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High resolution climatology
- towards climate change services

The COST 731 Action and the MAP D-PHASE Initiative – Overview on Main Outcomes

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The COST 731 Action, launched in 2005, addresses the problem of forecasting (heavy) precipitation events and the corresponding hydrological processes in connection with the uncertainty inherent in this task. The actual threat to society that potentially occurs from intense (and thus rare) events only becomes effective after the involvement of the hydrosphere. The main focus of the Action is the quantification of forecast uncertainty and its propagation through a meteo-hydrological forecast chain. COST 731 is structured in three working groups, which deal with uncertainty cascading from observation (predominantly from radar) into numerical weather prediction (NWP) models, from observation and NWP into hydrological models, and the use of uncertainty as support in decision making. The groups of scientists involved in the action therefore represent radar meteorology, NWP, hydrological modeling, as well as social scientists who deal with risk communication.

MAP D-PHASE (Mesoscale Alpine Programme, Demonstration of Probabilistic Hydrological and Atmospheric Simulation of Flooding Events in the Alps) is the second WMO/WWRP Forecast Demonstration Project and constitutes an important element of COST 731. Its Operations Period (June - November 2007) was centred in the Alpine region and experienced a number of interesting weather cases. Real-time forecast information of 7 limited area ensemble prediction systems, 23 high-resolution limited area numerical weather prediction models, as well as 7 hydrological models coupled to NWP QPF and/or radar QPE input were collected, and synthetically displayed on a visualization platform.

In this presentation an overview of the COST 731 main achievements of the action as well as open issues and future opportunities are given. They are put into context with the results and perspectives of D-PHASE, first verification results, end user feedback, lessons learnt. A notable number of operational groups in hydrological modeling are in the process to implement and test probabilistic NWP input to produce probabilistic stream flow predictions. New developments include ensemble quantitative precipitation estimates with radar, including driving hydrological models with such input.