



Qualitative Features of Cyclones triggering high precipitation events in the Island of Crete, Eastern Mediterranean.

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There are many cases where high precipitation or even worse flood events are provoked by cyclonic atmospheric circulation patterns of similar characteristics. In this study, an attempt was made to investigate the features of the cyclones related to these high precipitation events as well as possible correlation of the precipitation characteristics to these cyclones.

A statistical analysis of the features of cyclones affecting Crete was performed over a 30-year period (1979-2011). The cyclones identification and characteristics were extracted with the aid of the Melbourne University automatic cyclone finding and tracking scheme (CTS) based on ERA Interim reanalysis datasets. A number of high precipitation events were defined with a threshold criterion based on a dataset of 53 daily precipitation records over the Island of Crete. Track selection was performed using as second criterion the cyclone distance from the study area. The track points of cyclones affecting Crete found to be related to specific rain events were further analyzed in terms of origination, direction and position. Average values of characteristics were also estimated such as the radius, pressure, depth and East/North velocity for the cyclones affecting Crete. The analysis was also extended concerning seasonality (winter, spring, autumn) and locality (eastern, central or western part of the study site) of the events.

In all cases cyclones affecting Crete seem to originate mostly Northwest (~55%) and Southwest (~15%) of Crete having a Southeast (~55%) and Northeast (~15%) direction, correspondingly. Also for the majority of the events (>65%) cyclones are mainly attributed to the characteristics of a strong closed system of relatively long duration and track length.