | 11:45 | 2.29 | 0.19 | drainage |
| 24/11/94 | 11:52 | 2.3 | 0.2 | drainage |
| 24/11/94 | 11:53 | 2.27 | 0.16 | drainage |
| 24/11/94 | 12:08 | 2.24 | 0.11 | drainage |
| 24/11/94 | 13:24 | 2.19 | 0.04 | drainage |
| 24/11/94 | 14:47 | 2.17 | 0.02 | drainage |
| 24/11/94 | 23:40 | 2.16 | 0.01 | sewage |
| 01/12/94 | 23:52 | 2.16 | 0.01 | sewage |
| 02/12/94 | 17:08 | 2.16 | 0.01 | sewage |
| 02/12/94 | 19:52 | 2.18 | 0.03 | drainage |
| 02/12/94 | 22:00 | 2.17 | 0.02 | drainage |
| 02/12/94 | 22:38 | 2.18 | 0.03 | drainage |
| 02/12/94 | 23:45 | 2.17 | 0.02 | drainage |
| 03/12/94 | 0:07 | 2.19 | 0.04 | drainage |
| 03/12/94 | 0:37 | 2.22 | 0.08 | drainage |
| 03/12/94 | 0:59 | 2.23 | 0.095 | drainage |
| 03/12/94 | 1:22 | 2.21 | 0.065 | drainage |
| 03/12/94 | 1:52 | 2.22 | 0.08 | drainage |
| 03/12/94 | 2:22 | 2.24 | 0.11 | drainage |
| 03/12/94 | 3:07 | 2.21 | 0.065 | drainage |
| 03/12/94 | 3:22 | 2.2 | 0.05 | drainage |
| 03/12/94 | 4:07 | 2.23 | 0.095 | drainage |
| 03/12/94 | 5:07 | 2.25 | 0.13 | drainage |
| 03/12/94 | 6:06 | 2.28 | 0.17 | drainage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 03/12/94 | 6:21 | 2.29 | 0.19 | drainage |
| 03/12/94 | 7:07 | 2.26 | 0.14 | drainage |
| 03/12/94 | 7:22 | 2.23 | 0.095 | drainage |
| 03/12/94 | 7:52 | 2.21 | 0.065 | drainage |
| 03/12/94 | 8:00 | 2.21 | 0.065 | sewage |
| 03/12/94 | 8:00 | 2.21 | 0.065 | sewage |
| 05/12/94 | 7:30 | 2.21 | 0.065 | sewage |
| 18/12/94 | 22:00 | 2.21 | 0.065 | sewage |
| 18/12/94 | 22:00 | 2.21 | 0.065 | sewage |
| 18/12/94 | 22:01 | 2.22 | 0.08 | drainage |
| 18/12/94 | 22:27 | 2.23 | 0.095 | drainage |
| 18/12/94 | 22:48 | 2.26 | 0.14 | drainage |
| 18/12/94 | 23:20 | 2.27 | 0.16 | drainage |
| 19/12/94 | 0:45 | 2.25 | 0.13 | drainage |
| 19/12/94 | 2:05 | 2.24 | 0.11 | drainage |
| 19/12/94 | 2:43 | 2.25 | 0.13 | drainage |
| 19/12/94 | 3:36 | 2.28 | 0.17 | drainage |
| 19/12/94 | 4:13 | 2.32 | 0.24 | drainage |
| 19/12/94 | 5:19 | 2.35 | 0.3 | drainage |
| 19/12/94 | 6:22 | 2.33 | 0.26 | drainage |
| 19/12/94 | 7:42 | 2.29 | 0.19 | drainage |
| 19/12/94 | 9:56 | 2.25 | 0.13 | drainage |
| 19/12/94 | 13:07 | 2.24 | 0.11 | drainage |
| 19/12/94 | 16:42 | 2.24 | 0.11 | drainage |
| 19/12/94 | 17:34 | 2.24 | 0.11 | drainage |
| 19/12/94 | 17:42 | 2.28 | 0.17 | drainage |
| 19/12/94 | 18:00 | 2.33 | 0.26 | drainage |
| 19/12/94 | 18:27 | 2.38 | 0.36 | drainage |
| 19/12/94 | 18:38 | 2.43 | 0.46 | drainage |
| 19/12/94 | 19:00 | 2.46 | 0.52 | drainage |
| 19/12/94 | 19:16 | 2.47 | 0.54 | drainage |
| 19/12/94 | 19:53 | 2.44 | 0.48 | drainage |
| 19/12/94 | 20:56 | 2.38 | 0.36 | drainage |
| 19/12/94 | 23:05 | 2.33 | 0.26 | drainage |
| 20/12/94 | 2:26 | 2.29 | 0.19 | drainage |
| 20/12/94 | 9:05 | 2.25 | 0.13 | drainage |
| 20/12/94 | 16:02 | 2.22 | 0.08 | drainage |
| 20/12/94 | 17:52 | 2.21 | 0.065 | drainage |
| 20/12/94 | 18:00 | 2.21 | 0.065 | sewage |
| 20/12/94 | 18:00 | 2.21 | 0.065 | sewage |
| 26/12/94 | 10:45 | 2.2 | 0.05 | sewage |
| 26/12/94 | 10:45 | 2.2 | 0.05 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 26/12/94 | 12:00 | 2.2 | 0.05 | sewage |
| 26/12/94 | 16:45 | 2.19 | 0.04 | sewage |
| 26/12/94 | 17:06 | 2.21 | 0.065 | sewage |
| 27/12/94 | 9:11 | 2.21 | 0.065 | sewage |
| 27/12/94 | 13:58 | 2.19 | 0.04 | sewage |
| 27/12/94 | 16:58 | 2.19 | 0.04 | sewage |
| 27/12/94 | 17:10 | 2.21 | 0.065 | sewage |
| 28/12/94 | 9:09 | 2.21 | 0.065 | sewage |
| 28/12/94 | 13:40 | 2.19 | 0.04 | sewage |
| 28/12/94 | 16:48 | 2.19 | 0.04 | sewage |
| 28/12/94 | 17:08 | 2.21 | 0.065 | sewage |
| 29/12/94 | 9:06 | 2.22 | 0.08 | sewage |
| 29/12/94 | 14:15 | 2.2 | 0.05 | sewage |
| 29/12/94 | 16:22 | 2.2 | 0.05 | sewage |
| 29/12/94 | 16:50 | 2.21 | 0.065 | sewage |
| 29/12/94 | 22:04 | 2.21 | 0.065 | sewage |
| 29/12/94 | 22:33 | 2.22 | 0.08 | sewage |
| 30/12/94 | 8:02 | 2.22 | 0.08 | sewage |
| 30/12/94 | 14:19 | 2.2 | 0.05 | sewage |
| 30/12/94 | 16:42 | 2.2 | 0.05 | sewage |
| 30/12/94 | 17:02 | 2.22 | 0.08 | sewage |
| 30/12/94 | 19:54 | 2.22 | 0.08 | sewage |
| 31/12/94 | 1:23 | 2.22 | 0.08 | sewage |
| 31/12/94 | 12:24 | 2.2 | 0.05 | sewage |
| 31/12/94 | 19:01 | 2.2 | 0.05 | sewage |
| 31/12/94 | 19:22 | 2.21 | 0.065 | sewage |
| 01/01/1995 | 2:06 | 2.21 | 0.065 | sewage |
| 01/01/1995 | 2:58 | 2.22 | 0.08 | sewage |
| 01/01/1995 | 8:28 | 2.22 | 0.08 | sewage |
| 01/01/1995 | 14:21 | 2.2 | 0.05 | sewage |
| 01/01/1995 | 16:36 | 2.2 | 0.05 | sewage |
| 01/01/1995 | 17:05 | 2.21 | 0.065 | sewage |
| 02/01/95 | 9:17 | 2.22 | 0.08 | sewage |
| 02/01/95 | 14:33 | 2.2 | 0.05 | sewage |
| 02/01/95 | 16:26 | 2.2 | 0.05 | sewage |
| 02/01/95 | 16:39 | 2.22 | 0.08 | sewage |
| 03/01/95 | 8:37 | 2.22 | 0.08 | sewage |
| 03/01/95 | 14:09 | 2.2 | 0.05 | sewage |
| 03/01/95 | 16:23 | 2.2 | 0.05 | sewage |
| 03/01/95 | 16:59 | 2.22 | 0.08 | sewage |
| 04/01/95 | 8:27 | 2.22 | 0.08 | sewage |
| 04/01/95 | 13:51 | 2.2 | 0.05 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 04/01/95 | 16:36 | 2.2 | 0.05 | sewage |
| 04/01/95 | 16:41 | 2.22 | 0.08 | sewage |
| 05/01/95 | 8:17 | 2.22 | 0.08 | sewage |
| 05/01/95 | 13:56 | 2.2 | 0.05 | sewage |
| 05/01/95 | 16:33 | 2.2 | 0.05 | sewage |
| 05/01/95 | 16:54 | 2.22 | 0.08 | sewage |
| 06/01/95 | 0:00 | 2.22 | 0.08 | sewage |
| 06/01/95 | 0:00 | 2.22 | 0.08 | sewage |
| 06/01/95 | 8:30 | 2.22 | 0.08 | sewage |
| 06/01/95 | 16:45 | 2.2 | 0.05 | sewage |
| 06/01/95 | 17:14 | 2.22 | 0.08 | sewage |
| 07/01/95 | 0:51 | 2.23 | 0.095 | sewage |
| 07/01/95 | 5:43 | 2.22 | 0.08 | sewage |
| 07/01/95 | 13:51 | 2.2 | 0.05 | sewage |
| 07/01/95 | 18:44 | 2.2 | 0.05 | sewage |
| 07/01/95 | 19:28 | 2.21 | 0.065 | sewage |
| 08/01/95 | 8:27 | 2.22 | 0.08 | sewage |
| 08/01/95 | 14:35 | 2.2 | 0.05 | sewage |
| 08/01/95 | 16:42 | 2.2 | 0.05 | sewage |
| 08/01/95 | 17:04 | 2.22 | 0.08 | sewage |
| 09/01/95 | 8:56 | 2.22 | 0.08 | sewage |
| 09/01/95 | 13:19 | 2.2 | 0.05 | sewage |
| 09/01/95 | 16:34 | 2.2 | 0.05 | sewage |
| 09/01/95 | 17:03 | 2.22 | 0.08 | sewage |
| 10/01/95 | 9:32 | 2.22 | 0.08 | sewage |
| 10/01/95 | 13:17 | 2.2 | 0.05 | sewage |
| 10/01/95 | 16:47 | 2.2 | 0.05 | sewage |
| 10/01/95 | 17:09 | 2.22 | 0.08 | sewage |
| 11/01/95 | 9:01 | 2.22 | 0.08 | sewage |
| 11/01/95 | 13:39 | 2.2 | 0.05 | sewage |
| 11/01/95 | 16:54 | 2.2 | 0.05 | sewage |
| 11/01/95 | 17:16 | 2.22 | 0.08 | sewage |
| 12/01/95 | 9:45 | 2.22 | 0.08 | sewage |
| 12/01/95 | 14:15 | 2.2 | 0.05 | sewage |
| 12/01/95 | 16:53 | 2.2 | 0.05 | sewage |
| 12/01/95 | 17:14 | 2.22 | 0.08 | sewage |
| 13/01/95 | 8:58 | 2.22 | 0.08 | sewage |
| 13/01/95 | 13:51 | 2.21 | 0.065 | sewage |
| 13/01/95 | 16:59 | 2.2 | 0.05 | sewage |
| 13/01/95 | 17:28 | 2.23 | 0.095 | sewage |
| 14/01/95 | 5:27 | 2.23 | 0.095 | sewage |
| 14/01/95 | 12:28 | 2.2 | 0.05 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 14/01/95 | 18:50 | 2.2 | 0.05 | sewage |
| 14/01/95 | 19:27 | 2.22 | 0.08 | sewage |
| 15/01/95 | 7:56 | 2.22 | 0.08 | sewage |
| 15/01/95 | 13:41 | 2.2 | 0.05 | sewage |
| 15/01/95 | 16:41 | 2.2 | 0.05 | sewage |
| 15/01/95 | 17:10 | 2.22 | 0.08 | sewage |
| 16/01/95 | 8:55 | 2.22 | 0.08 | sewage |
| 16/01/95 | 13:10 | 2.2 | 0.05 | sewage |
| 16/01/95 | 16:40 | 2.2 | 0.05 | sewage |
| 16/01/95 | 17:09 | 2.22 | 0.08 | sewage |
| 17/01/95 | 9:01 | 2.22 | 0.08 | sewage |
| 17/01/95 | 13:39 | 2.2 | 0.05 | sewage |
| 17/01/95 | 16:54 | 2.2 | 0.05 | sewage |
| 17/01/95 | 17:15 | 2.23 | 0.095 | sewage |
| 18/01/95 | 0:00 | 2.23 | 0.095 | sewage |
| 18/01/95 | 0:00 | 2.23 | 0.095 | sewage |
| 18/01/95 | 2:30 | 2.23 | 0.095 | sewage |
| 18/01/95 | 4:37 | 2.25 | 0.13 | sewage |
| 18/01/95 | 8:37 | 2.24 | 0.11 | sewage |
| 18/01/95 | 12:31 | 2.22 | 0.08 | sewage |
| 18/01/95 | 14:38 | 2.22 | 0.08 | sewage |
| 18/01/95 | 15:07 | 2.24 | 0.11 | sewage |
| 19/01/95 | 5:52 | 2.24 | 0.11 | sewage |
| 19/01/95 | 11:47 | 2.22 | 0.08 | sewage |
| 19/01/95 | 15:17 | 2.21 | 0.065 | sewage |
| 19/01/95 | 15:38 | 2.23 | 0.095 | sewage |
| 20/01/95 | 7:01 | 2.23 | 0.095 | sewage |
| 20/01/95 | 10:17 | 2.22 | 0.08 | sewage |
| 20/01/95 | 16:55 | 2.21 | 0.065 | sewage |
| 20/01/95 | 17:16 | 2.23 | 0.095 | sewage |
| 21/01/95 | 0:09 | 2.23 | 0.095 | sewage |
| 21/01/95 | 5:39 | 2.23 | 0.095 | sewage |
| 21/01/95 | 7:55 | 2.22 | 0.08 | sewage |
| 21/01/95 | 18:48 | 2.21 | 0.065 | sewage |
| 21/01/95 | 19:17 | 2.22 | 0.08 | sewage |
| 22/01/95 | 3:32 | 2.23 | 0.095 | sewage |
| 22/01/95 | 7:17 | 2.23 | 0.095 | sewage |
| 22/01/95 | 10:18 | 2.22 | 0.08 | sewage |
| 22/01/95 | 16:48 | 2.21 | 0.065 | sewage |
| 22/01/95 | 17:10 | 2.23 | 0.095 | sewage |
| 23/01/95 | 8:33 | 2.23 | 0.095 | sewage |
| 23/01/95 | 10:48 | 2.22 | 0.08 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 23/01/95 | 16:34 | 2.21 | 0.065 | sewage |
| 23/01/95 | 17:10 | 2.23 | 0.095 | sewage |
| 24/01/95 | 8:18 | 2.23 | 0.095 | sewage |
| 24/01/95 | 10:41 | 2.22 | 0.08 | sewage |
| 24/01/95 | 16:49 | 2.21 | 0.065 | sewage |
| 24/01/95 | 17:11 | 2.23 | 0.095 | sewage |
| 25/01/95 | 8:49 | 2.23 | 0.095 | sewage |
| 25/01/95 | 10:49 | 2.22 | 0.08 | sewage |
| 25/01/95 | 16:57 | 2.22 | 0.08 | sewage |
| 25/01/95 | 17:34 | 2.23 | 0.095 | sewage |
| 26/01/95 | 9:35 | 2.22 | 0.08 | sewage |
| 26/01/95 | 11:14 | 2.2 | 0.05 | sewage |
| 26/01/95 | 16:44 | 2.19 | 0.04 | sewage |
| 26/01/95 | 17:21 | 2.21 | 0.065 | sewage |
| 27/01/95 | 9:21 | 2.21 | 0.065 | sewage |
| 27/01/95 | 13:37 | 2.2 | 0.05 | sewage |
| 27/01/95 | 17:07 | 2.19 | 0.04 | sewage |
| 27/01/95 | 17:21 | 2.21 | 0.065 | sewage |
| 28/01/95 | 1:43 | 2.22 | 0.08 | sewage |
| 28/01/95 | 19:01 | 2.18 | 0.03 | sewage |
| 28/01/95 | 19:15 | 2.2 | 0.05 | sewage |
| 29/01/95 | 9:22 | 2.21 | 0.065 | sewage |
| 29/01/95 | 16:46 | 2.19 | 0.04 | sewage |
| 29/01/95 | 17:00 | 2.21 | 0.065 | sewage |
| 30/01/95 | 7:30 | 2.21 | 0.065 | sewage |
| 30/01/95 | 7:30 | 2.21 | 0.065 | sewage |
| 30/01/95 | 9:37 | 2.21 | 0.065 | sewage |
| 30/01/95 | 16:43 | 2.19 | 0.04 | sewage |
| 30/01/95 | 16:59 | 2.21 | 0.065 | sewage |
| 31/01/95 | 10:27 | 2.21 | 0.065 | sewage |
| 31/01/95 | 16:41 | 2.19 | 0.04 | sewage |
| 31/01/95 | 16:57 | 2.21 | 0.065 | sewage |
| 01/02/1995 | 9:40 | 2.21 | 0.065 | sewage |
| 01/02/1995 | 16:23 | 2.19 | 0.04 | sewage |
| 01/02/1995 | 16:54 | 2.21 | 0.065 | sewage |
| 02/02/1995 | 8:37 | 2.21 | 0.065 | sewage |
| 02/02/1995 | 16:28 | 2.19 | 0.04 | sewage |
| 02/02/1995 | 16:44 | 2.21 | 0.065 | sewage |
| 03/02/95 | 8:20 | 2.22 | 0.08 | sewage |
| 03/02/95 | 16:33 | 2.19 | 0.04 | sewage |
| 03/02/95 | 17:04 | 2.21 | 0.065 | sewage |
| 04/02/95 | 5:10 | 2.22 | 0.08 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 04/02/95 | 17:01 | 2.19 | 0.04 | sewage |
| 04/02/95 | 17:17 | 2.23 | 0.095 | sewage |
| 04/02/95 | 22:31 | 2.21 | 0.065 | sewage |
| 05/02/95 | 6:00 | 2.21 | 0.065 | sewage |
| 05/02/95 | 6:00 | 2.21 | 0.065 | sewage |
| 07/02/95 | 0:00 | 2.21 | 0.065 | sewage |
| 07/02/95 | 0:00 | 2.21 | 0.065 | drainage |
| 07/02/95 | 14:41 | 2.22 | 0.08 | drainage |
| 07/02/95 | 17:13 | 2.23 | 0.095 | drainage |
| 07/02/95 | 18:46 | 2.24 | 0.11 | drainage |
| 07/02/95 | 19:42 | 2.27 | 0.16 | drainage |
| 07/02/95 | 21:24 | 2.3 | 0.2 | drainage |
| 08/02/95 | 0:12 | 2.31 | 0.22 | drainage |
| 08/02/95 | 3:35 | 2.31 | 0.22 | drainage |
| 08/02/95 | 5:57 | 2.31 | 0.22 | drainage |
| 08/02/95 | 7:44 | 2.32 | 0.24 | drainage |
| 08/02/95 | 9:09 | 2.33 | 0.26 | drainage |
| 08/02/95 | 9:48 | 2.34 | 0.28 | drainage |
| 08/02/95 | 11:10 | 2.34 | 0.28 | drainage |
| 08/02/95 | 12:22 | 2.32 | 0.24 | drainage |
| 08/02/95 | 14:27 | 2.3 | 0.2 | drainage |
| 08/02/95 | 18:04 | 2.29 | 0.19 | drainage |
| 08/02/95 | 21:33 | 2.28 | 0.17 | drainage |
| 09/02/95 | 1:27 | 2.28 | 0.17 | drainage |
| 09/02/95 | 4:30 | 2.3 | 0.2 | drainage |
| 09/02/95 | 6:08 | 2.31 | 0.22 | drainage |
| 09/02/95 | 9:23 | 2.3 | 0.2 | drainage |
| 09/02/95 | 13:13 | 2.28 | 0.17 | drainage |
| 09/02/95 | 16:57 | 2.27 | 0.16 | drainage |
| 09/02/95 | 20:25 | 2.26 | 0.14 | drainage |
| 10/02/95 | 1:17 | 2.24 | 0.11 | drainage |
| 10/02/95 | 6:30 | 2.23 | 0.095 | drainage |
| 10/02/95 | 12:00 | 2.22 | 0.08 | drainage |
| 10/02/95 | 17:00 | 2.21 | 0.065 | drainage |
| 11/02/95 | 0:00 | 2.21 | 0.065 | drainage |
| 11/02/95 | 0:00 | 2.21 | 0.065 | sewage |
| 16/02/95 | 10:00 | 2.21 | 0.065 | sewage |
| 16/02/95 | 10:00 | 2.21 | 0.065 | sewage |
| 16/02/95 | 18:16 | 2.19 | 0.04 | sewage |
| 16/02/95 | 18:34 | 2.21 | 0.065 | sewage |
| 17/02/95 | 11:34 | 2.21 | 0.065 | sewage |
| 17/02/95 | 18:14 | 2.19 | 0.04 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 17/02/95 | 18:47 | 2.21 | 0.065 | sewage |
| 18/02/95 | 6:12 | 2.21 | 0.065 | sewage |
| 18/02/95 | 19:41 | 2.2 | 0.05 | sewage |
| 18/02/95 | 20:06 | 2.21 | 0.065 | sewage |
| 18/02/95 | 21:13 | 2.21 | 0.065 | sewage |
| 18/02/95 | 21:32 | 2.23 | 0.095 | sewage |
| 19/02/95 | 1:50 | 2.22 | 0.08 | sewage |
| 19/02/95 | 8:54 | 2.21 | 0.065 | sewage |
| 19/02/95 | 17:33 | 2.2 | 0.05 | sewage |
| 19/02/95 | 18:04 | 2.21 | 0.065 | sewage |
| 20/02/95 | 10:13 | 2.21 | 0.065 | sewage |
| 20/02/95 | 17:38 | 2.2 | 0.05 | sewage |
| 20/02/95 | 17:54 | 2.21 | 0.065 | sewage |
| 21/02/95 | 9:26 | 2.21 | 0.065 | sewage |
| 21/02/95 | 15:43 | 2.19 | 0.04 | sewage |
| 21/02/95 | 17:35 | 2.19 | 0.04 | sewage |
| 21/02/95 | 17:45 | 2.21 | 0.065 | sewage |
| 22/02/95 | 10:31 | 2.21 | 0.065 | sewage |
| 22/02/95 | 16:18 | 2.19 | 0.04 | sewage |
| 22/02/95 | 17:33 | 2.19 | 0.04 | sewage |
| 22/02/95 | 17:50 | 2.21 | 0.065 | sewage |
| 23/02/95 | 8:29 | 2.21 | 0.065 | sewage |
| 23/02/95 | 14:54 | 2.2 | 0.05 | sewage |
| 23/02/95 | 17:15 | 2.19 | 0.04 | sewage |
| 23/02/95 | 17:24 | 2.2 | 0.05 | sewage |
| 24/02/95 | 8:56 | 2.21 | 0.065 | sewage |
| 24/02/95 | 17:13 | 2.19 | 0.04 | sewage |
| 24/02/95 | 17:23 | 2.21 | 0.065 | sewage |
| 25/02/95 | 4:41 | 2.21 | 0.065 | sewage |
| 25/02/95 | 18:39 | 2.19 | 0.04 | sewage |
| 25/02/95 | 19:03 | 2.2 | 0.05 | sewage |
| 26/02/95 | 7:15 | 2.21 | 0.065 | sewage |
| 26/02/95 | 7:15 | 2.21 | 0.065 | sewage |
| 26/02/95 | 10:30 | 2.21 | 0.065 | sewage |
| 26/02/95 | 15:58 | 2.2 | 0.05 | sewage |
| 26/02/95 | 16:18 | 2.21 | 0.065 | sewage |
| 27/02/95 | 7:45 | 2.21 | 0.065 | sewage |
| 27/02/95 | 15:27 | 2.2 | 0.05 | sewage |
| 27/02/95 | 15:54 | 2.21 | 0.065 | sewage |
| 28/02/95 | 7:35 | 2.21 | 0.065 | sewage |
| 28/02/95 | 15:33 | 2.2 | 0.05 | sewage |
| 28/02/95 | 15:53 | 2.21 | 0.065 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 01/03/95 | 7:42 | 2.21 | 0.065 | sewage |
| 01/03/95 | 16:01 | 2.2 | 0.05 | sewage |
| 01/03/95 | 16:05 | 2.21 | 0.065 | sewage |
| 02/03/95 | 8:40 | 2.21 | 0.065 | sewage |
| 02/03/95 | 16:07 | 2.2 | 0.05 | sewage |
| 02/03/95 | 16:19 | 2.21 | 0.065 | sewage |
| 03/03/95 | 8:08 | 2.21 | 0.065 | sewage |
| 03/03/95 | 16:20 | 2.19 | 0.04 | sewage |
| 03/03/95 | 16:24 | 2.21 | 0.065 | sewage |
| 04/03/95 | 3:28 | 2.21 | 0.065 | sewage |
| 04/03/95 | 17:47 | 2.19 | 0.04 | sewage |
| 04/03/95 | 18:14 | 2.2 | 0.05 | sewage |
| 05/03/95 | 7:55 | 2.2 | 0.05 | sewage |
| 05/03/95 | 15:53 | 2.19 | 0.04 | sewage |
| 05/03/95 | 16:05 | 2.21 | 0.065 | sewage |
| 06/03/95 | 0:00 | 2.21 | 0.065 | sewage |
| 06/03/95 | 0:00 | 2.21 | 0.065 | sewage |
| 06/03/95 | 8:23 | 2.21 | 0.065 | sewage |
| 06/03/95 | 16:08 | 2.2 | 0.05 | sewage |
| 06/03/95 | 16:16 | 2.21 | 0.065 | sewage |
| 07/03/95 | 8:18 | 2.21 | 0.065 | sewage |
| 07/03/95 | 16:10 | 2.19 | 0.04 | sewage |
| 07/03/95 | 16:18 | 2.21 | 0.065 | sewage |
| 08/03/95 | 8:50 | 2.21 | 0.065 | sewage |
| 08/03/95 | 16:19 | 2.19 | 0.04 | sewage |
| 08/03/95 | 16:20 | 2.21 | 0.065 | sewage |
| 09/03/95 | 8:44 | 2.21 | 0.065 | sewage |
| 09/03/95 | 16:14 | 2.19 | 0.04 | sewage |
| 09/03/95 | 16:38 | 2.21 | 0.065 | sewage |
| 10/03/95 | 8:17 | 2.21 | 0.065 | sewage |
| 10/03/95 | 16:39 | 2.19 | 0.04 | sewage |
| 10/03/95 | 16:47 | 2.21 | 0.065 | sewage |
| 11/03/95 | 4:19 | 2.21 | 0.065 | sewage |
| 11/03/95 | 18:11 | 2.19 | 0.04 | sewage |
| 11/03/95 | 18:42 | 2.2 | 0.05 | sewage |
| 12/03/95 | 8:58 | 2.21 | 0.065 | sewage |
| 12/03/95 | 16:13 | 2.19 | 0.04 | sewage |
| 12/03/95 | 16:36 | 2.2 | 0.05 | sewage |
| 13/03/95 | 0:00 | 2.21 | 0.065 | sewage |
| 13/03/95 | 0:00 | 2.2 | 0.05 | sewage |
| 29/03/95 | 8:45 | 2.2 | 0.05 | sewage |
| 29/03/95 | 8:45 | 2.2 | 0.05 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 01/05/95 | 7:15 | 2.21 | 0.065 | sewage |
| 01/05/95 | 7:15 | 2.21 | 0.065 | sewage |
| 01/05/95 | 16:59 | 2.19 | 0.04 | sewage |
| 01/05/95 | 17:22 | 2.2 | 0.05 | sewage |
| 02/05/95 | 0:22 | 2.2 | 0.05 | sewage |
| 02/05/95 | 8:07 | 2.2 | 0.05 | sewage |
| 02/05/95 | 17:13 | 2.19 | 0.04 | sewage |
| 02/05/95 | 17:36 | 2.2 | 0.05 | sewage |
| 03/05/95 | 0:21 | 2.21 | 0.065 | sewage |
| 03/05/95 | 8:21 | 2.2 | 0.05 | sewage |
| 03/05/95 | 16:58 | 2.19 | 0.04 | sewage |
| 03/05/95 | 17:13 | 2.2 | 0.05 | sewage |
| 04/05/95 | 9:50 | 2.2 | 0.05 | sewage |
| 04/05/95 | 17:57 | 2.19 | 0.04 | sewage |
| 04/05/95 | 18:35 | 2.2 | 0.05 | sewage |
| 05/05/95 | 8:13 | 2.21 | 0.065 | sewage |
| 05/05/95 | 17:57 | 2.19 | 0.04 | sewage |
| 05/05/95 | 18:12 | 2.21 | 0.065 | sewage |
| 06/05/95 | 6:42 | 2.21 | 0.065 | sewage |
| 06/05/95 | 19:34 | 2.19 | 0.04 | sewage |
| 06/05/95 | 19:49 | 2.2 | 0.05 | sewage |
| 07/05/95 | 10:56 | 2.2 | 0.05 | sewage |
| 07/05/95 | 16:56 | 2.2 | 0.05 | sewage |
| 07/05/95 | 17:11 | 2.21 | 0.065 | sewage |
| 08/05/95 | 8:11 | 2.21 | 0.065 | sewage |
| 08/05/95 | 17:18 | 2.2 | 0.05 | sewage |
| 08/05/95 | 17:33 | 2.21 | 0.065 | sewage |
| 09/05/95 | 9:55 | 2.21 | 0.065 | sewage |
| 09/05/95 | 17:25 | 2.2 | 0.05 | sewage |
| 09/05/95 | 17:40 | 2.21 | 0.065 | sewage |
| 10/05/95 | 10:25 | 2.21 | 0.065 | sewage |
| 10/05/95 | 17:32 | 2.2 | 0.05 | sewage |
| 10/05/95 | 18:02 | 2.21 | 0.065 | sewage |
| 11/05/95 | 9:47 | 2.21 | 0.065 | sewage |
| 11/05/95 | 17:31 | 2.2 | 0.05 | sewage |
| 11/05/95 | 17:47 | 2.21 | 0.065 | sewage |
| 12/05/95 | 8:09 | 2.21 | 0.065 | sewage |
| 12/05/95 | 17:38 | 2.19 | 0.04 | sewage |
| 12/05/95 | 18:08 | 2.2 | 0.05 | sewage |
| 13/05/95 | 6:08 | 2.21 | 0.065 | sewage |
| 13/05/95 | 19:44 | 2.19 | 0.04 | sewage |
| 13/05/95 | 20:15 | 2.2 | 0.05 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 14/05/95 | 0:00 | 2.2 | 0.05 | sewage |
| 14/05/95 | 0:00 | 2.2 | 0.05 | sewage |
| 14/05/95 | 10:44 | 2.2 | 0.05 | sewage |
| 14/05/95 | 17:35 | 2.19 | 0.04 | sewage |
| 14/05/95 | 17:51 | 2.2 | 0.05 | sewage |
| 15/05/95 | 10:12 | 2.2 | 0.05 | sewage |
| 15/05/95 | 14:04 | 2.2 | 0.05 | sewage |
| 15/05/95 | 14:41 | 2.19 | 0.04 | sewage |
| 15/05/95 | 17:33 | 2.19 | 0.04 | sewage |
| 15/05/95 | 18:03 | 2.2 | 0.05 | sewage |
| 16/05/95 | 10:02 | 2.2 | 0.05 | sewage |
| 16/05/95 | 17:31 | 2.19 | 0.04 | sewage |
| 16/05/95 | 18:01 | 2.2 | 0.05 | sewage |
| 17/05/95 | 10:07 | 2.2 | 0.05 | sewage |
| 17/05/95 | 17:43 | 2.18 | 0.03 | sewage |
| 17/05/95 | 18:14 | 2.2 | 0.05 | sewage |
| 18/05/95 | 11:27 | 2.2 | 0.05 | sewage |
| 18/05/95 | 17:41 | 2.19 | 0.04 | sewage |
| 18/05/95 | 18:12 | 2.2 | 0.05 | sewage |
| 19/05/95 | 9:48 | 2.2 | 0.05 | sewage |
| 19/05/95 | 16:24 | 2.19 | 0.04 | sewage |
| 19/05/95 | 18:09 | 2.18 | 0.03 | sewage |
| 19/05/95 | 18:32 | 2.2 | 0.05 | sewage |
| 20/05/95 | 6:08 | 2.2 | 0.05 | sewage |
| 20/05/95 | 12:00 | 2.19 | 0.04 | sewage |
| 20/05/95 | 15:59 | 2.18 | 0.03 | sewage |
| 20/05/95 | 19:51 | 2.18 | 0.03 | sewage |
| 20/05/95 | 20:21 | 2.19 | 0.04 | sewage |
| 21/05/95 | 11:35 | 2.19 | 0.04 | sewage |
| 21/05/95 | 17:49 | 2.18 | 0.03 | sewage |
| 21/05/95 | 18:27 | 2.2 | 0.05 | sewage |
| 22/05/95 | 10:18 | 2.2 | 0.05 | sewage |
| 22/05/95 | 17:54 | 2.18 | 0.03 | sewage |
| 22/05/95 | 18:25 | 2.19 | 0.04 | sewage |
| 23/05/95 | 10:38 | 2.2 | 0.05 | sewage |
| 23/05/95 | 17:59 | 2.18 | 0.03 | sewage |
| 23/05/95 | 18:15 | 2.19 | 0.04 | sewage |
| 24/05/95 | 10:13 | 2.2 | 0.05 | sewage |
| 24/05/95 | 17:49 | 2.18 | 0.03 | sewage |
| 24/05/95 | 18:28 | 2.2 | 0.05 | sewage |
| 25/05/95 | 9:49 | 2.2 | 0.05 | sewage |
| 25/05/95 | 17:55 | 2.18 | 0.03 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 25/05/95 | 18:25 | 2.2 | 0.05 | sewage |
| 26/05/95 | 11:46 | 2.2 | 0.05 | sewage |
| 26/05/95 | 18:00 | 2.18 | 0.03 | sewage |
| 26/05/95 | 18:23 | 2.2 | 0.05 | sewage |
| 27/05/95 | 0:00 | 2.2 | 0.05 | sewage |
| 27/05/95 | 0:00 | 2.2 | 0.05 | sewage |
| 27/05/95 | 7:14 | 2.2 | 0.05 | sewage |
| 27/05/95 | 15:28 | 2.19 | 0.04 | sewage |
| 27/05/95 | 20:05 | 2.18 | 0.03 | sewage |
| 27/05/95 | 20:28 | 2.19 | 0.04 | sewage |
| 28/05/95 | 12:12 | 2.2 | 0.05 | sewage |
| 28/05/95 | 17:33 | 2.18 | 0.03 | sewage |
| 28/05/95 | 18:34 | 2.2 | 0.05 | sewage |
| 29/05/95 | 10:11 | 2.2 | 0.05 | sewage |
| 29/05/95 | 17:47 | 2.19 | 0.04 | sewage |
| 29/05/95 | 18:25 | 2.2 | 0.05 | sewage |
| 30/05/95 | 10:09 | 2.2 | 0.05 | sewage |
| 30/05/95 | 18:00 | 2.19 | 0.04 | sewage |
| 30/05/95 | 18:38 | 2.2 | 0.05 | sewage |
| 31/05/95 | 10:52 | 2.2 | 0.05 | sewage |
| 31/05/95 | 17:51 | 2.18 | 0.03 | sewage |
| 31/05/95 | 18:29 | 2.19 | 0.04 | sewage |
| 01/06/95 | 11:06 | 2.2 | 0.05 | sewage |
| 01/06/95 | 17:49 | 2.19 | 0.04 | sewage |
| 01/06/95 | 18:35 | 2.2 | 0.05 | sewage |
| 02/06/95 | 10:41 | 2.2 | 0.05 | sewage |
| 02/06/95 | 18:25 | 2.19 | 0.04 | sewage |
| 02/06/95 | 19:03 | 2.2 | 0.05 | sewage |
| 03/06/95 | 2:33 | 2.2 | 0.05 | sewage |
| 03/06/95 | 2:48 | 2.2 | 0.05 | sewage |
| 03/06/95 | 9:02 | 2.2 | 0.05 | sewage |
| 03/06/95 | 12:32 | 2.19 | 0.04 | sewage |
| 03/06/95 | 20:15 | 2.18 | 0.03 | sewage |
| 03/06/95 | 20:46 | 2.19 | 0.04 | sewage |
| 04/06/95 | 11:23 | 2.19 | 0.04 | sewage |
| 04/06/95 | 20:06 | 2.18 | 0.03 | sewage |
| 04/06/95 | 20:52 | 2.19 | 0.04 | sewage |
| 05/06/95 | 11:43 | 2.19 | 0.04 | sewage |
| 05/06/95 | 16:50 | 2.18 | 0.03 | sewage |
| 05/06/95 | 18:42 | 2.18 | 0.03 | sewage |
| 05/06/95 | 19:05 | 2.19 | 0.04 | sewage |
| 06/06/95 | 10:19 | 2.19 | 0.04 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 06/06/95 | 17:25 | 2.18 | 0.03 | sewage |
| 06/06/95 | 18:40 | 2.18 | 0.03 | sewage |
| 06/06/95 | 19:03 | 2.19 | 0.04 | sewage |
| 07/06/95 | 12:02 | 2.19 | 0.04 | sewage |
| 07/06/95 | 18:31 | 2.18 | 0.03 | sewage |
| 07/06/95 | 19:02 | 2.19 | 0.04 | sewage |
| 08/06/95 | 10:38 | 2.19 | 0.04 | sewage |
| 08/06/95 | 18:14 | 2.18 | 0.03 | sewage |
| 08/06/95 | 18:52 | 2.19 | 0.04 | sewage |
| 09/06/95 | 0:00 | 2.2 | 0.05 | sewage |
| 09/06/95 | 0:00 | 2.2 | 0.05 | sewage |
| 09/06/95 | 10:58 | 2.2 | 0.05 | sewage |
| 09/06/95 | 18:27 | 2.19 | 0.04 | sewage |
| 09/06/95 | 18:35 | 2.2 | 0.05 | sewage |
| 10/06/95 | 8:40 | 2.2 | 0.05 | sewage |
| 10/06/95 | 20:15 | 2.18 | 0.03 | sewage |
| 10/06/95 | 20:31 | 2.2 | 0.05 | sewage |
| 11/06/95 | 12:14 | 2.2 | 0.05 | sewage |
| 11/06/95 | 18:05 | 2.19 | 0.04 | sewage |
| 11/06/95 | 18:43 | 2.2 | 0.05 | sewage |
| 12/06/95 | 12:18 | 2.2 | 0.05 | sewage |
| 12/06/95 | 18:02 | 2.19 | 0.04 | sewage |
| 12/06/95 | 18:40 | 2.2 | 0.05 | sewage |
| 13/06/95 | 12:00 | 2.2 | 0.05 | sewage |
| 13/06/95 | 18:06 | 2.19 | 0.04 | sewage |
| 13/06/95 | 18:36 | 2.2 | 0.05 | sewage |
| 14/06/95 | 12:04 | 2.2 | 0.05 | sewage |
| 14/06/95 | 18:10 | 2.19 | 0.04 | sewage |
| 14/06/95 | 18:48 | 2.2 | 0.05 | sewage |
| 14/06/95 | 19:40 | 2.2 | 0.05 | sewage |
| 14/06/95 | 19:40 | 2.2 | 0.05 | sewage |
| 15/06/95 | 10:53 | 2.2 | 0.05 | sewage |
| 15/06/95 | 18:06 | 2.19 | 0.04 | sewage |
| 15/06/95 | 18:52 | 2.2 | 0.05 | sewage |
| 16/06/95 | 11:42 | 2.2 | 0.05 | sewage |
| 16/06/95 | 18:33 | 2.19 | 0.04 | sewage |
| 16/06/95 | 19:03 | 2.2 | 0.05 | sewage |
| 17/06/95 | 1:25 | 2.2 | 0.05 | sewage |
| 17/06/95 | 1:25 | 2.21 | 0.065 | sewage |
| 17/06/95 | 5:55 | 2.21 | 0.065 | sewage |
| 17/06/95 | 20:36 | 2.18 | 0.03 | sewage |
| 17/06/95 | 20:52 | 2.19 | 0.04 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 18/06/95 | 12:57 | 2.2 | 0.05 | sewage |
| 18/06/95 | 18:19 | 2.19 | 0.04 | sewage |
| 18/06/95 | 18:57 | 2.2 | 0.05 | sewage |
| 19/06/95 | 11:39 | 2.2 | 0.05 | sewage |
| 19/06/95 | 16:31 | 2.19 | 0.04 | sewage |
| 19/06/95 | 18:38 | 2.19 | 0.04 | sewage |
| 19/06/95 | 18:46 | 2.19 | 0.04 | sewage |
| 20/06/95 | 0:00 | 2.2 | 0.05 | sewage |
| 20/06/95 | 0:00 | 2.2 | 0.05 | sewage |
| 20/06/95 | 11:35 | 2.2 | 0.05 | sewage |
| 20/06/95 | 19:04 | 2.19 | 0.04 | sewage |
| 20/06/95 | 19:13 | 2.2 | 0.05 | sewage |
| 21/06/95 | 11:23 | 2.2 | 0.05 | sewage |
| 21/06/95 | 18:21 | 2.19 | 0.04 | sewage |
| 21/06/95 | 19:01 | 2.2 | 0.05 | sewage |
| 22/06/95 | 3:02 | 2.2 | 0.05 | sewage |
| 22/06/95 | 3:18 | 2.2 | 0.05 | sewage |
| 22/06/95 | 9:06 | 2.2 | 0.05 | sewage |
| 22/06/95 | 15:12 | 2.19 | 0.04 | sewage |
| 22/06/95 | 18:01 | 2.19 | 0.04 | sewage |
| 22/06/95 | 18:34 | 2.2 | 0.05 | sewage |
| 23/06/95 | 10:43 | 2.2 | 0.05 | sewage |
| 23/06/95 | 17:49 | 2.19 | 0.04 | sewage |
| 23/06/95 | 18:21 | 2.2 | 0.05 | sewage |
| 24/06/95 | 7:05 | 2.21 | 0.065 | sewage |
| 24/06/95 | 9:17 | 2.2 | 0.05 | sewage |
| 24/06/95 | 15:23 | 2.19 | 0.04 | sewage |
| 24/06/95 | 19:26 | 2.19 | 0.04 | sewage |
| 24/06/95 | 19:51 | 2.19 | 0.04 | sewage |
| 25/06/95 | 5:29 | 2.2 | 0.05 | sewage |
| 25/06/95 | 6:43 | 2.2 | 0.05 | sewage |
| 25/06/95 | 10:54 | 2.2 | 0.05 | sewage |
| 25/06/95 | 14:57 | 2.19 | 0.04 | sewage |
| 25/06/95 | 17:02 | 2.19 | 0.04 | sewage |
| 25/06/95 | 17:34 | 2.2 | 0.05 | sewage |
| 26/06/95 | 8:37 | 2.2 | 0.05 | sewage |
| 26/06/95 | 13:23 | 2.19 | 0.04 | sewage |
| 26/06/95 | 16:49 | 2.19 | 0.04 | sewage |
| 26/06/95 | 17:21 | 2.2 | 0.05 | sewage |
| 27/06/95 | 7:40 | 2.2 | 0.05 | sewage |
| 27/06/95 | 7:40 | 2.2 | 0.05 | sewage |
| 27/06/95 | 16:30 | 2.18 | 0.03 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 27/06/95 | 17:01 | 2.19 | 0.04 | sewage |
| 28/06/95 | 8:38 | 2.2 | 0.05 | sewage |
| 28/06/95 | 16:13 | 2.18 | 0.03 | sewage |
| 28/06/95 | 16:59 | 2.19 | 0.04 | sewage |
| 29/06/95 | 9:36 | 2.2 | 0.05 | sewage |
| 29/06/95 | 14:49 | 2.19 | 0.04 | sewage |
| 29/06/95 | 16:26 | 2.19 | 0.04 | sewage |
| 29/06/95 | 16:57 | 2.19 | 0.04 | sewage |
| 30/06/95 | 8:49 | 2.2 | 0.05 | sewage |
| 30/06/95 | 16:39 | 2.19 | 0.04 | sewage |
| 30/06/95 | 17:48 | 2.2 | 0.05 | sewage |
| 30/06/95 | 23:40 | 2.2 | 0.05 | sewage |
| 01/07/95 | 0:33 | 2.2 | 0.05 | sewage |
| 01/07/95 | 7:55 | 2.2 | 0.05 | sewage |
| 01/07/95 | 16:30 | 2.19 | 0.04 | sewage |
| 01/07/95 | 18:37 | 2.18 | 0.03 | sewage |
| 01/07/95 | 19:00 | 2.19 | 0.04 | sewage |
| 02/07/95 | 5:22 | 2.2 | 0.05 | sewage |
| 02/07/95 | 5:45 | 2.2 | 0.05 | sewage |
| 02/07/95 | 9:08 | 2.2 | 0.05 | sewage |
| 02/07/95 | 16:35 | 2.19 | 0.04 | sewage |
| 02/07/95 | 17:07 | 2.2 | 0.05 | sewage |
| 03/07/95 | 10:58 | 2.2 | 0.05 | sewage |
| 03/07/95 | 12:49 | 2.19 | 0.04 | sewage |
| 03/07/95 | 17:03 | 2.19 | 0.04 | sewage |
| 03/07/95 | 17:27 | 2.2 | 0.05 | sewage |
| 04/07/95 | 7:04 | 2.21 | 0.065 | sewage |
| 04/07/95 | 17:01 | 2.19 | 0.04 | sewage |
| 04/07/95 | 17:32 | 2.2 | 0.05 | sewage |
| 05/07/95 | 9:24 | 2.2 | 0.05 | sewage |
| 05/07/95 | 16:52 | 2.19 | 0.04 | sewage |
| 05/07/95 | 17:38 | 2.2 | 0.05 | sewage |
| 06/07/95 | 9:30 | 2.2 | 0.05 | sewage |
| 06/07/95 | 16:57 | 2.19 | 0.04 | sewage |
| 06/07/95 | 17:21 | 2.2 | 0.05 | sewage |
| 07/07/95 | 9:05 | 2.2 | 0.05 | sewage |
| 07/07/95 | 17:18 | 2.19 | 0.04 | sewage |
| 07/07/95 | 17:41 | 2.2 | 0.05 | sewage |
| 08/07/95 | 7:41 | 2.2 | 0.05 | sewage |
| 08/07/95 | 19:08 | 2.19 | 0.04 | sewage |
| 08/07/95 | 19:32 | 2.19 | 0.04 | sewage |
| 09/07/95 | 5:38 | 2.2 | 0.05 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 09/07/95 | 9:46 | 2.2 | 0.05 | sewage |
| 09/07/95 | 16:44 | 2.19 | 0.04 | sewage |
| 09/07/95 | 17:23 | 2.2 | 0.05 | sewage |
| 10/07/95 | 0:00 | 2.2 | 0.05 | sewage |
| 10/07/95 | 0:00 | 2.2 | 0.05 | sewage |
| 10/07/95 | 10:00 | 2.2 | 0.05 | sewage |
| 10/07/95 | 17:15 | 2.19 | 0.04 | sewage |
| 10/07/95 | 17:22 | 2.19 | 0.04 | sewage |
| 11/07/95 | 11:22 | 2.2 | 0.05 | sewage |
| 11/07/95 | 17:21 | 2.19 | 0.04 | sewage |
| 11/07/95 | 17:51 | 2.2 | 0.05 | sewage |
| 12/07/95 | 11:06 | 2.2 | 0.05 | sewage |
| 12/07/95 | 17:28 | 2.19 | 0.04 | sewage |
| 12/07/95 | 17:58 | 2.19 | 0.04 | sewage |
| 13/07/95 | 2:28 | 2.2 | 0.05 | sewage |
| 13/07/95 | 2:51 | 2.2 | 0.05 | sewage |
| 13/07/95 | 8:28 | 2.2 | 0.05 | sewage |
| 13/07/95 | 14:20 | 2.19 | 0.04 | sewage |
| 13/07/95 | 17:13 | 2.18 | 0.03 | sewage |
| 13/07/95 | 17:43 | 2.2 | 0.05 | sewage |
| 14/07/95 | 10:20 | 2.2 | 0.05 | sewage |
| 14/07/95 | 17:50 | 2.18 | 0.03 | sewage |
| 14/07/95 | 18:20 | 2.2 | 0.05 | sewage |
| 15/07/95 | 6:12 | 2.2 | 0.05 | sewage |
| 15/07/95 | 13:49 | 2.19 | 0.04 | sewage |
| 15/07/95 | 18:34 | 2.18 | 0.03 | sewage |
| 15/07/95 | 19:42 | 2.18 | 0.03 | sewage |
| 15/07/95 | 19:57 | 2.19 | 0.04 | sewage |
| 16/07/95 | 11:26 | 2.2 | 0.05 | sewage |
| 16/07/95 | 15:19 | 2.19 | 0.04 | sewage |
| 16/07/95 | 18:04 | 2.19 | 0.04 | sewage |
| 16/07/95 | 18:26 | 2.19 | 0.04 | sewage |
| 17/07/95 | 10:56 | 2.2 | 0.05 | sewage |
| 17/07/95 | 18:03 | 2.18 | 0.03 | sewage |
| 17/07/95 | 18:18 | 2.19 | 0.04 | sewage |
| 18/07/95 | 10:40 | 2.19 | 0.04 | sewage |
| 18/07/95 | 17:40 | 2.19 | 0.04 | sewage |
| 18/07/95 | 18:10 | 2.19 | 0.04 | sewage |
| 19/07/95 | 11:10 | 2.2 | 0.05 | sewage |
| 19/07/95 | 16:24 | 2.19 | 0.04 | sewage |
| 19/07/95 | 18:02 | 2.19 | 0.04 | sewage |
| 19/07/95 | 18:24 | 2.19 | 0.04 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 20/07/95 | 10:31 | 2.2 | 0.05 | sewage |
| 20/07/95 | 17:54 | 2.19 | 0.04 | sewage |
| 20/07/95 | 18:01 | 2.19 | 0.04 | sewage |
| 21/07/95 | 11:38 | 2.2 | 0.05 | sewage |
| 21/07/95 | 18:31 | 2.19 | 0.04 | sewage |
| 21/07/95 | 18:46 | 2.19 | 0.04 | sewage |
| 22/07/95 | 0:16 | 2.2 | 0.05 | sewage |
| 22/07/95 | 0:38 | 2.2 | 0.05 | sewage |
| 22/07/95 | 8:15 | 2.2 | 0.05 | sewage |
| 22/07/95 | 11:38 | 2.2 | 0.05 | sewage |
| 22/07/95 | 17:38 | 2.19 | 0.04 | sewage |
| 22/07/95 | 20:08 | 2.18 | 0.03 | sewage |
| 22/07/95 | 20:15 | 2.19 | 0.04 | sewage |
| 23/07/95 | 0:00 | 2.19 | 0.04 | sewage |
| 23/07/95 | 0:00 | 2.19 | 0.04 | sewage |
| 23/07/95 | 11:28 | 2.19 | 0.04 | sewage |
| 23/07/95 | 18:19 | 2.18 | 0.03 | sewage |
| 23/07/95 | 18:41 | 2.19 | 0.04 | sewage |
| 24/07/95 | 10:45 | 2.19 | 0.04 | sewage |
| 24/07/95 | 18:07 | 2.18 | 0.03 | sewage |
| 24/07/95 | 18:36 | 2.19 | 0.04 | sewage |
| 25/07/95 | 10:55 | 2.19 | 0.04 | sewage |
| 25/07/95 | 17:47 | 2.18 | 0.03 | sewage |
| 25/07/95 | 18:31 | 2.19 | 0.04 | sewage |
| 26/07/95 | 10:35 | 2.19 | 0.04 | sewage |
| 26/07/95 | 18:34 | 2.18 | 0.03 | sewage |
| 26/07/95 | 18:49 | 2.19 | 0.04 | sewage |
| 27/07/95 | 11:08 | 2.2 | 0.05 | sewage |
| 27/07/95 | 17:29 | 2.19 | 0.04 | sewage |
| 27/07/95 | 18:29 | 2.2 | 0.05 | sewage |
| 28/07/95 | 11:10 | 2.2 | 0.05 | sewage |
| 28/07/95 | 18:24 | 2.19 | 0.04 | sewage |
| 28/07/95 | 19:09 | 2.19 | 0.04 | sewage |
| 29/07/95 | 6:21 | 2.2 | 0.05 | sewage |
| 29/07/95 | 10:35 | 2.2 | 0.05 | sewage |
| 29/07/95 | 18:41 | 2.18 | 0.03 | sewage |
| 29/07/95 | 19:56 | 2.18 | 0.03 | sewage |
| 29/07/95 | 20:41 | 2.19 | 0.04 | sewage |
| 30/07/95 | 6:24 | 2.19 | 0.04 | sewage |
| 30/07/95 | 9:08 | 2.2 | 0.05 | sewage |
| 30/07/95 | 14:00 | 2.19 | 0.04 | sewage |
| 30/07/95 | 18:14 | 2.19 | 0.04 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 30/07/95 | 18:44 | 2.19 | 0.04 | sewage |
| 31/07/95 | 10:33 | 2.19 | 0.04 | sewage |
| 31/07/95 | 18:17 | 2.18 | 0.03 | sewage |
| 31/07/95 | 18:46 | 2.19 | 0.04 | sewage |
| 01/08/95 | 0:00 | 2.19 | 0.04 | sewage |
| 01/08/95 | 0:00 | 2.19 | 0.04 | sewage |
| 01/08/95 | 11:35 | 2.19 | 0.04 | sewage |
| 01/08/95 | 18:22 | 2.18 | 0.03 | sewage |
| 01/08/95 | 18:37 | 2.19 | 0.04 | sewage |
| 02/08/95 | 11:23 | 2.19 | 0.04 | sewage |
| 02/08/95 | 18:03 | 2.18 | 0.03 | sewage |
| 02/08/95 | 18:32 | 2.19 | 0.04 | sewage |
| 03/08/95 | 11:04 | 2.19 | 0.04 | sewage |
| 03/08/95 | 17:43 | 2.18 | 0.03 | sewage |
| 03/08/95 | 18:05 | 2.19 | 0.04 | sewage |
| 04/08/95 | 10:29 | 2.19 | 0.04 | sewage |
| 04/08/95 | 17:46 | 2.18 | 0.03 | sewage |
| 04/08/95 | 18:23 | 2.19 | 0.04 | sewage |
| 05/08/95 | 4:29 | 2.2 | 0.05 | sewage |
| 05/08/95 | 17:19 | 2.18 | 0.03 | sewage |
| 05/08/95 | 18:40 | 2.18 | 0.03 | sewage |
| 05/08/95 | 19:02 | 2.19 | 0.04 | sewage |
| 06/08/95 | 7:00 | 2.2 | 0.05 | sewage |
| 06/08/95 | 7:00 | 2.2 | 0.05 | sewage |
| 06/08/95 | 11:30 | 2.2 | 0.05 | sewage |
| 06/08/95 | 14:52 | 2.2 | 0.05 | sewage |
| 06/08/95 | 18:00 | 2.2 | 0.05 | sewage |
| 06/08/95 | 18:22 | 2.2 | 0.05 | sewage |
| 07/08/95 | 4:37 | 2.21 | 0.065 | sewage |
| 07/08/95 | 10:22 | 2.21 | 0.065 | sewage |
| 07/08/95 | 16:37 | 2.2 | 0.05 | sewage |
| 07/08/95 | 17:14 | 2.21 | 0.065 | sewage |
| 08/08/95 | 11:21 | 2.21 | 0.065 | sewage |
| 08/08/95 | 17:21 | 2.2 | 0.05 | sewage |
| 08/08/95 | 17:36 | 2.21 | 0.065 | sewage |
| 09/08/95 | 8:50 | 2.21 | 0.065 | sewage |
| 09/08/95 | 13:58 | 2.2 | 0.05 | sewage |
| 09/08/95 | 17:05 | 2.2 | 0.05 | sewage |
| 09/08/95 | 17:50 | 2.21 | 0.065 | sewage |
| 10/08/95 | 10:35 | 2.21 | 0.065 | sewage |
| 10/08/95 | 17:20 | 2.2 | 0.05 | sewage |
| 10/08/95 | 17:42 | 2.2 | 0.05 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 11/08/95 | 9:42 | 2.2 | 0.05 | sewage |
| 11/08/95 | 17:42 | 2.2 | 0.05 | sewage |
| 11/08/95 | 18:26 | 2.21 | 0.065 | sewage |
| 12/08/95 | 8:11 | 2.21 | 0.065 | sewage |
| 12/08/95 | 19:26 | 2.2 | 0.05 | sewage |
| 12/08/95 | 20:03 | 2.2 | 0.05 | sewage |
| 13/08/95 | 12:33 | 2.2 | 0.05 | sewage |
| 13/08/95 | 17:25 | 2.2 | 0.05 | sewage |
| 13/08/95 | 17:48 | 2.2 | 0.05 | sewage |
