



Hurricane Sandy's Transition to a Post-Tropical Cyclone

The National Hurricane Center (NHC) issues advisories, forecasts, and warnings on tropical cyclones - the generic term for hurricanes, tropical storms, and tropical depressions. Sometime prior to making landfall, Hurricane Sandy is expected to lose its characteristics as a tropical cyclone and take on the structure of a wintertime low-pressure area. Because the National Hurricane Center only issues advisories on tropical cyclones, there will be changes in the flow of information coming out of the NWS when this transition occurs.

The primary difference between a tropical cyclone and a wintertime cyclone is the energy source. Tropical cyclones extract heat from the ocean and grow by releasing that heat in the atmosphere near the storm center. Wintertime cyclones (also called extratropical or frontal lows), on the other hand, get most of their energy from temperature contrasts in the atmosphere, and this energy usually gets distributed over larger areas. Because of these differences, tropical cyclones tend to have more compact wind fields, tend to be more symmetric, and have a well-defined inner core of strong winds. Wintertime lows have strong temperature contrasts or fronts attached to them, have a broader wind field, and more complex distributions of rain or snow.

The official NWS term for a tropical cyclone that has evolved into something else is "Post-tropical cyclone", where the *post* in post-tropical simply means *after*. Thus, once Sandy loses its tropical cyclone status it will be known as "Post-tropical Cyclone Sandy" in NWS products. Some aspects of this transition are already occurring, and NWS forecasts of storm impacts are based on this expected evolution. Regardless of when this transition formally occurs, Sandy is expected to bring significant wind, surge, rainfall and inland flooding hazards over an extremely large area, and snowfall to more limited areas.

Because Sandy is expected to make this transition before reaching the coast, the NWS has been using non-tropical wind watches and warnings, issued by local NWS Weather Forecast Offices (WFOs), to communicate the wind threat posed by Sandy in the Mid-Atlantic States and New England. (This is why NHC's tropical storm warnings extend only into North Carolina.) The NWS plans to continue using non-tropical watches and warnings issued by local offices in the Mid-Atlantic States and northward throughout this event. By using non-tropical warnings in these areas from the start, we avoid or minimize the significant confusion that could occur if the warning suite changed from tropical to non-tropical in the middle of the event.

When NHC determines that Sandy has become post-tropical, NHC advisory products will cease. The NWS will ensure a continuing flow of information through the following:

- NWS WFOs will continue, as they already are, to provide detailed information on local impacts through their regular products. The non-tropical watches and warnings that are in place at the time will remain in effect through the transition.
- The Hydrometeorological Prediction Center (HPC) will take over issuance of Public Advisories on Post-tropical Cyclone Sandy every six hours, under the same product

headers as NHC Public Advisories. The HPC Public Advisories will include similar information to the NHC Public Advisory on the current location and strength of the storm, as well as information on the various hazards (wind, surge, and precipitation). The HPC Public Advisories will also contain a track forecast.

- Assuming Sandy becomes post-tropical while its center is still over water, the Ocean Prediction Center (OPC) will discuss the storm in its Marine Weather Discussion. The Marine Weather Discussion will also include the same track forecast contained in the HPC Public Advisory.
- OPC will host a web page for storm support. This page will contain a graphic showing the forecast track of the storm and other information specific to Sandy.
- While NHC's web page will no longer display forecast information about Sandy once responsibility is transferred to other offices, the NHC web page (www.hurricanes.gov) will prominently display a collection of links to the other offices' products, such as HPC's Public Advisories and precipitation forecast graphics, OPC's support page and their Marine Weather Discussion, storm surge information from NOAA's Meteorological Development Laboratory, current water levels data, and regional weather graphics from weather.gov.
- NHC will continue to lead the coordination between NHC, HPC, OPC, and the WFOs throughout the event to ensure consistency of information throughout the NWS.
- NHC will continue to lead the NWS's coordination with FEMA.

In the event Sandy remains a tropical cyclone through landfall, NHC advisories and products would of course continue. There would be no transition, however, from non-tropical wind warnings issued by the WFOs back to Tropical Storm or Hurricane Warnings issued by NHC, since both sets of warnings describe the same wind hazard.

Contact: NHC Public Affairs nhc.public.affairs@noaa.gov

October 27, 2012