

## **Uses of the climate information in agriculture in Mexico**

Carolina Neri<sup>†</sup>; Víctor Magaña

<sup>†</sup> National Autonomous University of Mexico, Mexico

Leading author: [caro.neri@gmail.com](mailto:caro.neri@gmail.com)

Hydrometeorological extreme events have serious impacts on agricultural activities. The variation from a year to year of the annual accumulated precipitation can be substantial and have a large impact on agriculture. In Mexico, it is known that a strong relationship between the El Niño-Southern Oscillation (ENSO) and annual precipitation exists. This relationship is one reason why climate information is a fundamental element that must be considered when making decisions and planning activities each agricultural cycle. Through the analysis of climate variability and crop vulnerability, the risk of crop loss under adverse climate can be considered in the agricultural regions. If this risk is taken into consideration in agricultural planning, the work strategies will vary. Using calculations of the probability of rain occurrence, the vulnerability to hydrometeorological extreme events can be considered thus determining the probability of crop destruction due to rain deficit. The climate risk is the possibility that a threat related to the variations of weather or climate has the capacity to affect a vulnerable sector. By analyzing the probability of occurrence of a risk climatic condition using historical data, it is possible to prepare thematic maps describing risk. The prevention actions depend on the confidence in the climate forecast and the level of confidence depends on the skill of models. At present, it is known that the forecast schemes work better El Niño or La Niña conditions. Using the seasonal forecasts of precipitation and temperature, it is possible to determine soil moisture and therefore, the potential hydrologic stress (i.e. maize). The climate information, constituted by diagnoses and prognoses, must be complemented by day-to-day actions of the agricultural sector using weather forecasts. Regional forecasts are fundamental in order to establish the link between climate variability and agriculture in order to prevent crop loss. This study has great importance; it is one of the first formal initiatives in Mexico to promote the uses of climate information in the agriculture sector. Nowadays, Institutions as AGROASEMEX (Governmental Institution of Insurances for Agriculture in Mexico) and the Secretary of Agriculture, Ganadery, Rural Development, Fishing and Feeding (SAGARPA) develops schemes of decision making that considers the use of climatic forecast.