| 14/08/95 | 10:47 | 2.21 | 0.065 | sewage |
| 14/08/95 | 17:32 | 2.2 | 0.05 | sewage |
| 14/08/95 | 18:32 | 2.21 | 0.065 | sewage |
| 14/08/95 | 23:39 | 2.21 | 0.065 | sewage |
| 15/08/95 | 0:02 | 2.21 | 0.065 | sewage |
| 15/08/95 | 9:24 | 2.21 | 0.065 | sewage |
| 15/08/95 | 14:02 | 2.2 | 0.05 | sewage |
| 15/08/95 | 17:39 | 2.2 | 0.05 | sewage |
| 15/08/95 | 18:01 | 2.21 | 0.065 | sewage |
| 15/08/95 | 19:01 | 2.21 | 0.065 | sewage |
| 15/08/95 | 19:09 | 2.21 | 0.065 | sewage |
| 16/08/95 | 8:23 | 2.21 | 0.065 | sewage |
| 16/08/95 | 18:01 | 2.2 | 0.05 | sewage |
| 16/08/95 | 18:38 | 2.21 | 0.065 | sewage |
| 17/08/95 | 9:08 | 2.21 | 0.065 | sewage |
| 17/08/95 | 17:53 | 2.2 | 0.05 | sewage |
| 17/08/95 | 18:23 | 2.21 | 0.065 | sewage |
| 18/08/95 | 0:00 | 2.21 | 0.065 | sewage |
| 18/08/95 | 0:00 | 2.21 | 0.065 | sewage |
| 18/08/95 | 11:14 | 2.21 | 0.065 | sewage |
| 18/08/95 | 17:51 | 2.2 | 0.05 | sewage |
| 18/08/95 | 18:28 | 2.21 | 0.065 | sewage |
| 19/08/95 | 7:41 | 2.21 | 0.065 | sewage |
| 19/08/95 | 19:41 | 2.2 | 0.05 | sewage |
| 19/08/95 | 20:03 | 2.2 | 0.05 | sewage |
| 20/08/95 | 11:38 | 2.21 | 0.065 | sewage |
| 20/08/95 | 17:45 | 2.2 | 0.05 | sewage |
| 20/08/95 | 18:15 | 2.2 | 0.05 | sewage |
| 21/08/95 | 11:05 | 2.21 | 0.065 | sewage |
| 21/08/95 | 17:42 | 2.2 | 0.05 | sewage |
| 21/08/95 | 18:27 | 2.21 | 0.065 | sewage |
| 22/08/95 | 11:10 | 2.21 | 0.065 | sewage |
| 22/08/95 | 18:24 | 2.2 | 0.05 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 22/08/95 | 18:54 | 2.2 | 0.05 | sewage |
| 23/08/95 | 13:14 | 2.2 | 0.05 | sewage |
| 23/08/95 | 17:59 | 2.2 | 0.05 | sewage |
| 23/08/95 | 19:06 | 2.2 | 0.05 | sewage |
| 24/08/95 | 5:50 | 2.21 | 0.065 | sewage |
| 24/08/95 | 5:57 | 2.21 | 0.065 | sewage |
| 24/08/95 | 17:48 | 2.2 | 0.05 | sewage |
| 24/08/95 | 18:33 | 2.21 | 0.065 | sewage |
| 24/08/95 | 21:25 | 2.21 | 0.065 | sewage |
| 25/08/95 | 10:01 | 2.21 | 0.065 | sewage |
| 25/08/95 | 18:30 | 2.2 | 0.05 | sewage |
| 25/08/95 | 18:45 | 2.21 | 0.065 | sewage |
| 26/08/95 | 6:58 | 2.21 | 0.065 | sewage |
| 26/08/95 | 19:50 | 2.2 | 0.05 | sewage |
| 26/08/95 | 21:34 | 2.21 | 0.065 | sewage |
| 26/08/95 | 22:12 | 2.2 | 0.05 | sewage |
| 27/08/95 | 12:40 | 2.2 | 0.05 | sewage |
| 27/08/95 | 18:02 | 2.2 | 0.05 | sewage |
| 27/08/95 | 18:47 | 2.2 | 0.05 | sewage |
| 28/08/95 | 12:00 | 2.2 | 0.05 | sewage |
| 28/08/95 | 18:14 | 2.2 | 0.05 | sewage |
| 28/08/95 | 18:51 | 2.2 | 0.05 | sewage |
| 29/08/95 | 11:34 | 2.2 | 0.05 | sewage |
| 29/08/95 | 18:04 | 2.2 | 0.05 | sewage |
| 29/08/95 | 19:03 | 2.2 | 0.05 | sewage |
| 30/08/95 | 11:54 | 2.2 | 0.05 | sewage |
| 30/08/95 | 17:54 | 2.2 | 0.05 | sewage |
| 30/08/95 | 18:38 | 2.2 | 0.05 | sewage |
| 31/08/95 | 0:00 | 2.2 | 0.05 | sewage |
| 31/08/95 | 0:00 | 2.2 | 0.05 | sewage |
| 31/08/95 | 12:45 | 2.2 | 0.05 | sewage |
| 31/08/95 | 18:29 | 2.19 | 0.04 | sewage |
| 31/08/95 | 19:45 | 2.2 | 0.05 | sewage |
| 01/09/95 | 10:37 | 2.2 | 0.05 | sewage |
| 01/09/95 | 18:36 | 2.19 | 0.04 | sewage |
| 01/09/95 | 19:44 | 2.2 | 0.05 | sewage |
| 02/09/95 | 7:59 | 2.21 | 0.065 | sewage |
| 02/09/95 | 20:28 | 2.19 | 0.04 | sewage |
| 02/09/95 | 20:58 | 2.2 | 0.05 | sewage |
| 03/09/95 | 12:35 | 2.2 | 0.05 | sewage |
| 03/09/95 | 18:50 | 2.19 | 0.04 | sewage |
| 03/09/95 | 19:28 | 2.2 | 0.05 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 04/09/95 | 7:35 | 2.2 | 0.05 | sewage |
| 04/09/95 | 7:35 | 2.2 | 0.05 | sewage |
| 21/09/95 | 0:00 | 2.2 | 0.05 | sewage |
| 21/09/95 | 0:00 | 2.2 | 0.05 | sewage |
| 21/09/95 | 13:00 | 2.2 | 0.05 | sewage |
| 21/09/95 | 18:14 | 2.2 | 0.05 | sewage |
| 21/09/95 | 18:29 | 2.21 | 0.065 | sewage |
| 22/09/95 | 10:14 | 2.21 | 0.065 | sewage |
| 22/09/95 | 17:59 | 2.2 | 0.05 | sewage |
| 22/09/95 | 18:06 | 2.2 | 0.05 | sewage |
| 22/09/95 | 19:44 | 2.21 | 0.065 | sewage |
| 22/09/95 | 19:51 | 2.21 | 0.065 | sewage |
| 23/09/95 | 3:58 | 2.21 | 0.065 | sewage |
| 23/09/95 | 15:21 | 2.2 | 0.05 | sewage |
| 24/09/95 | 4:50 | 2.2 | 0.05 | sewage |
| 24/09/95 | 5:43 | 2.21 | 0.065 | sewage |
| 24/09/95 | 18:12 | 2.2 | 0.05 | sewage |
| 24/09/95 | 18:50 | 2.21 | 0.065 | sewage |
| 25/09/95 | 4:04 | 2.21 | 0.065 | sewage |
| 25/09/95 | 17:04 | 2.2 | 0.05 | sewage |
| 26/09/95 | 14:11 | 2.2 | 0.05 | sewage |
| 26/09/95 | 20:03 | 2.2 | 0.05 | sewage |
| 26/09/95 | 20:26 | 2.2 | 0.05 | sewage |
| 27/09/95 | 4:48 | 2.2 | 0.05 | sewage |
| 27/09/95 | 5:55 | 2.21 | 0.065 | sewage |
| 27/09/95 | 18:25 | 2.2 | 0.05 | sewage |
| 27/09/95 | 19:02 | 2.2 | 0.05 | sewage |
| 28/09/95 | 10:24 | 2.2 | 0.05 | sewage |
| 28/09/95 | 18:17 | 2.2 | 0.05 | sewage |
| 28/09/95 | 18:47 | 2.2 | 0.05 | sewage |
| 29/09/95 | 12:09 | 2.2 | 0.05 | sewage |
| 29/09/95 | 18:38 | 2.2 | 0.05 | sewage |
| 29/09/95 | 19:23 | 2.21 | 0.065 | sewage |
| 29/09/95 | 23:38 | 2.21 | 0.065 | sewage |
| 30/09/95 | 1:31 | 2.21 | 0.065 | sewage |
| 30/09/95 | 4:16 | 2.21 | 0.065 | sewage |
| 30/09/95 | 20:53 | 2.2 | 0.05 | sewage |
| 01/10/95 | 0:00 | 2.2 | 0.05 | sewage |
| 01/10/95 | 0:00 | 2.2 | 0.05 | sewage |
| 01/10/95 | 5:07 | 2.2 | 0.05 | sewage |
| 01/10/95 | 6:00 | 2.21 | 0.065 | sewage |
| 01/10/95 | 18:51 | 2.2 | 0.05 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 01/10/95 | 18:59 | 2.2 | 0.05 | sewage |
| 02/10/95 | 12:27 | 2.2 | 0.05 | sewage |
| 01/10/95 | 0:00 | 2.2 | 0.05 | sewage |
| 01/10/95 | 5:07 | 2.2 | 0.05 | sewage |
| 01/10/95 | 6:00 | 2.21 | 0.065 | sewage |
| 01/10/95 | 18:51 | 2.2 | 0.05 | sewage |
| 01/10/95 | 18:59 | 2.2 | 0.05 | sewage |
| 02/10/95 | 12:27 | 2.2 | 0.05 | sewage |
| 02/10/95 | 19:04 | 2.2 | 0.05 | sewage |
| 02/10/95 | 19:19 | 2.2 | 0.05 | sewage |
| 03/10/95 | 11:18 | 2.2 | 0.05 | sewage |
| 03/10/95 | 19:17 | 2.2 | 0.05 | sewage |
| 03/10/95 | 19:40 | 2.21 | 0.065 | sewage |
| 04/10/95 | 1:32 | 2.21 | 0.065 | sewage |
| 04/10/95 | 1:48 | 2.21 | 0.065 | sewage |
| 04/10/95 | 3:48 | 2.21 | 0.065 | sewage |
| 04/10/95 | 8:24 | 2.2 | 0.05 | sewage |
| 04/10/95 | 20:22 | 2.19 | 0.04 | sewage |
| 05/10/95 | 5:59 | 2.19 | 0.04 | sewage |
| 05/10/95 | 7:37 | 2.2 | 0.05 | sewage |
| 05/10/95 | 18:43 | 2.19 | 0.04 | sewage |
| 05/10/95 | 19:14 | 2.2 | 0.05 | sewage |
| 06/10/95 | 12:42 | 2.2 | 0.05 | sewage |
| 06/10/95 | 19:19 | 2.2 | 0.05 | sewage |
| 06/10/95 | 19:49 | 2.2 | 0.05 | sewage |
| 07/10/95 | 3:19 | 2.21 | 0.065 | sewage |
| 07/10/95 | 3:35 | 2.22 | 0.08 | sewage |
| 07/10/95 | 21:09 | 2.2 | 0.05 | sewage |
| 07/10/95 | 21:33 | 2.21 | 0.065 | sewage |
| 08/10/95 | 14:53 | 2.21 | 0.065 | sewage |
| 08/10/95 | 19:22 | 2.2 | 0.05 | sewage |
| 08/10/95 | 19:38 | 2.2 | 0.05 | sewage |
| 09/10/95 | 0:53 | 2.21 | 0.065 | sewage |
| 09/10/95 | 4:30 | 2.21 | 0.065 | sewage |
| 09/10/95 | 6:00 | 2.21 | 0.065 | sewage |
| 09/10/95 | 14:21 | 2.2 | 0.05 | sewage |
| 09/10/95 | 21:12 | 2.19 | 0.04 | sewage |
| 09/10/95 | 21:35 | 2.2 | 0.05 | sewage |
| 10/10/95 | 13:42 | 2.2 | 0.05 | sewage |
| 10/10/95 | 17:03 | 2.19 | 0.04 | sewage |
| 10/10/95 | 19:48 | 2.19 | 0.04 | sewage |
| 10/10/95 | 20:26 | 2.2 | 0.05 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 11/10/95 | 11:18 | 2.2 | 0.05 | sewage |
| 11/10/95 | 19:54 | 2.19 | 0.04 | sewage |
| 11/10/95 | 20:47 | 2.2 | 0.05 | sewage |
| 12/10/95 | 11:53 | 2.2 | 0.05 | sewage |
| 12/10/95 | 20:07 | 2.2 | 0.05 | sewage |
| 12/10/95 | 20:30 | 2.21 | 0.065 | sewage |
| 13/10/95 | 0:00 | 2.21 | 0.065 | sewage |
| 13/10/95 | 0:00 | 2.21 | 0.065 | sewage |
| 13/10/95 | 12:44 | 2.21 | 0.065 | sewage |
| 13/10/95 | 20:28 | 2.21 | 0.065 | sewage |
| 13/10/95 | 20:51 | 2.22 | 0.08 | sewage |
| 14/10/95 | 2:06 | 2.22 | 0.08 | sewage |
| 14/10/95 | 21:41 | 2.2 | 0.05 | sewage |
| 14/10/95 | 23:11 | 2.21 | 0.065 | sewage |
| 15/10/95 | 7:04 | 2.22 | 0.08 | sewage |
| 15/10/95 | 20:17 | 2.21 | 0.065 | sewage |
| 15/10/95 | 20:48 | 2.22 | 0.08 | sewage |
| 16/10/95 | 4:47 | 2.22 | 0.08 | sewage |
| 16/10/95 | 21:30 | 2.21 | 0.065 | sewage |
| 16/10/95 | 22:00 | 2.21 | 0.065 | sewage |
| 17/10/95 | 5:07 | 2.21 | 0.065 | sewage |
| 17/10/95 | 6:45 | 2.22 | 0.08 | sewage |
| 17/10/95 | 19:43 | 2.21 | 0.065 | sewage |
| 17/10/95 | 20:29 | 2.22 | 0.08 | sewage |
| 18/10/95 | 12:05 | 2.22 | 0.08 | sewage |
| 18/10/95 | 19:41 | 2.21 | 0.065 | sewage |
| 18/10/95 | 20:19 | 2.22 | 0.08 | sewage |
| 19/10/95 | 12:55 | 2.22 | 0.08 | sewage |
| 19/10/95 | 20:02 | 2.21 | 0.065 | sewage |
| 19/10/95 | 20:25 | 2.21 | 0.065 | sewage |
| 20/10/95 | 10:01 | 2.22 | 0.08 | sewage |
| 20/10/95 | 11:24 | 2.22 | 0.08 | sewage |
| 20/10/95 | 20:15 | 2.21 | 0.065 | sewage |
| 20/10/95 | 20:45 | 2.22 | 0.08 | sewage |
| 21/10/95 | 2:30 | 2.22 | 0.08 | sewage |
| 21/10/95 | 21:58 | 2.2 | 0.05 | sewage |
| 21/10/95 | 23:58 | 2.21 | 0.065 | sewage |
| 22/10/95 | 6:42 | 2.21 | 0.065 | sewage |
| 22/10/95 | 7:12 | 2.22 | 0.08 | sewage |
| 22/10/95 | 20:11 | 2.21 | 0.065 | sewage |
| 22/10/95 | 20:34 | 2.21 | 0.065 | sewage |
| 23/10/95 | 8:18 | 2.22 | 0.08 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 23/10/95 | 9:56 | 2.22 | 0.08 | sewage |
| 23/10/95 | 11:55 | 2.22 | 0.08 | sewage |
| 23/10/95 | 20:17 | 2.21 | 0.065 | sewage |
| 23/10/95 | 20:39 | 2.21 | 0.065 | sewage |
| 24/10/95 | 7:46 | 2.21 | 0.065 | sewage |
| 24/10/95 | 8:31 | 2.22 | 0.08 | sewage |
| 24/10/95 | 20:22 | 2.21 | 0.065 | sewage |
| 24/10/95 | 20:45 | 2.22 | 0.08 | sewage |
| 25/10/95 | 0:00 | 2.22 | 0.08 | sewage |
| 25/10/95 | 0:00 | 2.22 | 0.08 | sewage |
| 25/10/95 | 10:07 | 2.22 | 0.08 | sewage |
| 25/10/95 | 10:23 | 2.23 | 0.095 | sewage |
| 25/10/95 | 20:20 | 2.21 | 0.065 | sewage |
| 25/10/95 | 20:43 | 2.22 | 0.08 | sewage |
| 26/10/95 | 9:20 | 2.22 | 0.08 | sewage |
| 26/10/95 | 9:59 | 2.23 | 0.095 | sewage |
| 26/10/95 | 12:43 | 2.23 | 0.095 | sewage |
| 26/10/95 | 20:25 | 2.21 | 0.065 | sewage |
| 26/10/95 | 20:42 | 2.22 | 0.08 | sewage |
| 27/10/95 | 11:12 | 2.23 | 0.095 | sewage |
| 27/10/95 | 20:47 | 2.22 | 0.08 | sewage |
| 27/10/95 | 21:21 | 2.24 | 0.11 | sewage |
| 28/10/95 | 0:44 | 2.24 | 0.11 | sewage |
| 28/10/95 | 1:26 | 2.23 | 0.095 | sewage |
| 28/10/95 | 10:47 | 2.22 | 0.08 | sewage |
| 28/10/95 | 22:36 | 2.21 | 0.065 | sewage |
| 29/10/95 | 7:07 | 2.22 | 0.08 | sewage |
| 29/10/95 | 7:54 | 2.23 | 0.095 | sewage |
| 29/10/95 | 14:00 | 2.22 | 0.08 | sewage |
| 29/10/95 | 14:00 | 2.22 | 0.08 | sewage |
| 31/10/95 | 7:30 | 2.23 | 0.095 | sewage |
| 31/10/95 | 7:30 | 2.23 | 0.095 | sewage |
| 10/11/95 | 16:00 | 2.23 | 0.095 | sewage |
| 10/11/95 | 16:00 | 2.23 | 0.095 | drainage |
| 10/11/95 | 18:00 | 2.24 | 0.11 | drainage |
| 10/11/95 | 18:20 | 2.25 | 0.13 | drainage |
| 11/11/1995 | 0:30 | 2.21 | 0.065 | drainage |
| 11/11/1995 | 0:30 | 2.21 | 0.065 | sewage |
| 23/11/95 | 0:00 | 2.2 | 0.05 | sewage |
| 23/11/95 | 0:00 | 2.2 | 0.05 | sewage |
| 23/11/95 | 12:56 | 2.21 | 0.065 | sewage |
| 23/11/95 | 13:26 | 2.22 | 0.08 | drainage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 23/11/95 | 13:33 | 2.25 | 0.13 | drainage |
| 23/11/95 | 13:48 | 2.27 | 0.16 | drainage |
| 23/11/95 | 14:03 | 2.25 | 0.13 | drainage |
| 23/11/95 | 15:18 | 2.23 | 0.095 | drainage |
| 23/11/95 | 16:32 | 2.22 | 0.08 | drainage |
| 23/11/95 | 17:25 | 2.23 | 0.095 | drainage |
| 23/11/95 | 17:32 | 2.25 | 0.13 | drainage |
| 23/11/95 | 18:17 | 2.26 | 0.14 | drainage |
| 23/11/95 | 19:02 | 2.28 | 0.17 | drainage |
| 23/11/95 | 19:31 | 2.29 | 0.19 | drainage |
| 23/11/95 | 20:01 | 2.28 | 0.17 | drainage |
| 23/11/95 | 20:24 | 2.27 | 0.16 | drainage |
| 23/11/95 | 20:31 | 2.25 | 0.13 | drainage |
| 23/11/95 | 20:39 | 2.24 | 0.11 | drainage |
| 23/11/95 | 21:01 | 2.23 | 0.095 | drainage |
| 23/11/95 | 21:31 | 2.24 | 0.11 | drainage |
| 23/11/95 | 22:23 | 2.25 | 0.13 | drainage |
| 23/11/95 | 22:53 | 2.25 | 0.13 | drainage |
| 24/11/95 | 0:22 | 2.25 | 0.13 | drainage |
| 24/11/95 | 1:00 | 2.24 | 0.11 | drainage |
| 24/11/95 | 2:52 | 2.23 | 0.095 | drainage |
| 24/11/95 | 4:36 | 2.21 | 0.065 | drainage |
| 24/11/95 | 5:36 | 2.2 | 0.05 | drainage |
| 24/11/95 | 5:58 | 2.2 | 0.05 | sewage |
| 24/11/95 | 15:55 | 2.19 | 0.04 | sewage |
| 24/11/95 | 16:32 | 2.2 | 0.05 | sewage |
| 24/11/95 | 23:45 | 2.2 | 0.05 | sewage |
| 25/11/95 | 0:00 | 2.2 | 0.05 | sewage |
| 25/11/95 | 10:49 | 2.19 | 0.04 | sewage |
| 25/11/95 | 18:24 | 2.18 | 0.03 | sewage |
| 25/11/95 | 18:54 | 2.19 | 0.04 | sewage |
| 26/11/95 | 8:13 | 2.19 | 0.04 | sewage |
| 26/11/95 | 16:40 | 2.18 | 0.03 | sewage |
| 26/11/95 | 17:17 | 2.19 | 0.04 | sewage |
| 27/11/95 | 9:27 | 2.19 | 0.04 | sewage |
| 27/11/95 | 16:48 | 2.18 | 0.03 | sewage |
| 27/11/95 | 17:03 | 2.19 | 0.04 | sewage |
| 28/11/95 | 10:57 | 2.19 | 0.04 | sewage |
| 28/11/95 | 16:48 | 2.18 | 0.03 | sewage |
| 28/11/95 | 17:03 | 2.19 | 0.04 | sewage |
| 29/11/95 | 9:35 | 2.18 | 0.03 | sewage |
| 29/11/95 | 9:35 | 2.18 | 0.03 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 06/12/95 | 0:00 | 2.2 | 0.05 | sewage |
| 06/12/95 | 0:00 | 2.2 | 0.05 | sewage |
| 06/12/95 | 9:38 | 2.2 | 0.05 | sewage |
| 06/12/95 | 9:45 | 2.2 | 0.05 | sewage |
| 06/12/95 | 17:09 | 2.19 | 0.04 | sewage |
| 06/12/95 | 17:38 | 2.19 | 0.04 | sewage |
| 07/12/95 | 11:08 | 2.19 | 0.04 | sewage |
| 07/12/95 | 17:09 | 2.18 | 0.03 | sewage |
| 07/12/95 | 17:38 | 2.19 | 0.04 | sewage |
| 08/12/95 | 11:00 | 2.2 | 0.05 | sewage |
| 08/12/95 | 17:46 | 2.19 | 0.04 | sewage |
| 08/12/95 | 18:00 | 2.2 | 0.05 | sewage |
| 09/12/95 | 9:30 | 2.2 | 0.05 | sewage |
| 09/12/95 | 19:39 | 2.19 | 0.04 | sewage |
| 09/12/95 | 19:46 | 2.19 | 0.04 | sewage |
| 10/12/95 | 10:30 | 2.2 | 0.05 | sewage |
| 10/12/95 | 17:46 | 2.19 | 0.04 | sewage |
| 10/12/95 | 18:00 | 2.2 | 0.05 | sewage |
| 11/12/95 | 12:00 | 2.2 | 0.05 | sewage |
| 11/12/95 | 16:08 | 2.19 | 0.04 | sewage |
| 11/12/95 | 16:14 | 2.21 | 0.065 | drainage |
| 11/12/95 | 16:29 | 2.21 | 0.065 | drainage |
| 11/12/95 | 16:36 | 2.22 | 0.08 | drainage |
| 11/12/95 | 17:51 | 2.22 | 0.08 | drainage |
| 11/12/95 | 19:44 | 2.21 | 0.065 | drainage |
| 12/12/95 | 10:30 | 2.21 | 0.065 | drainage |
| 12/12/95 | 16:38 | 2.2 | 0.05 | drainage |
| 12/12/95 | 16:52 | 2.2 | 0.05 | drainage |
| 13/12/95 | 0:22 | 2.2 | 0.05 | drainage |
| 13/12/95 | 14:00 | 2.2 | 0.05 | drainage |
| 13/12/95 | 14:51 | 2.21 | 0.065 | drainage |
| 14/12/95 | 3:07 | 2.21 | 0.065 | drainage |
| 14/12/95 | 14:46 | 2.19 | 0.04 | sewage |
| 14/12/95 | 17:53 | 2.2 | 0.05 | sewage |
| 14/12/95 | 18:37 | 2.2 | 0.05 | sewage |
| 15/12/95 | 0:00 | 2.2 | 0.05 | sewage |
| 15/12/95 | 0:00 | 2.2 | 0.05 | sewage |
| 15/12/95 | 17:55 | 2.2 | 0.05 | sewage |
| 15/12/95 | 18:18 | 2.2 | 0.05 | sewage |
| 16/12/95 | 9:06 | 2.2 | 0.05 | sewage |
| 19/12/95 | 10:16 | 2.2 | 0.05 | sewage |
| 19/12/95 | 17:43 | 2.19 | 0.04 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 19/12/95 | 18:06 | 2.2 | 0.05 | sewage |
| 20/12/95 | 10:39 | 2.2 | 0.05 | sewage |
| 20/12/95 | 13:53 | 2.2 | 0.05 | sewage |
| 20/12/95 | 18:07 | 2.2 | 0.05 | sewage |
| 20/12/95 | 18:22 | 2.21 | 0.065 | sewage |
| 22/12/95 | 10:11 | 2.2 | 0.05 | sewage |
| 22/12/95 | 13:25 | 2.2 | 0.05 | sewage |
| 22/12/95 | 17:54 | 2.2 | 0.05 | sewage |
| 22/12/95 | 18:24 | 2.21 | 0.065 | sewage |
| 23/12/95 | 6:36 | 2.21 | 0.065 | sewage |
| 23/12/95 | 19:32 | 2.2 | 0.05 | sewage |
| 23/12/95 | 20:02 | 2.2 | 0.05 | sewage |
| 24/12/95 | 11:13 | 2.2 | 0.05 | sewage |
| 24/12/95 | 17:41 | 2.2 | 0.05 | sewage |
| 24/12/95 | 17:49 | 2.2 | 0.05 | sewage |
| 25/12/95 | 10:22 | 2.2 | 0.05 | sewage |
| 25/12/95 | 13:13 | 2.2 | 0.05 | sewage |
| 25/12/95 | 18:04 | 2.2 | 0.05 | sewage |
| 26/12/95 | 11:37 | 2.2 | 0.05 | sewage |
| 27/12/95 | 13:00 | 2.2 | 0.05 | sewage |
| 27/12/95 | 16:59 | 2.2 | 0.05 | sewage |
| 27/12/95 | 17:36 | 2.2 | 0.05 | sewage |
| 28/12/95 | 9:25 | 2.21 | 0.065 | sewage |
| 28/12/95 | 9:25 | 2.21 | 0.065 | sewage |
| 28/12/95 | 16:10 | 2.21 | 0.065 | sewage |
| 28/12/95 | 16:33 | 2.21 | 0.065 | sewage |
| 29/12/95 | 9:56 | 2.21 | 0.065 | sewage |
| 29/12/95 | 16:17 | 2.2 | 0.05 | sewage |
| 29/12/95 | 16:41 | 2.21 | 0.065 | sewage |
| 30/12/95 | 5:56 | 2.21 | 0.065 | sewage |
| 30/12/95 | 18:18 | 2.2 | 0.05 | sewage |
| 30/12/95 | 18:34 | 2.21 | 0.065 | sewage |
| 31/12/95 | 9:41 | 2.21 | 0.065 | sewage |
| 31/12/95 | 16:26 | 2.2 | 0.05 | sewage |
| 31/12/95 | 16:42 | 2.21 | 0.065 | sewage |
| 01/01/1996 | 8:57 | 2.21 | 0.065 | sewage |
| 01/01/1996 | 16:34 | 2.2 | 0.05 | sewage |
| 01/01/1996 | 16:50 | 2.21 | 0.065 | sewage |
| 02/01/96 | 9:05 | 2.21 | 0.065 | sewage |
| 02/01/96 | 16:34 | 2.2 | 0.05 | sewage |
| 02/01/96 | 17:05 | 2.21 | 0.065 | sewage |
| 03/01/96 | 9:50 | 2.21 | 0.065 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 03/01/96 | 16:35 | 2.2 | 0.05 | sewage |
| 03/01/96 | 16:58 | 2.21 | 0.065 | sewage |
| 04/01/96 | 9:06 | 2.22 | 0.08 | sewage |
| 04/01/96 | 16:35 | 2.2 | 0.05 | sewage |
| 04/01/96 | 16:58 | 2.21 | 0.065 | sewage |
| 05/01/96 | 9:44 | 2.21 | 0.065 | sewage |
| 05/01/96 | 16:21 | 2.2 | 0.05 | sewage |
| 05/01/96 | 16:52 | 2.21 | 0.065 | sewage |
| 06/01/96 | 7:37 | 2.21 | 0.065 | sewage |
| 06/01/96 | 8:00 | 2.22 | 0.08 | drainage |
| 06/01/96 | 8:24 | 2.23 | 0.095 | drainage |
| 06/01/96 | 9:23 | 2.23 | 0.095 | drainage |
| 06/01/96 | 11:01 | 2.23 | 0.095 | drainage |
| 06/01/96 | 12:03 | 2.25 | 0.13 | drainage |
| 06/01/96 | 12:18 | 2.25 | 0.13 | drainage |
| 06/01/96 | 12:57 | 2.27 | 0.16 | drainage |
| 06/01/96 | 13:43 | 2.27 | 0.16 | drainage |
| 06/01/96 | 14:14 | 2.29 | 0.19 | drainage |
| 06/01/96 | 14:59 | 2.28 | 0.17 | drainage |
| 06/01/96 | 15:27 | 2.26 | 0.14 | drainage |
| 06/01/96 | 16:18 | 2.25 | 0.13 | drainage |
| 06/01/96 | 16:54 | 2.23 | 0.095 | drainage |
| 06/01/96 | 19:08 | 2.22 | 0.08 | drainage |
| 06/01/96 | 20:07 | 2.21 | 0.065 | drainage |
| 06/01/96 | 21:07 | 2.21 | 0.065 | sewage |
| 06/01/96 | 23:52 | 2.21 | 0.065 | sewage |
| 07/01/96 | 8:52 | 2.21 | 0.065 | sewage |
| 07/01/96 | 14:22 | 2.2 | 0.05 | sewage |
| 07/01/96 | 14:52 | 2.21 | 0.065 | sewage |
| 08/01/96 | 8:07 | 2.21 | 0.065 | sewage |
| 08/01/96 | 16:59 | 2.19 | 0.04 | sewage |
| 08/01/96 | 17:30 | 2.2 | 0.05 | sewage |
| 09/01/96 | 0:00 | 2.2 | 0.05 | sewage |
| 09/01/96 | 0:00 | 2.2 | 0.05 | sewage |
| 09/01/96 | 9:00 | 2.2 | 0.05 | sewage |
| 09/01/96 | 17:22 | 2.19 | 0.04 | sewage |
| 09/01/96 | 17:31 | 2.2 | 0.05 | sewage |
| 10/01/96 | 9:31 | 2.2 | 0.05 | sewage |
| 10/01/96 | 17:15 | 2.19 | 0.04 | sewage |
| 10/01/96 | 17:47 | 2.2 | 0.05 | sewage |
| 11/01/96 | 10:33 | 2.2 | 0.05 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 11/01/96 | 16:11 | 2.2 | 0.05 | sewage |
| 12/01/96 | 9:50 | 2.2 | 0.05 | sewage |
| 12/01/96 | 17:56 | 2.19 | 0.04 | sewage |
| 12/01/96 | 18:04 | 2.2 | 0.05 | sewage |
| 13/01/96 | 7:58 | 2.2 | 0.05 | sewage |
| 13/01/96 | 19:57 | 2.19 | 0.04 | sewage |
| 13/01/96 | 20:06 | 2.2 | 0.05 | sewage |
| 14/01/96 | 12:14 | 2.2 | 0.05 | sewage |
| 14/01/96 | 17:43 | 2.19 | 0.04 | sewage |
| 14/01/96 | 17:52 | 2.2 | 0.05 | sewage |
| 15/01/96 | 12:08 | 2.2 | 0.05 | sewage |
| 15/01/96 | 17:30 | 2.19 | 0.04 | sewage |
| 15/01/96 | 17:46 | 2.2 | 0.05 | sewage |
| 16/01/96 | 11:47 | 2.2 | 0.05 | sewage |
| 16/01/96 | 17:46 | 2.19 | 0.04 | sewage |
| 16/01/96 | 18:02 | 2.2 | 0.05 | sewage |
| 17/01/96 | 10:19 | 2.2 | 0.05 | sewage |
| 17/01/96 | 17:40 | 2.19 | 0.04 | sewage |
| 17/01/96 | 18:04 | 2.2 | 0.05 | sewage |
| 17/01/96 | 21:49 | 2.2 | 0.05 | drainage |
| 17/01/96 | 22:14 | 2.22 | 0.08 | drainage |
| 18/01/96 | 0:15 | 2.22 | 0.08 | drainage |
| 18/01/96 | 3:22 | 2.22 | 0.08 | drainage |
| 18/01/96 | 4:28 | 2.21 | 0.065 | drainage |
| 18/01/96 | 5:58 | 2.21 | 0.065 | drainage |
| 18/01/96 | 6:07 | 2.22 | 0.08 | drainage |
| 18/01/96 | 7:02 | 2.23 | 0.095 | drainage |
| 18/01/96 | 7:27 | 2.25 | 0.13 | drainage |
| 18/01/96 | 8:27 | 2.24 | 0.11 | drainage |
| 18/01/96 | 9:39 | 2.22 | 0.08 | drainage |
| 18/01/96 | 12:29 | 2.21 | 0.065 | drainage |
| 18/01/96 | 20:06 | 2.2 | 0.05 | drainage |
| 18/01/96 | 20:31 | 2.22 | 0.08 | drainage |
| 18/01/96 | 22:09 | 2.22 | 0.08 | drainage |
| 19/01/96 | 0:16 | 2.22 | 0.08 | drainage |
| 19/01/96 | 2:01 | 2.22 | 0.08 | drainage |
| 19/01/96 | 5:02 | 2.22 | 0.08 | drainage |
| 19/01/96 | 5:43 | 2.24 | 0.11 | drainage |
| 19/01/96 | 6:36 | 2.24 | 0.11 | drainage |
| 19/01/96 | 7:09 | 2.26 | 0.14 | drainage |
| 19/01/96 | 7:50 | 2.28 | 0.17 | drainage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 19/01/96 | 8:17 | 2.31 | 0.22 | drainage |
| 19/01/96 | 8:45 | 2.34 | 0.28 | drainage |
| 19/01/96 | 9:02 | 2.35 | 0.3 | drainage |
| 19/01/96 | 9:17 | 2.35 | 0.3 | drainage |
| 19/01/96 | 9:33 | 2.36 | 0.32 | drainage |
| 19/01/96 | 9:49 | 2.36 | 0.32 | drainage |
| 19/01/96 | 10:19 | 2.37 | 0.34 | drainage |
| 19/01/96 | 11:18 | 2.36 | 0.32 | drainage |
| 19/01/96 | 11:46 | 2.35 | 0.3 | drainage |
| 19/01/96 | 12:35 | 2.33 | 0.26 | drainage |
| 19/01/96 | 13:37 | 2.29 | 0.19 | drainage |
| 19/01/96 | 14:49 | 2.27 | 0.16 | drainage |
| 19/01/96 | 16:54 | 2.26 | 0.14 | drainage |
| 19/01/96 | 18:44 | 2.25 | 0.13 | drainage |
| 19/01/96 | 19:09 | 2.26 | 0.14 | drainage |
| 19/01/96 | 20:03 | 2.27 | 0.16 | drainage |
| 19/01/96 | 21:09 | 2.26 | 0.14 | drainage |
| 19/01/96 | 22:37 | 2.24 | 0.11 | drainage |
| 19/01/96 | 23:57 | 2.23 | 0.095 | drainage |
| 20/01/96 | 7:30 | 2.2 | 0.05 | drainage |
| 20/01/96 | 8:00 | 2.2 | 0.05 | sewage |
| 20/01/96 | 17:51 | 2.19 | 0.04 | sewage |
| 21/01/96 | 0:00 | 2.2 | 0.05 | sewage |
| 21/01/96 | 0:00 | 2.2 | 0.05 | sewage |
| 21/01/96 | 11:15 | 2.19 | 0.04 | sewage |
| 21/01/96 | 17:59 | 2.19 | 0.04 | sewage |
| 21/01/96 | 18:08 | 2.19 | 0.04 | sewage |
| 22/01/96 | 17:18 | 2.19 | 0.04 | sewage |
| 22/01/96 | 17:56 | 2.2 | 0.05 | sewage |
| 23/01/96 | 10:35 | 2.2 | 0.05 | sewage |
| 23/01/96 | 17:57 | 2.19 | 0.04 | sewage |
| 23/01/96 | 18:28 | 2.19 | 0.04 | sewage |
| 24/01/96 | 6:30 | 2.2 | 0.05 | drainage |
| 24/01/96 | 6:41 | 2.22 | 0.08 | drainage |
| 24/01/96 | 7:01 | 2.24 | 0.11 | drainage |
| 24/01/96 | 8:44 | 2.23 | 0.095 | drainage |
| 24/01/96 | 11:41 | 2.21 | 0.065 | drainage |
| 24/01/96 | 13:31 | 2.2 | 0.05 | drainage |
| 24/01/96 | 23:47 | 2.2 | 0.05 | sewage |
| 25/01/96 | 10:26 | 2.2 | 0.05 | sewage |
| 25/01/96 | 18:02 | 2.19 | 0.04 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 26/01/96 | 18:49 | 2.19 | 0.04 | sewage |
| 26/01/96 | 18:59 | 2.2 | 0.05 | sewage |
| 27/01/96 | 9:38 | 2.2 | 0.05 | sewage |
| 27/01/96 | 20:44 | 2.18 | 0.03 | sewage |
| 27/01/96 | 20:53 | 2.19 | 0.04 | sewage |
| 28/01/96 | 13:03 | 2.2 | 0.05 | sewage |
| 28/01/96 | 18:32 | 2.19 | 0.04 | sewage |
| 28/01/96 | 18:49 | 2.2 | 0.05 | sewage |
| 29/01/96 | 12:13 | 2.2 | 0.05 | sewage |
| 29/01/96 | 18:35 | 2.19 | 0.04 | sewage |
| 29/01/96 | 18:51 | 2.2 | 0.05 | sewage |
| 30/01/96 | 13:23 | 2.2 | 0.05 | sewage |
| 30/01/96 | 18:53 | 2.19 | 0.04 | sewage |
| 30/01/96 | 18:54 | 2.2 | 0.05 | sewage |
| 31/01/96 | 13:48 | 2.2 | 0.05 | sewage |
| 31/01/96 | 18:40 | 2.19 | 0.04 | sewage |
| 31/01/96 | 19:12 | 2.2 | 0.05 | sewage |
| 01/02/96 | 13:36 | 2.2 | 0.05 | sewage |
| 01/02/96 | 19:05 | 2.19 | 0.04 | sewage |
| 01/02/96 | 19:14 | 2.2 | 0.05 | sewage |
| 02/02/96 | 0:00 | 2.2 | 0.05 | sewage |
| 02/02/96 | 0:00 | 2.2 | 0.05 | sewage |
| 02/02/96 | 3:23 | 2.2 | 0.05 | sewage |
| 02/02/96 | 3:32 | 2.2 | 0.05 | sewage |
| 02/02/96 | 13:18 | 2.2 | 0.05 | sewage |
| 02/02/96 | 15:55 | 2.2 | 0.05 | sewage |
| 02/02/96 | 16:04 | 2.21 | 0.065 | sewage |
| 02/02/96 | 16:33 | 2.2 | 0.05 | sewage |
| 02/02/96 | 17:26 | 2.2 | 0.05 | sewage |
| 02/02/96 | 17:44 | 2.21 | 0.065 | sewage |
| 02/02/96 | 17:45 | 2.22 | 0.08 | sewage |
| 02/02/96 | 19:44 | 2.21 | 0.065 | sewage |
| 03/02/96 | 0:30 | 2.21 | 0.065 | sewage |
| 03/02/96 | 1:16 | 2.21 | 0.065 | sewage |
| 03/02/96 | 3:52 | 2.21 | 0.065 | sewage |
| 03/02/96 | 6:21 | 2.21 | 0.065 | sewage |
| 03/02/96 | 8:52 | 2.21 | 0.065 | sewage |
| 03/02/96 | 18:49 | 2.19 | 0.04 | sewage |
| 03/02/96 | 20:57 | 2.19 | 0.04 | sewage |
| 03/02/96 | 21:22 | 2.2 | 0.05 | sewage |
| 03/02/96 | 23:45 | 2.2 | 0.05 | sewage |
| 04/02/96 | 5:09 | 2.2 | 0.05 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 04/02/96 | 6:25 | 2.2 | 0.05 | sewage |
| 04/02/96 | 13:48 | 2.2 | 0.05 | sewage |
| 04/02/96 | 19:16 | 2.19 | 0.04 | sewage |
| 04/02/96 | 19:34 | 2.2 | 0.05 | sewage |
| 05/02/96 | 0:05 | 2.2 | 0.05 | sewage |
| 05/02/96 | 10:30 | 2.21 | 0.065 | sewage |
| 05/02/96 | 10:30 | 2.21 | 0.065 | sewage |
| 05/02/96 | 23:12 | 2.21 | 0.065 | sewage |
| 06/02/96 | 23:07 | 2.21 | 0.065 | sewage |
| 07/02/96 | 23:23 | 2.21 | 0.065 | sewage |
| 08/02/96 | 5:41 | 2.21 | 0.065 | sewage |
| 08/02/96 | 14:53 | 2.19 | 0.04 | sewage |
| 09/02/96 | 7:14 | 2.19 | 0.04 | sewage |
| 09/02/96 | 15:47 | 2.18 | 0.03 | sewage |
| 09/02/96 | 16:10 | 2.19 | 0.04 | sewage |
| 09/02/96 | 23:27 | 2.2 | 0.05 | sewage |
| 10/02/96 | 6:53 | 2.19 | 0.04 | sewage |
| 10/02/96 | 17:50 | 2.18 | 0.03 | sewage |
| 10/02/96 | 17:57 | 2.19 | 0.04 | sewage |
| 10/02/96 | 23:44 | 2.19 | 0.04 | sewage |
| 11/02/96 | 2:00 | 2.19 | 0.04 | drainage |
| 11/02/96 | 2:07 | 2.19 | 0.04 | drainage |
| 11/02/96 | 8:25 | 2.2 | 0.05 | drainage |
| 11/02/96 | 8:40 | 2.2 | 0.05 | drainage |
| 11/02/96 | 9:17 | 2.22 | 0.08 | drainage |
| 11/02/96 | 10:32 | 2.22 | 0.08 | drainage |
| 11/02/96 | 11:48 | 2.21 | 0.065 | drainage |
| 11/02/96 | 12:26 | 2.21 | 0.065 | drainage |
| 11/02/96 | 12:33 | 2.21 | 0.065 | drainage |
| 11/02/96 | 12:48 | 2.22 | 0.08 | drainage |
| 11/02/96 | 13:56 | 2.22 | 0.08 | drainage |
| 11/02/96 | 16:12 | 2.21 | 0.065 | drainage |
| 11/02/96 | 18:59 | 2.2 | 0.05 | drainage |
| 11/02/96 | 23:46 | 2.2 | 0.05 | drainage |
| 12/02/96 | 1:39 | 2.19 | 0.04 | sewage |
| 12/02/96 | 7:34 | 2.19 | 0.04 | sewage |
| 12/02/96 | 16:00 | 2.18 | 0.03 | sewage |
| 12/02/96 | 16:22 | 2.19 | 0.04 | sewage |
| 13/02/96 | 0:03 | 2.19 | 0.04 | sewage |
| 13/02/96 | 9:06 | 2.19 | 0.04 | sewage |
| 13/02/96 | 16:17 | 2.18 | 0.03 | sewage |
| 13/02/96 | 16:24 | 2.19 | 0.04 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 14/02/96 | 10:01 | 2.19 | 0.04 | sewage |
| 14/02/96 | 16:34 | 2.18 | 0.03 | sewage |
| 14/02/96 | 16:48 | 2.19 | 0.04 | sewage |
| 15/02/96 | 9:55 | 2.19 | 0.04 | sewage |
| 15/02/96 | 16:35 | 2.18 | 0.03 | sewage |
| 15/02/96 | 16:57 | 2.2 | 0.05 | sewage |
| 16/02/96 | 0:00 | 2.19 | 0.04 | sewage |
| 16/02/96 | 0:00 | 2.19 | 0.04 | sewage |
| 16/02/96 | 9:59 | 2.19 | 0.04 | sewage |
| 16/02/96 | 16:35 | 2.18 | 0.03 | sewage |
| 16/02/96 | 16:58 | 2.19 | 0.04 | sewage |
| 17/02/96 | 7:11 | 2.19 | 0.04 | sewage |
| 17/02/96 | 19:02 | 2.18 | 0.03 | sewage |
| 17/02/96 | 19:09 | 2.18 | 0.03 | sewage |
| 18/02/96 | 9:52 | 2.19 | 0.04 | sewage |
| 18/02/96 | 16:44 | 2.18 | 0.03 | sewage |
| 18/02/96 | 16:59 | 2.19 | 0.04 | sewage |
| 19/02/96 | 9:34 | 2.19 | 0.04 | sewage |
| 19/02/96 | 16:48 | 2.18 | 0.03 | sewage |
| 20/02/96 | 6:46 | 2.19 | 0.04 | sewage |
| 20/02/96 | 13:45 | 2.18 | 0.03 | drainage |
| 20/02/96 | 14:15 | 2.21 | 0.065 | drainage |
| 20/02/96 | 14:22 | 2.22 | 0.08 | drainage |
| 20/02/96 | 17:44 | 2.2 | 0.05 | drainage |
| 20/02/96 | 20:44 | 2.2 | 0.05 | drainage |
| 20/02/96 | 23:21 | 2.2 | 0.05 | sewage |
| 21/02/96 | 7:50 | 2.2 | 0.05 | sewage |
| 21/02/96 | 16:26 | 2.18 | 0.03 | sewage |
| 21/02/96 | 17:04 | 2.19 | 0.04 | sewage |
| 22/02/96 | 11:01 | 2.19 | 0.04 | sewage |
| 22/02/96 | 16:38 | 2.18 | 0.03 | sewage |
| 22/02/96 | 16:46 | 2.19 | 0.04 | sewage |
| 23/02/96 | 8:13 | 2.19 | 0.04 | sewage |
| 23/02/96 | 16:50 | 2.18 | 0.03 | sewage |
| 23/02/96 | 16:57 | 2.19 | 0.04 | sewage |
| 24/02/96 | 3:56 | 2.19 | 0.04 | sewage |
| 24/02/96 | 16:39 | 2.17 | 0.02 | sewage |
| 24/02/96 | 18:39 | 2.17 | 0.02 | sewage |
| 24/02/96 | 18:46 | 2.18 | 0.03 | sewage |
| 25/02/96 | 9:44 | 2.19 | 0.04 | sewage |
| 25/02/96 | 16:36 | 2.18 | 0.03 | sewage |
| 25/02/96 | 17:13 | 2.19 | 0.04 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 26/02/96 | 8:41 | 2.19 | 0.04 | sewage |
| 26/02/96 | 16:25 | 2.17 | 0.02 | sewage |
| 26/02/96 | 16:55 | 2.19 | 0.04 | sewage |
| 27/02/96 | 10:00 | 2.19 | 0.04 | sewage |
| 27/02/96 | 10:00 | 2.19 | 0.04 | sewage |
| 27/02/96 | 16:31 | 2.17 | 0.02 | sewage |
| 27/02/96 | 16:39 | 2.19 | 0.04 | sewage |
| 28/02/96 | 9:49 | 2.19 | 0.04 | sewage |
| 28/02/96 | 16:28 | 2.17 | 0.02 | sewage |
| 28/02/96 | 16:43 | 2.19 | 0.04 | sewage |
| 29/02/96 | 8:39 | 2.19 | 0.04 | sewage |
| 29/02/96 | 16:40 | 2.17 | 0.02 | sewage |
| 29/02/96 | 16:40 | 2.19 | 0.04 | sewage |
| 01/03/96 | 8:28 | 2.19 | 0.04 | sewage |
| 01/03/96 | 17:00 | 2.17 | 0.02 | sewage |
| 01/03/96 | 17:07 | 2.19 | 0.04 | sewage |
| 01/03/96 | 18:23 | 2.19 | 0.04 | sewage |
| 02/03/96 | 0:01 | 2.19 | 0.04 | sewage |
| 02/03/96 | 13:04 | 2.18 | 0.03 | sewage |
| 02/03/96 | 18:50 | 2.17 | 0.02 | sewage |
| 02/03/96 | 19:05 | 2.18 | 0.03 | sewage |
| 03/03/96 | 3:36 | 2.18 | 0.03 | sewage |
| 03/03/96 | 10:38 | 2.18 | 0.03 | sewage |
| 03/03/96 | 15:01 | 2.18 | 0.03 | sewage |
| 03/03/96 | 15:54 | 2.18 | 0.03 | drainage |
| 03/03/96 | 16:31 | 2.19 | 0.04 | drainage |
| 03/03/96 | 16:31 | 2.2 | 0.05 | drainage |
| 03/03/96 | 17:09 | 2.2 | 0.05 | drainage |
| 03/03/96 | 17:39 | 2.21 | 0.065 | drainage |
| 03/03/96 | 17:54 | 2.21 | 0.065 | drainage |
| 03/03/96 | 17:54 | 2.21 | 0.065 | drainage |
| 03/03/96 | 18:02 | 2.21 | 0.065 | drainage |
| 03/03/96 | 18:09 | 2.21 | 0.065 | drainage |
| 03/03/96 | 18:24 | 2.21 | 0.065 | drainage |
| 03/03/96 | 18:32 | 2.21 | 0.065 | drainage |
| 03/03/96 | 19:32 | 2.2 | 0.05 | drainage |
| 03/03/96 | 22:48 | 2.19 | 0.04 | drainage |
| 03/03/96 | 23:40 | 2.19 | 0.04 | drainage |
| 04/03/96 | 8:57 | 2.18 | 0.03 | sewage |
| 04/03/96 | 14:13 | 2.17 | 0.02 | sewage |
| 04/03/96 | 17:21 | 2.17 | 0.02 | sewage |
| 04/03/96 | 17:36 | 2.18 | 0.03 | sewage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 05/03/96 | 4:08 | 2.18 | 0.03 | sewage |
| 05/03/96 | 10:09 | 2.18 | 0.03 | sewage |
| 05/03/96 | 17:41 | 2.17 | 0.02 | sewage |
| 05/03/96 | 20:49 | 2.18 | 0.03 | sewage |
| 06/03/96 | 0:27 | 2.18 | 0.03 | sewage |
| 06/03/96 | 9:29 | 2.18 | 0.03 | sewage |
| 06/03/96 | 17:38 | 2.17 | 0.02 | sewage |
| 06/03/96 | 18:15 | 2.18 | 0.03 | sewage |
| 07/03/96 | 0:01 | 2.19 | 0.04 | sewage |
| 07/03/96 | 5:10 | 2.19 | 0.04 | sewage |
| 07/03/96 | 6:02 | 2.19 | 0.04 | drainage |
| 07/03/96 | 6:10 | 2.21 | 0.065 | drainage |
| 07/03/96 | 6:55 | 2.22 | 0.08 | drainage |
| 07/03/96 | 7:18 | 2.23 | 0.095 | drainage |
| 07/03/96 | 11:18 | 2.21 | 0.065 | drainage |
| 07/03/96 | 12:19 | 2.22 | 0.08 | drainage |
| 07/03/96 | 13:19 | 2.27 | 0.16 | drainage |
| 07/03/96 | 14:27 | 2.32 | 0.24 | drainage |
| 07/03/96 | 14:42 | 2.38 | 0.36 | drainage |
| 07/03/96 | 15:05 | 2.42 | 0.44 | drainage |
| 07/03/96 | 15:27 | 2.44 | 0.48 | drainage |
| 07/03/96 | 15:57 | 2.43 | 0.46 | drainage |
| 07/03/96 | 16:43 | 2.42 | 0.44 | drainage |
| 07/03/96 | 17:05 | 2.46 | 0.52 | drainage |
| 07/03/96 | 17:20 | 2.53 | 0.72 | drainage |
| 07/03/96 | 17:28 | 2.58 | 0.92 | drainage |
| 07/03/96 | 17:43 | 2.66 | 1.36 | drainage |
| 07/03/96 | 18:06 | 2.67 | 1.42 | drainage |
| 07/03/96 | 18:43 | 2.6 | 1 | drainage |
| 07/03/96 | 19:21 | 2.68 | 1.48 | drainage |
| 07/03/96 | 20:07 | 2.76 | 2.32 | drainage |
| 07/03/96 | 20:44 | 2.83 | 3.43 | drainage |
| 07/03/96 | 21:07 | 2.88 | 4.48 | drainage |
| 07/03/96 | 21:30 | 2.91 | 5.19 | drainage |
| 07/03/96 | 22:30 | 2.82 | 3.22 | drainage |
| 07/03/96 | 22:30 | 2.91 | 5.19 | drainage |
| 07/03/96 | 22:38 | 3.02 | 8.84 | drainage |
| 07/03/96 | 23:08 | 3.1 | 13 | drainage |
| 07/03/96 | 23:08 | 3.14 | 15.5 | drainage |
| 07/03/96 | 23:30 | 3.01 | 8.32 | drainage |
| 07/03/96 | 23:38 | 2.96 | 6.64 | drainage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 08/03/96 | 0:00 | 2.8 | 2.8 | drainage |
| 08/03/96 | 1:00 | 2.74 | 2.08 | drainage |
| 08/03/96 | 2:15 | 2.65 | 1.3 | drainage |
| 08/03/96 | 2:44 | 2.58 | 0.92 | drainage |
| 08/03/96 | 3:44 | 2.51 | 0.64 | drainage |
| 08/03/96 | 5:36 | 2.43 | 0.46 | drainage |
| 08/03/96 | 7:58 | 2.36 | 0.32 | drainage |
| 08/03/96 | 11:05 | 2.29 | 0.19 | drainage |
| 08/03/96 | 15:12 | 2.24 | 0.11 | drainage |
| 08/03/96 | 23:03 | 2.22 | 0.08 | drainage |
| 09/03/96 | 0:17 | 2.22 | 0.08 | drainage |
| 09/03/96 | 8:08 | 2.2 | 0.05 | drainage |
| 09/03/96 | 16:37 | 2.17 | 0.02 | drainage |
| 09/03/96 | 17:14 | 2.17 | 0.02 | sewage |
| 09/03/96 | 19:58 | 2.17 | 0.02 | sewage |
| 09/03/96 | 20:58 | 2.18 | 0.03 | sewage |
| 10/03/96 | 5:11 | 2.18 | 0.03 | sewage |
| 10/03/96 | 5:34 | 2.19 | 0.04 | sewage |
| 10/03/96 | 10:33 | 2.19 | 0.04 | sewage |
| 10/03/96 | 18:09 | 2.16 | 0.01 | sewage |
| 10/03/96 | 19:23 | 2.18 | 0.03 | sewage |
| 11/03/96 | 0:00 | 2.18 | 0.03 | sewage |
| 11/03/96 | 0:00 | 2.18 | 0.03 | sewage |
| 11/03/96 | 9:45 | 2.18 | 0.03 | sewage |
| 11/03/96 | 18:26 | 2.16 | 0.01 | sewage |
| 11/03/96 | 18:54 | 2.18 | 0.03 | sewage |
| 12/03/96 | 10:02 | 2.17 | 0.02 | sewage |
| 12/03/96 | 15:27 | 2.16 | 0.01 | sewage |
| 12/03/96 | 19:04 | 2.16 | 0.01 | sewage |
| 12/03/96 | 19:40 | 2.17 | 0.02 | sewage |
| 13/03/96 | 4:33 | 2.17 | 0.02 | sewage |
| 13/03/96 | 6:18 | 2.18 | 0.03 | sewage |
| 13/03/96 | 10:02 | 2.18 | 0.03 | sewage |
| 13/03/96 | 18:20 | 2.16 | 0.01 | sewage |
| 13/03/96 | 18:48 | 2.18 | 0.03 | sewage |
| 14/03/96 | 10:11 | 2.18 | 0.03 | sewage |
| 14/03/96 | 18:07 | 2.16 | 0.01 | sewage |
| 14/03/96 | 18:57 | 2.18 | 0.03 | sewage |
| 15/03/96 | 9:05 | 2.18 | 0.03 | sewage |
| 15/03/96 | 15:22 | 2.16 | 0.01 | sewage |
| 15/03/96 | 18:30 | 2.16 | 0.01 | sewage |

# Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 15/03/96 | 18:43 | 2.18 | 0.03 | sewage |
| 16/03/96 | 3:42 | 2.19 | 0.04 | sewage |
| 16/03/96 | 20:32 | 2.16 | 0.01 | sewage |
| 16/03/96 | 20:53 | 2.17 | 0.02 | sewage |
| 17/03/96 | 5:08 | 2.17 | 0.02 | sewage |
| 17/03/96 | 5:44 | 2.18 | 0.03 | sewage |
| 17/03/96 | 9:44 | 2.18 | 0.03 | sewage |
| 17/03/96 | 17:55 | 2.16 | 0.01 | sewage |
| 17/03/96 | 18:37 | 2.18 | 0.03 | sewage |
| 18/03/96 | 0:00 | 2.18 | 0.03 | sewage |
| 18/03/96 | 0:00 | 2.18 | 0.03 | sewage |
| 18/03/96 | 8:20 | 2.18 | 0.03 | sewage |
| 18/03/96 | 18:07 | 2.16 | 0.01 | sewage |
| 18/03/96 | 18:26 | 2.18 | 0.03 | sewage |
| 19/03/96 | 9:22 | 2.18 | 0.03 | sewage |
| 19/03/96 | 17:32 | 2.16 | 0.01 | sewage |
| 19/03/96 | 18:05 | 2.18 | 0.03 | sewage |
| 20/03/96 | 8:24 | 2.18 | 0.03 | sewage |
| 20/03/96 | 17:48 | 2.16 | 0.01 | sewage |
| 20/03/96 | 18:07 | 2.18 | 0.03 | sewage |
| 21/03/96 | 9:19 | 2.18 | 0.03 | sewage |
| 21/03/96 | 17:58 | 2.16 | 0.01 | sewage |
| 21/03/96 | 18:10 | 2.18 | 0.03 | sewage |
| 22/03/96 | 9:35 | 2.19 | 0.04 | sewage |
| 22/03/96 | 17:52 | 2.16 | 0.01 | sewage |
| 22/03/96 | 18:11 | 2.19 | 0.04 | sewage |
| 23/03/96 | 4:00 | 2.19 | 0.04 | sewage |
| 23/03/96 | 19:47 | 2.16 | 0.01 | sewage |
| 23/03/96 | 20:06 | 2.18 | 0.03 | sewage |
| 24/03/96 | 5:10 | 2.19 | 0.04 | sewage |
| 24/03/96 | 9:23 | 2.2 | 0.05 | sewage |
| 24/03/96 | 12:24 | 2.18 | 0.03 | sewage |
| 24/03/96 | 13:54 | 2.18 | 0.03 | drainage |
| 24/03/96 | 14:27 | 2.21 | 0.065 | drainage |
| 24/03/96 | 15:36 | 2.24 | 0.11 | drainage |
| 24/03/96 | 17:08 | 2.23 | 0.095 | drainage |
| 24/03/96 | 18:47 | 2.22 | 0.08 | drainage |
| 24/03/96 | 19:17 | 2.22 | 0.08 | drainage |
| 24/03/96 | 19:29 | 2.23 | 0.095 | drainage |
| 24/03/96 | 19:35 | 2.25 | 0.13 | drainage |
| 24/03/96 | 20:11 | 2.25 | 0.13 | drainage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 24/03/96 | 21:05 | 2.24 | 0.11 | drainage |
| 24/03/96 | 23:15 | 2.23 | 0.095 | drainage |
| 25/03/96 | 5:38 | 2.21 | 0.065 | drainage |
| 25/03/96 | 10:51 | 2.22 | 0.08 | drainage |
| 25/03/96 | 11:11 | 2.23 | 0.095 | drainage |
| 25/03/96 | 11:54 | 2.24 | 0.11 | drainage |
| 25/03/96 | 13:24 | 2.24 | 0.11 | drainage |
| 25/03/96 | 14:09 | 2.24 | 0.11 | drainage |
| 25/03/96 | 14:31 | 2.29 | 0.19 | drainage |
| 25/03/96 | 15:06 | 2.3 | 0.2 | drainage |
| 25/03/96 | 15:12 | 2.31 | 0.22 | drainage |
| 25/03/96 | 15:27 | 2.31 | 0.22 | drainage |
| 25/03/96 | 15:41 | 2.31 | 0.22 | drainage |
| 25/03/96 | 15:48 | 2.32 | 0.24 | drainage |
| 25/03/96 | 15:58 | 2.3 | 0.2 | drainage |
| 25/03/96 | 16:31 | 2.29 | 0.19 | drainage |
| 25/03/96 | 17:33 | 2.27 | 0.16 | drainage |
| 25/03/96 | 22:54 | 2.23 | 0.095 | drainage |
| 26/03/96 | 5:33 | 2.21 | 0.065 | drainage |
| 26/03/96 | 11:49 | 2.2 | 0.05 | drainage |
| 26/03/96 | 11:51 | 2.23 | 0.095 | drainage |
| 26/03/96 | 11:58 | 2.23 | 0.095 | drainage |
| 26/03/96 | 17:12 | 2.23 | 0.095 | drainage |
| 26/03/96 | 18:44 | 2.22 | 0.08 | drainage |
| 26/03/96 | 22:45 | 2.21 | 0.065 | drainage |
| 27/03/96 | 1:01 | 2.2 | 0.05 | sewage |
| 27/03/96 | 8:30 | 2.19 | 0.04 | sewage |
| 27/03/96 | 8:30 | 2.19 | 0.04 | sewage |
| 09/04/96 | 0:00 | 2.19 | 0.04 | sewage |
| 09/04/96 | 0:00 | 2.19 | 0.04 | sewage |
| 09/04/96 | 9:23 | 2.19 | 0.04 | drainage |
| 09/04/96 | 9:39 | 2.19 | 0.04 | drainage |
| 09/04/96 | 12:24 | 2.19 | 0.04 | drainage |
| 09/04/96 | 12:55 | 2.23 | 0.095 | drainage |
| 09/04/96 | 12:56 | 2.26 | 0.14 | drainage |
| 09/04/96 | 12:56 | 2.28 | 0.17 | drainage |
| 09/04/96 | 14:26 | 2.28 | 0.17 | drainage |
| 09/04/96 | 15:49 | 2.26 | 0.14 | drainage |
| 09/04/96 | 16:56 | 2.24 | 0.11 | drainage |
| 09/04/96 | 17:18 | 2.23 | 0.095 | drainage |
| 09/04/96 | 19:03 | 2.23 | 0.095 | drainage |

