

Groundwater supply being depleted throughout the world

By Devin Powell, Science News

SAN FRANCISCO – Groundwater levels have dropped in many places across the globe over the past nine years, a pair of gravity-monitoring satellites finds. This trend raises concerns that farmers are pumping too much water out of the ground in dry regions.

Water has been disappearing beneath southern Argentina, western Australia and stretches of the United States. The decline is especially pronounced in parts of California, India, the Middle East and China, where expanding agriculture has increased water demand.

“Groundwater is being depleted at a rapid clip in virtually of all of the major aquifers in the world’s arid and semiarid regions,” says Jay Famiglietti, a hydrologist at the University of California Center for Hydrologic Modeling in Irvine, whose team presented the new trends December 6 at a meeting of the American Geophysical Union.

Famiglietti and his colleagues detect water hidden below the surface using the modern equivalent of a dowsing rod: a pair of car-sized satellites, nicknamed Tom and Jerry, that are especially sensitive to the tug of gravity from below.

As the spacecraft chase each other around the planet like their cat and mouse namesakes, they are pulled apart and pushed together by areas of higher or lower gravity. Mountains and other large concentrations of mass have a big, obvious effect that’s consistent from month to month. But water moves around over time, creating small gravity fluctuations that the satellites’ orbital motions respond to.

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