Geophysical Research Abstracts
Vol. 18, EGU2016-10428, 2016
EGU General Assembly 2016

InfoSequia: the first operational remote sensing-based Drought Monitoring System of Spain

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We present a satellite-based Drought Monitoring System that provides weekly updates of maps and bulletins with vegetation drought indices over the Iberian Peninsula. The web portal InfoSequía (http://infosequia.es) aims to complement the current Spanish Drought Monitoring System which relies on a hydrological drought index computed at the basin level using data on river flows and water stored in reservoirs.

Drought indices computed by InfoSequia are derived from satellite data provided by MODIS sensors (TERRA and AQUA satellites), and report the relative anomaly observed in the Normalized Difference Vegetation Index (NDVI), Land Surface Temperature (LST), and in an additive combination of both. Similar to the U.S. Drought Monitoring System by NOAA, the indices include the Vegetation Condition Index (VCI, relative NDVI anomaly), the Temperature Condition Index (TCI, relative LST anomaly) and the Vegetation Health Index (VHI, relative NDVI-LST anomaly). Relative anomalies are codified into four warning levels, and all of them are provided for short periods of time (8-day windows), or longer periods (e.g. 1 year) in order to capture the cumulative effects of droughts in the state variables. Additionally, InfoSequia quantifies the seasonal trajectories of the cumulative deviation of the observed NDVI in relation with the averaged seasonal trajectory observed over a reference period.

Through the weekly bulletins, the Drought Monitoring System InfoSequia aims to provide practical information to stakeholders on the sensitivity and resilience of native ecosystems and rainfed agrosystems during drought periods. Also, the remote sensed indices can be used as drought impact indicator to evaluate the skill of seasonal agricultural drought forecasting systems. InfoSequia is partly funded by the Spanish Ministry of Economy and Competiveness through a Torres-Quevedo grant.