Cassini spots mini Nile River on Saturn moon Titan

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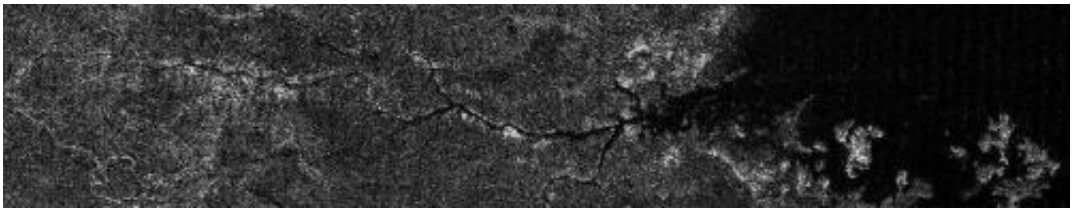

A miniature version of the Nile River, seen on Saturn's moon Titan by the international Cassini mission. The river valley stretches more than 400 km from its 'headwaters' to a large sea, and likely contains hydrocarbons. The image was acquired on 26 September 2012, on Cassini's 87th close flyby of Titan. The river valley crosses Titan's north polar region and runs into Kraken Mare, one of the three great seas in the high northern latitudes of the moon.

(Phys.org)—The international Cassini mission has spotted what appears to be a miniature extraterrestrial version of the Nile River: a river valley on Saturn's moon Titan that stretches more than 400 km from its 'headwaters' to a large sea.

It is the first time images have revealed a river system this vast and in such high resolution anywhere beyond Earth.

Scientists deduce that the river is filled with liquid because it appears dark along its entire extent in the high-resolution radar image, indicating a smooth surface.

"Though there are some short, local meanders, the relative straightness of the river valley suggests it follows the trace of at least one fault, similar to other large rivers running into the southern margin of this same Titan sea," says Jani Radebaugh, a Cassini radar team associate at Brigham Young University, USA.

"Such faults – fractures in Titan's bedrock – may not imply plate tectonics, like on Earth, but still lead to the opening of basins and perhaps to the formation of the giant seas themselves."

Titan is the only other world we know of that has stable liquid on its surface. While Earth's hydrologic cycle relies on water, Titan's equivalent cycle involves hydrocarbons such as ethane and methane.

Images from Cassini's visible-light cameras in late 2010 revealed regions that darkened after recent rainfall.

Cassini's visual and infrared mapping spectrometer confirmed liquid ethane at a lake in Titan's southern hemisphere known as Ontario Lacus in 2008.

"This radar-imaged river by Cassini provides another fantastic snapshot of a world in motion, which was first hinted at from the images of channels and gullies seen by ESA's Huygens probe as it descended to the moon's surface in 2005," says Nicolas Altobelli, ESA's Cassini Project Scientist.

The Cassini–Huygens mission is a cooperative project of NASA, ESA and ASI, the Italian space agency.

Provided by European Space Agency