

Scientists discuss new photo-taking satellite

DIRK LAMMERS, Associated Press

SIOUX FALLS, S.D. (AP) -- Nearly 120 scientists and engineers from around the world are meeting in South Dakota this week to discuss operational and technical issues with collecting images from the Landsat 8 satellite.

The U.S. Geological Survey's Earth Resources Observation and Science Center north of Sioux Falls collects, archives and makes available for download more than 400 data-filled images of the Earth each day. The center also partners with a network of ground stations across the globe that help download and distribute the data.

More than two dozen countries are represented at this week's meetings of the Landsat Ground Station Operators Working Group and the Landsat Technical Working Group in Sioux Falls, said Steven Labahn, the center's international ground station network manager.

"The international cooperators have some very local expertise and knowledge about these special areas," Labahn said "We share information that improves the entire data set."

Since 1972, Landsat satellites have been snapping pictures across the globe as part of a mission to document the planet. Satellites in the fleet have helped document forest fires, tsunamis and everyday changes in the Earth's geography.

NASA launched the newest addition, Landsat 8, in February, and the space agency handed over operational control of the satellite to the EROS Center a few weeks ago.

Adam Lewis, representing the Australian government at the meeting, said the photos help scientists see what is happening to the planet over time. "You can measure how much bare earth there is, and that tells you how well the land's being managed, whether it's being affected by drought, how much runoff there might be into rivers and oceans," said Lewis, the National Earth Observation group leader for Geoscience Australia.

Landsat 8 is working in tandem with Landsat 7, launched in 1999, to take pictures of each inch of the planet's surface every eight days. Landsat 7 continues to operate despite a faulty scan line corrector that leaves zigzag gaps in some images.

Landsat 5, which dates back to 1984, worked decades past its expected mission end but began failing in November.

The earlier generation satellites had limited capacity to store data, and the international ground stations were needed to regularly download information so the orbiters could keep snapping pictures. Landsat 8 has enough onboard storage to

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send all its images back to the South Dakota repository, but the stations are a backup in case the orbiter ever fails.

"That network is standing at the ready to bring images back," Labahn said. "We wouldn't have to lose the mission or the ability to capture images globally."

The international partners also use their local expertise to help calibrate the satellite's imagery, like zeroing out a bathroom scale.

When the Landsat is over Australia, for instance, it should capture the darkness of the man-made Lake Argyle while recording the bright color of Lake Frome, which is a shallow salt pan.

"We have nice clear atmosphere, so when the satellite's looking at those, there's no smog or other hazing to confuse the signal," Lewis said.

Ground stations can also help the satellite flight operations team gain telemetry about the health of the satellite while it's on the other side of the world, he added.

The new Landsat has several advantages over its still-functioning predecessor, which captures just 250 images a day.

Landsat 8 boasts two new spectral bands: one to see deeper into oceans, lakes and rivers, and another to detect cirrus clouds and correct for atmospheric effects. And its infrared band is split into two, allowing for more accurate surface temperature readings.

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