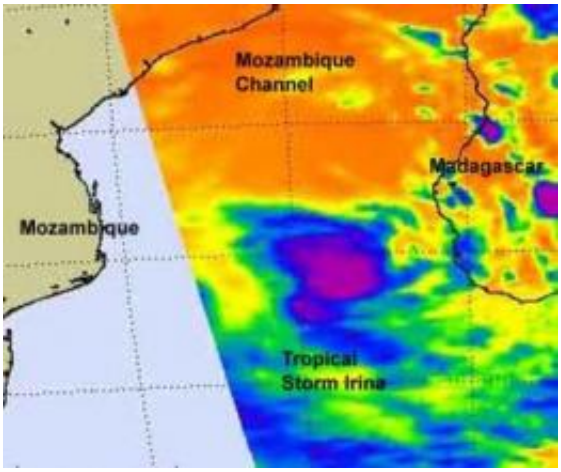
NASA sees tropical storm Irina hit by wind shear, headed for Mozambique

March 2 2012



NASA's Aqua satellite's MODIS instrument captured this infrared image of Tropical Cyclone Irina now over the Mozambique Channel on March 2, 2012 at 1041 UTC (5:41 am EST). Irina is almost half-way to Mozambique, where it is expected to make landfall early on March 5, 2012. Credit: Credit: NASA Goddard MODIS Rapid Response Team

The AIRS instrument on NASA's Aqua satellite provided forecasters with an infrared look at what was happening "under the hood" of Tropical Storm Irina's clouds and saw two reasons why it temporarily weakened before moving into the Mozambique Channel and heading for landfall in Mozambique in a couple of days.

WHY DID IT WEAKEN?

NASA's Aqua satellite's Atmospheric Infrared Sounder (AIRS) instrument captured an infrared image of Tropical Cyclone Irina over the Mozambique Channel on March 1, 2012 at 0130 UTC (8:30 p.m. EST, Feb. 29). At that time, the strongest thunderstorms were around the center of circulation and had become much smaller in area and displaced from the center as a result of interaction with the land of southwestern Madagascar and wind shear, respectively.

WHERE IS IRINA?

On March 2, 2012 at 1500 UTC (5 p.m. local time) the center of Irina was in the Mozambique Channel, almost half-way to Mozambique. The distance between Toliara, Madagascar and Maputo, Mozambique across the channel is 719 miles (1,158 km). It was located 425 nautical miles (489 miles/787 km) northeast of Maputo, Mozambique, near 24.5 South and 39.6 East.

NASA AIRS scientist Ed Olsen at NASA's Jet Propulsion Laboratory in Pasadena, Calif. looked at the last two days of satellite imagery. Olsen said, "If you compare the satellite microwave imagery from the Aqua satellite's ascending pass of March 2 with that from descending pass of March 1, you can see that the strongest convection cell (which was just on the west coast of Madagascar) has disappeared. Also, the rain band structure has also disappeared. However, on March 2 you see a strengthening convection cell in the Mozambique Channel at about 41 East, 25 South. This may be the indication of the final intensification before landfall in Mozambique. The structure of the storm is very asymmetrical and there is no 'warm core,' which would indicate strong convection in the circulation center."

NASA AIRS infrared satellite imagery on March 2 showed Irina's low-level circulation center is now partially exposed to outside winds, making

it open for weakening by wind shear. Olsen said that the infrared satellite data agrees with the microwave satellite data, and shows the main area of showers and thunderstorms are now southeast of the center, which means that wind shear from the northwest are taking a toll.

HOW DOES WIND SHEAR AFFECT CYCLONE IRINA?

Think of a cyclone as a haystack. Its circular winds are "stacked" up on top of each other at different heights in the atmosphere. When wind shear enters the picture, it's like having a giant fan blowing at one height, say the middle of the haystack. When that happens, the haystack, like the tropical cyclone cannot support itself and becomes structurally weaker. That's what has happened with Irina today. However, wind shear is expected to wane in the next two days.

Maximum sustained winds are currently near 50 knots (~58 mph/~93 kph), weaker than yesterday because of the storm center's close proximity to the southwestern coast of Madagascar and because it drifted closer to an area of higher wind shear (up to 20 knots/23 mph/37 kph).

However, Irina continues moving away from the coast at 17 knots (~20 mph/~32 kph), so it is expected to intensify because of the warm waters in the Mozambique Channel over the next day or two. Irina is expected to intensify slightly, but remain a tropical storm until it makes landfall.

CURRENT FORECAST TRACK

Irina is expected to begin affecting coastal Mozambique before 1200 UTC (2 p.m. Local time, Mozambique) on March 3, with rough surf, gusty winds and moderate to heavy rainfall. Irina is currently creating

seas of 20 feet (~6 meters) in the southern Mozambique Channel, and those rough seas that will affect the Mozambique coast.

The Joint Typhoon Warning Center forecasts Irina to track along the southeastern coast from Inhambane, Quissico, Chibuto and move inland just north of Maputo by March 5 at 0000 UTC (just after midnight local time on March 5) so it will be an overnight landfall. It is then expected to move west-southwest and dissipate quickly over Mozambique.

Provided by NASA's Goddard Space Flight Center