

# ENASA satellite finds Earth's clouds are getting lower

February 22 2012, By Alan Buis and Pauline Curtis

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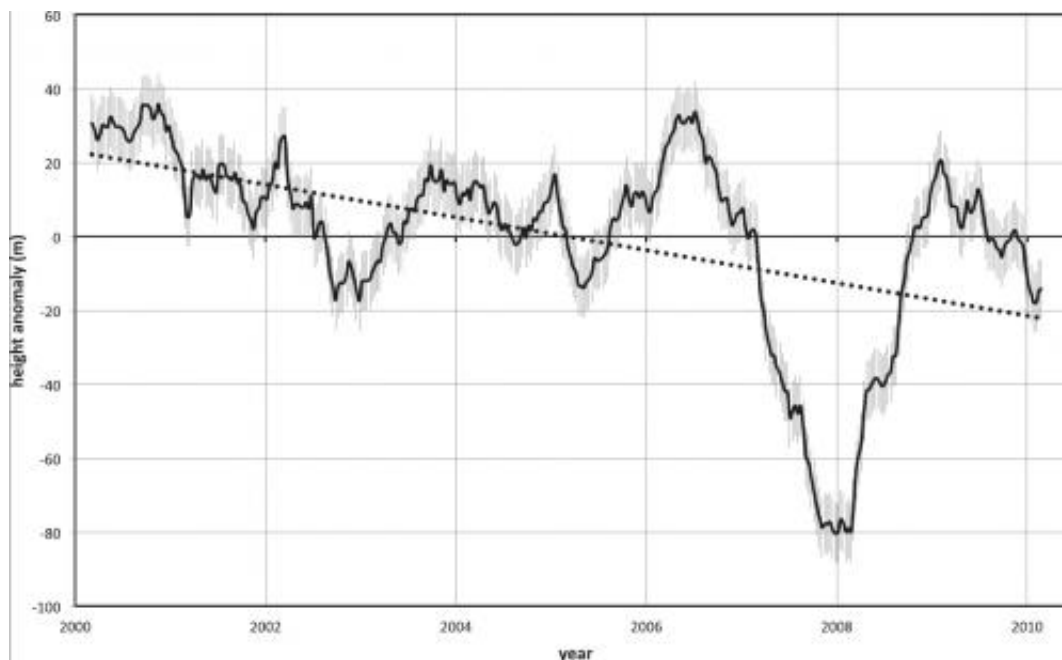


This image of clouds over the southern Indian Ocean was acquired on July 23, 2007 by one of the backward (northward)-viewing cameras of the Multi-angle Imaging SpectroRadiometer (MISR) instrument on NASA's polar-orbiting Terra spacecraft. Credit: NASA/JPL-Caltech

(PhysOrg.com) -- Earth's clouds got a little lower -- about one percent on average -- during the first decade of this century, finds a new NASA-

funded university study based on NASA satellite data. The results have potential implications for future global climate.

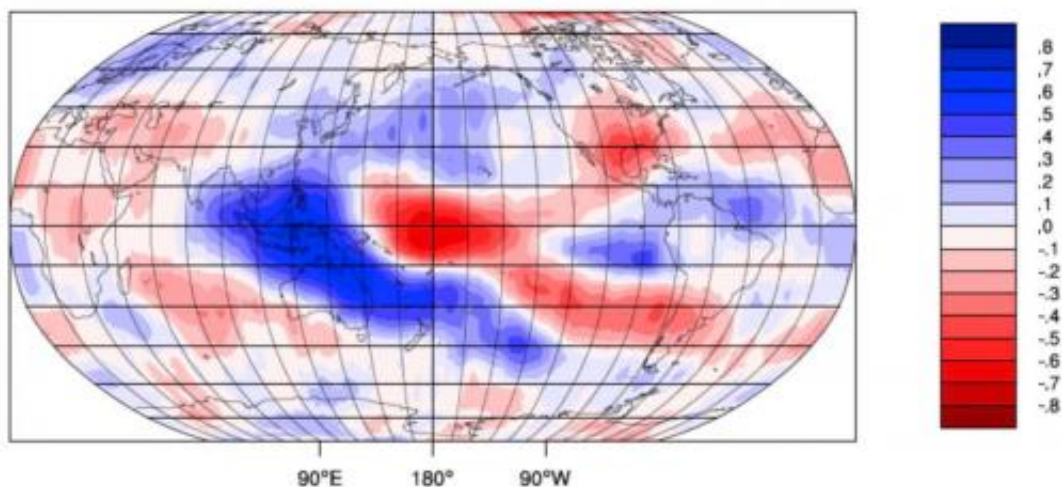
Scientists at the University of Auckland in New Zealand analyzed the first 10 years of global cloud-top height measurements (from March 2000 to February 2010) from the Multi-angle Imaging SpectroRadiometer (MISR) instrument on NASA's [Terra spacecraft](#). The study, published recently in the journal [Geophysical Research Letters](#), revealed an overall trend of decreasing cloud height. Global average cloud height declined by around one percent over the decade, or by around 100 to 130 feet (30 to 40 meters). Most of the reduction was due to fewer clouds occurring at very high altitudes.



Data from NASA's MISR instrument on NASA's Terra spacecraft show that global average cloud height declined by about 1 percent over the decade from 2000 to 2010, or around 100 to 130 feet (30 to 40 meters). Image credit: University of Auckland/NASA JPL-Caltech

Lead researcher Roger Davies said that while the record is too short to be definitive, it provides a hint that something quite important might be going on. Longer-term monitoring will be required to determine the significance of the observation for [global temperatures](#).

A consistent reduction in cloud height would allow Earth to cool to space more efficiently, reducing the surface temperature of the planet and potentially slowing the [effects of global warming](#). This may represent a "negative feedback" mechanism - a change caused by global warming that works to counteract it. "We don't know exactly what causes the cloud heights to lower," says Davies. "But it must be due to a change in the circulation patterns that give rise to cloud formation at [high altitude](#)."



Patterns that relate changes in cloud-top height with El Niño/ La Niña indicators. Image credit: University of Auckland/NASA JPL-Caltech

NASA's Terra spacecraft is scheduled to continue gathering data through the remainder of this decade. Scientists will continue to monitor the MISR data closely to see if this trend continues.

MISR, built and managed by NASA's Jet Propulsion Laboratory, Pasadena, Calif., is one of five instruments on NASA's Terra spacecraft, launched in December 1999. The instrument uses nine cameras at different angles to produce a stereo image of clouds around the globe, allowing measurement of their altitude and movement.

Another NASA mission that studies clouds is NASA's CloudSat, also built by JPL and launched in 2006. CloudSat is the first satellite that uses an advanced radar to "slice" through clouds to see their vertical structure, providing a completely new observational capability from space. CloudSat's primary goal is to furnish data needed to evaluate and improve the way clouds are represented in global models, thereby contributing to better predictions of clouds and thus to their poorly understood role in climate change and the cloud-climate feedback.

**More information:** For more information, visit:  
[www.auckland.ac.nz/uoa/home/news/2012-02-enasa-satellite-earth-clouds.html](http://www.auckland.ac.nz/uoa/home/news/2012-02-enasa-satellite-earth-clouds.html) .

Provided by JPL/NASA

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