Predicting Daily Water Levels Employing a Fuzzy Approach

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This work presents an application of fuzzy logic and fuzzy sets for predicting daily water levels at a cross section of the Colombian Magdalena River. This project is aimed at enhancing prediction capabilities of the general Flooding Warning System that Colombian National Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) is developing. This model uses expertise that employees of this Institute have gained by both studying and monitoring flooding levels at some cross sections of the Magdalena River. Thus, several rules are employed within a fuzzy inference model which is calibrated to predict daily water levels. Results suggest improvement of prediction capabilities as they are compared with those so far achieved by using current linear models. Further research needs to be advanced in this direction since for IDEAM, this study becomes a first fuzzy approach employed to improve performance of current hydroclimatological prediction models.