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PRECIPITATION PROBABILITIES OVER GREECE DURING THE COLD PERIOD

by

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Abstract: *The distribution of monthly preeipitation amounts during the cold period (November-April) for 42 selected met. stations over Greece have been investigated in an effort to determine the fit of monthly values to a normal distribution. The chi-square test has been used to determine if the assunption of the respective normal distribution is justified.*

It was coneluded with 95% certainly that the monthly precipitation data over Greece during the cold period follow the Caussian distribution.

Further, useful for climatological studies and forecasting, tables are obtained, giving the probability of receiving rainfall amounts ⩾ than a given amount of precipitation scparately for caeh month of the cold period. Also, a series of maps of isolines of probability giving selected monthly rainfall amounts ⩾ 25.0 mm or 50.0 mm have bcen introducecl to eharactcrize the regional patterns of preeipitation over Grcecc.

1. INTRODUCTION

Precipitation is undoubtedly a very important meteorological and climatological component. Apart from its theoretical interest, the study of precipitation is of the greatest significance in agricultural activities and hydrological applications as well as in tourist planning. In fact, it is the regulating or decisive factor in a vast number of human activities.

The study of the probability of obtaining a certain amount of precipitation is an important element in general forecasting. Equally important is the statistical analysis of a series of given amounts of precipitation in a given place and for a given period of time.

A large number of publications in Greek on precipitation in general is available. However, those among them concerned with tbe formulation of mathematical expressions or curves (which can be used in short or long-term forecasting) are very few; we are mentionning the following: MONOPOLIS[9], where is examined the possibility of using the distri-

bution "Γ„ with double parameters for processing rainfall data during the warm period.

FLOCAS[2], where an application of the above "Γ„ distribution is proposed for a statistical analysis of monthly rainfall data in 44 stations of the Greek area; the probability of getting precipitation ⩾ than a given amount in the warm period, that is from May to October, is examined.

ANGOURIDAKIS[1], in whose paper an application of the Polya's method is being made for rain periods in Thessaloniki and for a long period of observations.

In the present paper precipitation data gathered in 42 meteorological stations covering the entire Greek area during a period of 25 years (1950-74)[4,6,7,8,10] are examined. Tables and curves are formed which can give the probability of obtaining ⩾ than a given amount of precipitation for the cold period, that is from November to April. The values and curves obtained are useful for climatological studies and forecasting. They also explain—by following synoptic Climatology methods—the present distribution of rain over the Greek area.

2. METHOD-NORMAL DISTRIBUTION-APPLICATION TO MONTHLY RAINFALL VALUES

As is well known, most meteorological data are studied by application of the normal distribution which is more or less symmetrical to the median value. There are, however, meteorological data whose values can not be normally distributed, as is the case with a variable whose natural minimum value is zero. Precipitation is a case in point. Such a variable is studied by use of the "Γ„ distribution and gives quite satisfactory results in processing precipitation values[2,9], for the area under examination and for the warm period.

A statistical study of the values given in each series of monthly rainfall amounts corresponding to each of the 42 met. stations of the Greek area, led to the formation of Tables I and II. In these Tables various statistical data are given for each month of the cold period, that is from November to April. An increase of rainfall as compared to summer months is apparent in October (FIocas[2]) all over Greece and this can be attributed to the increase cyclonic activity over the Mediterranean as well as over higher latitudes which also affects the Greek area from this month onward. The cyclonic activity continues in growth during the next months of the cold period with an important maximum in December[5]. As a result, December is considered as the rainest month in Greece.

As can be seen from observations from the 42 stations of the examined area, 27 stations (64%) present a mean maximum value for precipitation in this month (Table I), while 28 stations (67%) present an absolute maximum value in this same month. The stations, however, on Crete and the islands of the Aegean, present a mean maximum value in January. As a rule, precipitation amounts present a decrease in January as compared to December, and the decrease can be important, with rainfall values smaller than those noted in November. This decrease should be attributed not a real diminution of rainfall but to the fact that an important part of precipitation is coming down as snow which can not be accurately measured by rain-gages. Maximum rainfall in December over Greece, can also be explained by the fact that Siberian high is not yet extended to the south during this month.

Maximum rainfall in January, reported from Crete and the Islands of the southern Aegean Sea, can be explained not only by depressions reacbing Greece in this month, but also by northern winds due to high pressure systems which reach Crete after travelling over the Aegean and getting richer in water-vapour. We have to add that the snow over Crete and especially over the coast is rarely less frequent than over the mainland and those of the islands situated at higher latitudes. It should also be noted that in the year 1972 and specifically the two months November and December, the absolute minimum monthly rainfall values have been observed at a percentage of 86% of all observing stations (Table II).

Tucker[11], in his study of rainfall distribution in Texas, which also included the calculation of the probability of observations of rainfall amounts $\geqslant$ than a given precipitation value, has found out that a 84% of the examined values for monthly and a 62% for yearly rainfall values can be computed as a normal distribution.

In the present paper, each climatological series, comprising monthly rainfall values for the cold period (November-April) is examined by use of the Gaussian (normal) distribution. This distribution has the following form:

$$F(t) = \frac{1}{2\pi} \int_{u1}^{t2} e^{-\frac{1}{2} \cdot u^2} du \qquad (1)$$

where: $u = \frac{(X - \bar{x})}{\sigma}$, F(t) is the probability that the variable

is between t_1 and t_2, X is the magnitude of the variable and x and σ are the mean and the standard deviation respectively. By using the distribution (1), and for each climatological series of monthly values of precipitation for each station of the Greek area and for each month of the cold period November-April, the parameters x and σ of the normal distribution have been computed and are given in Table I. Also the probabilities for receiving equal or less than selected amounts of monthly precipitation were computed from the following form (Probability density function) of the Gaussian equation[3].

$$\int(X) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\cdot u^2} \qquad (2)$$

while the probabilities of receiving more than selected amounts of monthly precipitation were computed from the following equation[3]:

$$\int(X) = 1 - \left\{ \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\cdot u^2} \right\} \qquad (3)$$

In order to check good agreement of the given monthly precipitation values to normal distribution, the distribution X^2 is used, with a significant level equal to 95% ($\alpha = 0{,}05$). By application of the X^2 test in a number of 27 met. stations over the Greek area, with an observational period of 21 to 25 years, and for each month separately, we find in all cases and for the corresponding degree of freedom $X^2 < X^2_{0,05}$. Therefore it was concluded with 95% certainty that the monthly precipitation over Greece during the cold season follows the Gaussian distribution.

3. MONTHLY VALUES OF PRECIPITATION PROBABILITY.

As is well known, the flora nad fauna of a given region closely depend on a precipitation.

All agricultural activities, including season of sowing, irrigation, specification of crops, regulationof thefertilizingtime-table, combatting of diceases, depend also on precipitation. The evaluation of precipitation amounts all over the year is of primary importance, all the more so as the precipitation deficit during the summer months and for various crops, can be met with by use of irrigation and sprinkler systems. However, the amount and extent of use of these modes of irrigation will

closely depend on natural precipitation values over the region that have been observed during the cold period. We must bear in mind, of course, that an important percentage of agricultural growth and thus of the economy depend on the use of irrigation and spinkler systems. We also bear in mind that in planning an irrigation project, the amount of precipitation is the most important factor indicating the works that will have to be realized including an irrigation net and the ground boring for better utilization of under-ground water deposits in a given area. In all these cases, financial considerations are of utmost importance because the final aim in each schedule is maximum growth in crop production with lowest cost, and in planning the above all data concerning precipitation during the cold period are of primary importance. As a result, methods of forecasting precipitation amounts are of great value in planning various land improvement works, for irrigation of large cultivated areas, for the specification of the sowing season and the time of gathering of crops. Equally important is the knowledge of precipitation distribution over a country in planning tourist and recreation activities, another instance of the importance of this weather element for human life.

Our effort aims at giving prediction methods which can be used for estimating monthly precipitation values, applicable over the whole of the Greek area and for each month of the cold period (November to April).

For this purpose, we have applied the theoretical normal distribution to monthly precipitation data for each met. station and we have computed the parameters of the distribution; by use of formula (3), we have calculated the values of precipitation probabilities for amounts $\geqslant$ than a given amount of precipitation and at a different rainfall grades.

By use of Tables II to VIII and of Figures 1 to 12, we come to the following conclusions:

During the month of November (Table III), the probability of obtaining a rainfall amount $\geqslant$ 25.0 mm is of the order of $>$ 70% all over the Greek area. Usually, this percentage reaches 71% to 95% in all met. stations, with the exception of Thera, where it does not exceed a 61%. The probability of obtaining an amount $\geqslant$ 50.0 mm is also high, varying between 45% and 95% in all stations with the exception of Thira and Naxos where it reaches 25% and 22% respectivelly.

It should also be noted, that in the met. stations situated on Epirus, Acarnania and Aetolia, the Ionian Islands, on the W and NW coasts and mountainous Peloponnesus, NW Macedonia, North and Eastern

Euboea and on the islands of Rhodes, Samos and Lesvos, the probability of obtaining a monthly rainfall amount $\geqslant$ 100.0 mm, varies between 40% and 80%, while in the stations of the Ionian Sea, Acarnania, Aetolia and Epirus, the probability of reaching $\geqslant$ 200.0 mm varies between 33% and 48%.
In figures 1 and 2 a detailed configuration of equal probability curves and for precipitation grades $\geqslant$ 25.0 mm and $\geqslant$ 50.0 mm is given.

In the month of December, probability values appear greater than the respective ones in November, for all precipitation grades and all over the Greek area. More specifically, the probability of getting a precipitation amount $\geqslant$ 25.0 mm or $\geqslant$ 50.0 mm varies in all stations between 74% and 98% and 49% and 94% respectively, (Table IV, Fig. 3 and 4).

In January the probability for getting precipitation amounts $\geqslant$ 25.0 mm or $\geqslant$ 50.0 mm are also high, more specifically, they vary from 87% to 100% and 62% to 90% respectively in most stations (Table V, Figures 5 and 6) with the exception of those of Volos, Thessaloniki (University and Sedes airport), Larissa and Kozani where values are lower. For the same month, in the stations of Acarnania and Aetolia, Epirus, the Ionian Islands, eastern Euboea and the islands of the Eastern Aegean Sea, the probability of getting amounts $\geqslant$ 200.0 mm varies between 16% and 48%.

In February, the probabilities present decreasing values for all grades of precipitation and for all stations of the area under examination. More specifically, the probability of precipitation $\geqslant$ 25.0 mm varies between 70% and 95% in all stations. That of getting $\geqslant$ 50.0 mm reaches 21% to 45% in the met. stations of Athens (National Observatory, Philadelphia, Hellinikon airport), Larissa, Volos, Thessaloniki (University and Sedes airport), Kozani, Corinthos, Milos, Syros and Chalkis while in the rest of the stations it reaches 54% to 94%. The probability values for getting $\geqslant$ 200.0 mm appear equally diminished varying between 10% and 37% in the met. stations of Epirus, Ionian islands, Eastern Euboea, Rhodes and Samos, (Table VI, Fig. 7 and 8).

In the month of March, the probabilities of getting precipitation amounts $\geqslant$ 25.0 mm and $\geqslant$ 50.0 mm remain more or less the same as those of February (Table VII, Fig. 9 and 10) and in almost all stations, while those for $\geqslant$ 100.0 mm are marquedly lower.

