# THE PECULIARITIES OF CYPRUS CLIMATE
# ΙΔΙΟΜΟΡΦΙΕΣ ΤΟΥ ΚΥΠΡΙΑΚΟΥ ΚΛΙΜΑΤΟΣ

ΑΝΔΡΕΑΣ ΧΡΙΣΤΟΔΟΥΛΟΥ, Κλιματολόγος

General

Cyprus situated at latitude 35o North and longitude 33o East, and surrounded by the Eastern Mediterranean Sea has an intense Mediterranean climate with the typical seasonal rhythm strongly marked in respect of temperature, precipitation and weather generally. Hot dry summers from mid-May to mid-September and rainy, rather changeable, winters from mid-Novembe to mid-March are separated by short autumn (part of September, October and part of November) and spring (part of March, April and part of May) seasons of rapid change in weather conditions.

In summer the island is mainly under the influence of a shallow trough of low pressure extending from the great continental depression centred over southwest Asia. It is a season of high temperatures with almost cloudless skies. Precipitation is almost negligible but isolated thundery showers sometimes occur which give precipitation amounting to less than 5% of the total in the average year.

In winter Cyprus is near track of fairly frequent small depressions which cross the Mediterranean Sea from west to east between the continental anticyclone of Eurasia and the generally low pressure belt of north Africa. These depressions give periods of disturbed weather usually lasting for one to three days and produce most of the annual precipitati the average fall from December to February being about 60% of the year's total.

The central Troodos massif, rising to 1951 metres and, to a less extent, the long narrow Kyrenia range, with peaks of about 1000 metres, play an important part in the meteorology of Cyprus. Precipitation, temperature and winds are the most important meteorological elements the patterns of which are determined by these morphological features.

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ANDREAS CHRISTODOULOU , CLIMATOLOGIST.
Cyprus Geographical Association, POB 3656, Nicosia., Cyprus

The main climate characteristics are the following:

1. Mean annual temperatures at sea-level are in the range 18.0°C - 19.7°C and this apparently wide range is a major feature of the climate of the island.

2. Precipitation is unevenly distributed over the surface of prevailing SW winds (up to 500 m.m.) receive on the whole greater amounts while a rain-shadow area exists in western Mesaoria (less than 300 m m. in places).

Rain falls mainly during late autumn and winter months (November-March) and summers are virtually dry except for infrequent thunderstorms inland and over the mountains.

3. All parts of Cyprus enjoy a very sunny climate especially in lowland and eastern districts (over 75% of the possible amount, and over 90% in the summer months). Western coasts and the mountains receive lower amounts but still well over 50% even on the highest peaks.

4. Over the eastern Mediterranean the prevailing gradient winds are SW to E in winter, W to NE in spring, W to N in summer and W to NE in autumn, of rather moderate strength and rarely reaching gale force (c.f. Aegean islands)

Local winds are also important, like the anabatic and katabatic winds in mountain areas and land and sea-breezes in coastal areas due to local heating effects.

5. Sea-temperatures are high throughout the year ranging between 16° C in late winter-early spring to 28° C in late summer-early autumn in northern and eastern coastal areas.

Peculiarities of Cyprus climate:

The main peculiarities of Cyprus climate can be identified as follows:

1. The warmest summers experienced on northern and eastern coasts compared to those of southern and western coasts.

This phenomenon becomes very apparent when one examines the mean monthly temperatures in four typical stations. (°C)

| | JUNE | JULY | AUGUST | SEPTEMBER |
|---|---|---|---|---|
| (North coast)-Kyrenia - | 24.5 | 27.3 | 27.9 | 25.3 |
| (East coast)- Famagusta - | 25.3 | 27.7 | 27.9 | 25.1 |
| (South coast)- Limassol - | 24.4 | 26.2 | 26.7 | 24.6 |
| (West coast)- Paphos - | 23.6 | 25.7 | 26.5 | 24.7 |

The reasons for this apparent discrepancy can be traced to:

(a) The presence of the heated landmass of Asia Minor to the north of the island of Cyprus and the relative narrowness of the channel between them.

