Geophysical Research Abstracts
Vol. 16, EGU2014-12272-1, 2014
EGU General Assembly 2014

Investigation of a convection event using multisensor observations during HyMeX SOP1

Nicoletta Roberto (1), Elisa Adirosi (1,2), Daniele Casella (1), Stefano Dietrich (1), Giulia Panegrossi (1), Marco Petracca (1), Paolo Sanò (1), Patrick Gatlin (3), and Luca Baldini (1)

(1) CNR, ISAC, Rome, Italy (elisa.adirosi@artov.isac.cnr.it), (2) Dipartimento di Ingegneria Civile, Edile e Ambientale, Sapienza Università di Roma, Rome, Italy, (3) NASA Marshall Space Flight Center, Huntsville, Alabama

A multisensor analysis of the convective precipitation event occurred over Rome during the IOP13 (October 15th, 2012) of the HyMeX (Hydrological cycle in the Mediterranean eXperiment) Special Observation Period (SOP) 1 is presented. Thanks to the cooperation among Italian meteorological services and scientific community and a specific agreement with NASA-GSFC, different types of devices for meteorological measurements were made available during the HyMeX SOP.1. For investigating this event, used are the 3-D lightning data provided by the LINET, the CNR ISAC dual-pol C-band radar (Polar 55C), located in Rome, the Drop Size Distributions (DSD) collected by the 2D Video Disdrometer (2DVD) and the collocated Micro Rain Radar (MRR) installed at the Radio Meteorology Lab. of "Sapienza" University of Rome, located 14 km from the Polar 55C radar. The relation between microphysical structure and electrical activity during the convective phase of the event was investigated using LINET lightning data and Polar 55C (working both in PPI and RHI scanning mode) observations. Location of regions of high horizontal reflectivity (Zh) values (> 50 dBz), indicating convective precipitation, were found to be associated to a high number of LINET strokes. In addition, an hydrometeor classification scheme applied to the Polar 55C scans was used to detect graupel and to identify a relation between number of LINET strokes and integrated IWC of graupel along the event. Properties of DSDs measured by the 2DVD and vertical DSD profiles estimated by MRR and their relation with the lighting activity registered by LINET were investigated with specific focus on the transition from convective to stratiform regimes. A good agreement was found between convection detected by these instruments and the number of strokes detected by LINET.