The predictability of surface wind, temperature and precipitation in weekly scale in Scandinavia

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The sub-seasonal-scale forecasts (from two to six weeks) have been available operatively for some time. However, their utilization is not as widespread as it could be, perhaps because the forecasters have been sceptical of the skill of the forecasts. Verification results are often shown in very large scale, for example, including the whole Europe in one "box", so that duty forecasters responsible for a much smaller area might not know how relevant forecasts are for them.

Based on the experience of the Finnish CLIPS project (Climate services supporting public activities and safety, funded by the Academy of Finland), we show the predictability of the common meteorological variables: wind, temperature and precipitation at the surface level. The forecast data is from the ensemble extended-range forecasts (ERF) produced by the European Centre for Medium-Range Weather Forecasts (ECMWF). The ERF data consists of 50 ensemble members that are run twice a week 46 days ahead.

We define the predictability as the longest lead time where forecasts are still significantly better than available climatologies of the variables. We concentrate on weekly-averaged forecasts in Scandinavia, especially Finland. For temperature and wind we forecast weekly ensemble means and for precipitation the weekly number of rainy days (both rain and snow days).

The forecasts should be temporally averaged and carefully bias corrected and calibrated. In CLIPS, the forecasts were calibrated using reforecasts. For verification and for calculating climatological reference values, both gridded datasets, the ERA-Interim reanalysis and the Finnish daily gridded time series FMI_ClimGrid, and point observations were investigated.