

Investigating discharge and rainfall variability in an Amazonian watershed: Do any trends exist?

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Abstract A trend analysis of stream discharge from the upper Mertes watershed, southern Amazon, was performed using discharge and rainfall data in order to investigate the temporal variability of stream discharge, and relate it to associated rainfall variability. Non-parametric tests were done on daily, seasonal and annual discharge data. Frequency analysis using wavelet transform was also done. Results indicate increasing trends in discharge. The wavelet analysis identified dry periods; i.e. 1967–1975, 1982–1986 and 1993, which were followed by wet periods. In some cases, discharge increases could not be satisfactorily correlated to the rainfall. Further interpretation of the data for possible causes of streamflow changes is needed and discussion of the implications of these results in the context of climate change, deforestation and water resource management.

Key words trend analysis; streamflow; rainfall; Mann-Kendall test; wavelet transform