In April, probability values for all amounts of precipitation appear lower in all stations. More specifically, the probability of getting rainfall

amounts $\geqslant$ 25.0 mm varies between 50% and 92% in the stations of Epirus, Ionian islands, the coast and mountains of Peloponnesus (with the exception of the station of Corinthos), Macedonia, Thrace, N. and E. Euboea, Acarnania and Aetolia and NW and NE Crete. The other stations present probabilities varying between 26% and 55%. Only amounts of monthly rainfall $\geqslant$ 15.0 mm present probabilities from 58% to 98% in all stations.

The probability of getting rainfall amounts $\geqslant$ 50.0 mm varies between 41% and 79% in the met. stations of Epirus, Acarnania and Aetolia, Ionian islands, Eastern Euboea, NW coasts and mountains of Peloponnesus and NW Thessaly, while the rest of the stations present much lower values varying from 0.0% to 38%. Finally, we should also note that the probability of rainfall amounts $\geqslant$ 100.0 mm, varies between 10% and 43% only in the stations of Argostolion, Arta, Yannina, Kerkyra and Tripoli, while in certain met. stations and especially those of Crete and the islands of the Southern Aegean probabilities are very small even for getting 0.0 mm, (Table VIII, Fig. 11 and 12).

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ΠΕΡΙΛΗΨΗ

ΠΙΘΑΝΟΤΗΤΕΣ ΒΡΟΧΟΠΤΩΣΕΩΝ ΣΤΟΝ ΕΛΛΑΔΙΚΟ ΧΩΡΟ ΚΑΤΑ ΤΗΝ ΔΙΑΡΚΕΙΑ ΤΗΣ ΨΥΧΡΗΣ ΠΕΡΙΟΔΟΥ

ὑπὸ

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Στὴν ἐργασία αὐτὴ ἐλέγχεται ἡ κατανομὴ τῶν μηνιαίων βροχομετρικῶν ὑψῶν κατὰ τὴν διάρκεια τῆς ψυχρῆς περιόδου (Νοέμβριος-Ἀπρίλιος), μὲ βάση τὰ βροχομετρικὰ στοιχεῖα 42 μετεωρολογικῶν σταθμῶν, τῆς περιόδου 1950-74, ποὺ καλύπτουν τὸν Ἑλλαδικὸ χῶρο καὶ μὲ σκοπὸ τὴν προσαρμογὴ τῶν μηνιαίων τιμῶν βροχοπτώσεως σὲ μιὰ κανονικὴ κατανομή.

Ἐφαρμόστηκε τὸ x^2-test καὶ συνάγεται τὸ συμπέρασμα ὅτι—σὲ ἐπίπεδο ἐμπιστοσύνης 95%—τὰ βροχομετρικὰ στοιχεῖα στὸν Ἑλλαδικὸ χῶρο κατὰ τὴν διάρκεια τῆς ψυχρῆς περιόδου, ἀκολουθοῦν τὴν κατανομὴ Gauss.

Συνάγονται πίνακες, ποὺ εἶναι χρήσιμοι γιὰ κλιματολογικὲς μελέτες καὶ ποὺ ἔχουν προγνωστικὴ ἀξία, γιὰ προγνώσεις μεγάλης διάρκειας ὅπου δίνονται οἱ πιθανότητες ἐμφανίσεως βροχοπτώσεως $\geqslant$ δεδομένου ὕψους, ξεχωριστὰ γιὰ κάθε μῆνα τῆς ψυχρῆς περιόδου.

Ἐπίσης δίνεται σειρὰ χαρτῶν ὅπου χαράχτηκαν οἱ καμπῦλες ἴσης πιθανότητας ἐμφανίσεως βροχοπτώσεως $\geqslant 25.0$ ἢ $\geqslant 50.0$ mm, καὶ οἱ ὁποῖες χαρακτηρίζουν τὴν βροχομετρικὴ συμπεριφορὰ στὸν Ἑλλαδικὸ χῶρο.

TABLE I

Statistical rainfall data (mm) in Greece during the cold period (November to April) and for the years 1950-1974.

Met. Stations	N			D			J			F			M			A		
	$\bar{x}$	$\pm\sigma$	$\bar{N}_R$	$\bar{x}$	$\pm\sigma$	$\bar{N}_R$	$\bar{x}$	$\pm\sigma$	$\bar{N}_R$	$\bar{x}$	$\pm\sigma$	$\bar{N}_R$	$\bar{x}$	$\pm\sigma$	$\bar{N}_R$	$\bar{x}$	$\pm\sigma$	$\bar{N}_R$
1. Athens Observ.	49.9	31.2	10.9	64.2	38.5	13.6	59.8	24.6	13.8	40.2	29.8	10.9	41.3	25.4	12.3	22.9	19.6	9.0
2. Philadelphia	55.9	35.1	9.8	66.6	37.5	13.0	67.1	28.4	13.4	42.9	27.8	10.0	42.5	22.4	10.6	24.6	18.6	7.4
3. Airport of Hellinikon	45.5	29.2	10.7	66.3	45.5	14.9	58.1	26.2	15.0	51.9	32.2	12.0	40.3	24.5	12.9	17.4	12.2	9.8
4. Agrinion	155.2	99.2	13.2	160.7	91.4	16.1	155.8	67.6	14.5	118.8	76.8	12.2	90.4	65.4	12.6	51.9	28.6	11.4
5. Alexandroupolis	86.8	61.7	10.7	92.6	52.4	13.3	80.3	41.2	12.3	65.9	51.3	10.5	55.9	35.5	10.4	36.5	23.1	10.8
6. Argostolion	162.7	92.5	13.7	204.1	112.9	17.1	165.2	51.2	16.0	131.2	85.2	13.2	103.0	56.1	11.8	53.3	37.2	8.8
7. Arta	195.2	125.1	13.5	226.0	124.1	16.0	183.3	87.2	14.5	160.6	88.5	12.3	116.2	72.0	12.8	88.9	59.2	11.3
8. Volos	48.9	43.0	9.7	49.5	30.4	11.9	47.9	30.3	13.7	37.0	16.1	12.6	51.8	14.3	12.8	24.7	20.5	10.2
9. Zakynthos	107.7	63.8	11.9	209.6	121.8	16.2	195.7	60.9	18.2	148.1	64.4	16.1	97.0	52.6	12.7	44.9	28.1	8.6
10. Hiraklion	45.7	35.8	10.7	72.5	28.5	14.2	101.6	40.0	16.9	63.1	53.4	12.0	55.2	33.3	12.4	26.8	27.5	7.0
11. Univ. of Thessaloniki	50.8	31.4	12.8	58.4	37.0	12.8	48.2	24.2	13.1	41.6	29.1	10.6	44.7	22.0	14.0	36.4	24.3	13.2
12. Sedes	47.4	31.8	10.2	52.1	35.2	10.6	44.3	24.8	11.7	33.7	24.9	9.4	41.8	20.3	12.1	31.1	18.8	10.6
13. Thira	32.4	25.4	5.4	72.9	42.6	9.4	70.6	29.3	9.3	65.3	36.8	8.1	60.8	29.9	7.3	23.8	23.0	5.1
14. Hierapetra	63.5	45.8	7.4	111.3	61.1	13.0	119.5	55.3	15.0	76.8	60.0	10.9	52.4	22.9	9.2	30.2	22.4	5.9
15. Yannina	179.2	94.0	13.9	183.5	91.7	15.2	173.6	77.1	13.6	141.5	84.4	12.6	100.8	63.0	12.6	83.7	42.3	12.2
16. Kavala	77.3	62.5	9.2	87.8	81.7	9.6	74.0	38.9	10.0	55.4	48.9	8.2	57.6	41.2	8.5	36.2	24.5	9.0
17. Kalamata	100.2	48.8	11.2	156.5	105.0	16.7	117.1	40.1	16.6	121.1	57.6	15.0	83.9	32.8	13.1	40.8	30.0	9.7
18. Kerkyra	194.2	101.8	16.0	221.5	113.7	18.0	190.0	67.5	17.8	145.3	85.4	15.4	107.1	59.1	14.8	65.8	42.9	12.7
19. Kozani	63.8	35.9	9.7	61.8	45.4	7.9	42.4	17.1	7.3	38.1	24.1	6.8	49.9	38.0	9.2	40.4	23.8	9.2
20. Korinthos	74.5	52.7	8.2	72.3	53.0	10.4	66.0	34.3	10.8	39.6	32.9	9.1	45.7	22.5	9.0	28.2	26.6	7.5
21. Kythira	78.8	45.5	11.5	119.5	72.7	15.1	120.5	40.7	16.3	61.6	44.3	11.8	61.2	27.3	10.7	20.1	16.6	6.4
22. Kymi	89.1	49.6	9.2	173.0	110.8	15.3	196.0	79.0	15.7	166.6	101.9	12.8	123.9	72.1	12.9	47.2	38.4	7.3
23. Larissa	50.5	31.8	11.1	57.7	35.2	11.9	41.8	25.7	11.8	38.1	24.0	10.2	44.2	20.0	12.0	25.9	22.2	9.3
24. Limnos	59.0	35.7	9.9	91.8	64.5	13.5	93.3	53.5	13.5	55.7	37.1	10.2	56.7	40.7	10.3	25.0	18.8	8.7
25. Methoni	115.0	61.9	12.9	139.1	61.1	17.7	133.5	32.5	18.6	84.1	55.0	13.4	75.7	29.3	12.7	33.2	26.3	8.5
26. Milos	58.8	45.3	10.0	81.1	53.6	14.1	84.3	43.3	15.3	45.3	35.0	10.6	51.5	20.6	10.6	22.0	20.5	7.0
27. Mytilini	104.4	82.9	10.5	150.2	91.8	14.3	137.0	78.6	14.4	101.8	65.0	11.3	74.0	41.8	10.2	42.4	38.6	9.5
28. Naxos	32.8	22.5	7.5	68.1	40.8	14.5	73.7	40.2	15.7	53.6	28.9	12.5	50.4	27.3	11.3	16.5	18.8	6.9
29. Orestias	68.6	69.6	9.1	65.6	35.6	10.4	61.1	32.3	8.6	61.3	38.7	8.1	60.9	38.3	9.0	43.9	18.8	10.4
30. Patrai	100.4	51.2	11.4	132.2	82.6	14.7	112.8	53.4	13.9	96.6	58.5	11.0	69.7	38.0	9.9	46.0	24.7	8.0
31. Rhodos	98.4	69.1	9.6	189.9	91.6	16.0	179.9	101.8	17.1	110.9	68.9	13.5	83.7	56.0	11.2	23.7	19.1	6.8
32. Samos	116.2	100.4	10.3	177.0	101.0	15.0	182.3	96.9	15.6	120.4	79.0	12.2	102.5	61.3	12.0	42.7	40.3	8.9
33. Serrai	54.5	43.9	7.7	71.8	49.3	10.3	68.7	32.1	10.0	61.5	42.0	8.6	55.3	25.5	9.1	38.1	22.2	9.5
34. Sitia	55.4	39.7	8.3	66.4	29.8	13.8	103.8	32.6	16.6	69.2	34.3	11.8	55.4	23.2	9.8	24.0	16.1	5.8
35. Skyros	65.8	39.1	9.4	84.6	54.6	13.4	99.7	54.2	14.3	68.9	41.0	9.9	61.5	26.2	10.8	21.6	23.2	6.8
36. Syros	58.2	20.9	10.9	58.2	19.8	12.8	72.6	31.6	13.1	31.9	28.7	8.0	48.7	33.3	9.6	12.4	15.8	5.2
37. Trikala	67.2	38.1	8.6	91.6	49.5	12.3	83.6	47.9	12.0	84.9	59.2	10.9	99.9	59.0	10.6	41.8	36.6	8.9
38. Tripolis	113.1	59.3	10.8	143.1	87.7	14.4	129.3	61.4	14.0	104.1	60.5	11.2	83.3	37.0	12.5	54.8	35.3	9.8
39. Florina	67.2	50.6	9.5	91.7	57.9	8.2	72.9	31.2	6.8	62.4	28.2	7.7	69.9	28.4	8.4	52.1	26.9	9.9
40. Chalkis	62.6	35.8	9.4	53.8	45.5	10.5	60.5	29.3	12.9	39.8	26.2	8.6	43.4	23.1	9.4	27.3	19.4	6.5
41. Chania	70.9	62.1	11.8	107.1	58.6	14.6	137.4	62.6	18.5	93.8	74.9	12.9	85.6	37.9	12.8	33.3	31.0	7.3
42. Chios	68.8	47.3	8.5	142.4	88.6	14.6	127.7	56.6	15.5	106.3	63.4	15.4	80.8	26.5	12.1	33.1	23.7	8.3

