

A prototype web-based analysis platform for drought monitoring and early warning

Authors: Mattijn van Hoek^{a, b}, Jie Zhou^{a, c}, Li Jia^a, Jing Lu^a, Chaolei Zheng^a, Guangcheng Hu^a & Massimo Menenti^a

^a State Key Laboratory of Remote Sensing Science, Chinese Academy of Sciences, Institute of Remote Sensing and Digital Earth, Beijing, People's Republic of China

^b HKV Consultants, Lelystad, The Netherlands

^c Key Laboratory for Geographical Process Analysis & Simulation of Hubei, Province/College of Urban and Environmental Sciences, Central China Normal University, Wuhan, People's Republic of China.

Abstract

It has long been recognized that an effective drought monitoring and early warning system, which provides functions for real-time condition monitoring and prediction, risk assessment, information dissemination and response recommendation, is very important for the preparedness for and mitigation of drought impacts. In this article, we review the currently existing drought monitor and early warning systems, discuss applicable remote sensing datasets and drought indicators and present the development of a web-based quasi-real-time Global Drought Monitoring & Analysis Platform (Web-GDMAP). The Web-GDMAP is built upon a series of indicators derived from multi-source satellite remote sensing data and various other sources of data. From a technical perspective, the Web-GDMAP system includes a series of components from data storage, model implementation and distribution, to client-side visualization and user intuitive interaction. From a theoretical perspective, the Web-GDMAP system integrates multi-indicators on different aspects of drought, including anomalies in precipitation, anomalies in land surface thermal and vegetation conditions, water deficit of soil and plants, etc. Several case studies on applying the developed Web-GDMAP in the Asian region are demonstrated. Further improvements and perspectives are discussed.

Keywords:

Drought monitoring; remote sensing; web-based; Open Geospatial Consortium (OGC); time series.

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