## Runoff Data - Hartuv Station 10/94 - 4/96

| Date | Time | H(m) | Runoff(m3/sec) | Flow |
|---|---|---|---|---|
| 10/04/96 | 0:03 | 2.22 | 0.08 | drainage |
| 10/04/96 | 11:42 | 2.21 | 0.065 | drainage |
| 10/04/96 | 23:58 | 2.21 | 0.065 | drainage |
| 11/04/96 | 9:14 | 2.21 | 0.065 | drainage |
| 11/04/96 | 12:14 | 2.2 | 0.05 | sewage |
| 12/04/96 | 0:00 | 2.21 | 0.065 | sewage |
| 12/04/96 | 0:00 | 2.21 | 0.065 | sewage |
| 30/04/96 | 6:50 | 2.21 | 0.065 | sewage |
| 30/04/96 | 6:50 | 2.21 | 0.065 | sewage |
| 30/04/96 | 10:28 | 2.21 | 0.065 | sewage |
| 30/04/96 | 16:51 | 2.2 | 0.05 | sewage |
| 30/04/96 | 17:07 | 2.21 | 0.065 | sewage |
| | | | | |

## APPENDIX - 4

### Daily Evaporation Record - 1994/1995 Atarot Station (6390) - Jerusalem

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 1 | 9 | 94 | 6 | 6 |
| 2 | 9 | 94 | 6 | 8.1 |
| 3 | 9 | 94 | 6 | 5.4 |
| 4 | 9 | 94 | 6 | 5.5 |
| 5 | 9 | 94 | 6 | 5.6 |
| 6 | 9 | 94 | 6 | 4.4 |
| 7 | 9 | 94 | 6 | 5.1 |
| 8 | 9 | 94 | 6 | 7 |
| 9 | 9 | 94 | 6 | 6 |
| 10 | 9 | 94 | 6 | 6.5 |
| 11 | 9 | 94 | 6 | 10.1 |
| 12 | 9 | 94 | 6 | 8.9 |
| 13 | 9 | 94 | 6 | 9.6 |
| 14 | 9 | 94 | 6 | 5.9 |
| 16 | 9 | 94 | 6 | 4.5 |
| 17 | 9 | 94 | 6 | 6.1 |
| 18 | 9 | 94 | 6 | 6.2 |
| 19 | 9 | 94 | 6 | 6.3 |
| 20 | 9 | 94 | 6 | 4.9 |
| 21 | 9 | 94 | 6 | 4 |
| 22 | 9 | 94 | 6 | 4 |
| 23 | 9 | 94 | 6 | 4.4 |
| 24 | 9 | 94 | 6 | 3.5 |
| 26 | 9 | 94 | 6 | 6.5 |
| 28 | 9 | 94 | 6 | 5 |
| 29 | 9 | 94 | 6 | 6.9 |
| 30 | 9 | 94 | 6 | 4 |
| | | | **Average:9.94** | 5.94 |
| | | | **St. Dev:9.94** | 1.69 |
| 1 | 10 | 94 | 6 | 4.60 |
| 2 | 10 | 94 | 6 | 6.30 |
| 3 | 10 | 94 | 6 | 4.70 |
| 4 | 10 | 94 | 6 | 7.30 |
| 5 | 10 | 94 | 6 | 2.20 |
| 6 | 10 | 94 | 6 | 8.00 |
| 7 | 10 | 94 | 6 | 5.30 |
| 8 | 10 | 94 | 6 | 10.50 |
| 9 | 10 | 94 | 6 | 5.20 |
| 10 | 10 | 94 | 6 | 6.20 |
| 11 | 10 | 94 | 6 | 5.80 |

Daily Evaporation Record - 1994/1995 Atarot Station (6390) - Jerusalem

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 12 | 10 | 94 | 6 | 2.80 |
| 13 | 10 | 94 | 6 | 5.60 |
| 14 | 10 | 94 | 6 | 4.60 |
| 15 | 10 | 94 | 6 | 1.00 |
| 16 | 10 | 94 | 6 | 3.70 |
| 17 | 10 | 94 | 6 | 0.30 |
| 18 | 10 | 94 | 6 | 2.30 |
| 19 | 10 | 94 | 6 | 1.70 |
| 20 | 10 | 94 | 6 | 4.00 |
| 21 | 10 | 94 | 6 | 2.70 |
| 22 | 10 | 94 | 6 | 4.30 |
| 23 | 10 | 94 | 6 | 4.80 |
| 24 | 10 | 94 | 6 | 2.20 |
| 25 | 10 | 94 | 6 | 6.70 |
| 26 | 10 | 94 | 6 | 3.30 |
| 27 | 10 | 94 | 6 | 3.20 |
| 28 | 10 | 94 | 6 | 2.80 |
| 29 | 10 | 94 | 6 | 4.00 |
| 30 | 10 | 94 | 6 | 2.00 |
| 31 | 10 | 94 | 6 | 3.90 |
| | | | **Average:10.94** | 4.26 |
| | | | **St. Dev:10.94** | 2.18 |
| 1 | 11 | 94 | 6 | 5.30 |
| 2 | 11 | 94 | 6 | 3.30 |
| 3 | 11 | 94 | 6 | 3.10 |
| 4 | 11 | 94 | 6 | 2.00 |
| 5 | 11 | 94 | 6 | 1.00 |
| 6 | 11 | 94 | 6 | 2.10 |
| 9 | 11 | 94 | 6 | 3.00 |
| 10 | 11 | 94 | 6 | 3.70 |
| 11 | 11 | 94 | 6 | 1.30 |
| 12 | 11 | 94 | 6 | 4.30 |
| 13 | 11 | 94 | 6 | 1.50 |
| 14 | 11 | 94 | 6 | 2.70 |
| 15 | 11 | 94 | 6 | 3.30 |
| 17 | 11 | 94 | 6 | 2.50 |
| 18 | 11 | 94 | 6 | 1.70 |
| 19 | 11 | 94 | 6 | 0.60 |
| 20 | 11 | 94 | 6 | 0.70 |
| 21 | 11 | 94 | 6 | 4.80 |
| 25 | 11 | 94 | 6 | 0.80 |
| 26 | 11 | 94 | 6 | 1.50 |

**Daily Evaporation Record - 1994/1995 Atarot Station (6390) - Jerusalem**

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 28 | 11 | 94 | 6 | 0.30 |
| 29 | 11 | 94 | 6 | 2.10 |
| 30 | 11 | 94 | 6 | 0.70 |
| | | | **Average:11.94** | 2.27 |
| | | | **St. Dev:11.94** | 1.40 |
| 1 | 12 | 94 | 6 | 2.80 |
| 4 | 12 | 94 | 6 | 0.80 |
| 7 | 12 | 94 | 6 | 1.00 |
| 8 | 12 | 94 | 6 | 1.40 |
| 9 | 12 | 94 | 6 | 2.60 |
| 10 | 12 | 94 | 6 | 2.00 |
| 11 | 12 | 94 | 6 | 2.00 |
| 12 | 12 | 94 | 6 | 0.80 |
| 13 | 12 | 94 | 6 | 1.50 |
| 14 | 12 | 94 | 6 | 1.00 |
| 15 | 12 | 94 | 6 | 0.50 |
| 16 | 12 | 94 | 6 | 3.20 |
| 17 | 12 | 94 | 6 | 0.20 |
| 21 | 12 | 94 | 6 | 5.00 |
| 22 | 12 | 94 | 6 | 1.00 |
| 24 | 12 | 94 | 6 | 2.20 |
| 25 | 12 | 94 | 6 | 1.00 |
| 26 | 12 | 94 | 6 | 2.80 |
| 27 | 12 | 94 | 6 | 1.50 |
| 28 | 12 | 94 | 6 | 0.20 |
| 29 | 12 | 94 | 6 | 0.90 |
| 30 | 12 | 94 | 6 | 2.80 |
| | | | **Average:12.94** | 1.69 |
| | | | **St. Dev:12.94** | 1.16 |
| 2 | 1 | 95 | 6 | 1.20 |
| 4 | 1 | 95 | 6 | 1.80 |
| 5 | 1 | 95 | 6 | 1.00 |
| 6 | 1 | 95 | 6 | 1.80 |
| 7 | 1 | 95 | 6 | 0.90 |
| 8 | 1 | 95 | 6 | 2.50 |
| 9 | 1 | 95 | 6 | 1.80 |
| 11 | 1 | 95 | 6 | 3.20 |
| 12 | 1 | 95 | 6 | 2.00 |
| 13 | 1 | 95 | 6 | 2.20 |
| 14 | 1 | 95 | 6 | 1.60 |
| 15 | 1 | 95 | 6 | 3.50 |
| 16 | 1 | 95 | 6 | 4.60 |

**Daily Evaporation Record - 1994/1995 Atarot Station (6390) - Jerusalem**

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 17 | 1 | 95 | 6 | 4.60 |
| 18 | 1 | 95 | 6 | 0.40 |
| 19 | 1 | 95 | 6 | 1.30 |
| 20 | 1 | 95 | 6 | 0.40 |
| 21 | 1 | 95 | 6 | 1.70 |
| 22 | 1 | 95 | 6 | 1.20 |
| 24 | 1 | 95 | 6 | 1.50 |
| 25 | 1 | 95 | 6 | 1.20 |
| 26 | 1 | 95 | 6 | 1.40 |
| 27 | 1 | 95 | 6 | 1.90 |
| 28 | 1 | 95 | 6 | 0.50 |
| 29 | 1 | 95 | 6 | 1.50 |
| 30 | 1 | 95 | 6 | 2.00 |
| | | | **Average:1.95** | 1.83 |
| | | | **St. Dev:1.95** | 1.10 |
| 1 | 2 | 95 | 6 | 4.00 |
| 2 | 2 | 95 | 6 | 2.00 |
| 3 | 2 | 95 | 6 | 1.20 |
| 5 | 2 | 95 | 6 | 0.70 |
| 9 | 2 | 95 | 6 | 2.20 |
| 10 | 2 | 95 | 6 | 1.20 |
| 11 | 2 | 95 | 6 | 2.80 |
| 12 | 2 | 95 | 6 | 3.00 |
| 13 | 2 | 95 | 6 | 4.00 |
| 14 | 2 | 95 | 6 | 2.00 |
| 15 | 2 | 95 | 6 | 2.00 |
| 16 | 2 | 95 | 6 | 0.40 |
| 17 | 2 | 95 | 6 | 2.20 |
| 18 | 2 | 95 | 6 | 1.20 |
| 19 | 2 | 95 | 6 | 1.80 |
| 20 | 2 | 95 | 6 | 2.20 |
| 21 | 2 | 95 | 6 | 1.40 |
| 22 | 2 | 95 | 6 | 0.50 |
| 25 | 2 | 95 | 6 | 3.60 |
| 26 | 2 | 95 | 6 | 2.00 |
| 27 | 2 | 95 | 6 | 3.00 |
| 28 | 2 | 95 | 6 | 3.40 |
| | | | **Average:2.95** | 2.13 |
| | | | **St. Dev:2.95** | 1.06 |
| 1 | 3 | 95 | 6 | 1.30 |
| 2 | 3 | 95 | 6 | 4.00 |
| 3 | 3 | 95 | 6 | 5.40 |

**Daily Evaporation Record - 1994/1995 Atarot Station (6390) - Jerusalem**

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 5 | 3 | 95 | 6 | 5.20 |
| 6 | 3 | 95 | 6 | 3.20 |
| 7 | 3 | 95 | 6 | 2.80 |
| 8 | 3 | 95 | 6 | 3.00 |
| 9 | 3 | 95 | 6 | 2.80 |
| 10 | 3 | 95 | 6 | 2.80 |
| 11 | 3 | 95 | 6 | 2.20 |
| 12 | 3 | 95 | 6 | 3.70 |
| 13 | 3 | 95 | 6 | 3.00 |
| 14 | 3 | 95 | 6 | 3.80 |
| 15 | 3 | 95 | 6 | 6.70 |
| 16 | 3 | 95 | 6 | 0.60 |
| 17 | 3 | 95 | 6 | 3.40 |
| 20 | 3 | 95 | 6 | 5.00 |
| 21 | 3 | 95 | 6 | 2.70 |
| 22 | 3 | 95 | 6 | 6.00 |
| 23 | 3 | 95 | 6 | 4.00 |
| 24 | 3 | 95 | 6 | 3.50 |
| 25 | 3 | 95 | 6 | 2.80 |
| 26 | 3 | 95 | 6 | 1.90 |
| 27 | 3 | 95 | 6 | 1.70 |
| 28 | 3 | 95 | 6 | 4.00 |
| 29 | 3 | 95 | 6 | 4.00 |
| 30 | 3 | 95 | 6 | 4.40 |
| 31 | 3 | 95 | 6 | 2.80 |
| | | | **Average:3.95** | 3.45 |
| | | | **St. Dev:3.95** | 1.38 |
| 1 | 4 | 95 | 6 | 5.60 |
| 2 | 4 | 95 | 6 | 1.80 |
| 3 | 4 | 95 | 6 | 2.70 |
| 4 | 4 | 95 | 6 | 2.00 |
| 5 | 4 | 95 | 6 | 2.50 |
| 6 | 4 | 95 | 6 | 6.90 |
| 7 | 4 | 95 | 6 | 4.10 |
| 8 | 4 | 95 | 6 | 5.00 |
| 9 | 4 | 95 | 6 | 6.00 |
| 10 | 4 | 95 | 6 | 3.80 |
| 11 | 4 | 95 | 6 | 3.00 |
| 12 | 4 | 95 | 6 | 3.70 |
| 13 | 4 | 95 | 6 | 5.00 |
| 14 | 4 | 95 | 6 | 5.00 |
| 15 | 4 | 95 | 6 | 4.40 |

**Daily Evaporation Record - 1994/1995 Atarot Station (6390) - Jerusalem**

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 16 | 4 | 95 | 6 | 7.20 |
| 17 | 4 | 95 | 6 | 5.00 |
| 18 | 4 | 95 | 6 | 2.20 |
| 19 | 4 | 95 | 6 | 4.40 |
| 20 | 4 | 95 | 6 | 4.00 |
| 21 | 4 | 95 | 6 | 5.00 |
| 22 | 4 | 95 | 6 | 3.30 |
| 23 | 4 | 95 | 6 | 5.50 |
| 24 | 4 | 95 | 6 | 5.00 |
| 25 | 4 | 95 | 6 | 7.20 |
| 26 | 4 | 95 | 6 | 7.00 |
| 27 | 4 | 95 | 6 | 8.40 |
| 28 | 4 | 95 | 6 | 6.60 |
| 29 | 4 | 95 | 6 | 5.00 |
| 30 | 4 | 95 | 6 | 6.00 |
| | | | **Average:4.95** | 4.78 |
| | | | **St. Dev:4.95** | 1.70 |
| 1 | 5 | 95 | 6 | 5.00 |
| 2 | 5 | 95 | 6 | 5.00 |
| 3 | 5 | 95 | 6 | 5.10 |
| 4 | 5 | 95 | 6 | 5.30 |
| 5 | 5 | 95 | 6 | 3.20 |
| 6 | 5 | 95 | 6 | 5.40 |
| 7 | 5 | 95 | 6 | 3.60 |
| 8 | 5 | 95 | 6 | 4.50 |
| 9 | 5 | 95 | 6 | 6.50 |
| 10 | 5 | 95 | 6 | 6.40 |
| 11 | 5 | 95 | 6 | 5.60 |
| 12 | 5 | 95 | 6 | 5.00 |
| 13 | 5 | 95 | 6 | 6.10 |
| 16 | 5 | 95 | 6 | 8.70 |
| 17 | 5 | 95 | 6 | 6.00 |
| 18 | 5 | 95 | 6 | 5.10 |
| 19 | 5 | 95 | 6 | 5.80 |
| 21 | 5 | 95 | 6 | 7.50 |
| 22 | 5 | 95 | 6 | 13.00 |
| 23 | 5 | 95 | 6 | 11.10 |
| 24 | 5 | 95 | 6 | 8.50 |
| 25 | 5 | 95 | 6 | 8.80 |
| 26 | 5 | 95 | 6 | 6.50 |
| 27 | 5 | 95 | 6 | 5.50 |
| 28 | 5 | 95 | 6 | 7.70 |

Daily Evaporation Record - 1994/1995 Atarot Station (6390) - Jerusalem

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 29 | 5 | 95 | 6 | 9.10 |
| 30 | 5 | 95 | 6 | 6.20 |
| 31 | 5 | 95 | 6 | 8.70 |
| | | | Average:5.95 | 6.60 |
| | | | St. Dev:5.95 | 2.20 |

## APPENDIX - 5

### Daily Evaporation Record - 1995/1996 Atarot Station (6390) - Jerusalem

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 1 | 9 | 95 | 6 | 7 |
| 2 | 9 | 95 | 6 | 6.4 |
| 3 | 9 | 95 | 6 | 6.6 |
| 4 | 9 | 95 | 6 | 3 |
| 5 | 9 | 95 | 6 | 6.1 |
| 6 | 9 | 95 | 6 | 6 |
| 7 | 9 | 95 | 6 | 8 |
| 8 | 9 | 95 | 6 | 9.5 |
| 9 | 9 | 95 | 6 | 5.5 |
| 11 | 9 | 95 | 6 | 6.7 |
| 12 | 9 | 95 | 6 | 7.9 |
| 13 | 9 | 95 | 6 | 7.3 |
| 14 | 9 | 95 | 6 | 6.4 |
| 15 | 9 | 95 | 6 | 6 |
| 16 | 9 | 95 | 6 | 6 |
| 17 | 9 | 95 | 6 | 5.6 |
| 18 | 9 | 95 | 6 | 6.7 |
| 19 | 9 | 95 | 6 | 4.3 |
| 20 | 9 | 95 | 6 | 5.5 |
| 21 | 9 | 95 | 6 | 7 |
| 22 | 9 | 95 | 6 | 7.5 |
| 23 | 9 | 95 | 6 | 5 |
| 24 | 9 | 95 | 6 | 6.8 |
| 25 | 9 | 95 | 6 | 5.7 |
| 26 | 9 | 95 | 6 | 4.7 |
| 27 | 9 | 95 | 6 | 4.3 |
| 30 | 9 | 95 | 6 | 7 |
| | | | **Average:9.95** | 6.24 |
| | | | **St. Dev:9.95** | 1.33 |
| 1 | 10 | 95 | 6 | 7.70 |
| 2 | 10 | 95 | 6 | 4.80 |
| 3 | 10 | 95 | 6 | 5.40 |
| 4 | 10 | 95 | 6 | 4.80 |
| 5 | 10 | 95 | 6 | 5.30 |
| 6 | 10 | 95 | 6 | 5.50 |
| 7 | 10 | 95 | 6 | 4.00 |
| 8 | 10 | 95 | 6 | 3.80 |
| 9 | 10 | 95 | 6 | 3.70 |
| 10 | 10 | 95 | 6 | 4.50 |
| 11 | 10 | 95 | 6 | 5.30 |

**Daily Evaporation Record - 1995/1996 Atarot Station (6390) - Jerusalem**

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 12 | 10 | 95 | 6 | 3.60 |
| 13 | 10 | 95 | 6 | 4.10 |
| 14 | 10 | 95 | 6 | 3.50 |
| 15 | 10 | 95 | 6 | 4.50 |
| 16 | 10 | 95 | 6 | 6.00 |
| 17 | 10 | 95 | 6 | 5.40 |
| 18 | 10 | 95 | 6 | 2.70 |
| 19 | 10 | 95 | 6 | 3.40 |
| 20 | 10 | 95 | 6 | 4.00 |
| 21 | 10 | 95 | 6 | 3.00 |
| 22 | 10 | 95 | 6 | 2.60 |
| 23 | 10 | 95 | 6 | 5.40 |
| 24 | 10 | 95 | 6 | 4.80 |
| 25 | 10 | 95 | 6 | 7.00 |
| 26 | 10 | 95 | 6 | 4.20 |
| 27 | 10 | 95 | 6 | 3.50 |
| 29 | 10 | 95 | 6 | 3.40 |
| 30 | 10 | 95 | 6 | 2.60 |
| 31 | 10 | 95 | 6 | 1.50 |
| | | | **Average:10.95** | 4.33 |
| | | | **St. Dev:10.95** | 1.34 |
| 1 | 11 | 95 | 6 | 3.40 |
| 2 | 11 | 95 | 6 | 2.00 |
| 3 | 11 | 95 | 6 | 1.80 |
| 5 | 11 | 95 | 6 | 2.90 |
| 6 | 11 | 95 | 6 | 4.20 |
| 7 | 11 | 95 | 6 | 4.80 |
| 8 | 11 | 95 | 6 | 1.50 |
| 9 | 11 | 95 | 6 | 2.70 |
| 10 | 11 | 95 | 6 | 2.50 |
| 12 | 11 | 95 | 6 | 3.50 |
| 13 | 11 | 95 | 6 | 1.50 |
| 14 | 11 | 95 | 6 | 6.90 |
| 15 | 11 | 95 | 6 | 5.00 |
| 16 | 11 | 95 | 6 | 4.40 |
| 17 | 11 | 95 | 6 | 2.50 |
| 18 | 11 | 95 | 6 | 1.00 |
| 19 | 11 | 95 | 6 | 3.40 |
| 20 | 11 | 95 | 6 | 3.00 |
| 21 | 11 | 95 | 6 | 3.00 |
| 22 | 11 | 95 | 6 | 4.70 |
| 24 | 11 | 95 | 6 | 2.60 |

Daily Evaporation Record - 1995/1996 Atarot Station (6390) - Jerusalem

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 25 | 11 | 95 | 6 | 0.70 |
| 26 | 11 | 95 | 6 | 3.10 |
| 29 | 11 | 95 | 6 | 2.00 |
| 30 | 11 | 95 | 6 | 3.40 |
| | | | **Average:11.95** | 3.06 |
| | | | **St. Dev:11.95** | 1.41 |
| 1 | 12 | 95 | 6 | 1.10 |
| 2 | 12 | 95 | 6 | 3.50 |
| 4 | 12 | 95 | 6 | 2.50 |
| 5 | 12 | 95 | 6 | 1.20 |
| 6 | 12 | 95 | 6 | 0.50 |
| 7 | 12 | 95 | 6 | 2.70 |
| 8 | 12 | 95 | 6 | 0.90 |
| 9 | 12 | 95 | 6 | 1.50 |
| 10 | 12 | 95 | 6 | 1.90 |
| 11 | 12 | 95 | 6 | 2.10 |
| 12 | 12 | 95 | 6 | 1.90 |
| 14 | 12 | 95 | 6 | 0.20 |
| 15 | 12 | 95 | 6 | 1.30 |
| 16 | 12 | 95 | 6 | 3.20 |
| 18 | 12 | 95 | 6 | 1.10 |
| 19 | 12 | 95 | 6 | 0.30 |
| 20 | 12 | 95 | 6 | 0.20 |
| 21 | 12 | 95 | 6 | 1.70 |
| 22 | 12 | 95 | 6 | 0.60 |
| 23 | 12 | 95 | 6 | 2.60 |
| 24 | 12 | 95 | 6 | 1.50 |
| 25 | 12 | 95 | 6 | 1.00 |
| 26 | 12 | 95 | 6 | 1.40 |
| 27 | 12 | 95 | 6 | 2.60 |
| 28 | 12 | 95 | 6 | 1.40 |
| 29 | 12 | 95 | 6 | 2.60 |
| 30 | 12 | 95 | 6 | 1.30 |
| 31 | 12 | 95 | 6 | 3.90 |
| | | | **Average:12.95** | 1.67 |
| | | | **St. Dev:12.95** | 0.99 |
| 1 | 1 | 96 | 6 | 1.30 |
| 2 | 1 | 96 | 6 | 1.00 |
| 3 | 1 | 96 | 6 | 1.60 |
| 4 | 1 | 96 | 6 | 3.10 |
| 5 | 1 | 96 | 6 | 3.30 |
| 6 | 1 | 96 | 6 | 0.90 |

**Daily Evaporation Record - 1995/1996 Atarot Station (6390) - Jerusalem**

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 7 | 1 | 96 | 6 | 0.40 |
| 11 | 1 | 96 | 6 | 0.50 |
| 12 | 1 | 96 | 6 | 3.40 |
| 14 | 1 | 96 | 6 | 0.80 |
| 15 | 1 | 96 | 6 | 0.50 |
| 21 | 1 | 96 | 6 | 2.40 |
| 22 | 1 | 96 | 6 | 0.30 |
| 23 | 1 | 96 | 6 | 1.90 |
| 24 | 1 | 96 | 6 | 1.30 |
| 25 | 1 | 96 | 6 | 2.80 |
| 27 | 1 | 96 | 6 | 4.60 |
| 28 | 1 | 96 | 6 | 0.40 |
| 30 | 1 | 96 | 6 | 4.30 |
| 31 | 1 | 96 | 6 | 0.70 |
| | | | **Average:1.96** | 1.78 |
| | | | **St. Dev:1.96** | 1.37 |
| 1 | 2 | 96 | 6 | 4.50 |
| 2 | 2 | 96 | 6 | 3.50 |
| 3 | 2 | 96 | 6 | 3.00 |
| 4 | 2 | 96 | 6 | 0.00 |
| 5 | 2 | 96 | 6 | 1.70 |
| 6 | 2 | 96 | 6 | 2.90 |
| 7 | 2 | 96 | 6 | 3.20 |
| 8 | 2 | 96 | 6 | 3.70 |
| 9 | 2 | 96 | 6 | 3.00 |
| 10 | 2 | 96 | 6 | 3.20 |
| 11 | 2 | 96 | 6 | 0.60 |
| 12 | 2 | 96 | 6 | 1.20 |
| 13 | 2 | 96 | 6 | 4.10 |
| 14 | 2 | 96 | 6 | 4.00 |
| 17 | 2 | 96 | 6 | 1.80 |
| 19 | 2 | 96 | 6 | 3.30 |
| 21 | 2 | 96 | 6 | 3.10 |
| 22 | 2 | 96 | 6 | 2.90 |
| 23 | 2 | 96 | 6 | 4.10 |
| 24 | 2 | 96 | 6 | 1.00 |
| 25 | 2 | 96 | 6 | 2.60 |
| 26 | 2 | 96 | 6 | 1.40 |
| 27 | 2 | 96 | 6 | 1.40 |
| 28 | 2 | 96 | 6 | 1.40 |
| 29 | 2 | 96 | 6 | 2.00 |
| | | | **Average:2.96** | 2.54 |

**Daily Evaporation Record - 1995/1996 Atarot Station (6390) - Jerusalem**

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| | | | **St. Dev:2.96** | 1.21 |
| 1 | 3 | 96 | 6 | 3.20 |
| 2 | 3 | 96 | 6 | 2.30 |
| 4 | 3 | 96 | 6 | 4.60 |
| 5 | 3 | 96 | 6 | 2.70 |
| 8 | 3 | 96 | 6 | 1.00 |
| 9 | 3 | 96 | 6 | 2.50 |
| 10 | 3 | 96 | 6 | 6.00 |
| 13 | 3 | 96 | 6 | 1.70 |
| 14 | 3 | 96 | 6 | 1.90 |
| 15 | 3 | 96 | 6 | 2.00 |
| 16 | 3 | 96 | 6 | 4.70 |
| 17 | 3 | 96 | 6 | 3.60 |
| 18 | 3 | 96 | 6 | 3.10 |
| 19 | 3 | 96 | 6 | 2.50 |
| 20 | 3 | 96 | 6 | 2.30 |
| 21 | 3 | 96 | 6 | 2.60 |
| 22 | 3 | 96 | 6 | 1.90 |
| 23 | 3 | 96 | 6 | 3.90 |
| 27 | 3 | 96 | 6 | 3.10 |
| 28 | 3 | 96 | 6 | 2.20 |
| 29 | 3 | 96 | 6 | 4.60 |
| 30 | 3 | 96 | 6 | 5.20 |
| 31 | 3 | 96 | 6 | 3.70 |
| | | | **Average:3.96** | 3.10 |
| | | | **St. Dev:3.96** | 1.26 |
| 1 | 4 | 96 | 6 | 5.70 |
| 2 | 4 | 96 | 6 | 2.60 |
| 3 | 4 | 96 | 6 | 4.80 |
| 4 | 4 | 96 | 6 | 4.20 |
| 5 | 4 | 96 | 6 | 6.70 |
| 6 | 4 | 96 | 6 | 3.30 |
| 7 | 4 | 96 | 6 | 5.10 |
| 8 | 4 | 96 | 6 | 4.70 |
| 9 | 4 | 96 | 6 | 3.00 |
| 10 | 4 | 96 | 6 | 5.30 |
| 11 | 4 | 96 | 6 | 3.60 |
| 12 | 4 | 96 | 6 | 2.80 |
| 13 | 4 | 96 | 6 | 4.90 |
| 14 | 4 | 96 | 6 | 2.60 |
| 15 | 4 | 96 | 6 | 3.20 |
| 16 | 4 | 96 | 6 | 4.80 |

Daily Evaporation Record - 1995/1996 Atarot Station (6390) - Jerusalem

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 17 | 4 | 96 | 6 | 3.30 |
| 18 | 4 | 96 | 6 | 2.80 |
| 19 | 4 | 96 | 6 | 4.20 |
| 20 | 4 | 96 | 6 | 4.10 |
| 21 | 4 | 96 | 6 | 1.80 |
| 22 | 4 | 96 | 6 | 4.90 |
| 23 | 4 | 96 | 6 | 1.90 |
| 24 | 4 | 96 | 6 | 3.30 |
| 25 | 4 | 96 | 6 | 4.20 |
| 26 | 4 | 96 | 6 | 7.40 |
| 28 | 4 | 96 | 6 | 6.40 |
| 29 | 4 | 96 | 6 | 9.00 |
| 30 | 4 | 96 | 6 | 5.20 |
| | | | **Average:4.96** | 4.34 |
| | | | **St. Dev:4.96** | 1.65 |
| 1 | 5 | 96 | 6 | 8.50 |
| 2 | 5 | 96 | 6 | 9.30 |
| 3 | 5 | 96 | 6 | 3.50 |
| 4 | 5 | 96 | 6 | 9.50 |
| 5 | 5 | 96 | 6 | 6.90 |
| 6 | 5 | 96 | 6 | 6.00 |
| 7 | 5 | 96 | 6 | 5.30 |
| 8 | 5 | 96 | 6 | 9.30 |
| 9 | 5 | 96 | 6 | 6.70 |
| 10 | 5 | 96 | 6 | 6.50 |
| 11 | 5 | 96 | 6 | 5.40 |
| 12 | 5 | 96 | 6 | 9.00 |
| 13 | 5 | 96 | 6 | 7.60 |
| 14 | 5 | 96 | 6 | 9.70 |
| 15 | 5 | 96 | 6 | 6.70 |
| 16 | 5 | 96 | 6 | 6.20 |
| 17 | 5 | 96 | 6 | 5.40 |
| 18 | 5 | 96 | 6 | 6.40 |
| 19 | 5 | 96 | 6 | 5.20 |
| 20 | 5 | 96 | 6 | 5.80 |
| 21 | 5 | 96 | 6 | 5.60 |
| 22 | 5 | 96 | 6 | 9.20 |
| 23 | 5 | 96 | 6 | 11.10 |
| 24 | 5 | 96 | 6 | 8.70 |
| 25 | 5 | 96 | 6 | 6.20 |
| 26 | 5 | 96 | 6 | 8.60 |
| 27 | 5 | 96 | 6 | 6.40 |

**Daily Evaporation Record - 1995/1996 Atarot Station (6390) - Jerusalem**

| Day | Month | Year | Hour | Evaporation(mm) |
|---|---|---|---|---|
| 28 | 5 | 96 | 6 | 5.90 |
| 29 | 5 | 96 | 6 | 7.40 |
| 30 | 5 | 96 | 6 | 8.70 |
| 31 | 5 | 96 | 6 | 6.50 |
| | | | **Average:5.96** | 7.20 |
| | | | **St. Dev:5.96** | 1.75 |

