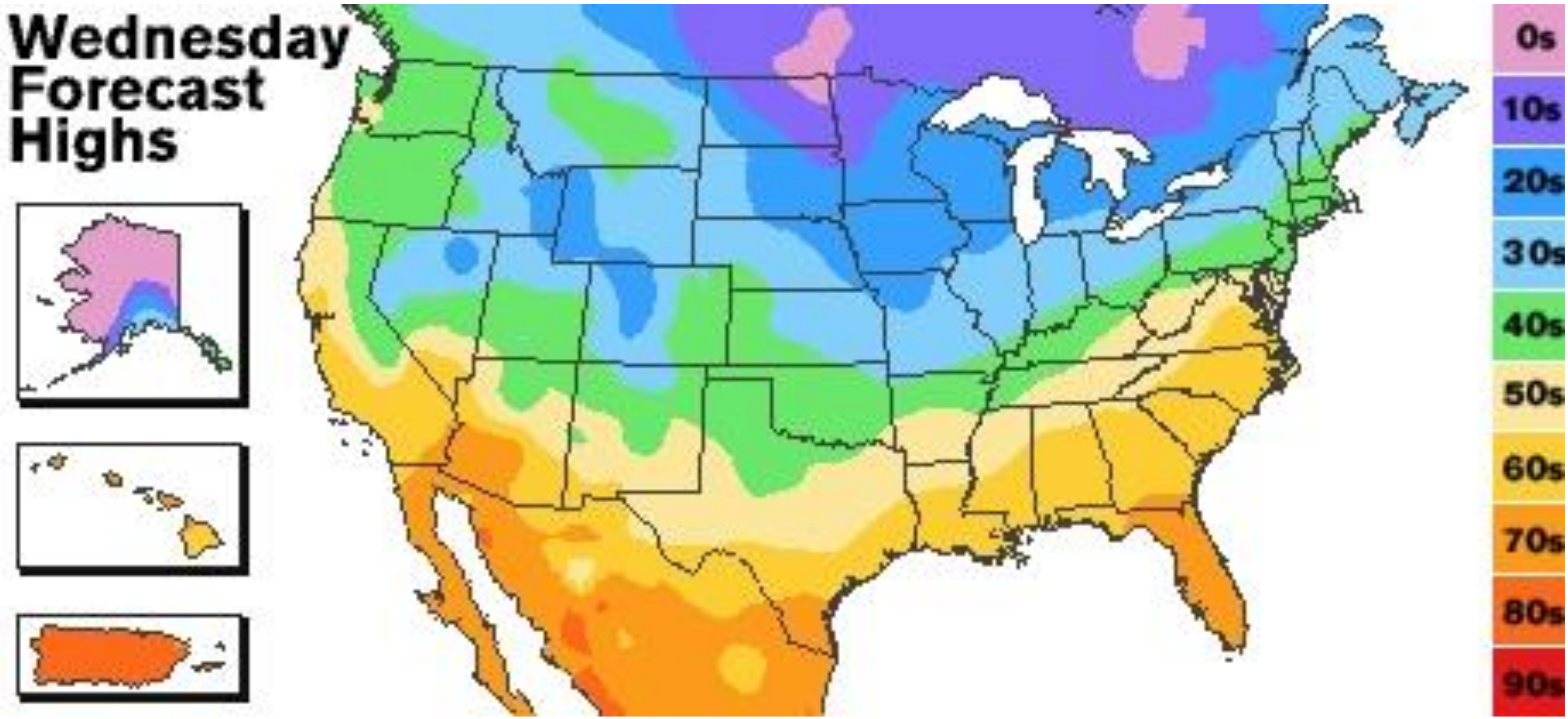
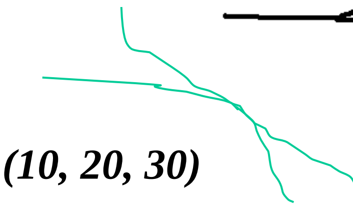
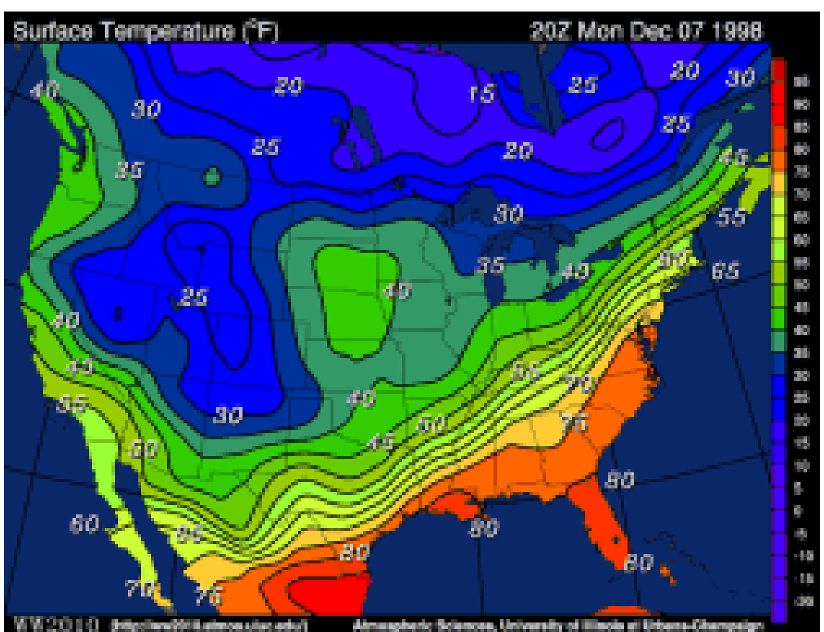
Drawing Isotherms

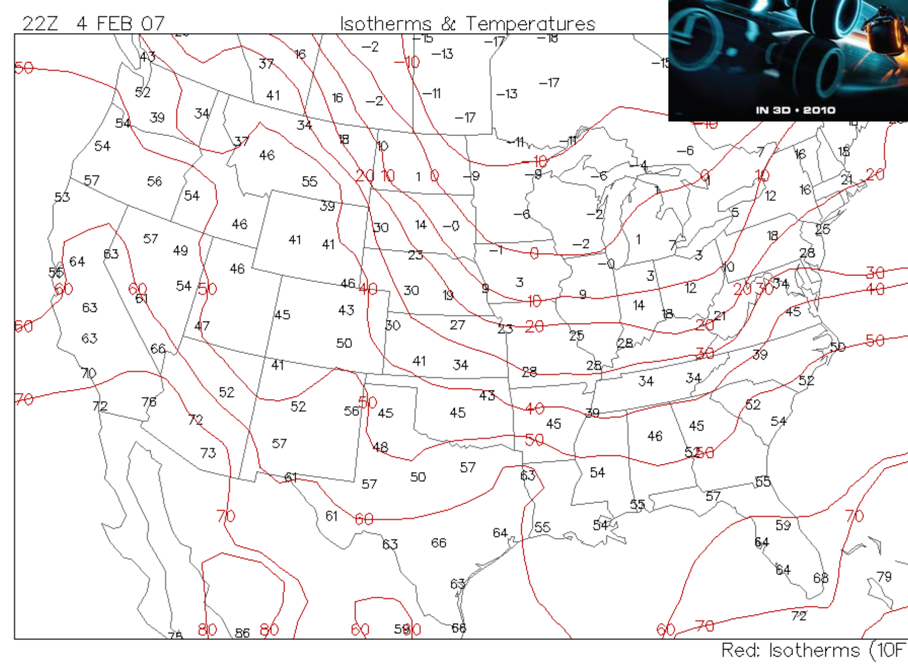


Rules of Isotherms

1. **Draw your isotherm in a neat and smooth line instead of a jagged line. (trace lightly in pencil. then go over when done.)**
2. **An isotherm should begin and end at an edge of the map, or, alternatively, loop around and close on itself**
3. **An isotherm should never branch or fork**
4. **Isotherms can not touch or cross other lines.**
5. **Isotherms should be drawn at equal intervals.** ***(10, 20, 30)***
6. **Each Isotherm line should be labeled**

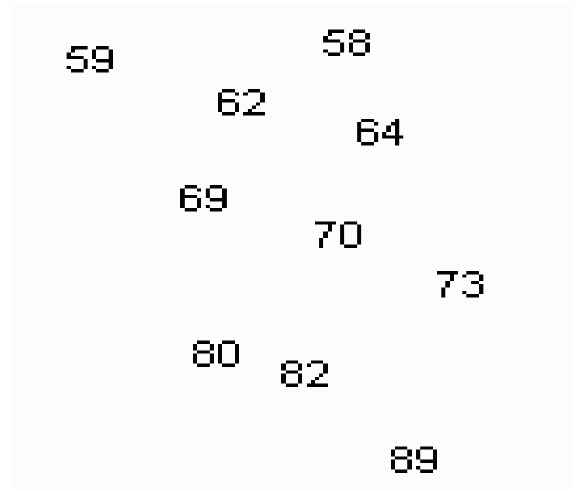




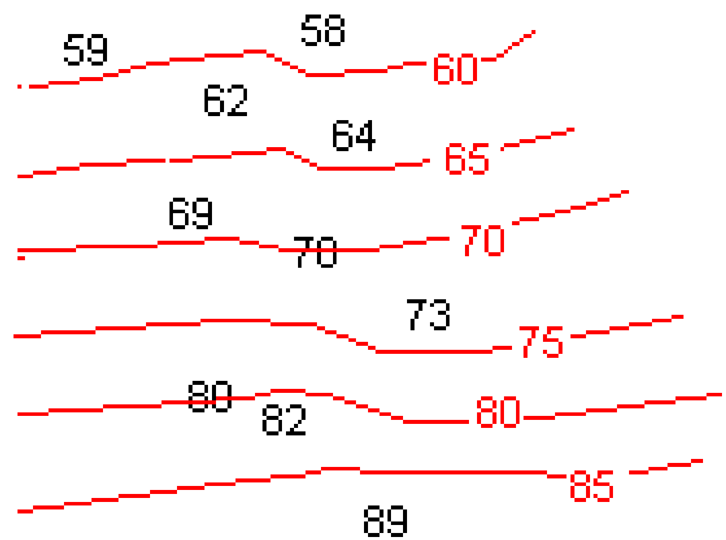


Isotherms

- **Isotherms** are lines on a map that connect points of equal temperature.

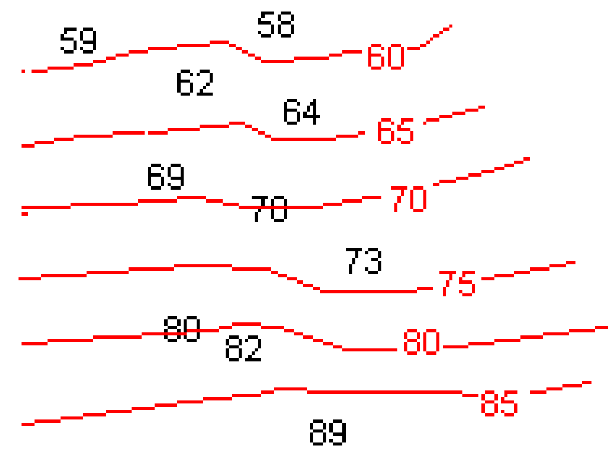


- Since latitude plays a large part in controlling temperature variations, isotherms often run east to west.



