



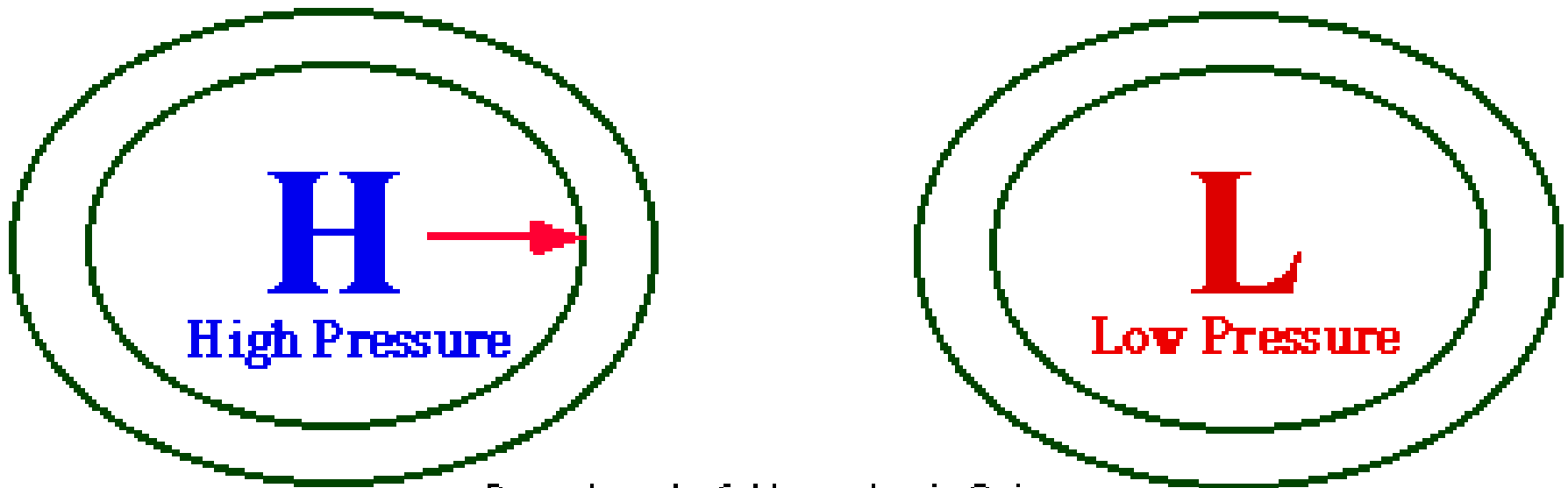
Ch 19.1: Air Pressure & Isobars

Students will be able to:

- Define and locate air pressures on a weather map**
- Draw isobars on a map**

Air Flows From High to Low pressure

The influence of the Pressure Gradient Force

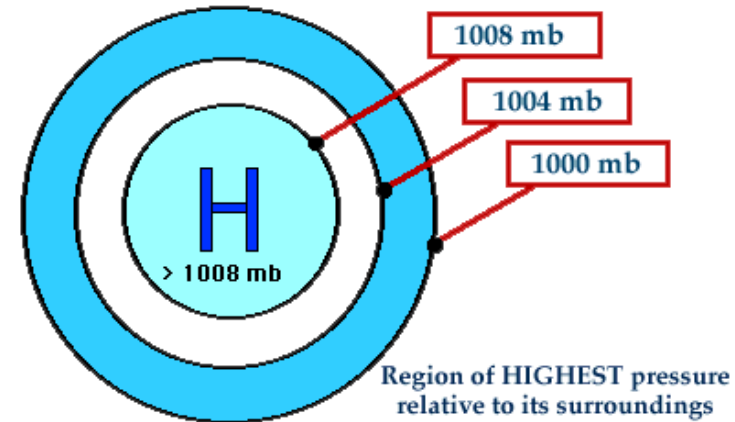


Department of Atmospheric Sciences
University of Illinois at Urbana-Champaign

High Pressure Centers

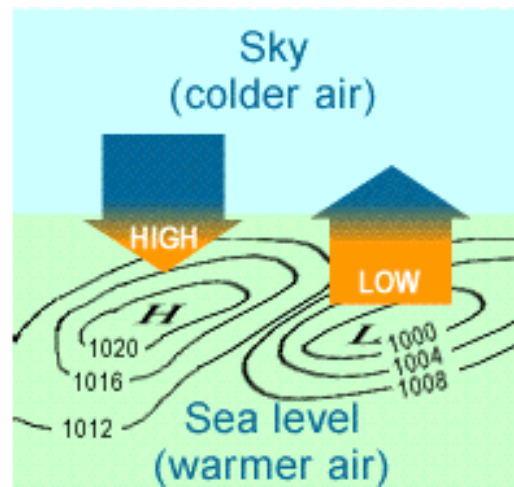
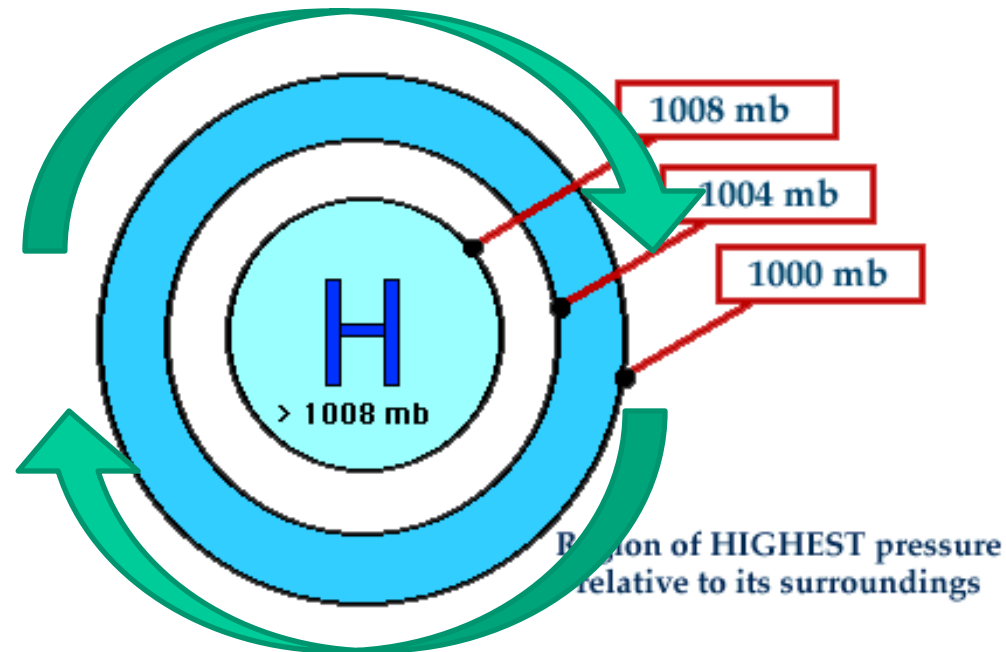
also known as *anticyclones*

- A high pressure center is where the pressure has been measured to be the highest relative to its surroundings.
- A high pressure center also represents the center of an anticyclone and is indicated on a weather map by a blue "H".

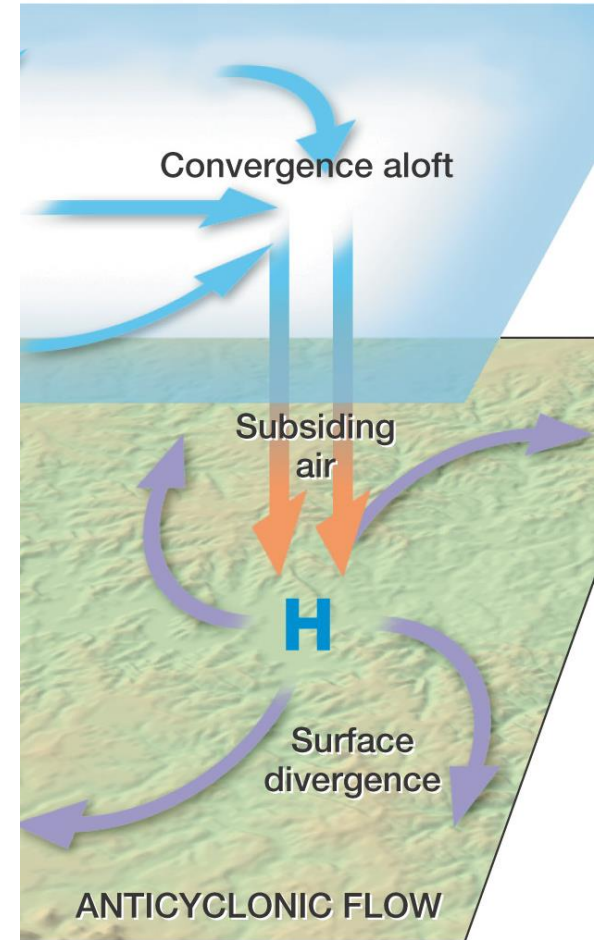
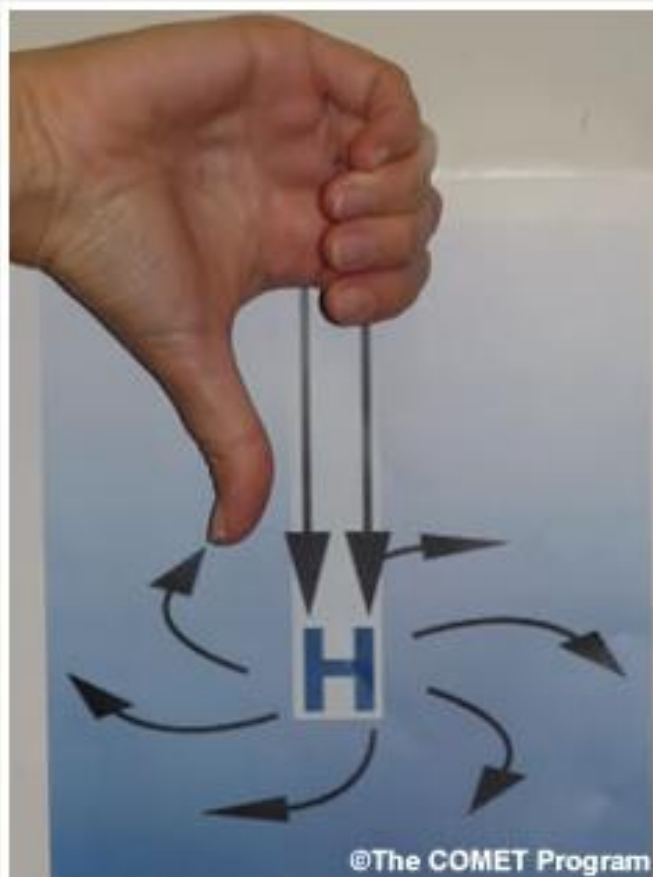


High Pressure Centers also known as *anticyclones*

- Winds flow clockwise around high pressure in the Northern Hemisphere.
- Air is sinking under high pressure.
 - This gives you fair weather.



