

PRODUTO TECNOLÓGICO (PT)

## **DRAI - A RISK-BASED DROUGHT MONITORING AND ALERTING SYSTEM IN BRAZIL**

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### **ABSTRACT**

Drought is recognized as a devastating natural hazard, affecting human livelihood and causing a substantial economic impact. Consequently, experts and decision-makers concentrate on new approaches to reducing droughts' economic and social effects through studies that focus on the monitoring, prediction, and risk analysis of drought to inform drought preparedness strategies and mitigation measures. This study presents the Drought Risk Assessment Interface (DRAI), a drought early warning system applied to the Brazilian semiarid region based on a composite index of meteorological drought risk. The risk index has two components: hazard and vulnerability. The hazard component considers meteorological indicators, while the vulnerability component encompasses social variables. Based on the opinion of experts from several countries, we define the weight of each of these indicators in the risk index using the analytical hierarchy process (AHP). Then, we propose a standard for generating warnings in the DRAI. The warnings are associated with seven drought risk mitigation measures validated by local technicians. We conclude that DRAI is a valuable tool to academics and practitioners, such as Civil Defences, that can act directly in risk mitigation actions.

**Keywords:** Hazard, Vulnerability, Drought Risk, Early Warning System, Composite Index, AHP 30

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