A team of researchers affiliated with several institutions in the U.S. and one in France has found evidence that suggests the bright patches spotted on Titan's surface 20 years ago are dry lake beds. In their paper published in the journal *Nature Communications*, the group describes their study of data on the bright patches and what they learned from it.

Approximately 20 years ago, researchers studying Saturn's moon Titan found bright spots on its surface close to its equator—they called them anomalously specular radar reflections. It was suspected that such bright spots were likely lakes or seas, but when Cassini beamed back images of Titan in 2004, they found little evidence of liquid near the equator. The lakes (which were filled with methane and ethane, not water) on the moon, the second largest in our solar system, were all near the poles.

That left researchers going back to reassess the nature of the bright spots. In this new effort, the researchers assembled all of the available data on the bright spots from several observatories and from Cassini. After a lengthy analysis, they determined that the bright spots could only be one of three things: dry lake beds, settled rainfall or dunes. They eliminated rainfall as a possibility by noting rain has only ever been observed falling on the moon twice, making the possibility of giant rain puddles remote. They also excluded the possibility of large expanses of dunes because the weather on the moon only allows for their formation in other locations. That left dry lake beds as the only logical conclusion.

The theory that the bright patches are dry lake beds raises the question of what happened to the liquid that once formed the lakes over them. The researchers suggest it is possible that it moved from near the poles to other parts of the moon, but they also suggest that it could have evaporated and was destroyed by sunlight. They further suggest that future researchers looking for habitable planets need to be cautious when looking for evidence of liquid, because it could dry up.


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