

- Which isotherms are closed loops? _____
- What is the lowest temperature found in the smallest closed loop in the eastern half of the map?

- What is the highest temperature found in the smallest closed loop in the western half of the map?

The closed loops show where the air masses are located. Cold masses have isotherms that decrease in temperature as you move towards the center.

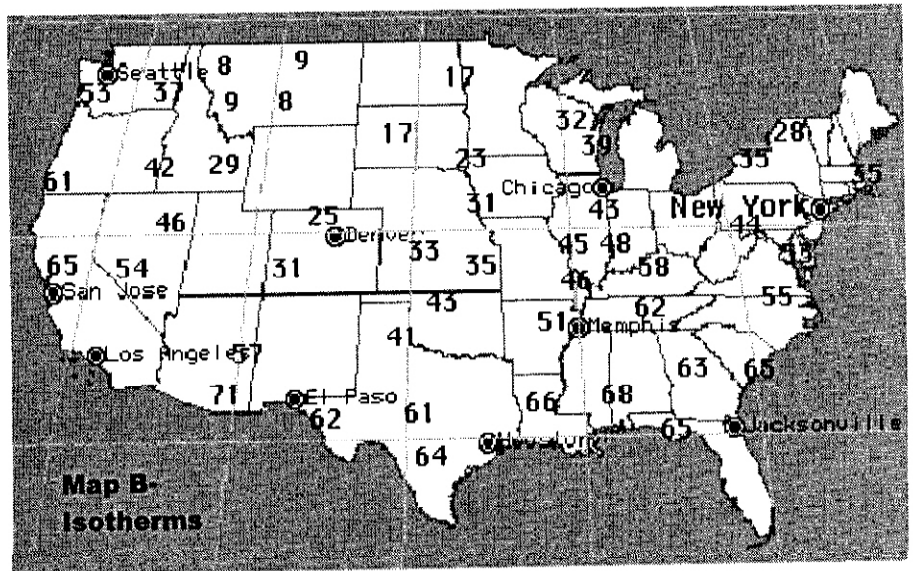
- Where is the center of the cold air mass? (name the region of the state near the center)

- Warm air masses have isotherms that increase in temperature as you move towards the center. Where is the center of the warm air mass? (name the region of the state near the center)

Map B

Draw in a 10, 20, 30, 40, 50, 60 & 70-degree isotherms on the map B. Note you will have to approximate using the numbers on the map. Label each isotherm.

Isotherms can be used to identify air masses (large areas of the lower atmosphere with similar weather).



- Name a state over which a cold air mass is located? _____
- Name a state over which a warm air mass is located? _____

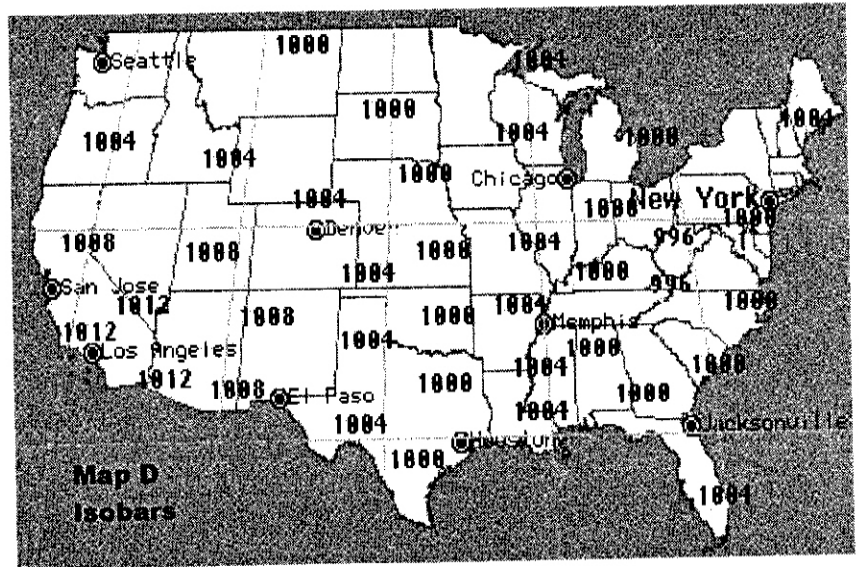
Air masses are also categorized as dry or humid. Humid air masses develop over ocean waters. Dry air masses come from large land areas. An air mass found over the Gulf of Mexico would be humid and warm. An air mass located in central Canada in winter would be dry and cold.

Map D

- Determine which 4-millibar intervals will be necessary to use for this map.

Draw in the isobars on the map D. Start with smallest line, then increase from their, label each isobar. Note: isobars form sets of curves that do not cross each other.

Isobars can be used to identify "Highs" and "Lows". The pressure in a high is greater than the surrounding air. The pressure in a low is lower than the surrounding air.



- Label with an "H" the center of a high-pressure area. What state is it over? _____
- Label with an "L" the center of a low-pressure area. What state is it over? _____

High-pressure regions are usually associated with dry weather because as the air sinks it warms and the moisture evaporates. Low-pressure regions usually bring precipitation because when the air rises it cools and the water vapor condenses.

- Over which state would you expect to see rain or snow? _____
- Over which state would you expect to see clear skies? _____

Questions

- Where do cold air masses form? And how do they move in to the United States?

- Where do warm air masses form? And how do they move in to the United States?

- What is the weather in a high-pressure area usually like? In a low?

Study the isobar map you have drawn to answer the following questions.

4.

5.

The diagram below contains wind direction and atmospheric pressure information for a typical weather station. The weather information is reported according to the following station model.

Atmospheric Pressure: Only the last three digits are plotted. If the first is less than 5, then number 10 is omitted. If it is 5 or higher, the number 9 is omitted. Note : The pressure values are given to tenths of millibars, but the decimal point is not plotted. So, 043 really means 1004.3

Wind Direction: The wind blows toward the center of the station model (from the east)

The map on the next page shows weather station information from a variety of weather stations. Scientists often connect areas of equal pressure with lines called isobars. Using a pencil, draw the following isobars. It will be best to lightly sketch the lines first. Then draw the isobars as smooth, curved lines. Label each isobar.

996 millibars

1000 millibars

1004 millibars

1008 millibars

1012 millibars

1016 millibars

Now locate the centers of the two pressure systems and label each appropriately as either HIGH or LOW.