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SIOUX FALLS, S.D. (AP) — A new satellite hovering nearly 450 miles above the Earth appears to be working flawlessly as it embarks on a 10-year mission to document the planet's surface, scientists and engineers at the U.S. Geological Survey's Earth Resources Observation and Science Center said Monday.

Landsat 8 is sending more than 400 data-filled images per day back to the EROS center north of Sioux Falls, where they will be archived and made available for free download by scientists or anyone else who's interested.

The center's mission requires images to be publicly available within 48 hours of their capture, those most will be ready within 24 hours, said project scientist Tom Loveland.

The new orbiter has several advantages over its still-functioning predecessor Landsat 7, which captures just 250 images a day. Landsat 8 also boasts two new spectral bands, one to see deeper into oceans, lakes and rivers and another to

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detect cirrus clouds and correct for atmospheric effects, Loveland said.

The new satellite's infrared band is split into two, allowing for more accurate surface temperature readings, he added.

"It should really make a difference in our ability to map and characterize changes going on in the surface of the Earth," Loveland said.

NASA launched Landsat 8 into space in February. Since then, teams have been running it through a barrage of tests before placing the satellite into orbit 438 miles above the planet's surface.

"The spacecraft has been extremely healthy," said Jim Nelson, ground systems manager. "The instruments have performed really well."

The EROS Center, the main federal repository for satellite images, will officially take over the mission May 30 from NASA.

Since 1972, Landsat satellites have been continuously snapping pictures across the globe as part of a 40-year mission to document the planet.

Landsat 8, which is about the size of UPS truck with a 30-foot-long deployed sheet of solar panels, is stocked with a 10-year supply of fuel. It travels at a speed of 17,000 miles per hour.

Landsat 8 will work 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. Landsat 6 never reached orbit after its 1993 launch because of a ruptured manifold.

Nelson said the EROS Center has been preparing for the wave of new data, upgrading its ground station near Sioux Falls as well as partner facilities in Alaska and Norway.

It also overhauled its data processing and storage systems, "so we can get as much data as possible online for the users to get direct access to," Nelson said.

Loveland said there's a huge demand for the images in the scientific community, giving an example of a recent Brazilian Remote Sensing Symposium that drew more than 800 people looking to tap into the data.

"There's a great deal of planning going on from people ready to use the images," Loveland said.

The center used to charge for the images, but for years now, they've been free.

"When you put all this free stuff in universities, innovation happens," Loveland

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said."

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