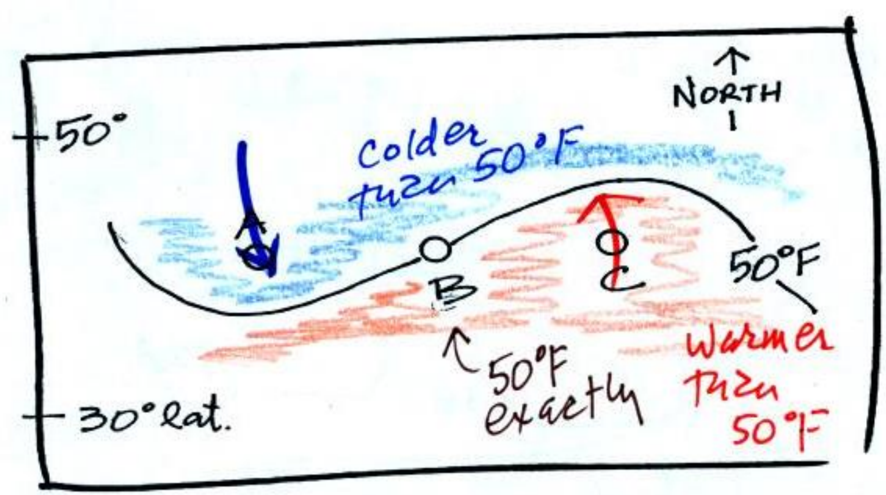
Isotherms

- All temps. on one side of the isotherm should be less than that isotherm value, and all temps. on the other side of the isotherm should be more than that isotherm value.



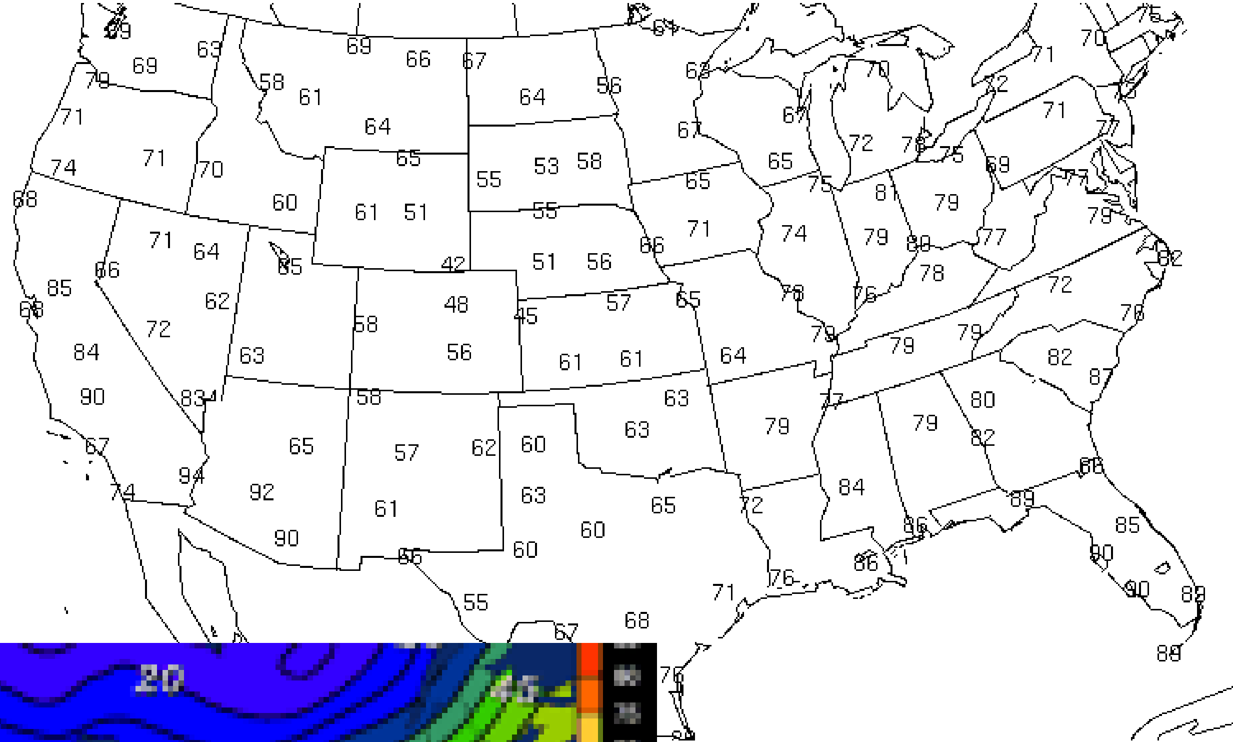
University of Arizona

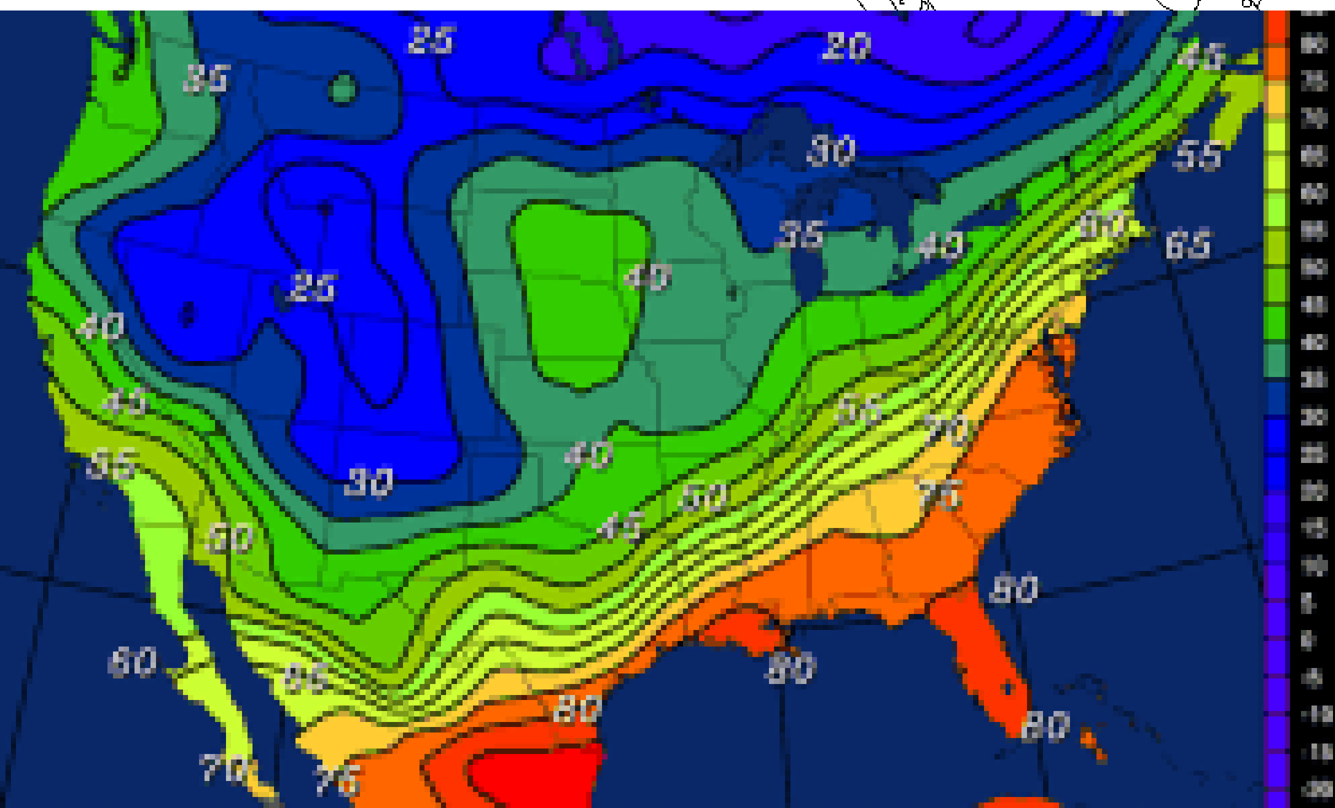
3.



Points A, B, and C are all at the same latitude. Is the air temperature at Point A WARMER COLDER or the SAME than(as) at Point B?