Symbols: $\bar{x}$: Monthly rainfall (mean)

$\pm\sigma$: Standard deviation

$\bar{N}_R$: Mean number days of rain (monthly)

TABLE II

Absolute maxima ($\overline{H}$) and minima ($\underline{H}$) monthly rainfall (in mm) over Greece during the cold period (November-April) and for years 1950-1974.

	NOVEMBER				DECEMBER				JANUARY				FEBRUARY				MARCH				APRIL			
Met. Stations	$\overline{H}$	Year	$\underline{H}$	Year	$\overline{H}$	Year	$\underline{H}$	Year	$\overline{H}$	Year	$\underline{H}$	Year	$\overline{H}$	Year	$\underline{H}$	Year	$\overline{H}$	Year	$\underline{H}$	Year	$\overline{H}$	Year	$\underline{H}$	Year
1. Athens Observ.	112.9	1955	2.7	1972	138.7	1962	5.4	1958	117.4	1951	22.5	1950	136.6	1965	0.9	1959	86.5	1950	10.6	1962	92.5	1972	0.2	1952
2. Philadelphia	144.7	1955	5.8	1972	150.0	1969	6.5	1955	114.7	1951	30.0	1956	114.2	1965	5.5	1958	88.4	1950	12.0	1972	91.6	1972	0.5	1952
3. Airport of Hellinikon	106.5	1968	5.9	1972	143.1	1962	4.6	1958	114.2	1958	26.2	1963	124.5	1965	0.7	1959	87.3	1973	11.0	1962	97.4	1972	0.9	1970
4. Agrinion	447.0	1962	22.4	1972	459.6	1967	2.9	1955	307.7	1966	42.8	1964	267.4	1956	4.3	1959	315.0	1971	1.2	1953	315.3	1965	7.2	1958
5. Alexandroupolis	231.2	1966	2.1	1953	198.3	1960	0.0	1972	150.5	1955	11.7	1974	189.6	1956	2.4	1959	128.3	1963	1.9	1957	90.5	1958	6.1	1968
6. Argostolion	401.9	1962	6.3	1972	464.2	1969	24.2	1955	248.3	1966	69.2	1950	334.3	1956	14.1	1959	194.6	1956	13.0	1953	37.1	1959	4.0	1958
7. Aita	470.9	1966	49.8	1963	583.4	1969	152.4	1961	308.9	1966	25.0	1964	421.6	1963	32.0	1967	270.3	1971	19.4	1957	188.0	1955	2.3	1957
8. Volos	164.2	1966	9.3	1971	102.6	1968	13.5	1972	117.7	1966	14.5	1963	54.8	1970	5.0	1966	83.4	1969	12.3	1967	69.9	1974	1.2	1970
9. Zakynthos	239.9	1966	9.6	1972	436.4	1969	84.8	1974	289.5	1972	117.0	1964	227.6	1972	22.8	1966	169.3	1971	31.2	1970	83.0	1972	1.2	1956
10. Iraklion	113.7	1955	3.7	1965	134.1	1961	16.5	1970	221.1	1957	54.0	1970	186.5	1961	1.4	1958	139.4	1950	2.9	1962	139.9	1963	0.0	1951
11. Univ. of Thessaloniki	124.0	1956	7.0	1970	148.0	1960	0.8	1970	111.0	1951	11.8	1964	114.4	1954	1.5	1958	86.1	1969	3.4	1957	114.1	1973	7.3	1952
12. Kozani	110.4	1956	3.6	1971	154.7	1969	0.2	1972	94.6	1951	13.4	1964	96.7	1956	5.6	1958	85.2	1969	8.0	1953	53.0	1963	0.7	1970
13. Trikala	181.4	1955	8.7	1972	149.0	1966	18.0	1964	144.0	1965	29.5	1974	154.8	1963	17.5	1955	128.0	1967	12.8	1962	64.4	1959	0.0	1962
14. Metsovo	144.2	1968	4.0	1965	231.4	1964	50.1	1963	248.3	1973	60.4	1970	245.4	1971	9.7	1966	105.8	1967	6.0	1973	75.7	1965	0.4	1966
15. Ioannina	380.0	1962	43.3	1967	373.0	1969	37.0	1972	308.2	1966	15.7	1964	306.0	1963	8.7	1959	223.8	1962	13.6	1957	178.9	1965	11.0	1968
16. Kavala	309.1	1966	7.1	1972	412.9	1969	3.7	1972	188.5	1951	0.0	1964	166.4	1972	1.1	1959	179.2	1971	0.3	1957	113.4	1955	1.5	1964
17. Kalamata	178.0	1968	9.7	1972	375.4	1969	19.8	1972	203.1	1968	43.8	1964	229.8	1971	47.7	1967	146.9	1971	25.0	1967	0.9	1972	4.5	1970
18. Kerkyra	418.4	1958	6.8	1972	503.7	1969	48.9	1955	314.4	1974	14.9	1964	292.5	1963	4.1	1959	246.5	1970	3.6	1953	157.5	1961	6.6	1952
19. Kozani	146.8	1962	9.0	1970	178.5	1969	3.7	1955	79.6	1969	14.0	1953	85.6	1954	2.9	1959	123.0	1962	0.8	1953	67.0	1960	1.0	1952
20. Kefallinos	190.2	1953	3.4	1972	209.1	1962	3.4	1955	166.0	1972	19.5	1967	121.2	1974	2.6	1958	96.4	1956	11.4	1972	117.6	1955	1.6	1952
21. Kythira	162.9	1954	68.9	1970	332.5	1966	17.1	1963	217.1	1953	67.8	1958	161.1	1956	5.5	1957	149.8	1950	29.6	1959	59.3	1961	0.0	1952
22. Kymi	183.5	1967	9.6	1972	412.3	1962	64.8	1965	366.6	1971	48.3	1962	383.1	1970	11.2	1966	314.7	1970	38.0	1962	115.9	1967	6.8	1961
23. Larissa	119.1	1953	2.2	1970	121.9	1952	5.3	1972	118.2	1951	7.0	1953	101.5	1954	2.2	1959	86.7	1956	13.0	1968	56.9	1973	2.0	1969
24. Limnos	130.3	1954	8.0	1967	233.4	1962	0.4	1972	260.7	1951	43.2	1972	130.4	1956	3.4	1957	174.2	1971	5.2	1967	68.9	1955	0.3	1961
25. Methoni	227.2	1954	7.3	1972	268.0	1969	63.1	1964	206.1	1954	79.8	1950	244.4	1956	10.9	1959	124.0	1950	22.3	1972	97.9	1959	2.0	1971
26. Milos	166.3	1954	0.7	1972	241.5	1962	20.8	1972	217.7	1953	33.3	1952	138.0	1971	0.0	1957	96.9	1966	1.3	1964	68.5	1970	0.0	1952
27. Mytilini	314.0	1955	18.4	1969	345.2	1962	2.2	1972	318.4	1968	15.8	1974	233.6	1965	4.2	1957	195.3	1971	16.7	1961	164.1	1972	0.4	1964
28. Naxos	90.0	1974	2.4	1969	156.2	1962	31.7	1973	152.3	1973	14.2	1974	117.2	1974	12.5	1969	116.3	1972	16.1	1966	71.7	1965	0.5	1957
29. Orestias	231.2	1966	15.0	1967	137.8	1960	1.5	1972	114.0	1966	13.2	1972	144.9	1963	6.8	1959	144.2	1971	12.0	1972	75.9	1963	8.5	1968
30. Patrai	249.5	1962	20.1	1972	362.3	1969	20.7	1972	271.4	1968	16.7	1964	219.0	1956	3.9	1959	142.4	1956	18.8	1961	80.0	1955	10.1	1957
31. Preveza	248.1	1952	4.7	1973	416.5	1958	46.9	1971	458.4	1953	19.8	1974	323.3	1971	8.7	1959	217.9	1965	5.0	1959	72.2	1958	0.0	1959
32. Samos	456.2	1955	22.3	1969	400.2	1962	32.5	1972	424.4	1953	43.1	1964	281.0	1962	4.5	1959	245.9	1954	28.6	1961	170.1	1955	1.8	1964
33. Serrai	185.1	1966	6.0	1967	185.6	1969	2.1	1972	118.7	1966	14.0	1964	135.1	1963	5.0	1967	101.0	1969	11.3	1972	78.0	1972	0.2	1968
34. Sitia	121.3	1974	14.7	1965	126.6	1964	13.7	1973	154.2	1974	43.7	1972	132.6	1971	18.6	1969	95.7	1965	18.6	1973	56.4	1968	1.8	1966
35. Skyros	173.7	1952	17.9	1970	254.6	1962	17.1	1972	288.4	1953	39.4	1962	150.9	1962	2.8	1958	102.3	1951	20.5	1959	113.0	1955	3.1	1961
36. Syros	90.4	1955	19.9	1950	82.4	1958	16.5	1955	128.5	1953	32.2	1952	89.6	1951	0.2	1957,58	119.2	1952	8.6	1955	52.3	1950	0.0	1952
37. Trikala	120.2	1974	9.5	1972	206.7	1968	15.6	1972	192.0	1963	27.0	1967	206.0	1963	9.0	1966	203.4	1973	20.3	1967	108.6	1957	7.2	1969
38. Tripolis	266.4	1952	16.7	1972	346.3	1968	14.0	1955	329.5	1968	48.9	1974	244.5	1956	5.2	1959	165.3	1956	13.4	1957	153.1	1967	2.0	1952
39. Florina	159.7	1962	17.8	1970	237.9	1966	6.4	1955	134.6	1951	21.1	1962	122.3	1974	23.6	1961	131.4	1969	15.3	1952	159.8	1972	4.3	1952
40. Chalkis	140.4	1955	4.0	1972	203.8	1962	3.1	1958	138.1	1953	28.6	1952	104.5	1956	2.1	1958	94.0	1971	6.9	1972	72.3	1955	2.7	1973
41. Chania	279.9	1953	6.3	1956	236.9	1967	40.3	1963	315.4	1957	63.0	1972	278.7	1956	12.2	1950	149.8	1953	31.5	1959	145.1	1960	0.0	1956
42. Chios	158.6	1974	18.0	1972	304.5	1969	7.0	1972	215.1	1968	30.0	1972	231.3	1965	14.0	1967	122.8	1968	26.2	1972	83.7	1969	4.9	1964

TABLE III

Probability (%) of obtaining rainfall amount ≥ than selected amounts during the month of November over Greece.