High Pressure Centers also known as *anticyclones*

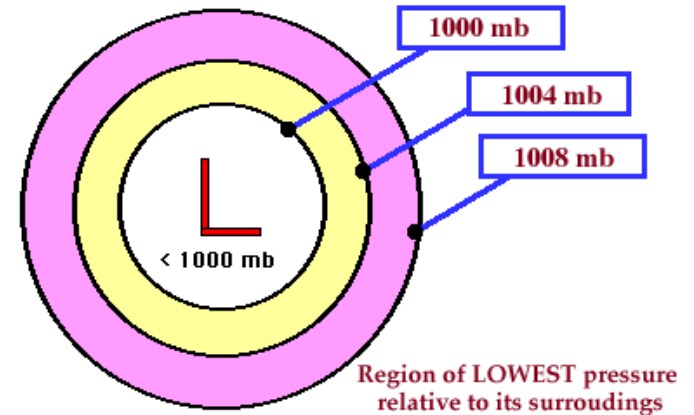


<http://www.meted.ucar.edu/fire/s290/unit7/3.6.0.pop.htm>

Low Pressure Centers

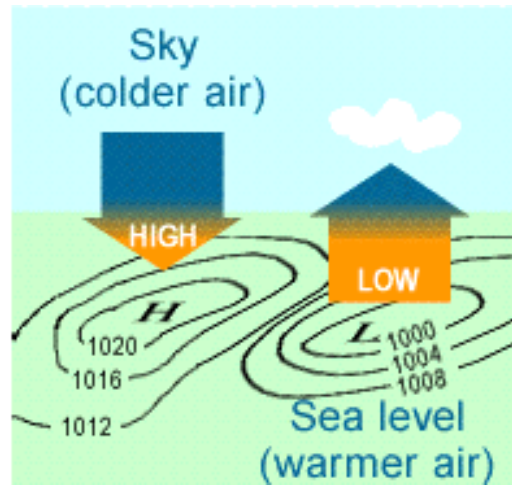
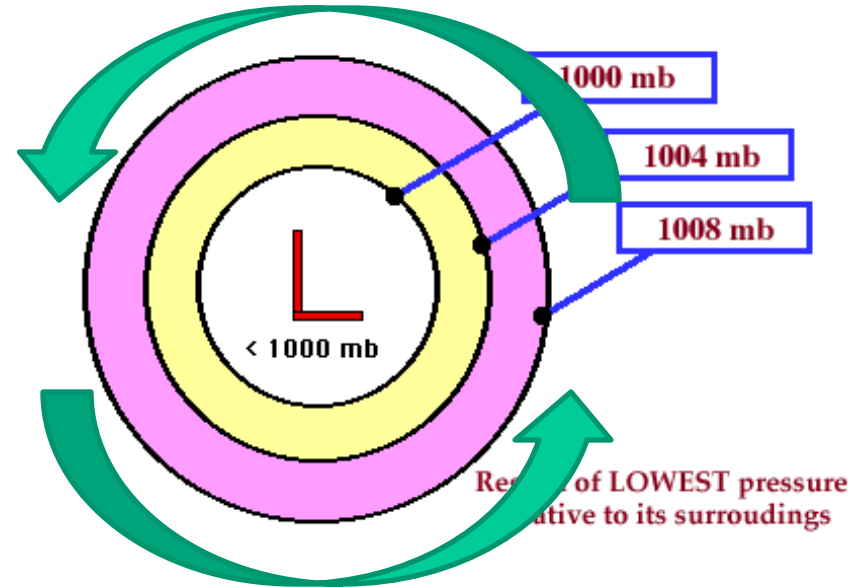
also known as *cyclones*

- A low pressure center is where the pressure has been measured to be the lowest relative to its surroundings.
- Low pressure centers also represent the centers of cyclones.

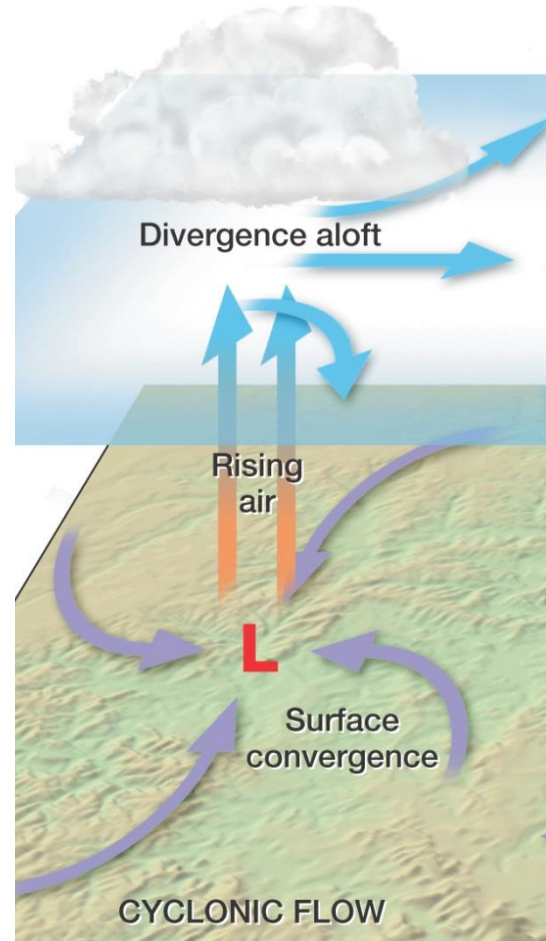
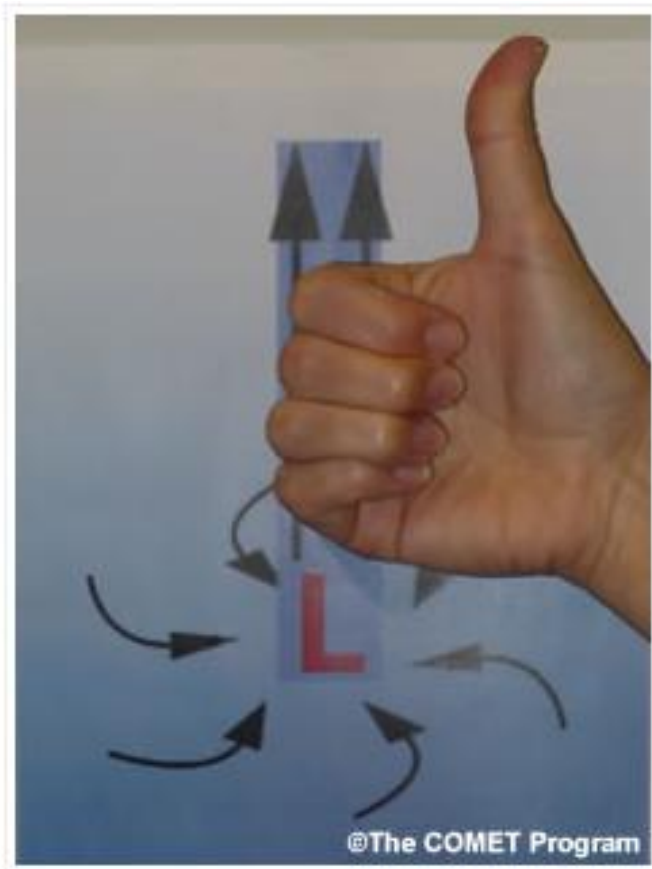


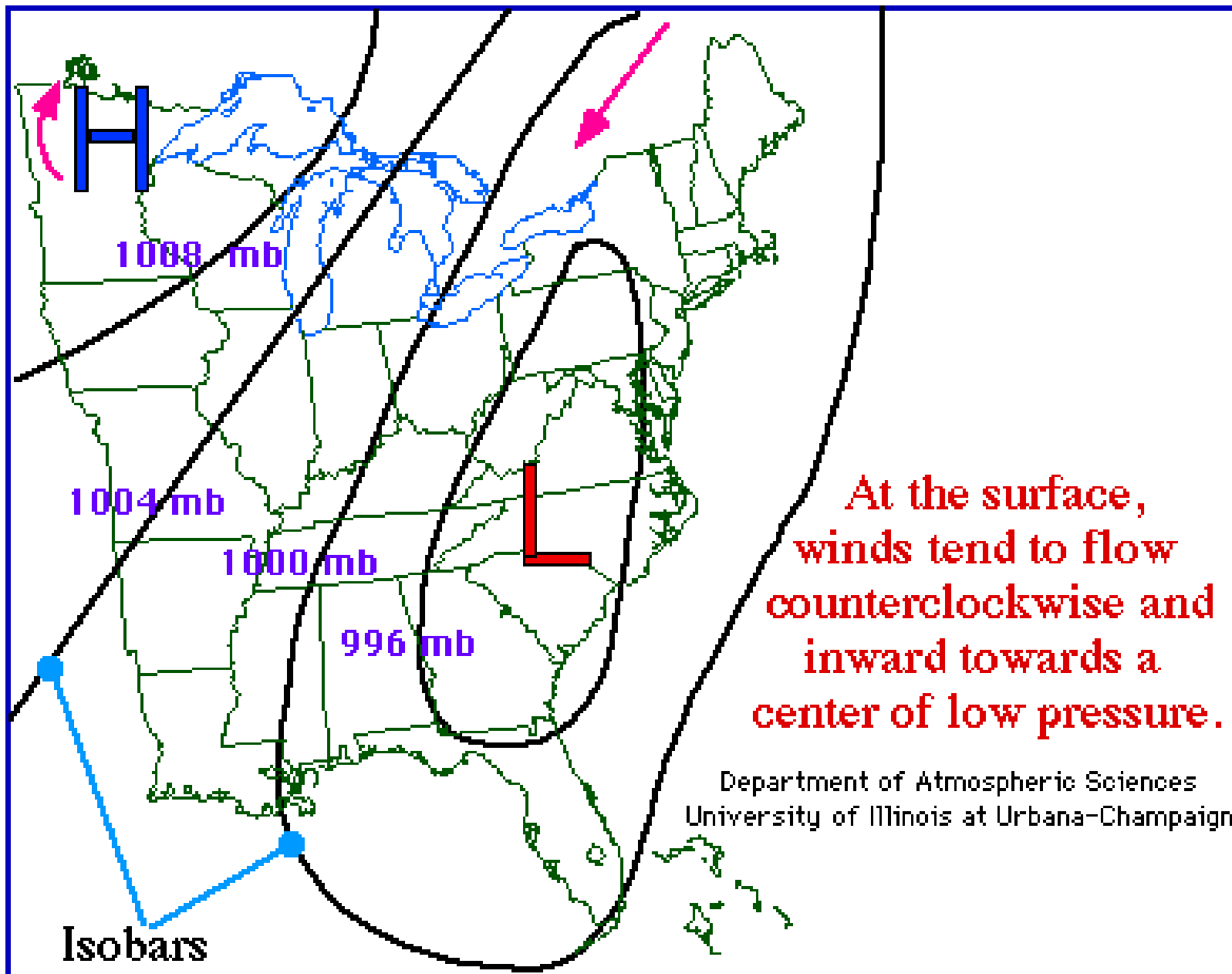
Low Pressure Centers also known as *cyclones*

- Winds flow counter-clockwise around a low pressure in the N.H.
- Air rises under the low.
 - Produces clouds
 - Creates precipitation



