The Front

NOAA's National Weather Service | December 2015

Inside

CoCoRaHS Members Provide Vital Climate Information
2

NWS Now Provides Real-Time Mesoscale Analysis (RTMA): Alternative Temperature Report
4

Strong El Niño Expected to Continue Through Winter 2015-16
5

The Storm Prediction Center's New Severe Thunderstorm Risk Categories Graphic

By Jim Reynolds, Meteorologist-in-Charge NWS Brownsville, TX

Pilots now have a new way to more accurately understand the severity of thunderstorms forecasted for an intended route of flight.

In April, the Storm Prediction Center (SPC) released the graphic that you see in Figure 2 (see Page 2), which concisely describes the areal extent and weather hazards associated with five increasing levels of severe thunderstorm risk.

The new severe thunderstorm risk graphic is a big step forward in aviation safety. It was designed to help pilots make "go/no go" decisions when there is the potential for thunderstorm development. While few pilots should probably attempt to fly through "3—Enhanced (ENH)" areas of severe thunderstorms or greater, more skilled pilots might consider flying in areas labeled "1 – Marginal (MRGL)" or "2 – Slight (SLGT)." Figure 1, below, displays an SPC

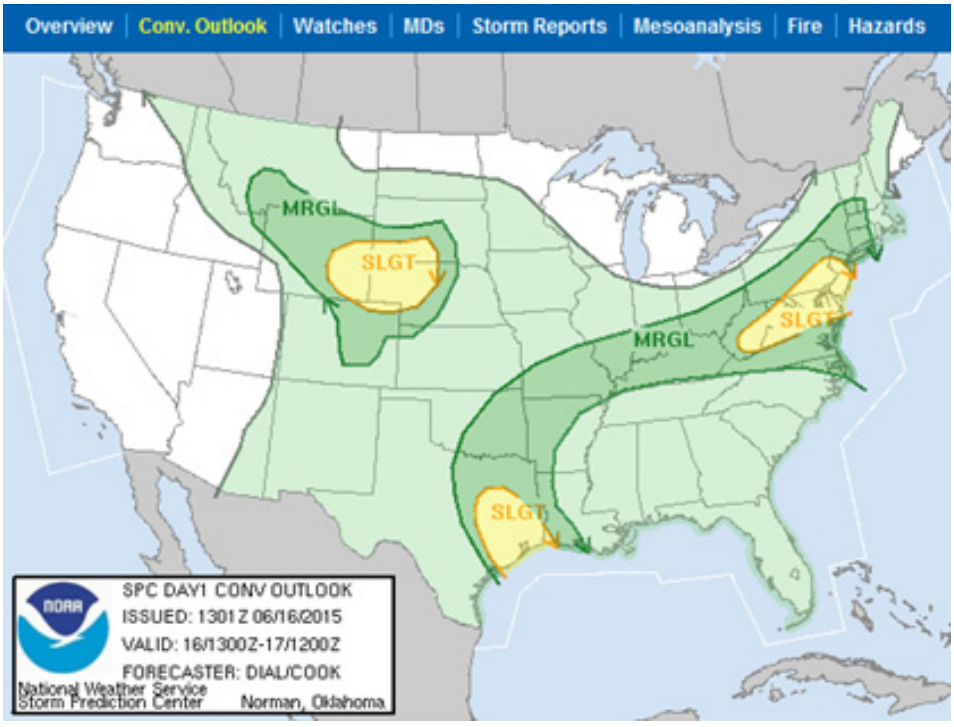


Figure 1

The Front

When's the Next *Front?*

Subscribe or unsubscribe

Program Manager: Michael Graf
Managing Editor: Melody Magnus
Editor: Nancy Lee

Mission Statement

To enhance aviation safety by increasing the pilot's knowledge of weather systems and processes and National Weather Service products and services.

