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Amazon River and decadal solar cycle: Are they linked?

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It has been shown that tropical climates can be notably influenced by the decadal solar cycle; however, the relationship between this solar forcing and the tropical Amazon River has been overlooked in previous research. In this study, we reveal evidence of such a link by analyzing a 1903–2013 record of Amazon discharge. We identify a decadal flow cycle that is anticorrelated with the solar activity measured by the decadal sunspot cycle. This relationship persists through time and appears to result from a solar influence on the tropical Atlantic Ocean. The amplitude of the decadal solar signal in flow is apparently modulated by the interdecadal North Atlantic variability. Because Amazonia is an important element of the planetary water cycle, our findings have implications for studies on global change.