Verification of user-oriented monthly and seasonal forecasts

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MeteoSwiss provides monthly and seasonal predictions both to the public and commercial customers. So far, these forecasts have been provided in the format of tercile probabilities for mean temperature and precipitation sums. However, customers are increasingly interested in receiving more specific forecast formats, such as predictions of certain indices that are directly relevant to their business. Examples are heating degree days for the energy sector or drought indices for agriculture, both being derived from daily time series of weather variables. We currently investigate the skill of such index forecasts at the monthly to seasonal time range and also aim at combining monitoring and forecasts towards seamless predictions.

We will present some of our lessons learnt in deriving such user-oriented forecasts from ECMWF's extended range and seasonal predictions. As indices calculations often involve absolute thresholds, systematic biases of the forecast models pose a challenge and need to be addressed by appropriate corrections. Verification analyses using re-forecasts showed that post-processing generally improves forecast skill, differences among the tested methods are not always significant, depending on the nature of the index. The resulting skill of seasonal indices forecasts is at most as large as the skill in the underlying variables.