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The storm of 18 September 2009: The dynamic processes and an analysis of some thermodynamic indices.

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THE STORM OF 18 SEPTEMBER 2009: THE DYNAMIC PROCESSES AND AN ANALYSIS OF SOME THERMODYNAMIC INDICES

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ABSTRACT
September is, for the area of the East Mediterranean, a transitional month, from the prolong dry and hot period to the relatively cold and rainy period. The island of Cyprus, situated in the eastern Mediterranean basin, is affected by storms either initiated mainly by the baroclinicity of the advancing depressions during the cold period, or during the transitional months, initiated mainly by thermal instability.
The present study investigates some of the processes involved with the development of a storm which took place over the area of southern Nicosia, Cyprus on the 18th of September 2009. he storm was characterized as very extreme and the associated weather was very destructive.
The storm was initiated by a weak disturbance in the medium troposphere, while the contribution of thermal instability was of considerable importance.
For a better understanding of the development of the storm but also for the estimation of the contribution of various factors in the development of the phenomena, a spatio-temporal study was performed on selected dynamic parameters and thermodynamic indices in order to check their performance and efficiency in such a diagnostic study.
The Weather Research and Forecast Model (WRF, ARW Core) was utilised in order to study the storm properties in detail and to help identify some of the dynamic and thermodynamic processes involved in the formation and development of the storm cell and subsequent activity.