



Drought Monitoring and Forecasting: Experiences from the US and Africa

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Drought has important but very different consequences regionally due to differences in vulnerability. These differences derive from variations in exposure related to climate variability and change, sensitivity of local populations, and coping capacity at all levels. Managing the risk of drought impacts relies on a variety of measures to reduce vulnerability that includes forewarning of drought development through early-warning systems. Existing systems rely on a variety of observing systems from satellites to local observers, modeling tools, and data dissemination methods. They range from sophisticated state-of-the-art systems to simple ground reports. In some regions, systems are virtually non-existent due to limited national capacity. This talk describes our experiences in developing and implementing drought monitoring and seasonal forecast systems in the US and sub-Saharan Africa as contrasting examples of the scientific challenges and user needs in developing early warning systems. In particular, early warning can help improve livelihoods based on subsistence farming in sub-Saharan Africa; whilst reduction of economic impacts is generally foremost in the US.

For the US, our national drought monitoring and seasonal forecast system has been operational for over 8 years and provides near real-time updates on hydrological states at ~ 12 km resolution and hydrological forecasts out to 9 months. Output from the system contributes to national assessments such as from the NOAA Climate Prediction Center (CPC) and the US National Drought Monitor (USDM). For sub-Saharan Africa, our experimental drought monitoring system was developed as a translation of the US system but presents generally greater challenges due to, for example, lack of ground data and unique user needs. The system provides near real-time updates based on hydrological modeling and satellite based precipitation estimates, and has recently been augmented by a seasonal forecast component. We discuss the differences in experiences in development and implementation between the two systems in terms of the scientific challenges and the utility of the systems to stakeholders, for whom the information must be relevant to local conditions and needs.