Climatic impacts produced by Salto Grande reservoir

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Summary

The Salto Grande Reservoir (ESG) is one of the largest hydroelectric dams in South America. While it has brought benefits, it has also led to debates about its social and environmental impacts, including climate impacts. The spatio-temporal monitoring of air temperature variations in ESG area allows to characterize the climatic impacts of the dam. In this study, we use the Earth surface temperature (LST) based on remote sensors and air temperature data measured in weather stations, to investigate the temperature changes caused by the ESG. The results show that, during the day, LST on the reservoir is between 3 °C and 5 °C lower than in the surrounding region, while LST during the night exhibits a temperature between 5 °C and 7°C higher. The changes in air temperature measured in neighboring meteorological stations were consistent with those of LST, but of minor magnitude. These effects are locally restricted (5km along the reservoir), but we alert about the use of climatic information from meteorological stations close to the ESG, to extrapolate in regional climatic studies.

Key words: Argentina; air temperature; Uruguay