

More water stored along major rivers during El Nino years

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El Nino-Southern Oscillation (ENSO) - the semiperiodic climate event associated with warming sea surface temperatures off the coast of Peru - not only disrupts atmospheric circulations, dramatically altering weather patterns across the globe, but also may be determining the amount of fresh water stored on continents in tropical rainforests, according to a new study.

Phillips et al. used more than seven years of satellite-based observations of fresh water content of continents from the Gravity Recovery and [Climate Experiment](#) (GRACE) to show that between 2003 and 2010 the amount of fresh water stored on land (in terms of rain water, river water, lake, ground water, and snow) between the 15-degree north and 15-degree south latitudes depends on El Nino- Southern Oscillation. The authors also find that the effect of ENSO is strongest on land areas adjacent to the Pacific Ocean. The maximum increase in the amount of stored fresh water on land was observed during El Nino years along major [river valleys](#) in the Borneo region of southeast Asia, the Amazon, the Congo, and the Yangzte and Met Cong in China.

The authors suggest that these findings are not surprising given that meteorological conditions within 15 degrees north and 15 degrees south are sensitive to the location of the intertropical convergence zone (ITCZ) - a zone of low pressure that brings heavy convective rainfall along the tropics; its location is sensitive to the same ocean temperatures and [atmospheric circulation patterns](#) that ENSO disrupts. The authors feel confident that as more data become available, it would be possible to

predict water storage in other regions of the world, particularly in the Arctic region, where their preliminary study suggests that ice loss could be associated with El Nino events.

More information: The influence of ENSO on global terrestrial water storage using GRACE, *Geophysical Research Letters*, [doi:10.1029/2012GL052495](https://doi.org/10.1029/2012GL052495) , 2012

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