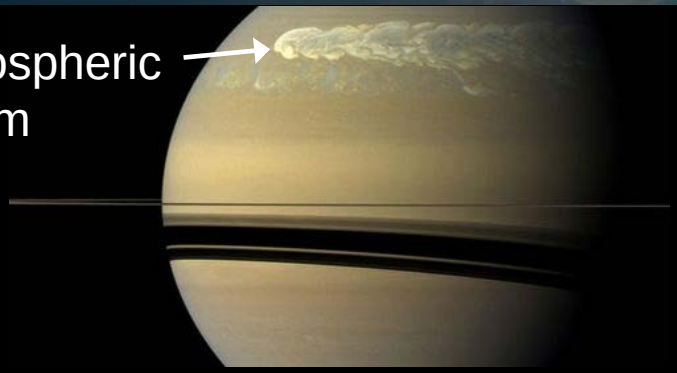
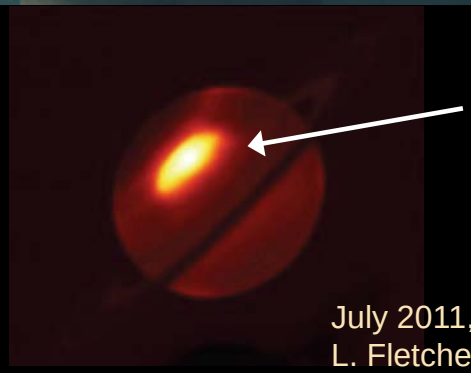
Massive Storm on Saturn Alters Upper Atmospheric Temperature, Chemistry, and Winds



NASA/JPL-Cassini ISS image: Feb. 25, 2011



Resulting stratospheric "beacon" region is hot and bright in the infrared

July 2011, VLT mid-IR image
L. Fletcher/Oxford/ESO

The giant storm that erupted on Saturn in 2010 perturbed atmospheric temperatures and composition at very high altitudes in a region nicknamed the "beacon." These high-altitude consequences of the storm were unexpected. Theoretical models (see plot at right) show that temperature changes alone cannot account for the altered chemistry in the beacon region, but that strong downwelling winds must also be present to explain the observed enhanced hydrocarbon abundances. These winds are reminiscent of *stratospheric sudden warming* events on the Earth.

See Moses et al. (2015), *Icarus 261*, 149.