

H11G-0934 Trend Analysis of Rainfall and Streamflow in "Alto Teles Pires Watershed", Northern Brazil

Monday, December 15, 2014 08:00 AM - 12:20 PM
*Moscone West
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In recent decades the development of urban, industrial and agricultural activities, has led to a significant increase in water demand and decrease in both water quantity and quality in worldwide. Trends analysis is an important for the environmental diagnosis in watersheds, allowing evaluate how water bodies are responding through the years the growing anthropogenic interventions. The methodology is divided in graphical analysis and application of trend tests, where initially an exploratory analysis of data is performed, followed by confirmation through statistical tests. In this studied were analyzed the streamflow and rainfall of the "Alto Teles Pires Watershed", northern Brazil, in the period from 1977 to 2009. The Mann Kendall and Pettitt test were used to trends analysis and abrupt changes in the mean, respectively. The results showed in the ten rainfall stations studied significant negative trend mainly between May and July, but abrupt change was not observed. The streamflow also showed the significant negative trend in the three stations studied, with statistically significant changes, mainly in dry season. In addition to decreasing rainfall, the rapid population growth plus the increase of grain crops, has led to an appreciable increase in water consumption in the watershed for urban supply and irrigation, what is probably this fact that can be felt in the drier months in the streamflow. This watershed still do not suffer from the water problem, but if to keep increasing consumption plus the possible impacts of climatic changes, without prior and appropriate planning, which can be obtained, the watershed could suffer future problems regarding of water.

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