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Hydro-Climate variability and trend analysis in Jemma sub basin, upper blue Nile river, Ethiopia**Kidist Hilemical Gonfa***Addis Ababa University, Ethiopia*

For highly heterogeneous hydrological systems in a basin, characterizing hydro-climate at finer spatial resolution enhances water management at a local level. This study has been done to investigate the hydro-climate variability and trend of Jemma sub-basin. The variability and trends of the hydro-climate variables (i.e., rainfall and stream flow) of Jemma, represented by nine rainfall and two stream flow gauging stations, have been investigated. Statistical analysis such as Mann-Kendall test, Sen's slope estimator, and Standardized Rainfall Anomaly were used to characterize rainfall and stream flow variability and trend in the sub-basin. The results show that the sub-basin experienced normal to moderate variability in the annual and wet (June –September) season rainfalls. However, the Belg (February–May) short rainy season rainfall variability for all stations were significant. In the Belg season, about 67% of the stations showed a declining trend. The percentage of negative standardized rainfall anomalies ranged from 41 to 57%. From 1990 to 1998, and 2002 to 2008, Beressa has low annual and seasonal (Kiremt) flows. Robi-Lemi flow has high variability. The annual and seasonal stream flow's coefficient of variation was very high throughout the year and in both seasons. The decline in the Belg season rainfall and runoff demands intervention measures to ensure water and food security resilience in the basin.

Biography

Kidist Hilemical Gonfa (MSc), is a PhD student in Hydrology and Water Resource Management at Addis Ababa University. Kidist Hilemical Gonfa received in MSc. in Irrigation Engineering from Haramaya University (October 2008-October 2010) and BSc. in 'Land Resource Management and Environmental Protection' from Mekelle University (September 2000- July 2004), Ethiopia. From April 2011 until the present, she worked as a researcher at the Ethiopian Institute of Agricultural Research in the department of Natural Resource Management Research specifically in irrigation and water harvesting research program. Kidist Hilemical Gonfa a member and executive committee member of the Ethiopian Soil Science Society, and my research interests include natural resource management, soil and water conservation, watershed management, irrigation and drainage, hydrology, and water resource management, climate change.