

Evaluating the energy balance of Saturn's moon Titan

January 2 2012

To understand the weather and climate on Earth as well as on other planets and their moons, scientists need to know the global energy balance, the balance between energy coming in from solar radiation and thermal energy radiated back out of the planet.

The energy balance can provide interesting information about a planet. For instance, Jupiter, Saturn, and Neptune emit more energy than they absorb, implying these planets have an internal heat source. Earth, on the other hand, is in near equilibrium, with energy coming in approximately equaling energy going out, though a small energy imbalance can lead to global climate change.

Saturn's [moon Titan](#) is the only moon in the solar system with a thick atmosphere, and scientists have been interested in exploring ways in which Titan is similar to Earth.

To learn more about Titan, Li et al. calculated its energy balance. The absorbed energy has been measured by various telescopes and spacecraft; the emitted energy was recently measured by instruments onboard NASA's [Cassini spacecraft](#).

The authors compared total absorbed solar power with total emitted thermal power and find that the global energy budget of Titan is in equilibrium within the measurement error.

More information: "The global energy balance of Titan" *Geophysical*

Research Letters, [doi: 10.1029/2011GL050053](https://doi.org/10.1029/2011GL050053), 2011

Provided by American Geophysical Union

Citation: Evaluating the energy balance of Saturn's moon Titan (2012, January 2) retrieved 2 May 2024 from <https://phys.org/news/2012-01-energy-saturn-moon-titan.html>

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