

M.O. 226.

Corrected
4.12.15



METEOROLOGICAL OFFICE.

M.O. 226

THE CLIMATE

OF THE

BALKANS, GREECE AND THE
AEGEAN SEA

DURING

THE WINTER MONTHS.



LONDON:
PRINTED UNDER THE AUTHORITY OF HIS MAJESTY'S
STATIONERY OFFICE
By DARLING AND SON, LIMITED, BACON STREET, E.

1915.

CONTENTS.

I.—THE BALKAN PENINSULA.

While the climate of Greece and the Aegean Sea is of the Mediterranean type which is characterised by a hot summer, a mild winter, and a maximum rainfall in the winter months, that of the Balkan Peninsula is of the continental type with a cold winter, a warm summer and a comparatively small winter rainfall. On the north there is nothing to shield it from the cold northerly and north-easterly winds which blow from Russia; the warm waters of the Adriatic are separated from it by the coastal ranges of Albania and Bosnia; while the Black Sea is too much affected by the climate of the Russian Steppes to have the moderating influence on the Balkan climate that the Adriatic and the Mediterranean exercise on their shores. Moreover, the Black Sea is normally an area of low pressure during the winter so that northerly winds are prevalent on its western shores.

The rainfall is distributed fairly equally throughout the year and in no month is the average amount very large, 3 to 4 inches being as a rule the average rainfall of the wettest month; a well marked minimum of rainfall occurs in winter, December or January having usually the smallest amount. The rainfall then increases until the early summer, the maximum occurring usually in June, and after this the amount decreases until August or September when a second minimum occurs, which is followed in November by another maximum.

The summer temperature is moderately high, reaching 90° F. as a maximum in most years at many stations in summer, but in winter the low temperatures recorded at all stations are much below those of other countries of the northern coasts of the Mediterranean. At Sofia -24° F. has been recorded in January, and temperatures nearly as low have occurred at other stations during a period of 10 years.

The cold dry conditions which prevail on the Steppes of Southern Russia whenever the pressure is high during the winter months frequently extend to the Balkan Peninsula and account for the moderate rainfall and the low temperatures which are experienced. Such cold periods are characterised by calms or light winds, clear skies, and very low night temperatures.

The passage of depressions over or near the Balkans from west to east is of frequent occurrence and these cyclonic systems exert an important influence on the climate during their passage. On the approach of such a depression from the westward the temperature begins to rise and the sky becomes clouded; the winds become northerly or southerly according as the centre of the depression passes to the southward or the northward of the Balkans; the weather is showery, with snowfall at some stations if the winds are northerly. As the centre of the depression approaches the temperature rises, the weather becomes mild or even warm for the time of year, with rainfall generally and increasing wind. As the depression moves away to the eastward, north-westerly winds set in with colder weather and often considerable falls of snow. Similar changes accompany the passage of each depression which is of any intensity, and if these follow one another at short intervals, showery, unsettled, and cloudy weather with a

comparatively mild temperature may continue for several days or even two or three weeks. More commonly, however, high pressure conditions assert themselves once or twice in each month over Hungary, the Carpathians, Roumania, or Southern Russia, and as these spread to the Balkan Peninsula the weather becomes colder; it is at first cloudy with local rain or snow showers with moderate or fresh northerly winds. As the pressure rises the temperature falls, winds become light and northerly, with calms at many stations, and the sky is usually clear, though at times there is a considerable amount of cloud during such a period of anticyclonic conditions. These periods of clear, calm, and cold weather coincide with the northerly and north-easterly gales with low temperatures which occur in the Aegean Sea under these conditions of pressure distribution. The most favourable winter weather occurs when a broad belt of equal and moderately high pressure extends from South Russia over the Balkan Peninsula to the north coast of Africa (Cyrenaica), while a shallow low-pressure area lies over central Europe, or over the Levant and Syria. In the former case mild, clear weather prevails, with light southerly winds; in the latter, the temperature is about the mean value for the month, the sky is clear, and light northerly and north-westerly winds prevail.

In southern Serbia meteorological stations are scarce, but in Bulgaria some 20 have been in operation for from 10 to 15 years, and from their observations an estimate of the climate can be formed which will apply also to the mountainous region of southern Serbia.

The following stations have been utilized:—

—	Altitude.	Latitude, N.	Longitude, E.	Remarks.
	Feet.	° /	° /	
GROUP I.				
Constantinople ...	246	41 2	28 28	Transition zone between Mediterranean and Balkan climates.
Kavala ...	39	40 55	24 22	
Salonica ...	7	40 39	23 7	
GROUP II.				
Monastir ...	2,034	41 1	21 23	Western Macedonia.
Uskub ...	804	42 0	21 26	
GROUP III.				
Tchépélaré ...	3,625	41 44	24 42	High Level Stations.
Samokov ...	3,117	42 20	23 34	
Rilski Monastir ...	3,855	42 8	23 21	
Kustendil ...	1,722	42 17	22 41	
Sofia ...	1,804	42 42	23 20	
GROUP IV.				
Burgas ...	49	42 29	27 29	Rumelian Plain.
Stara Zagora ...	768	42 25	25 28	
Kazanlyk ...	1,220	42 37	25 24	
Haskovo ...	640	41 56	25 25	
Philippopoli ...	525	42 9	24 45	

Of these, the first group of three represent a climate transitional between that of the Mediterranean and the Balkan climate; some snow falls every winter, and rather low temperatures are

not uncommon. In January, 1903, the harbour of Salonica was covered with ice half-an-inch thick on two consecutive mornings, during a north-easterly gale.

Monastir and Uskub represent the climate of western Macedonia, and are the only stations there for which the observations extend over a period of several years.

The five stations of the third group are all situated at altitudes of over 1,700 feet, and may be taken as fairly representative of the climate of the hill-country of the central Balkans.

The stations of the last group lie in the Rumelian plain and the foothills surrounding it.

Temperature.

The mean temperature of the day for various stations, and the mean value for each group, is given in Table I., where it will be seen that, except at stations on the shores of the Aegean Sea and the Black Sea, the mean temperature falls to or below freezing point for at least one month during the winter at all stations, while at most of the hill stations it falls below it for three months. During the passage of depressions the mean temperature of the day usually rises above the values given in Table I., but, on the other hand, it falls much below them when well-developed anticyclonic conditions prevail. When the Balkans fall within a broad area of moderately high pressure, with shallow depressions lying to the south or north, the mean temperatures given will fairly represent the prevailing conditions.

Table I.—Mean Temperature.

—	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	°F.	°F.	°F.	°F.	°F.	°F.
Constantinople ...	53	46	41	41	46	53
Kavala ...	53	48	42	44	49	57
Salonica ...	52	46	41	45	49	58
Mean of Group I. ...	52·7	46·7	41·3	43·3	48·0	56·0
Monastir ...	45	35	30	37	46	52
Uskub... ..	43	34	29	34	45	53
Mean of Group II. ...	44·0	34·5	29·5	35·5	45·5	52·5
Tchépélaré ...	37	32	26	30	34	43
Samokov ...	36	31	26	29	34	43
Rilski Monastir ...	38	32	27	30	34	43
Kustendil ...	41	35	28	34	41	51
Sofia ...	40	31	26	31	40	49
Mean of Group III. ...	38·4	32·2	26·6	30·8	36·6	45·8
Burgas ...	47	38	33	34	42	51
Stara Zagora... ..	45	39	33	39	44	53
Kazanlyk ...	42	36	31	36	42	51
Haskovo ...	44	38	31	37	43	53
Philippopoli ...	44	35	31	34	44	54
Mean of Group IV. ...	44·4	37·2	31·8	36·4	43·0	52·4

The mean maximum temperature of the day is not high except in the summer months, when it reaches 85° F., and even 100° F. is occasionally recorded at some stations. January is the month having the lowest maximum temperatures, and in February the mean daily maximum is only about 6°-7° F. higher, but in March and again in April an increase of about 10° F. takes place, so that the weather becomes rapidly warmer as spring returns.

Table II.—Mean Daily Maximum.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	°F.	°F.	°F.	°F.	°F.	°F.
Constantinople	58	51	46	45	52	60
Kavala	59	54	48	51	55	64
Salonica	58	52	49	53	58	66
Monastir	53	41	38	46	55	62
Sofia	47	38	35	42	51	60
Burgas	54	46	41	46	50	60
Philippopoli	52	42	41	47	55	64

In Table III. the mean daily minimum temperature is given for all stations except Uskub, for which the necessary data are not accessible. These values are the mean of the minimum temperature recorded on each day of the month and is, therefore, the most probable daily minimum temperature on the average. Except at one or two stations in the Rumelian Plain and on the coast of the Aegean, frost is to be expected on any night in December, January, and February, and in November and March as well at the hill stations. At these latter 10 or 15 degrees of frost are to be expected in January, and in February 8 or 10 degrees is the ordinary degree of intensity.

Table III.—Mean Daily Minimum Temperature.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	°F.	°F.	°F.	°F.	°F.	°F.
Constantinople	50	43	38	36	40	46
Kavala	47	43	36	40	43	51
Salonica	46	40	36	38	43	50
Mean of Group I.	47.7	42.0	36.7	38.0	42.0	49.0
Monastir	38	30	23	30	36	42
Tchépélaré	28	24	15	21	26	31
Samakov	29	25	17	22	27	34
Rilski Monastir	31	26	22	24	28	34
Kustendil	33	29	21	27	33	39
Sofia	33	26	20	24	35	40
Mean of Group III.	30.8	26.0	19.0	23.6	29.8	35.8
Burgas	40	34	28	32	36	44
Stara Zagora	38	33	26	33	36	43
Kazanlyk	36	31	24	30	34	40
Haskovo	36	30	22	30	34	42
Philippopoli	38	33	26	31	36	44
Mean of Group IV.	37.0	31.8	24.5	31.0	35.0	42.2

But in every month there are many days when the temperatures recorded fall far below those given in Table III., and these coincide for the most part with the existence of anticyclonic conditions over the Balkans and the contiguous parts of Europe lying to the north and north-east. Table IV. gives the mean monthly minimum temperature for all stations, which represents the lowest temperature which may be anticipated during the month. It will be seen that temperatures at or below freezing point are to be expected occasionally from December to March on the northern shore of the Aegean; that up to 25 degrees of frost may occur in January at Monastir and Uskub, and that in the Bulgarian and Serbian Highlands even 36 degrees of frost may be experienced. In the Rumelian Plain, also, very low temperatures are recorded in January, but in the other months the conditions are less severe.