- **Compare both maps.**

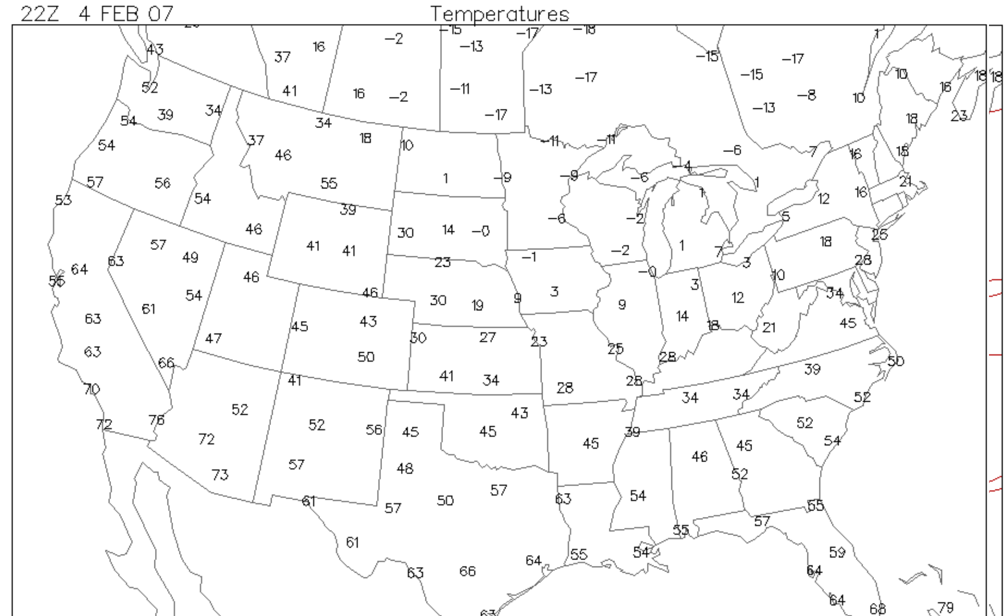


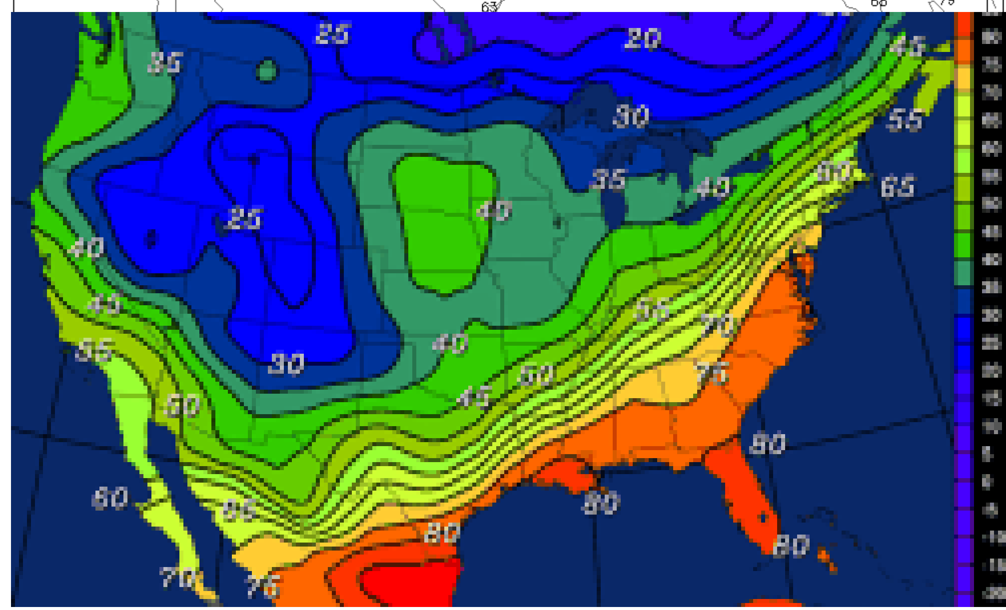


- **What are the pros and cons of isotherms?**

Why Draw Isotherms

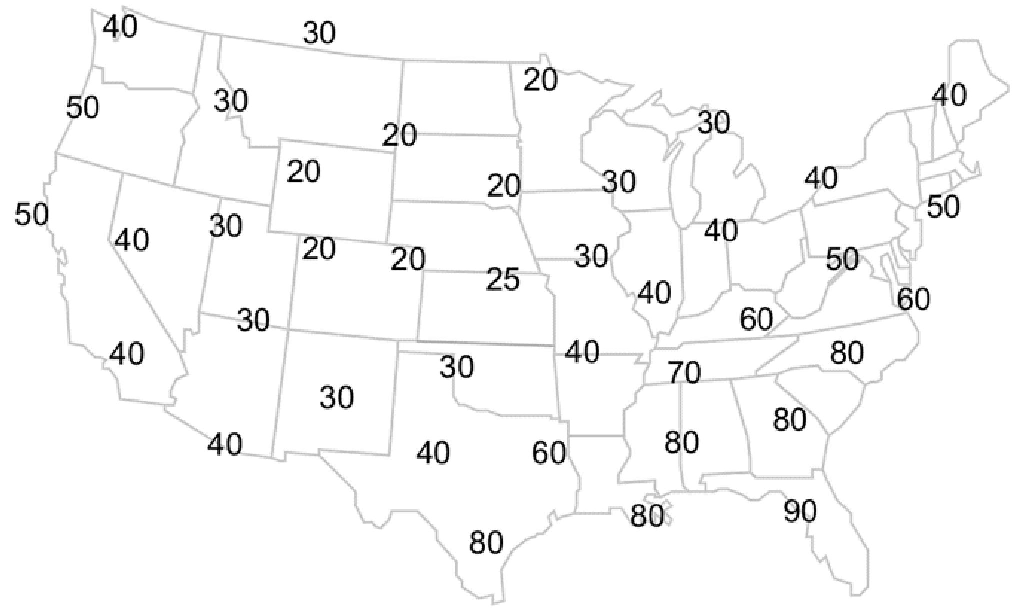
- Drawing isotherms, which are contours of constant temperature, will *help us to identify organized patterns* of warmth and chill over North America.



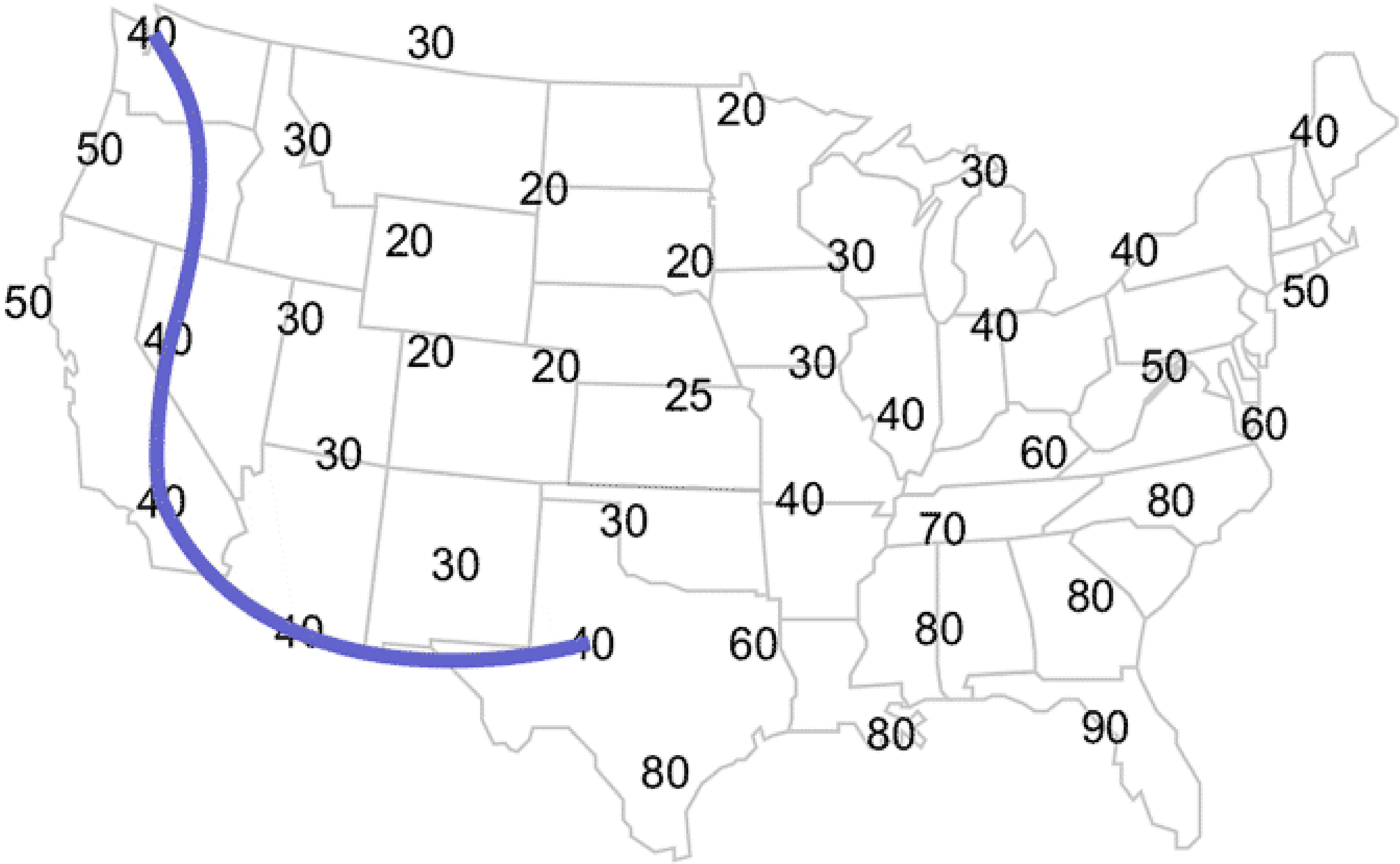


Drawing Isotherms

- Begin drawing from the 40°F temperature in Seattle, Washington (top left value).
- Connect to the nearest 40°F value located in Reno, Nevada, (southeast of Seattle). However, in order to get there you must draw a line **between** a 50°F temperature along the Oregon coast and a 30°F temperature in Idaho.

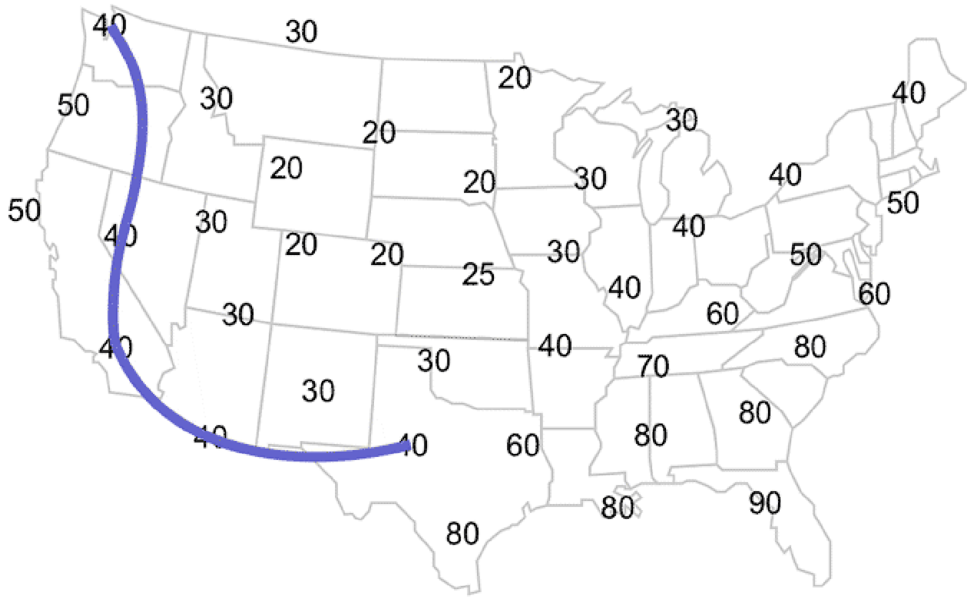


Drawing 40°F Isotherm



Drawing Isotherms

- Draw isotherms at 10°F intervals. Label your isotherms.
- You should always pick the next isotherm above or below the one you've drawn.



