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Multisensor analysis of recent heavy precipitation events occurred over Italy

Stefano Dietrich, Giulia Panegrossi, Francesco Di Paola, Paolo Sanò, Daniele Casella, Marco Petracca, Luca Baldini, Nicoletta Roberto, and Alberto Mugnai

Institute of Atmospheric Sciences and Climate (ISAC), Italian National Research Council (CNR), Rome, Italy (S.Dietrich@isac.cnr.it)

Satellite-based microwave and infrared measurements, together with 3-D lightning data provided by LINET network, will be jointly used to describe and analyze the microphysical characteristics and the evolution of recent severe storms occurred over Italy.

In addition, passive microwave precipitation retrieval algorithms (Sanò et al., 2013, Casella et al., 2013, Mugnai et al., 2013, Smith et al., 2013) will be applied to obtain instantaneous rain fields corresponding to LEO overpasses, while IR and lightning data will be also used to reproduce the time continuous evolution of precipitation (Dietrich et al., 2011, Di Paola et al., 2012).

For two heavy precvipitation events observed during the HyMeX (Hydrological cycle in the Mediterranean eXperiment) SOP1.1 in the Central Italy target area in October 2012, the Polarimetric C-band radar (ISAC/CNR Polar 55C) located in Rome will provide also the ground reference for precipitation, microphysics structure, and volumetric distribution of precipitating clouds.

Future perspectives of the utilization of the above techniques in supporting the operational activity of the Italian Civil Protection department will be discussed with the help of advanced graphical multisensor representation of real time remotely sensed quantities.