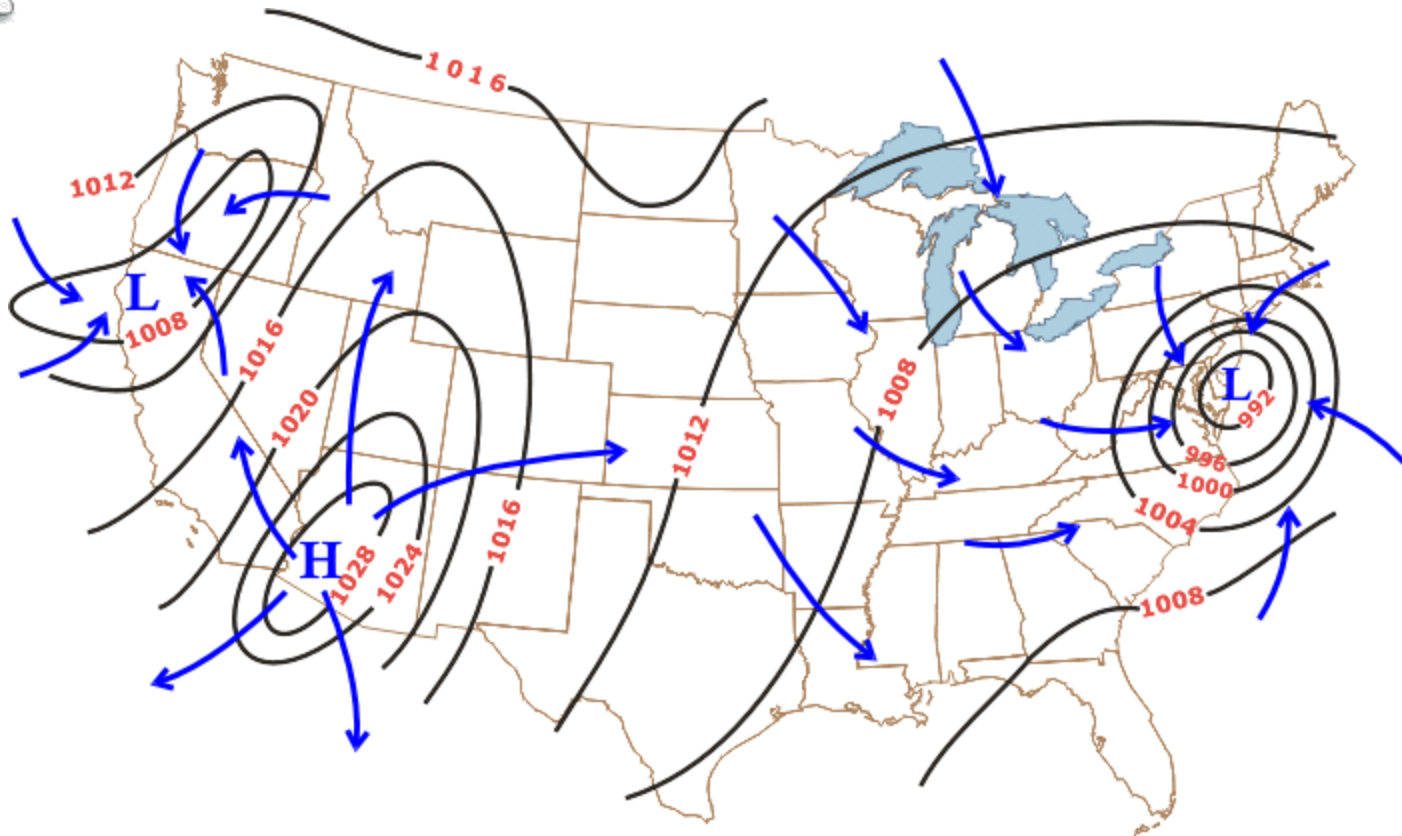
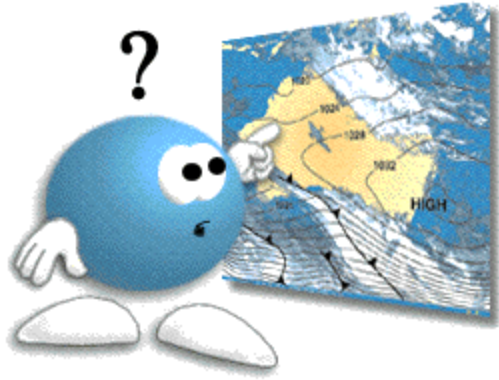
Low Pressure Centers also known as *cyclones*





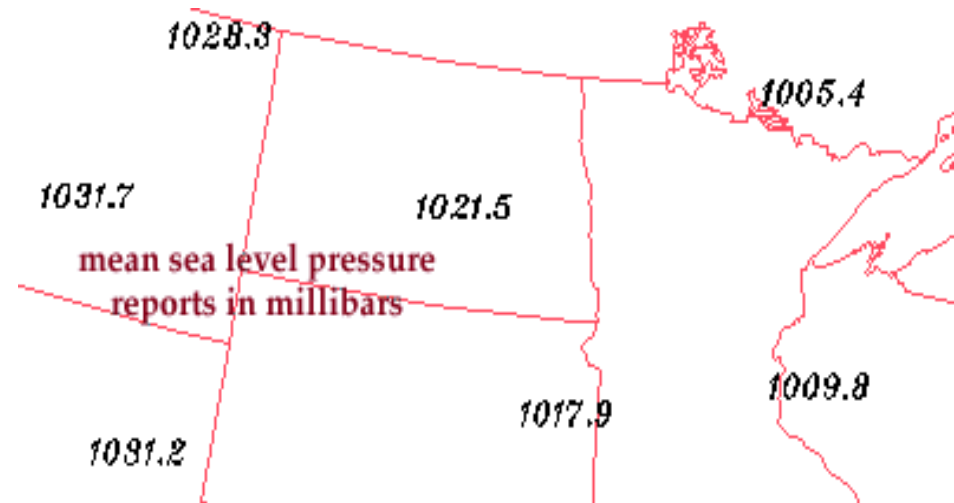
What are those black lines on the map?

- **Called Isobars**
- lines of constant (equal) pressure



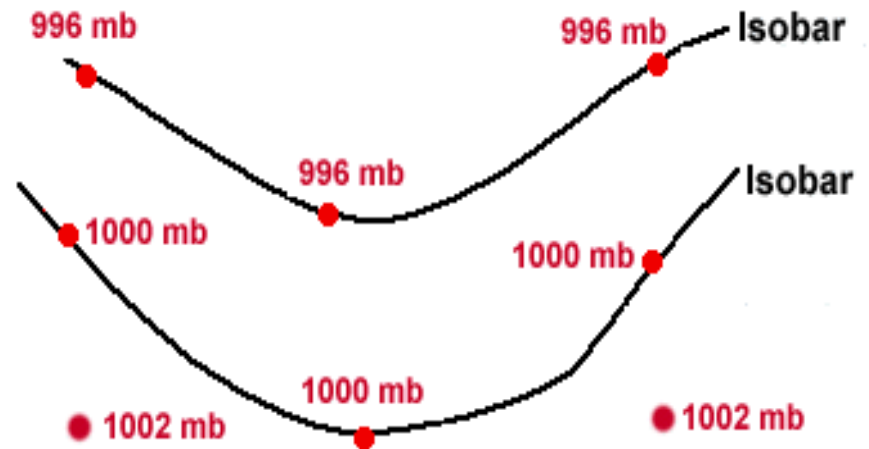
Isobars

- A line drawn on a weather map connecting points of equal pressure is called an "isobar".



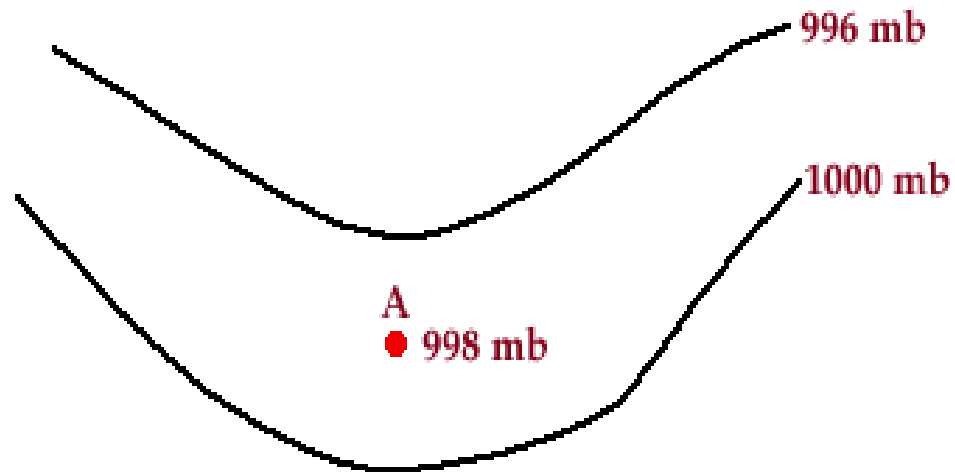
Isobars

- The diagram below depicts a pair of sample isobars.
- At every point along the top isobar, the pressure is 996 mb while at every point along the bottom isobar, the pressure is 1000 mb.



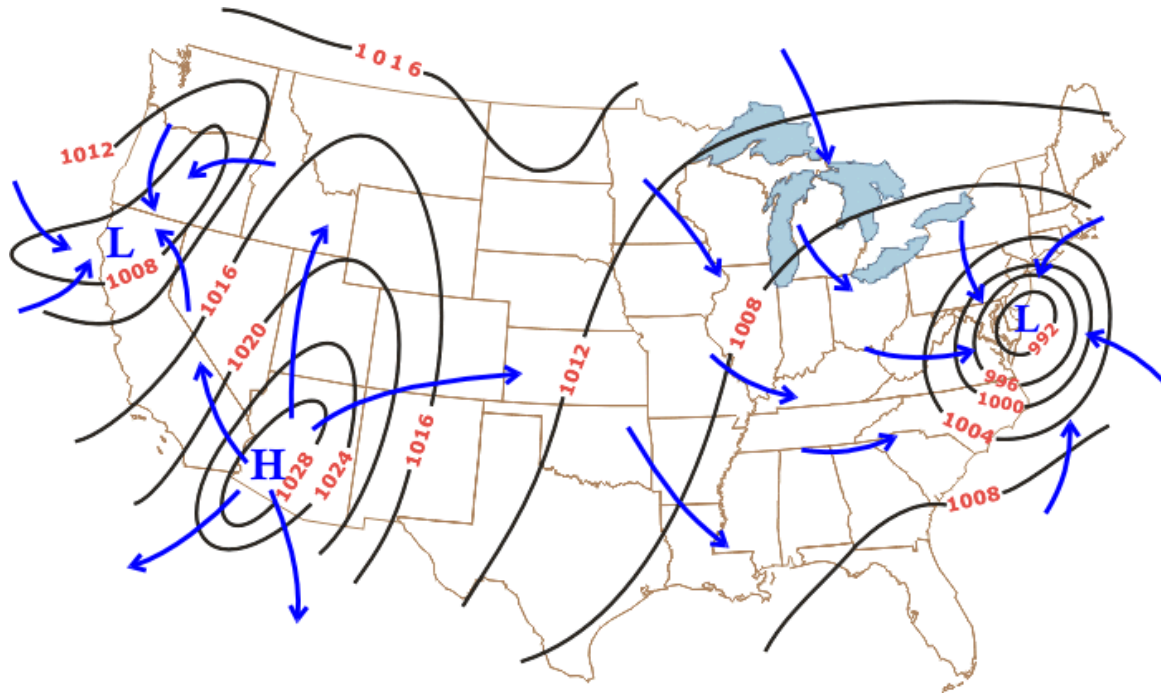
Isobars

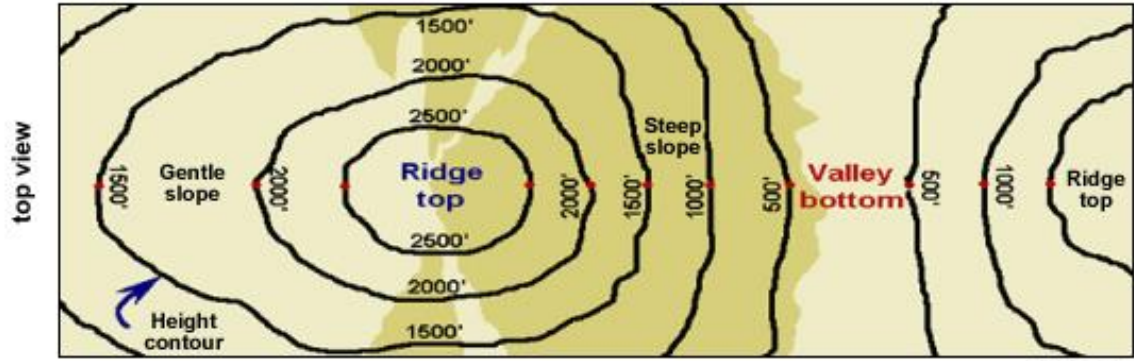
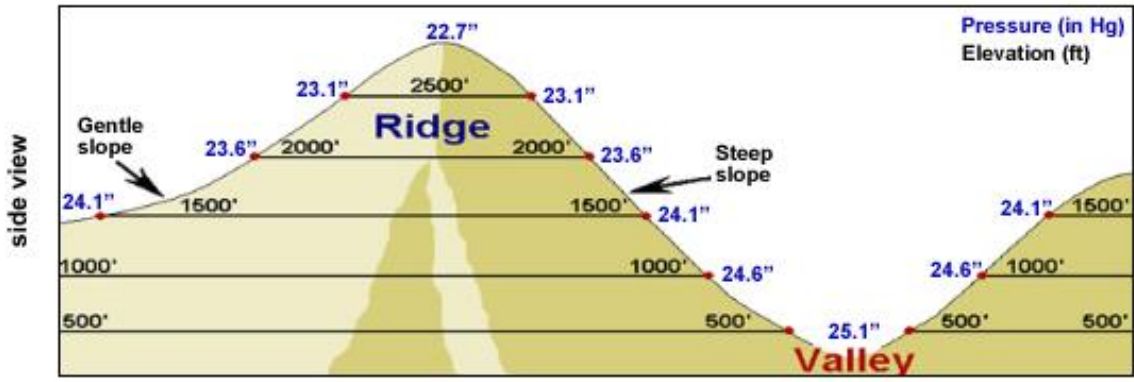
- Any point lying in between these two isobars must have a pressure somewhere between 996 mb and 1000 mb.
- Point A, for example, has a pressure of 998 mb and is therefore located between the 996 mb isobar and the 1000 mb isobar.



