AD705199

USAF ETAC TN 70-4

ENVIRONMENTAL Technical Applications Center

TECHNICAL NOTE
70-4

ETAC

A SELECTED ANNOTATED BIBLIOGRAPHY OF ENVIRONMENTAL STUDIES OF ISRAEL (1960-1969)

Compiled by
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APRIL 1970

METEOROLOGY

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Purpose

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Preface

One of the primary functions of the Technical Information Section of the USAF Environmental Technical Applications Center (ETAC) is to locate reference material requested by the various governmental agencies and those civilian organizations completing government contracts. The requests are generally initiated to aid in the solution of specific problems. However, many of these bibliographies represent a substantial listing of pertinent sources which, having been compiled, could prove very beneficial to other researchers with similar interests in subject matter or area of coverage. It is with this in mind that USAF ETAC publishes certain reference listings such as this bibliography. It is believed that, by publication and distribution of these consolidated reference lists, much of the time-consuming reference-searching of the researcher can be eliminated.

Inclusion of an item in this listing does not constitute an indorsement of the information included therein by the DOD, USAF, Air Weather Service, or USAF ETAC. It also must be noted that references selected for this bibliography should not be construed as being the best or only references available as many excellent papers, reports, etc. were no doubt overlooked during the limited search period allotted the author for this project.

INTRODUCTION

This bibliography was compiled as a by-product of the regular reference-searching that is one aspect of the normal workload of the Technical Information Section, USAF ETAC. Many of the abstracts herein were taken from the publications themselves, many others, or parts of abstracts, from Meteorological and Geoastrophysical Abstracts (Am. Met. Soc.), and others were prepared by members of the Technical Information Section of USAF ETAC. The individuals below are credited with the preparation of one or more abstracts shown in this publication.

Initials		Initials	
ALS	Alvin L. Smith, Jr.	OT	Otto Taborsky
DBK	Dov B. Krimgold	PS	Parkash Samuel
DLB	Dennis L. Boyer	RB	Ronald Baker
ES or EZS	Evelyn Z. Sinha	SW	Sylvia Nowinska
ILD	Isadore L. Dordick	VJC	Vincent J. Creasi
IS	Ismail Saad	WN	Wilhelm Nupen

Since only a limited time was available to the authors to compile this reference listing, it is very possible that, in some cases, an author's best work is not the item we have included. Furthermore, some important papers, reports, summaries, etc., undoubtedly have been completely overlooked in our search and we offer our apologies for such unintentional oversights. Language also proved a barrier to the authors, and we gratefully acknowledge the help of the Hebraic Section, Orientalia Division, Library of Congress. The search for references was terminated on 3 April 1970.

It will be noted that references are separated into yearly increments and listed alphabetically by author. For convenience, a subject index is furnished on pages vii and viii. Each item lists a source at which the publication may be located either by library card catalogue number, AD number, or other indicator. Generally, most references

were located within the Washington, D.C. area. Abbreviations denoting the various libraries are identified under Index to Source Symbols below.

Index to Source Symbols

Census	Census Bureau Library, FOB 3 Suitland, Md.
DAS	Atmospheric Sciences Library ESSA, Silver Spring, Md.
DAS P	Periodical Collection Atmospheric Sciences Library Silver Spring, Md.
DLC	Library of Congress
DLC Gov. Pub. R. Rm.	Library of Congress Government Publications Reading Room
DNAL	National Agricultural Library Dept. of Agriculture Beltsville, Md.
DNHO	Dept. of Navy Hydrographic Office
Foreign Branch	Foreign Area Section Environmental Data Service ESSA, Silver Spring, Md.
IPB	Information & Publications Branch USAF ETAC

Bibliographies. During the reference search to accomplish this listing, the following bibliographies were noted and are considered excellent compilations of pertinent references:

Kramer, Harris P. Selective Annotated Bibliography on the Climatology of the Near East, AMS, Meteorological Abstracts and Bibliography, Vol. 2, No. 5, May 1951, pp 373-404, 240 entries.

Kramer, Harris P. A Selective Annotated Bibliography on the Climatology of Northeast Africa, AMS, Meteorological Abstracts and Bibliography, Vol. 2, No. 10, Oct 1951, pp 831-865, 254 entries.

Gold, H.K. An Annotated Bibliography on the Climate of Israel. U.S. Dept. of Commerce, Weather Bureau, WB/BC57, Washington, D.C., Jul 1962, 110 entries. AD 660872.

Standard Publications Series of the Meteorological Service of the State of Israel.

The Meteorological Service of Israel issues certain recurring publications at aperiodic intervals which concern, for the most part, subjects important to the meteorology and climatology of their nation. These publications include the following Series:

Series A Meteorological Notes (mostly reprints)

Series B Observational Data

1. Monthly Weather Report published since November 1947- (1948 omitted)
2. Annual Weather Report published since 1948-
3. Annual Rainfall Summary published since 1947/48-
4. Annual Dew Summary published from 1947 to 1952
5. Agro-Meteorological Bulletin (Monthly) published since October 1959-

Series C Miscellaneous Papers

Series D Contributions

Series E Publications

Series G Monographs

The authors wish to thank Mrs. Edna G. Robinson, USAF ETAC for her excellent work in arranging and typing the numerous references in this bibliography.

The valuable assistance obtained from personnel of the various libraries in the Washington, D.C. area is gratefully acknowledged; their efforts facilitated the task of reference searching for this publication.

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A SELECTED ANNOTATED BIBLIOGRAPHY OF ENVIRONMENTAL STUDIES OF ISRAEL (1960 - 1969)

1960

1. Ashbel, Dov. Climate of Jerusalem during the International Geophysical Year (1957-1958), Vol. 3. Jerusalem, Israel, Dept. of Meteorology & Climatology, Hebrew Univ., (1960). 49 p. Entirely tables. Index and legends in English and Hebrew. DAS M82.2/569.4 J56cl, V.1, V.2, V.3.

...Tables of the following climatic elements for 1957 and 1958: Hourly values (0-24 hr) for each day of each month of barometric pressure, wind velocity, relative humidity and of temperature; max and min temperature; hourly mean of temperature and humidity (1957); monthly mean of wind velocity for each hour and daily windflow and sunshine hours. (DBK) (See also prior two volumes for additional climatological summaries)

2. Atlas of the Arab World and the Middle East. (With an Introduction by C.F. Beckingham), London, Macmillan, 1960, [59 p], Maps (in color) pp 2-40. Text (with photos) pp 41-60. "Maps produced by Djambatan, Amsterdam." 13" x 10". DAS 912.1 D62Jat.

...This atlas contains a series of maps of North Africa and the Middle East. In addition to the physical/political maps, climatic maps are also included. The distribution of the mean annual precipitation over the entire area is shown. Separate maps show the precipitation, temperature, and winds in Jan and Jul in the entire area; the mean annual precipitation in northwest Africa, the Nile Region, Syria, northern region of the U.A.R., and Lebanon. Maps of mean temperature in Jan and Jul for the latter group are included; the mean

2. (cont)

annual precipitation in the Jordan Region; climatic maps of Iraq show mean annual precipitation, mean maximum temperature in Jul, mean minimum in Jul, and the mean maximum and minimum temperatures in Jan. Climatic maps of the Arabian Peninsula and Iran show mean annual precipitation in these regions. (EZS)

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3. Butzer, K.W. Dynamic Climatology of Large-scale European Circulation Patterns in the Mediterranean Area. Meteorologische Rundschau, Berlin, Germany, Vol. 13, Heft 4, Jul/Aug, pp 97-105, 1960. DAS Pam M(05) M587.

...The author sketches the major dynamic climatological features of each large-scale weather pattern for the Mediterranean Area. This study is intended to be an aid in short-range forecasting. The Middle East area is discussed as an area of secondary cyclogenesis. (DLB)

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4. Cressey, George Babcock. Crossroads: Land and Life in Southwest Asia. N.Y., Lippincott, 1960. 593 p, numerous figs and photos, Bibliog. at end of each chap., tables. (Lippincott Geography Series). DAS 915.6 C922cr.

...An illustrated textbook on the economic, human, and physical geography (climate, rivers, land use, resources, etc.) of the Near or Middle East, Turkey, Arabia, Egypt, Iraq, the Levant, Israel, Iran, and Afghanistan. The most important element in climate is water (or the lack of it) so water figures heavily in all of the chapters. The chapter on climate (pp 93-117) includes a discussion of the Mediterranean-type climate of the region, pressure and air masses, local winds, temperature, precipitation, water balance and climatic regions, and some tabular data for 37 representative stations. Each chapter on the separate regions named above also contains an extensive section on climate with climograms for a number of stations within the country or area. The climograms show the extremes of temperature and the monthly potential evapotranspiration as well as the means and daily range of temperature and average monthly precipitation. (VJC)

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5. Goldwater, Fred. Some Considerations of Instrumentation and Recording Techniques in Micrometeorology. The Hebrew U. of Jerusalem. Jerusalem, 1960. 15 p, 50 refs.
DAS M08.5 G624so.

...This study is entirely descriptive. The author discusses the recording techniques for the measurement of turbulent flow and the instruments used to measure wind and temperature. Digital recording devices also are discussed. (VJC)

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6. Israel Dept. of Surveys. Climate Atlas of Israel, ed. by N. Rosenan, Jerusalem, 1956-1960, oversize (13 x 19").
DAS Ref. 912.569 A88lat.

...This is the official national atlas of the State of Israel with many sections. Polychrome maps with explanatory texts, numerous illustrations, and a bibliography for most maps are presented. Besides the part on climatology, there are hydrology, land utilization, geomorphology, and other sections. (VJC)

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7. Katsnelson, J. Special Features in the Climate of Tel Aviv-Jaffa. Israel Met. Service, Series E, No. 12, Bet Dagan, 1960.

Unavailable for abstracting.

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8. Katsnelson, J. The Problems of Drought in Palestine. Israel Met. Service, Series E, No. 13, Bet Dagan, 1960.

Unavailable for abstracting.

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9. Levy-Tokatly, Y. Easterly Storms-November 1958. Israel Exploration Journal, Jerusalem, 10(2):112-117, 1960, 3 figs, 2 tables, foot-ref. DAS M(055) I85sd.

Reprinted as: Israel, Meteorological Service, Series D (Contributions), No. 13, 1960.

9. (cont)

...The two easterly storm winds that occurred in Israel in Nov 1958 are described. The first easterly storm of a type expected in the transition season is described briefly. A more detailed account is given of the synoptic situation associated with formation of the second one (Nov 21-22, 1958) in which an anticyclonic cell acted as a rain-preventer for the eastern Mediterranean. (ILD)

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10. Lowdermilk, Walter C. The Reclamation of a Man-made Desert. Scientific American, N.Y., 202(3):55-63, Mar 1960. 15 figs, (mostly photos). DAS P

...An extensively-illustrated descriptive paper on Israel's reclamation activities. The paper presents a comprehensive inventory, made during 1951-1953, classifying the lands according to their relative exposure to erosion by wind and water. The efforts to counter erosion and the development of water supplies and irrigation are described. The reclamation efforts have reportedly met with success. (IS)

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11. Monteith, J.L. The Physics of Dew. Israel Met. Service, Series E, No. 14, Bet Dagan, 1960.