Table IV.—Mean Monthly Minimum.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	°F.	°F.	°F.	°F.	°F.	°F.
Constantinople	38	33	28	26	31	37
Kavala	36	33	23	29	35	41
Salonica	32	26	24	27	33	40
Mean of Group I.	35.3	30.7	25.0	27.3	33.0	39.3
Monastir	23	11	7	14	25	31
Uskub... ..	23	14	7	14	28	40
Mean of Group II.	23.0	12.5	7.0	14.0	26.5	35.5
Tchépélaré	12	6	-4	4	12	19
Samokov	13	8	0	4	13	23
Rilski Monastir	18	12	3	9	15	23
Kustendil	20	14	4	13	20	30
Sofia	17	10	4	11	17	24
Mean of Group III.	16.0	10.0	1.8	8.2	17.4	23.8
Burgas	24	18	13	19	24	33
Stara Zagora... ..	23	18	11	20	26	32
Kazanlyk	22	17	9	17	24	30
Haskovo	17	14	3	15	21	30
Philippopoli	25	19	11	19	29	33
Mean of Group IV.	22.2	17.2	9.4	18.0	24.8	31.6

The lowest temperatures which have been recorded at the various stations during the 10 years 1900-1910, or in some cases 17 years 1894-1910, are given in Table V.; for Sofia the period is longer. These values represent the extreme which may be reached rarely under conditions which are specially favourable for the occurrence of low temperatures, viz., a high pressure over the Balkans, which is maintained for several days, and a clear sky. At all the hill stations, and all the stations in the Rumelian Plain except two, temperatures below 0° F. have been recorded

in January, while only one of the hill stations has not recorded a temperature below 0° F. in December and February as well.

The lowest temperature has been observed at Sofia, where -31.2° C., or -24.2° F., was recorded in January, 1893.

Table V.—Absolute Minimum (Lowest recorded Temperature °F.)

Locality.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	°F.	°F.	°F.	°F.	°F.	°F.
Constantinople ...	—	—	24	—	—	—
Kavala ...	—	—	22	—	—	—
Salonica ...	—	—	14	—	—	—
Monastir ...	—	—	-1	—	—	—
Uskub ...	—	—	-14	—	—	—
Tchépélaré ...	-4	-7	-19	-15	-4	12
Samokov ...	-1	-2	-14	-6	4	19
Rilski Monastir ...	18	12	-12	-8	4	18
Kustendil ...	13	-6	-8	-8	11	23
Sofia ...	1	-7	-24	-15	-1	23
Burgas ...	9	9	1	9	14	25
Stara Zagora ...	23	18	2	1	16	28
Kazanlyk ...	22	17	-6	-1	18	26
Haskovo ...	8	-4	-4	-9	16	27
Philippopoli ...	25	19	4	-1	18	31

Rainfall.

The Balkan region differs materially in the distribution of its rainfall from the Mediterranean region to which Greece and the Aegean Sea belong. In countries of the Mediterranean type of climate there is a very strongly-marked winter rainy season in which the maximum monthly rainfall usually occurs in December or January. A monthly mean rainfall of five or even six inches (127 or 152 mm.) is not uncommon especially on western coasts. In the continental type of climate which characterise the Balkans, there is no well-marked maximum in the winter months, but the rainfall is distributed fairly equally throughout the year. The winter is a season of diminished rainfall and follows a slight maximum in November. In the early summer, May-June, another maximum occurs which is followed by a diminution of rainfall in the late summer. The total amount too which falls is not large, and in the winter months it is on the average from about two to two and a half inches.

In Table VI. the mean monthly rainfalls at the various stations are given together with the mean for each group of the stations. The stations at the north of the Aegean, which are in a zone of transition between climates of the Mediterranean and continental types, record the heaviest rainfall, but this decreases as soon as the inland region is reached.

The amount falling in any one month may vary considerably from year to year according as more or fewer depressions pass over the district.

The maximum rainfalls recorded in 17 years for each month and for the groups of stations III. and IV. are given in Table VII., from which it appears that the maximum rainfall to be anticipated is about double the mean rainfall for the month.

Table VI.—Rainfall.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	ins.	ins.	ins.	ins.	ins.	ins.	mm.	mm.	mm.	mm.	mm.	mm.
Constantinople ...	4.02	4.80	3.42	2.72	2.44	1.65	102	122	87	69	62	42
Kavala ...	2.72	3.23	1.80	3.42	2.72	1.93	69	82	71	87	69	49
Salonica ...	1.97	1.97	1.26	0.87	1.10	1.61	50	50	32	22	28	41
Mean of Group I.	2.90	3.33	2.49	2.34	2.09	1.73	74	85	63	59	53	44
Monastir ...	2.99	2.60	1.93	2.64	1.97	2.48	76	66	49	67	50	63
Uskub ...	1.50	1.97	1.42	1.10	0.79	1.69	38	50	36	28	20	43
Mean of Group II.	2.25	2.29	1.68	1.87	1.38	2.08	57	58	42	48	35	53
Tchépélaré ...	2.64	3.07	2.56	2.60	1.93	2.52	67	78	65	66	49	64
Samokov ...	2.02	1.22	1.59	1.67	1.85	2.42	56	31	41	42	47	61
Rilski Monastir ...	3.43	1.90	1.90	2.44	2.17	3.11	87	48	48	62	55	79
Kustendil ...	2.53	1.68	1.94	1.90	1.22	1.78	64	43	49	48	31	45
Sofia ...	1.93	1.42	1.50	1.42	1.46	2.05	49	36	38	36	37	52
Mean of Group III.	2.51	1.86	1.90	2.01	1.73	2.37	65	47	48	51	44	60
Burgas ...	2.52	2.05	1.85	2.24	1.61	1.77	64	52	47	57	41	45
Stara Zagora ...	2.36	1.81	1.46	1.85	1.69	1.58	60	46	37	47	43	40
Kazanlyk ...	2.48	1.60	1.73	1.81	1.46	1.73	63	43	44	46	37	44
Haskovo ...	3.03	2.20	2.52	2.31	2.13	2.05	77	56	64	59	54	52
Philippopoli ...	1.77	1.34	1.89	1.81	1.61	1.85	45	34	48	46	41	47
Mean of Group IV.	2.43	1.82	1.89	2.01	1.70	1.78	62	46	48	51	43	46

Table VII.—Maximum Rainfall.

Group III. ...	5.35	5.43	4.49	4.25	4.53	5.28	136	138	114	108	115	134
Group IV. ...	6.54	4.13	6.10	3.94	4.49	5.51	166	105	155	100	114	140

The number of rainy days varies but little during the winter months, being from 8 to 12 at most stations, though the number is somewhat greater on the Aegean coast, and smaller at some of the hill stations (see Table VIII.). Most of the rain falls during the passage of depressions which approach from the westward, and move in an easterly or north-easterly direction. Showery weather sets in as the low-pressure system reaches the Adriatic and the western parts of the Balkan Peninsula, and with the passage of the centre rain falls generally over the region

for one or two days. If no second depression is closely following the first the weather becomes showery and clears in rear of it, while a north-westerly wind frequently brings snow as well as a rapid fall of temperature.

Table VIII.—Rainy Days.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Constantinople	11	14	12	11	10	8
Kavala	8	9	6	10	8	6
Salonica	7	8	6	6	6	7
Mean of Group I.	8.7	10.3	8.0	9.0	8.0	7.0
Monastir	9	11	10	11	10	11
U-kub... ..	5	6	6	5	5	6
Mean of Group II.	3.7	5.7	5.3	5.3	5.0	5.7
Tchépélaré	12	11	11	12	11	12
Samakov	12	9	10	12	12	12
Rilski	12	10	10	13	12	13
Kustandil	6	4	5	6	4	4
Sofia	8	11	12	8	10	11
Mean of Group III.	10.0	9.0	9.6	10.2	9.8	10.4
Burgas	9	9	8	10	9	9
Stara Zagora... ..	10	8	8	10	9	9
Kazanlyk	11	9	8	10	9	12
Haskovo	10	9	8	9	9	9
Philippopoli	10	8	7	8	8	7
Mean of Group IV.	10.0	8.6	7.8	9.4	8.8	9.2

Frost.

Under the conditions which prevail in the Balkan region during the winter months, the prevalence and the continuance of frost is a factor of considerable importance. In Table IX. the average number of days is given on which the temperature fell below 32° F., and also, for certain stations, the average number of days in each month on which it ~~did~~ not rise above freezing point throughout the day. At the hill stations frost is of daily occurrence during December, January, and February, and in the Rumelian Plain it occurs on rather more than half the days on the average. But conditions vary considerably in different years, and in Table X. the maximum number of occurrences of frost are given in the same form for these stations. Thus it may be seen that in years when meteorological conditions are favourable to the occurrence of low temperatures frost may occur daily in December, January, and February, and from ten to twenty days in each month the temperature may be below 32° F. throughout the twenty-four hours.

Table IX.—Number of days { A. Frost (Minimum temperature less than 32° F.)
B. Frost all day (Maximum temperature less than 32° F.)

