



## Creating socio-economic benefit through climate services in the Andes – tailored seasonal forecasts for agriculture

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Adverse weather and climate events and their impacts generate serious economic losses and fatalities worldwide. However, developing and emerging countries often have a higher vulnerability towards climate events than highly developed nations. The need for climate services in developing countries is therefore apparent, yet climate services are often only basic in these countries. For example, the Andean region has only limited access to climate services, and not all of the instruments in place were developed in concordance with the user needs.

The project CLIMANDES, launched in 2012 as a pilot project of the Global Framework for Climate Services of WMO, aims at developing climate services tailored to the users' needs in the Peruvian Andes. A demand study conducted during the first phase of CLIMANDES (2012-2015) revealed an explicit need for seasonal forecast information in the agricultural sector. For instance, climate events such as frost or long dry periods affect the agricultural productivity directly. Smallholder and subsistence farmers are therefore highly vulnerable to climate variability and change, but they often lack information and are unable to take preventive or adaptive measures (e.g., through water management or the selection of more resistant crops).

CLIMANDES-2 (2016-2018) aims at exploring the added value of seasonal forecasts for Peru and at the development of corresponding products that are tailored to the needs in the agricultural sector. To this end, we intend to develop forecasts of a range of climate indicators that represent climate variability crops are vulnerable to (such as water availability) and the sensitivity of specific crops (e.g., quinoa, corn, potatoes) to climatic threats. For example, such an index could take into account the varying sensitivities during different phenological stages of a plant. It will be investigated if the provision of such specific indicators could provide a greater benefit for the users despite a potential reduction in predictive skill. In this study, we present the approach of producing user-tailored seasonal forecasts for the agricultural sector in Peru, and discuss first results regarding the skill of the seasonal forecasts for some of the climate indicators in the Andean region.