Unavailable for abstracting.

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12. Neumann, J. Notes on Rainfall Fluctuations in Palestine and Climatic Fluctuations in the Northern Hemisphere. Israel Research Council, Bulletin, Sec. G, Geo-Sciences, 9(4):185-191, Nov 1960. 2 figs, table, 8 refs. DLC QE318.A3.

...From accounts of geographers and explorers visiting the Dead Sea region prior to the year 1846, when regular rainfall observations began in Jerusalem, it is inferred that during the last decade of the 18th century, rainfall in Palestine must have been very low; probably much lower than the level of rainfall during the past half century. After a temporary increase in the first decade of the 19th century, it appears

12. (cont)

that another lapse took place in rainfall. The above inferences are followed up with a brief description of the character of rainfall fluctuations based on the rainfall series of Jerusalem beginning with 1846. There appears to be a close parallelism between these fluctuations and the fluctuations of climate in the middle latitudes of the Northern Hemisphere. Periods of low temperature and high precipitation, as well as glacier advance in the middle latitudes, are accompanied by high rainfall in Palestine, while periods of warmth and low precipitation, as well as glacier retreat in the middle latitudes, are simultaneous with periods of low rainfall in Palestine. (Author)

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13. Slatkine, A. Tempete de sable des 21-23 Novembre 1958: Composition Mineralogique de la poussiere recueillie a Jerusalem [Sand Storm of November 21-23, 1958: Mineralogical Composition of the Dust Deposited in Jerusalem] Israel Research Council, Bulletin, Sec. G, Geo-Sciences, 9(4):207-210, Nov 1960. 3 tables 2 refs. English summary p 207.
French DLC QE318.A3.

...The heavy minerals and carbonate content of a sample of dust deposited in Jerusalem during a storm is given. The composition of the dust sample approaches that of loess from the southeastern Negev. The diameter of particles in the main fraction of the analyzed sample is 0.1-0.05 mm. (Author)

1961

14. Feige, Y. et al. Radioactive Fall-out in Israel Resulting from the Nuclear Tests in the Sahara Desert. Nature, London, 189(4759):90-95, Jan 14, 1961. 7 figs, 5 refs.
DLC Q1.N2.

...The particles deposited on gummed tape in Israel from the two nuclear test devices exploded in southern Algeria on Feb 13 and Apr 1, 1960 were measured at seven sampling stations. The results of the observations are illustrated in a figure

14. (cont)

and are discussed in terms of the prevailing synoptic conditions. The surprising result is that, for more than a month following each test, every air mass which reached Israel after having been in contact or in exchange with near ground-level air of the Sahara contained radioactivity indicating a localized persistence of the radioactivity in the air above the Sahara. Observations were also made using air filters. A comparison of the results of these measurements with those of the gummed tape gives some idea of the difference in the size distributions of the particles emanating from the two tests. (RB)

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15. Israel Meteorological Service. Annual Rainfall Summary 1960/61. Its Series B, No. 14/R, Hakirya, 1961, 20 p. DLC QC925.5P3A33.

Also available for: 1961/2, 1962/3 and 1963/4.

...Contains monthly rainfall at selected stations. Total rainfall (mm) and number of days with rain are given. An isohyetal map has also been included. (DLB)

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16. Israel Meteorological Service. Climatological Normals Pt. 1, B, Temperature and Relative Humidity. 2nd Ed., Series A, Bet Dagan, 1961, 17 p. (see also No. 3A, 1958, Rainfall). DAS M(055) I85.

...Contains monthly values of average daily temperature, daily temperature range, average monthly extremes, average daily extremes, absolute maximum and minimum temperature, and relative humidity. The section on rainfall (3A) contains average monthly rainfall amounts (mm), POR 1921-1950. Average number of raindays ($\geq$ 0.1 mm) for 1938/39-1947/48 is also presented. In addition, an isohyetal map portrays average annual rainfall amounts representative of 240 stations. (DLB)

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17. United States Air Force, Air Weather Service, Hqs 19th Air Force. Climatological Summary Weather and Climate of the Near East. 2nd Weather Group, Seymour Johnson AFB, N.C., J-5 Revised, Jun 1961, 141 p. IPB Files.

...This study includes general climatic and geographic information on Iran, Iraq, Israel, Jordan, Lebanon, Syria, Saudi Arabia, Turkey, and Cyprus. In addition, climatic data for 33 stations in the Near East area are included. The data include: temperature; precipitation; flying weather, observations with ceiling, and for visibility less than 1000 ft/3 miles, mean cloudiness at 1000 LST, and 1600 LST; and take-off data (mean vapor pressure, dewpoint, and pressure altitude). (DLB)

1962

18. Efrat, E. Types of Rainfall Years in Israel. Israel Exploration Society, "Studies in the Geography of Eretz-Israel," No. 3, Jerusalem, 1962, pp 117-128. (In Hebrew, English Summary). DLC Orientalia Div., Hebraic Section.

Hebrew

...The purpose of this paper is to examine whether the appearance of rainfall years in Israel is casual or is a sequence of particular types of rainfall seasons. For this purpose 3 stations, with more than 30 years of record, were selected for comparison. As a result, 16 different types of rainfall years have been distinguished. (Part Author Abs.)

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19. Gabriel, K.R. and Neumann, J. A Markov Chain Model for Daily Rainfall Occurrence at Tel Aviv. Royal Meteorological Society Quarterly Journal, 88(375):90-95, Jan 1962. 3 tables, 16 refs, 14 eqs. DAS M(055) R888q.

...A Markov chain probability model is found to fit Tel Aviv data of daily rainfall occurrence. This accounts for the form of the distributions of dry and wet spells and of weather cycles which have been presented in earlier papers.

19. (cont)

Further aspects of rainfall occurrence patterns may be derived as well and are found to fit the data. In particular, the distribution of the number of rainy days per week, month, or other period is obtained. Numbers of rainy days in different months are apparently independent. (Author)

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20. Gabriel, K.R. Statistical Design of an Artificial Rainfall Stimulation Experiment in Israel (Preliminary Report). Jerusalem, Israel, Aug 1961. 17 p, 2 tables, 11 refs, numerous eqs, At head t-p: National Council for Research & Development, The Rain Committee, Artificial Rain Project.

...The purpose is to test effects of cloud seeding from aircraft in Israel, with techniques used by the C.S.I.R.O. in Australia. Seeded observations are to be compared with unseeded and not with the data of previous years. The cross-over design which is statistically much more efficient than others is to be applied to N--Northern and C--Central Israel, with an intermediate unseeded buffer zone-I. Comparisons of N-seeded units with C-seeded ones will be valid only if the allocation of seeding is random. Randomization, choice of variables, experimental units and methods of analysis are discussed. Taking into account the various considerations, and the data obtained from analyses of rainfall in the 20 seasons 1929/30-1948/49, it has been decided to use units of one week each. Alternatively, as randomization is to be in pairs, somewhat shorter units would also be adequate. Required lengths of the experiment to reveal increases of 10, 20 and 30% with probabilities of 95, 75, and 50% are tabulated. Equations and a table of "parameters for standardization" and for "alternative hypothesis" and "sequential test against alternative of 20% increase due to seeding" are appended. (DBK)

See also:

Israel National Council for Research & Development. Cloud Seeding by Aircraft in Israel. Its Artificial Rain Project Operations Report, No. 1, 1960/1961, issued Aug 1961, 15 p. Table, numerous figs and photos in Appendix. Legends in English and Hebrew.

(cont)

...This publication contains a summary of cloud-seeding operations in Israel during the rainy season of 1960/61. This report does not evaluate the results of these operations. This program's purpose is to determine the efficiency of cloud seeding with silver iodide by aircraft in Israel. The appended summary lists 34 seeding flight reports between 18 Nov 1960, and 8 Apr 1961. Appended are charts for each flight showing: limits of the silver iodide affected area; the 24-hr precipitation; the upper air sounding; and seeding time and prevailing winds. A separate paper on evaluation methods is referenced. (VJC)

See also:

Jaffe, S. and Rapaport, I.E. Artificial Stimulation of Precipitation in Israel. Israel Meteorological Service, [Publications], Series D, Contributions, No. 12, Dec 1959, 17 p, 2 figs, 11 refs. DAS M(055) I85sd.

...The natural process of precipitation and the possibility of influencing it artificially are investigated in its relation to Israel's climate. The natural process of precipitation, the "cold" and "warm" theories as means of artificial precipitation are explained. A climatological introduction is illustrated by a weather chart; then Project Cirrus and LANGMUIR's theory are reviewed as the basis of the evaluation of cloud-seeding experiments in Israel which started in Mar 1949. These experiments involved 1) seeding from aircraft, 2) from a single ground generator, 3) seeding of a target in Central Israel from ground generators, and 4) seeding in Northern Israel from ground generators on randomly chosen days. The total accumulated precipitation during three operational seasons, Oct 1953-May 1956 is shown on a map based on the final report of the American Institute of Aerological Research in Oct 1957. The last part of the report is devoted to laboratory investigations. (OT)

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21. Givoni, B. The Effects of Roof Construction Upon Indoor Temperatures. International Bioclimatological Congress, 2nd, London, Sep 1960, Proceedings, N.Y. Pergamon Press, 1962. pp 237-245. 4 figs, table, 4 refs. English, French, and German summaries, p 237. DAS M(055) I61pro.

21. (cont)

...Summarizes several investigations of the thermal effect of roof types and various roof treatments which have been carried out in Israel. (Part Author Abs.)

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22. Gold, Harold K. An Annotated Bibliography on the Climate of Israel. U.S. Dept. of Commerce, Weather Bureau, WB/BC 57, Washington, D.C., Jul 1962. 47 p. AD 660872

...Contains 110 annotated references on the climate of Israel. Many of these references are from the area formerly called Palestine. (DLB)

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23. Hillel, Daniel and Tadmore, Naphtali. Water Regime and Vegetation in the Central Negev Highlands of Israel. Ecology, Durham, N.C., 43(1):33-41, Winter 1962. 6 figs, 3 tables, 11 refs. DAS P

...In this investigation, an attempt was made to measure soil moisture changes throughout the year and to correlate these measurements with pertinent ecological data to compare the major plant habitats of a desert region in Israel. Research on the ecology of the Negev Highlands published by M. Zohary (1955), M. Zohary and Orshan (1954), D. Zohary (1953), Boyko (1949), Evanari (1961) and others is cited. A detailed description of the region includes tables of chemical and physical properties of the soils. Moisture supply - Rainfall and flood regiment and moisture storage, availability and use are discussed and data are presented in a table of estimated storage and availability of soil moisture. It is concluded that this study shows the decisive and overriding influence of the water regime on the character of plant habitats in the desert which is evidenced by the amazing contrasts between the stark barrenness of the plains and the lush luxuriance of the narrow, winding wadis. (DBK)

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24. Lauscher, F. Agrarklimatologie der semi-ariden Gebiete des mittleren Ostens [Agroclimatology of the Semi-arid Regions of the Middle East]. Wetter und Leben, Vienna, 14(9/10): 220-222, 1962. DAS M86 W542.