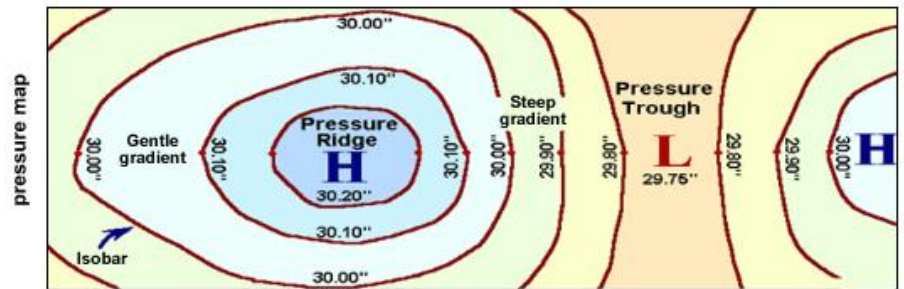
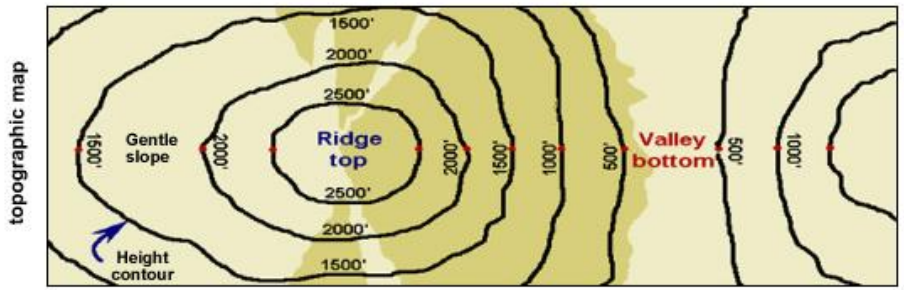
Rules of Isobars

1. Draw your isobars in a neat and smooth line instead of a jagged line. (trace lightly in pencil. then go over when done.)
2. An isobar should begin and end at an edge of the map, or, alternatively, loop around and close on itself
3. An isobar should never branch or fork
4. An isobar can not touch or cross other lines.
5. Isobars should be drawn at equal intervals. (1000, 996, 992)
6. Each Isobar line should be labeled



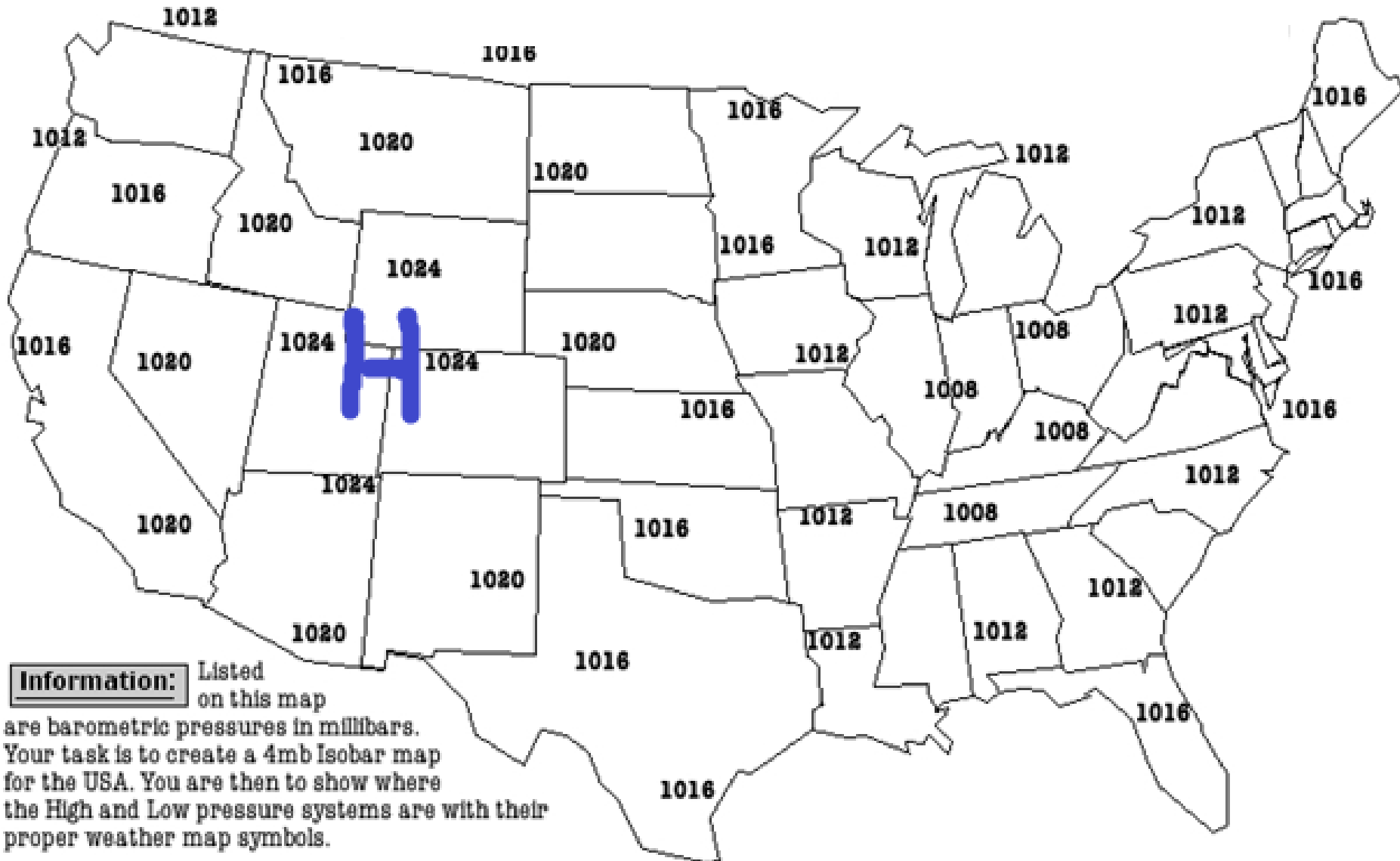


Michael Bake

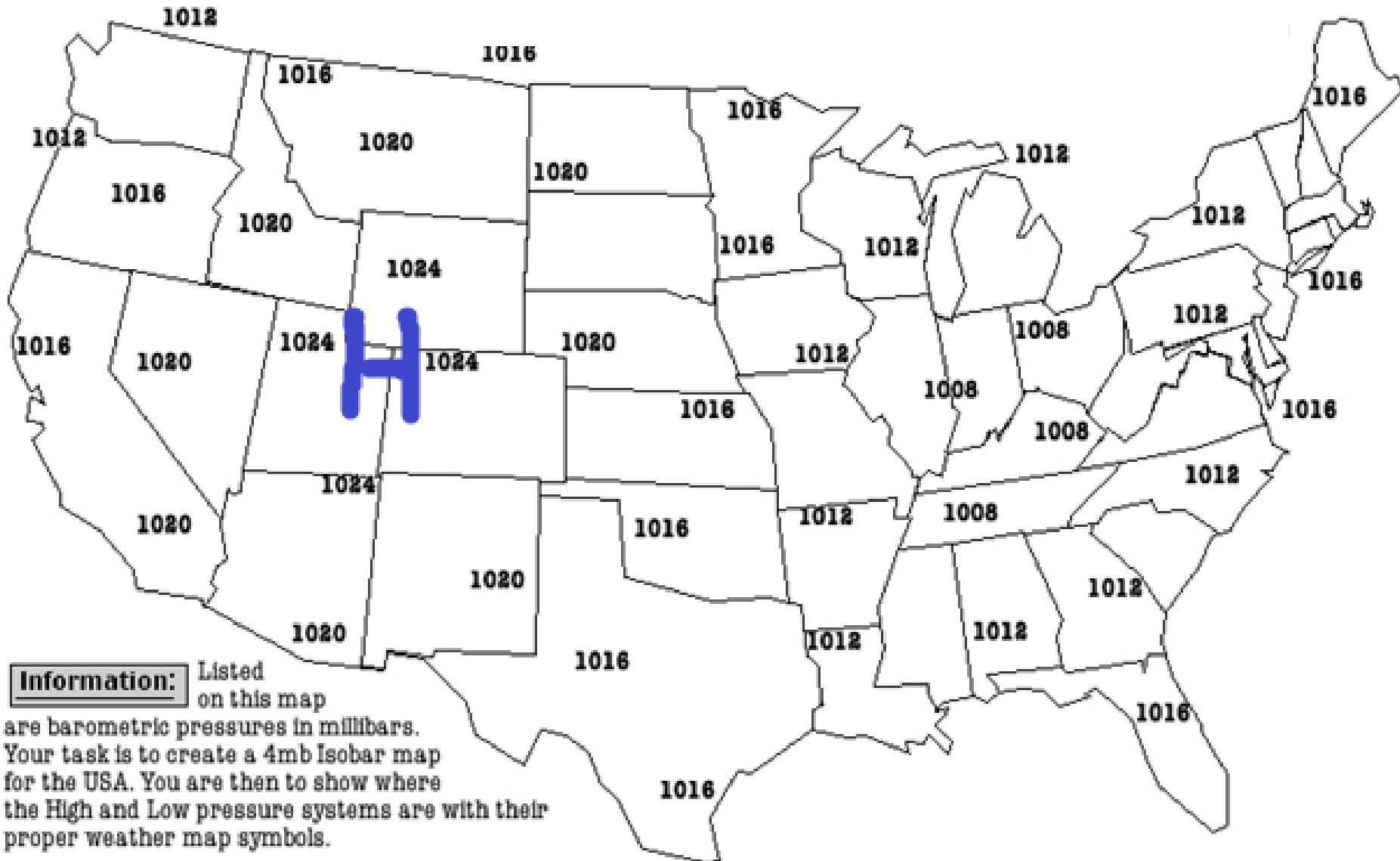


Michael Bake

Find the highest pressure.

