

An application of LAPS-RAMS modelling system to Apulia (south-eastern Italy) region

A. Regano (1), A. Moscatello (2), M.M. Miglietta (2), P. Martano (2), A. Morabito (2,3), M. del Vescovo (1)

(1) Dipartimento di Fisica, Università di Bari (regano@ba.infn.it), (2) Istituto di Scienze dell'Atmosfera e del Clima, ISAC-CNR, Lecce, (3) Present affiliation, ARPA-Puglia

The integrated modelling system LAPS-RAMS has been tested in Apulia region (south-eastern Italy), in order to verify its ability to correctly reproduce the evolution of meteorological synoptic and mesoscale features.

LAPS (Local Analysis and Prediction System, <http://laps.noaa.gov>) provides 3D meteorological high resolution analyses merging together data from different meteorological sources. Our implementation over Apulia is able to ingest surface observations coming from 40 surface stations located throughout the region, VIS and IR Meteosat 7 observations, vertical thermodynamic profiles from Brindisi radiosounding station. As a result, upper-air and surface gridded analyses are generated with a resolution sufficient to diagnose the structure of mesoscale structures.

The analysis produced with LAPS have been used to initialize RAMS (Regional Atmospheric Modeling System, <http://rams.atmos.colostate.edu>) in a case study of heavy precipitation over the region. On 22 October 2005, a pressure minimum affected Apulia, producing very intense and localised rainfall; as a consequence, some landslides occurred in the central part of region.

Results show that LAPS-RAMS modelling system is able to localise correctly the area of intense precipitation. The ingestion of satellite data in LAPS emerged as fundamental for improving the quality of the analyses and, then, of RAMS forecasts.