Met. Station	Rainfall amount in mm									
	0 or 0.0 (0/trace)	≥5.0	≥15.0	≥25.0	≥40.0	≥50.0	≥80.0	≥100.0	≥150.0	≥200.0
1. Athens Observ.	0	92	87	79	63	50	17	6	0	0
2. Philadelphia	0	93	88	81	67	57	25	10	0	0
3. Airport of Hellinikon	0	92	85	76	58	45	12	3	0	0
4. Agrinion	0	93	92	91	88	86	78	71	52	33
5. Alexandroupolis	0	91	88	84	78	73	54	42	15	3
6. Argostolion	0	96	95	93	91	89	81	75	56	35
7. Arta	0	94	93	91	89	88	82	77	64	48
8. Volos	0	85	79	71	58	49	24	12	1	0
9. Zakynthos	0	95	93	90	85	82	67	55	26	7
10. Iliraklion	0	87	81	72	56	45	17	6	0	0
11. Univ. of Thessaloniki	0	93	87	79	63	51	18	6	0	0
12. Sedes	0	91	85	76	59	47	15	5	0	0
13. Thera	0	86	76	61	38	25	3	0	0	0
14. Hierapetra	0	90	86	80	70	61	36	21	3	0
15. Yannina	0	97	96	95	93	92	85	80	62	41
16. Kavala	0	88	84	80	73	67	48	36	12	3
17. Kalamata	0	97	96	94	89	85	66	50	15	1
18. Kerkyra	0	97	96	95	93	92	87	82	67	48
19. Kozani	0	95	91	86	75	65	33	16	1	0
20. Korinthos	0	91	87	83	74	68	46	32	8	1
21. Kythira	0	95	92	88	80	74	49	32	6	0
22. Kymi	0	96	93	90	84	79	57	41	11	1
23. Larissa	0	92	87	79	63	51	18	6	0	0
24. Limnos	0	93	89	83	70	60	28	15	0	0
25. Methoni	0	96	95	93	89	85	72	60	29	9
26. Milos	0	88	83	77	66	58	32	18	2	0
27. Mytilini	0	89	86	83	78	75	61	52	29	13
28. Naxos	0	89	79	64	37	22	2	0	0	0
29. Orestias	0	82	78	74	66	61	44	33	12	3
30. Patrai	0	97	95	93	88	84	66	50	17	3
31. Rhodes	0	91	89	86	80	76	61	49	23	7
32. Samos	0	87	84	82	78	75	64	56	37	20
33. Serrai	0	87	82	75	63	54	28	15	2	0
34. Sitia	0	90	85	78	65	56	27	13	1	0
35. Skyros	0	94	90	85	75	66	36	19	2	0
36. Syros	0	99	98	94	81	65	15	2	0	0
37. Trikala	0	95	92	87	76	67	37	20	1	0
38. Tripolis	0	97	95	93	89	86	71	59	27	7
39. Florina	0	95	92	89	80	77	56	40	11	1
40. Chalkis	0	95	91	85	74	64	31	15	0	0
41. Chania	0	86	82	77	69	63	44	32	10	1
42. Chios	0	91	87	82	73	66	41	26	4	0

TABLE IV

Probability (%) of obtaining rainfall amount ⩾ than selected amount during the month of December over Greece

Met. Stations	Rainfall amounts in mm									
	0 or 0.0 (0/trace)	⩾5.0	⩾15.0	⩾25.0	⩾40.0	⩾50.0	⩾80.0	⩾100.0	⩾150.0	⩾200.0
1. Athens Observ.	0	93	90	85	74	64	34	18	1	0
2. Philadelphia	0	95	92	87	76	67	36	19	1	0
3. Airport of Hellinikon	0	91	87	82	72	64	38	23	3	0
4. Agrinion	0	96	94	93	91	89	81	75	55	33
5. Alexandroupolis	4	95	93	90	84	79	59	44	14	0
6. Argostolion	0	96	95	94	93	91	86	82	68	52
7. Arta	0	96	96	95	93	92	88	85	73	58
8. Volos	0	93	87	79	61	49	16	5	0	0
9. Zakynthos	0	95	95	94	92	90	86	82	69	53
10. Hiraklion	0	99	98	95	87	79	40	17	0	0
11. Univ. of Thessaloniki	0	93	88	82	69	59	28	13	0	0
12. Sedes	0	91	85	78	63	52	22	9	0	0
13. Thera	0	94	91	87	78	71	43	26	4	0
14. Hierapetra	0	96	94	92	88	84	70	57	26	7
15. Yannina	0	97	97	96	94	93	87	82	64	43
16. Kavala	0	84	81	78	72	68	54	44	22	9
17. Kalamata	0	93	91	89	87	84	77	71	52	34
18. Kerkyra	0	97	97	96	95	93	89	86	74	58
19. Kozani	0	89	85	79	68	60	35	20	3	0
20. Korinthos	0	90	86	81	73	66	44	30	7	1
21. Kythira	0	94	93	90	86	83	71	61	34	13
22. Kymi	0	94	92	91	89	87	80	75	58	41
23. Larissa	0	93	89	82	69	59	26	11	0	0
24. Limnos	0	91	88	85	79	74	57	45	18	5
25. Methoni	0	99	98	97	95	93	83	74	43	16
26. Milos	0	92	89	85	78	72	51	36	10	1
27. Mytilini	0	94	93	91	89	86	78	71	50	30
28. Naxos	0	94	90	86	76	67	39	22	2	0
29. Orestias	0	96	92	87	76	67	34	17	1	0
30. Patrai	0	94	92	90	87	84	74	65	41	21
31. Rhodes	0	98	97	96	95	94	89	84	67	46
32. Samos	0	83	95	93	91	90	83	78	61	41
33. Serrai	0	91	88	83	74	72	43	28	6	0
34. Sitia	0	98	96	94	81	71	32	13	0	0
35. Skyros	0	93	90	86	79	74	53	39	12	1
36. Syros	0	100	99	95	82	66	14	2	0	0
37. Trikala	0	96	94	91	85	80	59	43	12	1
38. Tripolis	0	94	93	91	88	86	76	69	47	26
39. Florina	0	93	91	88	84	76	58	44	16	3
40. Chalkis	0	86	80	74	62	53	28	15	2	0
41. Chania	0	96	94	92	87	83	68	55	23	6
42. Chios	0	94	93	91	88	85	76	68	46	26

TABLE V

Probability (%) of obtaining rainfall amount ≥ than selected amounts during the month of January over Greece.

Met. Stations	Rainfall amounts in mm									
	0 or 0.0 (0/trace)	≥5.0	≥15.0	≥25.0	≥40.0	≥50.0	≥80.0	≥100.0	≥150.0	≥200.0
1. Athens Observ.	0	99	97	92	79	66	21	5	0	0
2. Philadelphia	0	99	97	93	83	73	33	12	0	0
3. Airport of Hellinikon	0	98	95	90	76	62	20	5	0	0
4. Agrinion	0	99	98	97	96	94	87	80	54	26
5. Alexandroupolis	0	97	94	91	84	77	50	32	25	0
6. Argostolion	0	100	100	100	99	99	96	91	64	27
7. Arta	0	98	97	97	95	94	88	83	65	43
8. Volos	0	92	86	77	60	47	15	4	0	0
9. Zakynthos	0	100	100	100	99	99	97	94	77	47
10. Iraklion	0	99	98	97	94	90	71	52	11	1
11. Univ. of Thessaloniki	0	96	92	83	63	53	9	2	0	0
12. Sedes	0	94	88	78	57	41	8	1	0	0
13. Thera	0	99	98	94	85	76	37	16	0	0
14. Hierapetra	9	98	97	96	92	89	76	64	29	7
15. Yannina	0	99	98	97	96	95	89	83	62	37
16. Kavala	4	96	94	90	81	73	44	25	3	0
17. Kalamata	8	100	99	99	97	95	82	67	21	1
18. Korkyra	0	100	100	99	99	98	95	91	72	44
19. Kozani	0	99	95	85	56	33	1	0	0	0
20. Korinthos	0	96	93	90	78	68	34	16	0	0
21. Kythira	0	100	100	99	98	96	84	69	24	3
22. Kymi	0	99	99	99	98	97	93	89	72	48
23. Larissa	0	92	85	74	53	37	7	1	0	0
24. Limnos	0	95	93	90	84	79	60	45	15	2
25. Methoni	0	100	100	100	100	99	95	85	31	2
26. Milos	0	97	95	92	85	79	54	36	6	0
27. Mytilini	0	95	94	92	89	87	77	68	44	21
28. Naxos	0	96	93	89	80	72	44	26	3	0
29. Orestias	0	96	92	87	74	63	28	12	0	0
30. Patrai	0	98	97	95	91	88	73	60	24	5
31. Rhodos	0	96	95	94	92	90	84	78	61	42
32. Samos	0	97	96	95	93	92	86	83	63	43
33. Serrai	0	98	95	91	81	72	36	17	0	0
34. Sitia	0	100	100	99	98	95	77	55	8	0
35. Skyros	0	96	94	92	84	82	64	50	18	3
36. Syros	0	98	97	93	85	76	41	19	0	0
37. Trikala	0	95	92	89	82	76	53	37	8	1
38. Tripolis	0	98	97	96	93	90	79	68	37	13
39. Florina	0	99	97	94	85	77	41	19	0	0
40. Chalkis	0	97	94	89	76	64	26	9	0	0
41. Chania	0	98	98	96	94	92	82	73	42	16
42. Chios	0	99	98	97	94	92	80	69	35	10

TABLE VI

Probability (%) of obtaining rainfall amount ⩾ than selected amounts during the month of February over Greece.

