

INTRODUCTION TO THE TABLES

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GEOPHYSICAL CHARACTERISTICS

AREA

(Table 1.1)

The area figures relate to districts, sub-districts, natural regions, and lakes.

The districts and the sub-districts were defined according to the official administrative division of the State of Israel. According to this division, Israel has six districts, which are divided into 15 sub-districts.

As of 1967, the area of East Jerusalem has been included in the Jerusalem District. In 1982, the Golan sub-district was attached to the Northern District.

This chapter also presents data on the natural region areas within each sub-district as well as on the areas of the lakes.

Natural regions are continuous areas, as uniform as possible, both with regard to physical structure, climate and land, as well as to demographic, economic and social characteristics of the population.

A natural region can be part of one sub-district or, in some cases, an entire sub-district or entire district (see the Map of Israel - Districts, Sub-districts and Natural Regions, 2002).

In the 1995 Census, the system of natural regions was updated and their number increased from 45 (in the 1983 Census) to 50.

The data were received from a computerized measurement of areas conducted by the Computerized Mapping (GIS) Unit of the CBS.

CLIMATE

(Tables 1.2-1.5)

Israel's climate has unique characteristics.

Israel's geographic location, between 29°-33° north of the equator, makes it a subtropical region, which is a transitional area between the temperate zone and the arid zone. Israel, therefore, is on a "climatic crossroads": its southern and eastern areas are characterized by an arid climate, while the rest of its areas are characterized by a Mediterranean climate. One of the main characteristics of this kind of climatic formation is

the high variability in quantities of precipitation from year to year and between different areas. In addition, there is a clear division into two seasons: a hot summer with hardly any rain, and a cool, rainy winter.

The rainy season in Israel usually begins in October and ends in May of the next year. Precipitation data are presented for rain years, i.e., from August to July of the next year.

Data on average precipitation have been standardized and adjusted to the normal standard period from 1971 to 2000.

The multi-annual averages of number of rain-days relates to the years 1971-2000.

Presented are the number of rainy days with quantities of more than 1 mm.

Relative humidity - the ratio (in percentages) of vapour in the air, and the amount the air can contain in a state of saturation at the same temperature.

Temperature data and relative humidity are presented by calendar years (January to December). Multi-annual averages of temperature and relative humidity refer to the period from 1981 to 2000, except Haifa (1988-2000).

The division into regions in the tables, has been adapted to the division into geoclimatic regions by the Meteorological Service.

Climate data are received from the Meteorological Service in Bet Dagan.

NAME OF STATION, GEOGRAPHICAL LOCATION AND RELATIVE ALTITUDE

COASTAL REGION

Haifa, Technion: 35°01'E; 32°46'N; 230 m.

Haifa, Bay: 35°01'E; 32°47'N; 5 m.

Tel Aviv, Sede Dov: 34°47'E; 32°06'N; 4 m.

Bet Dagan, meteorological station: 34°48'E; 32°00'N; 30 m.

Negba: 34°40'E; 31°39'N; 90 m.

HILL REGION

Har Kena'an: 35°30'E; 32°58'N; 934 m.

Gal'ed (Even Yizhaq) 35°04'E; 32°33'N; 180 m.

Jerusalem, Center: 35°13'E; 31°46'N; 815 m.

Jerusalem, Giv'at Ram: 35°11'E; 31°46'N; 765 m.

NORTHERN VALLEYS

Kefar Blum: 35°36'E; 33°10'N; 75 m.

Kefar Yehoshua: 35°09'E; 32°41'N; 50 m.

NEGEV REGION

Be'er Sheva, Negev Institute: 34°48'E; 31°15'N; 280 m.

Be'er Sheva, West: 34°43'E; 31°16'N; 195 m.

Mizpe Ramon: 34°47'E; 30°37'N; 837 m.

JORDAN RIFT AND ARAVA

Sede Eliyyahu: 35°31'E; 32°26'N; -190 m.

