Activity 3.3 Interpreting Weather Symbols—the visual language of weather

Teacher Background

The next time you watch a television news program, pay close attention to when the weather forecast is scheduled in the broadcast. Because the weather segment draws the greatest viewer interest, it's usually reserved until near the end ("Stay tuned for…") TV meteorologists use viewer friendly symbols (cute, smiling suns or gloomy, crying clouds) and perhaps some high tech animated 3-D computer graphics to describe the weather. Away from the cameras however, meteorologists, including the many AMS-certified TV weathercasters, employ a language of numbers, colors and symbols to generate complex weather maps that convey large amounts of information in an efficient and shorthand manner that is understandable to all professionals in the field. While these sophisticated maps are seldom seen by the general public, any serious student of the weather needs to learn how to read and interpret them.

Weather maps depict such information as temperature, dew point, air pressure, wind speed, direction and type of precipitation. They can also convey the percentage of sky cover. Surface weather maps report conditions from numerous surface stations. These stations are often located at or near airports since pilots must be keenly aware of weather conditions. Failure to anticipate weather conditions on take off or landing could have deadly consequences, one reason "aviation weather" is one of the customized forecasts issued by the NWS.

Objective

Students will decode symbols appearing on a surface weather map and describe weather conditions at various locations on the map.

Materials and Preparation

Student Worksheet 3.3.1 Weather Symbols
Student Worksheet 3.3.2 Interpreting Weather Symbols—the visual language of weather
atlas or other U.S. maps showing major cities
pencil
current U.S.weather map

Download the latest version of the "Radar, Fronts & Data" weather map found on the DataStreme website (http://www.comet.ucar.edu/dstreme/). This activity is most meaningful to the students when they are using real time weather conditions: it's entirely worth the extra effort to use current data. Print the map in grayscale and duplicate a classroom set for student use. If you have a color printer, you may wish to print and display a color copy of the map. This map will show the range of colors representing radar echoes of different precipitation intensities. (See Activity 3.5.)

Engage

Plan ahead: assign watching the local news and weathercast the night before the in-class activity as homework, with a checklist to assure parents this is genuine home-*work*! Ask students to describe the symbols used by a meteorologist during the TV weather report. How much information is conveyed on such a weather map? (Mainly temperature ranges, cloud cover and types of precipitation.) What technologies do TV meteorologists use to enhance their weather reporting? (Satellite images, Doppler radar, 3-D computer graphics.) Ask students to bring in samples of weather maps found in newspapers. What information is displayed on each weather map?

Expand/Adapt/Connect

Download copies of the "Radar, Fronts & Data" U.S.weather maps found on the DataStreme web site for several consecutive days. Challenge the students to identify variations in patterns of weather systems across the country and any changes in temperatures following movement of fronts.

Younger students might enjoy devising messages where weather symbols are used in place of words. Some old English houses show the name of their original owner in pictures. One owned by the Cheesman family, for example, might have a carving of a round of cheese and a human figure above its door. Challenge students to come up with sentences in which they substitute at least 2 weather symbols for words: such as "We wanted to go out to play, but the wind was blowing from the ____ and then it began to _____." Who can come up with an understandable sentence using the most weather symbols? Whose sentence is the most imaginative?

Suggested URLs

http://www.comet.ucar.edu/dstreme/
The AMS DataStreme Project

http://www.comet.ucar.edu/dstreme/images/sfcumap.gif
Map needed for this activity

http://www.nssl.noaa.gov/edu/
Basic introduction to weather symbols and weather maps from the National Severe Storms Laboratory.

http://ww2010.atmos.uiuc.edu/(Gh)/guides/crclm/act/wx.rxml
Online activity from the University of Illinois on interpreting weather symbols.