## APPENDIX -6

### Daily Maximum & Minimum Tempareture Record
### Beit Jamal Station (7510)-1994/1995

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 1 | 9 | 94 | 32.5 | 21.5 |
| 2 | 9 | 94 | 31.7 | 20.6 |
| 3 | 9 | 94 | 30.9 | 21.5 |
| 4 | 9 | 94 | 32.1 | 21.1 |
| 5 | 9 | 94 | 32.3 | 20.7 |
| 6 | 9 | 94 | 31.4 | 21.9 |
| 7 | 9 | 94 | 32.7 | 21.7 |
| 8 | 9 | 94 | 33.2 | 21.1 |
| 9 | 9 | 94 | 32.7 | 20.6 |
| 10 | 9 | 94 | 33.4 | 18.9 |
| 11 | 9 | 94 | 35 | 19.4 |
| 12 | 9 | 94 | 41.1 | 21 |
| 13 | 9 | 94 | 38.9 | 25.7 |
| 14 | 9 | 94 | 34.4 | 22.5 |
| 15 | 9 | 94 | 33.6 | 21.5 |
| 16 | 9 | 94 | 31.1 | 22.5 |
| 17 | 9 | 94 | 31.7 | 22 |
| 18 | 9 | 94 | 33.2 | 21.1 |
| 19 | 9 | 94 | 33.7 | 20.2 |
| 20 | 9 | 94 | 32.2 | 19.6 |
| 21 | 9 | 94 | 31.5 | 20.5 |
| 22 | 9 | 94 | 31.6 | 20.5 |
| 23 | 9 | 94 | 33.9 | 22.5 |
| 24 | 9 | 94 | 33.1 | 22.2 |
| 25 | 9 | 94 | 33.3 | 21.4 |
| 26 | 9 | 94 | 31 | 21 |
| 27 | 9 | 94 | 30.6 | 20.4 |
| 28 | 9 | 94 | 30.1 | 20 |
| 29 | 9 | 94 | 32.1 | 19 |
| 30 | 9 | 94 | 31 | 20.2 |
| | | **Average:9.94** | **32.9** | **21.1** |
| | | **St.Dev:9.94** | **2.3** | **1.3** |
| 1 | 10 | 94 | 31.6 | 20 |
| 2 | 10 | 94 | 32.4 | 19.1 |
| 3 | 10 | 94 | 34.1 | 19.5 |
| 4 | 10 | 94 | 34.1 | 21.9 |
| 5 | 10 | 94 | 35 | 21.6 |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1994/1995**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 6 | 10 | 94 | 35.8 | 22 |
| 7 | 10 | 94 | 37.5 | 23.2 |
| 8 | 10 | 94 | 37.3 | 24.6 |
| 9 | 10 | 94 | 33.7 | 22.9 |
| 10 | 10 | 94 | 34.1 | 20 |
| 11 | 10 | 94 | 35.1 | 20 |
| 12 | 10 | 94 | 32 | 24 |
| 13 | 10 | 94 | 33.9 | 24.4 |
| 14 | 10 | 94 | 31.4 | 21 |
| 15 | 10 | 94 | 27.7 | 19.8 |
| 16 | 10 | 94 | 24.9 | 17.4 |
| 17 | 10 | 94 | 20.8 | 18 |
| 18 | 10 | 94 | 27 | 18 |
| 19 | 10 | 94 | 27.7 | 17.4 |
| 20 | 10 | 94 | 30 | 17.1 |
| 21 | 10 | 94 | 31.2 | 19.5 |
| 22 | 10 | 94 | 33.4 | 21.1 |
| 23 | 10 | 94 | 35.5 | 24 |
| 24 | 10 | 94 | 30.8 | 21.1 |
| 25 | 10 | 94 | 30.8 | 22 |
| 26 | 10 | 94 | 28.3 | 18 |
| 27 | 10 | 94 | 28.3 | 17.8 |
| 28 | 10 | 94 | 27.5 | 17 |
| 29 | 10 | 94 | 27.1 | 16.4 |
| 30 | 10 | 94 | 27.8 | 17 |
| 31 | 10 | 94 | 28.5 | 17.1 |
| | | **Average:10.94** | **31.1** | **20.1** |
| | | **St.Dev:10.94** | **3.9** | **2.5** |
| 1 | 11 | 94 | 30.7 | 20.5 |
| 2 | 11 | 94 | 28.3 | 17.1 |
| 3 | 11 | 94 | 27.8 | 17 |
| 4 | 11 | 94 | 23.8 | 16.4 |
| 5 | 11 | 94 | 21.6 | 16 |
| 6 | 11 | 94 | 19.4 | 14.8 |
| 7 | 11 | 94 | 15.1 | 11.8 |
| 8 | 11 | 94 | 19.2 | 11 |
| 9 | 11 | 94 | 21.9 | 11.5 |
| 10 | 11 | 94 | 24.4 | 13.9 |
| 11 | 11 | 94 | 26.7 | 16 |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1994/1995**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 12 | 11 | 94 | 25.6 | 14.8 |
| 13 | 11 | 94 | 25.3 | 17 |
| 14 | 11 | 94 | 21.5 | 15 |
| 15 | 11 | 94 | 19.7 | 13.5 |
| 16 | 11 | 94 | 15.1 | 11.6 |
| 17 | 11 | 94 | 15.6 | 12 |
| 18 | 11 | 94 | 21.1 | 13 |
| 19 | 11 | 94 | 21.3 | 14.8 |
| 20 | 11 | 94 | 23 | 15.6 |
| 21 | 11 | 94 | 19.7 | 14.1 |
| 22 | 11 | 94 | 18.4 | 10.5 |
| 23 | 11 | 94 | 16.1 | 11.8 |
| 24 | 11 | 94 | 13 | 8.4 |
| 25 | 11 | 94 | 14.8 | 7.1 |
| 26 | 11 | 94 | 15.9 | 9.8 |
| 27 | 11 | 94 | 15 | 11.9 |
| 28 | 11 | 94 | 13.7 | 11.1 |
| 29 | 11 | 94 | 18.7 | 10 |
| 30 | 11 | 94 | 11.4 | 7.9 |
| | | **Average:11.94** | **20.1** | **13.2** |
| | | **St.Dev:11.94** | **5.0** | **3.1** |
| 1 | 12 | 94 | 15.6 | 9 |
| 2 | 12 | 94 | 12.1 | 7.1 |
| 3 | 12 | 94 | 7.5 | 4.5 |
| 4 | 12 | 94 | 11.4 | 5 |
| 5 | 12 | 94 | 13.7 | 7.5 |
| 6 | 12 | 94 | 16.4 | 8 |
| 7 | 12 | 94 | 14.9 | 7.5 |
| 8 | 12 | 94 | 16 | 6 |
| 9 | 12 | 94 | 16.1 | 7 |
| 10 | 12 | 94 | 16.5 | 7.8 |
| 11 | 12 | 94 | 17.1 | 7.1 |
| 12 | 12 | 94 | 17.1 | 7 |
| 13 | 12 | 94 | 15.7 | 10.9 |
| 14 | 12 | 94 | 19.7 | 9.6 |
| 15 | 12 | 94 | 17.2 | 10 |
| 16 | 12 | 94 | 18.6 | 11.1 |
| 17 | 12 | 94 | 13.9 | 9.8 |
| 18 | 12 | 94 | 12 | 8.1 |

**Daily Maximum & Minimum Temparecture Record**
**Beit Jamal Station (7510)-1994/1995**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 19 | 12 | 94 | 10 | 4.2 |
| 20 | 12 | 94 | 9 | 6.3 |
| 21 | 12 | 94 | 16.1 | 8 |
| 22 | 12 | 94 | 19 | 10 |
| 23 | 12 | 94 | 18 | 9.5 |
| 24 | 12 | 94 | 19.9 | 8.9 |
| 25 | 12 | 94 | 18.2 | 10.1 |
| 26 | 12 | 94 | 20.6 | 12 |
| 27 | 12 | 94 | 24.1 | 13.9 |
| 28 | 12 | 94 | 17.7 | 10.6 |
| 29 | 12 | 94 | 13.4 | 8.4 |
| 30 | 12 | 94 | 13.2 | 8.2 |
| 31 | 12 | 94 | 14.6 | 9 |
| | | **Average:12.94** | **15.7** | **8.5** |
| | | **St.Dev:12.94** | **3.6** | **2.2** |
| 1 | 1 | 95 | 16.5 | 10 |
| 2 | 1 | 95 | 18.7 | 8 |
| 3 | 1 | 95 | 20.6 | 10 |
| 4 | 1 | 95 | 18.8 | 11.1 |
| 5 | 1 | 95 | 17.6 | 8.1 |
| 6 | 1 | 95 | 22 | 9.6 |
| 7 | 1 | 95 | 18 | 12 |
| 8 | 1 | 95 | 17.7 | 9 |
| 9 | 1 | 95 | 19.3 | 9.5 |
| 10 | 1 | 95 | 18.2 | 9.8 |
| 11 | 1 | 95 | 14.5 | 9.4 |
| 12 | 1 | 95 | 14.4 | 7.1 |
| 13 | 1 | 95 | 17.8 | 9.2 |
| 14 | 1 | 95 | 21.6 | 8.9 |
| 15 | 1 | 95 | 17.2 | 10.6 |
| 16 | 1 | 95 | 11.1 | 6 |
| 17 | 1 | 95 | 11.6 | 6.8 |
| 18 | 1 | 95 | 12.6 | 6.9 |
| 19 | 1 | 95 | 11.6 | 7.5 |
| 20 | 1 | 95 | 13.5 | 8.6 |
| 21 | 1 | 95 | 12.3 | 6.5 |
| 22 | 1 | 95 | 15.1 | 8.6 |
| 23 | 1 | 95 | 16 | 6.6 |
| 24 | 1 | 95 | 16.7 | 8.7 |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1994/1995**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 25 | 1 | 95 | 15 | 9.5 |
| 26 | 1 | 95 | 16.6 | 9.6 |
| 27 | 1 | 95 | 18.6 | 7.9 |
| 28 | 1 | 95 | 16.2 | 8.1 |
| 29 | 1 | 95 | 15.9 | 10 |
| 30 | 1 | 95 | 16.1 | 8.5 |
| 31 | 1 | 95 | 16.5 | 7.5 |
| | | **Average:1.95** | **16.4** | **8.7** |
| | | **St.Dev:1.95** | **2.8** | **1.4** |
| 1 | 2 | 95 | 19.5 | 8.5 |
| 2 | 2 | 95 | 18.2 | 9.9 |
| 3 | 2 | 95 | 19.1 | 8.6 |
| 4 | 2 | 95 | 14 | 10.5 |
| 5 | 2 | 95 | 11.1 | 9.1 |
| 6 | 2 | 95 | 13.6 | 9 |
| 7 | 2 | 95 | 10.4 | 6.9 |
| 8 | 2 | 95 | 9 | 5.2 |
| 9 | 2 | 95 | 14 | 7.5 |
| 10 | 2 | 95 | 18.4 | 9.5 |
| 11 | 2 | 95 | 19.2 | 9 |
| 12 | 2 | 95 | 21 | 12.6 |
| 13 | 2 | 95 | 21.7 | 13.4 |
| 14 | 2 | 95 | 17.5 | 12.4 |
| 15 | 2 | 95 | 15.4 | 9.4 |
| 16 | 2 | 95 | 18.5 | 9.7 |
| 17 | 2 | 95 | 18.7 | 11 |
| 18 | 2 | 95 | 17 | 9.6 |
| 19 | 2 | 95 | 18.2 | 8.1 |
| 20 | 2 | 95 | 19.4 | 8 |
| 21 | 2 | 95 | 16.9 | 9.8 |
| 22 | 2 | 95 | 13.2 | 8.1 |
| 23 | 2 | 95 | 17.2 | 10 |
| 24 | 2 | 95 | 20 | 8 |
| 25 | 2 | 95 | 20 | 10 |
| 26 | 2 | 95 | 16 | 9.4 |
| 27 | 2 | 95 | 19.6 | 7.8 |
| 28 | 2 | 95 | 20.6 | 7.5 |
| | | **Average:2.95** | **17.1** | **9.2** |
| | | **St.Dev:2.95** | **3.3** | **1.7** |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1994/1995**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 1 | 3 | 95 | 17.9 | 9 |
| 2 | 3 | 95 | 22 | 8.5 |
| 3 | 3 | 95 | 23.5 | 15.6 |
| 4 | 3 | 95 | 25.3 | 17 |
| 5 | 3 | 95 | 25.3 | 15.7 |
| 6 | 3 | 95 | 22.6 | 13.5 |
| 7 | 3 | 95 | 17.5 | 11.4 |
| 8 | 3 | 95 | 20 | 9.1 |
| 9 | 3 | 95 | 21 | 10 |
| 10 | 3 | 95 | 20.1 | 10 |
| 11 | 3 | 95 | 19 | 8 |
| 12 | 3 | 95 | 17.2 | 10 |
| 13 | 3 | 95 | 19 | 8.5 |
| 14 | 3 | 95 | 27.1 | 10.5 |
| 15 | 3 | 95 | 23 | 14.5 |
| 16 | 3 | 95 | 16.1 | 10.7 |
| 17 | 3 | 95 | 17.7 | 9.1 |
| 18 | 3 | 95 | 18 | 7.9 |
| 19 | 3 | 95 | 18.7 | 11.1 |
| 20 | 3 | 95 | 20.9 | 8.5 |
| 21 | 3 | 95 | 24.5 | 8.9 |
| 22 | 3 | 95 | 21 | 9.5 |
| 23 | 3 | 95 | 22.5 | 12.5 |
| 24 | 3 | 95 | 16.3 | 9 |
| 25 | 3 | 95 | 11.3 | 6.1 |
| 26 | 3 | 95 | 13.2 | 7.2 |
| 27 | 3 | 95 | 17.2 | 7.5 |
| 28 | 3 | 95 | 19.6 | 6.4 |
| 29 | 3 | 95 | 22.5 | 9.5 |
| 30 | 3 | 95 | 20.1 | 12.1 |
| 31 | 3 | 95 | 25 | 10.9 |
| | | **Average:3.95** | **20.2** | **10.3** |
| | | **St.Dev:3.95** | **3.6** | **2.7** |
| 1 | 4 | 95 | 29.2 | 15.1 |
| 2 | 4 | 95 | 17.9 | 10.5 |
| 3 | 4 | 95 | 11.5 | 6.5 |
| 4 | 4 | 95 | 15.7 | 7.5 |
| 5 | 4 | 95 | 18.6 | 6.9 |
| 6 | 4 | 95 | 25 | 9.1 |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1994/1995**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 7 | 4 | 95 | 25.6 | 15.1 |
| 8 | 4 | 95 | 24 | 13.1 |
| 9 | 4 | 95 | 25.3 | 17 |
| 10 | 4 | 95 | 19.3 | 13 |
| 11 | 4 | 95 | 16.6 | 11 |
| 12 | 4 | 95 | 18.7 | 8.1 |
| 13 | 4 | 95 | 28.4 | 9.1 |
| 14 | 4 | 95 | 19.4 | 12 |
| 15 | 4 | 95 | 25.3 | 8.2 |
| 16 | 4 | 95 | 27.9 | 11.7 |
| 17 | 4 | 95 | 28.1 | 18 |
| 18 | 4 | 95 | 28.1 | 13.4 |
| 19 | 4 | 95 | 19 | 11.3 |
| 20 | 4 | 95 | 20.6 | 8.8 |
| 21 | 4 | 95 | 19.5 | 9.6 |
| 22 | 4 | 95 | 19.9 | 10.5 |
| 23 | 4 | 95 | 23 | 10.5 |
| 24 | 4 | 95 | 24.7 | 11.5 |
| 25 | 4 | 95 | 23.6 | 11.9 |
| 26 | 4 | 95 | 27.5 | 13.1 |
| 27 | 4 | 95 | 34 | 18.1 |
| 28 | 4 | 95 | 34.2 | 17.2 |
| 29 | 4 | 95 | 25.6 | 13.1 |
| 30 | 4 | 95 | 28.1 | 13.1 |
| | | **Average:4.95** | **23.5** | **11.8** |
| | | **St.Dev:4.95** | **5.3** | **3.2** |
| 1 | 5 | 95 | 33.6 | 15.8 |
| 2 | 5 | 95 | 24.5 | 15.1 |
| 3 | 5 | 95 | 24.7 | 11.6 |
| 4 | 5 | 95 | 21.7 | 11.5 |
| 5 | 5 | 95 | 20.6 | 12 |
| 6 | 5 | 95 | 21.6 | 12 |
| 7 | 5 | 95 | 21 | 12.1 |
| 8 | 5 | 95 | 22 | 11 |
| 9 | 5 | 95 | 23 | 10.5 |
| 10 | 5 | 95 | 23.6 | 10.3 |
| 11 | 5 | 95 | 23.7 | 12.5 |
| 12 | 5 | 95 | 26 | 12 |
| 13 | 5 | 95 | 29.6 | 13.9 |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1994/1995**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 14 | 5 | 95 | 32.6 | 18 |
| 15 | 5 | 95 | 30.1 | 13.9 |
| 16 | 5 | 95 | 26.4 | 14.5 |
| 17 | 5 | 95 | 23.8 | 14.9 |
| 18 | 5 | 95 | 25.2 | 14 |
| 19 | 5 | 95 | 27.8 | 13 |
| 20 | 5 | 95 | 36 | 18 |
| 21 | 5 | 95 | 30.6 | 16.2 |
| 22 | 5 | 95 | 34.2 | 15 |
| 23 | 5 | 95 | 37.6 | 22.5 |
| 24 | 5 | 95 | 33.5 | 20.1 |
| 25 | 5 | 95 | 30.2 | 19.1 |
| 26 | 5 | 95 | 29.2 | 17.9 |
| 27 | 5 | 95 | 33.5 | 16.5 |
| 28 | 5 | 95 | 33 | 18.1 |
| 29 | 5 | 95 | 32.4 | 17.6 |
| 30 | 5 | 95 | 30.8 | 17.1 |
| 31 | 5 | 95 | 28.5 | 17.1 |
| | | **Average:5.95** | **28.1** | **15.0** |
| | | **St.Dev:5.95** | **4.9** | **3.1** |

## APPENDIX - 7

### Daily Maximum & Minimum Tempareture Record
### Beit Jamal Station (7510)-1995/1996

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 1 | 9 | 95 | 31.7 | 20.1 |
| 2 | 9 | 95 | 30.2 | 20.4 |
| 3 | 9 | 95 | 29.1 | 20 |
| 4 | 9 | 95 | 27.1 | 19.9 |
| 5 | 9 | 95 | 28.7 | 20 |
| 6 | 9 | 95 | 32.9 | 20 |
| 7 | 9 | 95 | 35.4 | 19.8 |
| 8 | 9 | 95 | 35.1 | 22 |
| 9 | 9 | 95 | 31.5 | 20.9 |
| 10 | 9 | 95 | 32.7 | 18.2 |
| 11 | 9 | 95 | 33.6 | 19.2 |
| 12 | 9 | 95 | 34 | 20.2 |
| 13 | 9 | 95 | 34.5 | 21.2 |
| 14 | 9 | 95 | 32 | 21.1 |
| 15 | 9 | 95 | 32.3 | 20 |
| 16 | 9 | 95 | 31.6 | 18.4 |
| 17 | 9 | 95 | 31 | 18.4 |
| 18 | 9 | 95 | 29.2 | 20.1 |
| 19 | 9 | 95 | 29.6 | 20.6 |
| 20 | 9 | 95 | 31.2 | 20.8 |
| 21 | 9 | 95 | 32.5 | 17.4 |
| 22 | 9 | 95 | 32.6 | 20.4 |
| 23 | 9 | 95 | 30.4 | 18.5 |
| 24 | 9 | 95 | 32.6 | 19.5 |
| 25 | 9 | 95 | 30.1 | 19.6 |
| 26 | 9 | 95 | 30.3 | 19 |
| 27 | 9 | 95 | 31.2 | 18 |
| 28 | 9 | 95 | 33.6 | 19.5 |
| 29 | 9 | 95 | 37 | 21.5 |
| 30 | 9 | 95 | 36.4 | 21.8 |
| | | **Average:9.95** | **32.0** | **19.9** |
| | | **St.Dev:9.95** | **2.3** | **1.1** |
| 1 | 10 | 95 | 31.6 | 19.4 |
| 2 | 10 | 95 | 28.2 | 20.5 |
| 3 | 10 | 95 | 25.4 | 17.6 |
| 4 | 10 | 95 | 29.5 | 15 |
| 5 | 10 | 95 | 31.3 | 16.1 |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1995/1996**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 6 | 10 | 95 | 28.1 | 18.6 |
| 7 | 10 | 95 | 27.9 | 16.3 |
| 8 | 10 | 95 | 27.6 | 15.5 |
| 9 | 10 | 95 | 28.7 | 15 |
| 10 | 10 | 95 | 28.1 | 15.8 |
| 11 | 10 | 95 | 27.3 | 17 |
| 12 | 10 | 95 | 26.7 | 17 |
| 13 | 10 | 95 | 27.4 | 15.5 |
| 14 | 10 | 95 | 26.5 | 15.3 |
| 15 | 10 | 95 | 27 | 15.5 |
| 16 | 10 | 95 | 27.4 | 15.4 |
| 17 | 10 | 95 | 27.1 | 16.1 |
| 18 | 10 | 95 | 26.9 | 16.4 |
| 19 | 10 | 95 | 27.6 | 16.4 |
| 20 | 10 | 95 | 25.3 | 17.6 |
| 21 | 10 | 95 | 27.1 | 16.9 |
| 22 | 10 | 95 | 27.1 | 13.7 |
| 23 | 10 | 95 | 27.2 | 17.1 |
| 24 | 10 | 95 | 30.2 | 16.2 |
| 25 | 10 | 95 | 33.7 | 20 |
| 26 | 10 | 95 | 35.3 | 24.4 |
| 27 | 10 | 95 | 26.9 | 18.8 |
| 28 | 10 | 95 | 24.8 | 17.5 |
| 29 | 10 | 95 | 24.3 | 15.9 |
| 30 | 10 | 95 | 24.6 | 14.5 |
| 31 | 10 | 95 | 25.6 | 13.3 |
| | | **Average:10.95** | **27.8** | **16.8** |
| | | **St.Dev:10.95** | **2.5** | **2.2** |
| 1 | 11 | 95 | 24.6 | 16 |
| 2 | 11 | 95 | 21.6 | 14.5 |
| 3 | 11 | 95 | 25.5 | 15.7 |
| 4 | 11 | 95 | 28.5 | 18 |
| 5 | 11 | 95 | 30.3 | 19.6 |
| 6 | 11 | 95 | 30.7 | 19.2 |
| 7 | 11 | 95 | 28 | 17.5 |
| 8 | 11 | 95 | 17.5 | 12 |
| 9 | 11 | 95 | 20.6 | 12 |
| 10 | 11 | 95 | 16.7 | 13 |
| 11 | 11 | 95 | 19.5 | 10.9 |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1995/1996**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 12 | 11 | 95 | 21.6 | 9.6 |
| 13 | 11 | 95 | 20 | 9.3 |
| 14 | 11 | 95 | 23.6 | 9.6 |
| 15 | 11 | 95 | 25.7 | 16.1 |
| 16 | 11 | 95 | 28.6 | 17.5 |
| 17 | 11 | 95 | 24.5 | 14.1 |
| 18 | 11 | 95 | 22.2 | 14.1 |
| 19 | 11 | 95 | 23.2 | 12.8 |
| 20 | 11 | 95 | 25 | 14.8 |
| 21 | 11 | 95 | 19.5 | 14 |
| 22 | 11 | 95 | 18.5 | 11.9 |
| 23 | 11 | 95 | 14 | 8 |
| 24 | 11 | 95 | 12 | 7 |
| 25 | 11 | 95 | 15.9 | 9.1 |
| 26 | 11 | 95 | 18.2 | 7 |
| 27 | 11 | 95 | 18.2 | 8.1 |
| 28 | 11 | 95 | 20 | 9 |
| 29 | 11 | 95 | 20.5 | 11.5 |
| 30 | 11 | 95 | 22.6 | 12.4 |
| | | **Average:11.95** | **21.9** | **12.8** |
| | | **St.Dev:11.95** | **4.7** | **3.6** |
| 1 | 12 | 95 | 22.3 | 13.5 |
| 2 | 12 | 95 | 20.2 | 14 |
| 3 | 12 | 95 | 21.1 | 13.1 |
| 4 | 12 | 95 | 21 | 12.5 |
| 5 | 12 | 95 | 16.2 | 11 |
| 6 | 12 | 95 | 18.8 | 10.6 |
| 7 | 12 | 95 | 20.5 | 11.6 |
| 8 | 12 | 95 | 17.6 | 11.5 |
| 9 | 12 | 95 | 17.6 | 10.9 |
| 10 | 12 | 95 | 15.3 | 10.6 |
| 11 | 12 | 95 | 13 | 8.4 |
| 12 | 12 | 95 | 12 | 8 |
| 13 | 12 | 95 | 15 | 9 |
| 14 | 12 | 95 | 17.7 | 8.6 |
| 15 | 12 | 95 | 16 | 8.4 |
| 16 | 12 | 95 | 16 | 7.1 |
| 17 | 12 | 95 | 14.9 | 9 |
| 18 | 12 | 95 | 16.6 | 7.8 |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1995/1996**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 19 | 12 | 95 | 13 | 9 |
| 20 | 12 | 95 | 18 | 10.2 |
| 21 | 12 | 95 | 19.8 | 9.2 |
| 22 | 12 | 95 | 17.7 | 9.5 |
| 23 | 12 | 95 | 18.6 | 10.3 |
| 24 | 12 | 95 | 19.7 | 12.1 |
| 25 | 12 | 95 | 17.2 | 9.1 |
| 26 | 12 | 95 | 19 | 8 |
| 27 | 12 | 95 | 21.2 | 9.4 |
| 28 | 12 | 95 | 20.5 | 9.5 |
| 29 | 12 | 95 | 21.3 | 8.5 |
| 30 | 12 | 95 | 22.5 | 12.8 |
| 31 | 12 | 95 | 18.7 | 10.6 |
| | | **Average:12.95** | **18.0** | **10.1** |
| | | **St.Dev:12.95** | **2.8** | **1.8** |
| 1 | 1 | 96 | 20.1 | 10.5 |
| 2 | 1 | 96 | 20 | 11.8 |
| 3 | 1 | 96 | 19.7 | 12.9 |
| 4 | 1 | 96 | 17.1 | 12 |
| 5 | 1 | 96 | 15.1 | 9.2 |
| 6 | 1 | 96 | 14 | 8.9 |
| 7 | 1 | 96 | 15.2 | 9 |
| 8 | 1 | 96 | 19.3 | 10 |
| 9 | 1 | 96 | 18.6 | 9.1 |
| 10 | 1 | 96 | 18.1 | 11 |
| 11 | 1 | 96 | 14.1 | 10 |
| 12 | 1 | 96 | 14 | 7.9 |
| 13 | 1 | 96 | 17.3 | 6.9 |
| 14 | 1 | 96 | 17.6 | 7.5 |
| 15 | 1 | 96 | 17 | 7.5 |
| 16 | 1 | 96 | 15.4 | 8.2 |
| 17 | 1 | 96 | 11.6 | 6.3 |
| 18 | 1 | 96 | 8.5 | 3.8 |
| 19 | 1 | 96 | 8 | 5 |
| 20 | 1 | 96 | 15.6 | 7.5 |
| 21 | 1 | 96 | 13.4 | 7.4 |
| 22 | 1 | 96 | 13.1 | 7.6 |
| 23 | 1 | 96 | 14.5 | 8 |
| 24 | 1 | 96 | 13.1 | 7 |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1995/1996**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 25 | 1 | 96 | 16 | 5.5 |
| 26 | 1 | 96 | 20.1 | 11 |
| 27 | 1 | 96 | 23.3 | 14.5 |
| 28 | 1 | 96 | 16 | 11.5 |
| 29 | 1 | 96 | 16.8 | 11.6 |
| 30 | 1 | 96 | 22.1 | 10.6 |
| 31 | 1 | 96 | 23.3 | 16.9 |
| | | **Average:1.96** | **16.4** | **9.2** |
| | | **St.Dev:1.96** | **3.7** | **2.8** |
| 1 | 2 | 96 | 19.5 | 11.9 |
| 2 | 2 | 96 | 15.6 | 10.5 |
| 3 | 2 | 96 | 15.6 | 6 |
| 4 | 2 | 96 | 13.5 | 6.5 |
| 5 | 2 | 96 | 17.1 | 8.3 |
| 6 | 2 | 96 | 23.1 | 13 |
| 7 | 2 | 96 | 25.1 | 14.3 |
| 8 | 2 | 96 | 24.6 | 13.1 |
| 9 | 2 | 96 | 19.2 | 11.4 |
| 10 | 2 | 96 | 14.8 | 10 |
| 11 | 2 | 96 | 10.6 | 9.1 |
| 12 | 2 | 96 | 17.7 | 7.3 |
| 13 | 2 | 96 | 23.4 | 11.1 |
| 14 | 2 | 96 | 17.4 | 12 |
| 15 | 2 | 96 | 16.6 | 10 |
| 16 | 2 | 96 | 17.1 | 9.2 |
| 17 | 2 | 96 | 18.1 | 8.4 |
| 18 | 2 | 96 | 15.6 | 9 |
| 19 | 2 | 96 | 18.5 | 8.9 |
| 20 | 2 | 96 | 15.1 | 8.1 |
| 21 | 2 | 96 | 16.7 | 8.4 |
| 22 | 2 | 96 | 19.6 | 7.8 |
| 23 | 2 | 96 | 25.2 | 10.5 |
| 24 | 2 | 96 | 21 | 12.1 |
| 25 | 2 | 96 | 17.3 | 9 |
| 26 | 2 | 96 | 16.8 | 8.6 |
| 27 | 2 | 96 | 14 | 8.4 |
| 28 | 2 | 96 | 15.6 | 7.1 |
| 29 | 2 | 96 | 24.2 | 8.5 |
| | | **Average:2.96** | **18.2** | **9.6** |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1995/1996**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| | | **St.Dev:2.96** | **3.8** | **2.1** |
| 1 | 3 | 96 | 24 | 11.6 |
| 2 | 3 | 96 | 15.6 | 8.8 |
| 3 | 3 | 96 | 15.3 | 8 |
| 4 | 3 | 96 | 18.6 | 10.1 |
| 5 | 3 | 96 | 23.9 | 11.4 |
| 6 | 3 | 96 | 20.7 | 8.9 |
| 7 | 3 | 96 | 9.2 | 5.4 |
| 8 | 3 | 96 | 11 | 6.2 |
| 9 | 3 | 96 | 16.1 | 6.9 |
| 10 | 3 | 96 | 20.5 | 7.9 |
| 11 | 3 | 96 | 16.1 | 9.8 |
| 12 | 3 | 96 | 17.7 | 9 |
| 13 | 3 | 96 | 19.5 | 9 |
| 14 | 3 | 96 | 23.8 | 10.6 |
| 15 | 3 | 96 | 21.4 | 14 |
| 16 | 3 | 96 | 23.3 | 11.4 |
| 17 | 3 | 96 | 20.4 | 10 |
| 18 | 3 | 96 | 15.8 | 9.7 |
| 19 | 3 | 96 | 18 | 9.6 |
| 20 | 3 | 96 | 17.1 | 8.6 |
| 21 | 3 | 96 | 18.6 | 8.7 |
| 22 | 3 | 96 | 15.2 | 9.4 |
| 23 | 3 | 96 | 14.2 | 9.5 |
| 24 | 3 | 96 | 10.4 | 7.4 |
| 25 | 3 | 96 | 11 | 6.4 |
| 26 | 3 | 96 | 12 | 7.9 |
| 27 | 3 | 96 | 16.5 | 9.6 |
| 28 | 3 | 96 | 24.5 | 10.8 |
| 29 | 3 | 96 | 29.7 | 20 |
| 30 | 3 | 96 | 27.8 | 14.1 |
| 31 | 3 | 96 | 20.7 | 11.4 |
| | | **Average:3.96** | **18.3** | **9.7** |
| | | **St.Dev:3.96** | **5.0** | **2.8** |
| 1 | 4 | 96 | 22 | 10.2 |
| 2 | 4 | 96 | 24.1 | 11.5 |
| 3 | 4 | 96 | 22.2 | 9.6 |
| 4 | 4 | 96 | 26.3 | 10 |
| 5 | 4 | 96 | 28.1 | 15.3 |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1995/1996**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 6 | 4 | 96 | 20.2 | 13 |
| 7 | 4 | 96 | 24.6 | 9.5 |
| 8 | 4 | 96 | 20.2 | 12.4 |
| 9 | 4 | 96 | 18.2 | 11.2 |
| 10 | 4 | 96 | 21.9 | 10.1 |
| 11 | 4 | 96 | 26.6 | 12 |
| 12 | 4 | 96 | 17.5 | 12.5 |
| 13 | 4 | 96 | 15.5 | 9.3 |
| 14 | 4 | 96 | 18.4 | 9.3 |
| 15 | 4 | 96 | 21.1 | 9.3 |
| 16 | 4 | 96 | 29.1 | 12.9 |
| 17 | 4 | 96 | 27.1 | 13.6 |
| 18 | 4 | 96 | 17.7 | 11.4 |
| 19 | 4 | 96 | 21 | 10.5 |
| 20 | 4 | 96 | 27.2 | 11.1 |
| 21 | 4 | 96 | 17.9 | 11.9 |
| 22 | 4 | 96 | 17.6 | 9.6 |
| 23 | 4 | 96 | 16.6 | 10 |
| 24 | 4 | 96 | 17.6 | 10 |
| 25 | 4 | 96 | 20.7 | 9 |
| 26 | 4 | 96 | 27 | 9.9 |
| 27 | 4 | 96 | 29.5 | 15.9 |
| 28 | 4 | 96 | 32.7 | 17.5 |
| 29 | 4 | 96 | 31 | 19.5 |
| 30 | 4 | 96 | 32.2 | 17.9 |
| | | **Average:4.96** | **23.1** | **11.9** |
| | | **St.Dev:4.96** | **5.1** | **2.8** |
| 1 | 5 | 96 | 39.1 | 24.1 |
| 2 | 5 | 96 | 30.3 | 17.5 |
| 3 | 5 | 96 | 28.1 | 13.3 |
| 4 | 5 | 96 | 28.1 | 11.4 |
| 5 | 5 | 96 | 26.7 | 9.4 |
| 6 | 5 | 96 | 27.5 | 13.5 |
| 7 | 5 | 96 | 29.1 | 14.7 |
| 8 | 5 | 96 | 38.2 | 19 |
| 9 | 5 | 96 | 31.1 | 19 |
| 10 | 5 | 96 | 27 | 16.8 |
| 11 | 5 | 96 | 31 | 16.6 |
| 12 | 5 | 96 | 39.1 | 20 |

**Daily Maximum & Minimum Tempareture Record**
**Beit Jamal Station (7510)-1995/1996**

| Day | Month | Year | Tmax(C) | Tmin(C) |
|---|---|---|---|---|
| 13 | 5 | 96 | 26.6 | 17.2 |
| 14 | 5 | 96 | 36.1 | 15.6 |
| 15 | 5 | 96 | 28.5 | 17 |
| 16 | 5 | 96 | 28.1 | 13.6 |
| 17 | 5 | 96 | 26.1 | 13.6 |
| 18 | 5 | 96 | 25.6 | 13.7 |
| 19 | 5 | 96 | 24.7 | 14.8 |
| 20 | 5 | 96 | 26.2 | 15 |
| 21 | 5 | 96 | 28.2 | 15 |
| 22 | 5 | 96 | 31.8 | 16.6 |
| 23 | 5 | 96 | 33.2 | 16.5 |
| 24 | 5 | 96 | 32.1 | 16.5 |
| 25 | 5 | 96 | 30.6 | 16.5 |
| 26 | 5 | 96 | 30.1 | 17.2 |
| 27 | 5 | 96 | 28.2 | 16 |
| 28 | 5 | 96 | 27 | 16 |
| 29 | 5 | 96 | 29.6 | 15 |
| 30 | 5 | 96 | 31.2 | 20 |
| 31 | 5 | 96 | 25.8 | 16.1 |
| | | **Average:5.96** | **29.8** | **16.0** |
| | | **St.Dev:5.96** | **3.9** | **2.7** |

# APPENDIX - 8

## Average Daily Rainfall (mm)

## 1994-1996

| DATE | Rainfall-BeitJamal | DATE | Rainfall-BeitMeir | Average |
|---|---|---|---|---|
| | (mm) | | (mm) | (mm) |
| 16.10.94 | 2.2 | 16.10.94 | 2.2 | 2.2 |
| 17.10.94 | 2 | 17.10.94 | 3.2 | 2.6 |
| 1.11.94 | 2.5 | 1.11.94 | 2.5 | 2.5 |
| 3.11.94 | 2.2 | 3.11.94 | 2.5 | 2.35 |
| 5.11.94 | 18.3 | 5.11.94 | 18.3 | 18.3 |
| 7.11.94 | 16 | 7.11.94 | 15.7 | 15.85 |
| 14.11.94 | 5.3 | 14.11.94 | 25.5 | 15.4 |
| 15.11.94 | 4 | 15.11.94 | 10 | 7 |
| 16.11.94 | 5.1 | 16.11.94 | 5.4 | 5.25 |
| 17.11.94 | 16.3 | 17.11.94 | 24 | 20.15 |
| 23.11.94 | 22.2 | 23.11.94 | 74 | 48.1 |
| 24.11.94 | 31.6 | 24.11.94 | 28.7 | 30.15 |
| 25.11.94 | 0.4 | 25.11.94 | 0.4 | 0.4 |
| 27.11.94 | 22.2 | 27.11.94 | 30.5 | 26.35 |
| 28.11.94 | 3.8 | 28.11.94 | 9.2 | 6.5 |
| 29.11.94 | 12.2 | 29.11.94 | 15.7 | 13.95 |
| 30.11.94 | 0.7 | 30.11.94 | 3.1 | 1.9 |
| 2.12.94 | 48.7 | 2.12.94 | 59 | 53.85 |
| 3.12.94 | 12.8 | 3.12.94 | 19 | 15.9 |
| 4.12.94 | 6.1 | 4.12.94 | 7 | 6.55 |
| 5.12.94 | 2 | 5.12.94 | 3.4 | 2.7 |
| 12.12.94 | 22.3 | 12.12.94 | 22.3 | 22.3 |
| 16.12.94 | 16.1 | 16.12.94 | 20.6 | 18.35 |
| 17.12.94 | 5.4 | 17.12.94 | 5.3 | 5.35 |
| 18.12.94 | 27.7 | 18.12.94 | 38 | 32.85 |
| 19.12.94 | 43 | 19.12.94 | 26 | 34.5 |
| 20.12.94 | 5.6 | 20.12.94 | 6.3 | 5.95 |
| 28.12.94 | 1.2 | 28.12.94 | 3.7 | 2.45 |
| 29.12.94 | 7.2 | 29.12.94 | 7.2 | 7.2 |
| 30.12.94 | 3.1 | 30.12.94 | 3.1 | 3.1 |
| 17.1.95 | 26.6 | 17.1.95 | 26.6 | 26.6 |
| 18.1.95 | 11.5 | 18.1.95 | 11.5 | 11.5 |
| 21.1.95 | 6 | 21.1.95 | 6 | 6 |
| 3.2.95 | 1 | 3.2.95 | 1 | 1 |
| 4.2.95 | 3.8 | 4.2.95 | 3.4 | 3.6 |
| 5.2.95 | 16.7 | 5.2.95 | 10.2 | 13.45 |
| 6.2.95 | 6.1 | 6.2.95 | 6 | 6.05 |
| 7.2.95 | 25 | 7.2.95 | 15.7 | 20.35 |
| 8.2.95 | 24 | 8.2.95 | 22 | 23 |
| 15.2.95 | 2.3 | 15.2.95 | 3 | 2.65 |
| 18.2.95 | 2.7 | 18.2.95 | 3.2 | 2.95 |
| 21.2.95 | 2.9 | 21.2.95 | 8 | 5.45 |
| 22.2.95 | 0.6 | 22.2.95 | 3 | 1.8 |
| 15.3.95 | 2.1 | 15.3.95 | 2.1 | 2.1 |
| 16.3.95 | 5.9 | 16.3.95 | 12.4 | 9.15 |
| 24.3.95 | 4.7 | 24.3.95 | 5.9 | 5.3 |