German

...The author summarizes the final report of the FAO, UNESCO, and of the WMO, on the program for investigation of agroclimatic conditions in the semi-arid regions of southwest Asia proposed during the seventh meeting of the FAO in 1953. In the countries of this region (Jordan, Lebanon, Syria, Iraq, etc.), there are about 40 stations with sufficiently long temperature observational records and about 10 stations with phenological data. Information on the development of winter plants was obtained by means of questionnaires. The concept of "period of active growth" embracing the two months before the heading period proved useful. Potential evaporation was measured for 22 stations by Penman's method. Also, climatic homologues to reference areas such as Cyprus, Israel, Spain, etc. were established. The circulation regime over this region and the resulting temperature and precipitation characteristics are described; the precipitation and temperature amounts required for agroclimatic purposes, the water-balance regimes, etc. are discussed with the aid of data for particular areas. (ILD)

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25. Shaia, J. Upper Air Data for Beer-Ya'agov: Summaries of Radiosonde Observations of Temperature, Humidity, and Wind at Standard Isobaric Surfaces (1957-59). Israel Meteorological Service, Series A, Meteorological Notes, No. 19, 1962. 38 p. 12 figs, 19 tables. In Hebrew and English. DAS M(055) I85m.

...The results of 3 years of radiosonde observations (1957-1959) carried out at Beer Yaakov (31°57'N, 34°51'E, 63 m), in Israel, are presented in the form of tables and graphs. The data include monthly averages of temperature, humidity, and wind at standard isobaric surfaces. (ILD)

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26. Stanhill, G. Solar Radiation in Israel. Israel Research Council, Bulletin, Section G, Geo-Sciences, 11(1):34-41, May 1962. 7 figs, 11 refs, eq. DLC QE318.A3.

...The relationship between the amount of solar radiation measured at the Earth's surface and the observed amount of cloud cover was investigated using data for 3 stations in

26. (cont)

Israel, representing the main climatic regions. Mean monthly values of cloud cover observed at 45 stations in Israel were used to prepare maps showing the annual and monthly distribution of solar radiation. Data on the year-to-year variance in the amounts to be expected are also presented. (Author)

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27. U.S. Joint Publications Research Service. The Israeli Met. Service. JPRS 13394, translation of "Sefer Ha-asov Shel Ha-Sherut Ha Meteorologi L'Medinat Yisroel" (Book of the Decade of the Met. Service of Israel), Tel Aviv 1958, Washington, D.C., 10 Apr 1962. 25 p. DAS M(06) 0585is.

...The first article by M. Gilead deals with the Israel Met. Off. its service and installation. He describes the tasks, stations, map categories, number of forecasts, inquiries, personnel and gives an organization chart.

The second article by Z. Kruthammer is a short history of the Israel Met. Service from 1938-1948.

N. Rosen describes meteorological observations and data processing in the third article.

J. Neumann describes the research work of the Met. Dept. dealing with the water economy, agriculture, irrigation, radiation, and forecasting in the fourth article.

The last article by M.L. Levi deals with the forecast center at Lydda Airport. (Part Author Abs.)

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28. Zohary, M. Plant Life of Palestine-Israel and Jordan. Ronald Press Company, New York, 1962. 262 p. DLC QK378.Z687.

...Examines the topography, soils, and climate in relation to plant ecology. Maps of Israel and Jordan include information on rainfall, soils, and vegetation. (DLB)

1963

29. Ashkel, Dov. One Hundred and Seventeen Years of Rainfall Observations (1845-1962) Hebrew University, Dept. of Climatology & Meteorology, 235 p. Jerusalem, 1963. In Hebrew and English, with foreword in Hebrew and index in Hebrew and English. Foreign Branch, EDS, ESSA.

...Consists of tables presenting the total monthly amount of rainfall for each month of the rainy period from Sep through May or Jun, year by year, for the period of record of each of 211 stations in Israel. A map, scale (1:2,100,000) is given of the annual precipitation in Israel, with isohyets spaced generally 100 mm apart; in some cases, notably near the Dead Sea, 50 mm apart. An inset map, scale not given, about (1:6,000,000), shows the number of rainy days, with isopleths spaced at 10-day intervals. These maps are based on the period 1859-1958. (VJC)

30. Bitan-Buttenwieser, A. A Comparison of Sixty Years Rainfall Between Jerusalem and Tel Aviv. "Israel Exploration Journal," Vol. 13, No. 3, 1963, pp 242-246. DLC DS111.A1I87.

...Sixty years of Tel Aviv rainfall is compared with 100-years rainfall for Jerusalem. Annual rainfall is portrayed graphically for both sites. Description of years of maximum and minimum rainfall are also included. (DLB)

31. Brichambautz, G.P. de and C.C. Wallen. A Study of Agro-climatology in Semi-Arid and Arid Zones of the Near East. WMO Tech Note, No. 56, 1963. DAS M(06) W927p.

...General description of climatic conditions are given. This study devotes special attention to rainfall and the length of the rainfall season. (DLB)

32. Elbashan, Daniel. A Method for Estimating the Average Evaporation from a Class "A" Pan. Israel Meteorological Service. Agro-Meteorological Bulletin 4/9. Bet Dagan, Jun 1963. 10 p. Hebrew and English. DLC Orientalia Div., Hebrew Section.

...Monthly and annual averages of evaporation, summarized over the period 1955-1962, for Lod, Kerem Yavne, Be-er Sheva, and Eilat. (ALS)

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33. Evenari, M. et al. Runoff-Farming in the Negev Desert of Israel. "Progress report on the Avdat and Shivta Farm Projects for the Years 1958-62," Div. of Pub., The National & University Inst. of Agri., Spec. Publ. 393-A, Project No. 413/7, Rehovat, Oct 1963. 144 p, 12 plates, station map, tables, graphs. DAS M79 E93r.

...Climatic elements discussed and tabulated are temperature, humidity, dew, evaporation, and rainfall. Monthly summaries, month-by-month, are given at 06, 12, 18 GMT of temperature: max, min, mean, dry, and wet bulb; mean relative humidity; evaporation; rainfall: total at Avdat (1960, 1961, Jan-Jun 1962) and Shivta (Mar-Sep 1960, 1961, Jan-May 1962) are presented in Tables 1-6. Tables 7-9 give the daily records of all the rain gauges at Avdat. Table 10 summarizes monthly rain totals at Shivta. Tables 11 and 12 show the dew records for Avdat in 1961 and 1962, respectively. Table 13 gives the total monthly evaporation for 1961 at Avdat and Shivta. Figs 3-7 are climograms for Avdat, Shivta, Mitspe Ramon, Beer Sheva, and Jerusalem.

The remainder of the book discusses and illustrates soil moisture (pp 42-43), runoff, and phenological data. Evaporation (p 125) rate is shown at 1961-62 for Avdat. (Author)

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34. Food & Agriculture Organization of the United Nations: Bioclimatic Map of the Mediterranean Zone - Explanatory Notes, UNESCO, Paris, Arid Zone Research, No. 21, 1963. 58 p, 6 maps. DLC GB841.S9.

34. (cont)

...This study presents a system of climatic classification based on subjective criteria and emphasizes the degree of aridity as a major factor in the determination of different climatic types. The Middle East area is included. (Part Author Abs.)

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35. Ganor, Eliezer. Average Number of Cold Days in Israel. Israel Met. Ser., Agro-Meteorological Bulletin, 4/10 Jul 1963. DLC Orientalia Div., Hebraic Section.

...Presents the average number of cold days in Israel over the period 1952-1961, scale (1:1,500,000), on a chart, with intervals spaced 10 cold days apart. A cold day is defined as a 24-hour period in which the minimum temperature drops to 5°C or below. (ALS)

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36. Gat, J.R. et al. Early Radioactive Fallout in Israel Following the 1961 Nuclear Weapon Tests. Tellus, Stockholm, 15(1):89-95, Feb 1963. 7 figs, 6 refs. DAS M(05) T277.

...Daily samples of airborne and deposited radioactivity were collected in Israel during the months following the 1961 nuclear weapon tests. The age and composition of the fallout were determined by radiochemical and decay analyses. Meteorological analysis of the data shows that, except for one case of direct cross-European transport, the favored path of arrival of the early radioactive fallout into the Levant was by a circumpolar route in the upper troposphere. From Dec 1961 onwards, there is evidence for increasing stratospheric contribution to the collected radioactivity. (Authors)

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37. Levi, M. The Dry Winter of 1962-63: A Synoptic Analysis. Israel Exploration Journal, Vol. 13, No. 3, Jerusalem, 1963, pp 229-241. DLC DS111.A1187.

37. (cont)

...Consists of a meteorological study of cyclone frequency and synoptic analysis in the eastern Mediterranean as it affected the winter drought in Israel. Both global and diffuse radiation at Jerusalem are considered. (DLB)

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38. Rosenan, N. Climatic Fluctuations in the Middle East during the Period of Instrumental Record. UNESCO, Arid Zone Research, Vol. 20, pub. 1963. pp 67-73. 4 figs, 3 tables, 15 refs. French summary p 73. DAS M83 R763ch.

(Also in: UNESCO-WMO "Symposium on Changes of Climate with Special Reference to the Arid Zones," Rome, Oct 1961. [Provisional Programme and Selected Preprints of Contributions.] 8 p. Mimeo. 4 figs, 3 tables. At head of p 1: UNESCO/NS/AZ/575, Rome Symposium, Paper No. 5. DAS M77.38 U586cLi.

...Modern meteorological records were started in the Middle East in 1860. The analysis was carried out by using parameters the annual averages of temperatures and the annual totals of precipitation for 10-yr periods. The fluctuations of 10-yr averages of annual temperature for six stations in the Middle East were tabulated. A fair agreement was found between climatic tendencies in southern Europe and the Middle East, while marked differences in climatic variations and their phase were recorded between maritime and continental stations. (SN)

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39. Stanhill, G. Evaporation in Israel. Israel Research Council, Bulletin, Section G, Geo-Sciences, 11(4):160-172, Apr 1963. 5 figs, 2 tables, 17 refs, 2 eqs. DLC QE318.A3.

...Penman's combined heat balance and aerodynamic equation has been adapted so that the evaporation from open-water surfaces can be calculated using the standard climatological data available in Israel. The errors in the method are discussed and the estimates tested against measurements from a 12-ft evaporation tank. The results

39. (cont)
indicate that the estimates are sufficiently accurate for practical use. Maps of the amount of open-water evaporation in Israel are presented on a monthly, half-yearly, and yearly basis and their practical use discussed. (Author)

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40. Thornthwaite, C.W. Average Climatic Water Balance Data of the Continents, Laboratory of Climatology, Publications in Climatology, Vol. XVI, No. 1, Part II, Asia (Excluding USSR). Centerton, N.J., 1963, 262 p. DAS M8 T513p.

...Climatic data are given for the Middle East countries (Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Saudi Arabia, Syria, and Yemen). The data include: potential evapotranspiration, precipitation, soil moisture storage, active evapotranspiration, water deficit, and water surplus (monthly and annual). (DLB)

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41. U.S. Naval Oceanographic Office. Sailing Directions for the Mediterranean. Vol. IV, publication no. 55. Washington, D.C. 1963. DAS 82/262 U58c v.4.