	Nov.		Dec.		Jan.		Feb.		March.		April.	
	A.	B.	A.	B.	A.	B.	A.	B.	A.	B.	A.	B.
Tchépélaré	17	2	24	3	28	7	23	3	24	1	12	0
Samakov	19	3	26	4	29	9	25	6	24	2	10	0
Rilski Monastir	15	1	23	4	28	5	23	2	23	1	9	0
Kustandil... ..	12	5	18	2	28	9	18	3	13	0	3	0
Sofia	14	2	21	6	28	11	21	5	15	1	4	0
Mean of Group III.	15.4	2.6	22.4	3.8	28.2	8.2	23.6	3.8	23.4	1.0	7.6	0.0
Burgas	6	1	12	2	22	5	14	2	8	1	11	0
Stara Zagora	8	0	14	1	21	5	10	1	9	0	1	0
Kazanlyk	11	1	17	1	27	5	16	1	12	0	2	0
Haskovo	6	0	11	2	19	4	10	1	8	0	1	0
Philippopoli	7	1	12	2	24	8	13	3	7	0	0	0
Mean of Group IV.	7.6	0.6	13.2	1.6	24.4	5.4	13.8	1.6	8.8	0.2	4.0	0.0

Table X.—Maximum number { A. Frost.
of days in any year. { B. Frost all day.

Tchépélaré†	22	7	28	8	31	12	28	7	31	4	18	1
Samakov†	13	12	27	12	31	15	28	19	31	19	9	3
Rilski Monastir†	23	5	29	9	31	8	28	14	28	4	15	0
Kustandil†	19	2	23	18	30	24	28	18	30	2	5	0
Sofia*	27	9	29	16	31	23	28	18	29	3	9	0
Burgas*	17	2	21	10	29	17	26	5	21	3	4	1
Stara Zagora†	15	2	24	4	31	11	28	8	28	1	2	0
Kazanlyk†	18	2	25	4	31	9	28	6	26	1	4	0
Haskovo†	14	2	24	9	31	13	25	7	23	3	4	0
Philippopoli†	14	2	25	14	30	16	25	17	19	0	2	0

* Observations, 1894-1910, utilized.

† Observations, 1900-1910, utilized.

Snow.

Snow may be expected at any time from November to April, and in December, January, and February it falls frequently. In the hill country one day in three represents the average frequency of snowfall in these three months, while in the Rumelian Plain it is about one day in six. The average number of days on which snow falls at different stations is given in Table XI., as well as the average number of days during which the ground is covered with snow. The maximum values for the periods for which observations are available are given in Table XII., and from this it will be seen that in the harder winters the ground in the

hill country may be covered with snow for the whole of December, January, February, and March, and the Rumelian Plain for January and February.

Table XI.—Mean Number of Days of $\left\{ \begin{array}{l} A. \text{ Snowfall.} \\ B. \text{ Days on which snow} \\ \text{covered the ground.} \end{array} \right.$

	Nov.		Dec.		Jan.		Feb.		Mar.		Apr.	
	A.	B.	A.	B.	A.	B.	A.	B.	A.	B.	A.	B.
Constantinople ...	1	—	3	—	6	—	6	—	3	—	1	—
Salonica ...	0.3	—	0.7	—	1.4	—	0.7	—	0.4	—	0.1	—
Uskub ...	1.4	—	2.1	—	4.7	—	3.5	—	1.0	—	0	—
Tchépélaré ...	6	6	7	15	10	26	10	20	9	15	4	3
Samakov ...	6	7	7	13	11	26	10	18	10	16	4	3
Rilski Monastir ...	6	6	8	12	10	27	10	16	9	11	4	3
Kustandil ...	3	5	3	5	6	18	5	12	4	6	0	0
Sofia ...	5	5	7	9	10	17	9	14	8	5	2	0
Mean of Group III.	5.2	5.8	6.4	10.8	9.4	22.8	8.8	16.0	8.0	10.6	2.8	1.8
Burgas ...	1	1	3	1	6	8	4	3	3	1	0	0
Stara Zagora ...	3	2	3	4	6	10	4	5	5	4	0	0
Kazanlyk ...	4	2	4	5	7	13	7	8	5	2	1	0
Haskovo ...	3	1	3	4	7	18	5	10	4	2	1	0
Philippopoli ...	2	1	2	4	6	16	4	8	3	2	0	0
Mean of Group IV.	2.6	1.4	3.0	3.6	6.4	13.0	4.8	6.8	4.0	3.2	0.4	0

Table XII.—Maximum Number of Days $\left\{ \begin{array}{l} A. \text{ Snowfall.} \\ B. \text{ Snow covering ground.} \end{array} \right.$ in each Year.

	Nov.		Dec.		Jan.		Feb.		Mar.		Apr.	
	A.	B.	A.	B.	A.	B.	A.	B.	A.	B.	A.	B.
Tchépélaré† ...	11	13	14	23	12	31	21	28	22	31	7	15
Samakov† ...	12	13	12	27	14	31	19	28	19	31	9	9
Rilski Monastir† ...	9	19	12	26	14	31	17	28	17	31	8	15
Kustandil† ...	7	14	7	27	11	31	11	28	12	26	2	3
Sofia* ..	9	13	17	27	16	31	18	28	21	25	9	3
Burgas* ...	4	8	6	8	13	25	8	13	11	6	1	0
Stara Zagora† ...	4	4	7	11	9	30	10	22	8	4	2	5
Kazanlyk† ...	7	7	9	17	12	31	14	28	16	5	4	1
Haskovo† ...	6	4	8	20	12	31	11	28	13	10	3	1
Philippopoli† ...	6	5	6	23	11	31	10	28	10	8	1	0

* Observations, 1894-1910.

† Observations, 1900-1910.

Mist and Fog.

The frequency of mist and fog will vary greatly with the geographical conditions which exist at different places, but the

average frequency of mist and fog at eleven Bulgarian stations are given below. The number of days on which mist or fog are recorded vary greatly from year to year, and the maximum number at these stations in any month is about two to three times the average number which is given in Table XIII.

Table XIII.—Average Number of Days of Mist and Fog.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Tchépélaré ...	1.1	1.5	0.7	1.3	1.3	0.6
Samakov ...	6.4	8.7	6.1	8.7	6.1	3.5
Rilski Monastir ...	4.7	5.5	4.6	4.4	4.3	4.0
Kustandil ...	3.8	5.7	5.1	1.0	1.0	1.3
Sofia ...	10.0	12.0	14.0	6.0	6.0	1.0
Burgas ...	3.0	4.1	3.5	3.1	4.2	1.8
Stara Zagora ...	3.4	5.5	5.0	3.2	2.5	1.5
Kazanlyk ...	3.5	7.6	4.4	5.2	2.4	0.8
Haskovo ...	9.0	12.0	6.6	7.0	8.8	4.0
Philippopoli ...	4.5	7.0	5.1	4.7	2.5	0.5

II.—GREECE AND THE AEGEAN SEA.

The climate of Greece and the Aegean Sea is typically Mediterranean, being characterized by a hot dry summer and a mild winter with considerable rainfall, but on the northern shore and the high ground of Thessaly the commencement of a transition into the continental conditions of the Balkans is apparent. From the climatological point of view there are two principal seasons in the Greek region, viz., summer and winter. Summer may be considered as lasting from June to September, while ~~October~~ *November* to March are the winter months; April and May, and October are short transitional periods which separate the principal seasons.

In summer the temperature is generally high, and little, if any, rain falls so that the whole country becomes sunburnt and dried up; in the rocky valleys, where the northerly winds are not felt, the temperature may be considerably above that recorded at more open and exposed stations. Northerly winds predominate and blow with great steadiness at this season. Haze is frequent and visibility is usually much below that of the cooler months. In winter the temperature is never very low, except at some of the inland stations, which are situated at a considerable altitude, but slight frosts occur occasionally even as far south as Athens. The days are pleasantly warm.

The winter coincides with the rainy season of the Mediterranean, and from November to February rain falls frequently, especially on the western coast of Greece and of Asia Minor. The rainfall of the eastern coast of Greece is markedly less. The rain falls during the passage of cyclonic systems which pass frequently in the winter months from west to east over or near to Greece and the Aegean Sea. As the spring approaches such depressions tend to follow more northerly tracks, and the rainfall over Greece diminishes towards the summer minimum.

Snow also is recorded once or twice in most years at several of the Greek stations.

As summer conditions give place to those of the winter, cyclonic depressions, which rarely pass over the Eastern Mediterranean in the summer, begin to invade it, and throughout the winter they occur frequently, giving rise to gales, heavy rain and generally unsettled weather. Their general direction of movement is from west to east, but their paths are usually curved and often very irregular. Those that affect Greece and the Aegean Sea may pass over them, or to the southward, or over the Balkan region to the north. In the first case strong southerly winds may prevail in the Aegean Sea as the depression approaches, veering to the north-west as the depression passes away to the eastward. The more persistent southerly gales occur when a depression or a series of depressions pass to the north of the Aegean Sea and cause strong southerly winds to continue for three or even four days. The depressions which pass to the south of Greece give rise to northerly and north-easterly winds of some strength which are often full gales if the atmospheric pressure over the Balkan region is high at the same time.

The stations which have been used for illustrating the climate of Greece and the Aegean Sea are:—

—	Altitude	Latitude, N.	Longitude E.	Remarks.
	Feet.	° ' "	° ' "	
Constantinople... ..	246	41 2	28 28	} North Coast of Aegean Sea.
Kavala	39	40 55	24 22	
Salonica... ..	7	40 39	23 7	
Janina	1,590	39 47	20 55	} Inland stations of Northern Greece.
Trikala	367	39 35	21 45	
Larissa	246	39 36	22 24	
Lamia	230	38 54	22 15	
Volo	26	39 24	22 58	} Stations on the Eastern Coast of Greece.
Chalchis... ..	36	38 27	23 30	
Athens	351	37 58	23 44	
Nauplia	20	37 33	22 48	
Andros	154	37 47	24 45	} Islands in the South Aegean Sea.
Syra	1,073	37 29	24 56	
Naxos	16	37 6	25 23	
Santorin	745	36 25	25 30	
Smyrna	33	38 25	27 0	} West Coast of Asia Minor.
Samos	230	37 40	26 45	
Cythera	574	36 9	23 0	} Sea south of Greece.
Canea	131	35 30	24 31	
Candia	111	35 21	25 30	
Corfu	98	39 38	19 33	} Ionian Islands and West Coast of Greece.
Arla	177	39 10	20 45	
Cephalonia	26	38 11	20 15	
Patras	16	38 14	21 44	
Zante	10	37 33	22 48	

The first group of these stations represents a climate transitional between that of the Mediterranean and the Balkan climate;

snow falls every winter, and rather low temperatures are not uncommon. The second group is of much the same character since the stations represent the inland regions of northern Greece and are situated at a moderate altitude. The third group represents the milder climate of the east coast of Greece where low temperatures are exceptional, and the rainfall is moderate in quantity. The fourth group includes the islands of the south Aegean, where the climate is mild in winter and the rainfall is somewhat heavy. In the fifth group two stations only are available, and they represent the west coast of Asia Minor, where the temperature in winter is occasionally low and the rainfall is heavy, as at all west coast stations. Crete and the sea to the south of Greece (Group VI.) are very similar in their climatic conditions to the islands of the South Aegean. The seventh group, the Ionian Islands and the west coast of Greece, has a mild winter climate with only occasional frost and a considerable winter rainfall.

