Geophysical Research Abstracts
Vol. 20, EGU2018-11763, 2018
EGU General Assembly 2018

Assessment of climate variations impacts on maize production in Ecuador

Marcos Villacís (1), Marco Calderón (1), Andrea Abarca (1), Cristina Argoti (1), and Margarita Ruíz-Ramos (2)

(1) Escuel Politécnica Nacional, Departamento de Ingeniería Civil y Ambiental, Quito, Ecuador , (2) Technical University of Madrid, ETSI Agrónomos, Producción Vegetal: Fitotecnia, Madrid, Spain

Climate variability and Climate Change threatens the sustainability of crop production and their associated water resources in Ecuador. Nevertheless, this information is scarce for the short and long-term planning of the management of cropping systems in Ecuador. The main objective of this study is to identify the historic effects of interannual climate variations over maize crop yields in Ecuador, these results could be used in water resource planning for agricultural applications. Additionally, these inputs may be used for designing adaptation strategies to cope with future climate variations by local institutions and farmers. We have analyzed monthly historical yield data for maize, 45 years 1969–2014; and, climate data for the same period, daily precipitation, maximum and minimum temperature. Signal filters were used to isolate the changes in yield caused by climate variations (climate data was previously homogenized). The amplitude of crop yield variations is more important from the decade of 1990′s, mainly due to an increase in temperature during warm ENSO events. At coastal plains, periods with high precipitation and warmer temperatures improve crop yield, but the infrastructure facilities can be damage by floods. Therefore, maize production does not arrive in good conditions to selling points. These conditions shall be expected with more frequency in the future, and they require adaptation strategies from a holistic point of view.