Skill assessment of subseasonal forecasts of temperature and precipitation

Andrea Manrique-Suñén (1), Nube González-Reviriego (1), Nicola Cortesi (1), Raül Marcos (1), Albert Soret (1), Francisco J. Doblas-Reyes (1,2)

(1) Barcelona Supercomputing Centre, Earth Science Department, Barcelona, Spain (andrea.manrique@bsc.es), (2) Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain

Climate predictions in the subseasonal time range (from 2 weeks to a season) offer valuable information to allow society to be better prepared for extreme events, such as floods or droughts as well as for decision makers in several socio-economic sectors. In particular, decisions related to water or crop management could highly benefit from skillful predictions of temperature and precipitation in this time range.

In the context of European IMPREX project, forecast quality assessment of temperature and precipitation has been performed for several prediction systems from the S2S project database. The number of forecasts within a month depends on the prediction system, since the forecasts are issued weekly, twice a week, daily or with other frequencies. The subseasonal product being assessed aims to maximise the use of data available for each month, by using the associated hindcasts of all the forecasts issued during a particular month. The quality assessment of this product has been done in terms of deterministic and probabilistic verification measures, which are evaluated for weekly averages: week 1 (days 5-11), week 2 (days 12-18), week 3 (days 19-25) and week 4 (days 26-32). The results of this study help identify geographic areas and time periods when subseasonal forecasts skill outperforms climatology, providing useful information on the usability of sub-seasonal forecasts in hydrological applications.