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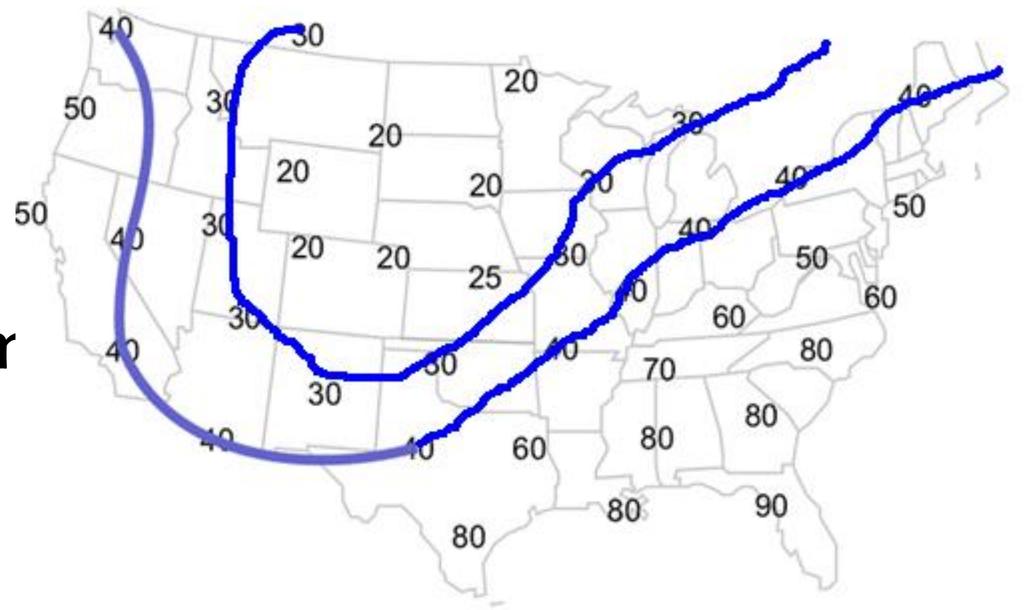
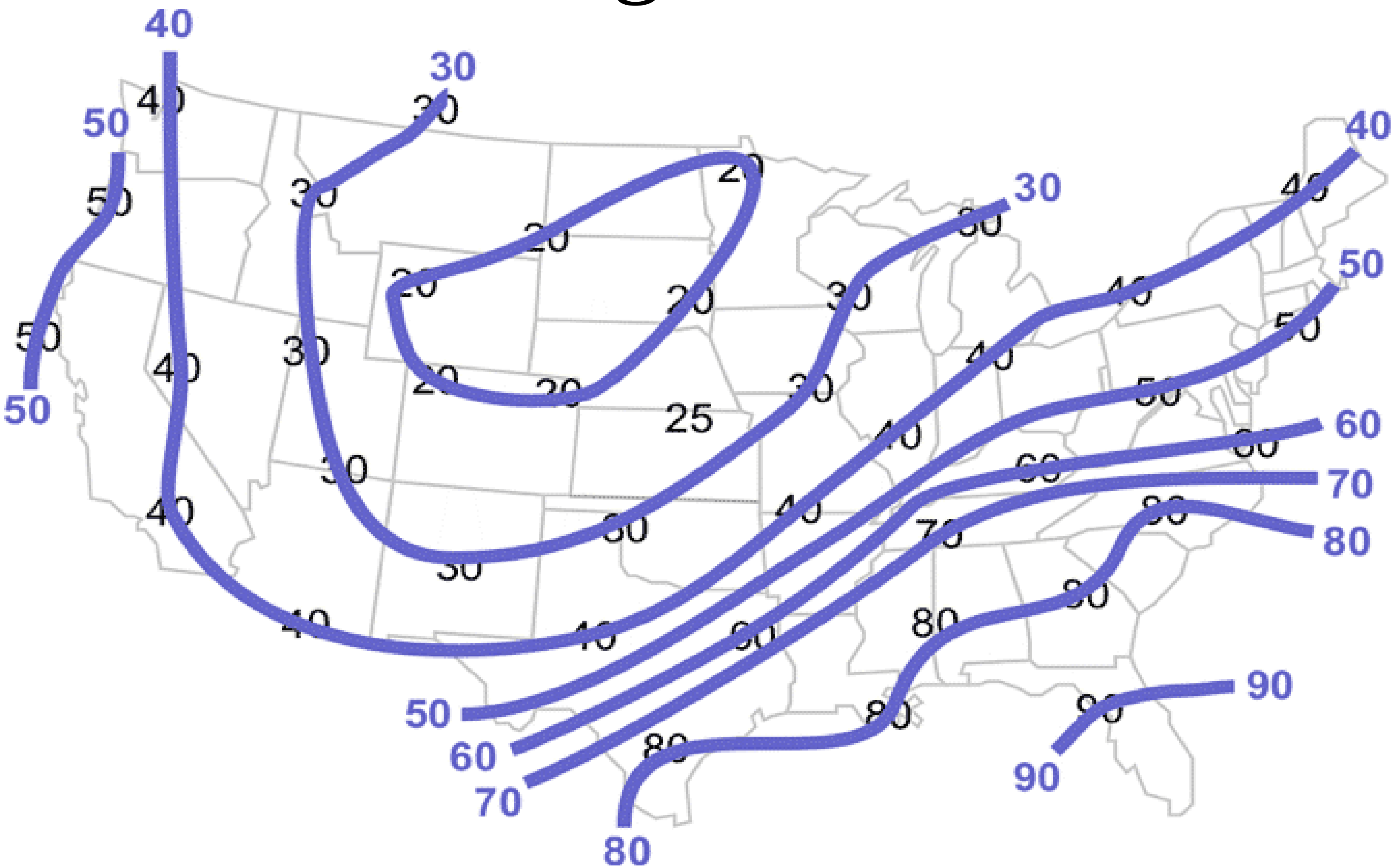
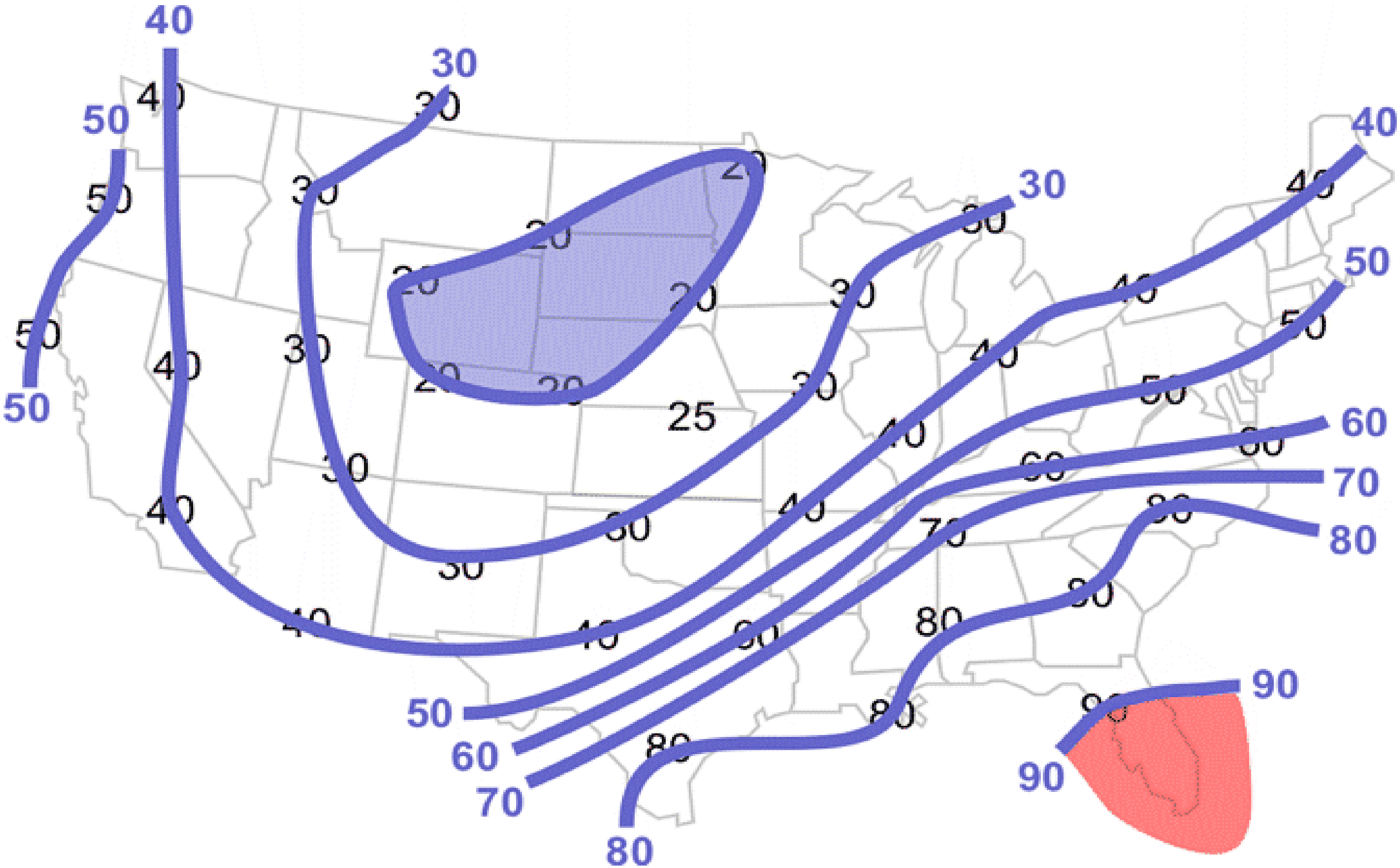


Drawing Isotherms



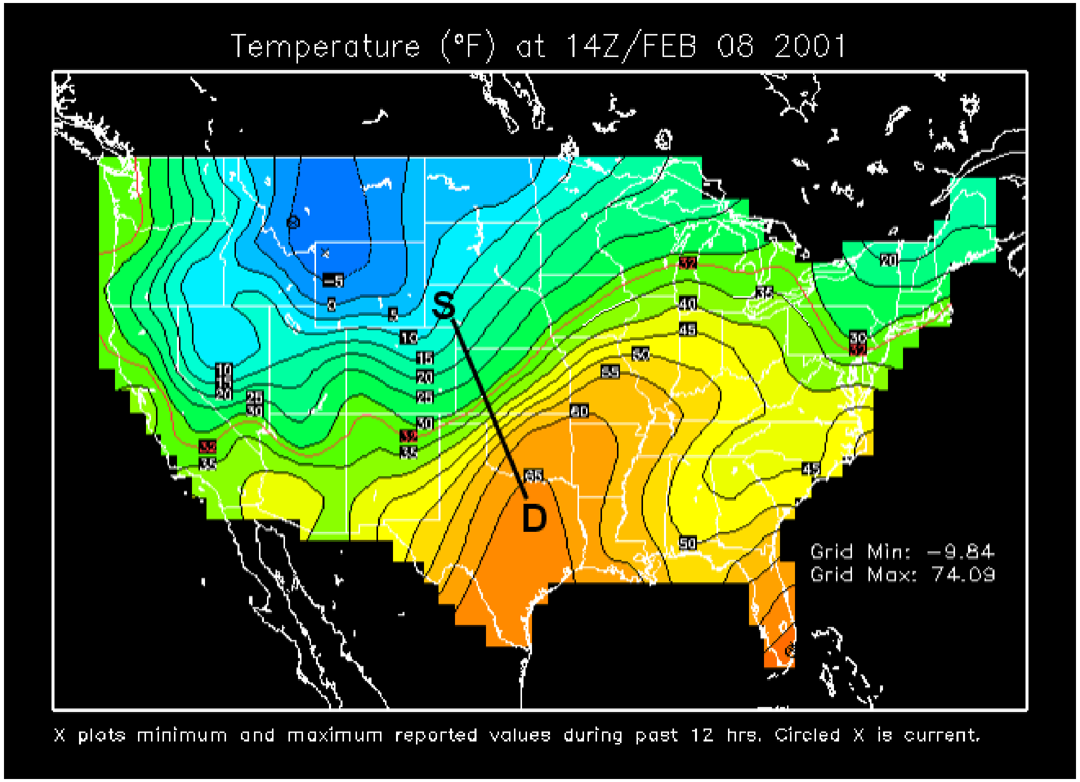
- Color the coldest area blue and the warmest area red.

Drawing Isotherms

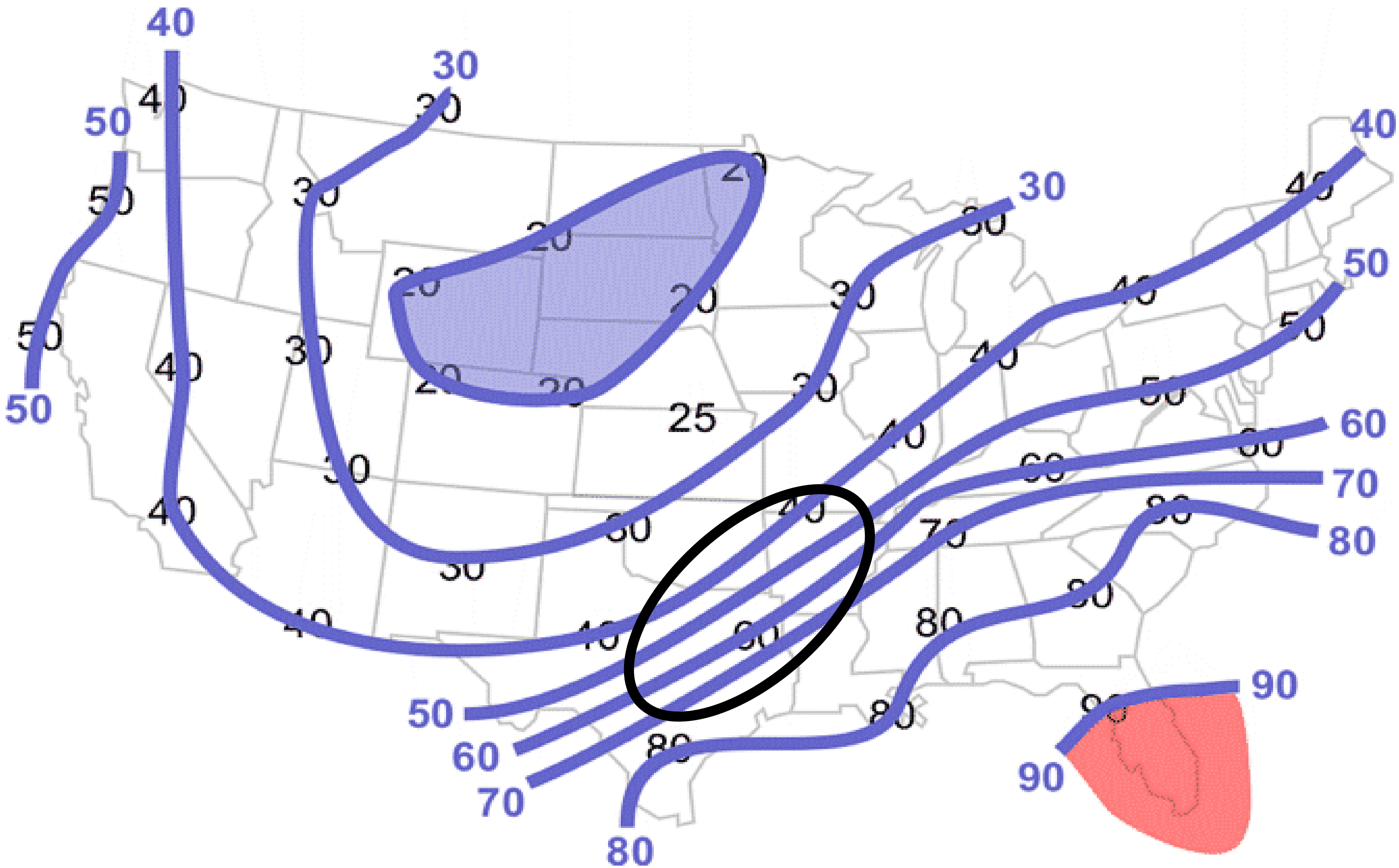


Temperature Gradient

- The amount of temperature change per unit of distance.
- A steep gradient is where temperatures change the most in a short amount of distance.