...This publication gives regulations, climatology, oceanography, and general navigation for all countries in the Mediterranean area, including Libya, Israel, Lebanon and Syria. General information is given on land and coastal features, with brief descriptions of winds, weather, and climatology for several port cities. (VJC)

1964

42. Ashbel, Dov. Meteorological Data. (In stations with Self-recording Instruments) Hebrew Univ., Dept. of Climatology & Meteorology, Jerusalem, 1964, 83 p. DLC QC990.P3A935. DAS M06.3/569.4 A819m.

42. (cont)

...Contains hourly observations from 25 stations for 1961-1963. Hourly temperatures and hourly relative humidity are tabulated. In addition, the mean hourly, daily maximum, and daily minimum temperatures are summarized. (DLB)

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43. Ashbel, Dov. Solar Radiation and Sunshine at Jerusalem and the Dead Sea (South), 1961-1963. Hebrew University, Dept. of Climatology and Meteorology. Jerusalem, 1964. 92 p. In English, with Hebrew and English indexes.
Foreign Branch, EDS, ESSA.

...Consists of tables of hourly global and diffuse radiation (gr. cal. cm^{-2}/hour) day-by-day for each month of the period, Jan 1961 through Dec 1963, for Jerusalem and, for the period of Jul 1960 through Oct 1963, for the Dead Sea (Southern End). Hourly radiation on a southerly-facing wall from Jan 1961 through May 1962 and on an easterly-facing wall from Jun 1962 through Dec 1963 is also given for Jerusalem. An introduction specifies the instrumentation and conditions of observations. (VJC)

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44. Great Britain Meteorological Office. Weather in the Mediterranean. Vol. II [Climatic Tables] M.O.391b. 1964. DAS M82/262 G786.

...This source consists entirely of climatic tables for summaries over a period for countries in the Mediterranean Sea area including Gibraltar, Morocco, Algeria, Tunisia, Malta, Libya, Egypt (UAR), Israel, Lebanon, Syria, Cyprus, Turkey, Crete, Greece, Albania, Yugoslavia, Italy, Corsica, Sardinia, France, and Spain; also included is a BIBLIOGRAPHY used in compiling the climatic tables. (VJC)

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45. International Association of Scientific Hydrology. Report on Hydrological Activities in Israel during the Triennium 1960-62. International Association of Scientific Hydrology, Bulletin 9(2):48-63, Jun 1964. DAS M(06) I611gl.

45. (cont)

...Agencies engaged in research bearing on hydrology are listed. A brief description of the regional and international activities of the Hydrology Section of the Israel Society of Geodesy and Geophysics includes a reference to the Israel Bibliography of Hydrology, (1957-1960) being readied for publication and to Israel's proposals for the International Hydrologic Decade. Appended is a list of 58 active and 8 completed hydrologic research projects conducted by governmental and quasigovernmental agencies, by universities, and by individuals. Given in the list are addresses of the agencies, names of project leaders, topics, short descriptions and status of the projects, and availability of publications. (DBK)

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46. ICAO/WMO Seminar, Cairo-Nicosia, 1961. High-level Forecasting for Turbine-Engined Aircraft Operations over Africa and the Middle East: Proceedings of the ... Seminar. World Meteorological Organization, Technical Note No. 64, 1964, Vol. 1, 201 p; Vol. 2, 31 p + charts. Figs, tables, refs. (WMO 159.TP.77).
DAS M(06) W927p.

...The seminar, held in two sessions in Cairo from Oct 30 to Nov 17, 1961 and Nicosia from Nov 21 to Dec 9, 1961, was designed to give aviation forecasters the opportunity of acquainting themselves with the latest techniques in this field under the guidance of recognized experts. The organizational and the technical programs are divided into two volumes as follows: Vol. 1 constitutes the report on both sessions of the seminar and includes texts of the lectures; Vol. 2 includes notes and comments on the practices followed in plotting the synoptic charts, etc. plus the synoptic charts in two series - Ser. A for North Africa and Middle East (54 charts) and Ser. B for tropical Africa (29). (PS)

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47. Jordan (Hashemite Kingdom). Central Water Authority, Pt. I 30-Year Average Rainfall in Jordan 1931-60, Pt. II. Rainfall in Jerusalem 1846-1964. Technical Paper No. 34, Amman, Dec 1964. 10 refs, 3 figs, enfolded map.
DAS 77.21/569.4 J82th.

47. (cont)

...The text describes the history of rainfall records in Jordan. Part I gives an explanation of the table, map, and the rain gauge exposures and records. The table lists the average annual rainfall for the 30-year period for 189 Jordan, 18 Syrian, and 31 stations in Palestine (Israel). Part II has an explanation of the tables, figures, and records. Table 2 contains the annual hydrologic-year rainfall, year-by-year, from 1846/47 to 1963/64; it also lists the 30-year standard period rainfall and the highest and lowest 10-year average. Figure 1 is a graph of the annual rainfall 1861-1961, year-by-year, for Jerusalem. An enfolded polychrome map shows the annual average rainfall in Jordan based on 1931-1960. (VJC)

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48. Katsnelson, J. Variability of Annual Precipitation in Palestine. "Archiv fur Met., Geophysik and Bioklimat," Serie B, Band 13, 2 Heft, pp 163-172, Vienna 1964. 7 refs, table, 2 maps, formulae. DAS M(05) A673ab.

(Also: Israel Met. Service, Series D, No. 17)

...The variability of the annual amounts of precipitation over Palestine is discussed by means of a measure called "relative interannual variability." The geographical distribution of the values of this measure is drawn on a map and is explained with the aid of the various local climatic conditions. Besides this, a map of the mean annual amounts of precipitation over Palestine is presented (period 1921-1950). Two other measures of variability, namely relative variability and coefficient of variation, are briefly discussed. For the comparison of these 3 measures, correlation coefficients between the average annual rain amounts and each of the 3 measures are evaluated. They are rather close to one another and, therefore, none of these measures is superior to the other ones. (Author)

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49. Lomas, Jacob and Gat, Z. Agrometeorological Survey of Frost Conditions in January 1964. Israel Met. Service, Series G, No. 12, Bet Dagan, 1965. 33 p. DAS M(055) I85seg No. 12.

...Contains a comparison of various cold spells with that of January 1964. By means of synoptic maps, the meteorological conditions are analyzed. Temperature data are given for a number of stations on a district-wide basis. (DLB)

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50. Lomas, Jacob et al. Meteorological Considerations in Determining the Permissible Time for Cotton Spraying from the Air in Israel. Agricultural Meteorology, Amsterdam, 1(3):225-234, Aug 1964. 5 figs, 5 tables, 9 refs. DAS M(05) A278agr.

...Five years of practical experience of aerial spraying of cotton with insecticides in the Beit Shean Valley, Israel, has shown empirically that, with the application techniques used in Israel, the best and most economical results are obtained when the operation is confined (in mid-summer) to the period from sunrise to 0830 hours. The physical and meteorological principles which govern aerial applications are reviewed. Climatological data of temperature, relative humidity and wet bulb depression from a number of representative observing stations with long-term records are used to divide Israel into three fairly homogeneous climatic zones. These considerations indicate that in the semi-arid zone (Area 3), which includes the Beit Shean Valley, spraying should be confined to four hours after sunrise, but in the interior of the country (Area 2), this period might be extended to 4½ hours, and in the coastal region (Area 1) to 5½ hours. It is suggested that the methods used in this study might be applied in other areas and for other crops. (Part Author Abs.)

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51. Lomas, Jacob and Gat, Z. Sakar agro-meteorologi raeshoni shelerua hakarah besof detzember 1963 [First Agrometeorological Review of the Cold Spell at the End of December 1963.] Israel Meteorological Service. Series C (Meteorological Records), No. 12. 20 p + 5 maps. Bet Dagan, 1964. In Hebrew. DAS M(055) I85seg No. 12.

51. (cont)

...Contains a summary over period of 1957-1961 showing number of cold spells of various durations and percentage of days in which temperatures of 4°C and 0°C were reached. Mean and absolute temperatures are also given. Locations are: Acco, Tel Aviv, Hakirya, Lod Airport, Har Tabor, Ramat David, Heftzebah, Beit Jimal, Beer Sheva, Dafnah, Dagania A', En Ha-horesh, Kfar Bloom, Maoz Hayim, and En Yahav. (DLB)

Hebrew

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52. Shaia, J.S. Characteristics of the 500-Millibar Surface over Beer-Ya' Aqov on Rain-Days. Israel Met. Service, Series A (Met. Notes) No. 20, Bet Dagan, 1964. 33 p. 6 figs, 11 tables. DAS M(055) I85m.

...This study gives tables and graphical presentations showing the behavior of height levels, temperature, and wind at the 500-mb surface over Beer-Ya'Aqov on rain-days based on observations for 1957-61. A rain-day is defined as 24 hr period starting at 08 LST with rainfall 1 mm or more.

Seven figures show the average height of the 500-mb surface; 24-hrly average temperature at 500 mb; percentage frequency of deviation of temperature at 500 mb on rain-days from monthly average; average wind speed at 500 mb, resultant winds at 500 mb on rain-days; and wind roses at 500 mb on rain-days. (Author)

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53. U.S. Army Natick Laboratories. World Maps of High Dry-Bulb and Wet-Bulb Temperatures, Natick Labs., ESD, Tech. Rpt. ES-11, Natick, Mass., Aug 1964, 18 p. Maps. AD 447402 & DAS M86 U5854.

...Contains maps of high temperatures: warmest month, mean monthly maximum; percentage frequency of maximum temperatures $\geq$ 100°F, 105°F, 110°F, 115°F, and 120°F; frequency of hourly temperatures $\geq$ 100°F, 105°F, 110°F, and 115°F; mean duration of hot spells; and mean daily maximum wet bulb $\geq$ 70°F. The dry-bulb temperature maps are pertinent to the Middle East area. (DLB)

1965

54. Ashbel, Dov et al. Soil Temperature in Different Latitudes and Different Climates. The Hebrew University of Jerusalem, Jerusalem, 1965. 214 p. DAS M25.4 A799s.

...Contains worldwide soil temperature curves. Included is a special section devoted to Israel. Soil temperature curves and general descriptions are given for the Negev Desert, the coastal plain, and the Jordan Valley. (DLB)

55. Ashbel, Dov. Sunny Climate of Jerusalem, 1860-1964. Jerusalem, Israel. Hebrew University, [1965?]. [185 p] + [42]. In Hebrew and English. Mostly tables and charts. DAS M82.2/569.4 A819su.