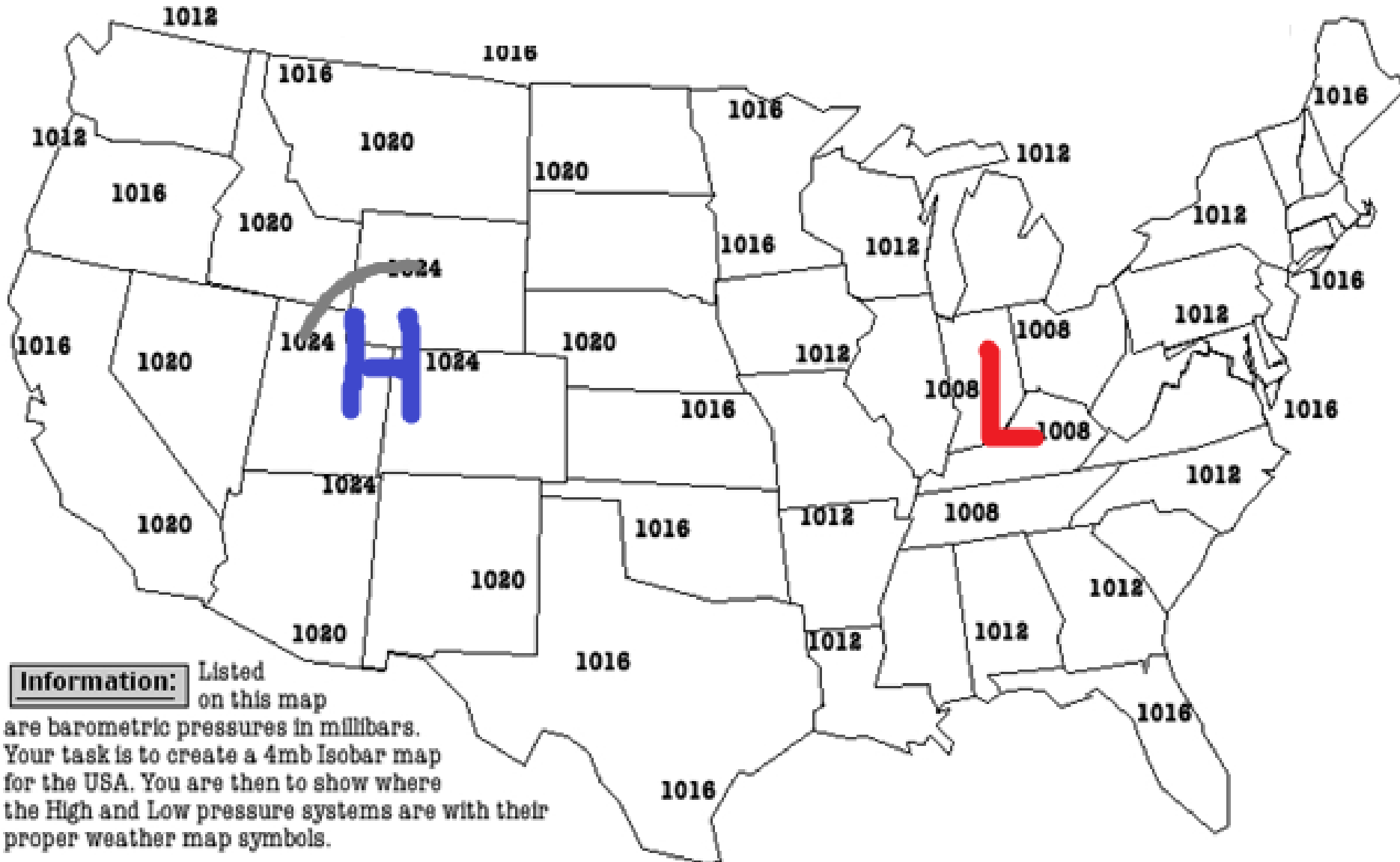


Find the lowest pressure.



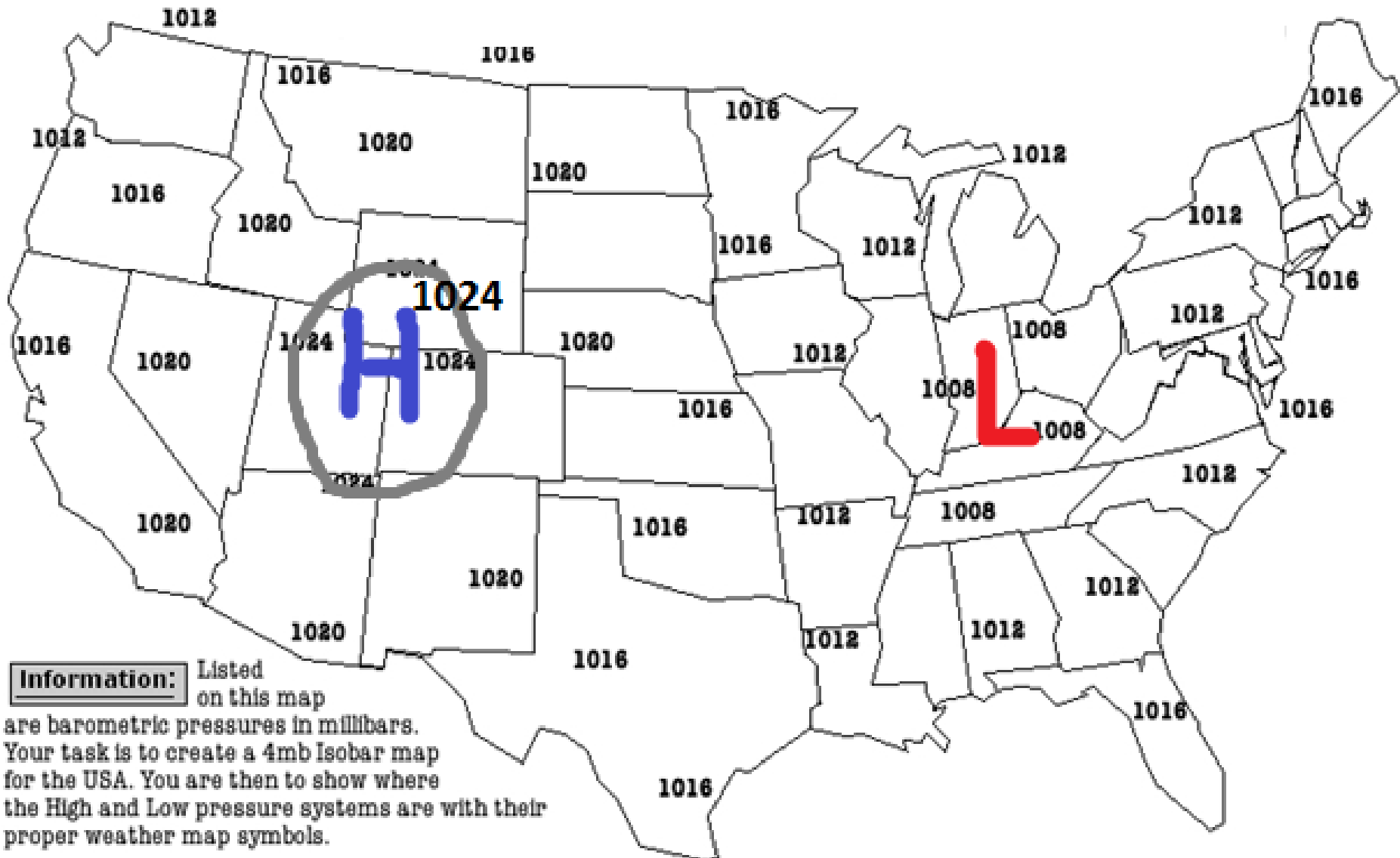
Draw Isobars every 4mb.

Start at 1024 mb



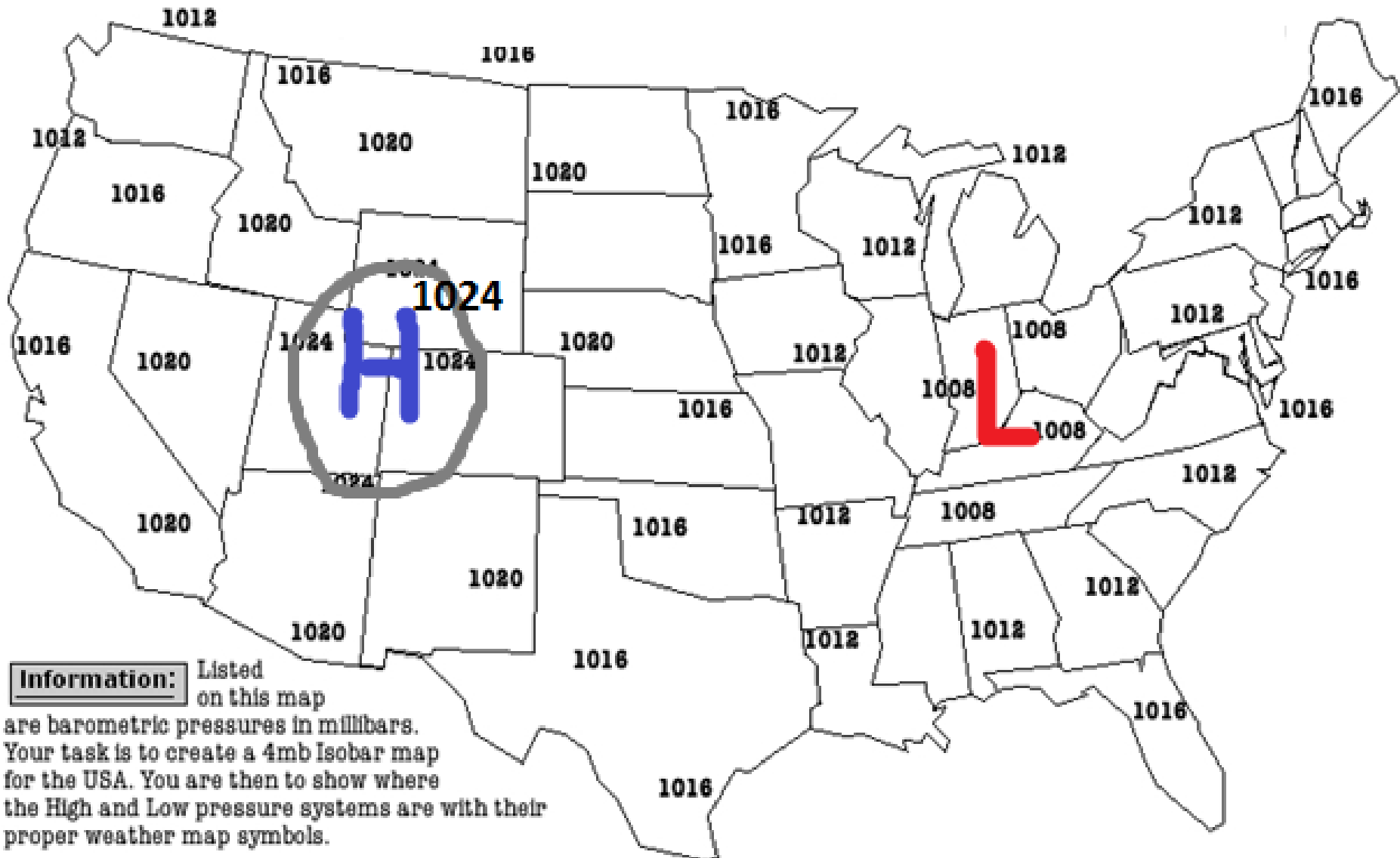
Draw Isobars every 4mb.