Temperature.

The mean temperature for the day for the various stations, and the mean value for each group of stations, are given in Table XIV., where it will be seen that at no station does the mean temperature of the day fall to freezing point in any month, 39° F. at Larissa, an inland town in northern Greece, being the lowest value shown. January is in every case the coldest month, and in February the rise of temperature is small. In March the increase is somewhat larger, and it becomes considerable, 6° to 9°, in April.

Table XIV.—Mean Temperatures in Greece.

—	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	°F.	°F.	°F.	°F.	°F.	°F.
Constantinople	53	46	41	41	46	53
Kavala	53	48	42	44	49	57
Salonica	52	48	41	45	49	58
Mean of Group I.	52.7	46.7	41.3	43.3	48.0	56.0
Janina	49	43	41	43	47	56
Trikala	51	45	40	45	51	59
Larissa	52	46	39	45	50	58
Lamia	55	49	44	48	52	60
Mean of Group II.	51.8	46.0	41.0	45.2	50.0	58.2
Volo	55	50	45	49	53	59
Chalchis	56	50	48	50	53	59
Athens	57	52	49	50	53	59
Nauplia	59	53	49	51	54	60
Mean of Group III.	59.0	51.2	47.8	50.0	53.2	59.2

58.8

Table XIV.—continued.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	°F.	°F.	°F.	°F.	°F.	°F.
Andros	58	54	51	53	55	60
Syra	60	56	53	54	56	61
Naxos	62	57	55	55	57	62
Santorin	59	54	51	53	55	60
Mean of Group IV.	59.8	55.2	52.5	53.8	55.8	60.8
Smyrna	56	49	46	48	53	59
Samos	59	52	49	51	52	59
Mean of Group V.	57.5	50.5	47.5	49.5	52.5	59.0
Cythera	60	54	52	53	54	59
Canea	60	54	51	51	56	60
Candia	61	55	51	52	55	61
Mean of Group VI.	60.3	54.3	51.3	52.0	55.0	60.0
Corfu	60	54	50	51	55	61
Arta	56	50	47	50	54	60
Cephalonia	60	54	51	53	56	61
Patras... ..	60	54	50	52	56	62
Zante	62	56	53	54	56	62
Mean of Group VII.	59.6	54.5	50.2	52.0	55.4	61.2

The Mean Daily Maximum Temperature (Table XV.) exhibits the same general character of a steady fall in temperature from November to January, when the lowest temperatures occur, and then a slow increase in February and March, with a more marked advance in April. ~~In no month~~ is the average daily maximum higher than 70° F. up to the end of April.

Table XV.—Mean Daily Maximum.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	°F.	°F.	°F.	°F.	°F.	°F.
Constantinople	58	51	46	45	52	60
Kavala	59	54	48	51	55	64
Salonica	58	52	49	53	58	66
Mean of Group I.	58.3	52.3	47.7	49.3	55.0	63.3
Janina	65	57	56	61	69	80
Trikala	59	52	48	53	59	69
Larissa	60	54	50	55	61	70
Lamia... ..	62	55	51	55	59	68
Mean of Group II.	61.5	54.5	51.2	56.0	62.0	71.8

Table XV.—continued.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	°F.	°F.	°F.	°F.	°F.	°F.
Volo	62	57	52	56	61	68
Chalchis	62	58	53	56	60	69
Athens	64	56	53	55	61	68
Nauplia	66	60	57	59	62	68
Mean of Group III.	64.5	57.8	55.0	58.5	61.0	68.2
Andros	63	58	51	57	59	66
Syra	65	60	56	58	61	67
Naxos... ..	65	61	58	59	61	63
Santorin	64	58	53	56	58	63
Mean of Group IV.	64.2	59.2	52.5	57.5	59.8	64.8
Smyrna	66	58	52	55	59	69
Samos... ..	64	57	52	55	56	65
Mean of Group V.	65.0	57.5	52.0	55.0	57.5	67.0
Cythera	64	58	55	56	58	64
Canea	69	63	59	58	64	67
Candia	68	62	57	59	62	67
Mean of Group VI.	67.0	64.3	57.0	57.6	61.3	66.0
Corfu	66	59	56	57	61	67
Arta	65	58	56	58	63	70
Cephalonia	67	60	57	58	63	69
Patras... ..	67	59	56	58	62	68
Zante	66	60	57	58	60	67
Mean of Group VII.	66.2	59.2	56.4	57.8	61.8	68.2

The Mean Daily Minimum Temperatures are given in Table XVI. and it will be seen that temperatures below 32° F. are not frequent, and indeed are only recorded at the inland stations of Northern Greece.

Table XVI.—Mean Daily Minimum.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	°F.	°F.	°F.	°F.	°F.	°F.
Constantinople	50	43	38	36	40	46
Kavala	47	43	36	40	43	51
Salonica	46	40	36	38	45	50
Mean of Group I.	47.7	42.0	36.7	38.0	42.0	49.0
Janina	33	24	18	24	33	40
Trikala	44	38	32	36	41	47
Larissa	43	37	32	33	39	46
Lamia... ..	48	43	38	41	44	51
Mean of Group II.	42.0	35.5	30.0	33.5	39.2	46.0

Table XVI.—continued.

—						Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
						°F.	°F.	°F.	°F.	°F.	°F.
Volo ...	...	...	...	...	...	48	43	38	40	44	49
Chalchis ...	...	...	...	...	...	50	45	41	42	44	50
Athens ...	...	...	...	...	...	52	45	41	42	46	52
Nauplia ...	...	...	...	...	...	51	46	41	43	46	50
Mean of Group III.	...	...	...	...	...	50.2	44.8	40.2	41.8	45.0	50.2
Andros ...	...	...	...	...	...	54	49	45	44	48	53
Syra ...	...	...	...	...	...	56	52	48	40	50	55
Naxos ...	...	...	...	...	...	57	53	50	50	53	56
Santorin ...	...	...	...	...	...	55	50	47	47	50	53
Mean of Group IV.	...	...	...	...	...	55.5	51.0	47.5	47.5	50.2	54.2
Smyrna ...	...	...	...	...	...	49	44	38	40	42	51
Samos ...	...	...	...	...	...	54	48	44	46	47	53
Mean of Group V.	...	...	...	...	...	51.5	46.0	41.0	43.0	44.5	52.0
Cythera ...	...	...	...	...	...	54	50	47	47	49	53
Canea ...	...	...	...	...	...	54	49	46	45	48	51
Candia ...	...	...	...	...	...	57	51	47	47	50	54
Mean of Group VI.	...	...	...	...	...	55.0	50.0	46.7	46.3	49.0	52.7
Corfu ...	...	...	...	...	...	53	47	43	47	51	58
Arta ...	...	...	...	...	...	47	43	38	41	44	49
Cephalonia ...	...	...	...	...	...	53	48	44	45	50	51
Patras ...	...	...	...	...	...	53	48	44	46	49	54
Zante ...	...	...	...	...	...	56	51	47	48	50	54
Mean of Group VII.	...	...	...	...	...	52.4	47.4	43.2	45.4	48.8	53.2

The mean of the lowest temperature recorded each year in any month, Table XVII., indicates where frosts may occur occasionally, and such places will be found in every group except that of the islands in the South Aegean. The lowest temperatures occur naturally at the higher inland stations, where a mean monthly minimum temperature of 20° F. is recorded at Trikala, and certainly a much lower temperature would be here recorded for Janina if the data were accessible.

Table XVII.—Mean Monthly Minimum.

—						Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
						°F.	°F.	°F.	°F.	°F.	°F.
Constantinople ...	...	...	...	...	...	38	33	28	26	31	37
Kavala ...	...	...	...	...	...	36	33	23	29	35	41
Salonica ...	...	...	...	...	...	32	26	24	27	33	40
Mean of Group I.	...	...	...	...	...	35.3	30.7	25.0	27.3	33.0	39.3

Table XVII.—continued.