...This climatological summary of the climate of Jerusalem contains data: on solar radiation (normal, global diffuse, ultraviolet, radiation net exchange, spectral distribution, and radiation on walls and slopes); on daylight, including outside illumination on horizontal surfaces, walls and slopes, and on buildings with different sizes of windows; on air temperature, including hourly mean isopleths, hourly means for each month of the years 1930-1963, daily maxima and minima for 1930-1963, and monthly variation and minimum values (mean and absolute) for the years 1882-1963; on soil temperatures on Mt. Scopus, in Talpioth, and Mevooth-Beitar, including hourly and monthly values for depths of 0-100 cm on horizontal surfaces, on slopes, and in different soils in the same climatic conditions; on relative humidity, hourly isopleths for the year and hourly values for each month of the period 1930-1963; on wind velocities, including hourly mean values and daily wind flow (on Mt. Scopus and in the city); and on sunshine hours and rainfall. The history of meteorological observations in Jerusalem is reviewed briefly. The solar radiation, the synoptic aspects of air temperature, temperature trends, temperature thresholds, cooling power, and atmospheric precipitation are discussed. (ILD)

56. Ashford, O.M. Agroclimatology in the Near East: Technical Conference in Beirut, World Meteorological Organization, WMO Bulletin 14(2):115-118, Apr 1965. Figs, refs. DAS M(05) W927w.

...Reports on the technical conference held in Beirut, Sep 28-Oct 9, 1964. The first part of the conference was devoted to lectures and discussions on the importance of agroclimatology in general and on the particular methods developed earlier. The need for taking full account of climatological factors in agricultural planning and operating was stressed. The methods of analyzing precipitation and temperature data were described and special attention was also given to methods used in studies of the water balance. Practical exercises were conducted. (ES)

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57. Dodd, A.V. Some Aspects of the Climate of South-West Asia. Met. Mag., Vol. 94, No. 1110, Jan 1965, pp 38-47. DAS M(05) G786n.

...Consists of a general description of the climate of southwest Asia. The area is defined as including Iran, Iraq, Israel, Jordan, Lebanon, Saudi Arabia, Syria, Turkey, and Yemen. Isohyetal maps give mean precipitation for January and July. Isotherm maps give absolute and mean extreme temperatures for January and July. (DLB)

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58. Gabriel, K.R. Expérience de pluie provoquée en Israël: quelques résultats partiels. [Artificial Rain Experiment in Israel: Some Partial Results.] Journal de Recherches Atmosphériques, Toulouse, No. 1:1-5, Jan/Mar 1965. 2 tables, ref. French and English summaries pp 1-2. DAS M(055) P994bu.

...A randomized experiment of artificial rainfall stimulation has been carried out in Israel during the last 3½ rainy seasons. The experiment uses a cross-over design to compare rainfall amounts in the north and the center of Israel, each day being randomly allocated for cloud seeding with AgI either in the North or the center, the other area serving as control. The amount of rainfall

58. (cont)

under seeding is found to have been about 18% more than without seeding. This result is significant at about the 10% level. Detailed analyses suggest that the difference in rainfall due to seeding is particularly marked in marginal rainfall conditions, i.e., when there is little or no natural rainfall. The experiment is continuing. (Author)

French

See also:

Gabriel, K.R. Artificial Rainfall Stimulation Experiment in Israel - Some Interim Results. (In: International Conference on Cloud Physics, Tokyo and Sapporo, May 24-Jun 1, 1965, Proceedings Supplement. Tokyo, Oct 1965. pp 163-166. Tables.) DAS M74.1 I61p Suppl.

Gabriel, K.R. The Israeli Artificial Rainfall Stimulation Experiment - An Interion Statistical Evaluation of Results. Hebrew Univ., Dept. of Statistics, Jerusalem, 1965, 23 p.

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59. Gagin, A. Ice Nuclei: Their Physical Characteristics and Possible Effect on Precipitation Initiation. (In: International Conference on Cloud Physics, Tokyo and Sapporo, May 24-Jun 1, 1965, Proceedings. Tokyo, [May 1965]. pp 155-162. Figs, tables, refs, eqs. DAS M74.1 I61p.

...The results of measurements of ice nucleus concentrations in and around Jerusalem during the winter seasons 1961-62, 1962-63, and 1963-64 are presented and discussed. The measurements were made with a mixing cloud chamber at a central site and with the Millipore filter technique at 5 sampling ground stations and aboard an aircraft. The results of a comparison of the mixing cloud chamber method and the Millipore technique showed good agreement generally but also showed the corrections necessary to the Millipore readings. The results demonstrated a marked day-to-day variation in the nuclei concentrations with great variability on stormy days. The dust was thought to originate in north Africa and southern Negev Deserts; high concentrations were noted with southwesterly surface winds. The results are presented of a mineralogical and granular analysis of various desert soils. The meteoric dust theory of origin of ice nuclei could not be verified with these results. (RB)

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60. Gindel, I. Irrigation of Plants with Atmospheric Water Within the Desert. Nature, London, 207(5002):1173-1175, Sep 11, 1965. 2 figs, 3 tables, 3 refs.
DAS P & DLC Q1.N2.

...A series of experiments is described in which the feasibility of collecting dew and rainfall in desert areas and concentrating the collected water into the root areas of plants was investigated. The research was carried out in deserts of the sub-tropical zone of Israel. Polyethylene sheets were used to collect both dew and rainfall. In preliminary experiments dew forming on the sheets was channeled into collecting bottles and records kept of the dew collected and the climatic aspects of dew collection. A short summary is given of the frequency and amount of dew collection and its geographical variation over the area. In later experiments dew and rain were channeled, using similar polyethylene sheeting, into the root areas of newly-planted trees. This demonstrated that it is possible to plant xerophytes during the dry season and to keep them alive with moisture collected from dew or mist until the rainy season. (RB)

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61. Israel Central Bureau of Statistics. Statistical Abstract of Israel. Annual Series, 1950-65 (No. 17 pub. 1966). Census 188 A8y 1966.

...Monthly average rainfall (1931-60) is tabulated for Jerusalem, Haifa Port, Tel Aviv, and Be'er Sheva. Mean monthly relative humidity [illegible] bled for 11 stations, the period varies within 1940-196[illegible] ie monthly mean no. of days (14 stas) (POR 1938/39-4[illegible]) and amount of precipitation (19 stas) (POR 1931-60) are included. Monthly mean of the daily max and min temperature for 11 stas are tabled and the period of record varies within 1940-1960.

This series also contains monthly climatic data year-by-year and annual data of no. of days with: fog, gales, thunder, hail, snow, temp min < 5° and max > 30°, precip. > 1 mm, and also total precip for the year for 22 stations. (VJC)

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62. Israel Meteorological Service. Agro-Meteorological Bulletin Oct 1959 ... - (Dec 1965). Issued monthly in Hebrew and English. DLC Orientalia Div., Hebraic Section.

...Contains data for 14 Israeli stations. The summarized data include: air temperature (maximum and minimum, ten-day means, monthly means, and departure from normal); rainfall (daily, ten-day, monthly totals, and departure from normal); evaporation; and soil temperature at depths of 2, 5, 10, 20, 50, and 100 cm. (DLB)

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63. Israel Meteorological Service. Annual Weather Report, 1963. Its Series B, No. 198/W, pub 1965. Sections Separately paged. Tables. In Hebrew and English. DAS 106.1/569.4 I85ab.

Also available 1948 ... 1963

...Routine meteorological observations taken at stations operating throughout 1963 are summarized in a series of tables featuring monthly and annual means of various climatic elements, averages, extremes, deviations from normal, etc. The annual temperature exceeded the average values of most stations by 3°C to 7°C. Mar, May, and Dec were colder than normal and all the other months of the year were warmer than normal. Aug was the hottest, and Dec, the coldest month of the year, except at some few stations where Jan and Mar were slightly colder. The highest temperature of the year was 44°C recorded at Elat, Jun 18 and 28, 1963; the lowest - 3.2°C was recorded at Ramat David, Dec 28, 1963. The Israel annual rain values (not utilizing the Gregorian calendar as a time unit) are contained in the Annual Rainfall Summary of 1962/1963 and 1963/1964 published by the Israel Meteorological Service. (WN)

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64. Levi, M. Local Winds Around the Mediterranean Sea. Israel Met. Ser., Series C (Misc. papers) No. 13, Bet Dagan 1965, 4 p. Map, Hebrew-English. DAS M(055) I85ma.

64. (cont)

...Textual description of local winds over the lands surrounding the Mediterranean Sea. A map shows the direction, season, moisture or dryness and accompanying weather of these local winds. (ALS)

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65. Neumann, J. et al. Studies in the Synoptic Uses of Meteorological Satellite Data. Jerusalem. Hebrew Univ., Dept. of Meteorology, Contract Cwb-10834, Report No. 1, Mar 1964-Feb 1965. 1965. 84 p. Figs (2 fold.). DAS M(055) J56re.

...The general area of the Mediterranean and the Middle East includes extensive sea and desert areas where the density of reporting stations is extremely small. The synoptic maps prepared on the basis of conventional meteorological data are reexamined in the light of the additional information presented by both the Tiros photographs and radiation data (8-12 μ) where, of all the orbits studied, the results of 14 such orbits are described. In some of the cases, it was found necessary and possible to correct the original synoptic analysis and, in such cases, an amended analysis is presented on a transparent overlay along with a copy of the chart. (Author)

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66. Ross, J. and Lomas, J. The Wind Regime of the Besor Region. Israel Meteorological Service, Series C, No. 14, Bet Dagan, 1965, 23 p. (In Hebrew and English). DLC Oriental a Div., Hebraic Section.

...This study examines the winds of the Besor region. The primary data source is the meteorological station of Beer Sheva. Wind roses, beaufort force and frequency distribution of winds is given for Beer Sheva. Annual and monthly frequency distribution of winds is given for Beer Sheva, Gilat, and Nir Yizhaq. (DLB)

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67. Salteil. Note sur l'évolution climatique d'Israël durant le XIXe et le XXe siécle [Note on Climatic Development in Israel during the 19th and 20th Centuries] Revue de Géographie Alpine, Grenoble, 53(3):479-486, 1965. Figs, refs. DAS P

French

...In connection with the droughts of 1957-58 and 1962-1963 in Israel, which have caused disturbances in the hydrological balance, the author attempts to determine whether these droughts are ephemeral or reflections of a continuous climatic process. The pluviometric data at Jerusalem are transformed into long-period running means and a comparison is made between the last year of a 60-, 30-, and 5-yr period with the level of the Dead Sea for the same year. The author discusses the fluctuation of levels of the Dead Sea, the annual running means of precipitation of Jerusalem for 60, 30, and 5 yrs and climatic phenomena in this century associated with the warming of the Earth. The drop in the level of the Dead Sea by 6 m during the past 30 yrs and the diminution of 80 mm in the annual running mean (60 yrs) of precipitation in Jerusalem between 1905-1906 and 1961-1962 reflect the participation of Israel in the amelioration and warming of the climate of the surface of the Earth. (ILD)

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68. Shachori, A.Y. and Michaeli, A. Water Yields of Forest, Maquis, and Grass Covers in Semi-arid Regions: A Literature Review. UNESCO, Arid Zone Research, No. 25, 1965. pp 467-477. Figs, tables, refs. French summary p 475. DAS M86:581 S5989me & DLC GB841.S9.

...Published data are presented on the water yields in catchment basins in northern Israel. The ecological significance of the data is discussed. (DLB)

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69. Sharon, D. Variability of Rainfall in Israel. Israel Exploration Journal, Vol. 15, No. 3, Jerusalem, 1965. pp 169-176. DLC DS111.A1I87.

