The Huygens probe landed with a "splat" last month on Saturn's moon, Titan, and planetary scientists worldwide let out a sigh. For decades, astronomers have arguing about whether or not Titan should be covered with deep oceans of liquid methane or other carbon-rich molecules.

Titan's thick atmosphere is nitrogen, with some methane, which is made up of one carbon atom and four hydrogen atoms. Carbon molecules can link together to make large molecules with backbones, rings, or even hollow spheres. Methane chemistry makes some familiar molecules in Titan's atmosphere: acetylene, ethane, propane. butane. On Earth, these burn because of all our oxygen. On Titan, some of these molecules form clounds, that may make rain, and lakes, and an ocean, and sticky goo miles deep. Or maybe not.

It was hard to tell if there are oceans or large seas on Titan since the methane chemistry also makes a Titan-wide smoggy cloud layer that the two Voyager spacecraft could not see through when they flew past in 1980 and 1981. In the last decades, astronomers have found wavelengths that they can use from the Earth to see Titan's surface, but we got no other close-up pictures until the Cassini spacecraft arrived last year. The Cassini spacecraft looks through Titan's haze with radar and infrared cameras that can look at wavelengths where the haze is more transparent. And the Huygens probe took remarkable pictures showing dark river channels running to shorelines of a dry lake or sea as it dropped onto Titan on January 14. Rather than a bone-dry Titan, or one that is wet all over, we have an active world with rain, clouds, river systems, erosion, the works.

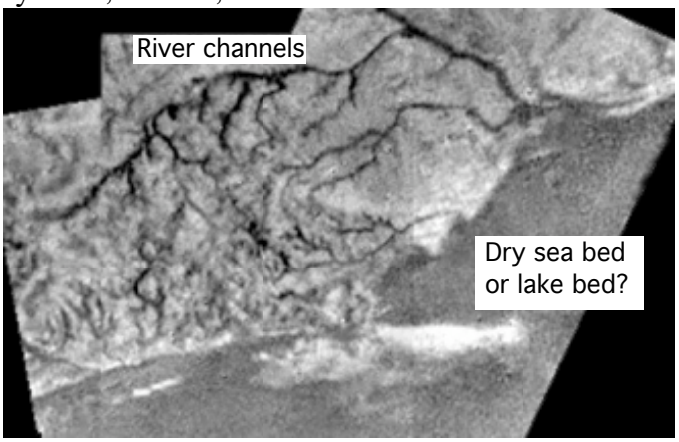

Image above: Mosaic of river channel and ridge area on Titan. Photo credit: ESA/NASA/JPL/Univ. of Arizona. (labels added by yours truly)

The Cassini spacecraft is still orbiting Saturn, as is Titan. I wrote about Saturn last month, and we can still see Saturn from Allenspark in February. It will visible in the evening sky over Orion's left shoulder, reaching it's highest just before 11 P.M. at the start of the month and just before 9 P.M. at the end.