

Weather Maps

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Printed: August 5, 2016

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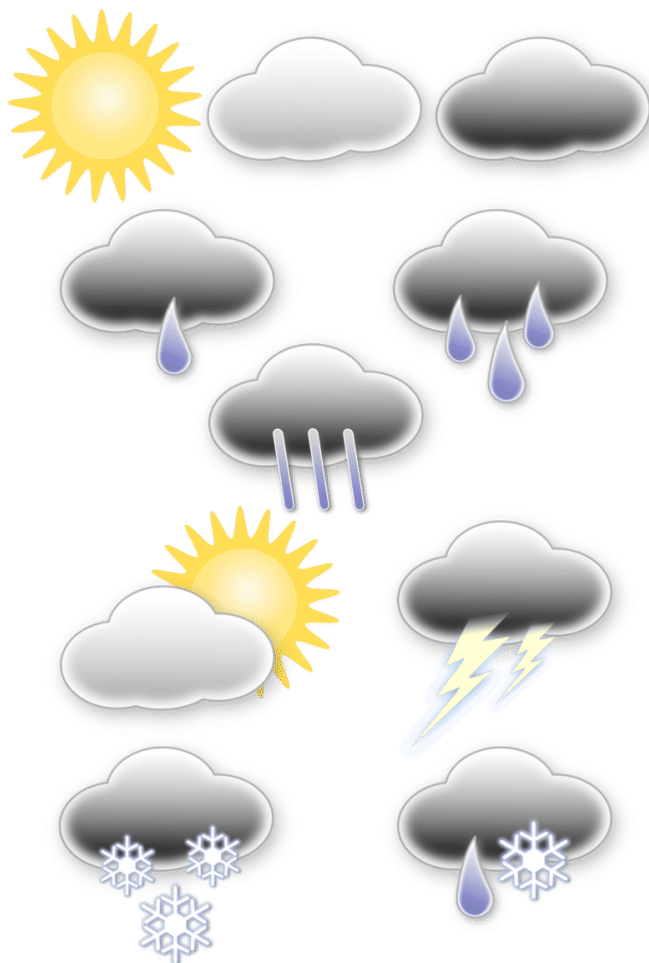
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CHAPTER 1

Weather Maps

- Describe the information depicted on weather maps.
- Analyze weather maps.



What can a weather map tell you about the weather?

A lot! A weather map indicates all sorts of things to let you know the forecast. It also may have some cute graphics associated with it.

Weather Maps

Weather maps simply and graphically depict meteorological conditions in the atmosphere. Weather maps may display only one feature of the atmosphere or multiple features. They can depict information from computer models or from human observations.

On a weather map, important meteorological conditions are plotted for each weather station. Meteorologists use many different symbols as a quick and easy way to display information on the map (**Figure 1.1**).

Once conditions have been plotted, points of equal value can be connected by isolines. Weather maps can have many types of connecting lines. For example:

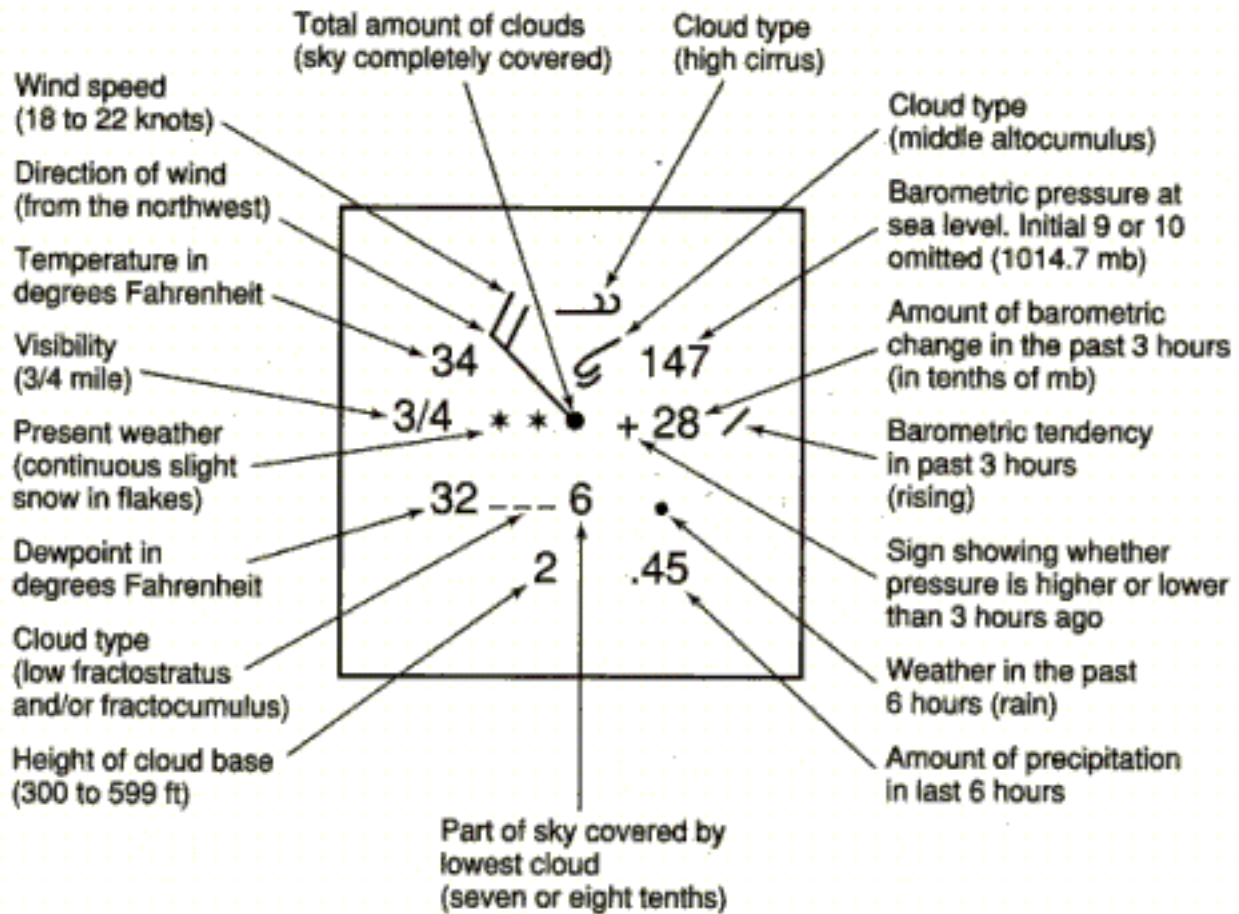


FIGURE 1.1

Explanation of some symbols that may appear on a weather map.

- Lines of equal temperature are called **isotherms**. Isotherms show temperature gradients and can indicate the location of a front. In terms of precipitation, what does the 0°C (32°F) isotherm show?
- **Isobars** are lines of equal average air pressure at sea level (**Figure 1.2**). Closed isobars represent the locations of high and low pressure cells.
- **Isotachs** are lines of constant wind speed. Where the minimum values occur high in the atmosphere, tropical cyclones may develop. The highest wind speeds can be used to locate the jet stream.

Surface weather analysis maps are weather maps that only show conditions on the ground (**Figure 1.3**).