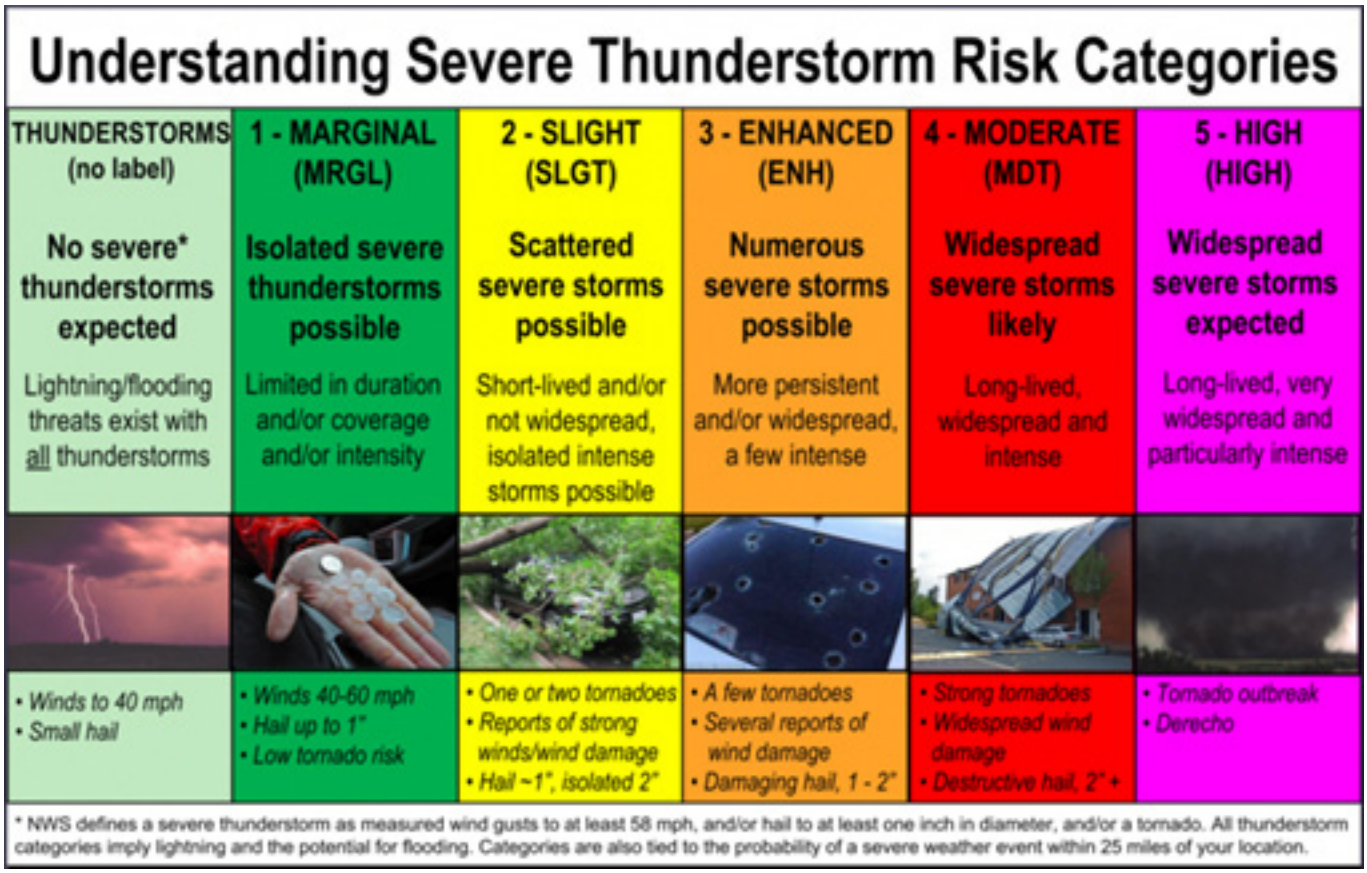


Figure 2

Convective Outlook/Severe Thunderstorm Risk graphic showing how the different levels of risk look on a map when thunderstorms are predicted anywhere in the continental United States. In this example on June 16, 2015, scattered severe thunderstorms were possible over portions of the north central Plains, east Texas, and Washington, D.C.

To find this graphic, go to the SPC website, then click on the "Conv. Outlook" tab above the map.

NWS Now Provides Real-Time Mesoscale Analysis (RTMA): Alternative Temperature Report

By Mike Graf, Meteorologist, NWS Aviation Service Branch, Silver Spring, MD

Automated weather observation systems provide surface weather reports at many U.S. airports. Systems such as the Automated Surface Observing System (ASOS) or Automated Weather Observing System (AWOS) have reliably provided surface weather reports at airports for more than 25 years. But occasionally the temperature sensors on these automated systems have been known to fail. The majority of the failures have been related to the temperature sensors. While larger airports use human weather observers to back up automated weather systems, many smaller regional airports cannot afford this option. So if a temperature sensor fails, it can cause delays, diversions and cancellations in air carrier operations.