Met. Stations	Rainfall amounts in mm									
	0 or 0.0 (0/trace)	⩾5.0	⩾15.0	⩾25.0	⩾40.0	⩾50.0	⩾80.0	⩾100.0	⩾150.0	⩾200.0
1. Athens Observ.	0	89	80	70	50	37	9	2	0	0
2. Philadelphia	0	92	84	74	54	40	9	2	0	0
3. Airport of Hellinikon	0	87	80	70	52	40	12	4	0	0
4. Agrinion	0	93	91	89	85	82	69	60	34	15
5. Alexandroupolis	0	88	84	79	69	62	39	26	5	0
6. Argostolion	0	93	91	89	88	83	73	64	41	21
7. Arta	0	96	95	94	91	89	82	75	55	33
8. Volos	0	98	92	77	43	21	0	0	0	0
9. Zakynthos	0	99	98	97	95	94	86	77	49	21
10. Hiraklion	0	86	82	76	67	60	37	25	5	1
11. Univ. of Thessaloniki	0	90	82	72	52	39	9	2	0	0
12. Sedes	0	88	77	64	40	26	3	0	0	0
13. Thêra	0	95	92	86	76	66	35	17	1	0
14. Hierapetra	0	89	85	81	73	67	48	25	11	1
15. Yannina	0	95	93	92	89	86	77	69	46	25
16. Kavala	0	85	79	73	61	54	31	18	3	0
17. Kalamata	0	98	97	95	92	89	76	64	31	9
18. Kerkyra	0	95	94	92	89	87	78	70	48	26
19. Kozani	0	92	83	71	47	31	4	0	0	0
20. Korinthos	0	85	77	67	50	37	11	3	0	0
21. Kythira	0	90	85	82	80	69	60	34	19	2
22. Kymi	0	94	93	92	89	87	80	74	56	37
23. Larissa	0	92	83	71	47	31	4	0	0	0
24. Limnos	0	92	86	80	66	56	26	12	0	0
25. Methoni	0	93	90	86	79	73	53	39	12	2
26. Milos	4	88	81	72	56	45	16	6	0	0
27. Mytilini	0	93	91	88	83	79	63	51	23	7
28. Naxos	0	95	91	84	68	55	18	6	0	0
29. Orestias	0	93	89	83	71	61	32	16	1	0
30. Patrai	0	94	92	89	83	79	61	44	18	4
31. Rhodes	0	94	92	89	85	81	67	56	28	10
32. Samos	0	93	91	89	85	81	69	60	36	16
33. Serrai	0	91	87	81	69	61	33	18	2	0
34. Sitia	0	97	94	90	80	71	37	18	1	0
35. Skyros	0	94	91	86	76	68	39	22	2	0
36. Syros	0	83	72	60	39	26	5	1	0	0
37. Trikala	0	91	88	84	78	70	53	40	16	3
38. Tripolis	0	95	93	91	86	81	66	53	22	6
39. Florina	0	98	95	91	79	67	27	9	0	0
40. Chalkis	0	91	84	71	50	35	6	1	0	0
41. Chania	0	89	85	82	76	72	57	47	23	8
42. Chania	0	95	93	90	85	81	66	54	25	7

TABLE VII

Probability (%) of obtaining rainfall amount ≥ than selected amounts during the month of March over Greece.

Met. Stations	Rainfall amounts in mm									
	0 or 0.0 (0/trace)	≥5.0	≥15.0	≥25.0	≥40.0	≥50.0	≥80.0	≥100.0	≥150.0	≥200.0
1. Athens Obs.	0	92	85	74	52	37	6	1	0	0
2. Philadelphia	0	95	89	78	54	37	5	1	0	0
3. Airport of hellinikon	0	93	85	73	50	35	5	1	0	0
4. Agrinion	0	91	88	84	78	73	56	44	18	5
5. Alexandroupolis	0	92	88	81	67	57	25	11	0	0
6. Argostolion	0	96	94	92	87	83	66	52	20	4
7. Arta	0	94	92	90	86	82	69	59	32	12
8. Volos	0	100	99	97	79	55	2	0	0	0
9. Zakynthos	0	96	94	92	86	81	63	48	16	3
10. Hiraklion	0	93	89	82	68	56	23	9	0	0
11. Univ. of Thessaloniki	0	96	91	82	58	41	6	1	0	0
12. Sedes	0	97	91	80	54	35	3	0	0	0
13. Thera	0	97	94	89	76	64	26	10	0	0
14. Hierapetra	0	99	95	89	71	54	11	2	0	0
15. Yannina	0	94	91	89	83	79	63	50	22	6
16. Kavala	4	90	85	79	67	57	29	15	1	0
17. Kalamata	0	99	98	96	91	85	55	31	2	0
18. Kerkyra	4	96	94	92	87	83	68	55	23	6
19. Kozani	0	88	82	74	60	50	22	9	0	0
20. Korinthos	0	97	91	82	60	43	6	1	0	0
21. Kythira	0	98	95	91	78	66	25	8	0	0
22. Kymi	0	95	93	92	88	85	73	63	36	15
23. Larissa	0	98	93	83	58	39	4	0	0	0
24. Limnos	0	90	85	78	66	56	28	15	1	0
25. Methoni	0	99	98	96	89	81	44	20	0	0
26. Milos	0	99	96	90	71	53	8	1	0	0
27. Mytilini	0	95	92	88	79	72	44	27	3	0
28. Naxos	0	95	92	82	68	50	14	3	0	0
29. Orestias	0	93	89	83	71	61	31	15	1	0
30. Patrai	0	96	93	88	78	70	39	21	2	0
31. Rhodes	0	93	89	85	78	73	53	39	12	1
32. Samos	0	94	92	90	85	81	64	52	22	6
33. Serrai	0	98	94	88	73	58	17	4	0	0
34. Sitia	0	99	96	91	75	59	15	3	0	0
35. Skyros	0	99	96	92	79	67	24	7	0	0
36. Syros	0	91	84	76	60	48	17	6	0	0
37. Trikala	0	95	92	90	85	80	63	50	20	3
38. Tripolis	0	98	97	94	88	82	54	33	4	0
39. Florina	0	99	97	94	85	76	36	15	0	0
40. Chalkis	0	95	89	79	56	39	6	1	0	0
41. Chania	0	98	97	95	89	83	56	35	5	0
42. Chios	0	100	99	98	94	88	51	24	0	0

TABLE VIII

Probability (%) of obtaining rainfall amount ⩾ than selected amounts during the month of April over Greece.

Met. Stations	Rainfall amount in mm									
	0 or 0.0 (0/trace)	⩾5.0	⩾15.0	⩾25.0	⩾40.0	⩾50.0	⩾80.0	⩾100.0	⩾150.0	⩾200.0
1. Athens Observ.	0	82	66	46	19	8	0	0	0	0
2. Philadelphia	0	84	70	49	20	9	0	0	0	0
3. Airport of Hellinikon	0	85	58	26	3	0	0	0	0	0
4. Agrinion	0	95	90	83	66	52	16	5	0	0
5. Alexandroupolis	0	91	82	69	44	28	3	0	0	0
6. Argostolion	0	90	85	78	64	54	24	10	0	0
7. Arta	0	92	89	86	80	75	56	43	15	3
8. Volos	0	83	68	48	23	11	0	0	0	0
9. Zakynthos	0	92	86	76	57	43	11	3	0	0
10. Hiraklion	4	79	66	53	32	20	3	0	0	0
11. Univ. of Thessaloniki	0	90	81	68	44	29	4	0	0	0
12. Sedes	0	92	81	63	32	16	0	0	0	0
13. Thera	6	79	65	48	24	13	1	0	0	0
14. Kuerapetra	0	87	75	59	33	19	1	0	0	0
15. Yannina	0	97	95	92	85	79	54	35	6	0
16. Kavala	0	90	81	68	44	28	4	0	0	0
17. Kalamata	0	89	81	70	51	38	10	2	0	0
18. Kerkyra	0	92	88	83	73	64	37	21	2	0
19. Kozani	0	93	86	74	51	34	5	0	0	0
20. Korinthos	0	81	69	55	33	21	2	0	0	0
21. Kythira	4	82	82	62	39	12	4	0	0	0
22. Kymi	0	86	80	72	58	47	20	8	0	0
23. Larissa	0	83	69	52	26	14	0	0	0	0
24. Limnos	0	85	70	50	21	9	0	0	0	0
25. Methoni	0	86	76	62	40	26	4	0	0	0
26. Milos	4	80	63	44	19	9	0	0	0	0
27. Mycilini	0	83	76	67	52	42	16	7	0	0
28. Naxos	0	73	53	33	11	4	0	0	0	0
29. Orestias	0	98	94	84	58	37	3	0	0	0
30. Patrai	0	95	89	80	60	44	8	1	0	0
31. Rhodes	4	84	67	47	20	8	0	0	0	0
32. Samos	0	83	76	67	53	43	18	8	0	0
33. Serrai	0	93	85	72	46	30	3	0	0	0
34. Sitia	0	88	71	48	16	5	0	0	0	0
35. Skyros	0	76	61	44	22	11	0	0	0	0
36. Syros	11	68	68	43	21	4	1	0	0	0
37. Trikala	0	84	77	68	57	41	15	6	0	0
38. Tripolis	0	92	87	80	66	56	24	10	0	0
39. Florina	0	96	92	84	67	53	15	4	0	0
40. Chalkis	0	88	74	55	26	12	0	0	0	0
41. Chania	4	82	72	61	44	30	7	2	0	0
42. Chios	0	88	77	63	39	24	2	0	0	0

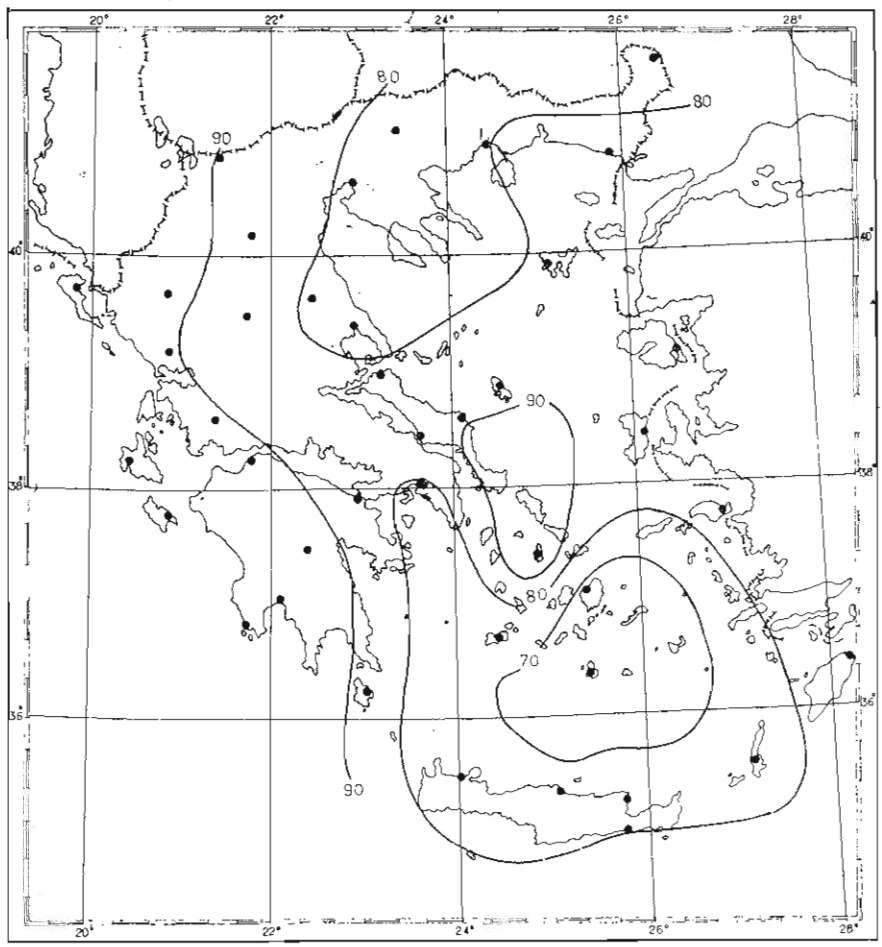

Fig. 1. Probability (%) of obtaining rainfall amount ≥ 25.0 mm in November over Greece.