Circle the area with the greatest temperature gradient

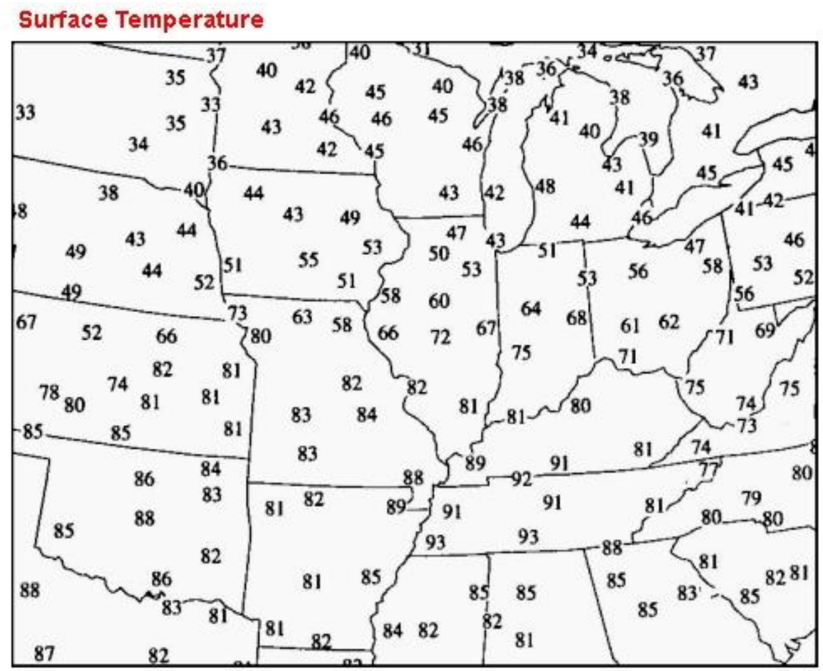


Lets practice some more.

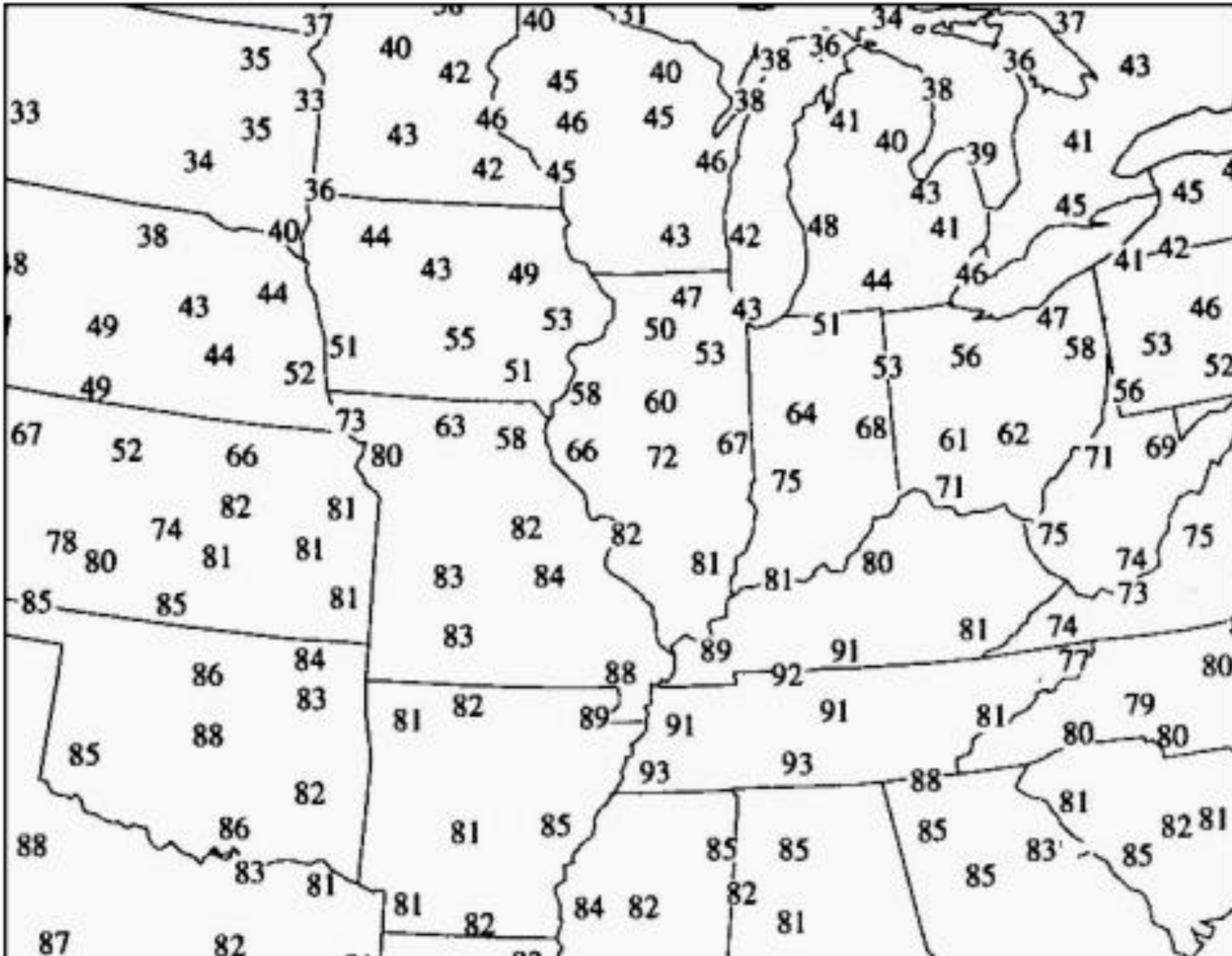
Penn State University

- **I want you to begin by drawing the 50-degree isotherm on your hard copy, applying the spirit of the rule of the unique roller-blading race.**

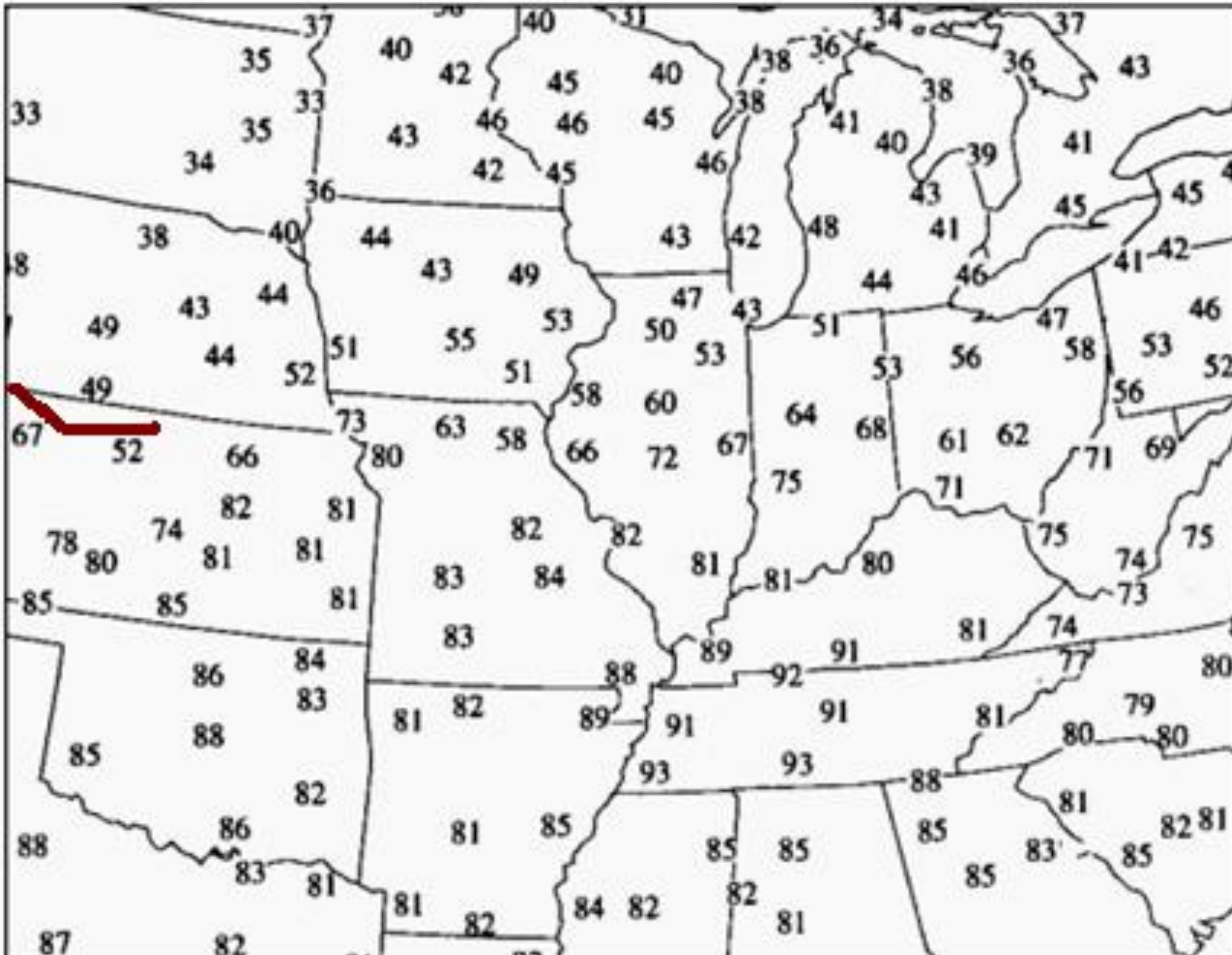
- **Try to "skate" your pencil through "gates" marked by a temperature in the upper 40's and a temperature in the lower 50's**