—						Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
						°F.	°F.	°F.	°F.	°F.	°F.
Trikala ...	...	...	...	...	...	32	27	20	28	32	36
Larissa ...	...	...	...	...	...	31	26	22	24	29	36
Lamia ...	...	...	...	...	...	37	30	28	31	33	40
Mean of Group II.	...	...	...	...	...	33.3	27.7	23.3	27.7	31.3	37.3
Volo ...	...	...	...	...	...	37	31	28	31	34	39
Chalchis ...	...	...	...	...	...	39	34	32	33	35	40
Athens ...	...	...	...	...	...	42	35	32	33	36	44
Nauplia ...	...	...	...	...	...	40	35	32	34	36	42
Mean of Group III.	...	...	...	...	...	39.5	33.8	31.0	32.8	35.2	41.2
Andros ...	...	...	...	...	...	42	38	35	37	39	46
Syra ...	...	...	...	...	...	47	40	39	40	42	47
Naxos ...	...	...	...	...	...	48	44	40	42	44	48
Santorin ...	...	...	...	...	...	46	41	38	38	40	46
Mean of Group IV.	...	...	...	...	...	45.8	40.8	38.0	37.2	41.2	46.8
Smyrna ...	...	...	...	...	...	39	30	28	30	35	43
Samos ...	...	...	...	...	...	45	35	32	38	38	43
Mean of Group V.	...	...	...	...	...	42.0	32.5	30.0	34.0	36.5	43.0
Cythera ...	...	...	...	...	...	46	40	37	38	42	46
Candia ...	...	...	...	...	...	49	45	40	40	43	47
Mean of Group VI.	...	...	...	...	...	47.5	42.5	38.5	39.0	42.5	46.5
Corfu ...	...	...	...	...	...	43	37	34	35	39	43
Arta ...	...	...	...	...	...	37	31	28	32	34	39
Cephalonia ...	...	...	...	...	...	42	36	34	36	39	43
Patras ...	...	...	...	...	...	44	37	35	36	41	46
Zante ...	...	...	...	...	...	47	42	39	39	44	48
Mean of Group VII.	...	...	...	...	...	42.6	36.6	35.0	35.6	39.4	43.8

At some time or other at every one of the stations, except Candia, where the observations are only available for four years, temperatures below freezing point have been recorded, and at the northern and inland stations, such as Trikala and Larissa, the Absolute Minimum Temperature (lowest temperatures recorded) has been 34° and 23° F. below freezing point respectively:—

Table XVIII.—Absolute Minimum (Lowest Temperature Recorded).

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	°F.	°F.	°F.	°F.	°F.	°F.
Constantinople ...	—	—	24	—	—	—
Kavala ...	—	—	22	—	—	—
Salonica ...	—	—	14	—	—	—
Janina ...	—	—	18	—	—	—
Trikala ...	28	20	2	13	26	34
Larissa ...	22	17	9	15	21	30
Lamia ...	28	17	20	18	26	36
Volo ...	31	25	19	23	30	34
Chalchis ...	32	28	28	19	26	32
Athens ...	—	—	21	21	—	—
Nauplia ...	32	30	25	25	30	35
Andros ...	32	34	27	30	34	39
Syra ...	40	32	32	31	33	41
Naxos ...	38	40	30	34	37	42
Santorin ...	30	35	28	30	32	41
Smyrna ...	—	—	26	—	—	—
Samos ...	40	32	25	34	34	40
Cythera ...	39	32	30	28	36	39
Canea ...	—	—	—	—	—	—
Candia ...	44	43	36	33	40	45
Corfu ...	38	29	27	23	32	37
Arta ...	30	24	23	19	28	35
Cephalonia ...	36	28	26	27	35	37
Patras ...	36	33	27	25	32	40
Zante ...	42	37	33	30	37	41

Rainfall.

The winter is the rainy season in the Mediterranean, and the mean amounts which fall in November, December and January at any station do not differ greatly from one another; in February there is a slight diminution at most stations, but it is not until March that the decrease becomes definite, though even then at some stations the reduction is but feebly indicated. In April the amount of precipitation is considerably reduced, and the approach of the summer dry season is strongly marked. On the whole, January is the month of the heaviest rainfall, while November and December fall but little behind it.

The mean values given in Table XVIII. are based on series of observations extending over about 16–18 years at the majority of the stations, and in any one year of heavy rainfall these mean values will be greatly exceeded. The maximum rainfalls recorded during this period are generally from 2 to 2½ times the mean rainfall.

Table XIX.—Mean Monthly Rainfall.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
	ins.	ins.	ins.	ins.	ins.	ins.	mm.	mm.	mm.	mm.	mm.	mm.
Constantinople ...	4.02	4.80	3.41	2.72	2.44	1.65	102	122	87	69	62	42
Kavala ...	2.72	3.23	2.80	3.41	2.71	1.93	69	82	71	87	69	49
Salonica ...	1.97	1.97	1.26	0.87	1.10	1.61	50	50	32	22	28	41
Mean of Group I...	2.90	3.33	2.49	2.34	2.09	1.73	77	85	63	59	53	44
Janina ...	7.13	7.99	5.51	3.86	5.67	2.84	181	203	140	98	144	72
Trikala ...	4.17	4.06	3.23	2.80	3.11	2.05	106	103	82	71	79	52
Lari-sa ...	2.72	2.32	1.77	1.81	1.65	1.58	69	59	45	46	42	40
Lamia ...	3.15	3.58	2.31	1.81	1.50	1.93	80	91	59	46	38	49
Volo ...	2.64	2.16	1.69	1.77	1.81	1.30	67	55	43	45	40	33
Chalkis ...	2.20	2.76	2.72	1.85	1.81	1.42	56	70	69	47	46	36
Athens ...	2.87	2.44	2.05	1.46	1.34	0.83	73	62	52	37	34	21
Nauplia ...	3.03	3.66	2.28	1.81	1.89	0.94	77	93	58	46	48	24
Mean of Group III.	2.68	2.76	2.18	1.72	1.44	1.14	68	70	56	44	44	28.9
Andros ...	3.15	5.20	5.20	3.94	3.11	1.18	80	132	132	100	79	30
Syra ...	3.15	3.54	3.86	2.60	2.32	1.10	80	90	98	66	59	28
Naxos ...	2.01	2.87	2.84	2.52	1.46	0.91	51	73	72	64	37	23
Santorin ...	2.52	3.03	2.56	1.73	1.38	0.83	64	77	65	44	35	21
Mean of Group IV.	2.71	3.46	3.46	2.71	2.07	1.01	69	93	92	69	52	26
Smyrna ...	3.58	5.16	4.33	3.31	3.19	1.69	91	131	110	84	81	43
Samos ...	5.43	7.76	5.43	5.51	4.57	1.14	138	197	138	140	116	29
Mean of Group V	4.50	6.46	4.50	4.51	3.88	1.42	115	164	124	112	99	36
Cythera ...	4.61	5.35	4.29	3.58	2.20	0.94	117	136	109	91	56	24
Canea ...	6.73	5.63	4.13	3.94	1.77	0.79	171	143	105	100	45	20
Candia ...	3.58	3.98	3.39	3.23	1.97	0.68	91	101	86	82	50	19.6
Mean of Group VI.	4.97	4.99	3.94	3.58	1.98	0.78	126	127	100	91	50	20
Corfu ...	8.50	9.72	5.26	5.94	4.33	2.99	216	247	159	151	110	76
Arta ...	5.63	7.48	4.49	5.32	4.37	3.23	143	190	114	135	111	82
Cephalonia ...	5.08	7.13	4.65	4.33	2.99	1.65	129	181	118	110	76	42
Patras ...	4.10	4.84	3.27	2.95	2.32	1.09	104	123	83	75	59	53
Zante ...	8.19	10.24	5.02	4.88	3.39	1.97	208	260	153	124	86	50
Mean of Group VII.	6.30	7.83	4.94	4.68	3.48	2.39	160	200	125	119	88	61

This rainfall occurs in connection with the passage of depressions over or near to the Balkan region, and large amounts are sometimes recorded as falling within short periods of time.

The average number of rainy days in each month (i.e., days on which not less than 1/16 of an inch of rain fell) range from 6 to 15 according to the geographical position of the station at which the observations are made; but for any one place the variation is small, especially if April be excluded, when summer conditions are rapidly approaching. As will be seen from Table XX., the greatest number of rainy days occur on the west coast of Greece and in the Islands of the South Aegean, while the lowest number

is found on the northern shore of the Aegean, where the "continental" conditions of the Balkan region are beginning to influence the climate.

Table XX.—Rainy Days.

—	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Constantinople	11	14	12	11	10	8
Kavala	8	9	6	10	8	6
Salonica	7	8	6	6	6	7
Mean of Group I.	8.7	10.3	8.0	9.0	8.0	7.0
Janina	14	13	11	8	17	14
Trikala	11	12	11	13	13	11
Larissa	10	9	8	10	9	9
Lamia	9	12	11	11	9	7
Mean of Group II.	11.0	11.5	10.2	10.5	12.0	10.2
Volo	8	7	8	8	10	6
Chalkis	11	12	13	12	11	7
Athens	11	13	11	11	10	9
Mean of Group III.	10.0	10.7	10.7	10.3	10.3	7.3
Andros	10	12	12	12	10	6
Syra	7	11	12	11	9	4
Naxos	6	10	12	11	4	6
Santorin	8	11	11	12	8	4
Mean of Group IV.	7.8	11.0	11.8	11.5	7.8	5.0
Smyrna	9	10	10	8	10	5
Samos... ..	10	14	14	14	12	9
Mean of Group V.	9.5	12.0	12.0	11.0	11.0	7.0
Cythera	8	9	7	9	7	2
Candia	9	12	15	12	10	5
Mean of Group VI.	8.5	10.5	11.0	10.5	8.5	3.5
Corfu	11	11	11	13	9	9
Arta	12	13	11	13	12	10
Cephalonia	9	13	11	13	9	6
Patras... ..	13	15	12	15	12	11
Zante	12	17	13	15	10	8
Mean of Group VII.	11.4	13.8	12.0	13.8	10.5	8.8

Snow.

Snow falls every year on two or three occasions at some of the Greek stations. The average number of days on which snow falls in each month at Constantinople and Salonica has been given in

Table XI., where it will be seen that one per month is the average at the latter place. At the various Greek Stations its occurrence is rarer except at the northern and inland stations, as is shown in Table XX. :—

Table XXI.—Average Number of Days of Snowfall.

