



Study of the fronts associated to the extratropical cyclone evolution in case of a severe weather event in Romania

Elena Mirela Polifronie (1,2), Sabina Stefan (1), and Florinela Georgescu (2)

(1) Faculty of Physics, University of Bucharest, Bucharest, Romania, P.O.BOX MG-11, Magurele, Bucharest, Romania, (2) National Meteorological Administration, Sos. Bucuresti-Ploiesti nr.97, Sector 1, ZIP code 013686, Bucharest, Romania

The aim of this paper is to analyze the dynamic of the atmospheric fronts especially regarding the interaction between the Mediterranean origin cyclone and the East-European anticyclone. These synoptic and mesoscale conditions led to severe weather manifestations on 19th-21th of April 2017 in Romania. They are typical for the winter season, usually triggering severe blizzards. Starting with 19th of April, a frontal system affected Romania and generated heavy precipitation. In order to explain the large amounts of precipitation that occurred in center and eastern Romania, the precipitation processes at fronts were analyzed. Also, to determine the mechanisms controlling the mesoscale distribution of precipitation in frontal zones we analyzed the mean sea level pressure (MSLP), vertical structure of the wind, potential vorticity (PV) anomalies and the thermodynamic conditions (thermal front parameter, equivalent thickness, equivalent potential temperature at 850 hPa geopotential height). In addition multispectral satellite imagery and radar products were used. But the frontal processes represent only a component of extratropical cyclones evolution. Therefore, the frontal processes were also analyzed in connection to the genesis and evolution of the Mediterranean cyclone.