Predicting fire activity using terrestrial water storage data

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High fire activity periods in the Amazon region can be predicted months in advance on the basis of water storage data, a new study shows.

Chen et al. analyzed satellite observations of terrestrial water storage from the Gravity Recovery and Climate Experiment (GRACE) mission, along with satellite observations of fire activity from the Moderate Resolution Imaging Spectroradiometer (MODIS) mission.

GRACE measures the Earth's gravity field by calculating the distance between two satellites as slight variations in density pull on one satellite more than the other. The gravity measurements provide information about the amount of groundwater or surface water in a given region.

The researchers contrasted high and low fire years in the period from 2002 to 2011 and find that in high fire years, terrestrial water storage during the months before the fire season was generally below average, while in low fire years, water storage in the months before the dry season was generally above average.

This suggests that, at least qualitatively, water storage as measured by GRACE can provide information to help predict the severity of the fire season in the Amazon region several months in advance.

More information: Satellite observations of terrestrial water storage provide early warning information about drought and fire season severity in the Amazon, *Journal of Geophysical Research - Biogeosciences*,

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