...Contains a map of the relative standard deviation of the annual amounts of rainfall. Comparisons are made of rainfall deviations at a number of stations. (DLB)

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70. Shaw, Berenice. Depressions and Associated Desert Locust Swarm Movements in the Middle East: An Outline with Particular Reference to the Spring of 1961 and 1962. World Meteorological Organization, Technical Note No. 69:194-198, 1965. Figs, table. DAS M(06) W927p.

...Since Mar 1961 the Desert Locust Information Service has been making use of current meteorological observations to follow swarm movements. Synoptic observations have been plotted and an elementary analysis of the 850-mb flow has been made. During the spring periods of 1961 and 1962, at least 13 depressions passing through the Middle East were associated with major swarm movements. Brief data on the histories of these storms are tabulated and some conclusions drawn. The depressions affecting swarm movements are generally the most intense ones which pass through the region. Quite frequently they could be distinguished as closed lows on upper air charts, at least up to the 700- and 500-mb levels. Secondly, they introduced a surge of warm southerly air, ahead of the cold front, sufficiently vigorous to transport the locusts northwards for a considerable distance. In this respect, not only the intensity but also the track followed by the depression is significant; this was observed particularly in the case of some of the Saharan or Khamsin depressions. Thirdly, the surge of warm air from the south was complemented by a marked cold pool of air moving in the rear of either the same or a closely associated depression. (RB)

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71. Stanhill, G. Comparison of Four Methods of Estimating Solar Radiation. UNESCO, Arid Zone Research, No. 25, 1965. pp 55-61. Figs, table, refs. French summary pp 59-61. DAS M86:581 S989mc.

...The accuracy of measurements of global radiation by 4 methods involving the use of climatic parameters or simple actinographic devices is determined by comparison with the standard measurements obtained from a new Moll-Gorczyński solarimeter thermopile. The methods tested were: 1) estimation of global radiation expressed as a fraction of the extra-terrestrial value from observations of cloud cover; 2) estimation of global radiation as a fraction of extra-terrestrial value on the basis of measurements of hours of bright sunshine obtained from a Campbell-Stokes recorder and expressed as a fraction

71. (cont)

of possible hours; 3) estimation by the amount of water distilled in an improved Gunn-Bellani radiation integrator; and 4) comparison of records from a bimetallic actinograph with the standard measurements. The measurements were made at Gilat, Israel on an arid climate and the accuracy was tested for daily, weekly, and monthly intervals. (ILD)

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72. Stanhill, G. Observations on the Reduction of Soil Temperature. Agricultural Meteorology, Amsterdam, 2(3): 197-203, Jun 1965. Figs, refs. DAS M(05) A278agr.

...In some of the growing areas of Israel, the soil temperature during the day at sowing depth is above the average optimum for vegetable crop germination from the beginning of June until mid-Sep. During July the temperature equals the average maximum for germination. Surface dressings of a commercial grade of magnesium carbonate were applied in an attempt to reduce the temperatures. These maximum soil temperatures were reduced by some 10°C for approximately 3 weeks after treatment. Doubling the rate of application did not increase the effect, but it was maintained for a longer period. Measurements showed that the radiation balance on the treated surfaces was only 1/6 of that on the control surface, mainly because the application of magnesium carbonate doubled the albedo of the soil surface. The treatment reduced the evaporative heat flux by 1/5 and reversed the direction of the convective-heat flux. Except in the period immediately following application, the soil heat flux was not greatly affected by the surface treatment. (Author)

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73. Stanhill, G. The Accuracy of the Meteorological Estimates of Evapotranspiration in Arid Lands. Institution of Water Engineers, Journal, Vol. 15, 1965. pp 477-482. DLC TC1.I672.

...Contains comparisons of the potential evapotranspiration determined by a number of methods. Estimates given are for the Negev desert. (DLB)

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74. Stanhill, G. The Concept of Potential Evapotranspiration in Arid Zone Agriculture. UNESCO, Arid Zone Research, Vol. 25, 1965. pp 109-117. DLC GB84189 & DAS M86:581 S989me.

...On the basis of experiments carried out at Gilat (34°40'E, 31°20'N), an experimental farm in the Negev, the author discusses the accuracy of meteorological estimates of potential evapotranspiration in arid zones, the importance of the oasis effect in potential and actual evapotranspiration, the effect of crop height on potential evapotranspiration, and the effect of crops on evapotranspiration and water requirement. Methods of determining potential evapotranspiration based on open-water evaporation either estimated from PENMAN's meteorological formula or measured in an open evaporation tank gave the best results. The size of the irrigated area and the crop height exert great influence upon potential evapotranspiration. The concept of potential evapotranspiration is of limited use in arid-zone agriculture. (ILD)

1966

75. Ashbel, Dov. Climate of the Great Rift-Arava, Dead Sea, Jordan Valley. Hebrew Univ., Jerusalem, 1966. 228 p, maps, DLC QC990.P3A927.

...Consists of a general description of the climate of the Jordan Valley area. A number of parameters have been tabulated: mean monthly temperature (wet bulb and dry bulb); relative humidity and absolute relative humidity; evaporation; sunshine (hrs.); rainfall and rainfall percentage frequency. (DLB)

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76. Elbashan, D. Monthly Rainfall Isomers in Israel. Israel Met. Service, Series D (Contributions), No. 19, (reprint from Israel J. of Earth-Sciences, Vol. 15, 1966) pp 1-7, Bet Dagan, 1966. 10 maps, 5 refs, table, 2 figs. DAS M(055) I85sd No. 19.

76. (cont)

...Nine maps were prepared, showing isopleths of average isomeric values (monthly rainfall compared to annual rainfall) for Sep-May of the rainy season during 1931-60. The tenth map covers the month of the maximum rainfall in Israel. Table 1 gives the monthly (Sep-May) percentage of the annual amount and annual rainfall for Tel-Aviv (1931-60). Fig 1 is a graph of isomeric (%) profiles across Palestine for Nov and Feb 1931-60. (Author)

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77. Gabriel, K.R. The Israeli Artificial Rainfall Stimulation Experiment: Statistical Evaluation for the Period 1961-1965. Jerusalem, 1965. 43 p. Figs, tables. Biblio. pp 38-41. DAS M09.617 G118i.

Also see:

Israeli Artificial Rainfall Stimulation Experiment: Statistical Tables for the Period 1961-1966. Jerusalem, 1966. 18 p. Mostly tables.

"These appended tables bring the analysis of the results up to date by including data of the 1965/1966 rainy season." DAS M09.617 G118i.

...A rainfall stimulation experiment is being carried out in Israel by seeding AgI from an aircraft in a randomized cross-over design. Results of 4½ seasons show 15% more rainfall with seeding than without, a result which is 5% significant. It is suspected that the excess precipitation has occurred mainly on a small number of days on which seeding apparently was very effective. It has not been possible to identify meteorological conditions particularly favorable to seeding effectiveness. No evidence has been found that seeding effects persist beyond the day of seeding. (Author)

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78. Kolb, C.R. and Dornbusch, W.K., Jr. Analogs of Yuma Terrain in the Middle East Desert. U.S. Army Engineer Waterways Experiment Station, Tech Report No. 3-630, Vicksburg, Miss., Jun 1966. 19 plates. AD 487434.

78. (cont)

...Contains basic terrain and analog maps. Maps of soil types and soil consistency are included. In addition, other maps describing the physical environment of the Middle East are also presented. (DLB)

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79. Krown, Leo. An Approach to Forecasting Seasonal Rainfall in Israel. Journal of Applied Met., Vol. 5, No. 5, Oct 1966. pp 590-594. 7 refs, 2 tables, 4 figs.
DAS M(05) J86joa.

(Also Israel Met. Service, Series D, No. 20)

...In a study of 41 yrs of rainfall records, it was found that Oct rainfall amounts correlated well with the following season's total rainfall for Israel. Using mean 500-mb contour charts for the period 1950-1964, a study of the relationship of the mean circulation patterns in Oct to subsequent 3-month rainfall is presented. It was found that the position and intensity of the mean trough in the Mediterranean, preceding dry, wet, and normal seasons, was markedly different for each category. The use of the next upstream trough in the Atlantic as an additional parameter indicates that long waves in Oct are followed by wet seasons, and short waves by dry seasons. The results obtained for the period studied suggest that these parameters can be used as reliable and objective tools in forecasting winter rains in Israel. (Author)

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80. Lomas, Jacob et al. Agrotopoclimatological Survey in the Valley of Bet-Shean During the Winter Seasons 1963/64-1965/66. Israel Met. Service, Series C, No. 21, Bet Dagan, 1966. DAS M(055) I85ma.

...The agrotopoclimatological survey was carried out using 43 stations, along three main topographical sections (see Map 1), measuring daily minimum temperature at a height of 50 cm above the ground. The average density of the network was about 1 station/2 Km^2. The regional agrometeorological station at Tirat Zevi (Height - - - 240 m below sea level, Longitude 35°33', Latitude 32°25') was used as the basic station. In addition to the standard instrumentation, minimum

80. (cont)

temperature at 50 and 100 cm above the ground was measured and a thermograph-recorded temperature duration at 5 cm above the ground. The topoclimatological investigation took place during the winter months (Nov-Apr), of 1964/65 and 1 /66, following the preliminary survey of 1963/64. (Author)

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81. Lomas, Jacob et al. The Effect of an Artificial Windbreak on the Microclimate, Plant Development, and Yields of Peanuts in the B'sor Region. Israel Met. Service, Series C, No. 15, Bet Dagan, 1966. 57 p. In Hebrew (English summary) DAS M(055) I85ma.

Hebrew

...This study shows the effects of artificial windbreaks on microclimate. Data are given to indicate reduction of wind speeds and an increase in relative humidity. (DLB)

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82. Sharon, D. Microclimatological Studies in the Valley of Sorek, Near Jerusalem. Israel Exploration Journal, Vol. 16, No. 1, Jerusalem, 1966. pp 77-78. DLC DS111.A1I87.

...A short description of the methods and results of the study carried out by the Hebrew University. Observations were obtained at 75 stations. It was found that inversions are developed on 75% of the nights. Slope influence on temperature is also discussed. (DLB)

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83. Thaller, M. Meteorological Data Acquisition by Means of a Simple Automatic Station. World Meteorological Organization, Technical Note No. 82:265-270, 1967.

See also:

(WMO 200.T.P.104) (WMO Technical Conference on Automatic Weather Stations, Geneva, 1966, Automatic Weather Stations: Proceedings of the Conference). DAS M(06) W927p.

83. (cont)

...Describes an automatic land weather station developed by the Israel Met. Serv. The station measures pressure, temperature, relative humidity, and wind direction and speed. Elements for precipitation are being developed. The listed salient features of the station include the following: transmission by radio or telephone, type of signal: audio frequency, transmitter frequency: 165.15 MHz, power: 5 W at automatic station and 10 W at interrogating editing station, mode of operation: FM, starting system: manual remote starting or by automatic remote interrogation device, and power source: Ni-cadmium batteries. In concluding his description of the components, the author stresses that the simplest and most economical station will be the one which serves a limited and well-defined purpose. To provide for every possible demand and contingency would call for elaborate and expensive equipment which may not always be fully utilized. (DBK)

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84. Yaalon, D.H. and Ganor, E. Climatic Factor of Wind Erodibility and Dust Blowing in Israel. Israel Journal of Earth-Sciences (formerly Israel, Research Council Bulletin, Sect. G, Geo-Sciences), Jerusalem, 15(1):27-32, Jun 1966. Figs, table, refs, eqs. DLC QE318.A3.