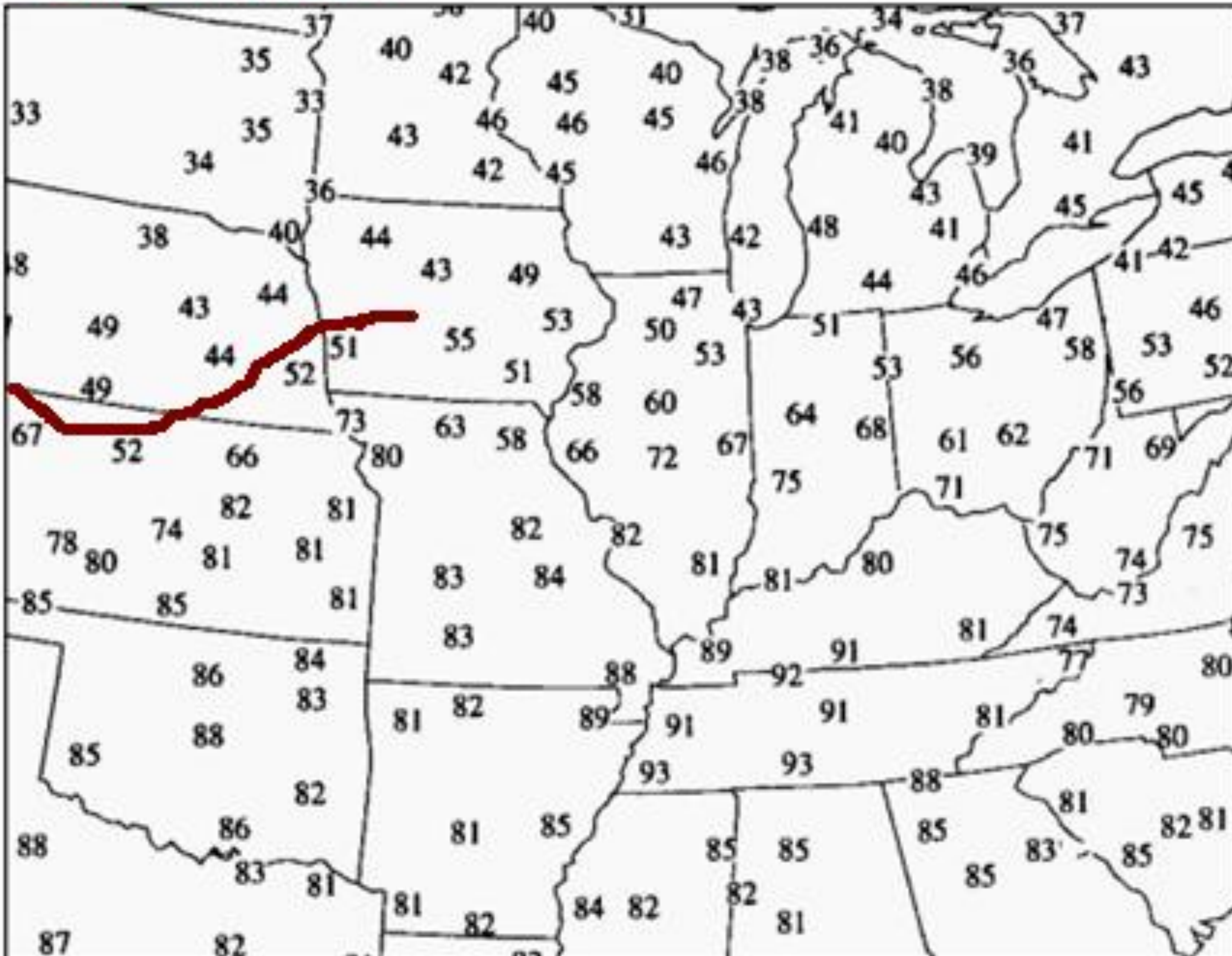
Surface Temperature



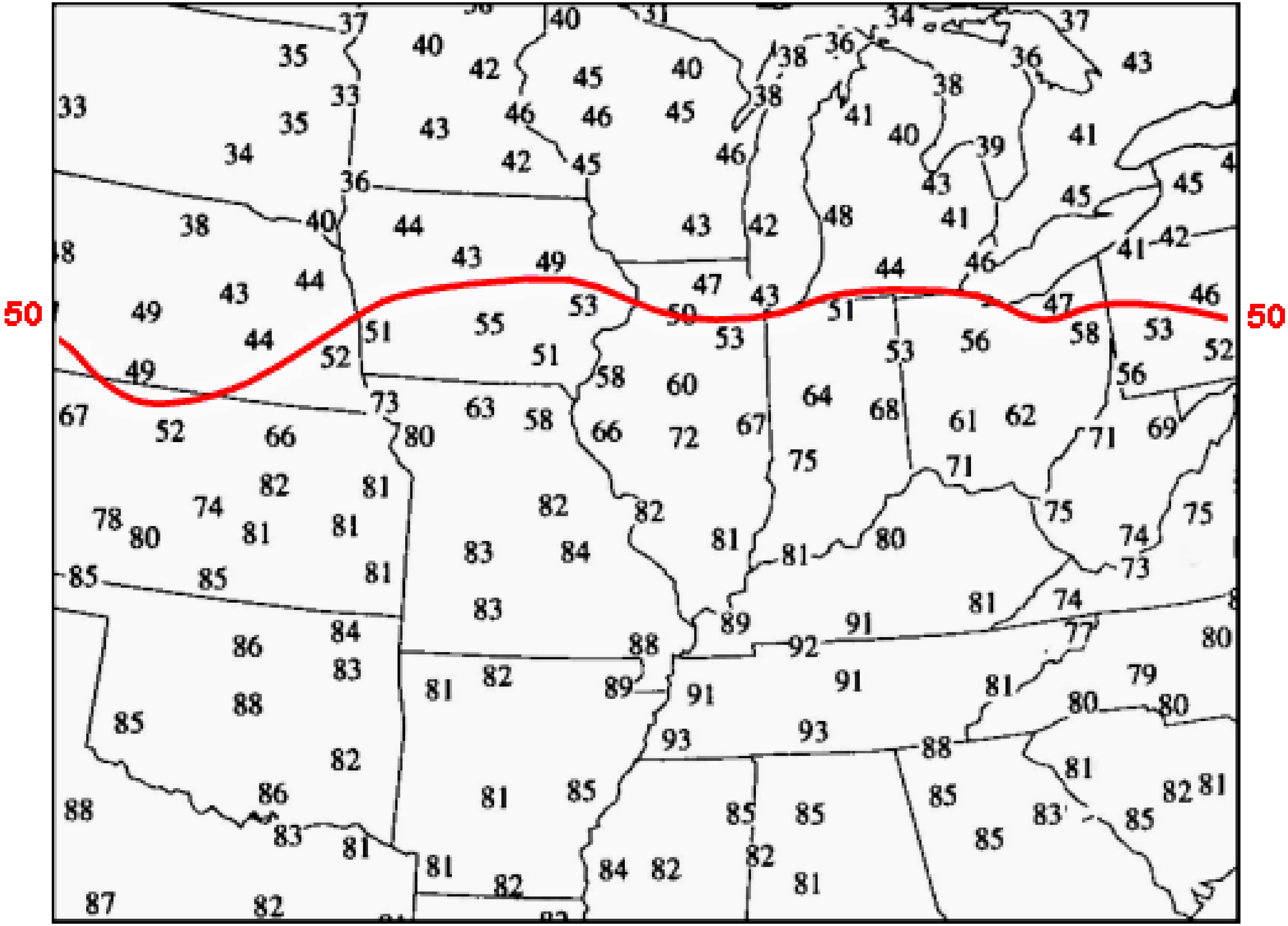
Surface Temperature



Surface Temperature

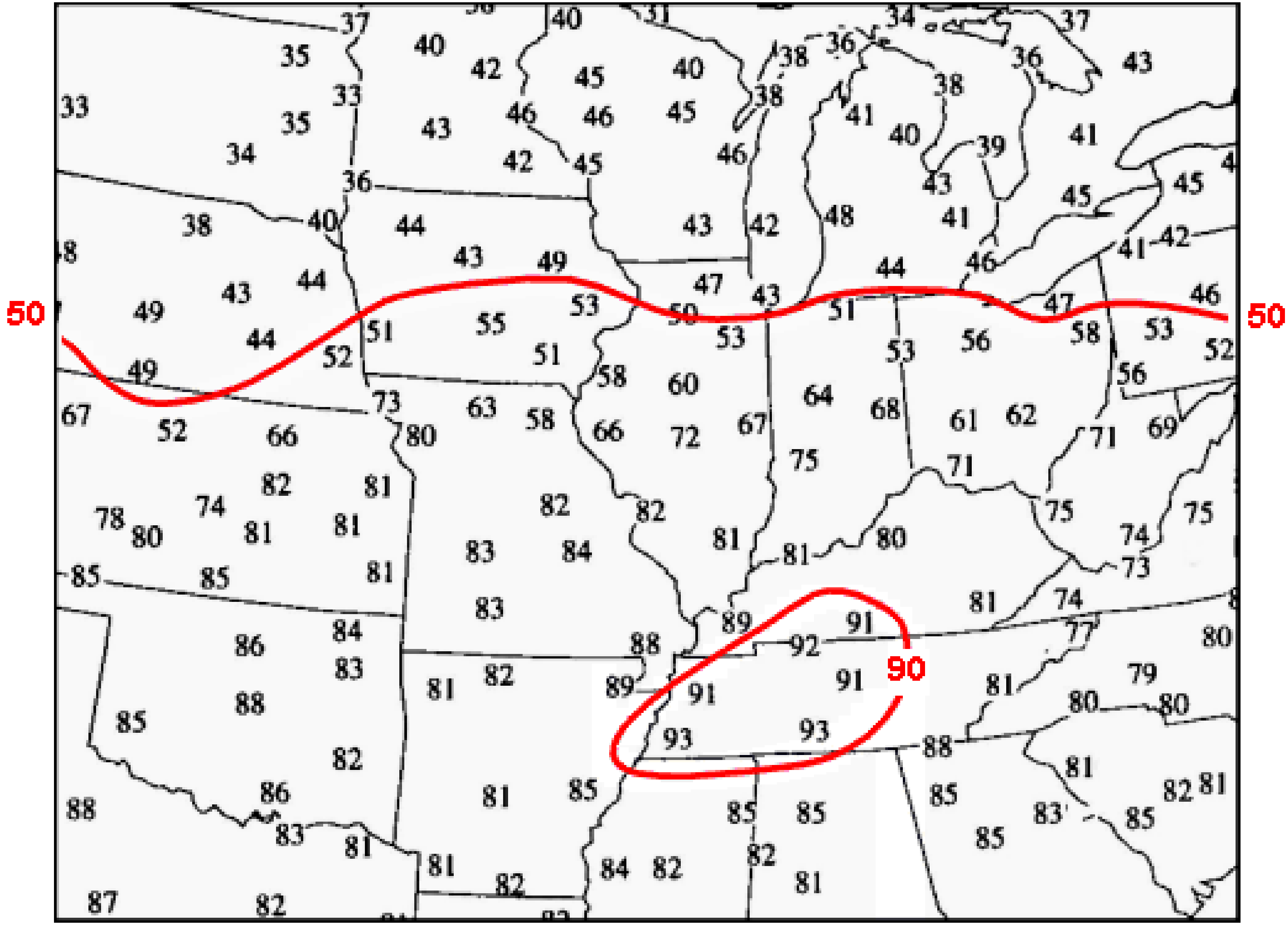


Surface Temperature



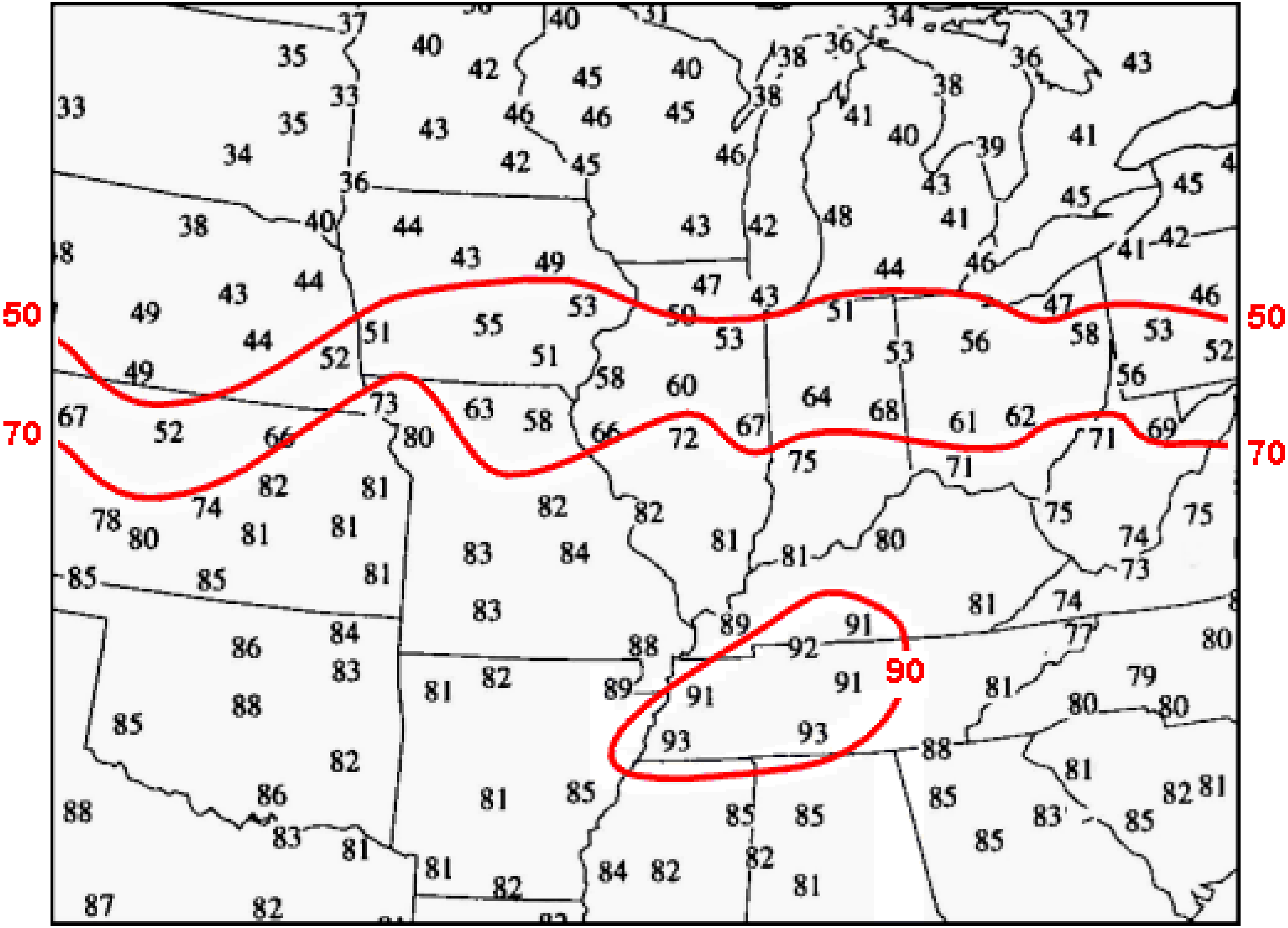
- Now try drawing the 90°F isotherm

Surface Temperature

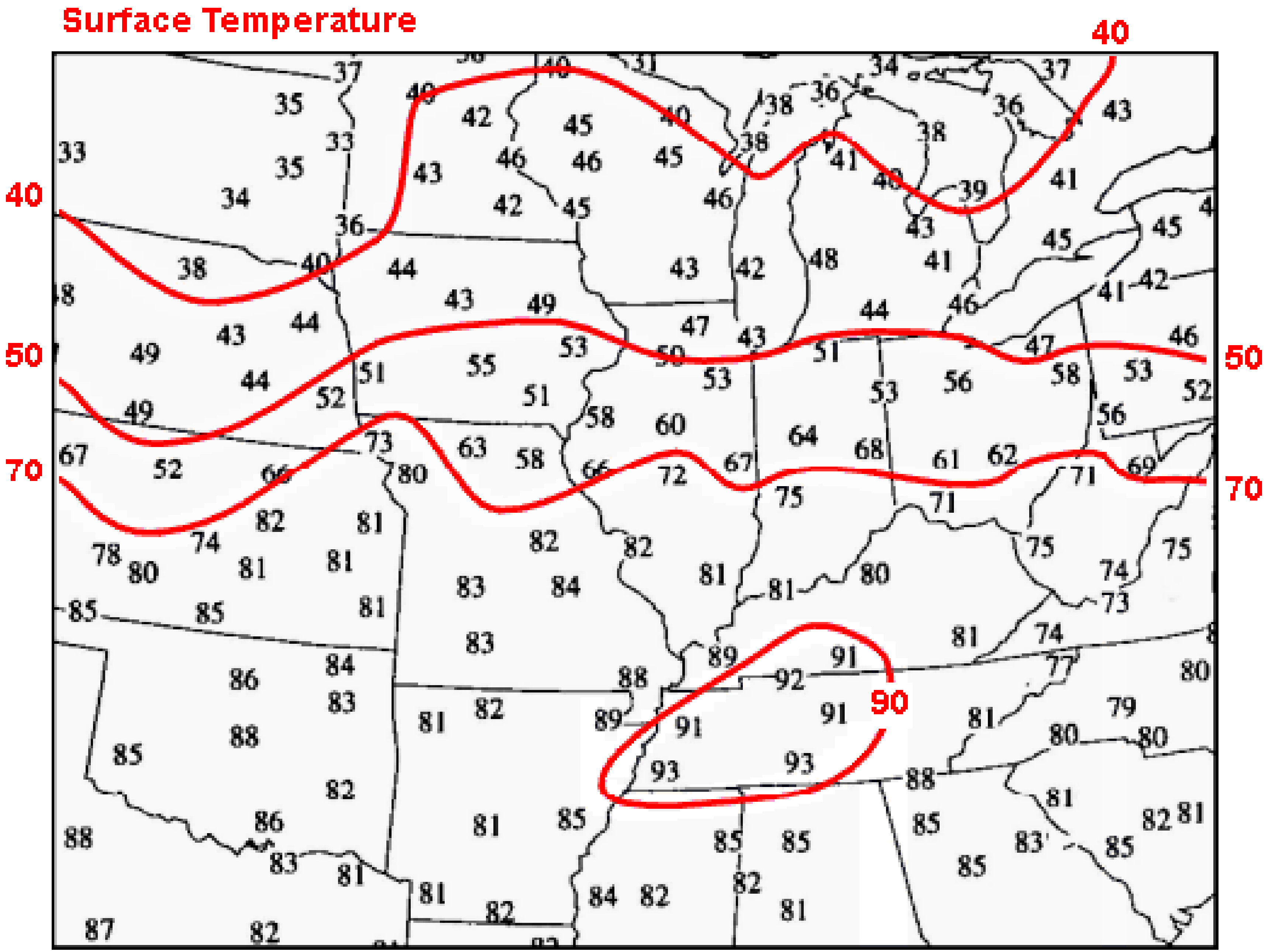


- Now try drawing the 70°F isotherm

Surface Temperature