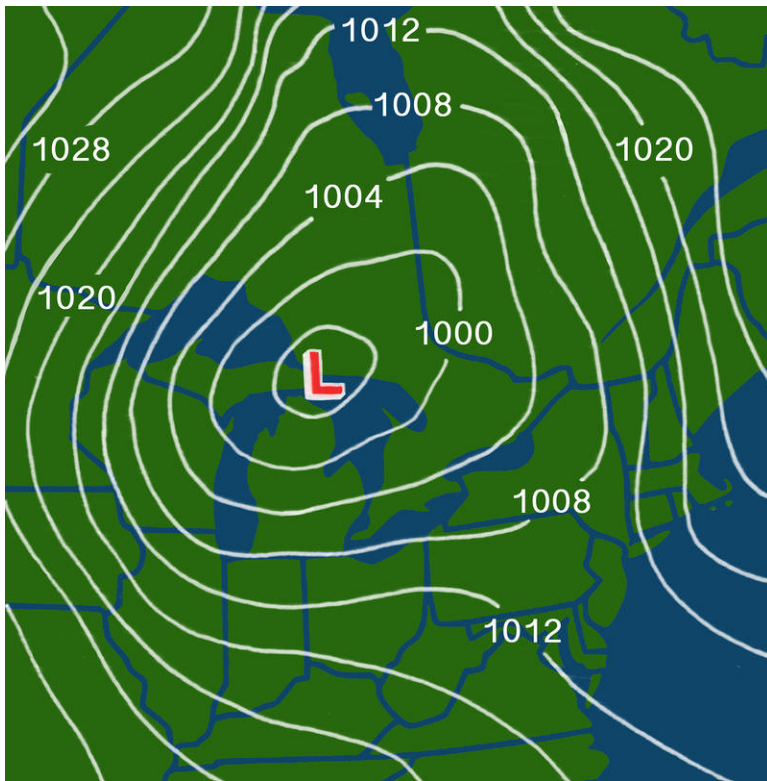


FIGURE 1.2

Isobars can be used to help visualize high pressure (H) and low pressure (L) cells.

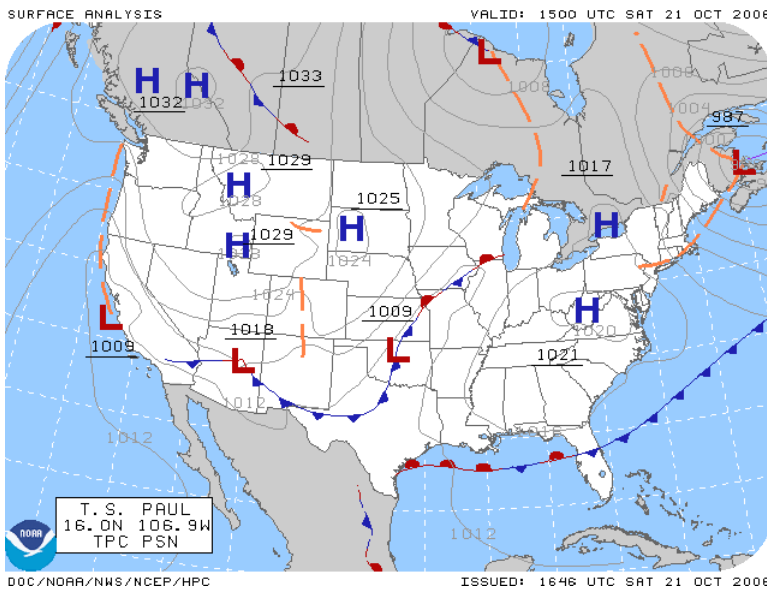


FIGURE 1.3

Surface analysis maps may show sea level mean pressure, temperature, and amount of cloud cover.



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Summary

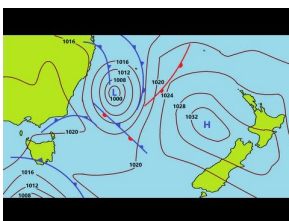
- Weather maps graphically depict weather conditions.
- Isotherms are lines of constant temperature; isobars are lines of constant pressure; isotachs are lines of constant wind speed.
- Isobars indicate pressure cells.

Review

1. What is the purpose of isolines on a weather map?
2. Define isobar, isotach, and isotherm.
3. How are high and low pressure cells indicated on a weather map?

Explore More

Use this resource to answer the questions that follow.



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1. What is an isoline map?
2. What do isobars join?
3. What is the difference in air pressure between isolines on an American weather map?
4. How are high pressure areas identified on a weather map? What does that look like in real life?
5. How are low pressure areas identified on a weather map? What does that look like in real life?
6. If the H weren't on a weather map, how could you still tell there was a high pressure? How could you identify a low pressure?
7. What is a front? How does a front appear on a weather map?
8. What symbolizes a cold front on a weather map?
9. What symbolizes a warm front on a weather map?

10. What symbolizes a stationary front on a weather map?
11. What symbolizes an occluded front on a weather map?
12. How does wind blow relative to high and low pressure cells?
13. What does it mean when the the isolines are close together?

References

1. Courtesy of the US National Oceanic and Atmospheric Administration. [Explanation of a weather readout](#) . Public Domain
2. Laura Guerin. [Weather map with isobars](#) . CC BY-NC 3.0
3. Courtesy of US National Oceanic and Atmospheric Administration. [Weather map showing air pressure, temperature, and cloud cover](#) . Public Domain