## Selected Article

New search

Magazine section: In Brief

### Earth's gravity affected by Amazon water level

New Scientist vol 183 issue 2458 - 31 July 2004, page 14

SEASONAL changes in the mass of water in the Amazon river basin are nearly impossible to measure accurately from the ground because of the immense size of the river system. But such shifts can cause variations in the Earth's gravity field, and these have now been picked up by a pair of satellites.

The Amazon basin covers 5 million square kilometres. To measure changes in the amount of water in the basin, researchers from the University of Texas in Austin and the California Institute of Technology in Pasadena turned to GRACE - a pair of identical satellites orbiting 220 kilometres apart. When there is more mass below, due to greater levels of water for instance, the increased gravity pulls the satellites closer to Earth. The duo map the Earth's gravity field by sensing changes in each other's orbital motion to within a few micrometres.

In 2003, the team found that the Amazon basin had the most water in April and the least in October. And the ebbs and flows were different from what modellers had predicted (*Science*, vol 305, p 503). GRACE could also distinguish between variations in the amount of water in the Amazon basin from those of its smaller neighbour, the Orinoco basin, says UT Austin team member Srinivas Bettadpur. "It's amazing that GRACE can see the differences because, on a global scale, they are so close together."

New search