...A climatic index of wind erodibility based on wind velocity and effective precipitation was found to be suitable for the delimiting of relative wind erosion conditions in various regions of Israel. A very high index of wind erodibility is obtained for the Negev. Some mountain areas in the Mediterranean climatic region belong to a higher erodibility class than the very low-rated rest of the region. An intermediate to high index is obtained for the semi-arid regions. (Author)

1967

85. Ashbel, Dov. Frequencies of Temperature Thresholds (hours per month) and Maximum-Minimum Graphs. Jerusalem Hebrew Univ., 1967. Unpaged. Numerous charts and tables. Text in English and Hebrew. DAS M24.36 A819fr.

...Contains graphs of daily mean, maximum and minimum, and tables of temperature frequencies for varying periods at ~ 100 stations mostly in Israel, and a few in Turkey, Syria, Iraq, and Lebanon. (DBK)

86. Blanc, Milton L. and Cohen, Obadiah P. Climate and Soil Moisture Extraction, Gilat, Israel. Agricultural Meteorology, Amsterdam, 4(5):367-371, Sep 1967. Figs. DAS M(05) A278agr.

...A research project in the northern Negev is reported. The object is to collect and publish, for a 2-yr period, daily measurements of soil moisture change and attendant meteorological conditions. Soil moisture is measured daily with neutron probes by 15 cm increments to a depth of 3 m and by 50 cm increments from 3 to 5 m. Two irrigation treatments in alfalfa (lucerne) and two over bare soil provide the treatment variables. This paper describes location, plot layout, instrumentation, observational techniques, form and content of final report, and availability of complete data in forms suitable for machine processing. (Author)

87. Doron, E. and A. Cohen. Mountain Lee Waves in the Middle East: Theoretical Calculations Compared with Satellite Pictures. Meteorological Satellite Data-Final Report of Studies, Hebrew Univ., Dept. of Meteorology, Contract CWB-11055 (U.S. Weather Bureau), Jerusalem, 1967. 12 p. DAS M(051) J56re final.

87. (cont)

...Four cases of mountain lee waves in the Middle East are discussed. The wavelengths, as observed on satellite pictures, are compared with calculation of wavelengths based on several different assumptions. Results show that the theory most applicable in the region is the one assuming an exponential increase in the wind speed with height. (Author)

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88. Gabriel, K.R. Recent Results of the Israeli Artificial Rainfall Stimulation Experiment. Journal of Applied Meteorology, Boston, 6(2):437-438, Apr 1967. Tables, refs. DAS M(05) J86joa.

...Reports that a randomized experiment of seeding clouds with AgI from aircraft has been in operation in Israel since 1961. Data for 5½ seasons are summarized. Detailed study of the data suggests that seeding may have occasional very strong effects and little or no effect on most days. It is noted that the use of a randomized test on the average S/NS ratio would have given more significant results. (ES)

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89. Gabriel, K.R. et al. Statistical Investigation of Persistence in the Israeli Artificial Rainfall Stimulation Experiment. Journal of Applied Meteorology, Boston, 6(2):323-325, Apr 1967. Tables, refs. DAS M(05) J86joa.

...A number of tests of the data of the Israeli rainfall stimulation experiment have not shown any evidence of persistence of effects of cloud seeding, either from day-to-day, or within each season, or from season-to-season. (Author)

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90. Guss, Hans. Statistische Charakteristiken des Hohenwindes fur den Raum Nordatlantik-Europa-Naher Osten [Statistical Characteristics of Upper Air Winds for the North Atlantic-European-Near Eastern Area], Berichte des Deutschen Wetterdienstes, No. 105, Band 14, Offenbach a.M., 1967. 8 p, 44 maps. DAS M(055) G373ba.

90. (cont)

German

...The circulation conditions of the lower stratosphere in the North Atlantic-European-Near Eastern Region and upper wind conditions at 22 mb and 96 mb have been examined. Radiowind measurements mainly were taken as a base. To obtain a network of points of intersection of coordinates, these measurement results were completed from synoptic upper-air charts -- for the above-mentioned levels -- by using cyclostrophic wind and by interpolation to a universe of wind values free of gaps. On the basis of such homogeneous material some statistical characteristics of upper wind have been computed and represented on regional maps for the North Atlantic-European Region with wind roses, isotachs, mean vector winds, and persistence as well as zonal and meridional standard deviations. (Part Author Abs.)

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91. Israel Meteorological Service. Climatological Standard Normals of Rainfall 1931-1960. Its Serie A, No. 21, Bet Dagan, 1967, 48 p. DLC Orientalia Div., Hebraic Section.

...Contains climatological standard normals of rainfall. Additional tables contain monthly and annual rain amounts and departure from normal for a number of stations. Several rainfall maps are also included. (DLB)

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92. Katsnelson, J. Frequency of Hail in Israel. Israel Journal of Earth-Sciences, Jerusalem, 16(1):1-4, Mar 1967, issued Dec 1967. Table, refs. (formerly Research Council Bulletin, Section G, Geo-Sciences). DLC Orientalia Div., Hebraic Section.

...Conclusions about the seasonal distribution of hail in the central coastal plain of Israel are drawn from detailed data taken at Lod Airport. Cases of rare and heavy hail at the extremities of the season are mentioned for this and other regions. (Author)

See also:

Hadas, A. Distribution of Hail in Israel. Israel Journal of Earth-Sciences, Jerusalem, 16(1):5-6, Mar 1967, issued Dec 1967. Refs. DLC Orientalia Div., Hebraic Section.

...Presents a statistical analysis of 18 yrs of record reported by KATSNELSON (1967). The results are presented in frequency tables; the striking feature is the deviation of the 3 large frequencies of hail cases from the rest of the groups. It suggests that this may prove to be an intrinsic feature of the distribution of hail cases in Israel. The accumulation of data will, in time, give the answer to this question. (DBK)

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93. Katsnelson, J. Regional Climate in Israel. Israel Meteorological Service, Series A, No. 23, Bet Dagan, 1967. 27 p. (In Hebrew). DLC Orientalia Div., Hebraic Section.

Hebrew

...Describes regional climates by means of narrative and data. Comparisons are made between regions in Israel for temperature and rainfall. (DLB)

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94. Katsnelson, J. Rainfall in Israel as a Basic Factor in the Water Budget of the Country. Israel Met. Service, Series A, No. 24, Bet Dagan, 1967.

Unavailable for abstracting.

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95. Levi, M. Fog in Israel. Israel Journal of Earth-Sciences, Jerusalem, 16(1):7-21, Mar 1967, issued Dec 1967. Figs, charts, tables, refs. DLC Orientalia Div. Also: Israel Met. Service, Series D, No. 21, 1967. DAS M(055) I85sd.

...Synoptic conditions in the eastern Mediterranean, favorable for fog formation in Israel, are discussed with schematic maps. Diurnal land breeze - sea breeze

95. (cont)

circulation and presence of subsidence inversions and radiational temperature inversions play a decisive role in fog formation in most regions of the country. Topographic influences, local winds, and katabatic flow become more important with increasing distance from the Mediterranean shore. Normal frequencies and duration of fog are given for a number of representative synoptic stations. (Author)

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96. Levi, Michael. On the Moisture Sources of Clouds Connected with the Subtropical Jetstream in the Middle East. Meteorological Satellite Data - Final Report of Studies, Hebrew Univ., Dept. of Meteorology, Contract CWB-11055 (U.S. Weather Bureau), Jerusalem, 1967. 6 p, fig. DAS M(051) J56re final.

...This study investigates middle- and high-level clouds which accompany the subtropical jet stream in the Middle East. The clouds are analyzed by means of satellite photographs of the Middle East area. (DLB)

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97. Ritter, G.W. Climate and Visibility in the Middle East. Naval Missile Center, TM-67-29, Point Mugu, Calif., Jul 1967, 18 p. 5 refs, 6 tables. AD 816828L.

...This report provides a brief description of those climatic conditions which are believed to be significant to visibility for one region of the world, the Middle East, includes Jerusalem and Israel. The report contains general descriptive material and a representative amount of tabulated data (temperature, relative humidity, precipitation, etc.) for the Middle East. The data are seasonal (Jan, Apr, Jul, Oct). (Author)

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98. Striem, H.L. Comparative Study of Rainfall Frequency-distribution Spectra for Jerusalem and Rome. Israel Journal of Earth-Sciences (formerly Research Council Bulletin, Section G, Geo-Sciences), Jerusalem, 16(1):22-29, Mar 1967, issued Dec 1967. Figs, tables, refs. DLC Orientalia Div., Hebraic Section.

...The analytical uses of the frequency-distribution spectrum of annual rainfalls were studied by comparison of the precipitation over long periods at Jerusalem and at Rome. Groupings about several maxima of the spectrum indicate a mechanism whereby each rainfall group is related to one, [illegible] of a few specific, "Grosswetterlage," each predominating in a region during a given year. The groupings make it possible to indicate a probability for each of the 5 rainfall types defined. The spectrum of the rainfall frequency-distribution for short periods (20 yrs) is found to have a fairly constant width, and to shift relative to the scale over long periods. Application of the concept of a quasiconstant spectral width shifting relative to the fixed scale to the chronological sequence of annual rainfalls enables drawing of cyclically curving band. Calculation of the frequency of cases along strips of the chronological zonal bands gave strips of high density separated by strips of low density and justified the aforementioned groupings. The cycles vary in length from 30 to 65 yrs. Jerusalem appears to be now in an upward trend of the present rainf l cycle. (Author)

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99. United States Air Force, Air Weather Service, Hqs 5th Weather Wing. Climatic Data Summaries for the Middle East, Africa, and Southern Asia. 5WWM 105-1, Vol. III, Langley AFB, Va., 15 Sep 1967. IPB Files.

...Stations of interest to this bibliography in this publication are Aleppo, Damascus, Syria; Amman, Jordan; Beirut Intl, Lebanon, and Tel-Aviv and Eilat, Israel. Mean monthly and annual summaries over a period list: temperature-mean daily maximum and minimum, extreme maximum and minimum, precipitation amount, 24 hr maximum; snowfall-amount, 24 hr maximum, surface wind-prevailing direction, mean speed, extreme speed; mean take off and/or landing

99. (cont)

data (dewpoint, relative humidity, vapor pressure, 99.95% pressure altitude); mean number of days with hail, thunderstorms, precip. ≥ 0.1 in., snowfall ≥ .1 and ≥ 1.5 inch, temperature max ≥ 90 and 80°F min ≤ 32 and ≤ 0°F. Mean monthly and annual percentage frequency of flying weather at specified hours (ceiling and vsby). (ALS)

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100. Walther, S. Probability of Rain Days in Israel. Israel Meteorological Service, Serie A, No. 22, Bet Dagan, 1967, 10 p. DLC Orientalia Div., Hebraic Section.