This accentuates the continentental influences and tends to unify the Asia Minor landmass with the island's central plain.

On the other hand southern and western coasts come under the influence of much stronger maritime influences due to the strech of sea to the south (over 400km to northern Egypt) and the west(over 800km to Crete).

(b) The general current circulation in the Eastern Mediterranean. The water flow anticlockwise round the north African coast northwards along the Levant coast and then eastwards along the Cilician coast.

Thus cooler water enters the Eastern Mediterranean near the Libyan coast and as it moves eastwards picks up heat and reaches its great heat content in the Gulf of Alexandretta where mean temperatures for August reach 29°C.

Consequently sea-temperatures along the north coast and the Gulf of Famagusta reach 28-29°C in late August whereas those of waters off Paphos bearly reach 26°C.

2. The lower mean monthly minima of temperature in western Mesaoria compared with the rest of the central plain

Despite its proximity to Morphou Bay ( 15km) western Mesaoria experiences lower minimum temperatures than central and eastern parts of the plain for most of the year.

| (°C) | J | F | M | A | M | J | J | A | S | O | N | D | A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Western Mesaoria | | | | | | | | | | | | | |
| Morphou | 5.5 | 5.3 | 6.2 | 8.2 | 12.0 | 15.6 | 18.2 | 18.5 | 16.1 | 13.1 | 10.00 | 7.5 | 11.3 |
| Xeros | 5.8 | 5.4 | 5.9 | 8.2 | 12.4 | 15.8 | 18.1 | 18.4 | 16.3 | 13.8 | 10.6 | 7.5 | 11.5 |
| Central Mesaoria | | | | | | | | | | | | | |
| Nicosia | 5.4 | 5.4 | 7.00 | 10.1 | 14.4 | 18.6 | 21.2 | 21.4 | 18.4 | 14.5 | 10.7 | 7.5 | 12.9 |
| Margo | 5.2 | 5.2 | 6.5 | 9.2 | 13.0 | 17.0 | 19.8 | 20.0 | 17.2 | 13.6 | 10.0 | 6.6 | 11.9 |
| Eastern | | | | | | | | | | | | | |
| Ayios Nicolaos | 6.2 | 5.9 | 6.8 | 9.7 | 13.8 | 18.0 | 20.7 | 21.1 | 18.4 | 14.8 | 11.00 | 7.9 | 12.9 |

Of special interest is the case of Xeros station on the coast, at the head of the valley. This location experiences mean annual minimum temperatures about 2-3 degrees C lower than on the western coasts and 1-2 degrees C lower than those of the central plain.

This phenomenon extends northwards and covers the whole of Western Mesaoria tending to become weaker as one moves northward and eastward.

The causes of this peculiarity can be said to be the following:

(a) The fact that there lies on the lee-ward side of the Troodos mountains and consequently the moderating influence of the sea is not brought inland by off-shore winds.

(b) The presence of a series of valleys running N-S, channeling cold air from upper slopes down the valley axis to the plain and coast areas.

These katabatic winds are especially pronounced during stable periods and are a night-phenomenon.

Consequently temperature inversions tend to be more frequent and more pronounced in this western part of Mesaoria south/of which the highest elevations of the Troodos mountains are located compared to the central part of Mesaoria where mountain elevations are lower and valleys are not so well-defined as in the western part of the plain.

3. The lower precipitation received in western Mesaoria compared with the rest of the central plain.

Besides experiencing lower night temperatures than the rest of the plain Western Mesaoria receives lower precipitation amounts exhibiting all the characteristics of a rain shadow area.

The following statistics are indicative of the fact.

