This near-infrared, color mosaic from NASA's Cassini spacecraft shows the sun glinting off of Titan's north polar seas. While Cassini has captured, separately, views of the polar seas and the sun glinting off of them in the past, this is the first time both have been seen together in the same view. The sunglint, also called a specular reflection, is the bright area near the 11 o'clock position at upper left. This mirror-like reflection, known as the specular point, is in the south of Titan's largest sea, Kraken Mare, just north of an island archipelago separating two separate parts of the sea. This particular sunglint was so bright as to saturate the detector of Cassini's Visual and Infrared Mapping Spectrometer (VIMS) instrument, which captures the view. It is also the sunglint seen with the highest observation elevation so far -- the sun was a full 40 degrees above the horizon as seen from Kraken Mare at this time -- much higher than the 22 degrees seen in PIA18433. Because it was so bright, this glint was visible through the haze at much lower wavelengths than before, down to 1.3 microns. These wavelengths correspond to atmospheric windows through which Titan's surface is visible. The unaided human eye would see nothing but haze. Credit: NASA/JPL-Caltech/University of Arizona/University of Idaho

(Phys.org) — As it soared past Saturn's large moon Titan recently, NASA's Cassini spacecraft caught a glimpse of bright sunlight reflecting off hydrocarbon seas.

In the past, Cassini had captured, separately, views of the polar seas and the sun glinting off them, but this is the first time both have been seen together in the same view.

Also in the image:

— An arrow-shaped complex of bright methane clouds hovers near Titan's north pole. The clouds could be actively refilling the lakes with rainfall.

— A "bathtub ring," or bright margin, around Kraken Mare—the sea containing the reflected sunglint—indicates that the sea was larger at some point, but evaporation has decreased its size.

Titan's seas are mostly liquid methane and ethane. Before Cassini's arrival at Saturn, scientists suspected that Titan might have bodies of open liquid on its surface. Cassini found only great fields of sand dunes near the equator and lower latitudes, but located lakes and seas near the poles,
particularly in the north.

The new view shows Titan in infrared light. It was obtained by Cassini's Visible and Infrared Mapping Spectrometer (VIMS) on Aug. 21.

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. JPL, a division of the California Institute of Technology, Pasadena, manages the mission for NASA's Science Mission Directorate in Washington. The VIMS team is based at the University of Arizona in Tucson.

Provided by NASA

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