



## **Preliminary results of a short-range ensemble forecast for quantitative precipitation over Calabria**

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Deficiencies in observational network and data assimilation methods produce initial conditions (IC) errors that ensure that a numerical model never starts from the same state of the atmosphere. Due to the chaotic nature of the atmospheric flow, these errors increase unpredictably with forecast time and eventually solution saturate and forecast has no more resemblance to the true atmospheric state.

One way to deal with this task is through ensemble forecasting. Typically, a single run model is run repeatedly from a set of slightly different ICs and each resulting forecast solution is considered equally likely.

In addition weather risk assessment is becoming an increasing component of the daily operational activity at advanced meteorological forecasting centers.

To cope with these tasks CRATI Scrl has developed and is testing a limited area model Short Range Ensemble System (CRATI – SRES) based on RAMS.

This contribution describes CRATI-SRES system and preliminary results for ten cases study simulated. Cases study refer to Calabria, the southernmost tip of Italian peninsula which is characterized by high mountain ranges (>1500 m) that run all along the country.

Forecasts from CRATI-SRES are compared with a single run from a higher-resolution RAMS run. CRATI-SRES horizontal resolution is 12 km whereas single higher-

resolution run has 4 km horizontal grid spacing. Large scale forcing is derived from ECMWF Ensemble Prediction System (EPS) by a clustering process that selects 5 Representative Members (RMs) from the starting 51.

Preliminary results will be discussed by comparing ETS (Equitable Threat Score) and ROC (Relative Operating Characteristic) curve of RAMS-SRES and higher-resolution single run.