Climatology Basics

Goals
After completing this investigation, you should be able to:
- describe and identify the three levels of weather and climate drivers: global, regional, and local; and
- compare and contrast the time scales of weather and climate.

PART A: Global Circulation Patterns

Use the information given in the text, graphics, Moving Heat interactive, and videos in this section to answer the following questions. Use the notes that you took on your world climate map and weather and climate timescale chart. Give specific examples.

1. Describe the global patterns of motion of the atmosphere and ocean. List specific examples of global climate drivers.

2. What do the atmosphere and ocean currents transport?

3. Explain how the ocean and atmosphere are interconnected.

4. How would Earth's weather and climate be different if these currents of air and water did not exist?

PART B: Regional Climate Drivers

There are no Stop and Think questions on this page.

Discussion Notes:
Now that you have worked through this list of regional weather drivers, try to answer the question: What are the predominate forces that are controlling your regional weather today? Make a list of the factors influencing your regional weather; number the list in order of size of influence.

PART C: Local Weather Stories

1. Which day (date) did the L pressure move off the Atlantic coast?

2. How many days did it take for the storm to travel across the country?

3. Given the distance the storm traveled as approximately 2700 miles (4350 kilometers), what was the average rate of travel? Express your answer in miles (or kilometers) per day.

4. How do the long-term graphs of weather data compare to the original (single year) graph? Which type of graph is a better representation of typical temperature and precipitation for a station?

5. Your cousin in Hastings, Nebraska (NE) has invited you to her outdoor wedding in early May. What will you wear? What is the likelihood that you will you need a sweater or jacket? Might it be over 100°F; in which case you better bring shorts! Is it likely that it will it rain? Use the USHCN and Weather Underground sites to investigate historical Nebraska temperature and precipitation data in order to answer this question. Explain your clothing selection and your procedure for arriving at this decision.