In 2015 the FAA solicited the assistance of the NWS in developing an alternative report of surface temperature that certificate holders, pilots and aircraft dispatchers could easily use. The NWS responded by developing an RTMA surface temperature report that provides a simple hourly report of surface temperature at an airport every hour, 24 hours a day.

RTMA surface temperature reports are now available at approximately 540 14 CFR part 139 airports at which air

carrier operations could be conducted. An RTMA satisfies the Regulatory Requirements for Surface Temperature at the Airport of Operation. RTMA surface temperature reports are provided by the NWS; therefore, they fall under the category of "Weather Reports Prepared by the NWS."

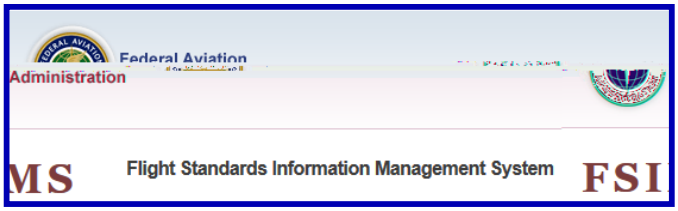
A certificate holder does not require additional operations specification (OpSpec) authorization to use an RTMA. The airport can use an RTMA Surface Temperature Report as an alternative during automated temperature sensor failure where there is no human backup.

The NWS and the FAA have worked in partnership to make the RTMA available to certificate holders as an alternative report of surface temperature in the event there is an ASOS or AWOS sensor failure and no human backup or augmentation is available.

When temperature is being reported by an ASOS, AWOS, human weather observer, or automatic terminal information service (ATIS), these reports of surface temperature take precedence over the temperature reported in an RTMA.

Part 135: Operations at Airports without Weather Facilities

For Part 135 operations that do not require weather facilities or weather reports at the airport of operation, Part 135 certificate holders and operators may use an RTMA surface temperature report, where provided, at an airport that does not have an automated weather system, a human weather observer, or when the sensors on an automated system fail to report temperature.



Information regarding part 135 operations at airports without weather facilities is in FAA Order 8900.1, Flight Standards Information Management System (FSIMS), Volume 3, Chapter 26, Section 2. You can find this notice in the following places.

- Pilots: MyFAA employee Website: The site's date should be 6/1/2015.
- For Inspectors, air carriers or operators: FAA FSIMS Website.
- Public on the FAA's Orders and Notices website.

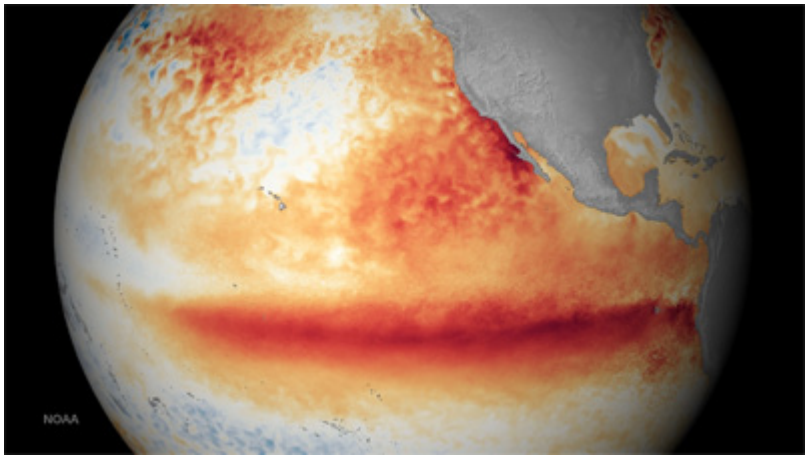
RTMAs are available at the following at http://nomads.ncep.noaa.gov/pub/data/nccf/com/rtma/prod/airport_temps/.

To ensure you access the most current RTMA, you may need to clear the cache memory on your computing device or refresh your browser (e.g., Windows, control F5, Mac/Apple R or command R or Linux F5, etc.) when accessing RTMAs throughout a particular day.

Strong El Niño Expected to Continue Through Winter 2015-16

By Roger Smith, Meteorologist, CWSU Albuquerque, NM

The current El Niño event is looking strong and may turn out to be one of most powerful events since 1950. The August-September 2015 Multi-Variate Index (MEI), one of the indices used to measure the strength of El Niño episodes, was 2.53, the second highest August-September number on record, surpassed only by the 1997-1998 El Niño. The 1997-1998 El Niño is regarded as one of the strongest El Niño events of the 20th century.



