

Measuring the Depth of an Alien Sea

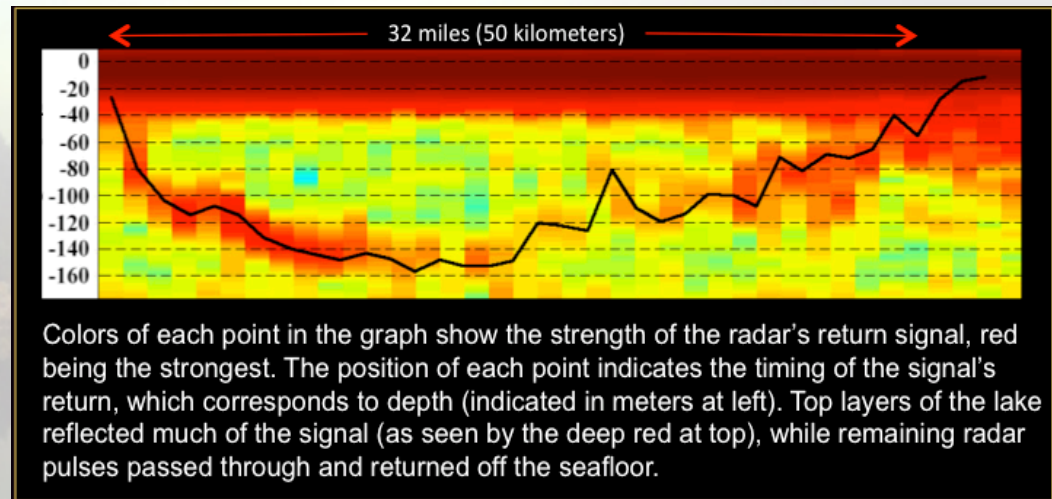
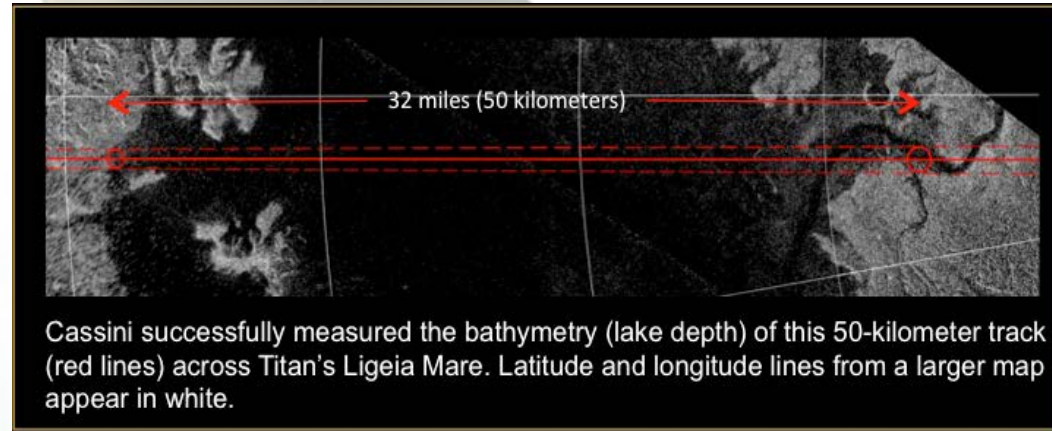
For the first time, scientists have plumbed the depths of a sea on another body in the solar system.

- On Saturn's moon, Titan, Cassini's radar obtained bathymetric (lake depth) measurements of Ligeia Mare, a sea larger than Lake Superior.

- The observation revealed that Ligeia Mare is up to ~560 feet (170 meters) deep and exceptionally transparent to radar. Normally, the radar, maps surface characteristics only. Its new use for bathymetry has opened the way for similar measurements of other Titan seas by Cassini.

- The measurement was possible because the methane-ethane lake is very pure, which allowed the radar signal to easily pass through, bounce off the seafloor and return to the radar instrument on Cassini.

- Analysis indicates that this liquid, somewhat similar to liquid natural gas on Earth, exists in Ligeia Mare at quantities about 40 times greater than the proven oil reserves on Earth.



"The Bathymetry of a Titan Sea", M. Mastrogiuseppe, et al., Geophysical Research Letters, 41, 1432-1437, 2014.