



USDA-CSREES 2007 National Water Quality Conference

[A Model for Predicting Flood and Drought Using Fuzzy Logic](#)

Prediction of flood and drought and their magnitudes to apply in any decision-making-execution process has become a very important part of the modern science in these present days. Application of fuzzy set theory has been playing a revolutionary role and positioned over the conventional probability analysis with its unparalleled ability of accuracy and precision in the result. Scientists have been successfully applying fuzzy logic in various aspects of their field of interests. Determination of factors involved in any system for developing the fuzzy inference model is a cumbersome method unless they are ascertained as a result of knowledge based information. This paper describes an approach to determine the dependable factors that are involved and can be well used for developing the model for predicting flood and drought using fuzzy set theory. Measurements collected continuously within Alabama Mesonet (ALMNet) study area will be used to develop the model based on fuzzy logic. Preliminary results indicated that the crisp values of wind velocity and rainfall had an R2 value of 0.68 for AAMU location. A combination of one or more factors that will yield the highest value of R2 will be considered to develop the tools that are necessary to predict flood and drought at a local and regional scale.

Author: Mahbub Hasan

University Affiliation: Alabama A&M University

Co-Author(s): Teferi Tsegaye, Mezemir Wagaw and Garry Schaefer