

Authors

Gianfranco Vulpiani, Department of Civil Protection, rome, Italy,
Luca Baldini, Institute of Atmospheric Science and Climate, National Research Center, Rome, Italy,

The Mediterranean basin is characterized by complex topography and land-sea coastal features that impact on precipitation that show intricate spatial and temporal variability, being influenced by either tropical or mid-latitude climate systems. Generally, the seasonal rainfall variability has to be ascribed to synoptic and mesoscale cyclonic perturbations occurring on 2–8 days time scale.

The development and passage of these rain systems over the Mediterranean area is affected by a combination of factors such as large-scale circulation, topography, and land-sea temperature gradients. This work is aimed at analyzing the polarimetric radar signatures of Mediterranean storms using simultaneous observations of C- and X-band systems operated by the Italian Department of Civil Protection.

A Mediterranean hurricane-like storm (MEDICANE) occurred on 7 and 8 November 2014 is documented as well as intense events associated with hailstorms responsible for signal extinction even at C-band.

The analysis confirms, on one side, the possibility to successfully infer the underlying physical processes and obtain reliable precipitation estimate, on the other, it restates that the compensation of heavy hail-induced attenuation is still a critical and open issue to deal with.