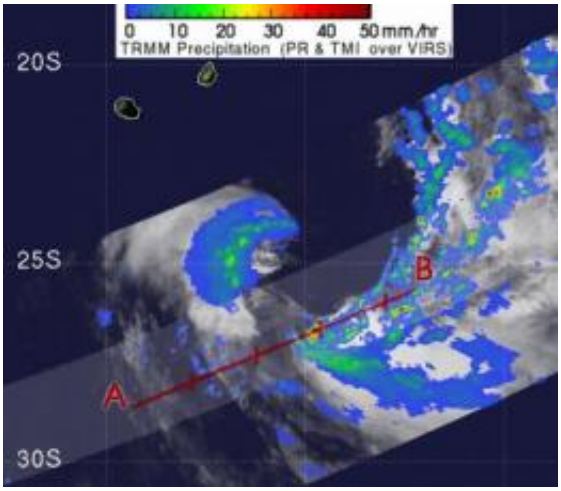
# 2 NASA satellites see TD11S going extra-tropical

January 29 2010




On Jan. 29 the Tropical Rainfall Measuring Mission (TRMM) satellite noticed light showers (green/yellow) continue to wrap into TD11S's low-level center from the southwest quadrant of the storm. Note the area devoid of rainfall is the opening in the circulation on the northwestern side of the storm. Credit: NASA/SSAI Hal Pierce

NASA's Tropical Rainfall Measuring Mission or TRMM satellite and NASA's Aqua satellite have observed the rainfall patterns and temperatures within Tropical Depression 11S, and they indicate the storm is becoming extra-tropical.

Tropical Depression 11S (TD 11S) had maximum sustained winds near 34 mph (30 knots) on January 29 at 09:00 UTC (4 a.m. ET). It was

located about 320 nautical miles southeast of La Reunion Island, near 25.5 South and 59.8 East. It was moving southeast near 11 mph (10 knots).

The TRMM satellite, managed by both NASA and JAXA, took a look at the rainfall happening within TD 11S and noticed some shallower convection (showers and thunderstorms) continues to wrap into the storm's low-level center from the southwest quadrant of the storm. Despite the convection, TD11S's center is now fully exposed from the west which means that drier air or wind shear can enter into the storm and weaken it.

Another factor affecting the storm is an upper-level low, which is northwest of the 11S's center. That upper-level low is actually suppressing more convection in TD11S.

NASA's Aqua satellite passed over TD 11S and the Advanced Microwave Sounding Unit (AMSU-A) instrument aboard it measured the temperatures within TD 11S. AMSU-A a 15-channel microwave sounder designed primarily to obtain temperature profiles in the upper atmosphere (especially the stratosphere) and to provide a cloud-filtering capability for tropospheric temperature observations.

On January 28 at 1400 UTC (9:00 a.m. ET) AMSU-A showed that the lower-level center of the storm has a warm core center and that a cold core has developed aloft, which indicates that TD 11S may have already become more subtropical in nature.

A conversion to "extratropical" status means that the storm eventually loses its warm core and becomes a cold-core system. During the time it is becoming extratropical the cyclone's primary energy source changes from the release of latent heat from condensation (from thunderstorms near the storm's center) to baroclinic (temperature and air pressure)

processes. When a cyclone becomes extratropical it will usually connect with nearby fronts and or troughs (extended areas of low pressure) consistent with a baroclinic (pressure) system. When that happens it appears the system grows larger while the core weakens.

TD11S isn't threatening any land areas, and is forecast to complete its transition to an extra-tropical storm over the weekend.

Provided by NASA's Goddard Space Flight Center