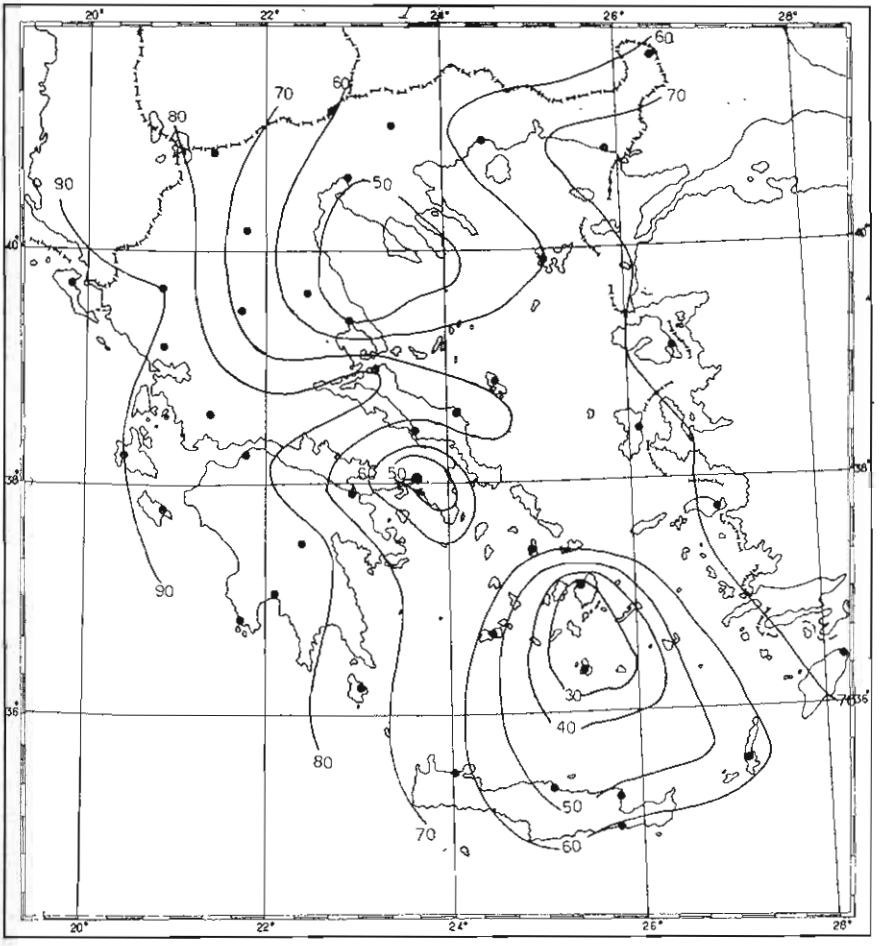

Fig. 2. Probability (%) of obtaining rainfall amount ≥ 50.0 mm in November over Greece

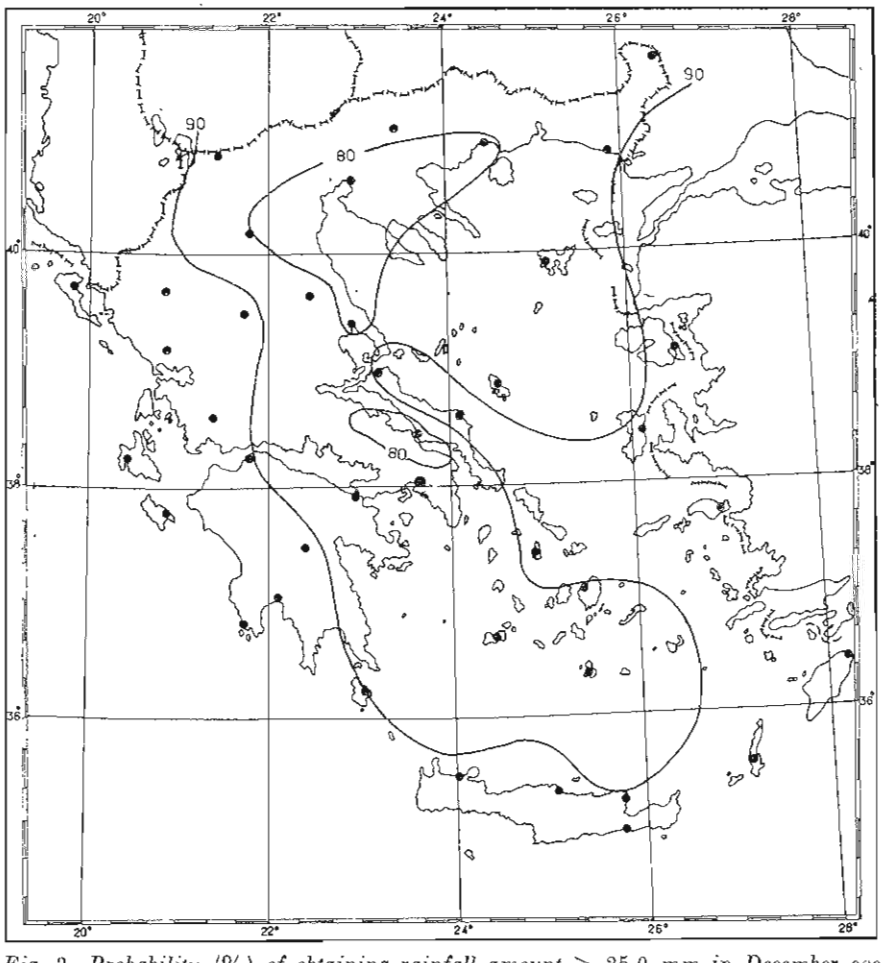

Fig. 3. Probability (%) of obtaining rainfall amount ⩾ 25.0 mm in December over Greece

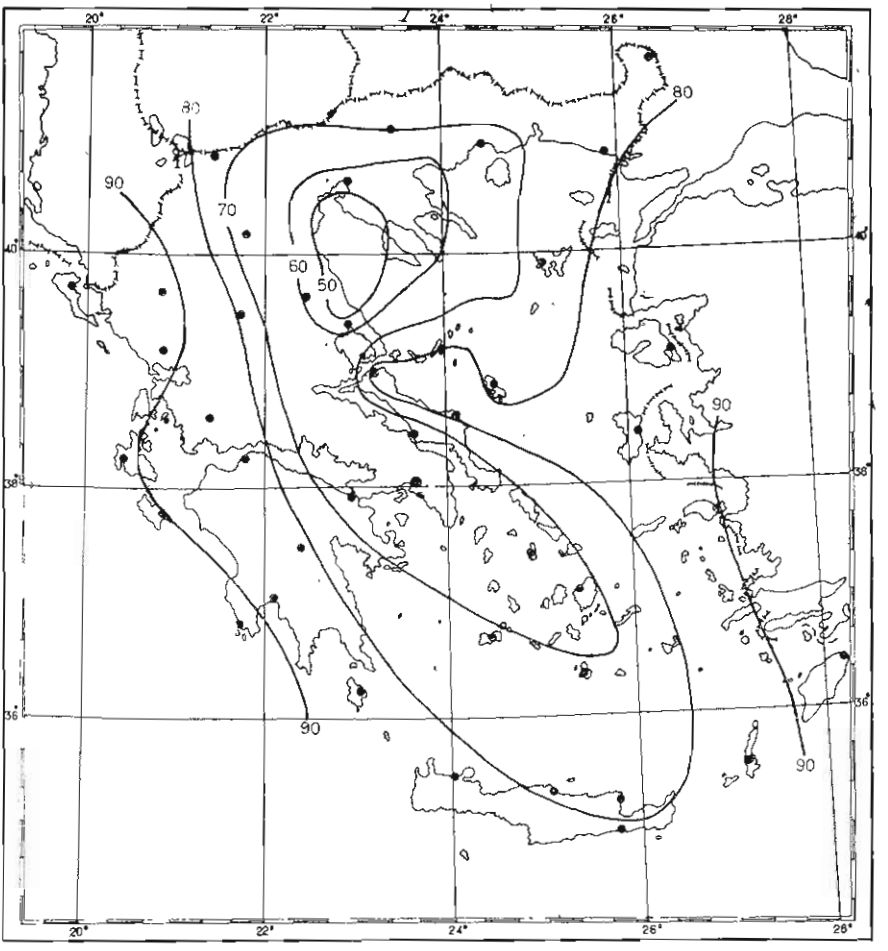

Fig. 4. Probability (%) of obtaining rainfall amount ⩾ 50.0 mm in December over Greeee

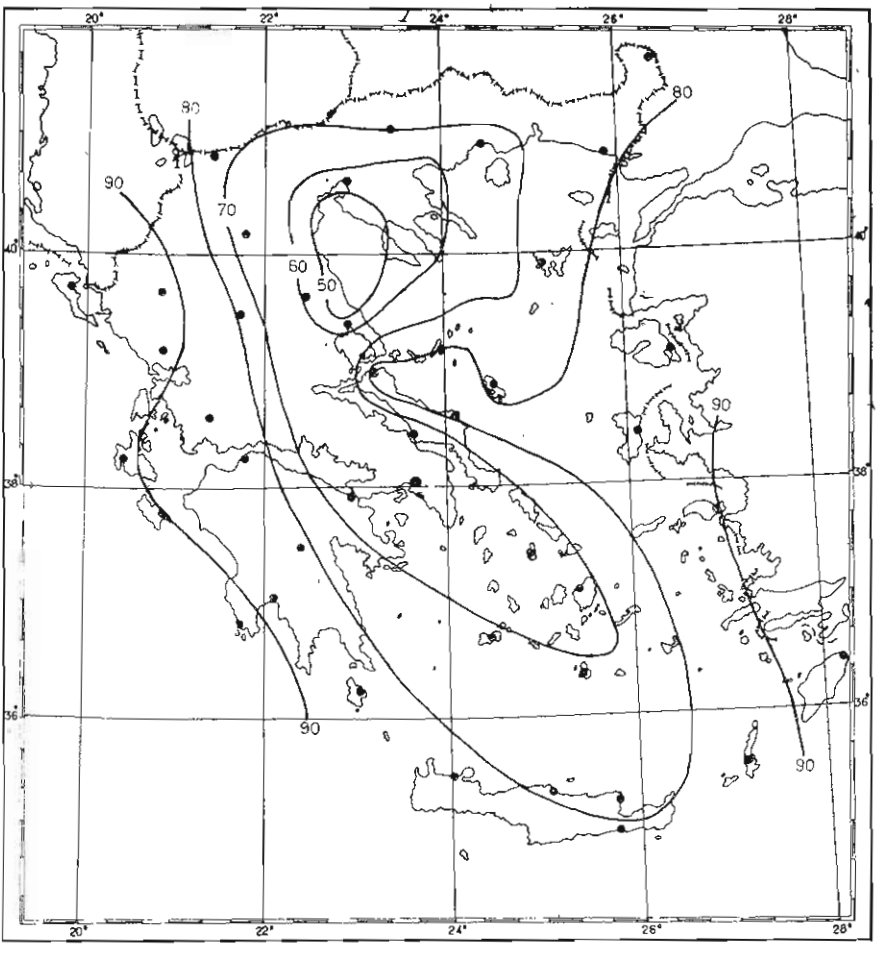

Fig. 4. Probability (%) of obtaining rainfall amount ≥ 50.0 mm in December over Greece

