

2007

# Reading and Using Meteograms

STORM Project

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## **Activity 11** **Reading and Using Meteograms**

### **Level 2**

**Objectives:** Students learn how hourly weather data is plotted on a meteogram, and how to interpret the data. They will relate meteogram data to surface weather maps.

**National Science Education Standards:** As a result of activities in grades 5-8, all students should develop an understanding of: abilities necessary to do scientific inquiry, properties and changes of properties in matter, understandings about science and technology, and structure of the earth system.

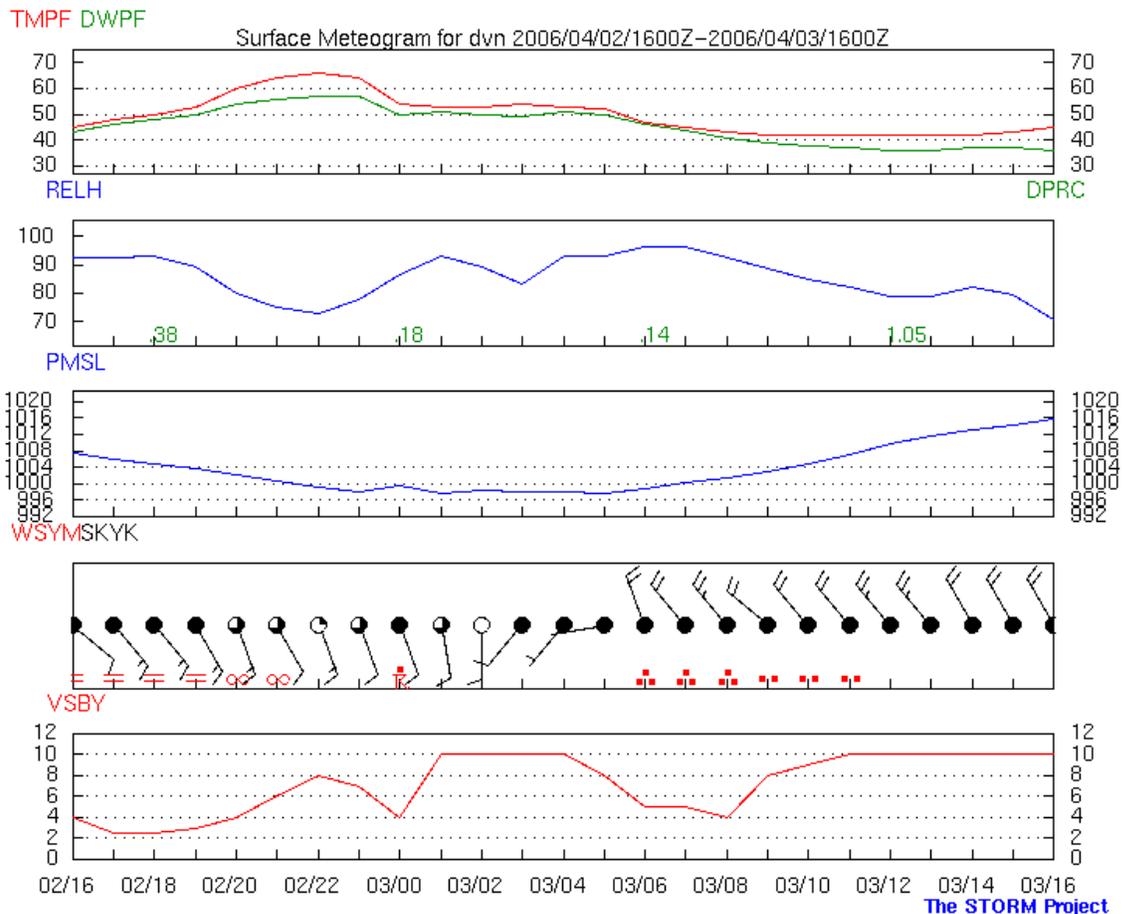
As a result of their activities in grades 9-12, all students should develop an understanding of Energy in the earth System: The sun is the major external source of energy; Heating of earth's surface and atmosphere by the sun drives convection within the atmosphere and oceans, producing winds and ocean currents; Global climate is determined by energy transfer from the sun at and near the earth's surface. This energy transfer is influenced by dynamic processes such as cloud cover, the earth's rotation, and static conditions such as the position of mountain ranges and oceans.

**Teacher notes:** Access the activity data at the activity website <http://www.uni.edu/storm/level3> It will probably aid students if you display the Davenport (dvn) meteogram, in color, as students work through the activity.

**Engage:** Have you ever plotted data on a graph? What kind of graphs have you made? What is the X-axis? The Y-axis? Have students sketch the X-axis and the Y-axis of a graph.

