# Verification of high impact weather forecasts in the region of Sochi-2014 Olympic Games

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The World Weather Research Programme project FROST-2014 (FROST - Forecast and Research in the Olympic Sochi Testbed) is targeted at advancement and demonstration of state-of-the-art forecasting systems for winter weather in mountainous terrain. The project is connected to the XXII Olympic and XI Paralympic Winter Games that were held in Sochi in 2014. Seven deterministic mesoscale numerical weather prediction systems, six ensemble prediction systems and six nowcasting systems originating from the international modeling consortia COSMO and HIRLAM/ALADIN, the Central Institute for Meteorology and Geodynamics (Austria), Environment Canada, the Finnish Meteorological Institute, the National Oceanic and Atmospheric Administration (USA) and the Korea Meteorological Administration participated in the project field campaign.

Prediction of High Impact Weather (HIW) was acknowledged as the main challenge for participating forecasting systems. Common definitions of HIW are based on prescribed parameter thresholds, or on distribution tail statistics for rare events. Verifying forecasts of rare events encounters serious difficulties in part due to the degeneration of traditional measures as the base rate becomes small. The Extremal Dependence Index (EDI) and its symmetrical form (SEDI) were proposed to overcome these and other weaknesses of common measures in HIW forecast verification [Ferro and Stephenson, 2011].

An experience of application of the extreme dependency scores to FROST-2014 deterministic and ensemble forecasts is considered.