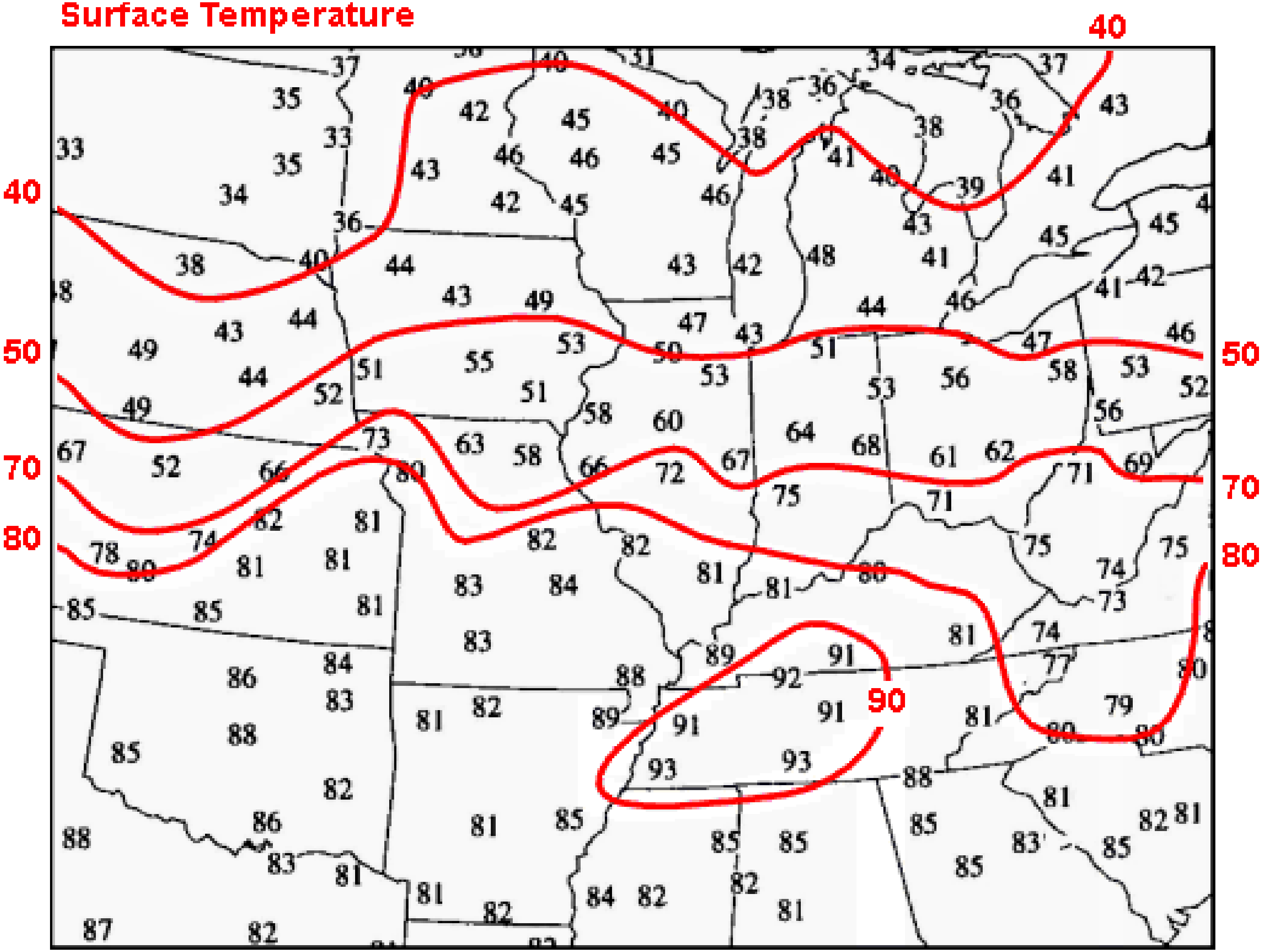


- Now try drawing the 40°F isotherm



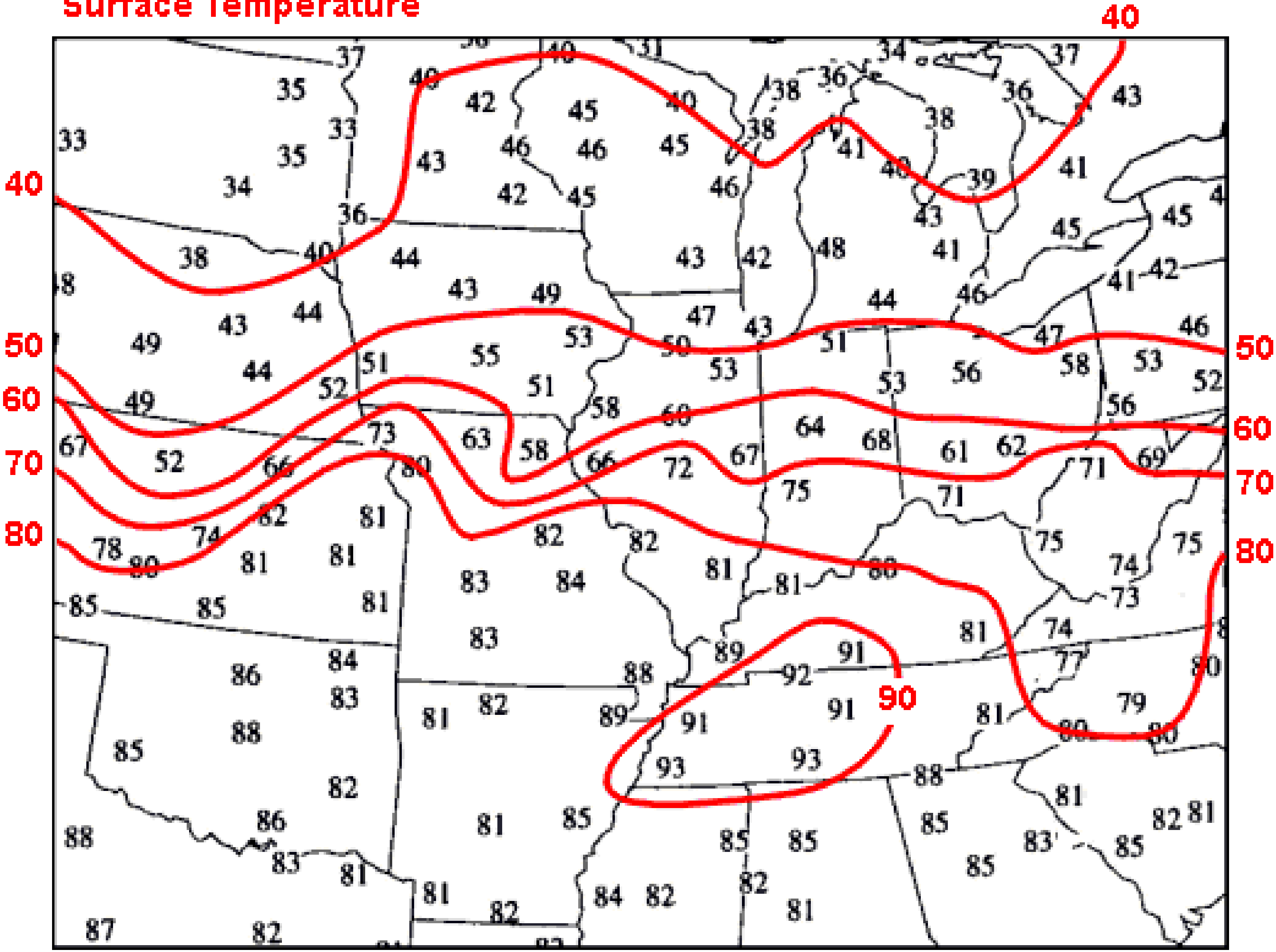
- Now try drawing the 80°F isotherm

Surface Temperature

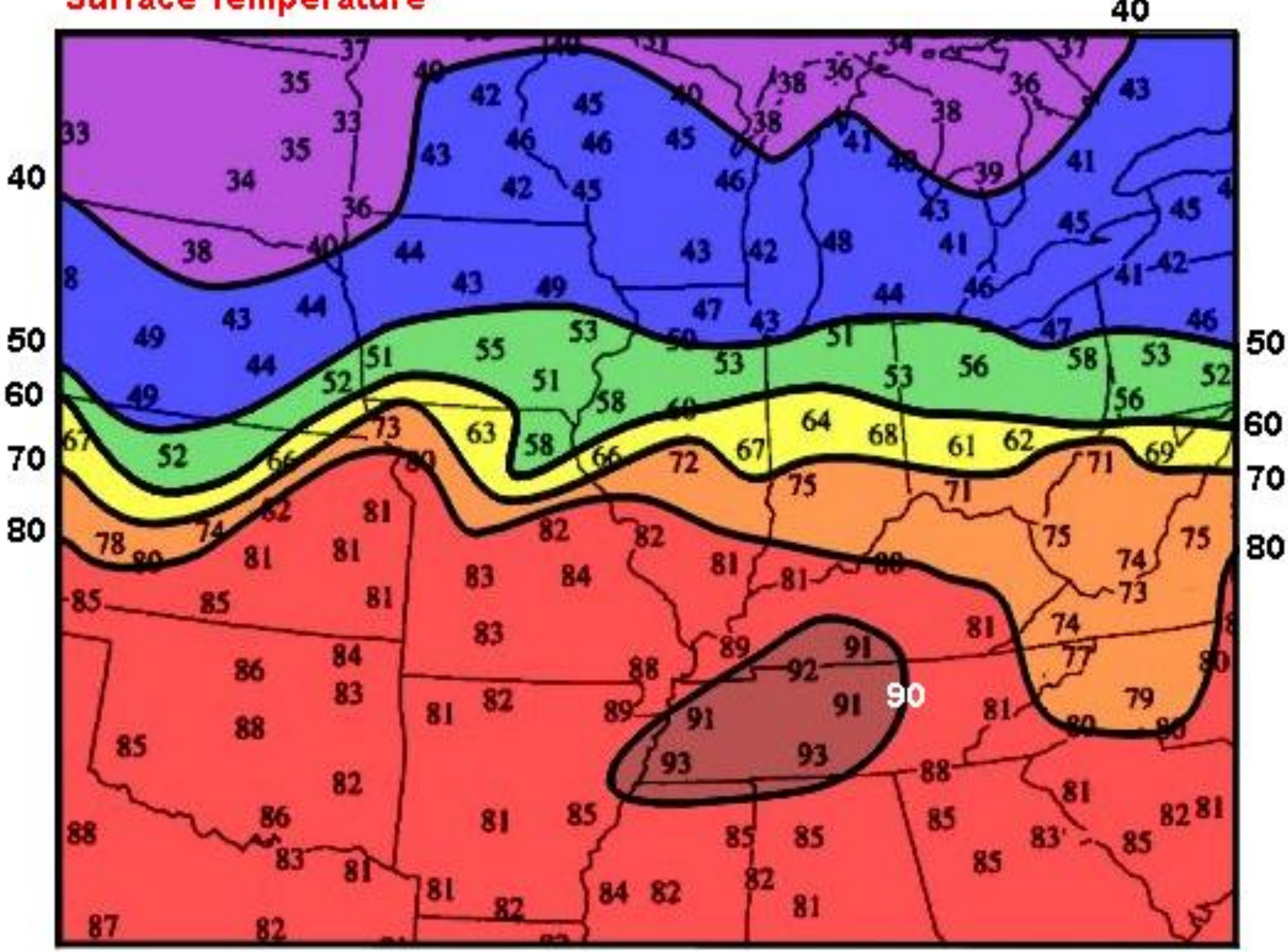


- Now try drawing the 60°F isotherm

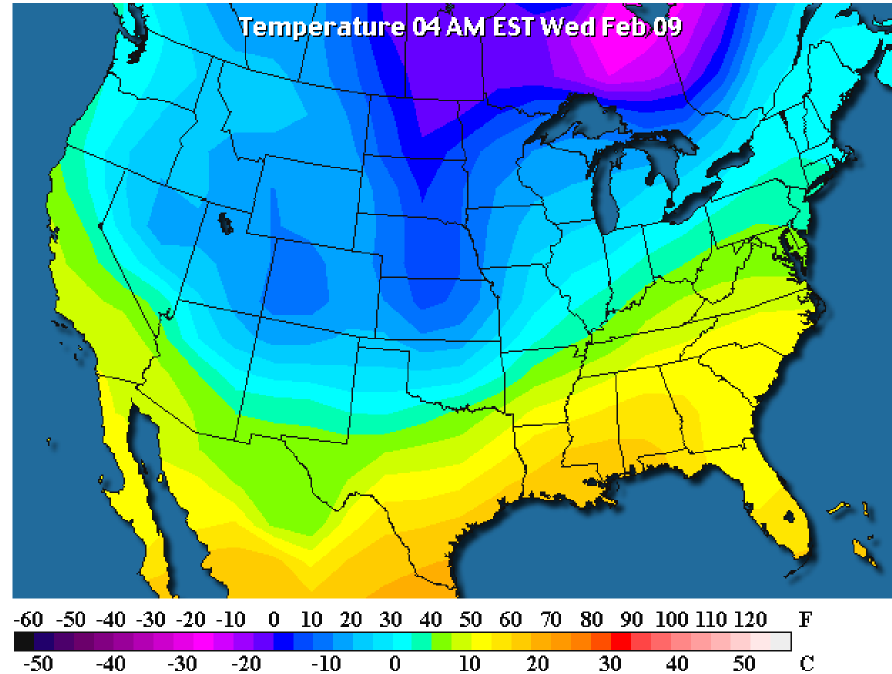
Surface Temperature

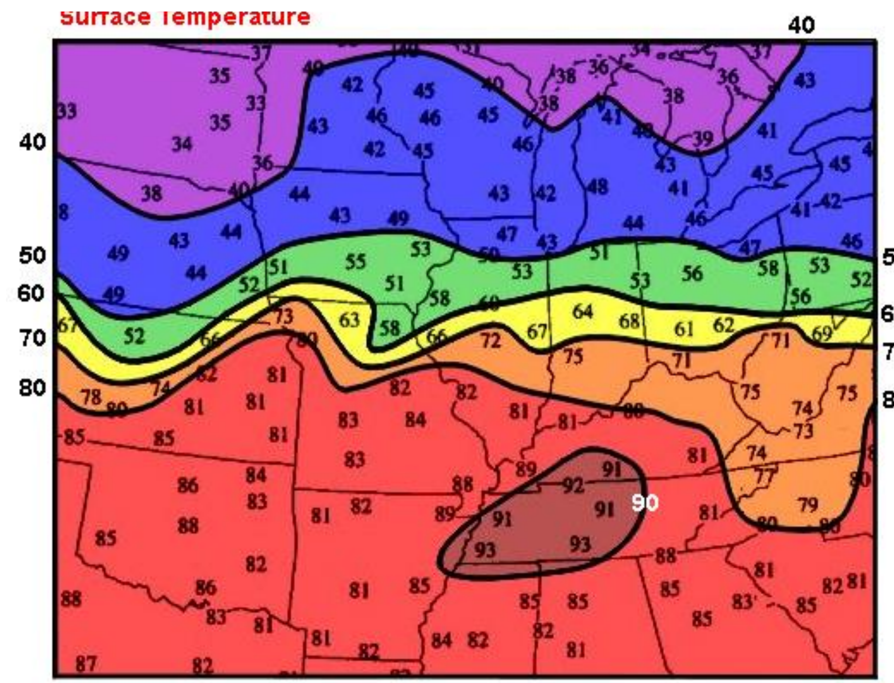


Surface Temperature



- For a national perspective of temperature, color-coded maps like the ones shown give forecasters a broader perspective to pinpoint regions of warmth (red) and chill (blue).





SPC Hand Analysis Example

- Despite the powerful computers, there is no substitute for drawing weather maps by hand for making a forecaster take the time to thoroughly understand the ongoing weather situation. And without knowing the intricate details of what's happening now, a forecast can suffer.