**Explore:** Study the graphs below. What kind of weather data do you think are plotted on the graphs? What is plotted along the X-axis on each graph? What values are plotted on the Y-axis of each graph?

Try telling a story about the weather from the information on the graphs.



**Explain:**

The graphs above comprise what meteorologists call a **meteogram**. The meteogram uses a graphical method of displaying weather information for a 24-hour time period, represented on the X, or horizontal axis. The most recent time is on the right. The meteogram shown is for **dvn**, which is the three letter code for Davenport, Iowa. The date is shown at the top, and the time is displayed in Universal Time Coordinates.

The top panel displays air temperature and dewpoint temperature. The top line is temperature is displayed in red. The bottom line indicates dewpoint temperature and is displayed in green.

The second panel indicates the relative humidity during each hour. Precipitation amounts are shown along the horizontal axis. These numbers indicate total precipitation during the previous six-hour period.

The third panel gives the atmospheric pressure in millibars for the time period.

The fourth panel gives sky cover, wind speed and direction, and weather that was occurring at the time. The fifth panel gives visibility in miles.

1. The data on the meteogram indicate a significant weather event took place in Davenport (dvn), Iowa during the twenty-four hour period. Draw a vertical line on the meteogram, that shows the time the event took place.
2. The data indicate the weather event was a front passing through the region. What kind of front was it? What evidence did you use to decide the type of front that went through?
3. Compare the meteogram with the surface map from the same time. How do the data for map time compare to the data on the meteogram?

**Extend:**

At the activity website, look at the current weather map. Then obtain a meteogram for a city near where a front has passed. Use the meteogram to describe the weather changes that took place as the front passed through the region.

**For Further Inquiry:**

How do meteogram patterns change during a five-day period? Challenge students to design an investigation to answer this or any other question they have about pressure and isobars.

**Evaluate:**

1. Collect and evaluate student sheet, and graph.
2. Have students write a lab report with data analysis and conclusions.

**Activity 11**  
**Reading and Using Meteograms**  
**Student Sheets**  
**Level 2**

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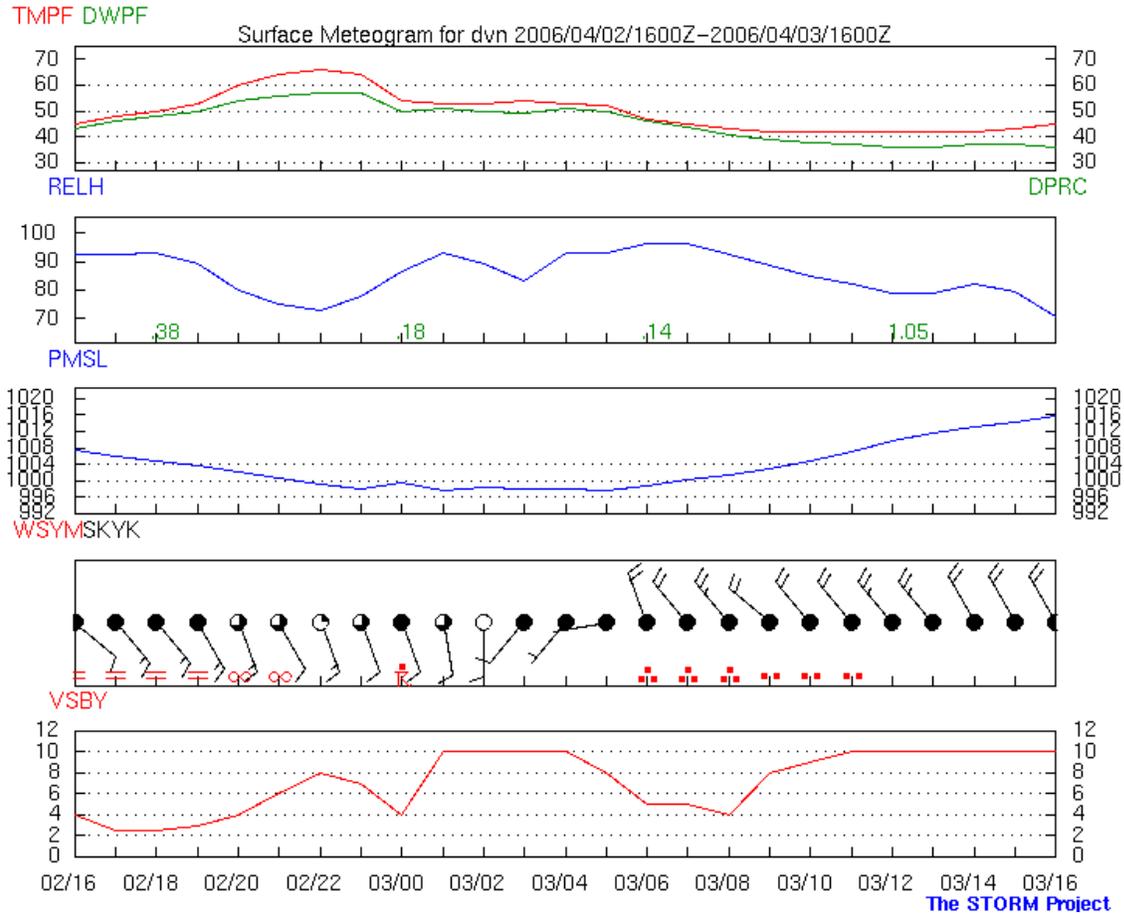
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**Explain:**

