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Development of a limited-area ensemble prediction system for the 2014 Winter Olympic Games

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In the framework of the preparation for the 2014 Winter Olympic Games, taking place in Sochi (Russia), a new research project, referred to as FROST-2014 (Forecast and Research: the Olympic Sochi Testbed) was proposed and endorsed by WWRP/WMO. This project will have both a forecast demonstration (FDP) and a Research and Development (RDP) component.

Within FROST, the COSMO consortium is undertaking a number of activities to support weather forecasting. Among these, we present the implementation and first developments of a new limited-area ensemble system, named COSMO-FROST-EPS, to assist local forecasters in the probabilistic prediction of localised high-impact weather events.

The first results of COSMO-FROST-EPS are presented in terms of probabilistic prediction of precipitation over the period January-March 2012. The skill of the system is compared to that of ECMWF EPS, assessing the added value of higher resolution. In addition to this, the performance of COSMO-FROST-EPS is investigated for a number of case studies of particular interest occurred during past winter.

Finally, the main streams of development for COSMO-FROST-EPS are discussed with future upgrades and methodology modifications.