Sedom: 35°23'E; 31°01'N; -390 m.

Elat: 34°57'E; 29°33'N; 12 m.

AIR

Emissions of air pollutants from fuel combustion and concentrations of air pollutants - see Chapter 27 - *Environment*.

RADIATION AND SUNSHINE

(Table 1.6)

DEFINITIONS

Global radiation: short-wave radiation of the sun, both direct and dispersed, on a horizontal plane from a spatial angle of 2π radians.

Duration of sunshine: the amount of time the sun shines in a given location.

SOURCE OF DATA

Data were obtained from the Meteorological Service.

The table presents data on global radiation at 4 stations out of 20 (the number of stations varies): Haifa (Technion), Bet Dagan, Jerusalem (Giv'at Ram) and Be'er Sheva (Negev Institute). These stations started collecting data in 1994, 1965, 1990 and 1982 respectively.

In addition, the table presents data on duration of sunshine obtained from two stations: Bet Dagan and Sedom.

For geographical location and height above sea level of stations, see the section on "Climate" above.

LIMITATIONS OF THE DATA

1. As of 1997, the monthly averages for duration of sunshine have been calculated in Bet Dagan on the basis of daily data rather than hourly data.
2. The monthly multi-year average of sunshine is calculated at the Meteorological Service once every decade. Therefore, the latest data are until 2000.

WATER

Water production and consumption, see Chapter 21 - *Energy and Water*.

Quality of water at the beaches and streams, sewage and effluents, see Chapter 27 - *Environment*.

GROUND WATER

(Table 1.7)

The aquifers in Israel are: HaHof Aquifer, Yarqon-Tanninim Aquifer, Western Galilee Aquifer, Carmel Aquifer, Sea of Galilee Aquifer, Eastern Hill Aquifer, and Negev and Arava Aquifers. The water level of the aquifers changes according to, among others, run-off entering it and pumping activities carried out.

PRESENTATION OF DATA

The data presented in the table focus on the two main sources of utilizing ground water in Israel: the HaHof Aquifer and Yarqon-Tanninim Aquifer.

The table presents specific data on a limited number of drills (out of hundreds) in accordance with the recommendations of the Hydrological Service.

Water level values were published in relation to Mean Sea Level for the months of: April (Spring), and October (Fall), to indicate maximal and minimal water levels, respectively.

In observation drills, as in exploratory drills, water is not pumped. Therefore, the water levels measured are more reliable than those derived from active drills.

The value presented in the table is the average of measurements in a month.

DEFINITIONS AND EXPLANATIONS

Yarqon-Tanninim Aquifer: The basin extends from the ridges of the Judea and Samaria hills to the east and reaches the Mediterranean coast to the west. To the north, the aquifer is bordered by the southern slopes of the Carmel and Tanninim Stream. To the south, it is bordered by the Be'er Sheva Valley. The main flow of water at this aquifer is from the Rosh HaAyin and Tanninim Stream springs.

HaHof Aquifer: The aquifer spans from Binyamina in the north to Nir Am in the south.

To the east, the aquifer is bordered by the foothills of the mountains and the plain of the central mountain ridge; and on the west, by the Mediterranean.

It has a good collection capacity, and it is filled with rainfall, from artificial recharging of flood water and from effluents at selected sites.

SOURCE OF THE DATA

The data were obtained from the Hydrological Service.

LIMITATIONS OF THE DATA

1. The 4 drilling points of the HaHof Aquifer presented in the table reflect the water level in 4 important sectors. Therefore, each point represents its close proximity only.
2. If there is no way of measuring the water level during a certain month, there are methods of interpolation and imputation of data from neighbouring drillings. In addition, a hydrological model is used to complete the data. (This adjustment is carried out in only a small percentage of all measurements).

SURFACE WATER

(Table 1.8)

Water Level of the Sea of Galilee and the Dead Sea and Water Salinity in the Sea of Galilee

The Sea of Galilee serves as the largest surface water reservoir in Israel. Information on its water level is therefore essential as it indicates the situation of the water reserves of the country.