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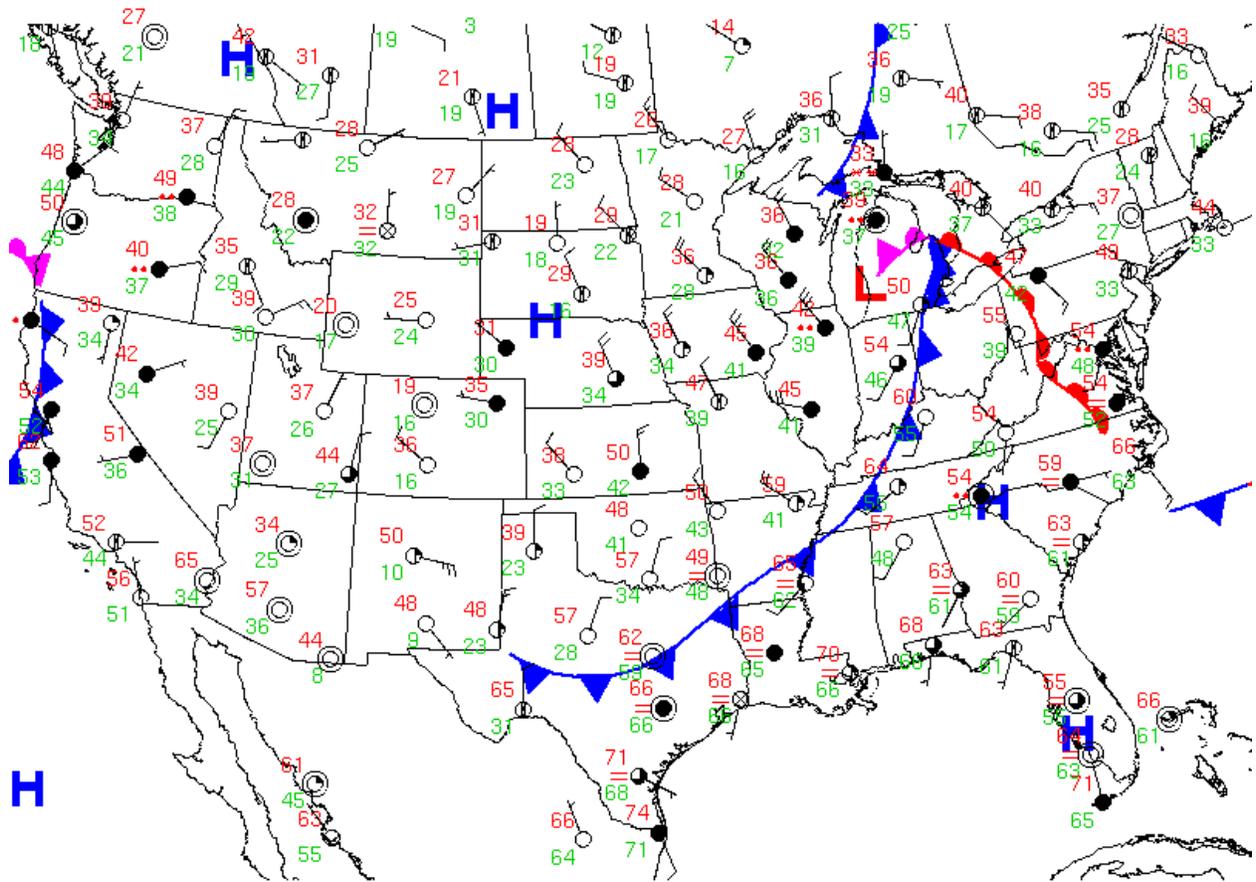
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1200Z APR 03 2006 Station Plot & Fronts

The STORM Project