Start at 1024 mb



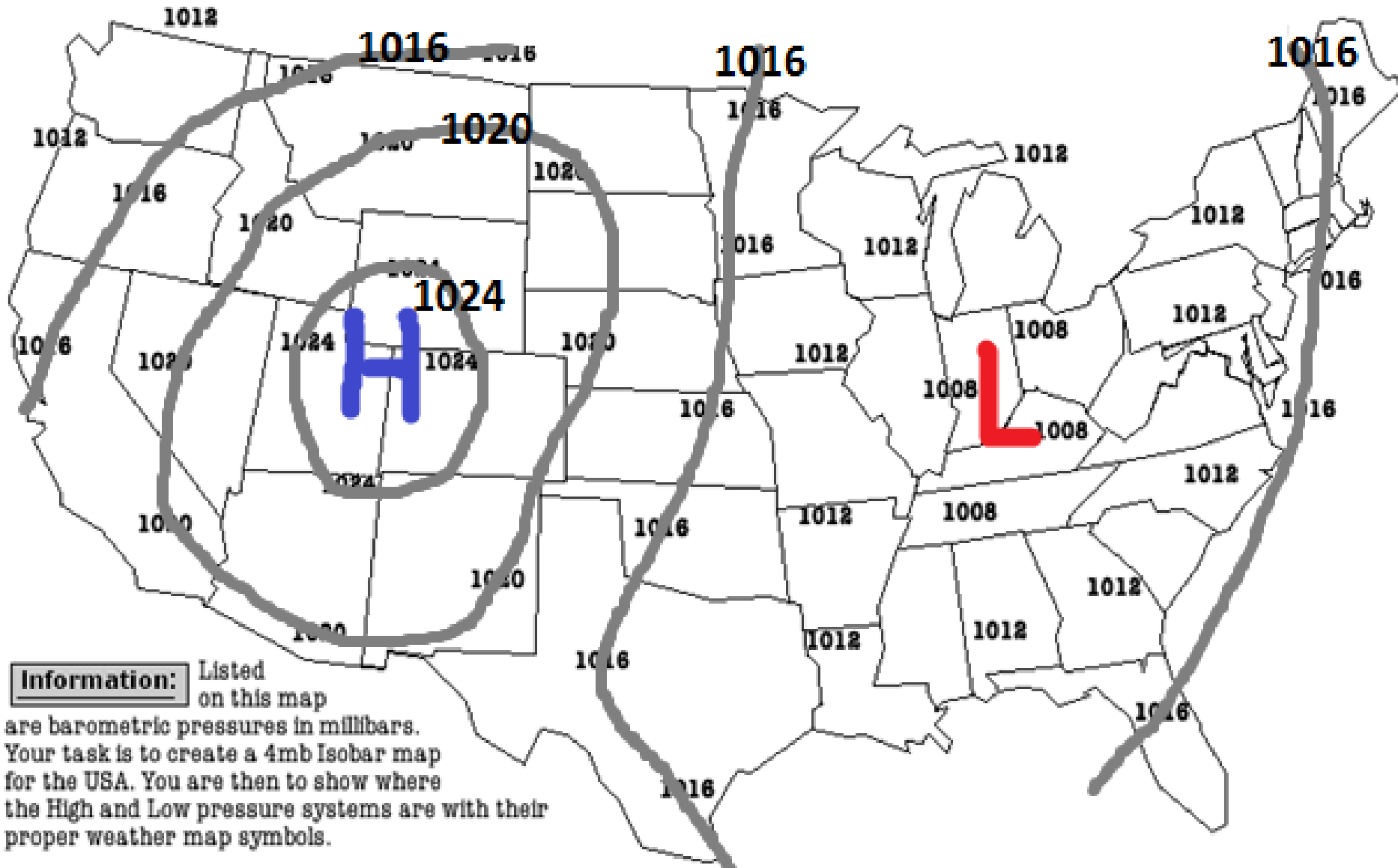
Draw Isobars every 4mb.

Draw 1020 mb



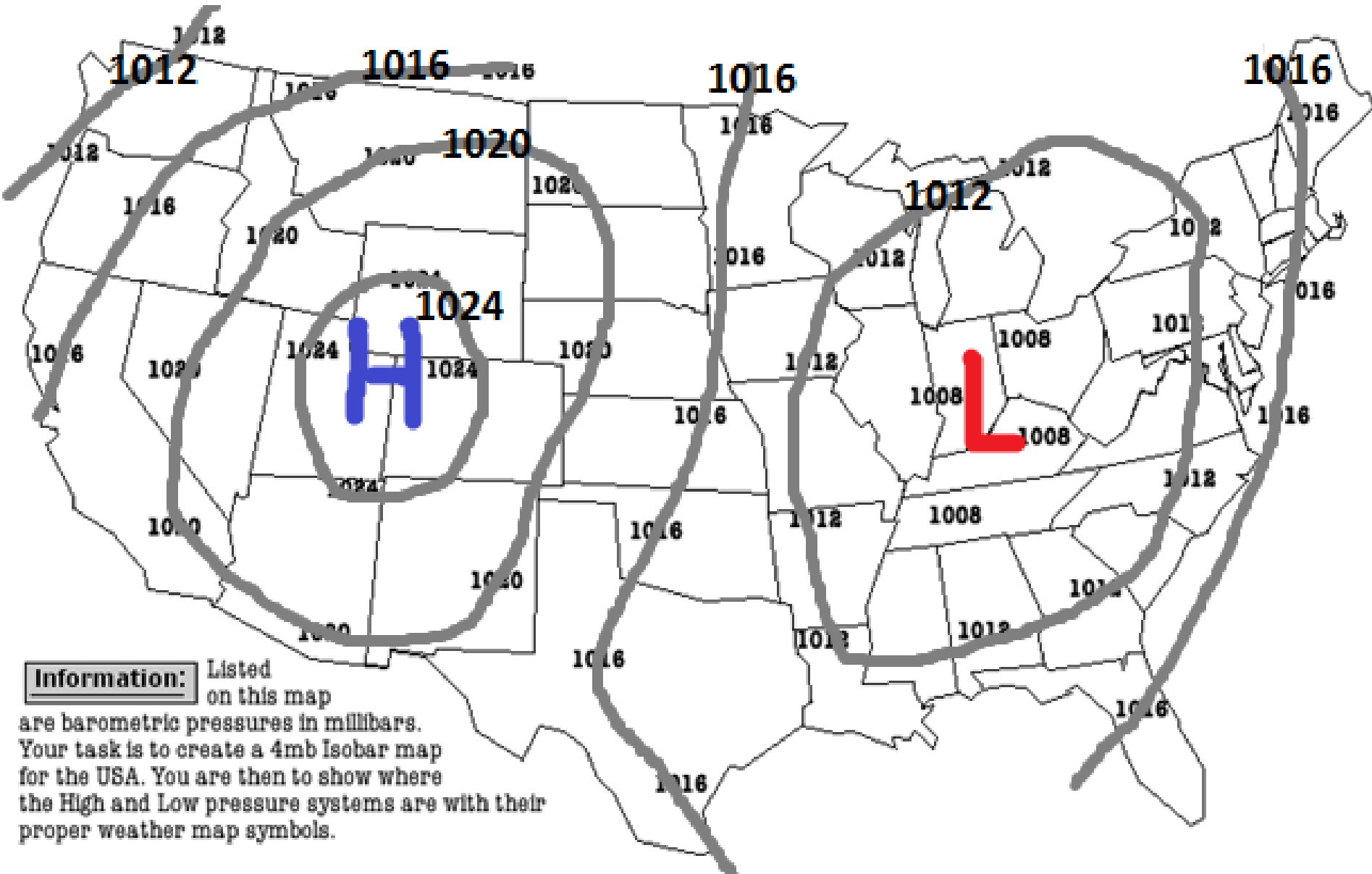
Draw Isobars every 4mb.

Draw 1012 mb

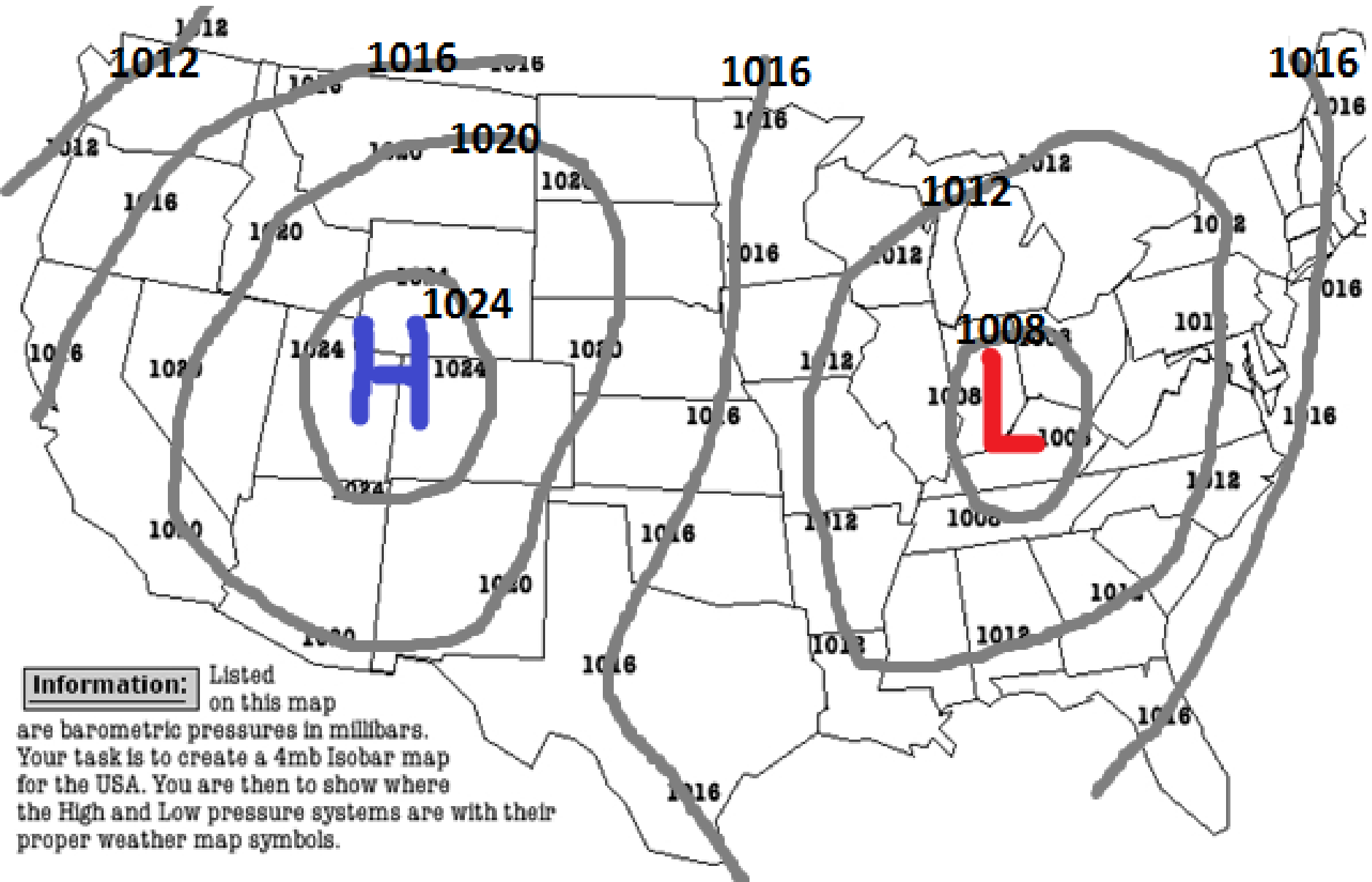


Draw Isobars every 4mb.

