



## **Nowcasting hydrological chain: how to extend the forecast horizon?**

Maria Laura Poletti (1), Francesco Silvestro (1), Silvio Davolio (2), Flavio Pignone (1), and Nicola Rebora (1)

(1) CIMA Research Foundation, Savona, Italy (laura.poletti@cimafoundation.org), (2) CNR – ISAC, Italy

Rainfall nowcasting allows to have forecasts of rainfall at small spatial and temporal scales. Connecting the output of the nowcasting model with hydrological model enables to generate an ensemble of discharge scenarios. The forecast of discharge with some hours of anticipation is essential in an area as Liguria Region (Italy) where many catchments have very small drainage area and consequently really short response time

In this work we try to synergically exploits the information derived by different observations and modelling sources in order to improve the quantitative precipitation forecast. In order to account the variability of the precipitation structures over the two hours of the rainfall nowcasting the change of the total volume of the precipitation has been taken into account. This information allows to consider such processes as growing and decay of the cells, likely to happen in time horizon longer than two hours for convective events. There possible approach were investigated: i) usage of the observed rainfall fields in the past time steps, ii) the forecasted rainfall field predicted by high resolution meteorological model iii) the forecasted rainfall field predicted by high resolution meteorological model that assimilate radar rainfall fields with nudging technique(data provided by CNR). The results obtained will be presented through the hydrological nowcasting chain output comparison.