ON SITE: STORM SPOTTERS

When storm spotters hear that severe weather is approaching the area, do they seek the safety of their house or basement like most people do? No, they head out to the edge of town or to a high point to check on the exact wind and weather conditions.

Volunteers for the NWS Storm spotters work as volunteers for the National Weather Service (NWS) to help give NWS forecasters a clear picture of what is really happening on the ground. Although Doppler radar and other systems are sophisticated data collectors, these devices can only detect weather conditions that might produce a severe thunderstorm or a tornado. The NWS typically uses this information to issue a severe storm or tornado watch. When a watch is issued, spotters travel to key lookout points and report their observations. The observations made on the ground by storm spotters are essential to the NWS in upgrading watches to warnings.

Making Reports The NWS trains spotters to assess certain weather conditions such as wind speed, hail size, and cloud formation. For example, if large tree branches begin to sway, umbrellas are difficult to use, and the wind creates a whistling noise along telephone wires, spotters know that wind speed is between 40 and 50 km/h. If trees are uprooted or TV antennas break, wind speed is estimated to be between 85 and 115 km/h.

Figure 1: Storm chasers videotape a tornado crossing a road near Manchester, South Dakota.

Spotters study the clouds to determine where hail is falling, where a tornado might develop, and in what direction the storm is headed. When they call in, they report the event, its location, its direction, and whether there is need for emergency assistance.

High Risk Mobile spotters risk their own safety in order to protect their community. The major risks they face stem from driving in bad weather and standing on a high spot where lightning might strike. Spotters always travel with a partner, so that one person can drive and the other can watch the sky. To stay safe, spotters keep watch in all directions, keep the car engine running, and have an escape plan.

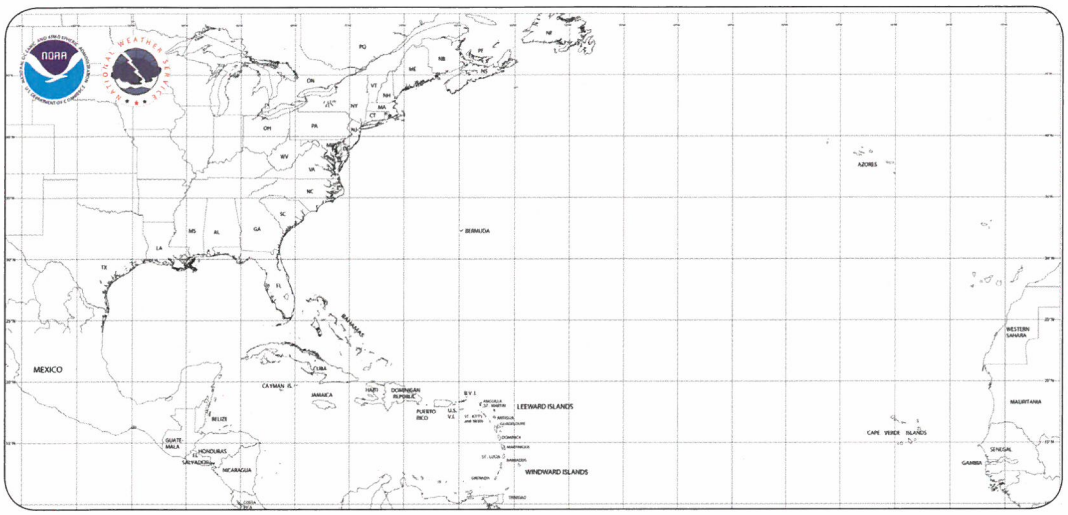
The combination of technology and the work of spotters has saved many lives since the volunteer system was started by the NWS in the 1970s. The number of deaths as a result of tornadoes and other severe weather has decreased significantly since the program began.

WRITING in Earth Science

Make a Pamphlet Research more information about how to become a storm spotter and the training involved. Write and illustrate a pamphlet about storm spotting that includes this information. To learn more about storm spotting, visit glencoe.com.

GEOLAB

INTERNET: TRACK A TROPICAL CYCLONE



Atlantic Basin Hurricane Tracking Chart This chart is used by the National Hurricane Center to track active hurricanes in the Atlantic basin.

Background: Tropical cyclones form very violent storms. That is why it is important to have advanced warning before they hit land. By tracking the changing position of a storm on a chart and connecting these positions with a line, you can model or predict a cyclone's path.

Question: *What information can you obtain by studying the path of a tropical cyclone?*

Procedure

1. Read and complete the lab safety form.
2. Form a hypothesis about how a tropical cyclone's path can be used to predict the strength of the storm and where the most damage might be inflicted.
3. Visit glencoe.com to find links to tropical cyclone data.
4. Choose the track of a tropical cyclone that has occurred during the past five years.
5. Plot the position, air pressure, wind speed, and stage of the tropical cyclone at 6-h intervals throughout its existence.
6. Plot the changing position of the tropical cyclone on your hurricane-tracking chart.
7. Incorporate your research into a data table. Add any additional information that you think is important.

Analyze and Conclude

1. **Identify** What was the maximum wind speed in knots that the tropical cyclone reached?
2. **Calculate** Multiply the value from Question 1 by 1.85 to find the wind speed in kilometers per hour. Based on this value, how would the tropical cyclone be classified on the Saffir-Simpson hurricane scale shown in **Figure 13.15?**
3. **List** the landmasses over which the tropical cyclone passed.
4. **Identify** What was the life span of your tropical cyclone? What was the name of your cyclone?
5. **Infer** Where would you expect the storm surge to have been the greatest? Explain.
6. **Examine** How was the tropical cyclone's strength affected when its center passed over land?

SHARE YOUR DATA

Peer Review Visit glencoe.com and post a summary of your data. Compare your data to other data collected for this investigation.