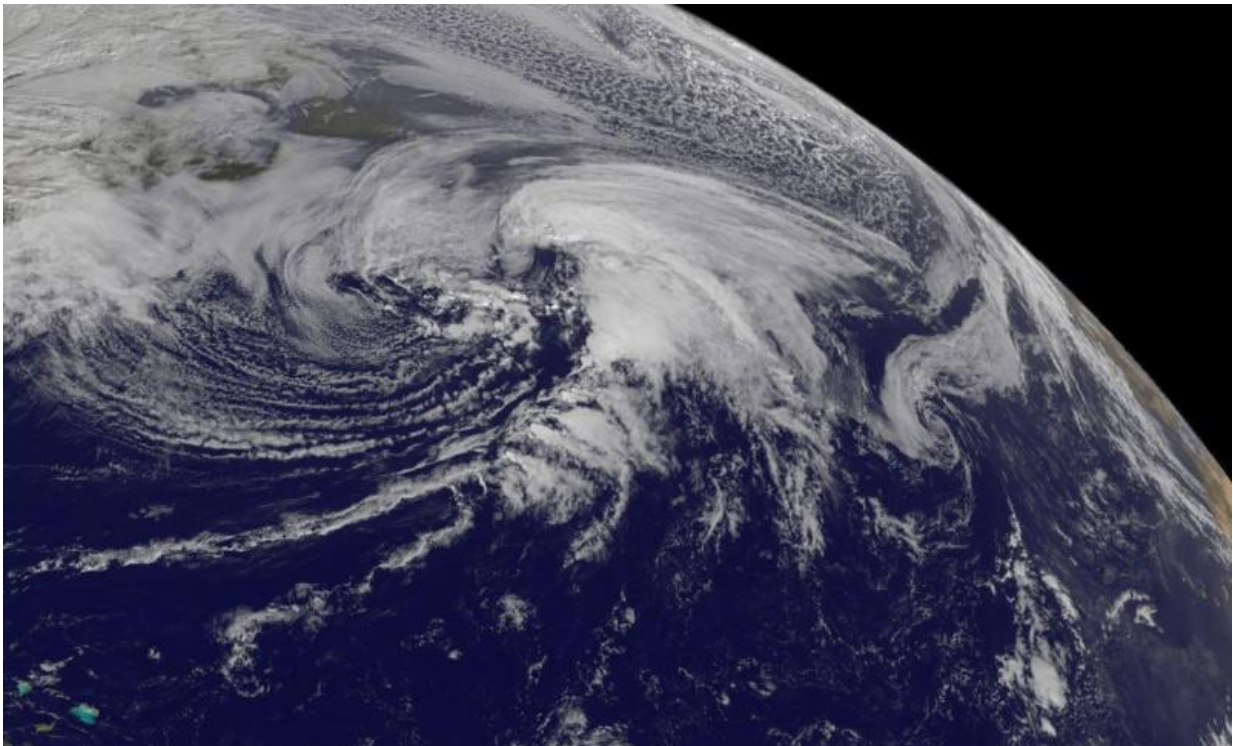


NASA spies Extra-Tropical Storm Kate racing through North Atlantic

November 12 2015, by Rob Gutro



This NOAA GOES-West satellite visible image extra-tropical storm Kate shows the storm over 400 miles southeast of Newfoundland, Canada. Credit: NASA/NOAA GOES Project

On November 12 at 4 a.m. EST the National Hurricane Center issued the last advisory on Extra-Tropical Cyclone Kate, located several hundred miles south-southeast of Cape Race, Newfoundland. NOAA's GOES-