# Average Daily Rainfall (mm)
## 1994-1996

| DATE | Rainfall-BeitJamal (mm) | DATE | Rainfall-BeitMeir (mm) | Average (mm) |
|---|---|---|---|---|
| 25.3.95 | 15.8 | 25.3.95 | 13.9 | 14.85 |
| 26.3.95 | 1.2 | 26.3.95 | 1.2 | 1.2 |
| 1.4.95 | 0.9 | 1.4.95 | 0.9 | 0.9 |
| 2.4.95 | 16 | 2.4.95 | 19.7 | 17.85 |
| 3.4.95 | 9.3 | 3.4.95 | 13.2 | 11.25 |
| 1.11.95 | 8.5 | 1.11.95 | 4.2 | 6.35 |
| 10.11.95 | 3.2 | 10.11.95 | 11.5 | 7.35 |
| 22.11.95 | 16 | 22.11.95 | 20 | 18 |
| 23.11.95 | 38 | 23.11.95 | 31.6 | 34.8 |
| 24.11.95 | 9.9 | 24.11.95 | 8 | 8.95 |
| 4.12.95 | 6.7 | 4.12.95 | 12.3 | 9.5 |
| 5.12.95 | 3.2 | 5.12.95 | 3.2 | 3.2 |
| 9.12.95 | 3.9 | 9.12.95 | 3.2 | 3.55 |
| 10.12.95 | 14.2 | 10.12.95 | 10.3 | 12.25 |
| 11.12.95 | 8.7 | 11.12.95 | 7.6 | 8.15 |
| 12.12.95 | 12.6 | 12.12.95 | 14.1 | 13.35 |
| 16.12.95 | 6 | 16.12.95 | 6 | 6 |
| 3.1.96 | 2.3 | 3.1.96 | 2.3 | 2.3 |
| 4.1.96 | 3 | 4.1.96 | 4.4 | 3.7 |
| 5.1.96 | 30.5 | 5.1.96 | 42.1 | 36.3 |
| 6.1.96 | 2.1 | 6.1.96 | 13.6 | 7.85 |
| 16.1.96 | 7.6 | 16.1.96 | 13 | 10.3 |
| 17.1.96 | 26.4 | 17.1.96 | 31.6 | 29 |
| 18.1.96 | 38.9 | 18.1.96 | 40 | 39.45 |
| 19.1.96 | 10.2 | 19.1.96 | 5.8 | 8 |
| 21.1.96 | 7.5 | 21.1.96 | 7.9 | 7.7 |
| 22.1.96 | 5 | 22.1.96 | 5 | 5 |
| 23.1.96 | 9.3 | 23.1.96 | 12.3 | 10.8 |
| 1.2.96 | 4.8 | 1.2.96 | 1.9 | 3.35 |
| 4.2.96 | 5.3 | 4.2.96 | 5.3 | 5.3 |
| 10.2.96 | 15.2 | 10.2.96 | 21 | 18.1 |
| 11.2.96 | 8.7 | 11.2.96 | 7 | 7.85 |
| 19.2.96 | 6.4 | 19.2.96 | 5.8 | 6.1 |
| 26.2.96 | 2.2 | 26.2.96 | 2.6 | 2.4 |
| 1.3.96 | 2.6 | 1.3.96 | 6.4 | 4.5 |
| 2.3.96 | 8.3 | 2.3.96 | 7 | 7.65 |
| 3.3.96 | 2.7 | 3.3.96 | 2.7 | 2.7 |
| 6.3.96 | 29.8 | 6.3.96 | 49 | 39.4 |
| 7.3.96 | 78 | 7.3.96 | 73 | 75.5 |
| 22.3.96 | 2 | 22.3.96 | 3.5 | 2.75 |
| 23.3.96 | 16.8 | 23.3.96 | 17 | 16.9 |
| 24.3.96 | 25.4 | 24.3.96 | 33.7 | 29.55 |
| 25.3.96 | 16.4 | 25.3.96 | 25.5 | 20.95 |
| 26.396 | 3.7 | 26.3.96 | 6.4 | 5.05 |
| 12.4.96 | 15.1 | 12.4.96 | 5.3 | 10.2 |
| 13.4.96 | 14.5 | 13.4.96 | 8.2 | 11.35 |
| 20.4.96 | 2.9 | 20.4.96 | 2.9 | 2.9 |
| 21.4.96 | 6 | 21.4.96 | 6 | 6 |

# APPENDIX -9
## Average Monthly Rainfall (mm)
## 1994-1995

| DATE | Rainfall-BeitJamal | DATE | Rainfall-BeitMeir | Average | Percentage |
|---|---|---|---|---|---|
| | (mm) | | (mm) | (mm) | % |
| 16.10.94 | 2.2 | 16.10.94 | 2.2 | 2.2 | |
| 17.10.94 | 2 | 17.10.94 | 3.2 | 2.6 | |
| | | | **Total - 10.94** | **4.8** | **0.8** |
| 1.11.94 | 2.5 | 1.11.94 | 2.5 | 2.5 | |
| 3.11.94 | 2.2 | 3.11.94 | 2.5 | 2.35 | |
| 5.11.94 | 18.3 | 5.11.94 | 18.3 | 18.3 | |
| 7.11.94 | 16 | 7.11.94 | 15.7 | 15.85 | |
| 14.11.94 | 5.3 | 14.11.94 | 25.5 | 15.4 | |
| 15.11.94 | 4 | 15.11.94 | 10 | 7 | |
| 16.11.94 | 5.1 | 16.11.94 | 5.4 | 5.25 | |
| 17.11.94 | 16.3 | 17.11.94 | 24 | 20.15 | |
| 23.11.94 | 22.2 | 23.11.94 | 74 | 48.1 | |
| 24.11.94 | 31.6 | 24.11.94 | 28.7 | 30.15 | |
| 25.11.94 | 0.4 | 25.11.94 | 0.4 | 0.4 | |
| 27.11.94 | 22.2 | 27.11.94 | 30.5 | 26.35 | |
| 28.11.94 | 3.8 | 28.11.94 | 9.2 | 6.5 | |
| 29.11.94 | 12.2 | 29.11.94 | 15.7 | 13.95 | |
| 30.11.94 | 0.7 | 30.11.94 | 3.1 | 1.9 | |
| | | | **Total - 11.94** | **214.2** | **34.7** |
| 2.12.94 | 48.7 | 2.12.94 | 59 | 53.85 | |
| 3.12.94 | 12.8 | 3.12.94 | 19 | 15.9 | |
| 4.12.94 | 6.1 | 4.12.94 | 7 | 6.55 | |
| 5.12.94 | 2 | 5.12.94 | 3.4 | 2.7 | |
| 12.12.94 | 22.3 | 12.12.94 | 22.3 | 22.3 | |
| 16.12.94 | 16.1 | 16.12.94 | 20.6 | 18.35 | |
| 17.12.94 | 5.4 | 17.12.94 | 5.3 | 5.35 | |
| 18.12.94 | 27.7 | 18.12.94 | 38 | 32.85 | |
| 19.12.94 | 43 | 19.12.94 | 26 | 34.5 | |
| 20.12.94 | 5.6 | 20.12.94 | 6.3 | 5.95 | |
| 28.12.94 | 1.2 | 28.12.94 | 3.7 | 2.45 | |
| 29.12.94 | 7.2 | 29.12.94 | 7.2 | 7.2 | |
| 30.12.94 | 3.1 | 30.12.94 | 3.1 | 3.1 | |
| | | | **Total - 12.94** | **211.1** | **34.2** |
| 17.1.95 | 26.6 | 17.1.95 | 26.6 | 26.6 | |
| 18.1.95 | 11.5 | 18.1.95 | 11.5 | 11.5 | |
| 21.1.95 | 6 | 21.1.95 | 6 | 6 | |

# Average Monthly Rainfall (mm)
## 1994-1995

| DATE | Rainfall-BeitJamal | DATE | Rainfall-BeitMeir | Average | Percentage |
|---|---|---|---|---|---|
| | (mm) | | (mm) | (mm) | % |
| | | | **Total - 1.95** | **44.1** | **7.1** |
| 3.2.95 | 1 | 3.2.95 | 1 | 1 | |
| 4.2.95 | 3.8 | 4.2.95 | 3.4 | 3.6 | |
| 5.2.95 | 16.7 | 5.2.95 | 10.2 | 13.45 | |
| 6.2.95 | 6.1 | 6.2.95 | 6 | 6.05 | |
| 7.2.95 | 25 | 7.2.95 | 15.7 | 20.35 | |
| 8.2.95 | 24 | 8.2.95 | 22 | 23 | |
| 15.2.95 | 2.3 | 15.2.95 | 3 | 2.65 | |
| 18.2.95 | 2.7 | 18.2.95 | 3.2 | 2.95 | |
| 21.2.95 | 2.9 | 21.2.95 | 8 | 5.45 | |
| 22.2.95 | 0.6 | 22.2.95 | 3 | 1.8 | |
| | | | **Total - 2.95** | **80.3** | **13.0** |
| 15.3.95 | 2.1 | 15.3.95 | 2.1 | 2.1 | |
| 16.3.95 | 5.9 | 16.3.95 | 12.4 | 9.15 | |
| 24.3.95 | 4.7 | 24.3.95 | 5.9 | 5.3 | |
| 25.3.95 | 15.8 | 25.3.95 | 13.9 | 14.85 | |
| 26.3.95 | 1.2 | 26.3.95 | 1.2 | 1.2 | |
| | | | **Total - 3.95** | **32.6** | **5.3** |
| 1.4.95 | 0.9 | 1.4.95 | 0.9 | 0.9 | |
| 2.4.95 | 16 | 2.4.95 | 19.7 | 17.85 | |
| 3.4.95 | 9.3 | 3.4.95 | 13.2 | 11.25 | |
| | | | **Total - 4.95** | **30** | **4.9** |
| | | | **Total - 94/95** | **617.0** | **100.0** |
| | | | | | |

# Average Monthly Rainfall (mm)
## 1995-1996

| DATE | Rainfall-BeitJamal | DATE | Rainfall-BeitMeir | Average | Percentage |
|---|---|---|---|---|---|
| | (mm) | | (mm) | (mm) | % |
| 1.11.95 | 8.5 | 1.11.95 | 4.2 | 6.35 | |
| 10.11.95 | 3.2 | 10.11.95 | 11.5 | 7.35 | |
| 22.11.95 | 16 | 22.11.95 | 20 | 18 | |
| 23.11.95 | 38 | 23.11.95 | 31.6 | 34.8 | |
| 24.11.95 | 9.9 | 24.11.95 | 8 | 8.95 | |
| | | | **Total - 11.95** | **75.5** | **13.2** |
| 4.12.95 | 6.7 | 4.12.95 | 12.3 | 9.5 | |
| 5.12.95 | 3.2 | 5.12.95 | 3.2 | 3.2 | |
| 9.12.95 | 3.9 | 9.12.95 | 3.2 | 3.55 | |
| 10.12.95 | 14.2 | 10.12.95 | 10.3 | 12.25 | |
| 11.12.95 | 8.7 | 11.12.95 | 7.6 | 8.15 | |
| 12.12.95 | 12.6 | 12.12.95 | 14.1 | 13.35 | |
| 16.12.95 | 6 | 16.12.95 | 6 | 6 | |
| | | | **Total - 12.95** | **56** | **9.8** |
| 3.1.96 | 2.3 | 3.1.96 | 2.3 | 2.3 | |
| 4.1.96 | 3 | 4.1.96 | 4.4 | 3.7 | |
| 5.1.96 | 30.5 | 5.1.96 | 42.1 | 36.3 | |
| 6.1.96 | 2.1 | 6.1.96 | 13.6 | 7.85 | |
| 16.1.96 | 7.6 | 16.1.96 | 13 | 10.3 | |
| 17.1.96 | 26.4 | 17.1.96 | 31.6 | 29 | |
| 18.1.96 | 38.9 | 18.1.96 | 40 | 39.45 | |
| 19.1.96 | 10.2 | 19.1.96 | 5.8 | 8 | |
| 21.1.96 | 7.5 | 21.1.96 | 7.9 | 7.7 | |
| 22.1.96 | 5 | 22.1.96 | 5 | 5 | |
| 23.1.96 | 9.3 | 23.1.96 | 12.3 | 10.8 | |
| | | | **Total - 1.96** | **160.4** | **28.1** |
| 1.2.96 | 4.8 | 1.2.96 | 1.9 | 3.35 | |
| 4.2.96 | 5.3 | 4.2.96 | 5.3 | 5.3 | |
| 10.2.96 | 15.2 | 10.2.96 | 21 | 18.1 | |
| 11.2.96 | 8.7 | 11.2.96 | 7 | 7.85 | |
| 19.2.96 | 6.4 | 19.2.96 | 5.8 | 6.1 | |
| 26.2.96 | 2.2 | 26.2.96 | 2.6 | 2.4 | |
| | | | **Total - 2.96** | **43.1** | **7.6** |
| 1.3.96 | 2.6 | 1.3.96 | 6.4 | 4.5 | |
| 2.3.96 | 8.3 | 2.3.96 | 7 | 7.65 | |
| 3.3.96 | 2.7 | 3.3.96 | 2.7 | 2.7 | |
| 6.3.96 | 29.8 | 6.3.96 | 49 | 39.4 | |

# Average Monthly Rainfall (mm)
## 1995-1996

| DATE | Rainfall-BeitJamal | DATE | Rainfall-BeitMeir | Average | Percentage |
|---|---|---|---|---|---|
| | (mm) | | (mm) | (mm) | % |
| 7.3.96 | 78 | 7.3.96 | 73 | 75.5 | |
| 22.3.96 | 2 | 22.3.96 | 3.5 | 2.75 | |
| 23.3.96 | 16.8 | 23.3.96 | 17 | 16.9 | |
| 24.3.96 | 25.4 | 24.3.96 | 33.7 | 29.55 | |
| 25.3.96 | 16.4 | 25.3.96 | 25.5 | 20.95 | |
| 26.3.96 | 3.7 | 26.3.96 | 6.4 | 5.05 | |
| | | | **Total - 3.96** | **205.0** | **35.9** |
| 12.4.96 | 15.1 | 12.4.96 | 5.3 | 10.2 | |
| 13.4.96 | 14.5 | 13.4.96 | 8.2 | 11.35 | |
| 20.4.96 | 2.9 | 20.4.96 | 2.9 | 2.9 | |
| 21.4.96 | 6 | 21.4.96 | 6 | 6 | |
| | | | **Total - 4.96** | **30.5** | **5.3** |
| | | | **Total - 95/96** | **570.4** | **100.0** |

## APPENDIX - 10

Beit Jamal station

Maximum Annual Rainfall intensities (mm/hr)

| I 5 | | I 10 | | I 15 | | I 20 | | I 30 | | I 50 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 11 57 | 41 | 6 11 57 | 40 | 6 11 57 | 40 | 6 11 57 | 38 | 6 11 57 | 35 | 6 11 57 | 20 |
| 7 1 59 | 27 | 13 2 59 | 7 | 13 2 59 | 6 | 13 2 59 | 6 | 13 2 59 | 4 | 3 11 58 | 0 |
| 24 3 60 | 11 | 24 3 60 | 7 | 24 3 60 | 3 | 21 1 60 | 2 | 21 9 59 | 0 | 21 9 59 | 0 |
| 8 2 61 | 38 | 8 2 61 | 35 | 8 2 61 | 35 | 8 2 61 | 34 | 8 2 61 | 31 | 8 2 61 | 15 |
| 13 12 61 | 31 | 14 12 61 | 17 | 14 12 61 | 15 | 14 12 61 | 14 | 14 12 61 | 14 | 3 11 61 | 0 |
| 11 2 63 | 23 | 11 2 63 | 18 | 11 2 63 | 12 | 11 2 63 | 12 | 11 2 63 | 4 | 10 10 62 | 0 |
| 9 12 63 | 30 | 11 3 64 | 18 | 11 3 64 | 14 | 11 3 64 | 12 | 11 3 64 | 7 | 20 10 63 | 0 |
| 10 12 64 | 44 | 10 12 64 | 42 | 10 12 64 | 36 | 10 12 64 | 32 | 10 12 64 | 18 | 10 12 64 | 12 |
| 22 3 66 | 17 | 22 3 66 | 16 | 5 10 65 | 13 | 5 10 65 | 11 | 5 10 65 | 8 | 5 10 65 | 0 |
| 19 12 66 | 57 | 19 12 66 | 34 | 17 12 66 | 20 | 9 11 66 | 17 | 9 11 66 | 15 | 9 11 66 | 7 |
| 15 1 68 | 35 | 15 1 68 | 19 | 17 10 67 | 15 | 17 10 67 | 15 | 17 10 67 | 13 | 17 10 67 | 13 |
| 7 12 68 | 35 | 7 12 68 | 25 | 7 12 68 | 16 | 3 4 69 | 11 | 3 4 69 | 11 | 25 10 68 | 0 |
| 22 3 70 | 49 | 22 3 70 | 41 | 22 3 70 | 35 | 22 3 70 | 29 | 22 3 70 | 25 | 22 3 70 | 7 |
| 10 1 71 | 20 | 10 1 71 | 15 | 10 1 71 | 10 | 10 1 71 | 6 | 13 4 71 | 3 | 13 10 70 | 0 |
| 28 12 71 | 30 | 28 12 71 | 18 | 29 4 72 | 13 | 29 4 72 | 9 | 29 4 72 | 9 | 29 4 72 | 9 |
| 2 3 73 | 40 | 2 11 72 | 24 | 2 11 72 | 20 | 2 11 72 | 20 | 2 11 72 | 18 | 4 12 72 | 10 |
| 9 1 74 | 92 | 9 1 74 | 56 | 9 1 74 | 34 | 9 1 74 | 29 | 9 1 74 | 12 | 9 1 74 | 5 |
| 5 12 74 | 42 | 5 12 74 | 25 | 1 2 75 | 11 | 24 11 74 | 7 | 1 2 75 | 6 | 22 11 74 | 0 |
| 12 1 76 | 19 | 30 11 75 | 17 | 30 9 75 | 14 | 30 9 75 | 14 | 30 9 75 | 14 | 30 11 75 | 10 |
| 3 3 77 | 32 | 23 4 77 | 18 | 23 4 77 | 14 | 23 4 77 | 8 | 6 2 77 | 4 | 28 10 76 | 0 |
| 17 10 77 | 28 | 17 10 77 | 22 | 17 10 77 | 18 | 24 4 78 | 13 | 11 11 77 | 11 | 24 4 78 | 8 |
| 2 12 78 | 37 | 2 12 78 | 24 | 2 12 78 | 17 | 8 3 79 | 8 | 13 3 79 | 4 | 30 10 78 | 0 |
| 6 12 79 | 48 | 6 12 79 | 38 | 6 12 79 | 31 | 6 12 79 | 28 | 6 12 79 | 24 | 22 10 79 | 7 |
| 31 1 81 | 41 | 31 1 81 | 27 | 31 1 81 | 23 | 31 1 81 | 18 | 31 1 81 | 10 | 30 10 80 | 0 |
| 12 11 81 | 22 | 12 11 81 | 11 | 12 11 81 | 5 | 13 2 82 | 4 | 10 11 81 | 0 | 10 11 81 | 0 |
| 4 3 83 | 77 | 4 3 83 | 51 | 4 3 83 | 32 | 4 3 83 | 18 | 4 3 83 | 7 | 31 12 82 | 0 |

Beit Jamal station

Maximum Annual Rainfall intensities (mm/hr)

| I 5 | | I 10 | | I 15 | | I 20 | | I 30 | | I 50 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 1 84 | 22 | 7 2 84 | 12 | 7 2 84 | 11 | 15 3 84 | 9 | 12 3 84 | 4 | 12 11 83 | 0 |
| 15 2 85 | 33 | 17 10 84 | 16 | 17 10 84 | 16 | 17 10 84 | 16 | 17 10 84 | 16 | 17 10 84 | 5 |
| 9 2 86 | 23 | 9 2 86 | 19 | 9 2 86 | 14 | 9 2 86 | 5 | 18 10 85 | 0 | 18 10 85 | 0 |
| 8 11 86 | 76 | 8 11 86 | 58 | 8 11 86 | 42 | 8 11 86 | 29 | 1 10 86 | 9 | 1 10 86 | 9 |
| 23 12 87 | 38 | 23 12 87 | 29 | 23 12 87 | 16 | 15 1 88 | 11 | 23 12 87 | 6 | 4 12 87 | 0 |
| 15 3 89 | 26 | 20 1 89 | 18 | 20 1 89 | 16 | 28 3 89 | 16 | 28 3 89 | 13 | 28 3 89 | 7 |
| 1 4 90 | 23 | 15 11 89 | 16 | 15 11 89 | 12 | 5 11 89 | 7 | 17 10 89 | 0 | 17 10 89 | 0 |
| 22 3 91 | 37 | 22 3 91 | 24 | 22 3 91 | 13 | 22 3 91 | 8 | 23 3 91 | 7 | 27 10 90 | 0 |
| 1 12 91 | 39 | 3 12 91 | 30 | 3 12 91 | 27 | 3 12 91 | 27 | 3 12 91 | 24 | 3 11 91 | 0 |
| 15 12 92 | 47 | 15 12 92 | 21 | 8 1 93 | 9 | 31 1 93 | 8 | 31 1 93 | 4 | 2 12 92 | 0 |
| 4 1 94 | 22 | 4 1 94 | 14 | 4 1 94 | 14 | 4 1 94 | 14 | 4 1 94 | 14 | 25 11 93 | 0 |
| 16 10 94 | 36 | 16 10 94 | 36 | 16 10 94 | 36 | 16 10 94 | 34 | 16 10 94 | 34 | 16 10 94 | 15 |
| **MEAN** | 36.53 | | 25.21 | | 19.16 | | 15.76 | | 11.53 | | 4.18 |
| **ST.DEV** | 16.81 | | 12.69 | | 10.41 | | 9.71 | | 9.24 | | 5.62 |
| **$K_T$(T=2)** | -0.16 | | -0.16 | | -0.16 | | -0.16 | | -0.16 | | -0.16 |
| **$X_T$(T=2)** | 33.76 | | 23.13 | | 17.45 | | 14.17 | | 10.01 | | 3.26 |
| **$K_T$(T=5)** | 0.72 | | 0.72 | | 0.72 | | 0.72 | | 0.72 | | 0.72 |
| **$X_T$(T=5)** | 48.62 | | 34.34 | | 26.65 | | 22.75 | | 18.18 | | 8.23 |
| **$K_T$(T=10)** | 1.30 | | 1.30 | | 1.30 | | 1.30 | | 1.30 | | 1.30 |
| **$X_T$(T=10)** | 58.46 | | 41.77 | | 32.74 | | 28.43 | | 23.59 | | 11.52 |
| **$K_T$(T=25)** | 2.04 | | 2.04 | | 2.04 | | 2.04 | | 2.04 | | 2.04 |
| **$X_T$(T=25)** | 70.89 | | 51.15 | | 40.44 | | 35.61 | | 30.42 | | 15.68 |
| **$K_T$(T=50)** | 2.59 | | 2.59 | | 2.59 | | 2.59 | | 2.59 | | 2.59 |
| **$X_T$(T=50)** | 80.12 | | 58.11 | | 46.16 | | 40.94 | | 35.49 | | 18.76 |
| **$K_T$(T=100)** | 3.14 | | 3.14 | | 3.14 | | 3.14 | | 3.14 | | 3.14 |
| **$X_T$(T=100)** | 89.27 | | 65.02 | | 51.82 | | 46.22 | | 40.52 | | 21.82 |
| | | | | | | | | | | | |

## Beit Meir station

Maximum Annual Rainfall intensities (mm/hr)

| I 5 | | I 10 | | I 15 | | I 20 | | I 30 | | I 50 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 2 61 | 31 | 8 2 61 | 24 | 8 2 61 | 24 | 8 2 61 | 21 | 17 11 60 | 11 | 5 12 60 | 11 |
| 13 12 61 | 46 | 13 12 61 | 34 | 13 12 61 | 24 | 13 12 61 | 20 | 14 12 61 | 12 | 14 12 61 | 12 |
| 24 2 63 | 11 | 3 12 62 | 8 | 3 12 62 | 8 | 3 12 62 | 8 | 9 10 62 | 0 | 9 10 62 | 0 |
| 9 12 63 | 58 | 9 12 63 | 52 | 9 12 63 | 40 | 9 12 63 | 34 | 9 12 63 | 26 | 1 11 63 | 10 |
| 21 11 64 | 42 | 12 12 64 | 28 | 14 12 64 | 16 | 17 11 64 | 8 | 17 11 64 | 8 | 17 11 64 | 0 |
| 3 2 66 | 27 | 3 2 66 | 23 | 23 12 65 | 13 | 26 2 66 | 7 | 26 2 66 | 7 | 5 10 65 | 0 |
| 19 12 66 | 64 | 27 1 67 | 29 | 27 1 67 | 19 | 16 5 67 | 14 | 16 5 67 | 14 | 24 10 66 | 0 |
| 17 1 68 | 53 | 17 1 68 | 48 | 17 1 68 | 43 | 17 1 68 | 41 | 17 1 68 | 38 | 10 10 67 | 0 |
| 19 3 69 | 44 | 19 3 69 | 37 | 19 3 69 | 27 | 19 3 69 | 21 | 19 3 69 | 12 | 25 11 68 | 0 |
| 22 1 70 | 54 | 22 3 70 | 32 | 10 3 70 | 27 | 10 3 70 | 19 | 21 10 69 | 17 | 21 10 69 | 17 |
| 12 4 71 | 60 | 12 4 71 | 46 | 15 4 71 | 20 | 15 4 71 | 20 | 15 4 71 | 13 | 29 9 70 | 0 |
| 5 12 71 | 24 | 6 2 72 | 16 | 6 2 72 | 16 | 5 12 71 | 15 | 5 12 71 | 15 | 29 4 72 | 15 |
| 12 1 73 | 56 | 12 1 73 | 29 | 12 1 73 | 14 | 4 12 72 | 6 | 26 11 72 | 4 | 3 11 72 | 0 |
| 9 1 74 | 50 | 31 10 73 | 29 | 31 10 73 | 19 | 31 10 73 | 17 | 10 2 74 | 15 | 10 2 74 | 15 |
| 20 2 75 | 43 | 20 2 75 | 34 | 22 11 74 | 16 | 22 11 74 | 11 | 17 11 74 | 0 | 17 11 74 | 0 |
| 23 1 76 | 31 | 23 1 76 | 23 | 23 1 76 | 18 | 23 1 76 | 15 | 30 9 75 | 4 | 30 9 75 | 0 |
| 22 4 77 | 38 | 22 4 77 | 31 | 22 4 77 | 22 | 22 4 77 | 16 | 22 4 77 | 6 | 9 12 76 | 0 |
| 15 12 77 | 37 | 21 12 77 | 27 | 21 12 77 | 27 | 21 12 77 | 20 | 21 12 77 | 20 | 16 10 77 | 8 |
| 8 3 79 | 44 | 8 3 79 | 32 | 31 10 78 | 18 | 31 10 78 | 18 | 31 10 78 | 15 | 31 10 78 | 10 |
| 28 11 79 | 62 | 28 11 79 | 51 | 28 11 79 | 33 | 6 12 79 | 23 | 22 10 79 | 12 | 3 10 79 | 0 |
| 10 12 80 | 45 | 10 12 80 | 24 | 25 3 81 | 16 | 25 3 81 | 16 | 25 3 81 | 13 | 30 10 80 | 7 |
| 14 2 82 | 42 | 18 11 81 | 29 | 18 11 81 | 15 | 14 2 82 | 10 | 14 2 82 | 7 | 12 11 81 | 0 |
| 4 3 83 | 47 | 4 3 83 | 29 | 4 3 83 | 17 | 4 3 83 | 13 | 3 12 82 | 8 | 7 11 82 | 6 |
| 7 2 84 | 47 | 7 2 84 | 37 | 7 2 84 | 30 | 7 2 84 | 24 | 7 2 84 | 18 | 7 2 84 | 10 |
| 1 2 85 | 17 | 17 10 84 | 11 | 4 12 84 | 9 | 4 12 84 | 9 | 1 2 85 | 6 | 14 10 84 | 0 |
| 18 10 85 | 19 | 18 10 85 | 12 | 26 12 85 | 8 | 26 12 85 | 5 | 9 11 85 | 4 | 18 10 85 | 0 |

| I 5 | | I 10 | | I 15 | | I 20 | | I 30 | | I 50 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 10 86 | 24 | 1 10 86 | 23 | 1 10 86 | 19 | 2 10 86 | 14 | 1 10 86 | 11 | 1 10 86 | 0 |
| 21 10 87 | 26 | 21 10 87 | 26 | 21 10 87 | 26 | 21 10 87 | 26 | 21 10 87 | 18 | 21 10 87 | 9 |
| 15 3 89 | 54 | 15 3 89 | 36 | 15 3 89 | 24 | 15 3 89 | 14 | 15 3 89 | 8 | 14 10 88 | 0 |
| 3 1 90 | 52 | 4 1 90 | 23 | 4 1 90 | 17 | 4 1 90 | 14 | 4 1 90 | 11 | 4 1 90 | 7 |
| 5 3 91 | 30 | 5 3 91 | 18 | 8 11 90 | 6 | 8 11 90 | 6 | 8 11 90 | 0 | 8 11 90 | 0 |
| 3 12 91 | 53 | 3 12 91 | 39 | 3 12 91 | 31 | 3 12 91 | 15 | 2 12 91 | 5 | 2 12 91 | 5 |
| 15 12 92 | 40 | 2 12 92 | 17 | 2 12 92 | 17 | 2 12 92 | 14 | 2 12 92 | 11 | 7 11 92 | 0 |
| 4 1 94 | 22 | 4 1 94 | 20 | 26 2 94 | 13 | 26 2 94 | 13 | 25 11 93 | 5 | 4 1 94 | 4 |
| 23 11 94 | 53 | 23 11 94 | 31 | 23 11 94 | 20 | 14 11 94 | 15 | 14 11 94 | 15 | 16 10 94 | 0 |
| 7 3 96 | 54 | 7 3 96 | 38 | 7 3 96 | 25 | 7 3 96 | 16 | 7 3 96 | 9 | 1 11 95 | 0 |
| **MEAN** | 41.67 | | 29.06 | | 20.47 | | 16.06 | | 11.06 | | 4.06 |
| **ST.DEV** | 13.91 | | 10.52 | | 8.34 | | 7.48 | | 7.46 | | 5.43 |
| **$K_T$(T=2)** | -0.16 | | -0.16 | | -0.16 | | -0.16 | | -0.16 | | -0.16 |
| **$X_T$(T=2)** | 39.38 | | 27.33 | | 19.10 | | 14.83 | | 9.83 | | 3.16 |
| **$K_T$(T=5)** | 0.72 | | 0.72 | | 0.72 | | 0.72 | | 0.72 | | 0.72 |
| **$X_T$(T=5)** | 51.68 | | 36.62 | | 26.48 | | 21.43 | | 16.42 | | 7.96 |
| **$K_T$(T=10)** | 1.30 | | 1.30 | | 1.30 | | 1.30 | | 1.30 | | 1.30 |
| **$X_T$(T=10)** | 59.82 | | 42.78 | | 31.36 | | 25.81 | | 20.79 | | 11.14 |
| **$K_T$(T=25)** | 2.04 | | 2.04 | | 2.04 | | 2.04 | | 2.04 | | 2.04 |
| **$X_T$(T=25)** | 70.10 | | 50.56 | | 37.53 | | 31.33 | | 26.30 | | 15.15 |
| **$K_T$(T=50)** | 2.59 | | 2.59 | | 2.59 | | 2.59 | | 2.59 | | 2.59 |
| **$X_T$(T=50)** | 77.73 | | 56.33 | | 42.10 | | 35.43 | | 30.39 | | 18.13 |
| **$K_T$(T=100)** | 3.14 | | 3.14 | | 3.14 | | 3.14 | | 3.14 | | 3.14 |
| **$X_T$(T=100)** | 85.30 | | 62.06 | | 46.65 | | 39.50 | | 34.46 | | 21.09 |

# APPENDIX - 11

## Event # 1 - Rainfall Data- Beit Jamal

## Date:7.11.94

| | Time (hr) | | Intensity | Rainfall | Acum. | Dt | Dt |
|---|---|---|---|---|---|---|---|
| Seg.# | from | to | mm/hr | mm | mm | hr | min |
| 1 | 8.00 | 8.31 | 0.47 | 0.24 | 0.24 | 0.51 | 30.6 |
| 2 | 8.31 | 8.46 | 5.08 | 1.27 | 1.51 | 0.25 | 15 |
| 3 | 8.46 | 9.06 | 3.32 | 1.13 | 2.64 | 0.34 | 20.4 |
| 4 | 9.06 | 9.20 | 27.83 | 6.4 | 9.04 | 0.23 | 13.8 |
| 5 | 9.20 | 9.26 | 3.55 | 0.39 | 9.43 | 0.11 | 6.6 |
| 6 | 9.26 | 9.36 | 22.44 | 3.59 | 13.02 | 0.16 | 9.6 |
| 7 | 9.36 | 10.05 | 0.31 | 0.15 | 13.17 | 0.48 | 28.8 |
| 8 | 10.05 | 10.13 | 3.79 | 0.53 | 13.7 | 0.14 | 8.4 |
| 9 | 10.13 | 10.23 | 5.38 | 0.86 | 14.56 | 0.16 | 9.6 |
| 10 | 10.23 | 10.29 | 5.09 | 0.56 | 15.12 | 0.11 | 6.6 |
| 11 | 10.29 | 10.41 | 0.00 | 0 | 15.12 | 0.20 | 12 |
| 12 | 10.41 | 10.57 | 1.92 | 0.5 | 15.62 | 0.26 | 15.6 |
| 13 | 10.57 | 12.40 | 0.23 | 0.39 | 16.01 | 1.72 | 103.2 |
| 14 | 12.40 | 8.00 | 0.00 | 0 | 16.01 | 19.33 | 1159.8 |

## Event # 2 - Rainfall Data- Beit Jamal
## Date: 18/19.1.96

| | Time | (hr) | Intensity | Rainfall | Acum. | Dt | Dt |
|---|---|---|---|---|---|---|---|
| Seg.# | from | to | mm/hr | mm | mm | hr | min |
| 1 | 18.38 | 18.51 | 3.14 | 0.69 | 0.69 | 0.22 | 13.2 |
| 2 | 18.51 | 19.34 | 0.17 | 0.12 | 0.81 | 0.71 | 42.6 |
| 3 | 19.34 | 19.43 | 1.20 | 0.18 | 0.99 | 0.15 | 9 |
| 4 | 19.43 | 20.02 | 0.09 | 0.03 | 1.02 | 0.33 | 19.8 |
| 5 | 20.02 | 20.13 | 1.50 | 0.27 | 1.29 | 0.18 | 10.8 |
| 6 | 20.13 | 21.07 | 0.23 | 0.21 | 1.5 | 0.90 | 54 |
| 7 | 21.07 | 21.17 | 9.18 | 1.56 | 3.06 | 0.17 | 10.2 |
| 8 | 21.17 | 21.35 | 0.40 | 0.12 | 3.18 | 0.30 | 18 |
| 9 | 21.35 | 21.43 | 7.00 | 0.84 | 4.02 | 0.12 | 7.2 |
| 10 | 21.43 | 22.15 | 0.22 | 0.12 | 4.14 | 0.54 | 32.4 |
| 11 | 22.15 | 22.22 | 12.27 | 1.35 | 5.49 | 0.11 | 6.6 |
| 12 | 22.22 | 22.29 | 18.75 | 2.25 | 7.74 | 0.12 | 7.2 |
| 13 | 22.29 | 22.37 | 15.23 | 1.98 | 9.72 | 0.13 | 7.8 |
| 14 | 22.37 | 22.45 | 3.64 | 0.51 | 10.23 | 0.14 | 8.4 |
| 15 | 22.45 | 23.01 | 0.58 | 0.15 | 10.38 | 0.26 | 15.6 |
| 16 | 23.01 | 23.53 | 0.14 | 0.12 | 10.5 | 0.88 | 52.8 |
| 17 | 23.53 | 1.11 | 0.83 | 1.08 | 11.58 | 1.30 | 78 |
| 18 | 1.11 | 1.17 | 10.20 | 1.02 | 12.6 | 0.10 | 6 |
| 19 | 1.17 | 1.24 | 19.91 | 2.19 | 14.79 | 0.11 | 6.6 |
| 20 | 1.24 | 1.29 | 22.67 | 2.04 | 16.83 | 0.09 | 5.4 |
| 21 | 1.29 | 1.37 | 0.69 | 0.09 | 16.92 | 0.13 | 7.8 |
| 22 | 1.37 | 3.13 | 0.47 | 0.75 | 17.67 | 1.59 | 95.4 |
| 23 | 3.13 | 3.23 | 5.00 | 0.9 | 18.57 | 0.18 | 10.8 |
| 24 | 3.23 | 3.41 | 3.40 | 1.02 | 19.59 | 0.30 | 18 |
| 25 | 3.41 | 3.48 | 10.09 | 1.11 | 20.7 | 0.11 | 6.6 |
| 26 | 3.48 | 3.55 | 4.36 | 0.48 | 21.18 | 0.11 | 6.6 |
| 27 | 3.55 | 4.08 | 8.73 | 1.92 | 23.1 | 0.22 | 13.2 |
| 28 | 4.08 | 4.16 | 10.29 | 1.44 | 24.54 | 0.14 | 8.4 |
| 29 | 4.16 | 4.37 | 1.76 | 0.6 | 25.14 | 0.34 | 20.4 |
| 30 | 4.37 | 4.48 | 4.89 | 0.93 | 26.07 | 0.19 | 11.4 |
| 31 | 4.48 | 5.12 | 0.67 | 0.27 | 26.34 | 0.40 | 24 |
| 32 | 5.12 | 5.19 | 3.82 | 0.42 | 26.76 | 0.11 | 6.6 |
| 33 | 5.19 | 6.13 | 0.56 | 0.51 | 27.27 | 0.91 | 54.6 |
| 34 | 6.13 | 6.25 | 3.32 | 0.63 | 27.9 | 0.19 | 11.4 |
| 35 | 6.25 | 6.33 | 4.29 | 0.6 | 28.5 | 0.14 | 8.4 |
| 36 | 6.33 | 8.00 | 0.21 | 0.3 | 28.8 | 1.45 | 87 |
| 37 | 8.00 | 8.41 | 0.25 | 0.17 | 28.97 | 0.69 | 41.4 |
| 38 | 8.41 | 9.02 | 0.63 | 0.22 | 29.19 | 0.35 | 21 |
| 39 | 9.02 | 9.16 | 2.17 | 0.5 | 29.69 | 0.23 | 13.8 |
| 40 | 9.16 | 9.25 | 1.13 | 0.17 | 29.86 | 0.15 | 9 |
| 41 | 9.25 | 9.34 | 2.43 | 0.34 | 30.2 | 0.14 | 8.4 |
| 42 | 9.34 | 9.59 | 0.00 | 0 | 30.2 | 0.42 | 25.2 |
| 43 | 9.59 | 10.12 | 1.27 | 0.28 | 30.48 | 0.22 | 13.2 |
| 44 | 10.12 | 11.29 | 0.02 | 0.03 | 30.51 | 1.29 | 77.4 |