—	No. of years.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Constantinople	—	0.6	2.9	5.5	6.0	3.0	0.2
Salonica	17	0.3	0.7	1.4	0.7	0.4	0.1
Janina	7	0.7	1.1	1.7	1.6	1.0	0.0
Trikala	8	0.6	0.5	3.5	3.8	0.9	0.1
Larissa	8	0.4	0.4	1.6	1.2	0.3	0.1
Lamia	8	0.4	0.5	2.4	1.4	0.5	0.0
Volo	8	0.1	0.2	1.4	1.1	0.2	0.0
Chalchis	8	0.2	0.6	1.9	1.5	0.2	0.0
Athens	55	0.1	0.9	1.8	1.5	1.1	0.1
Nauplia	8	0.8	0.5	0.9	0.9	0.0	0.0
Andros	8	0.9	0.9	1.5	1.5	0.4	0.0
Syra	8	0.0	0.1	0.6	1.4	0.0	0.0
Naxos... ..	8	0.0	0.4	0.6	1.2	0.1	0.0
Santorin	8	0.0	0.1	0.6	1.4	0.2	0.0
Cythera	7	0.0	0.1	0.0	0.6	0.0	0.0
Corfu	8	0.0	0.1	0.4	0.2	0.0	0.0
Arta	8	0.0	0.0	0.1	0.1	0.0	0.0
Cephalonia	8	0.0	0.0	0.6	0.4	0.0	0.1
Patras	8	0.0	0.0	0.1	0.6	0.0	0.0
Zante	8	0.0	0.3	0.3	0.9	0.1	0.0

Fog and Mist.

The distribution of fog and mist on so broken a coast line as that of the Aegean Sea is difficult to represent with any accuracy, for the geographical conditions at any station largely determine the number of misty days that are recorded. The observations taken at Athens record mist on about 20 days in each of the winter months, while at many of the other stations the average is from 3 to 5. Such observations as are available have been summarized in Table XXII.

Table XXII.—Average Number of Days of Mist and Fog.

—	No. of years.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Salonica	11	3·2	7·5	2·5	1·7	0·6	0·4
Trikala	8	3·2	1·2	3·1	0·4	0·4	0·2
Larissa	7	1·4	0·9	1·0	0·1	0·1	0·1
Lamia	5	0·2	0·0	0·0	0·4	0·0	1·0
Volo	6	1·0	0·3	0·7	0·2	0·6	0·6
Chalchis	5	0·2	0·4	0·3	0·0	0·0	0·0
Athens	4	19·0	18·0	18·0	15·0	23·0	20·0
Nauplia	8	4·5	5·8	6·2	4·2	7·0	3·6
Andros	8	3·0	2·5	2·5	2·0	3·5	3·0
Syra	4	1·5	1·5	1·2	1·2	2·0	0·8
Naxos... ..	4	0·0	0·0	0·0	0·2	0·8	0·8
Santorin	7	5·0	1·6	1·7	1·4	3·4	6·9
Cythera	7	0·3	0·0	0·0	1·3	0·4	0·6
Corfu	7	2·0	0·6	3·4	2·6	4·6	3·7
Arta	5	0·2	0·6	0·4	0·4	0·6	0·0
Cephalonia	5	2·4	2·8	1·6	0·8	1·4	2·2
Patras	6	10·3	9·2	7·5	7·3	10·0	8·6
Zante	5	1·4	1·6	1·2	0·8	0·6	1·2

THE WINDS OF THE BALKAN PENINSULA AND THE AEGEAN SEA.

The Balkans.

It is convenient to treat the winds of the whole region together, since the result from conditions which prevail over the whole of the Eastern Mediterranean and the surrounding land area. In the winter the mean distribution of pressure over the Eastern Mediterranean includes a strongly defined area of high pressure over the Balkans and Southern Russia, which is favourable to the flow of air currents from the north and north-east over Greece and the Aegean Sea. As the spring approaches this high pressure becomes less marked, but as the pressure over Syria is then diminishing and the winds of Egypt are still northerly and north-westerly, those of Greece and the Aegean show still a predominance of northerly winds. This normal circulation is interrupted from time to time by the passage of the cyclonic depressions which traverse the Mediterranean from west to east more or less frequently during all months of the year, though in July and August they are with rare exceptions confined to the western portion, and do not reach Greece and the Aegean Sea. From November to March, however, they are of frequent occurrence, and may traverse the northern region of the Balkans and Southern Russia, or they may take a more southerly track across Macedonia and the Black Sea, or again they may pass over Greece and the Aegean Sea and into Asia Minor, while a certain

proportion pass along the Mediterranean to the south of Greece and into the Levant, where on some occasions they turn north-eastwards into Asia Minor, and on others cross Syria and reach the Valley of Euphrates.

These cyclonic depressions exercise a powerful influence upon the winter weather of Greece and the Aegean Sea, since the southerly winds to which they give rise amount to about one-third of the observed wind directions during the winter months. Again, the passage of a depression to the south of Greece may increase the force or prolong the continuance of the northerly winds which are blowing down the Aegean Sea.

In so mountainous a country as Bulgaria the observed wind directions may frequently be strongly affected by the geographical situation of the station at which the observations are taken, so that the data for a chain of stations extending from the centre of Serbia eastwards into Bulgaria are given in Table XXIX, as well as those for the more northerly station of Sofia. Of the nine stations for which the wind directions are given, four show in all the six months a considerable percentage of calms, and at Kustendil in January the remarkably high value of 83 per cent. is reached. December and January show the highest percentage of calm days, and the number decrease gradually as the summer approaches. At those stations at which the percentage of calms is comparatively low northerly (NW, N, and NE) winds, and southerly (SE, S, and SW) winds are the most prevalent, the northerly winds predominating at most of the stations:—

Table XXIII.—Wind Directions as Percentages of Total Observations.

—	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
<i>November.</i>									
Prizren ...	5.6	3.3	2.2	2.8	6.1	10.0	2.2	1.1	66.7
Uskub ...	—	0.3	3.5	19.6	—	0.3	1.0	64.5	10.8
Monastir ...	23.6	8.6	8.6	16.1	17.6	3.5	8.2	13.8	—
Sofia ...	2.0	10.0	16.0	13.0	3.0	10.0	12.0	14.0	19.0
Kustendil ...	3.1	1.7	2.1	3.1	1.7	2.4	1.7	3.8	80.4
Rilski Monastir ...	1.7	15.6	4.9	1.0	3.7	19.0	5.7	0.8	48.0
Tchépélaré ...	19.3	15.0	1.1	9.0	24.7	11.8	4.5	5.2	9.4
Haskovo ...	11.0	8.9	3.4	2.1	3.4	1.9	7.4	13.4	48.5
Burgas ...	21.7	8.2	6.5	2.7	3.3	12.8	18.0	10.3	16.3
<i>December.</i>									
Prizren ...	4.3	5.0	7.2	7.9	4.3	7.2	3.9	2.1	58.1
Uskub ...	0.3	—	0.5	20.4	0.3	0.3	—	72.5	5.7
Monastir ...	23.3	7.3	8.3	15.8	17.6	2.2	8.6	16.8	0.1
Sofia ...	4.0	11.0	14.0	11.0	4.0	6.0	15.0	17.0	16.0
Kustendil ...	3.1	2.2	2.7	3.0	1.8	0.9	0.8	3.9	81.6
Rilski Monastir ...	2.3	15.5	4.7	0.6	3.0	18.3	3.3	1.0	51.3
Tchépélaré ...	20.8	12.1	1.4	7.9	26.8	13.4	3.0	4.2	10.4
Haskovo ...	8.2	7.5	3.1	2.0	5.2	2.6	7.7	13.1	50.6
Burgas ...	18.6	7.4	5.2	1.6	3.1	13.5	24.9	8.2	18.0
<i>January.</i>									
Prizren ...	11.8	8.1	9.1	11.5	2.7	4.8	3.2	4.0	44.8
Uskub ...	0.1	0.3	—	23.3	—	1.1	—	67.6	7.6
Monastir ...	24.3	6.8	12.5	14.5	12.9	4.8	10.0	14.4	—
Sofia ...	2.0	10.0	14.0	11.0	2.0	10.0	13.0	17.0	22.0
Kustendil ...	3.7	1.3	1.6	2.3	1.0	1.2	1.6	4.3	83.0
Rilski Monastir ...	3.2	23.2	5.0	1.8	5.8	17.6	1.7	0.3	41.4
Tchépélaré ...	22.4	13.8	1.8	6.9	24.7	11.2	4.7	5.1	8.4
Haskovo ...	9.6	7.6	1.0	0.9	3.8	3.3	11.6	15.1	47.1
Burgas ...	16.3	6.1	2.6	0.8	3.7	16.3	23.8	11.4	19.0

16.3

Table XXIII.—continued.

—	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
<i>February.</i>									
Prizren ...	17.1	8.0	5.3	9.1	2.1	6.8	4.4	8.0	39.2
Uskub ...	—	0.3	—	18.7	0.2	1.2	0.5	66.1	13.0
Monastir ...	23.3	8.1	7.2	13.0	20.9	3.1	9.7	14.7	—
Sofia ...	2.0	7.0	12.0	10.0	2.0	6.0	21.0	23.0	17.0
Kustendil ...	2.9	1.6	1.8	2.1	2.2	1.9	1.3	4.1	82.1
Rilski Monastir ...	2.2	15.7	3.3	1.5	4.8	20.9	1.9	0.9	48.8
Tchépelare ...	20.1	12.3	9.6	9.9	25.8	12.8	4.6	4.6	8.9
Haskovo ...	11.1	9.6	4.8	3.8	4.6	2.6	9.3	15.8	38.4
Burgas ...	15.4	12.2	10.2	3.4	2.2	12.3	17.0	10.0	17.3
<i>March.</i>									
Prizren ...	12.1	10.0	5.9	13.4	3.8	15.3	10.2	5.9	23.4
Uskub ...	0.5	0.3	0.9	15.4	0.3	0.9	0.1	69.7	11.9
Monastir ...	19.5	7.3	7.1	14.0	25.4	4.2	9.4	13.1	—
Sofia ...	2.0	11.0	15.0	9.0	2.0	6.0	17.0	20.0	17.0
Kustendil ...	4.7	2.1	1.9	3.4	3.3	2.9	2.1	5.1	74.5
Rilski Monastir ...	3.0	16.1	4.2	1.2	5.1	20.8	18.3	4.2	47.1
Tchépelare ...	22.1	16.4	0.9	9.5	25.6	9.3	3.2	3.9	9.1
Haskovo ...	10.4	11.3	7.7	5.1	7.4	3.8	5.1	11.0	38.2
Burgas ...	14.7	16.5	17.2	4.0	3.0	10.3	13.2	7.5	13.5
<i>April.</i>									
Prizren ...	9.7	8.3	8.9	8.3	1.7	13.9	10.8	7.0	31.4
Uskub ...	1.7	5.0	2.2	25.0	1.4	3.3	1.3	49.7	10.4
Monastir ...	17.5	8.0	7.8	17.3	19.4	4.8	10.3	14.9	—
Sofia ...	3.0	13.0	20.0	11.0	2.0	8.0	13.0	16.0	18.0
Kustendil ...	4.2	4.1	4.7	3.0	3.3	2.9	3.2	4.5	70.1
Rilski Monastir ...	2.2	14.2	5.7	2.1	4.2	17.6	2.3	0.7	51.0
Tchépelare ...	16.2	12.9	2.2	14.7	29.8	8.1	3.4	3.1	9.6
Haskovo ...	10.8	11.7	7.5	6.2	9.9	3.7	7.3	10.6	32.3
Burgas ...	9.4	16.0	23.4	5.2	3.4	12.7	12.7	5.1	12.1

