Geophysical Research Abstracts,
Vol. 11, EGU2009-6119, 2009
EGU General Assembly 2009

Real-time hydrological ensemble forecasts: experience gained from MAP D-PHASE

C. HEGG (1) and R. RANZI (2)

(1) WSL-Swiss Federal Institute for Forest Snow and Landscape Research, Birmensdorf, Switzerland (christoph.hegg@wsl.ch), (2) DICATA, University of Brescia, Brescia, Italy (ranzi@ing.unibs.it)

A hydrological ensemble prediction system for the Alpine region was setup and tested in real-time from June to November 2007 within the MAP D-PHASE project. Several flood forecasting chains, combining meteorological ensemble predictions, surface measurements or radar data and hydrological models issued ensemble runoff forecasts for a number of basins in the Alps. Hydrological aspects of these operational forecasting chains are presented, from the definitions of meteorological and hydrological attention, alert and alarm thresholds for each basin to the interaction with end users including their feedback. The experience gained from this experiment demonstrates that hydrological ensemble prediction systems provide a wide information which is useful for the decisions of end users, as managers of water resources and hydropower systems, civil protection, hydrometeorological services. However some convective type of events, occurred in June and in September 2007 on both the southern and the northern side of the Alps were not well captured by the models and the importance of model initialisation and the assimilation of surface observations was confirmed. Some 'outliers', or 'crazy' members of the ensemble predictions resulting in very high rainfall peaks also for ordinary events might alert a 'risk-adverse' end user. The information available to unexperienced end users can be potentially too much and can exhibit a too large variability thus needing to be interpreted and condensed in a simple way, to become useful for their decisions. Experienced end users, instead, are capable to weight the importance of forecasts vs. observations to take decisions indicating that end user training to ensemble prediction systems is needed. Nowcasting systems were assessed as very helpful, because they helped determining in what range of the spread of the ensemble an event was going to develope. In any case a close collaboration between end users and forecasters is essential so that forecasters provide their results in a way that end users can implement.