# Setting up a prototype seasonal forecast in Peru with a focus on agriculture.

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Seasonal forecasts can be of high value for the agricultural sector as agriculture depends strongly on climatic conditions during the growing season. Especially tailored forecasts, e.g. the number of days below a plant-specific critical temperature threshold or the onset of the rainy season can be of great value for planning activities. Within the framework of the CLIMANDES project (a pilot project of the Global Framework for Climate Services led by WMO [http://www.wmo.int/gfcs/climandes]) we aim to set up a prototype seasonal forecast system for the agricultural sector in Peru, including predictions of user-tailored indices.

Setting up such a prototype forecast system entails some challenges. On one hand there are technical issues such as the quality of observational data used to verify the forecast and the forecast skill which can vary greatly in seasonal forecasting - spatially, temporally and also between different variables. Furthermore understanding the user's needs (e.g. which indices are relevant for them) and providing the information in a way that is comprehensible is not an easy task. Users are often not familiar with tercile category forecasts nor do they understand "normal" in a climatological sense.

In our forecast system we present the current forecast relative to climatological variability and exceptional years in the past which fosters the understanding of the provided information. Secondly, it provides an elegant way of integrating information on forecast skill: In cases with low or no skill, this is clearly stated and the users are referred to the robust climatological information which already contains valuable information about the possible range of outcomes to expect. Furthermore we try to include uncertainty and skill information in the forecast visualization and still make it intuitively understandable to an end user.

This contribution shows the different steps of setting up this prototype seasonal forecast system and possible solutions to the challenges mentioned above. The work is based on ECMWF system 5 seasonal predictions and observations at stations as well as a gridded precipitation dataset provided by the meteorological and hydrological service of Peru. All results are generated using the novel ClimIndVis R package.