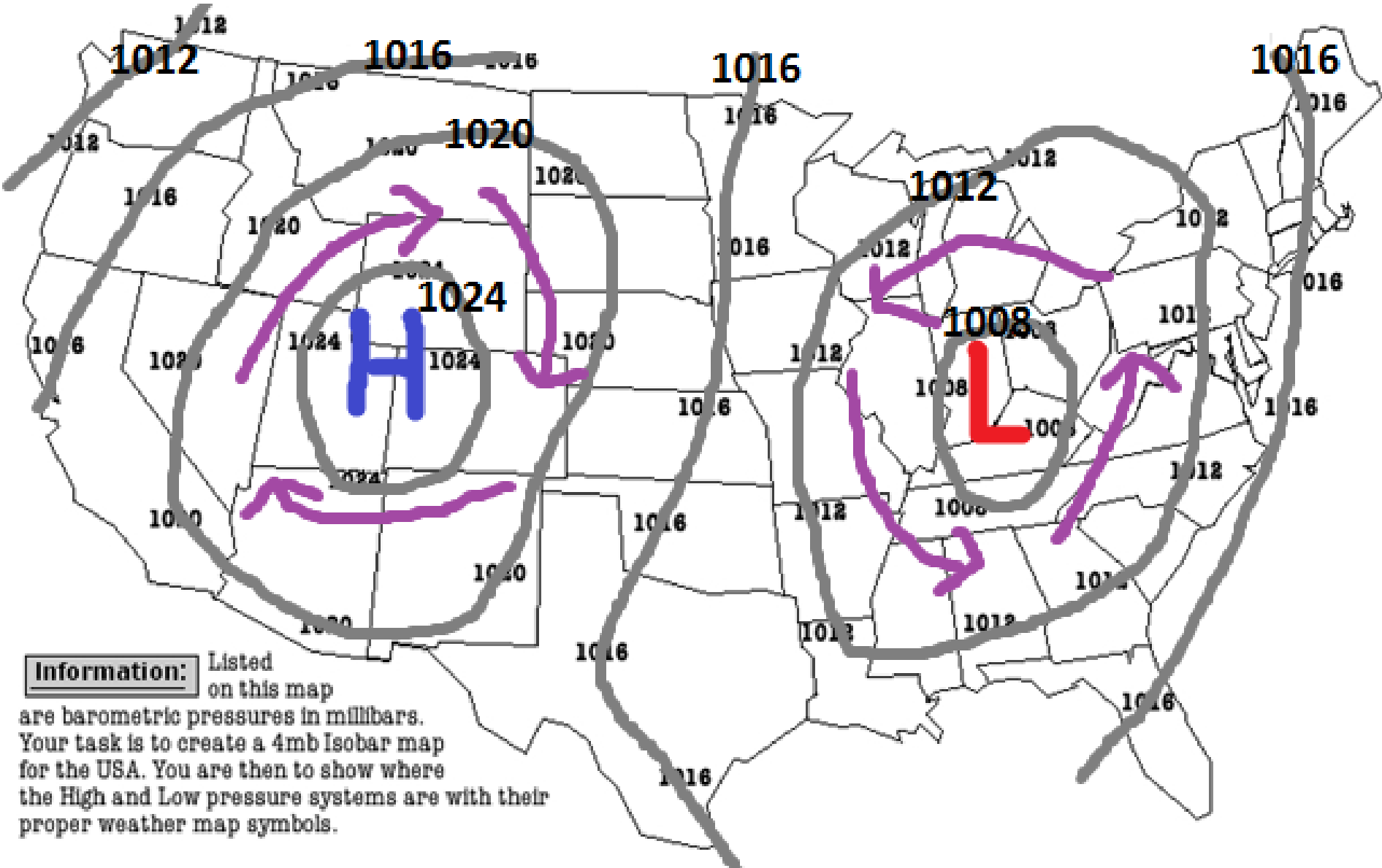
Draw 1008 mb



Draw winds around each pressure

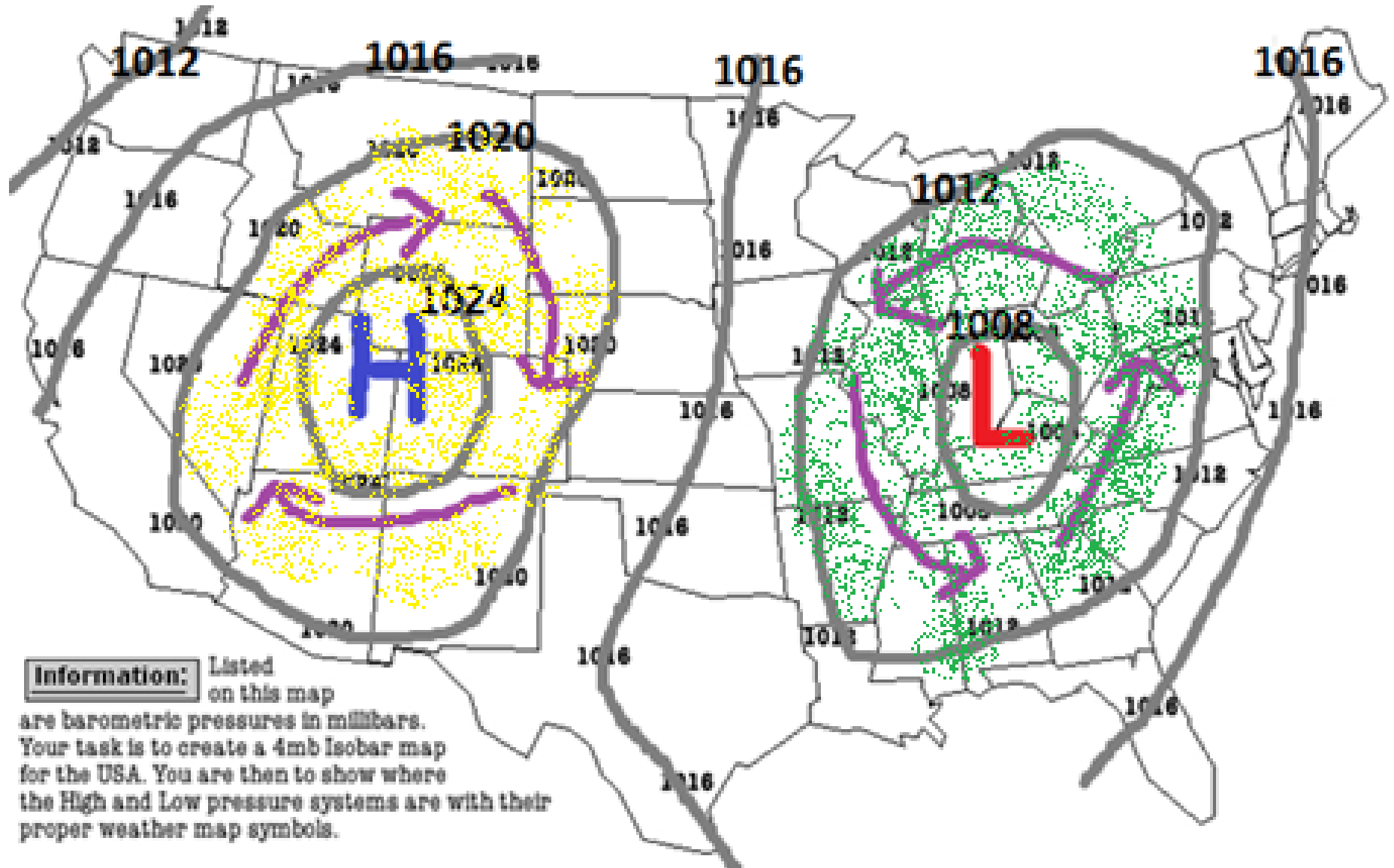


Identify the weather for each pressure.



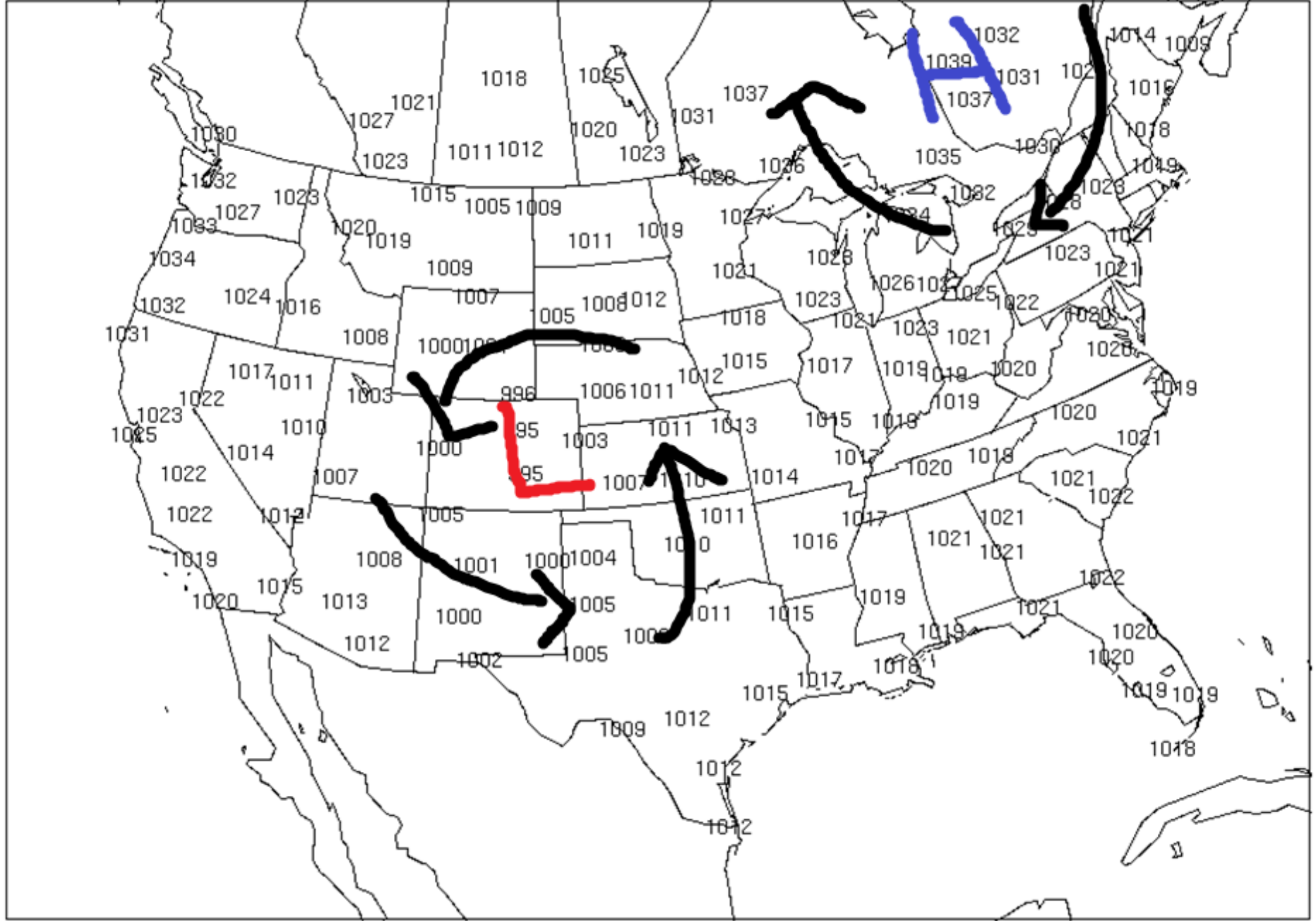
Information: Listed on this map are barometric pressures in millibars. Your task is to create a 4mb isobar map for the USA. You are then to show where the High and Low pressure systems are with their proper weather map symbols.

Identify the weather for each pressure.



