

EGU21-13870

<https://doi.org/10.5194/egusphere-egu21-13870>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



Spatiotemporal and Synchronous Monitoring of Drought in the Dry Corridor of Central America

Karel Aldrin Sanchez Hernandez¹, Gerald Augusto Corzo Perez², and German Ricardo Santos Granados³

¹Colombian School of Engineering Julio Garavito, Civil Engineering emphasis Hydraulic Resources Msc, Posgraduate, Bogotá, Colombia (karel.sanchez@mail.escuelaing.edu.co)

²Civil Engineer, PHD, Senior Researcher, IHE Delft Institute for Water Education, Netherlands, (gerald.corzo@gmail.com)

³Civil Engineer PhD, Posgraduate Head of Colombian School of Engineering Julio Garavito, Bogotá-Colombia. (german.santos@mail.escuelaing.edu.co)

Drought is often conceptualised as an extreme weather event generated by anomalies in water resources availabilities. Understanding the behaviour and spatiotemporal distribution of drought events has become very important due to the possible teleconnections of drought propagation patterns. This understanding and if is possible representation of teleconnections between patterns could lead to better prediction and management of extreme events.

This study develops a methodology to monitor spatiotemporal drought events in the dry corridor of Central America using the drought index SPI and SPEI for the period 1981 to 2020.

This methodology consists of five stages. 1) collection and quality validation of the data sets used. 2) ERA5 and Observation datasets allow calibrating the precipitation and temperature values from historical gauge measurements. 3) Then, by the estimation and trend analysis of the drought index in different time scales (3, 6, 12 months) an initial baseline is defined. 4) Spatiotemporal association algorithms (based on computer vision) are used to characterise and monitoring the most extensive drought events. For this, the extreme and severe events (DI values below -1) threshold is estimated. 5) Synchronic Integration between temporal patterns and spatial propagation is carried out to evaluate possible interactions or connections of drought events along the dry corridor of Central America. These results provide valuable information to evaluate the impacts on different sectors threatened by drought throughout the territory. This work presents preliminary results of an extended project looking at the dry corridor in Central America.