...Includes a number of tables on the probability of occurrence of rainfall in 13 regions. The probabilities are computed for each day during rainfall season. (Part Author Abs.)

1968

101. Agi, Michael. Wetter und Klima im Ostlichen Mittelmeerge-biet unter besonderer Berucksichtigung des Zypertiefs [Weather and Climate in the Eastern Mediterranean Considering Especially the Cyprus Low] Inst. fur Meteorologie und Geophysik der Freien Universitat Berlin, "Meteorologische Abhandlungen" Band LXXV, Heft 4, Berlin, 1968, 117 p. German. DAS M09.22 B515n.

German

...This paper discusses cyclonic activity in the eastern Mediterranean region. Statistical investigations of cyclonic activity in this region conducted from 1954-1964 are included. Summarized climatological data are also given. (DLB)

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102. Dan, J. The Soils of Judea and Samaria. Volcani Institute of Agriculture Research, Preliminary Rpt. No. 596, Bet Dagan, Jan 1968. 16 p. DLC Orientalia, Div., Hebraic Section

...A close relationship is found between climatic regions and soil distribution in Judea and Samaria. This study gives a brief description of the soil distribution. (Part Author Abs.)

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103. Elbashan, Daniel. Wet Bulb Temperature: Data from Various Stations in Israel. Israel Met. Service, Series C, No. 19, Bet Dagan, 1968.

Unavailable for abstracting.

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104. Elbashan, D. Frequency of Calm Days in Israel. Israel Meteorological Service, Series C, Miscellaneous Papers No. 22, 1968. 8 p, refs, tables. Based on a M. Sc. Thesis submitted to the Hebrew Univ. of Jerusalem. DAS M(055) I85ma No. 22.

...The initial purpose of this study was to present climatological data related to air pollution: The geographic distribution of annual and monthly frequencies of "calm" and rainless days within the area of the State of Israel.

As the frequency of low-winds in Israel shows an annual run which is in complete contrast to the annual run of the frequency of low-based upper-air inversions (the former has its maximum in winter while the latter - in summer), and, as there is only one station reporting 24 observations a day, the original concept of air pollution potential had to be modified. (Part Author Abs.)

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105. Elbashan, Daniel. Guide to an Estimate of Strong Winds in Israel. Israel Met. Service, Series C, Misc. Papers No. 24, Bet Dagan, 1968, 3 p. DAS M(055) I85ma.

105. (cont)

...In this study the author has computed the probability of occurrence of strong winds for Israel. Values have also been computed for maximum speed (10-minute average) and maximum gusts for 13 stations. The study is primarily intended to aid in the design of tall structures. (DLB)

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106. Haude, Waldemar. Pegelstandsbeobachtungen des Toten Meeres zur Korrektur und Verlängerung der Niederschlagsreihe von Jerusalem bis 1800 und Folgen [Water Level Observations in the Dead Sea for Correction and Improvement of the Jerusalem Precipitation Series up to 1800 and the Conclusions Drawn] Wasserwirtschaft, Stuttgart, 58(5):149-156, May 1968. Figs, tables, refs. DLC TC1.W275.

German

...The formation of the water balance (WB), especially in arid and semiarid climates, is the basis for many projects for agriculture and industry. Records of measurement of individual components of the WB are usually very short in such regions. Observations of 20 or 30 yrs may cover a period with much or little rain. It is therefore necessary to determine how representative such measurements are. Means are available for such determinations. In this paper rainfall records are extrapolated with the aid of observations of Dead Sea levels available since 1800, which makes possible a reliable estimate of the variability of rainfall over an extended period. (DBK)

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107. Hillel, D. and Rawitz, E. A Preliminary Field Study of Surface Treatments for Runoff Inducement in the Negev of Israel. 9th International Congress of Soil Science, Transactions, Vol. 1, Adelaide, Australia, 1968. pp 303-311. DNAL S590.55 1968A.

...Runoff inducements were compared in several tests in Israel. During the tests both the rainfall pattern and the runoff rates were examined. Five parameters are investigated: Total runoff yield: runoff ratio; average infiltration capacity; relation of runoff yield to storm size; and total seasonal erosion. (DLB)

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108. Israel Hydrological Service. Hydrological Year-book of Israel, 1965/66. Jerusalem, 1966. 121 p. Maps (1 fold. inside back pocket), mostly tables. In Hebrew and English (available 1946/47-1965/66).
DAS M79 I85h.

...This volume, 20th in the series, contains the hydrological and chemical data for gaging stations of rivers, wadis, main springs, and lakes for Oct 1, 1965-Sep 30, 1966. Ground-water data are summarized on a map providing water levels and salinity contours in the aquifers of the coastal plain and foothills. Rainfall was below the 1931-60 average in all parts of the country varying on the average from 45% to 80% and 80% to 100% in eastern and western drainage areas, respectively. During the period, the intensity and number of floods was on the low side; the total storm-water runoff was only slightly above the volume of flow recorded in 1950/51. Data, symbols, and methods used are explained. (PS)

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109. Katsnelson, J. Methods of Statistical Summaries of Winds and a Climatological Report on Surface Winds in Israel. Israel Met. Service, Series C, No. 20, Bet Dagan, 1968.

Unavailable for abstracting.

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110. Lomas, Jacob. Effect of the Climate on Agricultural Production in the Upper Jordan Valley. Agroclimatological Methods: Proceedings of the Reading Symposium, Univ. of Reading, Jul 23-30, 1966, Paris, UNESCO, 1968, pp 261-268. Figs, tables, eqs, English and French summaries p 265; 268. DAS M8:63 A28lag.

...The purpose of this paper is to show how relatively small differences in climate have led to the development today of different crop systems throughout the Jordan Valley: decidious fruit in the north, tropical fruit production and date palms in the central part of the valley, and vegetable production in the southern part. Information is given on the climate of the upper Jordan Valley. It is noted that it has

110. (cont)

been possible to establish significant relationships between various temperature parameters and yield which can be a most useful guide in agricultural planning and agricultural practice. Helpful results were obtained from studies on agrotopoclimatology where data obtained were used for the zoning of vegetable production in Israel. (ES)

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111. Markovitz, R. Central Jordan Valley - Climatological Report. Israel Met. Service, Series C, No. 23, Bet Dagan, 1968.

Unavailable for abstracting.

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112. Schick, A.P. The Storm of 11 March 1966 and Its Geomorphic Effects in the Southern Negev, Israel Exploration Society, "Studies in the Geography of Israel", Vol. 6, Jerusalem, 1968, pp 20-52. In Hebrew. DLC Orientalia Div., Hebraic Section.

Hebrew

...This short study examines the geomorphic effects of the severe storm of 11 March 1966. The effects of flooding on plant and animal life are discussed. In addition, rainfall incidence for the Negev is investigated. (Part Author Abs.)

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113. Stanhill, G. and M. Fuchs. The Climate of The Cotton Crop: Physical Characteristics and Microclimatic Relationships. Agricultural Meteorology, Vol. 5, No. 3, May 1968, pp 183-202. DAS M(05) A278agr.

...Contains studies on both the microclimate and radiative characteristics of two cotton-growing locations in a semi-arid area of Israel. Comparisons were made to determine the extent of microclimatic modification caused by irrigation. (DLB)

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114. Stanhill, G. et al. The Effect of Crop and Climatic Factors on the Radiation Balance of an Irrigated Maize Crop. Journal of Applied Ecology, Vol. 5, No. 3, Dec 1968, pp 707-720. DNAL 410.J828.

...Investigates the seasonal and diurnal variation in the radiative characteristics of the Israeli maize crop. Radiation loss and received radiation are computed. Seasonal variation was found to be insignificant while the diurnal variation amounted to 20%. (DLB)

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115. Yakobi, D. (Jacobi) et al. Microclimate, Plant Development, and Crop Yields of Tomatoes as Affected by an Artificial Windbreak. Israel Met. Service, Series C, No. 18, Bet Dagan, 1968, 34 p. In Hebrew (English summary). DAS M(055) I85ma.

...Contains a description of windbreak effects on microclimate. Micrometeorological measurements were made of wind and evaporation. These measurements were taken at specified distances from windbreaks. (DLB)

1969

116. Elbashan, Daniel. Monthly Data of Highest Wind Speed at Lod Airport. Israel Met. Service, Series C, Misc. Papers No. 25, Bet Dagan, 1969. 3 p, 5 tables. DAS M(055) I85ma.

...From 28 years of observations at Lod airport, three kinds of monthly extreme highest wind speeds have been extracted. The three extremes are: the extreme gust, the extreme 10-minute average, and the extreme hourly average (all speeds in knots). (DLB)

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117. Gabriel, K.R. and Feder, Paul. On the Distribution of Statistics Suitable for Evaluating Rainfall Stimulation Experiments. Technometrics, Vol. 11, No. 1, Feb 1969. pp 149-160. DAS P

...Compares average ratio of seeded to nonseeded amounts of precipitation in Israel. (DLB)

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118. Israel Meteorological Service. Report on Climatological Activities in Israel 1965-1968. Rpt. to WMO, Bet Dagan, Tel Aviv, Jul 1969. 4 p. IPB Files.

...Contains reports on networks, research activities, and publications. The publication list includes both Israeli Meteorological Service reports and the reports of other governmental and educational institutions. (DLB)

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119. U.S. Navy, Fleet Intelligence Center. FICEUR Enroute Weather Guide for Mediterranean Area. U.S. Naval Forces, Europe, U.S. NAS, Jacksonville, Fla., Dec 1969. IPB Files.

...Climatological data are summarized for 5° squares in the Mediterranean Area. These data consist of: mean monthly air temperature; mean number of days per month with measurable precipitation; mean number of days per month with measurable snowfall; and prevailing visibility in statute miles. The 5° squares extend into the Middle East area and include Cyprus, Iran, Iraq, Israel, Jordan, Saudi Arabia, Syria, and Turkey. Additional maps present seasonal scalar mean wind speed - direction and seasonal percentage of cloud cover at and below 5,000 ft (area, 50°N to 30°N, 0° to 50°E). (DLB)

UNCLASSIFIED
Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)
USAF Environmental Technical Applications Center

2a. REPORT SECURITY CLASSIFICATION
Unclassified

2b. GROUP

3. REPORT TITLE
A Selected Annotated Bibliography of Environmental Studies of Israel (1960-1969)

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)
Technical Note 70-4

5. AUTHOR(S) (First name, middle initial, last name)
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6. REPORT DATE
April 1970

7a. TOTAL NO. OF PAGES
51

7b. NO. OF REFS
119

8a. CONTRACT OR GRANT NO.

b. PROJECT NO.

c.

d.

9a. ORIGINATOR'S REPORT NUMBER(S)

9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)

10. DISTRIBUTION STATEMENT
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11. SUPPLEMENTARY NOTES

12. SPONSORING MILITARY ACTIVITY
Air Weather Service

13. ABSTRACT

This bibliography contains 119 references to Environmental Studies concerning Israel. These references are listed alphabetically by author by year. A subject index is included to facilitate the use of the publication. Studies that were found to be in other than English are annotated in the left margin by the appropriate language designation.

DD FORM 1 NOV 65 1473

UNCLASSIFIED
Security Classification

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