



## **Problems and applications in precipitation forecasting**

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At ISAC-CNR in Bologna, research is being currently conducted in the field of short-range mesoscale forecasting of precipitation and numerical models have been developed and applied for this purpose. Recent experience has been built up in daily forecasting based on the BOLAM-MOLOCH model chain, applied in a complex orography area like that surrounding the Alps. Moreover, the MAP-DPHASE project has given an opportunity to compare many models operating for several months in the Alpine area. Although high resolution forecasting of orographic and especially convective precipitation remains an open challenge, there are cases in which the relatively good predictability of the synoptic scale environment and the spatial control exerted by the orography favours useful forecasts of intense, localized precipitation events. Research topics devoted to model verification and intercomparison in different projects, data assimilations (especially regarding precipitation and geostationary satellite radiances), model improvements and also theoretical aspects regarding a better understanding of mesoscale instabilities (in particular moist symmetric instability) will be presented and discussed.