EMS Annual Meeting Abstracts
Vol. 10, EMS2013-492, 2013
13th EMS / 11th ECAM

Climatology of atmospheric water vapour over Black Sea based on ERA-INTERIM dataset

L. F. Velea (1), G. L. Liberti (2), and R. Bojariu (1)

(1) Administratia Nationala de Meteorologie, Climate Section, Bucharest, Romania (bojariu@meteoromania.ro, +40 21 3162140), (2) ISAC-CNR Rome, Italy

The amount of precipitable water in the atmospheric column (TPW) is one of the important information used meteorological and climate applications, like weather forecasting (e.g. tornadic events; NWP assimilation for short-range forecast; TPW associated with cloud properties; intense rain episodes), retrieval algorithms from satellite observations, NWP and climate models performance evaluation.
Most of attention has been concentrated so far on defining properties and products at global scale, with the drawback that regional characteristics – sometimes an important modulating factor - may be lost. In particular for the Black Sea area, studies on the climatological features of atmospheric properties are available from sparse observational databases or from reanalysis (ERA, NCEP). These studies show that, although a basin of relatively small dimensions, the Black Sea presents a series of unique features which may significantly impact on the atmospheric circulation and its general characteristics.
In this study, the total column water vapor from the ERA-interim is used to give a detailed description of the climatological properties of the atmospheric water vapour in terms of spatial distribution, seasonal characteristics and link with large scale variability indices over Black Sea. The ERA-interim dataset was used because it assimilates the largest amount and up to date set of available observations. However the process of assimilation may results in smoothing small scale features that, in a complex area, like the Black Sea are likely to occur. In order to assess the loss of high resolution information, for the years 2008-2012 IASI-derived profiles of atmospheric water vapour have been analysed in a statistical sense and the results compared with the ones obtained from the corresponding ERA-Interim subset.