Diversion of water to the National Water Carrier has a strong impact on the water level of the Dead Sea.

Information on the water level of the Sea of Galilee and the Dead Sea in these time series may provide an indication of short-term as well as long-term problems. These series constitute a basis for understanding the physical processes and environmental changes resulting from human intervention in the ecosystem. In addition, the time series provide important information on natural fluctuations of water. There is no Israeli standard yet for the quality of the Sea of Galilee and Dead Sea water.

PRESENTATION OF DATA

All the water level values appear with a minus sign, since the height of Sea of Galilee and the Dead Sea are below sea level.

Using the recommendations of the Hydrological Service, May and November measurements for Sea of Galilee are published as well as May and December measurements for the Dead Sea.

Data of the Spring months (April, May) indicate the maximum water level for a given year, whereas data of the Fall months (November, December) indicate the minimal water level. The value presented in the table is the result of the first measurement of that month.

As of 1969, all salinity tests have been carried out at one sampling point in the center of the Sea of Galilee, which constitutes a representative point of

the average salinity of the Sea of Galilee.

DEFINITIONS AND EXPLANATIONS

Water salinity: the parameter which constitutes the main element in determining possible uses of water. Accepted practice is to determine the salinity by the concentration of chlorides in the water (Cl), measured by milligrams of chlorides per liter of water (mg/l). According to its salinity, the quality of water is determined in the following categories:

Cl (mg/liter)	Type of Water
$Cl \leq 600$	Fresh water
$400 < Cl \leq 4,000$	Brackish water
$400 \leq Cl < 600$	"Grey" area
$Cl > 4,000$	Saline water

SOURCE OF THE DATA AND METHODS OF COMPUTATION

Data on the water level in the Sea of Galilee and the Dead Sea were obtained from the Hydrological Service. Data on the salinity of the Sea of Galilee were obtained from the Hydrological Service for the years 1960-1968 and 1992-2002, and from the Kinneret Limnological Laboratory (Nishri et al.) for the years 1969-1991.

The statistical parameters of salinity are calculated out of a series of observations.

Observations are the weighted average of salinity measured at a number of permanent depths in the Sea of Galilee.

LIMITATIONS OF THE DATA

1. If no measure was taken during a certain month, hydrologists at the Hydrological Service use "nearest neighbour" imputation methods or other accepted models to fill in the missing data. These models take into account seasonal and hydrological information that has accumulated over the years.
2. In the absence of a salinity measurement in one of the permanent depths, from which the weighted average (observation) is calculated during the years 1969-1991, the CBS uses an imputation of a datum, which is the average of measurements at the same depth and in the same month for 3 consecutive years. In certain instances, the datum of the measurement was imputed on the same date.

LAND

FOREST AREA, BY SPECIES

(Table 1.9)

Forests in Israel, whether natural or planted, constitute about 4% of the total land area.

The functions of the forests include: protection of broad land areas, land preservation, improvement of environmental quality ("green areas"), recreation and leisure, provision of timber, improvement of animal husbandry, etc.

In recent years, the area in which new forests are planted in the northern and central regions of Israel has diminished considerably. Most of the planting in these areas has been undertaken in the framework of reforestation.

DEFINITIONS AND EXPLANATIONS

New forest area - an area in which there were no forests in the past.

Reforestation area - An area in which there were forests in the past but the forest was cut down because the trees were damaged due to various causes such as pests, draughts, fires, or snow. Reforestation and filling of the designated space is done in these areas.

SOURCE OF THE DATA

The data were obtained from the Jewish National Fund (JNF).

LIMITATIONS OF THE DATA

The data in the table refer only to forest areas handled by the JNF, and do not include forest areas in nature reserves and national forests. Because this definition is problematic, no data from natural forests are presented.

SELECTED PUBLICATIONS

TECHNICAL PUBLICATIONS

74 List of Localities, Their Population and Codes 31.12.2001