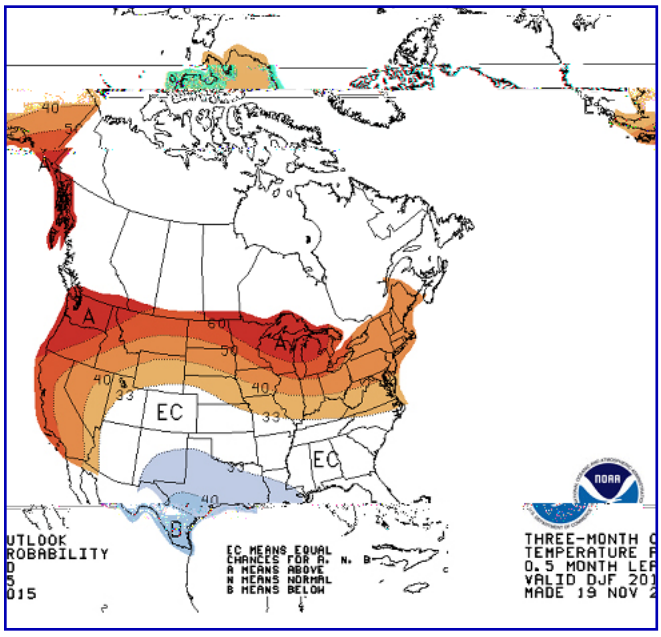
October 2015 NOAA image of departure from normal of sea surface temperatures

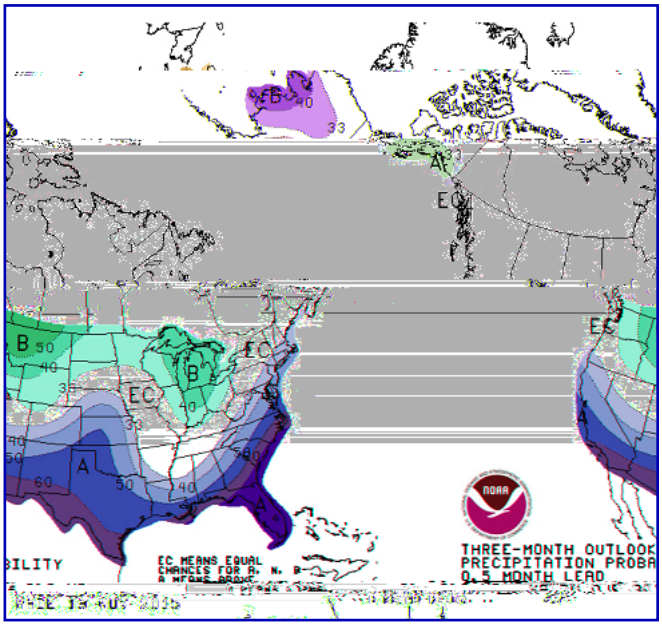
A typical El Niño produces changes in global weather patterns that increase the odds for cooler and wetter weather for the southern tier and warmer weather for the Pacific Northwest.

The El Niño winter of 1997-1998 produced severe flooding in California. The 1997-1998 winter (Dec.-Feb.) ranks as the 5th wettest winter in California during the period from 1895-1998. Severe flooding also occurred in the Southeast during the winter of 1997-1998. That winter, Florida and South Carolina had their wettest winters on record; Georgia and North Carolina had their second wettest winter.

The effects of El Niño events can vary. There are so few strong El Niño events on record that to compare this year's El Niño to previous strong events could lead to an inaccurate forecast.

Below are the U.S. winter outlooks for temperature and precipitation from the experts at NOAA's Climate Prediction Center.





News You Can Use

CoCoRaHS Members Provide Vital Climate Information

By Roger Smith, Meteorologist, CWSU Albuquerque, NM

The Community Collaborative Rain, Hail and Snow Network (CoCoRaHS) is a volunteer organization made up of weather enthusiasts in the United States and Canada who collect and report weather data.

CoCoRaHS was created after a devastating flash flood hit the Fort Collins, CO, area on July 28, 1997. Up to 12 inches of rain fell on that day, causing several flash flood related fatalities and approximately $200 million in property damage.