The number of days on which the winds reach gale force is not great at any of these Bulgarian stations, as may be seen from the following Table (XXIV.):—

Table XXIV.—Total Number of Days with Wind of Gale Force during 11 years, 1900-1910.

Place.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Kustendil	5	7	2	3	6	8
Rilski Monastir	18	17	15	14	17	12
Tehepelare	13	6	6	7	10	7
Haskovo	0	4	2	1	2	2
Burgas	5	5	12	9	16	5

These gales probably occur during the passage of deep depressions over the Balkan area, and do not coincide with the strong northerly and north-easterly gales which at times blow in the Aegean Sea. Rilski Monastir, which shows the highest frequency of gales, has an average for each month of rather less than two, and at the other stations it does not, as a rule, reach one. It appears, then, that the general character of the winds of the Balkan region is such that strong winds do not occur frequently and the light and moderate winds are usual.

Greece and the Aegean Sea.

In Greece and the Aegean Sea wind observations are available from a considerable number of stations, and of these twenty have been selected to exhibit the prevalent winds in different parts of the region. The first three stations—Constantinople, Kavala, and Salonica—show generally a predominance of northerly winds on the northern coast of the Aegean, except at Kavala, where easterly winds are numerous.

From November to April the proportion of winds from the different points does not alter very materially. The next group, Janina, Trikala and Larissa, are inland stations in northern Greece, where northerly winds show a slight preponderance. At Larissa calms are recorded on a very large number of days in December and January, but the proportion grows less in the spring.

At the stations on the west coast of Greece, Volo, Chalchis, and Athens, there is a well-marked predominance of the northerly winds, and this increases slightly as the summer approaches. A similar predominance is recorded at the Islands in the south of the Aegean Sea, Andros, Naxos, and Santorin, but here the proportion of northerly to southerly winds does not change appreciably from November to April. On the east coast of Asia Minor, as represented by Smyrna and Samos, northerly and southerly winds are more equal in frequency, as is also the case in the Ionian Islands on the west coast of Greece, where Corfu, Cephalonia and Zante have been taken as representing the wind

conditions which prevail. On the south coast of Greece northerly winds again predominate, as may be seen from the distribution of wind at Cythera and Canea. It may be stated, therefore, that northerly (N.W., N., and N.E.) winds generally are the prevalent winds of Greece and the Aegean Sea in the winter months, though southerly winds (S.E., S., and S.W.) have a considerable frequency, and are at some stations equal to the northerly winds, though more often they are about one-half or even two-thirds of the latter.

These southerly winds prevail during the approach of a depression from the westward towards the west coast of Greece or while a depression is passing to the northward over the Balkan region:—

Table XXV.—The Wind Directions as Percentages of Total Observations.

—	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
<i>November.</i>									
Constantinople	16.4	34.8	2.3	1.6	11.9	16.6	2.4	1.7	12.3
Kavala	10.5	2.2	32.8	8.3	7.2	5.6	13.9	6.7	12.8
Salonica	20.2	12.7	10.6	4.2	3.0	6.1	3.6	6.5	33.1
Janina	8.8	5.2	3.4	33.7	11.8	7.0	5.2	24.9	—
Trikala	11.2	6.9	5.9	8.2	9.0	13.9	18.9	23.6	2.4
Larissa	6.1	6.2	7.9	1.0	0.6	1.2	4.0	4.3	68.7
Volo	13.9	2.7	2.8	6.9	6.6	1.1	3.9	57.9	4.2
Chalchis	37.6	12.8	6.2	12.8	14.1	3.1	3.3	9.0	0.6
Athens	12.1	28.5	7.0	4.6	11.5	6.9	4.2	5.4	19.8
Andros	19.4	38.5	11.0	9.6	14.9	2.9	1.0	2.7	—
Naxos	40.6	20.7	0.8	4.9	15.4	7.0	1.1	3.5	6.0
Santorin	29.1	19.1	8.1	6.6	4.9	9.1	12.6	10.4	0.1
Smyrna	10.8	15.7	20.2	11.6	11.4	3.0	10.7	2.4	14.2
Samos	6.3	3.4	9.6	8.5	13.9	1.2	3.1	22.6	31.4
Corfu	4.1	6.9	10.3	16.5	10.8	8.9	6.3	6.5	29.7
Cephalonia	6.3	11.6	8.8	14.0	17.5	15.8	6.4	17.1	2.5
Zante	19.2	13.4	8.4	12.2	11.3	11.5	7.2	14.1	2.7
Cythera	45.3	11.0	3.5	5.7	6.4	9.6	14.9	3.6	—
Canea	16.2	17.3	8.0	3.7	5.3	7.4	15.3	3.1	23.7
<i>December.</i>									
Constantinople	22.5	28.0	1.4	1.1	14.6	15.7	2.5	3.9	10.3
Kavala	12.4	2.7	21.5	10.2	12.4	7.5	15.6	8.0	9.7
Salonica	22.1	12.8	9.4	5.5	2.1	2.7	2.4	8.2	34.8
Janina	8.1	3.7	6.8	28.9	12.8	4.7	13.2	21.8	—
Trikala	9.3	6.3	5.6	8.8	8.5	15.0	22.1	22.9	1.5
Larissa	6.8	6.0	5.1	1.2	2.8	1.8	4.8	3.4	68.1
Volo	13.4	1.3	2.6	10.4	3.1	0.7	5.1	60.0	3.4
Chalchis	30.0	11.3	8.7	15.1	18.4	3.5	2.5	10.5	—
Athens	11.4	22.5	7.3	5.1	14.3	9.4	5.4	6.6	18.0

Table XXV.—continued.

	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
<i>December—cont.</i>									
Andros ...	17.7	32.4	8.5	8.5	21.0	9.3	0.6	2.0	—
Naxos ...	33.5	15.7	1.3	5.7	22.1	9.9	3.7	3.0	5.1
Santorin ...	24.6	13.6	6.6	7.9	10.3	14.9	12.0	10.1	—
Smyrna ...	13.7	14.1	21.8	11.3	15.9	1.1	5.4	1.7	15.0
Samos ...	5.7	6.9	10.9	11.7	12.1	3.1	3.1	16.4	30.1
Corfu ...	3.7	8.2	12.7	16.6	12.3	11.6	5.9	6.0	23.0
Cephalonia ...	6.8	11.0	9.3	15.4	14.8	15.5	6.9	17.6	2.7
Zante ...	21.7	11.0	10.5	12.5	12.1	14.1	6.4	10.2	1.5
Cythera ...	38.3	9.2	4.4	7.2	5.4	14.0	16.6	4.9	—
Canea ...	16.3	14.2	12.3	5.1	4.8	8.0	12.5	3.1	23.7
<i>January.</i>									
Constantinople ...	21.8	26.8	1.3	0.9	14.7	18.3	2.7	2.7	10.8
Kavala ...	32.8	2.7	17.2	4.3	5.4	2.1	15.6	10.2	9.7
Salonica ...	23.0	13.6	8.1	5.1	2.5	3.7	3.0	7.5	33.5
Janina ...	8.6	6.9	9.2	30.1	14.5	3.9	12.4	14.4	—
Trikala ...	13.8	6.8	5.5	6.9	5.7	15.3	19.5	24.8	1.7
Larissa ...	8.5	6.4	7.9	2.0	2.9	3.9	6.2	5.7	56.5
Volo ...	15.1	1.6	2.9	5.8	2.5	0.6	3.8	64.7	3.0
Chalchis ...	41.8	10.9	5.8	7.5	12.6	2.0	4.4	14.9	0.1
Athens ...	15.0	22.1	6.4	4.8	13.1	7.5	4.8	9.3	17.0
Andros ...	21.4	32.5	6.4	6.2	21.7	6.9	0.9	3.9	0.1
Naxos ...	37.7	18.1	1.0	5.0	15.3	10.1	4.3	3.0	5.5
Santorin ...	26.8	15.2	6.0	5.3	7.7	11.3	13.9	13.8	—
Smyrna ...	10.6	19.0	22.3	11.7	11.7	1.9	7.0	2.2	13.6
Samos ...	7.8	11.0	13.7	10.9	8.7	2.0	2.0	17.6	26.3
Corfu ...	6.7	8.5	10.0	14.1	11.0	9.3	5.3	9.2	25.9
Cephalonia ...	8.2	12.2	8.7	15.1	14.7	13.6	6.4	15.9	5.2
Zante ...	24.7	12.5	6.3	10.9	13.4	11.1	7.8	11.6	1.7
Cythera ...	40.1	8.1	1.9	3.9	4.7	14.3	17.5	9.4	0.1
Canea ...	13.8	21.9	11.7	4.5	9.4	9.8	10.3	2.3	16.3
<i>February.</i>									
Constantinople ...	21.8	27.8	2.3	0.8	13.9	17.9	2.1	3.9	9.5
Kavala ...	5.4	6.0	44.0	8.9	8.9	1.8	10.1	5.4	9.5
Salonica ...	21.9	11.1	9.3	5.5	3.1	5.5	4.6	7.2	31.8
Janina ...	7.5	8.0	7.5	28.4	14.1	7.4	12.4	14.7	—
Trikala ...	15.8	8.4	6.1	8.7	5.2	12.4	21.6	20.8	1.0
Larissa ...	6.6	10.9	7.4	3.0	2.8	4.0	8.7	6.8	49.8
Volo ...	13.4	4.4	4.6	12.0	8.6	0.5	4.5	48.4	3.6
Chalchis ...	32.9	11.3	7.4	13.9	21.2	3.2	2.3	7.6	0.2
Athens ...	11.6	20.1	6.2	6.2	19.3	9.7	6.4	7.7	12.8
Andros ...	18.5	27.4	8.2	10.8	22.6	7.5	1.2	3.7	0.1
Naxos ...	31.3	14.4	0.6	8.1	18.0	11.8	6.0	4.6	5.2
Santorin ...	20.6	12.4	6.0	9.4	8.7	14.0	18.3	10.6	—
Smyrna ...	7.4	13.0	19.0	16.6	14.2	6.4	4.7	2.4	16.3
Samos ...	2.6	4.8	15.2	16.9	12.1	4.5	2.1	17.9	23.9