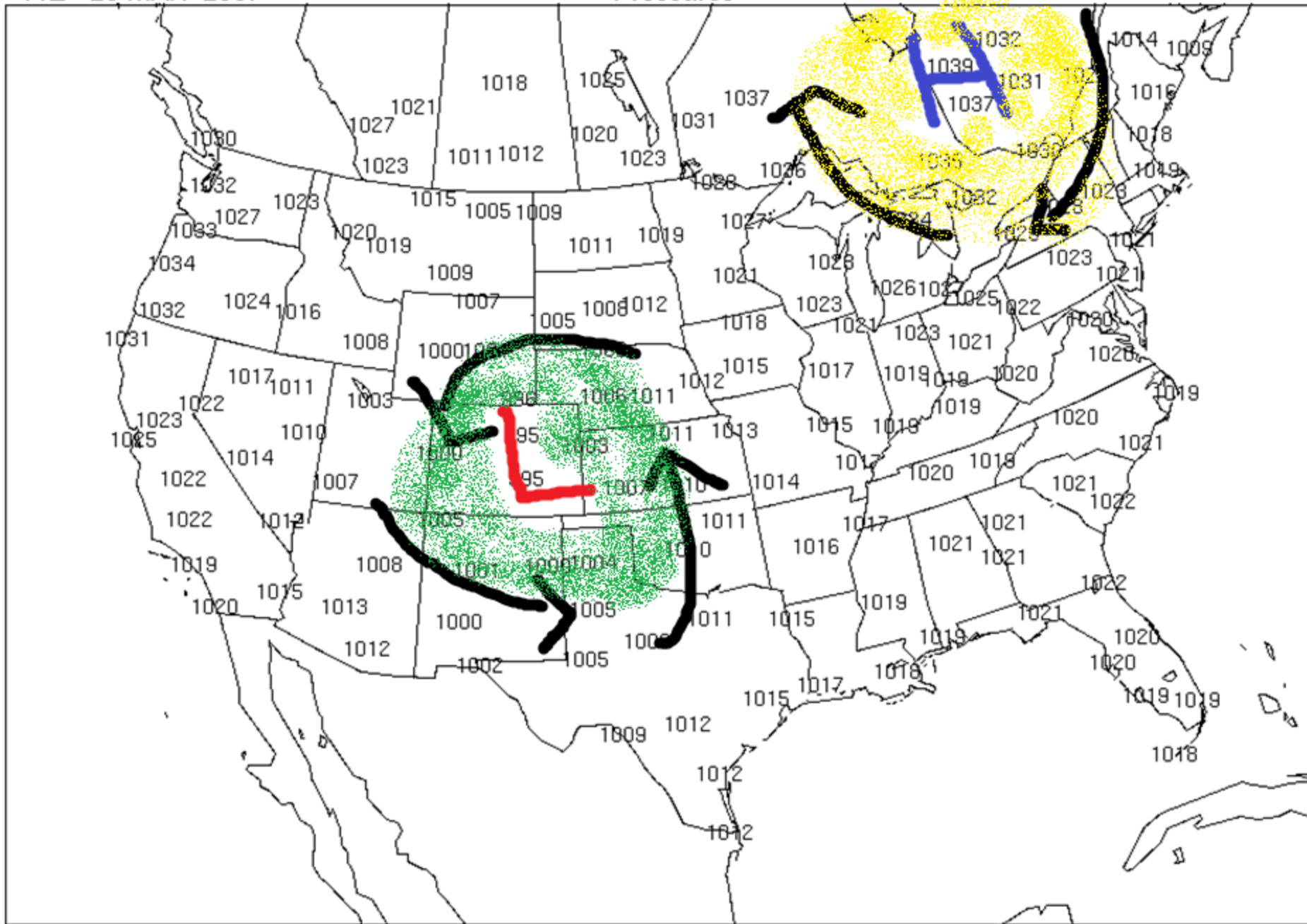
11Z 28 MAR 2007

Pressures



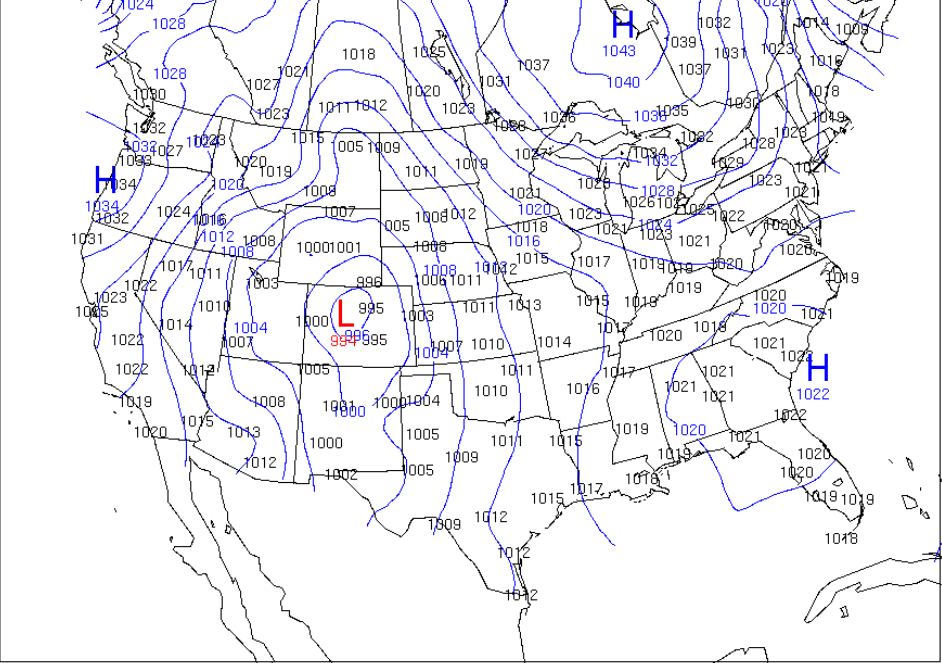
11Z 28 MAR 2007

Pressures



11Z 28 MAR 2007

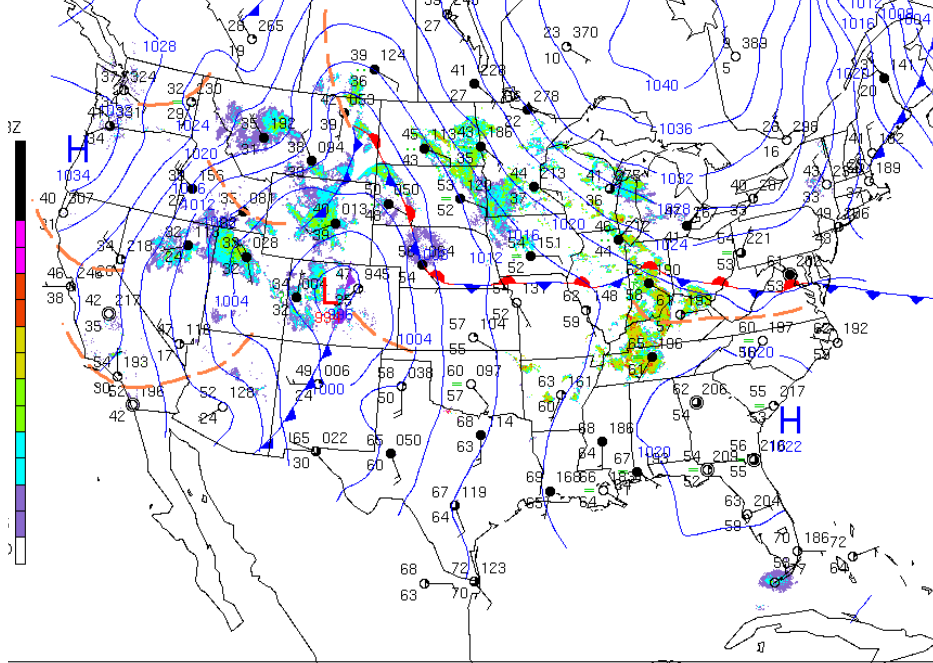
Isobars & Pressures



Blue - Isobars (4mb)

NCEP/INWSINDAA

Isobars, Fronts, Radar & Data

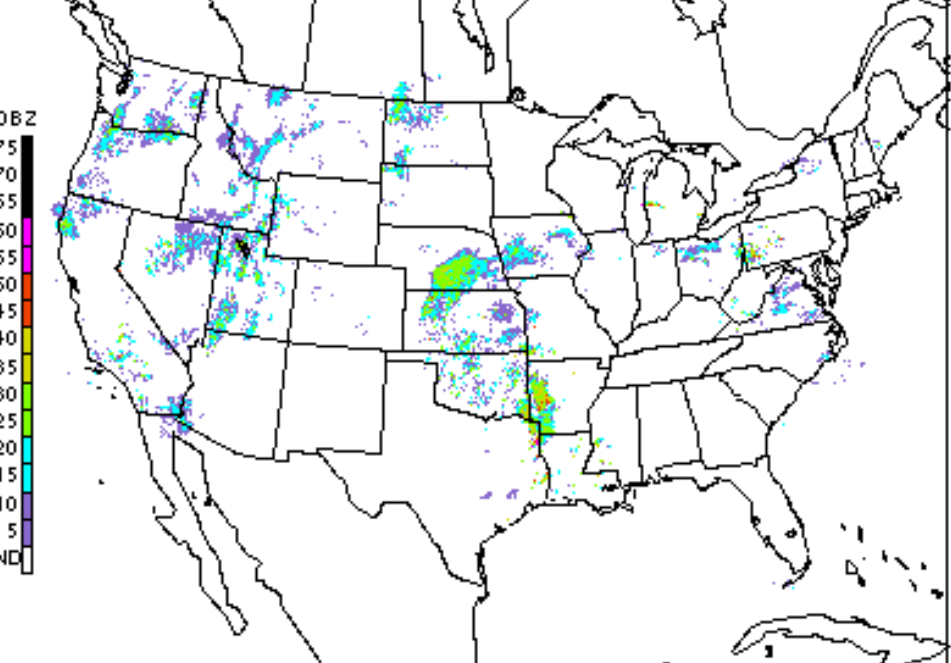


NATIONAL 2 KM BASE REFLECT 0.00 DEG Blue - Isobars (4 mb)

NCEP/INWSINDAA

18Z 27 MAR 2007

Radar



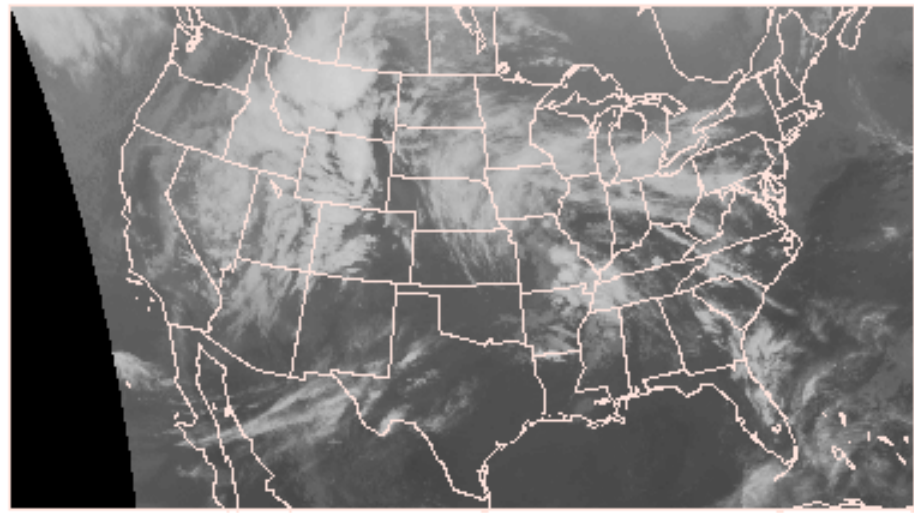
NATIONAL 2 KM BASE REFLECT 0.00 DEG

NCEP/INWSINDAA

Fronts at 09Z

Infrared Image

0215Z 28 MAR 2007



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