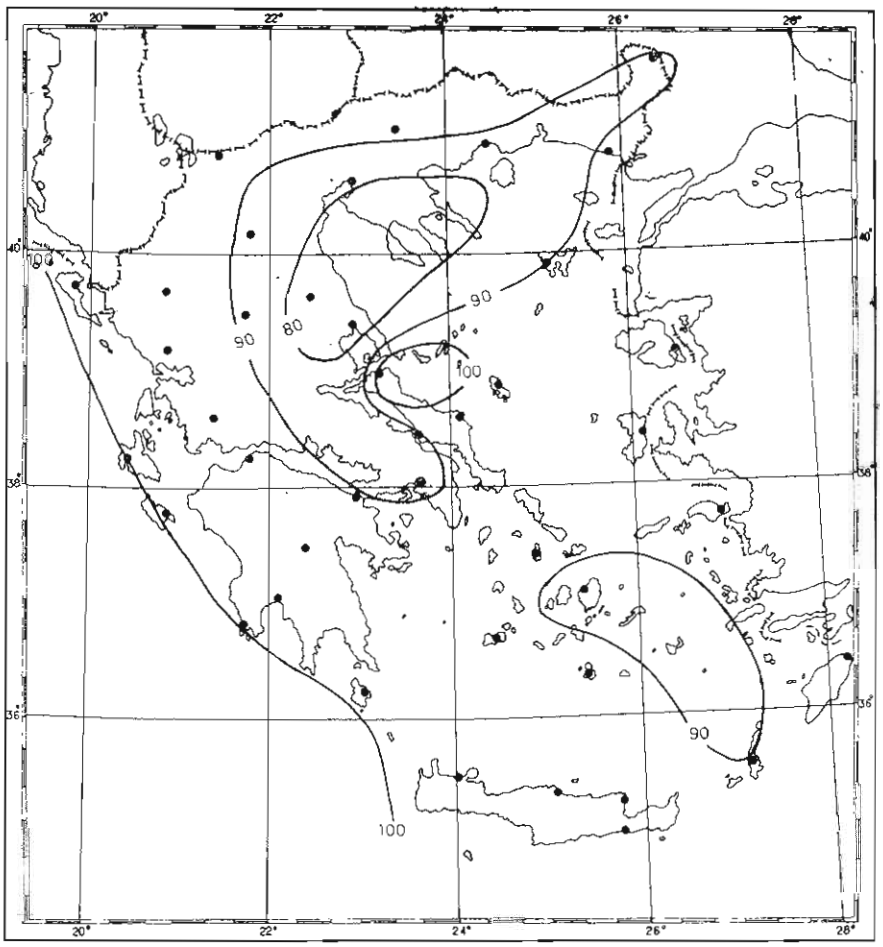

Fig. 5. Probability (%) of obtaining rainfall amount ⩾ 25.0 mm in January over Greece

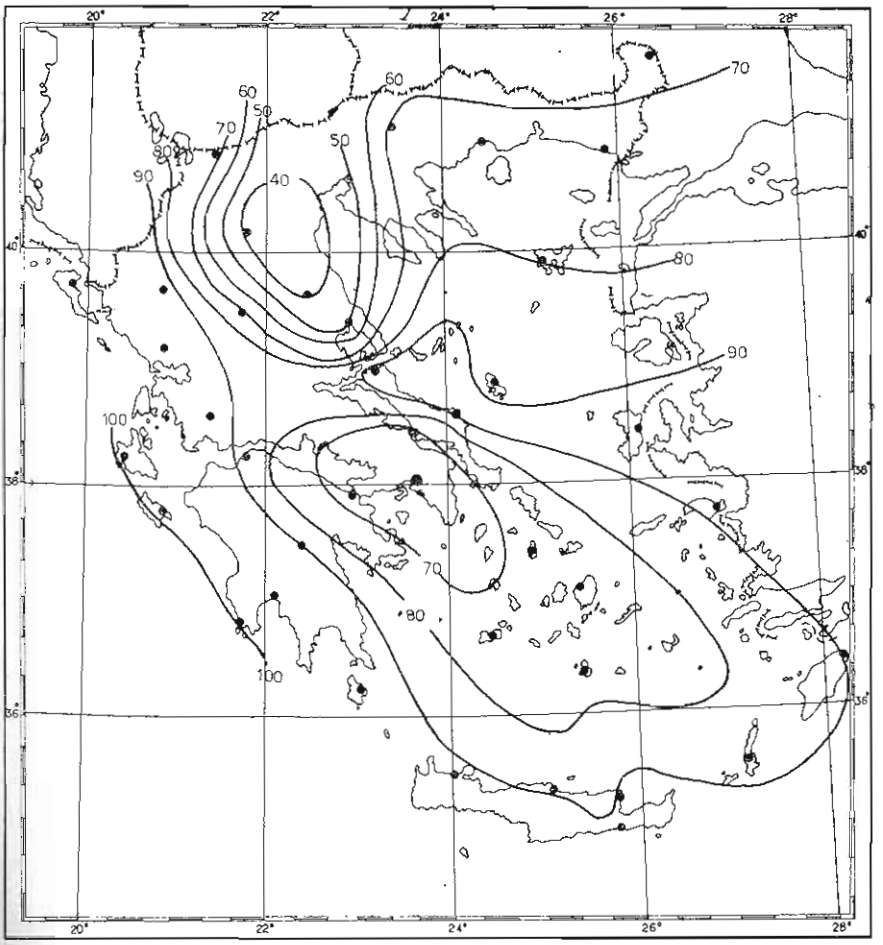

Fig. 6. Probability (%) of obtaining rainfall amount ⩾ 50.0 mm in January over Greece

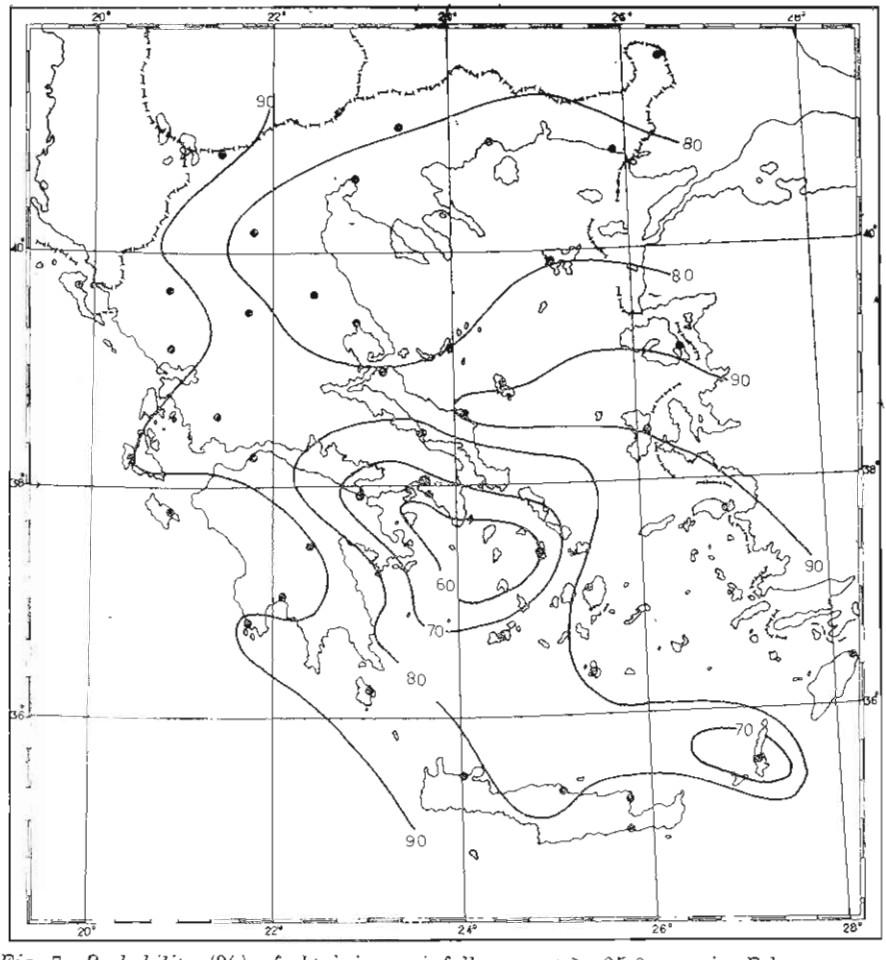

Fig. 7. Probability (%) of obtaining rainfall amount ⩾ 25.0 mm in February over Greece

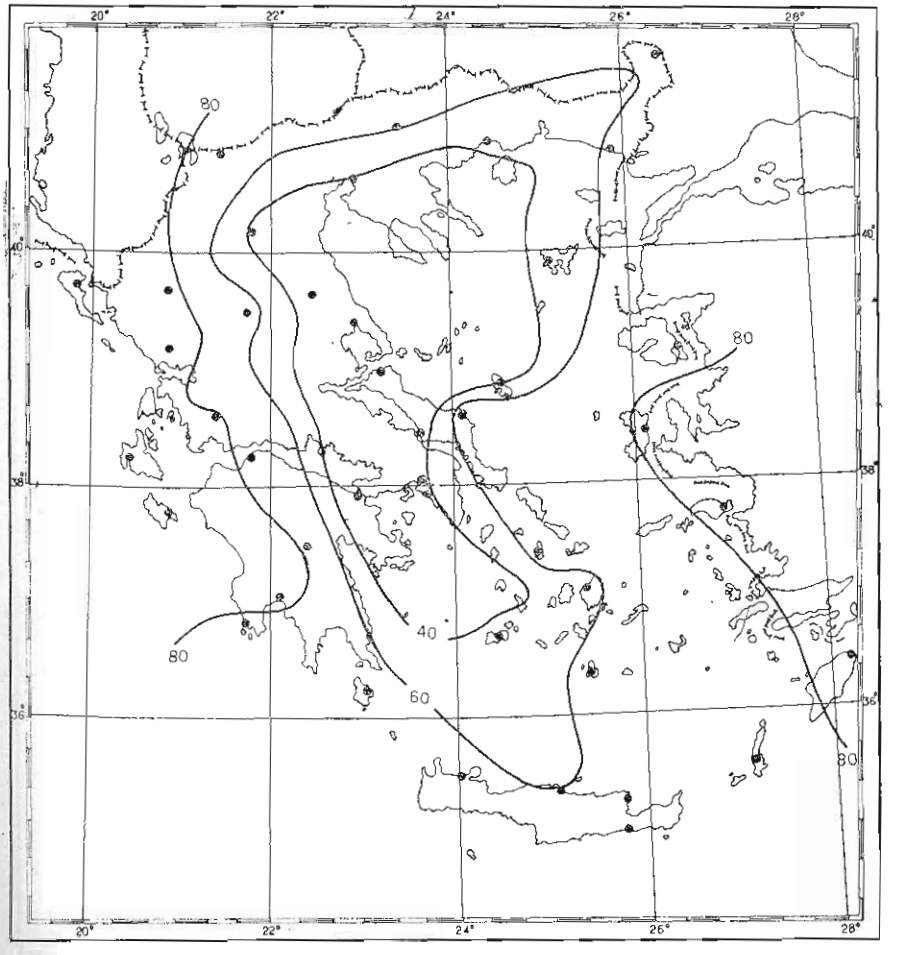

Fig. 8. Probability (%) of obtaining rainfall amount ≥ 50.0 mm in February over Greece