## Event # 3 - Rainfall Data- Beit Jamal

### Date: 6/7.3.96

| | Time (hr) | | Intensity | Rainfall | Acum. | Dt | Dt |
|---|---|---|---|---|---|---|---|
| Seg.# | from | to | mm/hr | mm | mm | hr | min |
| 1 | 7.30 | 8.00 | 0.00 | 0 | 0 | 0.50 | 30 |
| 2 | 8.00 | 8.11 | 1.89 | 0.36 | 0.36 | 0.19 | 11.4 |
| 3 | 8.11 | 8.18 | 6.55 | 0.72 | 1.08 | 0.11 | 6.6 |
| 4 | 8.18 | 8.37 | 1.94 | 0.6 | 1.68 | 0.31 | 18.6 |
| 5 | 8.37 | 8.47 | 15.83 | 2.85 | 4.53 | 0.18 | 10.8 |
| 6 | 8.47 | 9.01 | 9.14 | 2.01 | 6.54 | 0.22 | 13.2 |
| 7 | 9.01 | 9.20 | 10.03 | 3.21 | 9.75 | 0.32 | 19.2 |
| 8 | 9.20 | 9.37 | 5.25 | 1.47 | 11.22 | 0.28 | 16.8 |
| 9 | 9.37 | 9.47 | 10.33 | 1.86 | 13.08 | 0.18 | 10.8 |
| 10 | 9.47 | 9.58 | 11.50 | 2.07 | 15.15 | 0.18 | 10.8 |
| 11 | 9.58 | 10.16 | 6.00 | 1.8 | 16.95 | 0.30 | 18 |
| 12 | 10.16 | 10.24 | 19.62 | 2.55 | 19.5 | 0.13 | 7.8 |
| 13 | 10.24 | 10.35 | 11.67 | 2.1 | 21.6 | 0.18 | 10.8 |
| 14 | 10.35 | 10.47 | 10.80 | 2.16 | 23.76 | 0.20 | 12 |
| 15 | 10.47 | 10.55 | 58.08 | 7.55 | 31.31 | 0.13 | 7.8 |
| 16 | 10.55 | 11.05 | 12.17 | 2.19 | 33.5 | 0.18 | 10.8 |
| 17 | 11.05 | 12.09 | 0.20 | 0.21 | 33.71 | 1.06 | 63.6 |
| 18 | 12.09 | 12.18 | 3.00 | 0.45 | 34.16 | 0.15 | 9 |
| 19 | 12.18 | 12.28 | 1.69 | 0.27 | 34.43 | 0.16 | 9.6 |
| 20 | 12.28 | 12.37 | 17.60 | 2.64 | 37.07 | 0.15 | 9 |
| 21 | 12.37 | 13.05 | 0.51 | 0.24 | 37.31 | 0.47 | 28.2 |
| 22 | 13.05 | 13.12 | 13.75 | 1.65 | 38.96 | 0.12 | 7.2 |
| 23 | 13.12 | 13.27 | 13.80 | 3.45 | 42.41 | 0.25 | 15 |
| 24 | 13.27 | 13.55 | 0.98 | 0.45 | 42.86 | 0.46 | 27.6 |
| 25 | 13.55 | 14.02 | 7.00 | 0.84 | 43.7 | 0.12 | 7.2 |
| 26 | 14.02 | 14.20 | 0.70 | 0.21 | 43.91 | 0.30 | 18 |
| 27 | 14.20 | 14.28 | 13.71 | 1.92 | 45.83 | 0.14 | 8.4 |
| 28 | 14.28 | 14.42 | 3.39 | 0.78 | 46.61 | 0.23 | 13.8 |
| 29 | 14.42 | 14.48 | 7.80 | 0.78 | 47.39 | 0.10 | 6 |
| 30 | 14.48 | 14.54 | 15.90 | 1.59 | 48.98 | 0.10 | 6 |
| 31 | 14.54 | 15.05 | 4.00 | 0.72 | 49.7 | 0.18 | 10.8 |
| 32 | 15.05 | 15.12 | 18.75 | 2.25 | 51.95 | 0.12 | 7.2 |
| 33 | 15.12 | 15.26 | 2.63 | 0.63 | 52.58 | 0.24 | 14.4 |
| 34 | 15.26 | 15.36 | 20.81 | 3.33 | 55.91 | 0.16 | 9.6 |
| 35 | 15.36 | 15.44 | 5.08 | 0.66 | 56.57 | 0.13 | 7.8 |
| 36 | 15.44 | 15.49 | 9.33 | 0.84 | 57.41 | 0.09 | 5.4 |
| 37 | 15.49 | 16.06 | 10.39 | 2.91 | 60.32 | 0.28 | 16.8 |
| 38 | 16.06 | 16.16 | 10.31 | 1.65 | 61.97 | 0.16 | 9.6 |
| 39 | 16.16 | 16.23 | 6.75 | 0.81 | 62.78 | 0.12 | 7.2 |
| 40 | 16.23 | 18.38 | 0.00 | 0 | 62.78 | 2.26 | 135.6 |
| 41 | 18.38 | 18.50 | 3.79 | 0.72 | 63.5 | 0.19 | 11.4 |

| | Time (hr) | | Intensity | Rainfall | Acum. | Dt | Dt |
|---|---|---|---|---|---|---|---|
| Seg.# | from | to | mm/hr | mm | mm | hr | min |
| 42 | 18.50 | 19.00 | 7.24 | 1.23 | 64.73 | 0.17 | 10.2 |
| 43 | 19.00 | 19.05 | 10.67 | 0.96 | 65.69 | 0.09 | 5.4 |
| 44 | 19.05 | 19.11 | 8.70 | 0.87 | 66.56 | 0.10 | 6 |
| 45 | 19.11 | 19.22 | 1.41 | 0.24 | 66.8 | 0.17 | 10.2 |
| 46 | 19.22 | 19.32 | 2.83 | 0.51 | 67.31 | 0.18 | 10.8 |
| 47 | 19.32 | 19.43 | 1.50 | 0.27 | 67.58 | 0.18 | 10.8 |
| 48 | 19.43 | 19.53 | 4.31 | 0.69 | 68.27 | 0.16 | 9.6 |
| 49 | 19.53 | 20.01 | 7.71 | 1.08 | 69.35 | 0.14 | 8.4 |
| 50 | 20.01 | 20.56 | 0.26 | 0.24 | 69.59 | 0.92 | 55.2 |
| 51 | 20.56 | 21.06 | 18.19 | 2.91 | 72.5 | 0.16 | 9.6 |
| 52 | 21.06 | 21.23 | 0.64 | 0.18 | 72.68 | 0.28 | 16.8 |
| 53 | 21.23 | 21.29 | 5.70 | 0.57 | 73.25 | 0.10 | '6 |
| 54 | 21.29 | 22.04 | 0.46 | 0.27 | 73.52 | 0.59 | 35.4 |
| 55 | 22.04 | 22.16 | 11.05 | 2.1 | 75.62 | 0.19 | 11.4 |
| 56 | 22.16 | 23.05 | 0.33 | 0.27 | 75.89 | 0.83 | 49.8 |
| 57 | 23.05 | 23.23 | 1.14 | 0.33 | 76.22 | 0.29 | 17.4 |
| 58 | 23.23 | 23.41 | 0.48 | 0.15 | 76.37 | 0.31 | 18.6 |
| 59 | 23.41 | 23.47 | 3.30 | 0.33 | 76.7 | 0.10 | 6 |

## Event # 4 - Rainfall Data- Beit Jamal
## Date:5/6.1.96

| | Time (hr) | | Intensity | Rainfall | Acum. | Dt | |
|---|---|---|---|---|---|---|---|
| Seg.# | from | to | mm/hr | mm | mm | hr | min |
| 1 | 23.15 | 23.35 | 0.00 | 0 | 0 | 0.34 | 20.4 |
| 2 | 23.35 | 23.46 | 3.12 | 0.53 | 0.53 | 0.17 | 10.2 |
| 3 | 23.46 | 23.51 | 8.56 | 0.77 | 1.3 | 0.09 | 5.4 |
| 4 | 23.51 | 24.09 | 0.20 | 0.06 | 1.36 | 0.30 | 18 |
| 5 | 24.09 | 24.17 | 3.36 | 0.47 | 1.83 | 0.14 | 8.4 |
| 6 | 24.17 | 24.55 | 0.24 | 0.15 | 1.98 | 0.62 | 37.2 |
| 7 | 24.55 | 1.53 | 2.26 | 2.21 | 4.19 | 0.98 | 58.8 |
| 8 | 1.53 | 2.06 | 4.55 | 1 | 5.19 | 0.22 | 13.2 |
| 9 | 2.06 | 2.29 | 0.74 | 0.29 | 5.48 | 0.39 | 23.4 |
| 10 | 2.29 | 2.34 | 11.38 | 0.91 | 6.39 | 0.08 | '4.8 |
| 11 | 2.34 | 2.41 | 4.00 | 0.44 | 6.83 | 0.11 | 6.6 |
| 12 | 2.41 | 2.52 | 23.89 | 4.3 | 11.13 | 0.18 | 10.8 |
| 13 | 2.52 | 3.04 | 4.33 | 0.91 | 12.04 | 0.21 | 12.6 |
| 14 | 3.04 | 3.15 | 14.72 | 2.65 | 14.69 | 0.18 | 10.8 |
| 15 | 3.15 | 3.22 | 0.75 | 0.09 | 14.78 | 0.12 | 7.2 |
| 16 | 3.22 | 3.31 | 12.73 | 1.91 | 16.69 | 0.15 | 9 |
| 17 | 3.31 | 5.05 | 0.04 | 0.06 | 16.75 | 1.57 | 94.2 |
| 18 | 5.05 | 5.20 | 4.60 | 1.15 | 17.9 | 0.25 | 15 |
| 19 | 5.20 | 5.37 | 1.52 | 0.41 | 18.31 | 0.27 | 16.2 |
| 20 | 5.37 | 5.47 | 2.76 | 0.47 | 18.78 | 0.17 | 10.2 |
| 21 | 5.47 | 5.56 | 7.27 | 1.09 | 19.87 | 0.15 | 9 |
| 22 | 5.56 | 6.09 | 1.73 | 0.38 | 20.25 | 0.22 | 13.2 |
| 23 | 6.09 | 6.17 | 7.79 | 1.09 | 21.34 | 0.14 | 8.4 |
| 24 | 6.17 | 6.32 | 5.42 | 1.3 | 22.64 | 0.24 | 14.4 |
| 25 | 6.32 | 6.47 | 8.36 | 2.09 | 24.73 | 0.25 | 15 |
| 26 | 6.47 | 6.56 | 6.07 | 0.91 | 25.64 | 0.15 | 9 |
| 27 | 6.56 | 7.08 | 2.24 | 0.47 | 26.11 | 0.21 | 12.6 |
| 28 | 7.08 | 7.30 | 0.00 | 0 | 26.11 | 0.36 | 21.6 |
| 29 | 7.30 | 7.41 | 0.95 | 0.18 | 26.29 | 0.19 | 11.4 |
| 30 | 7.41 | 8.00 | 0.00 | 0 | 26.29 | 0.31 | 18.6 |

# APPENDIX -12

## Event # 1 - Runoff Data

| Date | Time | Dt | Dt | Runoff | Sewage | D. Runoff | Area |
|---|---|---|---|---|---|---|---|
| | | (min) | (min) | ($m^3$/sec) | ($m^3$/sec) | ($m^3$/sec) | ($m^3$) |
| 07/11/94 | 3:53 | 0 | 0 | 0.02 | 0.02 | 0 | 0.0 |
| 07/11/94 | 7:00 | 187 | 11220 | 0.02 | 0.02 | 0 | 0.0 |
| 07/11/94 | 16:08 | 548 | 32880 | 0.02 | 0.02 | 0 | 0.0 |
| 07/11/94 | 16:17 | 9 | 540 | 0.02 | 0.02 | 0 | 0.0 |
| 07/11/94 | 16:26 | 9 | 540 | 0.04 | 0.02 | 0.02 | 5.4 |
| 07/11/94 | 16:43 | 17 | 1020 | 0.065 | 0.02 | 0.045 | 33.2 |
| 07/11/94 | 16:53 | 10 | 600 | 0.095 | 0.02 | 0.075 | 36.0 |
| 07/11/94 | 17:00 | 7 | 420 | 0.11 | 0.02 | 0.09 | 34.7 |
| 07/11/94 | 17:59 | 59 | 3540 | 0.095 | 0.02 | 0.075 | 292.1 |
| 07/11/94 | 19:49 | 110 | 6600 | 0.04 | 0.02 | 0.02 | 313.5 |
| 07/11/94 | 21:03 | 74 | 4440 | 0.03 | 0.02 | 0.01 | 66.6 |
| 07/11/94 | 22:32 | 89 | 5340 | 0.02 | 0.02 | 0 | 26.7 |
| 07/11/94 | 22:55 | 23 | 1380 | 0.02 | 0.02 | 0 | 0.0 |
| | | 1142 | 68520 | | | **Vd** | **808.1** |
| | | | | | | **rd** | **0.0048** |

## Event # 2 - Runoff Data

| Date | Time | Dt | Dt | Runoff | Sewage | D. Runoff | Area |
|---|---|---|---|---|---|---|---|
| | | (min) | (min) | ($m^3$/sec) | ($m^3$/sec) | ($m^3$/sec) | ($m^3$) |
| 19/01/96 | 0:16 | 0 | 0 | 0.095 | 0.095 | 0 | 0.0 |
| 19/01/96 | 2:01 | 105 | 6300 | 0.095 | 0.095 | 0 | 0.0 |
| 19/01/96 | 5:02 | 181 | 10860 | 0.095 | 0.095 | 0 | 0.0 |
| 19/01/96 | 5:43 | 41 | 2460 | 0.11 | 0.095 | 0.015 | 18.5 |
| 19/01/96 | 6:36 | 53 | 3180 | 0.11 | 0.095 | 0.015 | 47.7 |
| 19/01/96 | 7:09 | 33 | 1980 | 0.14 | 0.095 | 0.045 | 59.4 |
| 19/01/96 | 7:50 | 41 | 2460 | 0.17 | 0.095 | 0.075 | 147.6 |
| 19/01/96 | 8:17 | 27 | 1620 | 0.22 | 0.095 | 0.125 | 162.0 |
| 19/01/96 | 8:45 | 28 | 1680 | 0.28 | 0.095 | 0.185 | , 260.4 |
| 19/01/96 | 9:02 | 17 | 1020 | 0.3 | 0.095 | 0.205 | 198.9 |
| 19/01/96 | 9:17 | 15 | 900 | 0.3 | 0.095 | 0.205 | 184.5 |
| 19/01/96 | 9:33 | 16 | 960 | 0.32 | 0.095 | 0.225 | 206.4 |
| 19/01/96 | 9:49 | 16 | 960 | 0.32 | 0.095 | 0.225 | 216.0 |
| 19/01/96 | 10:19 | 30 | 1800 | 0.34 | 0.095 | 0.245 | 423.0 |
| 19/01/96 | 11:18 | 59 | 3540 | 0.32 | 0.095 | 0.225 | 831.9 |
| 19/01/96 | 11:46 | 28 | 1680 | 0.3 | 0.095 | 0.205 | 361.2 |
| 19/01/96 | 12:35 | 49 | 2940 | 0.26 | 0.095 | 0.165 | 543.9 |
| 19/01/96 | 13:37 | 62 | 3720 | 0.19 | 0.095 | 0.095 | 483.6 |
| 19/01/96 | 14:49 | 72 | 4320 | 0.16 | 0.095 | 0.065 | 345.6 |
| 19/01/96 | 16:54 | 125 | 7500 | 0.14 | 0.095 | 0.045 | 412.5 |
| 19/01/96 | 18:44 | 110 | 6600 | 0.13 | 0.095 | 0.035 | 264.0 |
| 19/01/96 | 19:09 | 25 | 1500 | 0.14 | 0.095 | 0.045 | 60.0 |
| 19/01/96 | 20:03 | 54 | 3240 | 0.16 | 0.095 | 0.065 | 178.2 |
| 19/01/96 | 21:09 | 66 | 3960 | 0.14 | 0.095 | 0.045 | 217.8 |
| 19/01/96 | 22:37 | 88 | 5280 | 0.11 | 0.095 | 0.015 | 158.4 |
| 19/01/96 | 23:57 | 80 | 4800 | 0.095 | 0.095 | 0 | 36.0 |
| | | 1421 | 85260 | | | **Vd** | **5817.5** |
| | | | | | | **rd** | **0.0348** |

## Event # 3 - Runoff Data

| Date | Time | Dt | Dt | Runoff | Sewage | D. Runoff | Area |
|---|---|---|---|---|---|---|---|
| | | (min) | (min) | ($m^3$/sec) | ($m^3$/sec) | ($m^3$/sec) | ($m^3$) |
| 07/03/96 | 0:01 | 0:00 | 0.0 | 0.08 | 0.08 | 0 | 0.0 |
| 07/03/96 | 5:10 | 5:09 | 309.0 | 0.08 | 0.08 | 0 | 0.0 |
| 07/03/96 | 6:02 | 0:52 | 52.0 | 0.08 | 0.08 | 0 | 0.0 |
| 07/03/96 | 6:10 | 0:08 | 8.0 | 0.08 | 0.08 | 0 | 0.0 |
| 07/03/96 | 6:55 | 0:45 | 45.0 | 0.08 | 0.08 | 0 | 0.0 |
| 07/03/96 | 7:18 | 0:23 | 23.0 | 0.08 | 0.08 | 0 | 0.0 |
| 07/03/96 | 11:18 | 4:00 | 240.0 | 0.08 | 0.08 | 0 | 0.0 |
| 07/03/96 | 12:19 | 1:01 | 61.0 | 0.08 | 0.08 | 0 | 0.0 |
| 07/03/96 | 13:19 | 1:00 | 60.0 | 0.16 | 0.08 | 0.08 | 144.0 |
| 07/03/96 | 14:27 | 1:08 | 68.0 | 0.24 | 0.08 | 0.16 | 489.6 |
| 07/03/96 | 14:42 | 0:15 | 15.0 | 0.36 | 0.08 | 0.28 | 198.0 |
| 07/03/96 | 15:05 | 0:23 | 23.0 | 0.44 | 0.08 | 0.36 | 441.6 |
| 07/03/96 | 15:27 | 0:22 | 22.0 | 0.48 | 0.08 | 0.4 | 501.6 |
| 07/03/96 | 15:57 | 0:30 | 30.0 | 0.46 | 0.08 | 0.38 | 702.0 |
| 07/03/96 | 16:43 | 0:46 | 46.0 | 0.44 | 0.08 | 0.36 | 1021.2 |
| 07/03/96 | 17:05 | 0:22 | 22.0 | 0.52 | 0.08 | 0.44 | 528.0 |
| 07/03/96 | 17:20 | 0:15 | 15.0 | 0.72 | 0.08 | 0.64 | 486.0 |
| 07/03/96 | 17:28 | 0:08 | 8.0 | 0.92 | 0.08 | 0.84 | 355.2 |
| 07/03/96 | 17:43 | 0:15 | 15.0 | 1.36 | 0.08 | 1.28 | 954.0 |
| 07/03/96 | 18:06 | 0:23 | 23.0 | 1.42 | 0.08 | 1.34 | 1807.8 |
| 07/03/96 | 18:43 | 0:37 | 37.0 | 1 | 0.08 | 0.92 | 2508.6 |
| 07/03/96 | 19:21 | 0:38 | 38.0 | 1.48 | 0.08 | 1.4 | 2644.8 |
| 07/03/96 | 20:07 | 0:46 | 46.0 | 2.32 | 0.08 | 2.24 | 5023.2 |
| 07/03/96 | 20:44 | 0:37 | 37.0 | 3.43 | 0.08 | 3.35 | 6204.9 |
| 07/03/96 | 21:07 | 0:23 | 23.0 | 4.48 | 0.08 | 4.4 | 5347.5 |
| 07/03/96 | 21:30 | 0:23 | 23.0 | 5.19 | 0.08 | 5.11 | 6561.9 |
| 07/03/96 | 22:30 | 1:00 | 60.0 | 5.19 | 0.08 | 5.11 | 18396.0 |
| 07/03/96 | 22:38 | 0:08 | 8.0 | 8.84 | 0.08 | 8.76 | 3328.8 |
| 07/03/96 | 23:08 | 0:30 | 30.0 | 13 | 0.08 | 12.92 | 19512.0 |
| 07/03/96 | 23:30 | 0:22 | 22.0 | 8.32 | 0.08 | 8.24 | 13965.6 |
| 07/03/96 | 23:38 | 0:08 | 8.0 | 6.64 | 0.08 | 6.56 | 3552.0 |
| 08/03/96 | 0:00 | 0:00 | 22.0 | 2.8 | 0.08 | 2.72 | 6124.8 |
| 08/03/96 | 1:00 | 1:00 | 60.0 | 2.08 | 0.08 | 2 | 8496.0 |
| 08/03/96 | 2:15 | 1:15 | 75.0 | 1.3 | 0.08 | 1.22 | 7245.0 |
| 08/03/96 | 2:44 | 0:29 | 29.0 | 0.92 | 0.08 | 0.84 | 1792.2 |
| 08/03/96 | 3:44 | 1:00 | 60.0 | 0.64 | 0.08 | 0.56 | 2520.0 |
| 08/03/96 | 5:36 | 1:52 | 112.0 | 0.46 | 0.08 | 0.38 | 3158.4 |
| 08/03/96 | 7:58 | 2:22 | 142.0 | 0.32 | 0.08 | 0.24 | 2641.2 |
| 08/03/96 | 11:05 | 3:07 | 187.0 | 0.19 | 0.08 | 0.11 | 1963.5 |
| 08/03/96 | 15:12 | 4:07 | 247.0 | 0.11 | 0.08 | 0.03 | 1037.4 |
| 08/03/96 | 23:03 | 7:51 | 471.0 | 0.08 | 0.08 | 0 | 423.9 |
| | | | | | | **Vd** | **130076.7** |
| | | | | | | **rd** | **0.7789** |

## Event # 4 - Runoff Data

| Date | Time | Dt | Dt | Runoff | Sewage | D. Runoff | Area |
|---|---|---|---|---|---|---|---|
| | | (min) | (min) | ($m^3$/sec) | ($m^3$/sec) | ($m^3$/sec) | ($m^3$) |
| 06/01/96 | 7:37 | 0:00 | 0.0 | 0.065 | 0.065 | 0 | 0.0 |
| 06/01/96 | 8:00 | 0:23 | 23.0 | 0.08 | 0.065 | 0.015 | 10.4 |
| 06/01/96 | 8:24 | 0:24 | 24.0 | 0.095 | 0.065 | 0.03 | 32.4 |
| 06/01/96 | 9:23 | 0:59 | 59.0 | 0.095 | 0.065 | 0.03 | 106.2 |
| 06/01/96 | 11:01 | 1:38 | 98.0 | 0.095 | 0.065 | 0.03 | 176.4 |
| 06/01/96 | 12:03 | 1:02 | 62.0 | 0.13 | 0.065 | 0.065 | 176.7 |
| 06/01/96 | 12:18 | 0:15 | 15.0 | 0.13 | 0.065 | 0.065 | 58.5 |
| 06/01/96 | 12:57 | 0:39 | 39.0 | 0.16 | 0.065 | 0.095 | 187.2 |
| 06/01/96 | 13:43 | 0:46 | 46.0 | 0.16 | 0.065 | 0.095 | 262.2 |
| 06/01/96 | 14:14 | 0:31 | 31.0 | 0.19 | 0.065 | 0.125 | 204.6 |
| 06/01/96 | 14:59 | 0:45 | 45.0 | 0.17 | 0.065 | 0.105 | 310.5 |
| 06/01/96 | 15:27 | 0:28 | 28.0 | 0.14 | 0.065 | 0.075 | 151.2 |
| 06/01/96 | 16:18 | 0:51 | 51.0 | 0.13 | 0.065 | 0.065 | 214.2 |
| 06/01/96 | 16:54 | 0:36 | 36.0 | 0.095 | 0.065 | 0.03 | 102.6 |
| 06/01/96 | 19:08 | 2:14 | 134.0 | 0.08 | 0.065 | 0.015 | 180.9 |
| 06/01/96 | 20:07 | 0:59 | 59.0 | 0.065 | 0.065 | 0 | 26.6 |
| 06/01/96 | 21:07 | 1:00 | 60.0 | 0.065 | 0.065 | 0 | 0.0 |
| 06/01/96 | 23:52 | 2:45 | 165.0 | 0.065 | 0.065 | 0 | 0.0 |
| | | | | | | **Vd** | **2200.5** |
| | | | | | | **rd** | **0.0132** |

# APPENDIX - 13

## Event # 1 - Rainfall Intensities- Beit Jamal

## Date:7.11.94

| | Time (hr) | | Intensity | Rainfall | Acum. | Dt | Dt |
|---|---|---|---|---|---|---|---|
| Seg.# | from | to | mm/hr | mm | mm | hr | min |
| 1 | 8.00 | 8.31 | 0.47 | 0.24 | 0.24 | 0.51 | 30.6 |
| 2 | 8.31 | 8.46 | 5.08 | 1.27 | 1.51 | 0.25 | 15 |
| 3 | 8.46 | 9.06 | 3.32 | 1.13 | 2.64 | 0.34 | 20.4 |
| | | | | | | **1.10** | |
| | | | | | **2.4** | **I =** | **2.182** |
| 4 | 9.06 | 9.20 | 27.83 | 6.4 | 9.04 | 0.23 | 13.8 |
| | | | | | | **0.23** | |
| | | | | | **6.4** | **I =** | **27.826** |
| 5 | 9.20 | 9.26 | 3.55 | 0.39 | 9.43 | 0.11 | 6.6 |
| 6 | 9.26 | 9.36 | 22.44 | 3.59 | 13.02 | 0.16 | 9.6 |
| | | | | | | **0.27** | |
| | | | | | **3.98** | **I =** | **14.741** |
| 7 | 9.36 | 10.05 | 0.31 | 0.15 | 13.17 | 0.48 | 28.8 |
| 8 | 10.05 | 10.13 | 3.79 | 0.53 | 13.7 | 0.14 | 8.4 |
| 9 | 10.13 | 10.23 | 5.38 | 0.86 | 14.56 | 0.16 | 9.6 |
| 10 | 10.23 | 10.29 | 5.09 | 0.56 | 15.12 | 0.11 | 6.6 |
| | | | | | | **0.89** | |
| | | | | | **2.1** | **I =** | **2.360** |
| 11 | 10.29 | 10.41 | 0.00 | 0 | 15.12 | 0.20 | 12 |
| 12 | 10.41 | 10.57 | 1.92 | 0.5 | 15.62 | 0.26 | 15.6 |
| 13 | 10.57 | 12.40 | 0.23 | 0.39 | 16.01 | 1.72 | 103.2 |
| | | | | | | **2.18** | |
| | | | | | **0.89** | **I =** | **0.408** |
| | | | | | **Total** | **Dt:** | **4.67** |

## Event # 2 - Rainfall Intensities- Beit Jamal
## Date: 18/19.1.96

| | Time (hr) | | Intensity | Rainfall | Acum. | Dt | Dt |
|---|---|---|---|---|---|---|---|
| Seg.# | from | to | mm/hr | mm | mm | hr | min |
| 1 | 18.38 | 18.51 | 3.14 | 0.69 | 0.69 | 0.22 | 13.2 |
| 2 | 18.51 | 19.34 | 0.17 | 0.12 | 0.81 | 0.71 | 42.6 |
| 3 | 19.34 | 19.43 | 1.20 | 0.18 | 0.99 | 0.15 | 9 |
| 4 | 19.43 | 20.02 | 0.09 | 0.03 | 1.02 | 0.33 | 19.8 |
| 5 | 20.02 | 20.13 | 1.50 | 0.27 | 1.29 | 0.18 | 10.8 |
| 6 | 20.13 | 21.07 | 0.23 | 0.21 | 1.5 | 0.90 | 54 |
| 7 | 21.07 | 21.17 | 9.18 | 1.56 | 3.06 | 0.17 | 10.2 |
| 8 | 21.17 | 21.35 | 0.40 | 0.12 | 3.18 | 0.30 | 18 |
| 9 | 21.35 | 21.43 | 7.00 | 0.84 | 4.02 | 0.12 | 7.2 |
| 10 | 21.43 | 22.15 | 0.22 | 0.12 | 4.14 | 0.54 | 32.4 |
| | | | | | | **3.62** | |
| | | | | | **4.14** | **I =** | **1.144** |
| 11 | 22.15 | 22.22 | 12.27 | 1.35 | 5.49 | 0.11 | 6.6 |
| 12 | 22.22 | 22.29 | 18.75 | 2.25 | 7.74 | 0.12 | 7.2 |
| 13 | 22.29 | 22.37 | 15.23 | 1.98 | 9.72 | 0.13 | 7.8 |
| | | | | | | **0.36** | |
| | | | | | **5.58** | **I =** | **15.500** |
| 14 | 22.37 | 22.45 | 3.64 | 0.51 | 10.23 | 0.14 | 8.4 |
| 15 | 22.45 | 23.01 | 0.58 | 0.15 | 10.38 | 0.26 | 15.6 |
| 16 | 23.01 | 23.53 | 0.14 | 0.12 | 10.5 | 0.88 | 52.8 |
| 17 | 23.53 | 1.11 | 0.83 | 1.08 | 11.58 | 1.30 | 78 |
| | | | | | | **2.58** | |
| | | | | | **1.86** | **I =** | **0.721** |
| 18 | 1.11 | 1.17 | 10.20 | 1.02 | 12.6 | 0.10 | 6 |
| 19 | 1.17 | 1.24 | 19.91 | 2.19 | 14.79 | 0.11 | 6.6 |
| 20 | 1.24 | 1.29 | 22.67 | 2.04 | 16.83 | 0.09 | 5.4 |
| | | | | | | **0.30** | |
| | | | | | **5.25** | **I =** | **17.500** |
| 21 | 1.29 | 1.37 | 0.69 | 0.09 | 16.92 | 0.13 | 7.8 |
| 22 | 1.37 | 3.13 | 0.47 | 0.75 | 17.67 | 1.59 | 95.4 |
| 23 | 3.13 | 3.23 | 5.00 | 0.9 | 18.57 | 0.18 | 10.8 |
| 24 | 3.23 | 3.41 | 3.40 | 1.02 | 19.59 | 0.30 | 18 |
| 25 | 3.41 | 3.48 | 10.09 | 1.11 | 20.7 | 0.11 | 6.6 |
| 26 | 3.48 | 3.55 | 4.36 | 0.48 | 21.18 | 0.11 | 6.6 |
| 27 | 3.55 | 4.08 | 8.73 | 1.92 | 23.1 | 0.22 | 13.2 |
| 28 | 4.08 | 4.16 | 10.29 | 1.44 | 24.54 | 0.14 | 8.4 |
| | | | | | | **2.78** | |
| | | | | | **7.71** | **I =** | **2.773** |
| 29 | 4.16 | 4.37 | 1.76 | 0.6 | 25.14 | 0.34 | 20.4 |
| 30 | 4.37 | 4.48 | 4.89 | 0.93 | 26.07 | 0.19 | 11.4 |
| 31 | 4.48 | 5.12 | 0.67 | 0.27 | 26.34 | 0.40 | 24 |
| 32 | 5.12 | 5.19 | 3.82 | 0.42 | 26.76 | 0.11 | 6.6 |
| 33 | 5.19 | 6.13 | 0.56 | 0.51 | 27.27 | 0.91 | 54.6 |

| | Time (hr) | | Intensity | Rainfall | Acum. | Dt | Dt |
|---|---|---|---|---|---|---|---|
| Seg.# | from | to | mm/hr | mm | mm | hr | min |
| 34 | 6.13 | 6.25 | 3.32 | 0.63 | 27.9 | 0.19 | 11.4 |
| 35 | 6.25 | 6.33 | 4.29 | 0.6 | 28.5 | 0.14 | 8.4 |
| 36 | 6.33 | 8.00 | 0.21 | 0.3 | 28.8 | 1.45 | 87 |
| 37 | 8.00 | 8.41 | 0.25 | 0.17 | 28.97 | 0.69 | 41.4 |
| 38 | 8.41 | 9.02 | 0.63 | 0.22 | 29.19 | 0.35 | 21 |
| 39 | 9.02 | 9.16 | 2.17 | 0.5 | 29.69 | 0.23 | 13.8 |
| 40 | 9.16 | 9.25 | 1.13 | 0.17 | 29.86 | 0.15 | 9 |
| 41 | 9.25 | 9.34 | 2.43 | 0.34 | 30.2 | 0.14 | 8.4 |
| 42 | 9.34 | 9.59 | 0.00 | 0 | 30.2 | 0.42 | 25.2 |
| 43 | 9.59 | 10.12 | 1.27 | 0.28 | 30.48 | 0.22 | 13.2 |
| 44 | 10.12 | 11.29 | 0.02 | 0.03 | 30.51 | 1.29 | 77.4 |
| | | | | | | 7.22 | |
| | | | | | 5.97 | I = | 0.827 |
| | | | | | Total | Dt: | 16.86 |

## Event # 3 - Rainfall Data- Beit Jamal

### Date:7.3.96

| | Time (hr) | | Intensity | Rainfall | Acum. | Dt | Dt |
|---|---|---|---|---|---|---|---|
| Seg.# | from | to | mm/hr | mm | mm | hr | min |
| 1 | 7.30 | 8.00 | 0.00 | 0 | 0 | 0.50 | 30 |
| 2 | 8.00 | 8.11 | 1.89 | 0.36 | 0.36 | 0.19 | 11.4 |
| 3 | 8.11 | 8.18 | 6.55 | 0.72 | 1.08 | 0.11 | 6.6 |
| 4 | 8.18 | 8.37 | 1.94 | 0.6 | 1.68 | 0.31 | 18.6 |
| | | | | | | **1.11** | |
| | | | | | **1.68** | **I =** | **1.514** |
| 5 | 8.37 | 8.47 | 15.83 | 2.85 | 4.53 | 0.18 | 10.8 |
| 6 | 8.47 | 9.01 | 9.14 | 2.01 | 6.54 | 0.22 | 13.2 |
| 7 | 9.01 | 9.20 | 10.03 | 3.21 | 9.75 | 0.32 | 19.2 |
| 8 | 9.20 | 9.37 | 5.25 | 1.47 | 11.22 | 0.28 | 16.8 |
| 9 | 9.37 | 9.47 | 10.33 | 1.86 | 13.08 | 0.18 | 10.8 |
| 10 | 9.47 | 9.58 | 11.50 | 2.07 | 15.15 | 0.18 | 10.8 |
| 11 | 9.58 | 10.16 | 6.00 | 1.8 | 16.95 | 0.30 | 18 |
| 12 | 10.16 | 10.24 | 19.62 | 2.55 | 19.5 | 0.13 | 7.8 |
| 13 | 10.24 | 10.35 | 11.67 | 2.1 | 21.6 | 0.18 | 10.8 |
| 14 | 10.35 | 10.47 | 10.80 | 2.16 | 23.76 | 0.20 | 12 |
| 15 | 10.47 | 10.55 | 58.08 | 7.55 | 31.31 | 0.13 | 7.8 |
| 16 | 10.55 | 11.05 | 12.17 | 2.19 | 33.5 | 0.18 | 10.8 |
| 17 | 11.05 | 12.09 | 0.20 | 0.21 | 33.71 | 1.06 | 63.6 |
| 18 | 12.09 | 12.18 | 3.00 | 0.45 | 34.16 | 0.15 | 9 |
| 19 | 12.18 | 12.28 | 1.69 | 0.27 | 34.43 | 0.16 | 9.6 |
| 20 | 12.28 | 12.37 | 17.60 | 2.64 | 37.07 | 0.15 | 9 |
| 21 | 12.37 | 13.05 | 0.51 | 0.24 | 37.31 | 0.47 | 28.2 |
| 22 | 13.05 | 13.12 | 13.75 | 1.65 | 38.96 | 0.12 | 7.2 |
| 23 | 13.12 | 13.27 | 13.80 | 3.45 | 42.41 | 0.25 | 15 |
| | | | | | | **4.84** | |
| | | | | | **40.73** | **I =** | **8.415** |
| 24 | 13.27 | 13.55 | 0.98 | 0.45 | 42.86 | 0.46 | 27.6 |
| 25 | 13.55 | 14.02 | 7.00 | 0.84 | 43.7 | 0.12 | 7.2 |
| 26 | 14.02 | 14.20 | 0.70 | 0.21 | 43.91 | 0.30 | 18 |
| 27 | 14.20 | 14.28 | 13.71 | 1.92 | 45.83 | 0.14 | 8.4 |
| 28 | 14.28 | 14.42 | 3.39 | 0.78 | 46.61 | 0.23 | 13.8 |
| 29 | 14.42 | 14.48 | 7.80 | 0.78 | 47.39 | 0.10 | 6 |
| 30 | 14.48 | 14.54 | 15.90 | 1.59 | 48.98 | 0.10 | 6 |
| 31 | 14.54 | 15.05 | 4.00 | 0.72 | 49.7 | 0.18 | 10.8 |
| 32 | 15.05 | 15.12 | 18.75 | 2.25 | 51.95 | 0.12 | 7.2 |
| 33 | 15.12 | 15.26 | 2.63 | 0.63 | 52.58 | 0.24 | 14.4 |
| 34 | 15.26 | 15.36 | 20.81 | 3.33 | 55.91 | 0.16 | 9.6 |
| 35 | 15.36 | 15.44 | 5.08 | 0.66 | 56.57 | 0.13 | 7.8 |
| 36 | 15.44 | 15.49 | 9.33 | 0.84 | 57.41 | 0.09 | 5.4 |
| 37 | 15.49 | 16.06 | 10.39 | 2.91 | 60.32 | 0.28 | 16.8 |

| | Time (hr) | | Intensity | Rainfall | Acum. | Dt | Dt |
|---|---|---|---|---|---|---|---|
| Seg.# | from | to | mm/hr | mm | mm | hr | min |
| 38 | 16.06 | 16.16 | 10.31 | 1.65 | 61.97 | 0.16 | 9.6 |
| 39 | 16.16 | 16.23 | 6.75 | 0.81 | 62.78 | 0.12 | 7.2 |
| | | | | | | **2.93** | |
| | | | | | **20.37** | **I =** | **6.952** |
| 40 | 16.23 | 18.38 | 0.00 | 0 | 62.78 | 2.26 | 135.6 |
| 41 | 18.38 | 18.50 | 3.79 | 0.72 | 63.5 | 0.19 | 11.4 |
| 42 | 18.50 | 19.00 | 7.24 | 1.23 | 64.73 | 0.17 | 10.2 |
| 43 | 19.00 | 19.05 | 10.67 | 0.96 | 65.69 | 0.09 | 5.4 |
| 44 | 19.05 | 19.11 | 8.70 | 0.87 | 66.56 | 0.10 | 6 |
| 45 | 19.11 | 19.22 | 1.41 | 0.24 | 66.8 | 0.17 | 10.2 |
| 46 | 19.22 | 19.32 | 2.83 | 0.51 | 67.31 | 0.18 | 10.8 |
| 47 | 19.32 | 19.43 | 1.50 | 0.27 | 67.58 | 0.18 | 10.8 |
| 48 | 19.43 | 19.53 | 4.31 | 0.69 | 68.27 | 0.16 | 9.6 |
| 49 | 19.53 | 20.01 | 7.71 | 1.08 | 69.35 | 0.14 | 8.4 |
| 50 | 20.01 | 20.56 | 0.26 | 0.24 | 69.59 | 0.92 | 55.2 |
| 51 | 20.56 | 21.06 | 18.19 | 2.91 | 72.5 | 0.16 | 9.6 |
| 52 | 21.06 | 21.23 | 0.64 | 0.18 | 72.68 | 0.28 | 16.8 |
| 53 | 21.23 | 21.29 | 5.70 | 0.57 | 73.25 | 0.10 | 6 |
| 54 | 21.29 | 22.04 | 0.46 | 0.27 | 73.52 | 0.59 | 35.4 |
| 55 | 22.04 | 22.16 | 11.05 | 2.1 | 75.62 | 0.19 | 11.4 |
| 56 | 22.16 | 23.05 | 0.33 | 0.27 | 75.89 | 0.83 | 49.8 |
| 57 | 23.05 | 23.23 | 1.14 | 0.33 | 76.22 | 0.29 | 17.4 |
| 58 | 23.23 | 23.41 | 0.48 | 0.15 | 76.37 | 0.31 | 18.6 |
| 59 | 23.41 | 23.47 | 3.30 | 0.33 | 76.7 | 0.10 | 6 |
| | | | | | | **7.41** | |
| | | | | | **13.92** | **I =** | **1.879** |
| | | | | | **Total** | **Dt:** | **16.29** |