Table XXV.—continued.

	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
<i>February—cont.</i>									
Corfu ...	6.6	8.4	8.2	14.4	14.2	9.6	6.6	7.6	24.4
Cephalonia ...	5.6	9.7	8.0	16.4	15.2	11.7	9.7	17.9	5.8
Zante ...	17.3	10.5	5.8	12.5	14.7	12.5	11.4	13.9	1.4
Cythera ...	29.1	6.7	3.2	7.5	6.1	19.1	24.0	4.3	—
Canea ...	16.9	20.6	12.7	4.7	6.9	9.9	7.2	5.8	15.3
<i>March.</i>									
Constantinople ...	19.9	31.7	2.1	0.6	12.4	17.6	2.2	2.3	11.2
Kavala ...	12.9	1.6	18.3	7.5	26.4	9.1	8.1	4.3	11.8
Salonica ...	13.9	9.0	8.9	6.9	5.3	12.3	4.3	5.3	34.1
Janina ...	8.2	9.6	10.7	30.7	16.3	2.6	8.3	13.6	—
Trikala ...	8.6	8.2	10.5	11.6	7.1	15.3	19.4	16.6	2.2
Larissa ...	5.3	11.3	16.0	2.7	2.5	5.9	8.5	6.0	41.3
Volo ...	11.7	1.8	4.5	14.7	15.5	0.8	3.8	41.0	6.2
Chalchis ...	32.9	14.2	6.4	12.9	18.2	3.7	2.8	8.8	0.1
Athens ...	11.6	21.5	5.2	4.3	16.1	11.7	7.6	5.4	16.6
Andros ...	24.7	25.8	8.7	9.1	19.7	6.8	1.5	3.7	—
Naxos ...	32.8	17.8	0.5	6.5	16.6	10.3	4.0	4.3	7.2
Santorin ...	23.1	12.4	7.5	8.4	5.5	10.1	19.3	13.7	—
Smyrna ...	9.3	14.2	14.9	10.2	11.0	5.2	15.1	3.7	16.4
Samos ...	4.4	3.5	6.4	9.6	11.1	1.8	4.0	36.1	23.1
Corfu ...	5.5	5.0	7.6	14.1	13.2	13.6	6.1	10.7	24.2
Cephalonia ...	6.3	7.8	6.6	14.8	15.8	11.9	10.0	22.4	4.4
Zante ...	16.7	7.3	7.2	12.5	14.9	10.9	11.3	17.7	1.5
Cythera ...	30.2	7.0	3.9	4.7	5.6	10.1	29.5	9.0	—
Canea ...	10.9	9.9	6.6	12.9	10.2	8.5	15.5	7.4	18.1
<i>April.</i>									
Constantinople ...	17.0	35.4	2.1	1.3	10.5	14.8	2.7	2.1	14.1
Kavala ...	8.0	0.7	26.0	10.0	12.7	7.3	14.7	3.3	17.3
Salonica ...	13.2	6.5	7.8	8.2	6.0	16.3	4.8	5.6	31.6
Janina ...	15.2	15.2	6.8	21.7	11.8	2.8	7.1	19.4	—
Trikala ...	7.6	8.2	12.4	15.2	9.5	16.8	14.5	14.1	1.7
Larissa ...	4.2	11.2	20.1	4.2	2.4	6.4	10.3	3.8	37.4
Volo ...	7.6	0.5	4.6	12.5	27.6	0.7	4.6	33.5	8.4
Chalchis ...	29.1	7.6	6.3	13.0	23.9	3.9	3.3	12.9	—
Athens ...	9.1	16.6	5.0	4.2	17.1	15.6	9.1	4.6	18.7
Andros ...	19.5	25.4	10.7	7.9	22.6	5.5	0.5	7.8	0.1
Naxos ...	36.0	14.9	0.4	3.4	19.1	11.9	3.2	2.7	8.4
Santorin ...	16.8	12.9	11.1	9.0	4.1	10.3	20.6	15.2	—
Smyrna ...	7.6	8.9	11.4	12.7	14.5	4.8	24.6	2.9	12.6
Samos ...	4.7	1.6	5.2	6.9	16.3	3.0	3.8	33.5	25.0
Corfu ...	4.1	5.0	6.4	10.1	17.1	14.6	8.0	10.6	24.1
Cephalonia ...	3.9	2.7	4.2	14.5	24.8	12.0	7.4	25.3	5.2
Zante ...	10.6	5.5	5.8	13.0	18.8	8.8	11.9	23.2	2.4
Cythera ...	33.6	5.9	1.3	3.4	7.5	9.0	31.9	7.4	—
Canea ...	10.6	6.0	11.4	6.0	5.1	11.3	20.0	15.5	14.1

Gales.

The winds which cause a rough sea in the Aegean Sea are almost exclusively from between north-west and north-east, or from between south-east and south-west; strong easterly or westerly winds are rare. Daily observations are available from Athens for a series of years, and these give both the wind force and the state of the sea; observations at Smyrna also are available for eight years, and these two series may fairly be utilized to furnish data concerning the gales which occur in the Aegean Sea during the winter months.

XXVI / An analysis of the daily observations for the twelve years 1902-1913 is given in Table XXVI, where the days on which the sea was reported as rough, very rough, or high are classified according as the wind was from a northerly or a southerly quarter. As some of these winds were only "moderate" or "fresh" the number of days on which the northerly and the southerly winds were of gale force are given in additional columns. For the most part such strong winds and rough sea lasted only for one or two days, and in the fifth column the gales which lasted for more than two days are noted.

From Table XXVI. it will be seen that the days of northerly winds are more numerous on the whole than those on which a rough sea was caused by southerly winds; that the maximum number of days on which the sea was reported as rough varied from 12 to 15 in different months, and that the average was from 5.5 to 0.8.

Some gales lasted for six and even seven days, but three and four were more usual periods. The northerly gales, which include almost all those of over two days' duration, occurred when the atmospheric pressure was very high over the Balkans or Southern Russia. Under these conditions during the winter months the temperature on the Balkan highlands is low, and frequently very low (see Tables IV., V). The air over this region becomes very cold, and under suitable conditions pours off the high lands into the low-lying Aegean Sea as a strong wind which rises occasionally to full gale force. Recent observations show that this stream of cold air is of no great thickness, about 5,000 feet, but it may attain a very considerable velocity and is often of a strongly gusty character. At the same time that such a northerly gale is blowing in the Aegean, the highlands of Bulgaria and Serbia enjoy typical anticyclonic conditions, viz., clear skies, and light breezes with very low night temperatures; so long as these conditions prevail the gale in the Aegean Sea may last, but occasionally the wind drops for a while and then recommences, as the controlling conditions vary.

On the approach of a depression from the westward, the weather in the Balkans becomes cloudy and milder, thus putting an end to the conditions which gave rise to the gale in the Aegean Sea, and the wind then rapidly moderates. The southerly gales occur when a depression is approaching the Grecian coast from the west, or when a depression passes over the Balkan region to the north of the Aegean Sea. They usually take from one to two days in

passing, though occasionally one of exceptional size, or two following in quick succession, may protract a southerly gale to three or four days.

The approach of these depressions can be forecasted if sufficient information from stations in the western Mediterranean is available. The general conditions which favour the northerly gales can also be recognised, but the occurrence of gales or of moderate breezes depend on local conditions to the north and north-west of the Aegean Sea, which, under present conditions, are not always known with the necessary accuracy to make it possible to forecast the force of the wind.

Corrected

Table XXVI.

Year.	November.				December.				January.				February.				March.				April.				
	N.	S.	N.	S.	N.	S.	N.	S.	N.	S.	N.	S.	N.	S.	N.	S.	N.	S.	N.	S.	N.	S.	N.	S.	
1902	7	0	0	0	3	0	0	0	3	1	1	1	2	0	0	0	4	1	1	1	3	0	0	1	
1903	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1904	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1905	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1906	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1907	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1908	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1909	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1910	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1911	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1912	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1913	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total in 12 years	46	26	18	18	5	39	32	23	15	6	66	19	38	11	8	46	10	30	4	5	43	12	28	6	3
Average per year	3.8	2.2	1.5	1.5	—	3.5	2.7	1.9	1.2	—	5.5	1.6	3.2	0.9	—	3.8	0.8	2.5	0.3	—	3.6	1.0	2.3	0.5	—
Maximum in year	8	7	5	5	—	6	7	4	3	—	11	4	7	4	—	7	2	6	2	—	7	3	5	2	—

* I₄ means a gale of four days duration.