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Long-term changes in river system hydrology in Texas

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Climate change and water resources development are recognized as the two key factors that change long-term water budget, flow-frequency, and storage-frequency characteristics of different river systems.Texas is characterized by extreme hydrologic variability both spatially and temporally. Meanwhile, population and economic growth and accompanying water resources development projects have greatly impacted river flows throughout Texas.This research is based on using the Texas Commission on Environmental Quality (TCEQ) modeling system and Texas Water Development Board (TWDB) databases to explore the relative effects of climate change, water resources development, water use, and other factors on long-term changes in river flow, reservoir storage, evaporation, water use, and other components of the water budgets of different river basins of Texas.The results show that long-term changes are minimal from analyses monthly precipitation depths.Evaporation rates vary greatly seasonally, and for much of the state appear to have a gradually upward trend.River/reservoir system water budgets and river flow characteristics have changed significantly during the past 75 years in response to water resources development and use.