

Calendaricities and multimodality in the Eastern Mediterranean cyclonic activity

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Calendaricities, or the occurrence of weather anomalies on fixed calendar dates, are investigated for the Eastern Mediterranean (EM). The anomalies discussed here are the maxima and minima in the frequency of occurrence of the EM synoptic systems bearing rainfall. Those are mostly the Winter Lows (Mediterranean cyclones) passing over Cyprus en route eastward of the Ionian Sea where they are generated in situ or come to from N. Italy. The Winter Lows produce the rainfall over the central and northern EM areas, including Cyprus, Israel, Lebanon, NW Syria, W. Jordan. The southern EM areas, i.e. S. Israel and NE Egypt, get rainfall followed by floods due to the Winter Lows as well, and in addition, due to a small proportion of the mostly dry Red Sea Troughs that occasionally turn out to cause heavy rainfall. The analysis of the daily resolved data based on the NCEP/NCAR reanalysis is carried out. A comparison of two 28-yr periods, 1948-75 and 1976-2003, different in global climatology, showed their similarity in the timing of peaks in EM cyclonic activity. The winter was found to have five maxima of cyclonic activity, centered on early February and nearly bell-shaped over their magnitudes. This supports the earlier hypotheses of multimodality in the EM rainfall. The Red Sea Troughs have their main peak of occurrence in the late October - early November, and their small rain-bearing proportion falls as well on this period of a year.

Reference: I. Osetinsky and P. Alpert. Eastern Mediterranean cyclonic activity. *NHESS (Natural Hazards and Earth System Sciences*, to be published in 2006).