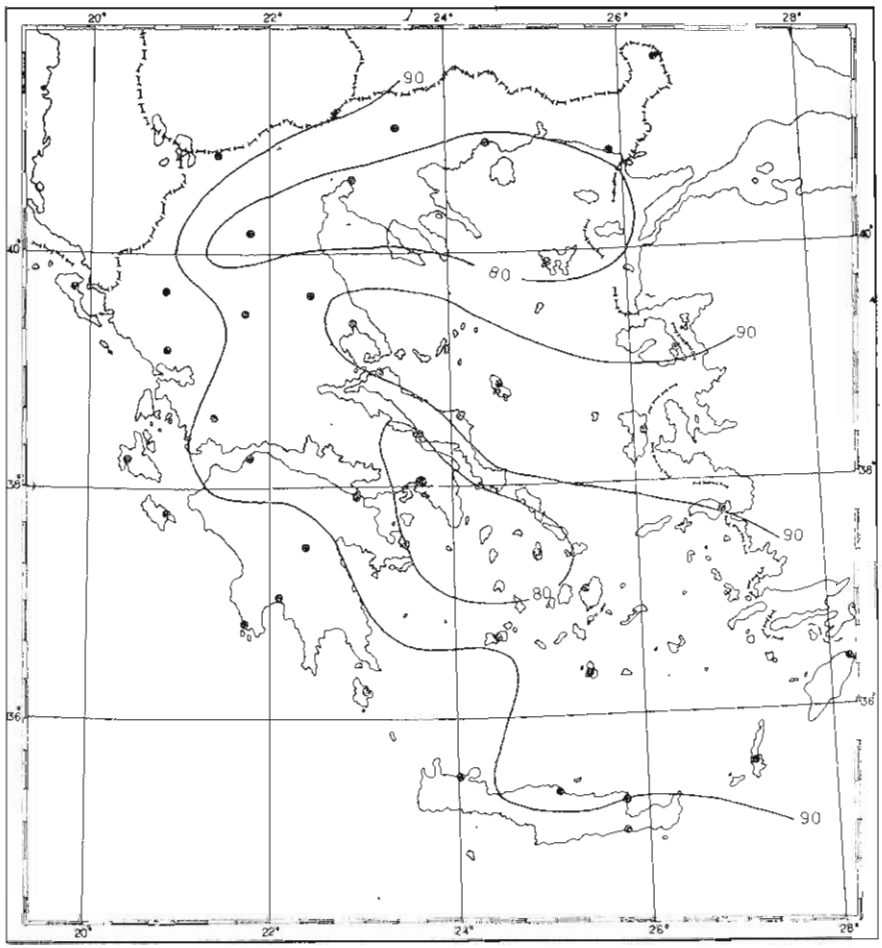

Fig. 9. Probability (%) of obtaining rainfall amount ≥ 25.0 mm in March over Greece.

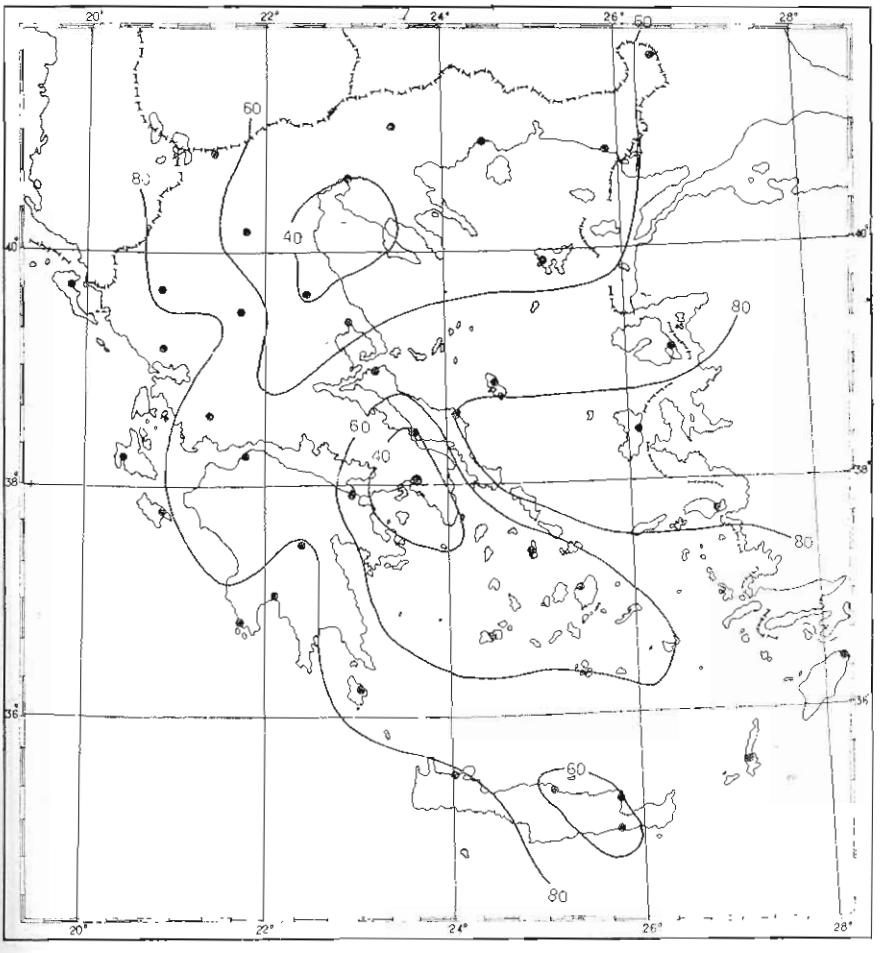

Fig. 10. Probability (%) of obtaining rainfall amount ⩾ 50.0 mm in March over Greece.

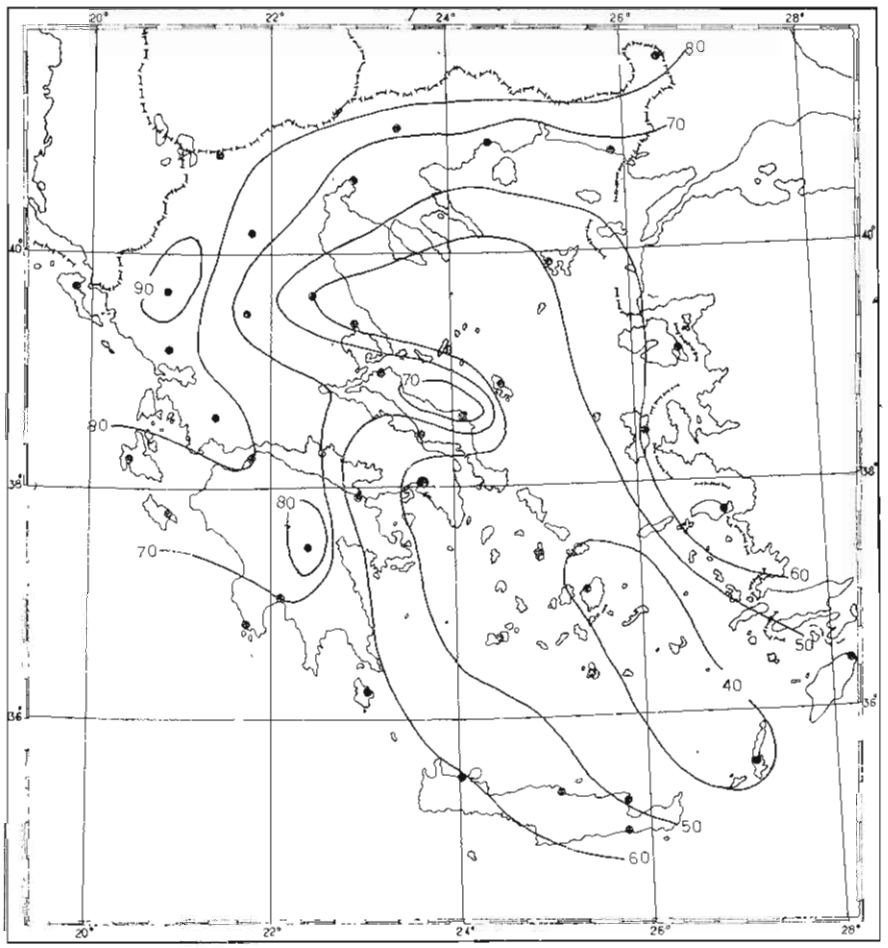

Fig. **11**. *Probability* (%) *of obtaining rainfall amount* $\geq$ 25.0 *mm in April over Greece.*

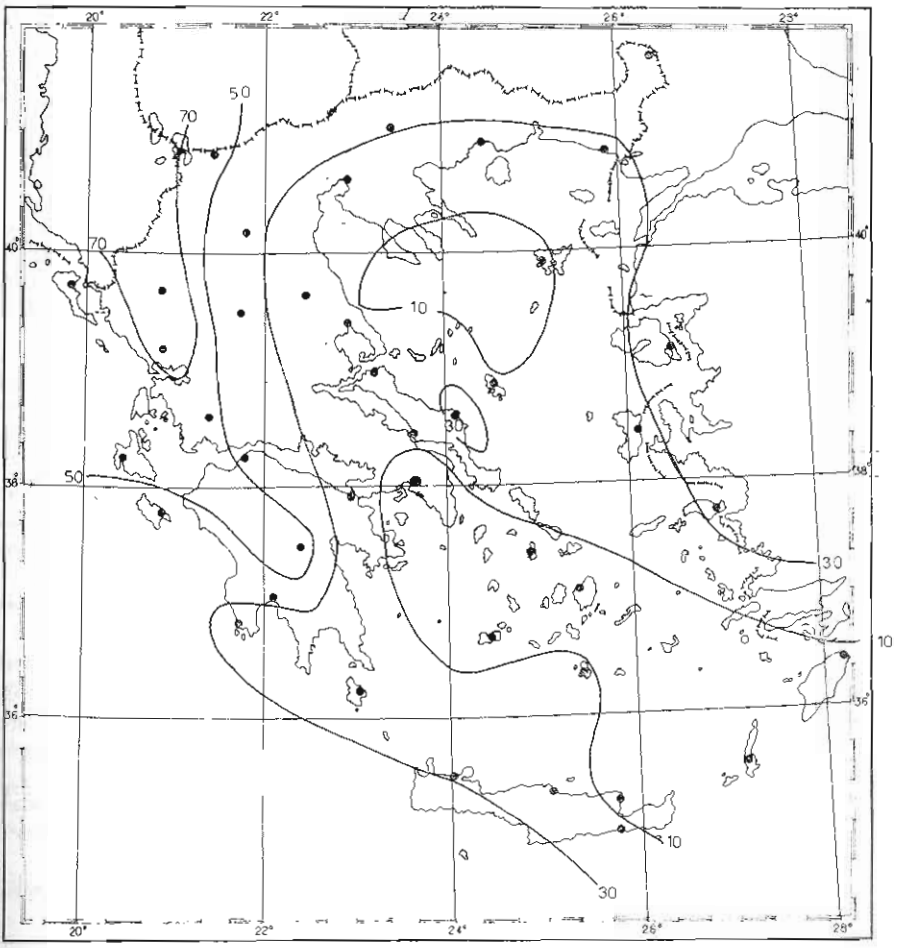

Fig. 12. *Probability* (%) *of obtaining rainfall amount* $\geqslant$ 50.0 *mm in April over Greece*