PRECIPITATION AMOUNTS RECEIVED (mm)

Western Mesaoria

| STATION | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Xeros | 69 | 40 | 40 | 11 | 7 | 1 | 0 | 0 | 1 | 25 | 28 | 67 | 289 |
| Astromeritis | 62 | 37 | 36 | 9 | 11 | 2 | 0 | 1 | 4 | 25 | 31 | 79 | 297 |
| Central Mesaoria | | | | | | | | | | | | | |
| Nicosia | 68 | 40 | 38 | 19 | 21 | 10 | 1 | 3 | 10 | 30 | 30 | 81 | 351 |
| Margo | 61 | 41 | 38 | 16 | 24 | 5 | 1 | 1 | 7 | 25 | 26 | 78 | 323 |
| Angastina | 53 | 38 | 34 | 17 | 26 | 9 | 1 | 2 | 6 | 26 | 32 | 77 | 321 |
| Eastern Mesaoria | | | | | | | | | | | | | |
| Famagusta | 78 | 48 | 39 | 16 | 15 | 3 | 0 | 0 | 3 | 30 | 48 | 112 | 392 |
| Ay.Nicolaos | 76 | 49 | 35 | 14 | 14 | 3 | 1 | 0 | 3 | 33 | 41 | 111 | 380 |

Western Mesaoria receives the lowest precipitation amounts than any other region in Cyprus, i.e. less than 300mm annually compared with 320-350 in cental and eastern parts of Mesaoria plain.

This phenomenon can be attributed to the fact that it is located on the leeward side of the Troodos mountains effectively being a rain-shadow area.

In winter the prevailing winds come from the southwest and consequently southern and western coasts and mountain slopes receive the brant of the precipitation.

The central and eastern parts of Mesaoria plain receive slightly greater amounts of precipitation due to the fact that the prevailing moisture laden southwesterlies have to cross the Troodos mountains at lower elevations and thus retain rather more of their moisture compared to further west where they have to cross elevations between 1300-1950m.

## Conclusion

The main peculiarities of the Cyprus climate have been identified and reasons have been put forward as to their possible causes.

Further study is required for confirming the stated hypotheses with the analysis of other climatological parameters, e.g. wind direction, wind force frequencies during the 24-hour period through the year.

The present study can be considered as the foundation of a different approach to the topoclimatic classification of Cyprus.

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## ΠΕΡΙΛΗΨΗ

Η κλιματολογία της Κύπρου είναι ένας τομέας σχετικά παρθένος για τον ερευνητή. Παρά την πληθώρα των στατιστικών στοιχείων που υπάρχουν για τις διάφορες κλιματολογικές παραμέτρους και τους διάφορους θεματικούς χάρτες, εντούτοις η ανάλυση τους φαίνεται ελλειπής.

Στην παρούσα εργασία έγινε μια προσπάθεια για εντόπιση των κυριοτέρων ιδιομορφιών του κλίματος της Κύπρου ως προς τις σπουδαιότερες παραμέτρους ( π.χ. θερμοκρασία, βροχόπτωση).

Παρά την περιορισμένη της έκταση η Κύπρος παρουσιάζει σημαντικές διακυμάνσεις στη μέση ετήσια θερμοκρασία ( 18.0° - 19.7° Κελσίου) και στη βροχόπτωση (280 - 1200 εκατοστά ετησίως)

Παρουσιάζεται επίσης το φαινόμενο ότι η μέση ετήσια θερμοκρασία της βόρειας ακτής είναι ψηλότερη από αυτές που παρατηρούνται στις νότιες και δυτικές ακτές.

Η δυτική Μεσαορία χαρακτηρίζεται επίσης σαν περιοχή με σχετικά χαμηλές θερμοκρασίες και ετήσιες βροχοπτώσεις σε συγκριση με τις κεντρικές της και τις ανατολικές της περιοχές.

BIBLIOGRAPHY

MET.OFFICE , UK Weather in the Mediterranean Vol. I Q II

Meteorological Paper Series of Cyprus Meteorological Service

Met. Paper No 1 Some Studies of the Amount of Precipitation in Cyprus. December 1977. Revised. December 1985.

Met. Paper No 3 Surface Air Temperatures in Cyprus. December 1972. Revised December 1985. Second Edition.

Met. Paper No.6 Local Climates of Cyprus. April 1975. Revised January 1984. Second Edition.

Met. Paper No.7 Basic Meteorological Features in Cyprus. September 1976. Revised October 1986. second Edition.