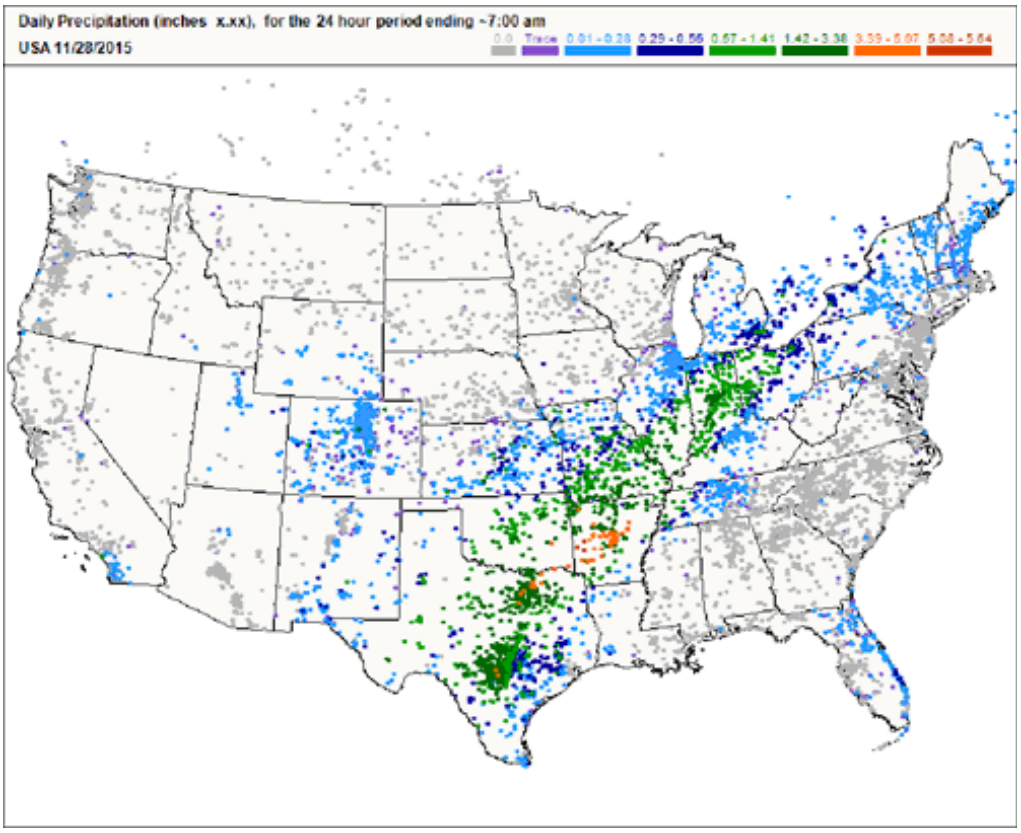
The sparse official observations points in the Fort Collins area did not give forecasters and emergency managers an accurate picture of what caused the severe flooding so they reached out to the public for information. Local residents contributed a wealth of information, many of the reports from their own backyards.

Seeking to tap this resource in a more organized way, in the spring of 1998, the Colorado Climate Center at Colorado State University announced plans to develop a network of volunteers who would report rain and hail observations on a daily basis. Within a few days, more than 150 people signed up.

The network expanded rapidly and now includes more than 20,000 volunteers, with members in all U.S. states and Canadian provinces reporting rainfall, hail and snow depth. There is even a CoCoRaHS reporting station at the White House on the South Lawn, monitored by the White House horticultural staff.

CoCoRaHS observers file their reports in the morning with the majority of reports submitted at 7 am local time, though reports can be filed as early as 4:30 am or as late as 9:30 am when necessary. Members can also submit daily measurements and comments on the CoCoRaHS website. All volunteers are asked to use the same style 4-inch plastic rain gauge for consistency and accuracy of measurements.

A brief online training module gives volunteers the information they need to get started. Once the system creates an account for a volunteer, his or her observations are available in the form of maps and text data.



An example of a CoCoRaHS national precipitation map on Nov. 18, 2015

The public and volunteers can go to the CoCoRaHS website and see reports from their neighborhood, city, county, state, region or the entire U.S. or Canada. Users can request graphs showing precipitation for a particular site over a single month or a period of years.

The data from CoCoRaHS observers is used by many diverse groups and individuals, including:

- National Weather Service
- U.S. Department of Agriculture
- Private weather companies
- Hydrologists
- Climate and weather researchers
- Emergency managers
- City water utilities
- Insurance adjusters
- Ranchers and farmers
- Engineers
- Mosquito control companies
- Outdoor and recreation interests
- Drought monitoring groups

If you are interested in becoming a volunteer, go to the CoCoRaHS website.

Children can help their parents take observations and learn the basic of climate science. Here a young boy learns how to read the standard 4-inch plastic rain gauge.