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Satellites detect major decreases in Africa water

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By Adam Tanner

SAN FRANCISCO (Reuters) - A pair of orbiting satellites have surveyed the Earth's water in unprecedented detail, showing sharp decreases in parts of Africa over the past five years, scientists said on Tuesday.

"This is the first time we have been able to track these variations," Jay Famiglietti, an Earth system sciences professor at the University of California, Irvine, told the fall meeting of the American Geophysical Union. "It's a very sensitive indicator of climate change."

By detecting the gravitation pull of water, the Gravity Recovery and Climate Experiment, or GRACE, launched in 2002, measures water both above and below the Earth's surface, amounts that are in constant flux.

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The nearly five-year-old partnership between NASA and the German Aerospace Center has found that over a three-year period water storage along the Congo River Basin has decreased by nearly double the amount Africans consume annually, excluding irrigation, Famiglietti said.

The GRACE data also found drying along the Zambezi and Nile basins in Africa, and increases along the American Mississippi and Colorado River basins.

"We know that things go up and down so there is no cause for alarm," Famiglietti said, adding that scientists need a longer period of data to make more definitive conclusions.

CHANGING WATER PATTERNS

GRACE earlier this year showed Greenland's massive ice sheet is melting much quicker than estimated and that the Antarctic ice sheet was shrinking significantly. Many scientists are more concerned about these ice melting trends, in which they say global warming plays a significant role.

If properly used, GRACE's data could help people react to changing water patterns. For example, information about snow packs on mountains that will later melt could prove valuable to farmers.

"If you are a farmer downstream and you know that this year there is a lot of snow up there, then you can say well this is going to be a good year for crops," said Matt Rodell, a hydrologist at the NASA Goddard Space Flight Center.

"This is actually happening in Lake Chad. ...They can have a prediction based on GRACE a month or two or three in advance."

Yet the raw data is not easily digested by the layman.

"If you are a farmer and want to know what about my back yard right here, you really need to combine that with other data in these models," said Michael Watkins, GRACE's project scientist. "I'm not sure the typical person in Egypt would simply download the GRACE data. The local agencies need to work with that data."

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