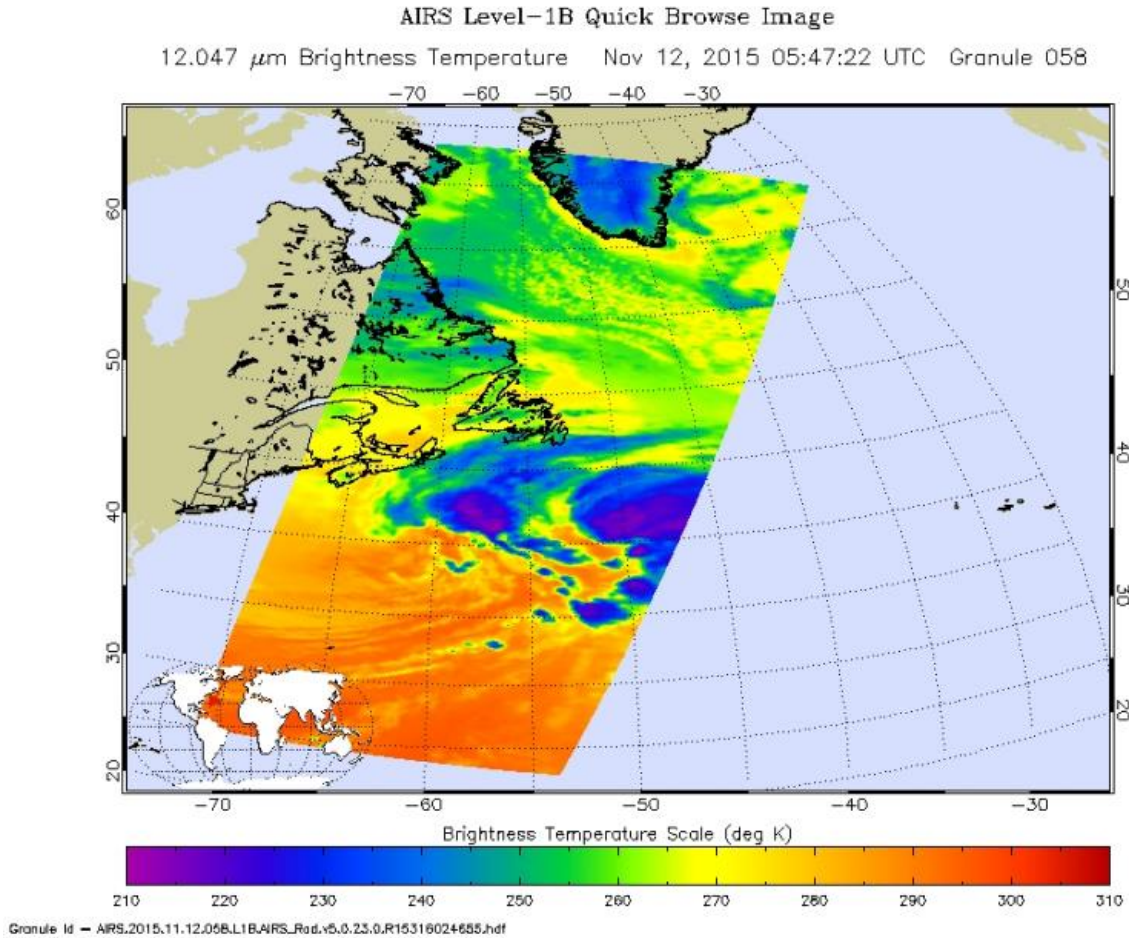
East satellite captured a visible light image of the storm.

A NOAA GOES-West satellite visible image extra-tropical [storm](#) Kate on Nov. 12 at 1445 UTC (9:45 a.m. EST) showed the storm over 400 miles southeast of Newfoundland, Canada. Most of the clouds associated with the post-tropical storm were north and east of the center. Forecaster Beven of the National Hurricane Center said, "Satellite imagery indicates that Kate has merged with a baroclinic zone over the north Atlantic and is now an extratropical cyclone."

Kate Reached Hurricane Strength

On Nov. 10, the RapidScat instrument that flies aboard the International Space Station saw Hurricane Kate north of the Bahamas and its strongest winds were north of the center. Maximum sustained winds in both areas were as strong as 30 meters per second (67 mph/108 kph). On Nov. 11, those winds increased to hurricane force. Hurricane force winds extended outward up to 35 miles (55 km) from the center and tropical storm force winds extend outward up to 205 miles (335 km).

At 10 a.m. EST (1500 UTC) on Nov. 11 the center of Hurricane Kate was located near latitude 36.8 North, longitude 60.5 West. That put Kate's center about 395 miles (635 km) northeast of Bermuda and about 780 miles (1,260 km) south-southwest of Cape Race Newfoundland.



On Nov. 12 at 05:17 UTC (12:17 a.m. EST) infrared imagery from the AIRS instrument aboard NASA's Aqua satellite showed fragmented strong storms east and north of Kate's center where cold cloud top temperatures were near -63F/-53C (purple). Credit: NASA JPL, Ed Olsen

An Infrared Look at Kate

On Nov. 12 at 05:17 UTC (12:17 a.m. EST) infrared imagery from the Atmospheric Infrared Sounder or AIRS instrument aboard NASA's Aqua satellite showed fragmented strong storms east and north of Kate's center where cold cloud top temperatures were near -63F/-53C. Storms

with cloud tops that cold (and high in the troposphere) have been shown to generate heavy rain.

Aqua satellite showed fragmented strong storms east and north of Kate's center.

Kate Weakens and Becomes Extra-Tropical

At 4 a.m. EST on Nov. 12, Kate was classified as an extra-tropical storm. That means that a tropical cyclone has lost its "tropical" characteristics. The National Hurricane Center defines "extra-tropical" as a transition that implies both poleward displacement (meaning it moves toward the north or south pole) of the cyclone and the conversion of the cyclone's primary energy source from the release of latent heat of condensation to baroclinic (the temperature contrast between warm and cold air masses) processes. It is important to note that cyclones can become extratropical and still retain winds of [hurricane](#) or tropical storm force.

At 4 a.m. EST on Nov. 12, Kate's maximum sustained winds were near 60 knots (70 mph). Kate was centered near 40.7 degrees north latitude and 50.8 degrees west longitude, about 430 miles south-southeast of Cape Race, Newfoundland, Canada. Kate was moving to the east-northeast at 23 knots (26 mph). Minimum central pressure was 983 millibars. The post-tropical cyclone is expected to accelerate toward the east-northeast and northeast.

Kate's Fate

The National Hurricane Center expects extra-tropical storm Kate to continue weakening, but slowly over the next couple of days. The NHC forecast keeps maximum sustained winds near 45 knots (50 mph)

through Nov. 15 and by Nov. 16, Kate is expected to become absorbed by an extra-tropical low pressure area.

Additional information on this system can be found in High Seas Forecasts issued by the National Weather Service at <http://www.opc.ncep.noaa.gov/shtml/NFDHSFAT1.shtml>.

Provided by NASA's Goddard Space Flight Center

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