## Event # 4 - Rainfall Intensities- Beit Jamal
## Date:5/6.1.96

| | Time (hr) | | Intensity | Rainfall | Acum. | Dt | |
|---|---|---|---|---|---|---|---|
| Seg.# | from | to | mm/hr | mm | mm | hr | min |
| 1 | 23.15 | 23.35 | 0.00 | 0 | 0 | 0.34 | 20.4 |
| 2 | 23.35 | 23.46 | 3.12 | 0.53 | 0.53 | 0.17 | 10.2 |
| 3 | 23.46 | 23.51 | 8.56 | 0.77 | 1.3 | 0.09 | 5.4 |
| 4 | 23.51 | 24.09 | 0.20 | 0.06 | 1.36 | 0.30 | 18 |
| 5 | 24.09 | 24.17 | 3.36 | 0.47 | 1.83 | 0.14 | 8.4 |
| 6 | 24.17 | 24.55 | 0.24 | 0.15 | 1.98 | 0.62 | 37.2 |
| | | | | | | **1.66** | |
| | | | | | **1.98** | **I =** | **1.193** |
| 7 | 24.55 | 1.53 | 2.26 | 2.21 | 4.19 | 0.98 | 58.8 |
| 8 | 1.53 | 2.06 | 4.55 | 1 | 5.19 | 0.22 | 13.2 |
| 9 | 2.06 | 2.29 | 0.74 | 0.29 | 5.48 | 0.39 | 23.4 |
| 10 | 2.29 | 2.34 | 11.38 | 0.91 | 6.39 | 0.08 | 4.8 |
| 11 | 2.34 | 2.41 | 4.00 | 0.44 | 6.83 | 0.11 | 6.6 |
| | | | | | | **1.78** | |
| | | | | | **4.85** | **I =** | **2.725** |
| 12 | 2.41 | 2.52 | 23.89 | 4.3 | 11.13 | 0.18 | 10.8 |
| 13 | 2.52 | 3.04 | 4.33 | 0.91 | 12.04 | 0.21 | 12.6 |
| 14 | 3.04 | 3.15 | 14.72 | 2.65 | 14.69 | 0.18 | 10.8 |
| | | | | | | **0.57** | |
| | | | | | **7.86** | **I =** | **13.789** |
| 15 | 3.15 | 3.22 | 0.75 | 0.09 | 14.78 | 0.12 | 7.2 |
| 16 | 3.22 | 3.31 | 12.73 | 1.91 | 16.69 | 0.15 | 9 |
| 17 | 3.31 | 5.05 | 0.04 | 0.06 | 16.75 | 1.57 | 94.2 |
| 18 | 5.05 | 5.20 | 4.60 | 1.15 | 17.9 | 0.25 | 15 |
| 19 | 5.20 | 5.37 | 1.52 | 0.41 | 18.31 | 0.27 | 16.2 |
| 20 | 5.37 | 5.47 | 2.76 | 0.47 | 18.78 | 0.17 | 10.2 |
| 21 | 5.47 | 5.56 | 7.27 | 1.09 | 19.87 | 0.15 | 9 |
| 22 | 5.56 | 6.09 | 1.73 | 0.38 | 20.25 | 0.22 | 13.2 |
| | | | | | | **2.90** | |
| | | | | | **5.56** | **I =** | **1.917** |
| 23 | 6.09 | 6.17 | 7.79 | 1.09 | 21.34 | 0.14 | 8.4 |
| 24 | 6.17 | 6.32 | 5.42 | 1.3 | 22.64 | 0.24 | 14.4 |
| 25 | 6.32 | 6.47 | 8.36 | 2.09 | 24.73 | 0.25 | 15 |
| 26 | 6.47 | 6.56 | 6.07 | 0.91 | 25.64 | 0.15 | 9 |
| 27 | 6.56 | 7.08 | 2.24 | 0.47 | 26.11 | 0.21 | 12.6 |
| | | | | | | **0.99** | |
| | | | | | **5.86** | **I =** | **5.919** |
| 28 | 7.08 | 7.30 | 0.00 | 0 | 26.11 | 0.36 | 21.6 |

| | Time (hr) | | Intensity | Rainfall | Acum. | Dt | |
|---|---|---|---|---|---|---|---|
| Seg.# | from | to | mm/hr | mm | mm | hr | min |
| 29 | 7.30 | 7.41 | 0.95 | 0.18 | 26.29 | 0.19 | 11.4 |
| 30 | 7.41 | 8.00 | 0.00 | 0 | 26.29 | 0.31 | 18.6 |
| | | | | | | **0.86** | |
| | | | | | **0.18** | **I =** | **0.209** |
| | | | | | **Total** | **Dt:** | **8.76** |

# APPENDIX - 14

## Hydrograph resscion curve constant $K_r$

$$Q = Q_0 K_r^{\ t} = Q_0 e^{-\alpha t}$$

**Event #1**

| Date | Time | Dt | Dt | D. Runoff | ln Q | alpha | $K_r$ |
|---|---|---|---|---|---|---|---|
| | | (hr) | min | ($m^3$/sec) | | | |
| 07/11/94 | 3:53 | 0.00 | 0.00 | 0 | | | |
| 07/11/94 | 7:00 | 3.12 | 187.00 | 0 | | | |
| 07/11/94 | 16:08 | 9.13 | 548.00 | 0 | | | |
| 07/11/94 | 16:17 | 0.15 | 9.00 | 0 | | | |
| 07/11/94 | 16:26 | 0.15 | 9.00 | 0.02 | -3.912 | | |
| 07/11/94 | 16:43 | 0.28 | 17.00 | 0.045 | -3.101 | | |
| 07/11/94 | 16:53 | 0.17 | 10.00 | 0.075 | -2.590 | | |
| 07/11/94 | 17:00 | 0.12 | 7.00 | 0.09 | -2.408 | | |
| 07/11/94 | 17:59 | 0.98 | 59.00 | 0.075 | -2.590 | 0.00309 | 0.9969 |
| 07/11/94 | 19:49 | 1.83 | 110.00 | 0.02 | -3.912 | 0.01202 | 0.9881 |
| 07/11/94 | 21:03 | 1.23 | 74.00 | 0.01 | -4.605 | 0.00937 | 0.9907 |
| 07/11/94 | 22:32 | 1.48 | 89.00 | | | | |
| 07/11/94 | 22:55 | 0.38 | 23.00 | | | | |
| | | 19.03 | | | | | |
| | | | | | | | **0.992** |

## Hydrograph ressecion curve constant $K_r$

**Event #2**

| Date | Time | Dt | Dt | D. Runoff | ln Q | alpha | $K_r$ |
|---|---|---|---|---|---|---|---|
| | | (hr) | min | ($m^3$/sec) | | | |
| 19/01/96 | 0:16 | 0.00 | 0.00 | 0.015 | -4.200 | | |
| 19/01/96 | 2:01 | 1.75 | 105.00 | 0.015 | -4.200 | | |
| 19/01/96 | 5:02 | 3.02 | 181.00 | 0.015 | -4.200 | | |
| 19/01/96 | 5:43 | 0.68 | 41.00 | 0.045 | -3.101 | | |
| 19/01/96 | 6:36 | 0.88 | 53.00 | 0.045 | -3.101 | | |
| 19/01/96 | 7:09 | 0.55 | 33.00 | 0.075 | -2.590 | | |
| 19/01/96 | 7:50 | 0.68 | 41.00 | 0.105 | -2.254 | | |
| 19/01/96 | 8:17 | 0.45 | 27.00 | 0.155 | -1.864 | | |
| 19/01/96 | 8:45 | 0.47 | 28.00 | 0.215 | -1.537 | | |
| 19/01/96 | 9:02 | 0.28 | 17.00 | 0.235 | -1.448 | | |
| 19/01/96 | 9:17 | 0.25 | 15.00 | 0.235 | -1.448 | | |
| 19/01/96 | 9:33 | 0.27 | 16.00 | 0.255 | -1.366 | | |
| 19/01/96 | 9:49 | 0.27 | 16.00 | 0.255 | -1.366 | | |
| 19/01/96 | 10:19 | 0.50 | 30.00 | 0.275 | -1.291 | | |
| 19/01/96 | 11:18 | 0.98 | 59.00 | 0.255 | -1.366 | 0.00128 | 0.9987 |
| 19/01/96 | 11:46 | 0.47 | 28.00 | 0.235 | -1.448 | 0.00292 | 0.9971 |
| 19/01/96 | 12:35 | 0.82 | 49.00 | 0.195 | -1.635 | 0.00381 | 0.9962 |
| 19/01/96 | 13:37 | 1.03 | 62.00 | 0.125 | -2.079 | 0.00717 | 0.9929 |
| 19/01/96 | 14:49 | 1.20 | 72.00 | 0.095 | -2.354 | 0.00381 | 0.9962 |
| 19/01/96 | 16:54 | 2.08 | 125.00 | 0.075 | -2.590 | 0.00189 | 0.9981 |
| 19/01/96 | 18:44 | 1.83 | 110.00 | 0.065 | -2.733 | 0.0013 | 0.9987 |
| 19/01/96 | 19:09 | 0.42 | 25.00 | 0.075 | -2.590 | | |
| 19/01/96 | 20:03 | 0.90 | 54.00 | 0.095 | -2.354 | | |
| 19/01/96 | 21:09 | 1.10 | 66.00 | 0.075 | -2.590 | | |
| 19/01/96 | 22:37 | 1.47 | 88.00 | 0.045 | -3.101 | | |
| 19/01/96 | 23:57 | 1.33 | 80.00 | 0.03 | -3.507 | | |
| | | 23.68 | | | | | |
| | | | | | | | 0.997 |

## Hydrograph ressecion curve constant $K_r$

**Event #3**

| Date | Time | Dt | Dt | D. Runoff | ln Q | alpha | $K_r$ |
|---|---|---|---|---|---|---|---|
| | | (hr) | min | ($m^3$/sec) | | | |
| 07/03/96 | 0:01 | 0.00 | 0.00 | 0 | | | |
| 07/03/96 | 5:10 | 5.15 | 309.00 | 0 | | | |
| 07/03/96 | 6:02 | 0.87 | 52.00 | 0 | | | |
| 07/03/96 | 6:10 | 0.13 | 8.00 | 0 | | | |
| 07/03/96 | 6:55 | 0.75 | 45.00 | 0.015 | -4.200 | | |
| 07/03/96 | 7:18 | 0.38 | 23.00 | 0.03 | -3.507 | | |
| 07/03/96 | 11:18 | 4.00 | 240.00 | 0 | | | |
| 07/03/96 | 12:19 | 1.02 | 61.00 | 0.015 | -4.200 | | |
| 07/03/96 | 13:19 | 1.00 | 60.00 | 0.095 | -2.354 | | |
| 07/03/96 | 14:27 | 1.13 | 68.00 | 0.175 | -1.743 | | |
| 07/03/96 | 14:42 | 0.25 | 15.00 | 0.295 | -1.221 | | |
| 07/03/96 | 15:05 | 0.38 | 23.00 | 0.375 | -0.981 | | |
| 07/03/96 | 15:27 | 0.37 | 22.00 | 0.415 | -0.879 | | |
| 07/03/96 | 15:57 | 0.50 | 30.00 | 0.395 | -0.929 | | |
| 07/03/96 | 16:43 | 0.77 | 46.00 | 0.375 | -0.981 | | |
| 07/03/96 | 17:05 | 0.37 | 22.00 | 0.455 | -0.787 | | |
| 07/03/96 | 17:20 | 0.25 | 15.00 | 0.655 | -0.423 | | |
| 07/03/96 | 17:28 | 0.13 | 8.00 | 0.855 | -0.157 | | |
| 07/03/96 | 17:43 | 0.25 | 15.00 | 1.295 | 0.259 | | |
| 07/03/96 | 18:06 | 0.38 | 23.00 | 1.355 | 0.304 | | |
| 07/03/96 | 18:43 | 0.62 | 37.00 | 0.935 | -0.067 | | |
| 07/03/96 | 19:21 | 0.63 | 38.00 | 1.415 | 0.347 | | |
| 07/03/96 | 20:07 | 0.77 | 46.00 | 2.255 | 0.813 | | |
| 07/03/96 | 20:44 | 0.62 | 37.00 | 3.365 | 1.213 | | |
| 07/03/96 | 21:07 | 0.38 | 23.00 | 4.415 | 1.485 | | |
| 07/03/96 | 21:30 | 0.38 | 23.00 | 5.125 | 1.634 | | |
| 07/03/96 | 22:30 | 1.00 | 60.00 | 5.125 | 1.634 | | |
| 07/03/96 | 22:38 | 0.13 | 8.00 | 8.775 | 2.172 | | |
| 07/03/96 | 23:08 | 0.50 | 30.00 | 12.935 | 2.560 | | |
| 07/03/96 | 23:30 | 0.37 | 22.00 | 8.255 | 2.111 | | |
| 07/03/96 | 23:38 | 0.13 | 8.00 | 6.575 | 1.883 | 0.02844 | 0.9720 |
| 08/03/96 | 0:00 | 0.37 | 22.00 | 2.735 | 1.006 | 0.03987 | 0.9609 |
| 08/03/96 | 1:00 | 1.00 | 60.00 | 2.015 | 0.701 | 0.00509 | 0.9949 |
| 08/03/96 | 2:15 | 1.25 | 75.00 | 1.235 | 0.211 | 0.00653 | 0.9935 |
| 08/03/96 | 2:44 | 0.48 | 29.00 | 0.855 | -0.157 | 0.01268 | 0.9874 |
| 08/03/96 | 3:44 | 1.00 | 60.00 | 0.575 | -0.553 | 0.00661 | 0.9934 |
| 08/03/96 | 5:36 | 1.87 | 112.00 | 0.395 | -0.929 | 0.00335 | 0.9967 |
| 08/03/96 | 7:58 | 2.37 | 142.00 | 0.255 | -1.366 | 0.00308 | 0.9969 |
| 08/03/96 | 11:05 | 3.12 | 187.00 | 0.125 | -2.079 | 0.00381 | 0.9962 |
| 08/03/96 | 15:12 | 4.12 | 247.00 | 0.045 | -3.101 | 0.00414 | 0.9959 |
| 08/03/96 | 23:03 | 7.85 | 471.00 | 0.015 | -4.200 | 0.00233 | 0.9977 |
| | | | | | | | **0.990** |

# Hydrograph ressecion curve constant $K_r$

**Event # 4**

| Date | Time | Dt | Dt | D. Runoff | ln Q | alpha | $K_r$ |
|---|---|---|---|---|---|---|---|
| | | (hr) | min | ($m^3$/sec) | | | |
| 06/01/96 | 7:37 | 0.00 | 0.00 | 0 | | | |
| 06/01/96 | 8:00 | 0.38 | 23.00 | 0.015 | -4.200 | | |
| 06/01/96 | 8:24 | 0.40 | 24.00 | 0.03 | -3.507 | | |
| 06/01/96 | 9:23 | 0.98 | 59.00 | 0.03 | -3.507 | | |
| 06/01/96 | 11:01 | 1.63 | 98.00 | 0.03 | -3.507 | | |
| 06/01/96 | 12:03 | 1.03 | 62.00 | 0.065 | -2.733 | | |
| 06/01/96 | 12:18 | 0.25 | 15.00 | 0.065 | -2.733 | | |
| 06/01/96 | 12:57 | 0.65 | 39.00 | 0.095 | -2.354 | | |
| 06/01/96 | 13:43 | 0.77 | 46.00 | 0.095 | -2.354 | | |
| 06/01/96 | 14:14 | 0.52 | 31.00 | 0.125 | -2.079 | | |
| 06/01/96 | 14:59 | 0.75 | 45.00 | 0.105 | -2.254 | 0.00387 | 0.9961 |
| 06/01/96 | 15:27 | 0.47 | 28.00 | 0.075 | -2.590 | 0.01202 | 0.9881 |
| 06/01/96 | 16:18 | 0.85 | 51.00 | 0.065 | -2.733 | 0.00281 | 0.9972 |
| 06/01/96 | 16:54 | 0.60 | 36.00 | 0.03 | -3.507 | 0.02148 | 0.9788 |
| 06/01/96 | 19:08 | 2.23 | 134.00 | 0.015 | -4.200 | 0.00517 | 0.9948 |
| 06/01/96 | 20:07 | 0.98 | 59.00 | | | | |
| 06/01/96 | 21:07 | 1.00 | 60.00 | | | | |
| 06/01/96 | 23:52 | 2.75 | 165.00 | | | | |
| | | 16.25 | | | | | |
| | | | | | | | **0.9910** |

# APPENDIX - 15

## Unit Hydrograph Computation - Event # 1

| Date | Time | Dt | Dt | Runoff | Sewage | D. Runoff | U.H | Area |
|---|---|---|---|---|---|---|---|---|
| | | (min) | (sec) | (m3/sec) | (m3/sec) | (m3/sec) | (m3/sec) | (m3) |
| 07/11/94 | 3:53 | 0 | 0 | 0.02 | 0.02 | 0 | 0.00 | 0.0 |
| 07/11/94 | 7:00 | 187 | 11220 | 0.02 | 0.02 | 0 | 0.00 | 0.0 |
| 07/11/94 | 16:08 | 548 | 32880 | 0.02 | 0.02 | 0 | 0.00 | 0.0 |
| 07/11/94 | 16:17 | 9 | 540 | 0.02 | 0.02 | 0 | 0.00 | 0.0 |
| 07/11/94 | 16:26 | 9 | 540 | 0.04 | 0.02 | 0.02 | 4.17 | 1125.0 |
| 07/11/94 | 16:43 | 17 | 1020 | 0.065 | 0.02 | 0.045 | 9.38 | 6906.3 |
| 07/11/94 | 16:53 | 10 | 600 | 0.095 | 0.02 | 0.075 | 15.63 | 7500.0 |
| 07/11/94 | 17:00 | 7 | 420 | 0.11 | 0.02 | 0.09 | 18.75 | 7218.8 |
| 07/11/94 | 17:59 | 59 | 3540 | 0.095 | 0.02 | 0.075 | 15.63 | 60843.8 |
| 07/11/94 | 19:49 | 110 | 6600 | 0.04 | 0.02 | 0.02 | 4.17 | 65312.5 |
| 07/11/94 | 21:03 | 74 | 4440 | 0.03 | 0.02 | 0.01 | 2.08 | 13875.0 |
| 07/11/94 | 22:32 | 89 | 5340 | 0.02 | 0.02 | 0 | 0.00 | 5562.5 |
| 07/11/94 | 22:55 | 23 | 1380 | 0.02 | 0.02 | 0 | 0.00 | 0.0 |
| | | 1142 | 68520 | | | **Vd** | | **168343.8** |
| | | | | | | **rd** | | **1.0080** |

## Unit Hydrograph Computation - Event # 2

| Date | Time | Dt | Dt | Runoff | Sewage | D. Runoff | U.H | Area |
|---|---|---|---|---|---|---|---|---|
| | | (min) | (sec) | (m3/sec) | (m3/sec) | (m3/sec) | (m3/sec) | (m3) |
| 19/01/96 | 0:16 | 0 | 0 | 0.095 | 0.095 | 0 | 0.00 | 0.0 |
| 19/01/96 | 2:01 | 105 | 6300 | 0.095 | 0.095 | 0 | 0.00 | 0.0 |
| 19/01/96 | 5:02 | 181 | 10860 | 0.095 | 0.095 | 0 | 0.00 | 0.0 |
| 19/01/96 | 5:43 | 41 | 2460 | 0.11 | 0.095 | 0.015 | 0.43 | 530.2 |
| 19/01/96 | 6:36 | 53 | 3180 | 0.11 | 0.095 | 0.015 | 0.43 | 1370.7 |
| 19/01/96 | 7:09 | 33 | 1980 | 0.14 | 0.095 | 0.045 | 1.29 | 1706.9 |
| 19/01/96 | 7:50 | 41 | 2460 | 0.17 | 0.095 | 0.075 | 2.16 | 4241.4 |
| 19/01/96 | 8:17 | 27 | 1620 | 0.22 | 0.095 | 0.125 | 3.59 | 4655.2 |
| 19/01/96 | 8:45 | 28 | 1680 | 0.28 | 0.095 | 0.185 | 5.32 | 7482.8 |
| 19/01/96 | 9:02 | 17 | 1020 | 0.3 | 0.095 | 0.205 | 5.89 | 5715.5 |
| 19/01/96 | 9:17 | 15 | 900 | 0.3 | 0.095 | 0.205 | 5.89 | 5301.7 |
| 19/01/96 | 9:33 | 16 | 960 | 0.32 | 0.095 | 0.225 | 6.47 | 5931.0 |
| 19/01/96 | 9:49 | 16 | 960 | 0.32 | 0.095 | 0.225 | 6.47 | 6206.9 |
| 19/01/96 | 10:19 | 30 | 1800 | 0.34 | 0.095 | 0.245 | 7.04 | 12155.2 |
| 19/01/96 | 11:18 | 59 | 3540 | 0.32 | 0.095 | 0.225 | 6.47 | 23905.2 |
| 19/01/96 | 11:46 | 28 | 1680 | 0.3 | 0.095 | 0.205 | 5.89 | 10379.3 |
| 19/01/96 | 12:35 | 49 | 2940 | 0.26 | 0.095 | 0.165 | 4.74 | 15629.3 |
| 19/01/96 | 13:37 | 62 | 3720 | 0.19 | 0.095 | 0.095 | 2.73 | 13896.6 |
| 19/01/96 | 14:49 | 72 | 4320 | 0.16 | 0.095 | 0.065 | 1.87 | 9931.0 |
| 19/01/96 | 16:54 | 125 | 7500 | 0.14 | 0.095 | 0.045 | 1.29 | 11853.4 |
| 19/01/96 | 18:44 | 110 | 6600 | 0.13 | 0.095 | 0.035 | 1.01 | 7586.2 |
| 19/01/96 | 19:09 | 25 | 1500 | 0.14 | 0.095 | 0.045 | 1.29 | 1724.1 |
| 19/01/96 | 20:03 | 54 | 3240 | 0.16 | 0.095 | 0.065 | 1.87 | 5120.7 |
| 19/01/96 | 21:09 | 66 | 3960 | 0.14 | 0.095 | 0.045 | 1.29 | 6258.6 |
| 19/01/96 | 22:37 | 88 | 5280 | 0.11 | 0.095 | 0.015 | 0.43 | 4551.7 |
| 19/01/96 | 23:57 | 80 | 4800 | 0.095 | 0.095 | 0 | 0.00 | 1034.5 |
| | | 1421 | 85260 | | | **Vd** | | **167168.1** |
| | | | | | | **rd** | | **1.0010** |

## Unit Hydrograph Computation - Event # 3

| Date | Time | Dt | Dt | Runoff | Sewage | D. Runoff | U.H | Area |
|---|---|---|---|---|---|---|---|---|
| | | (min) | (sec) | (m3/sec) | (m3/sec) | (m3/sec) | (m3/sec) | (m3) |
| 07/03/96 | 0:01 | 0.0 | 0 | 0.08 | 0.08 | 0 | 0.00 | 0.0 |
| 07/03/96 | 5:10 | 309.0 | 18540 | 0.08 | 0.08 | 0 | 0.00 | 0.0 |
| 07/03/96 | 6:02 | 52.0 | 3120 | 0.08 | 0.08 | 0 | 0.00 | 0.0 |
| 07/03/96 | 6:10 | 8.0 | 480 | 0.08 | 0.08 | 0 | 0.00 | 0.0 |
| 07/03/96 | 6:55 | 45.0 | 2700 | 0.08 | 0.08 | 0 | 0.00 | 0.0 |
| 07/03/96 | 7:18 | 23.0 | 1380 | 0.08 | 0.08 | 0 | 0.00 | 0.0 |
| 07/03/96 | 11:18 | 240.0 | 14400 | 0.08 | 0.08 | 0 | 0.00 | 0.0 |
| 07/03/96 | 12:19 | 61.0 | 3660 | 0.08 | 0.08 | 0 | 0.00 | 0.0 |
| 07/03/96 | 13:19 | 60.0 | 3600 | 0.16 | 0.08 | 0.08 | 0.10 | 181.8 |
| 07/03/96 | 14:27 | 68.0 | 4080 | 0.24 | 0.08 | 0.16 | 0.20 | 618.3 |
| 07/03/96 | 14:42 | 15.0 | 900 | 0.36 | 0.08 | 0.28 | 0.35 | 250.0 |
| 07/03/96 | 15:05 | 23.0 | 1380 | 0.44 | 0.08 | 0.36 | 0.45 | 557.6 |
| 07/03/96 | 15:27 | 22.0 | 1320 | 0.48 | 0.08 | 0.4 | 0.51 | 633.4 |
| 07/03/96 | 15:57 | 30.0 | 1800 | 0.46 | 0.08 | 0.38 | 0.48 | 886.5 |
| 07/03/96 | 16:43 | 46.0 | 2760 | 0.44 | 0.08 | 0.36 | 0.45 | 1289.6 |
| 07/03/96 | 17:05 | 22.0 | 1320 | 0.52 | 0.08 | 0.44 | 0.56 | 666.8 |
| 07/03/96 | 17:20 | 15.0 | 900 | 0.72 | 0.08 | 0.64 | 0.81 | 613.7 |
| 07/03/96 | 17:28 | 8.0 | 480 | 0.92 | 0.08 | 0.84 | 1.06 | 448.5 |
| 07/03/96 | 17:43 | 15.0 | 900 | 1.36 | 0.08 | 1.28 | 1.62 | 1204.7 |
| 07/03/96 | 18:06 | 23.0 | 1380 | 1.42 | 0.08 | 1.34 | 1.69 | 2282.9 |
| 07/03/96 | 18:43 | 37.0 | 2220 | 1 | 0.08 | 0.92 | 1.16 | 3167.8 |
| 07/03/96 | 19:21 | 38.0 | 2280 | 1.48 | 0.08 | 1.4 | 1.77 | 3339.8 |
| 07/03/96 | 20:07 | 46.0 | 2760 | 2.32 | 0.08 | 2.24 | 2.83 | 6343.2 |
| 07/03/96 | 20:44 | 37.0 | 2220 | 3.43 | 0.08 | 3.35 | 4.23 | 7835.5 |
| 07/03/96 | 21:07 | 23.0 | 1380 | 4.48 | 0.08 | 4.4 | 5.56 | 6752.7 |
| 07/03/96 | 21:30 | 23.0 | 1380 | 5.19 | 0.08 | 5.11 | 6.45 | 8286.3 |
| 07/03/96 | 22:30 | 60.0 | 3600 | 5.19 | 0.08 | 5.11 | 6.45 | 23230.2 |
| 07/03/96 | 22:38 | 8.0 | 480 | 8.84 | 0.08 | 8.76 | 11.06 | 4203.6 |
| 07/03/96 | 23:08 | 30.0 | 1800 | 13 | 0.08 | 12.92 | 16.32 | 24639.5 |
| 07/03/96 | 23:30 | 22.0 | 1320 | 8.32 | 0.08 | 8.24 | 10.41 | 17635.6 |
| 07/03/96 | 23:38 | 8.0 | 480 | 6.64 | 0.08 | 6.56 | 8.28 | 4485.4 |
| 08/03/96 | 0:00 | 22.0 | 1320 | 2.8 | 0.08 | 2.72 | 3.43 | 7734.3 |
| 08/03/96 | 1:00 | 60.0 | 3600 | 2.08 | 0.08 | 2 | 2.53 | 10728.6 |
| 08/03/96 | 2:15 | 75.0 | 4500 | 1.3 | 0.08 | 1.22 | 1.54 | 9148.9 |
| 08/03/96 | 2:44 | 29.0 | 1740 | 0.92 | 0.08 | 0.84 | 1.06 | 2263.2 |
| 08/03/96 | 3:44 | 60.0 | 3600 | 0.64 | 0.08 | 0.56 | 0.71 | 3182.2 |
| 08/03/96 | 5:36 | 112.0 | 6720 | 0.46 | 0.08 | 0.38 | 0.48 | 3988.4 |
| 08/03/96 | 7:58 | 142.0 | 8520 | 0.32 | 0.08 | 0.24 | 0.30 | 3335.3 |
| 08/03/96 | 11:05 | 187.0 | 11220 | 0.19 | 0.08 | 0.11 | 0.14 | 2479.5 |
| 08/03/96 | 15:12 | 247.0 | 14820 | 0.11 | 0.08 | 0.03 | 0.04 | 1310.0 |
| 08/03/96 | 23:03 | 471.0 | 28260 | 0.08 | 0.08 | 0 | 0.00 | 535.3 |
| | | | | | | **Vd** | | **164259.0** |
| | | | | | | **rd** | | **0.9836** |

## Unit Hydrograph Computation - Event # 4

| Date | Time | Dt | Dt | Runoff | Sewage | D. Runoff | U.H | Area |
|---|---|---|---|---|---|---|---|---|
| | | (min) | (sec) | (m3/sec) | (m3/sec) | (m3/sec) | (m3/sec) | (m3) |
| 06/01/96 | 7:37 | 0.0 | 0 | 0.065 | 0.065 | 0 | 0.00 | 0.0 |
| 06/01/96 | 8:00 | 23.0 | 1380 | 0.08 | 0.065 | 0.015 | 1.14 | 784.1 |
| 06/01/96 | 8:24 | 24.0 | 1440 | 0.095 | 0.065 | 0.03 | 2.27 | 2454.5 |
| 06/01/96 | 9:23 | 59.0 | 3540 | 0.095 | 0.065 | 0.03 | 2.27 | 8045.5 |
| 06/01/96 | 11:01 | 98.0 | 5880 | 0.095 | 0.065 | 0.03 | 2.27 | 13363.6 |
| 06/01/96 | 12:03 | 62.0 | 3720 | 0.13 | 0.065 | 0.065 | 4.92 | 13386.4 |
| 06/01/96 | 12:18 | 15.0 | 900 | 0.13 | 0.065 | 0.065 | 4.92 | 4431.8 |
| 06/01/96 | 12:57 | 39.0 | 2340 | 0.16 | 0.065 | 0.095 | 7.20 | 14181.8 |
| 06/01/96 | 13:43 | 46.0 | 2760 | 0.16 | 0.065 | 0.095 | 7.20 | 19863.6 |
| 06/01/96 | 14:14 | 31.0 | 1860 | 0.19 | 0.065 | 0.125 | 9.47 | 15500.0 |
| 06/01/96 | 14:59 | 45.0 | 2700 | 0.17 | 0.065 | 0.105 | 7.95 | 23522.7 |
| 06/01/96 | 15:27 | 28.0 | 1680 | 0.14 | 0.065 | 0.075 | 5.68 | 11454.5 |
| 06/01/96 | 16:18 | 51.0 | 3060 | 0.13 | 0.065 | 0.065 | 4.92 | 16227.3 |
| 06/01/96 | 16:54 | 36.0 | 2160 | 0.095 | 0.065 | 0.03 | 2.27 | 7772.7 |
| 06/01/96 | 19:08 | 134.0 | 8040 | 0.08 | 0.065 | 0.015 | 1.14 | 13704.5 |
| 06/01/96 | 20:07 | 59.0 | 3540 | 0.065 | 0.065 | 0 | 0.00 | 2011.4 |
| 06/01/96 | 21:07 | 60.0 | 3600 | 0.065 | 0.065 | 0 | 0.00 | 0.0 |
| 06/01/96 | 23:52 | 165.0 | 9900 | 0.065 | 0.065 | 0 | 0.00 | 0.0 |
| | | | | | | **Vd** | | **166704.5** |
| | | | | | | **rd** | | **0.9982** |

# ملخص

أن دراسة العلاقة بين كمية الأمطار والتدفق تعتبر من أهم العناصر التي تؤخذ بعين الاعتبار في دراسات مصادر المياه وامكانية حدوث الفيضانات في الأودية المختلفة.

في هذه الدراسة تم استعمال منحنى التدفق الأحادي ( Unit Hydrograph) وطريقة SCS من اجل مماثلة معامل التدفق وزمن الازاحه للحوض الجبلي لوادي سوريك قرب القدس. القياسات المتوفرة لكميات الأمطار خلال فترة 1957-1994 استعملت من اجل تحليل التردد وإيجاد منحنى التردد المطري مع الزمن (IDF) .أما القياسات خلال الفترة 1994 – 1996 فقد تم استعمالها لتحليل الجريان الناتج عن الأمطار في هذا الوادي.

المنطقة التي تم دراستها كما ذكر سابقا تقع بالقرب من مدينة القدس في حوض وادي سوريك ووادي رفائيم وهذه الاوديه تصب عند البحر الأبيض المتوسط. مساحة التصريف التي تم دراستها لهذا الحوض تبلغ 167 كيلومتر مربع بعد إهمال المنطقة الحضرية من بداية الوادي حتى خزان بيت زايد.

بعض المشاكل المتعلقة بهذه بالدراسة هي أن المياه العادمة للمنطقة الغربية من القدس تتدفق باتجاه وادي سوريك. وهذه المياه العادمة يتم قياسها في محطة هارتوف في فترات الجفاف حيث اعتبرت خلال فترة الدراسة كتدفق أساسي (Baseflow) . وحسب هذه القياسات فان كمية كبيرة من هذه المياه العادمة تتسرب إلى باطن الأرض خلال حريانها في الوادي.

منحنيات التردد المطري مع الزمن (IDF) تم إيجادها بعد تحليل القياسات التي أخذت من محطات قياس الأمطار باستعمال منحنى التوزيع الاحتمالي( Gumbel). هذه المنحنيات يمكن استعمالها كمرجعيه من اجل إيجاد شدة الأمطار لفترات تصميم مختلفه من اجل تصميم شبكات التصريف.

تم اختيار أمطار ممثله تم تحليلها خلال فترة الدراسة من اجل إيجاد دلاله على القيمة الحقيقية لكمية الأمطار الفائضة التي تسبب الجريان, حيث تم احتساب المساحة تحت منحنى التدفق المباشر من اجل اشتقاق كمية الأمطار الفائضة.

لإيجاد كمية التسرب تم استخدام طرق معامل $\phi$ ومعامل W . القيمة المتوسطة التي تم إيجادها لمعامل $\phi$ كانت 16,77 ملم/الساعة, بينما كانت القيمة المتوسطة لمعامل W 3,27 ملم/الساعة.

نسبة التدفق التي تم إيجادها كانت حوالي 3 % من قيمة كمية المطر المسبب لهذا التدفق وذلك بسبب درجة التسرب العالية إلى الأعماق خلال الصخور الكلسية (Karstic ). من ناحية أخرى تم أيجاد معامل الهبوط لمنحنى التدفق (Recession Constant) حيث كانت القيمة المتوسطة له 0,9925 .

كل منحنى تدفق أحادي (UH) تم إيجاده كان له فترة زمنية مختلفة. زمن ألازاحه كان له قيمة متوسطة بمقدار 609,25 دقيقة.هذه النتيجة لم تلائم النتيجة التي تم الحصول عليها باستعمال طريقة SCS حيث كانت 334,11 دقيقة. هذا الاختلاف في النتائج يكمن في أن مخلفات المياه العادمة الموجودة في هذا الوادي والتي تتدفق باتجاه محطة قياس التدفق تجعل التدفق يجري ببطيء. هذه النتائج يمكن تقريبها بفرض أن زمن ألازاحه لهذا الحوض يساوي زمن الجريان بدلا من أن يساوي 0.6 من هذا الزمن حسب ما تفترضه طريقة SCS .

في نهاية الرسالة تم الاشاره الا عدة توصيات لمنحنى التدفق تدعم أمكانيات البحث والتطوير باتجاه نمذجة الجريان السطحي في الاحواض الفلسطينيه.