

Name: _____

Lab 2. Map Data

Most weather processes involve air masses moving across the Earth, so it makes sense to display weather variables by geographic location in map format. In this lab, you will explore different map displays of weather data.

National Weather Service

Surface Analysis (5 points)

Go to weather.gov. Click on “Forecast Maps.” Most of the maps you can access here are forecasted conditions rather than current observations. An exception is the “Surface Analysis” option. A good option among the offerings on this page is the “High Resolution Surface Analysis.” You have a choice of background color schemes to indicate the terrain; I prefer “simple colors” because I find it least confusing. The map really is high resolution, so to figure out what is happening anywhere it helps to enlarge the view. You can zoom in and out using the “+” and “-” buttons, and you can move around in the enlarged map by clicking and dragging.

This map displays several quantities.

What geographic region is displayed?

What is reported at the station model displays?

Sketch the general pattern of contour lines on the map. You don’t need to draw every contour, but do draw the geographic borders and the general impression of contour directions.

What quantity do the contour lines represent?

Are there any closed contours on the map?

If there are closed contours, are they maxima or minima?

Do the contours show any troughs or ridges?

What fronts appear on the map? Describe them here and add them to your sketch.

Is there any relation between the fronts and the contours?

Look at the station model reports near the indicated fronts. Do you see any abrupt changes in temperature, cloud cover, or humidity (dew point) across front boundaries?

From the North American Surface Analysis page, click on the central image for the “Current Surface Analysis.”

How does this image correspond to the high resolution image you examined earlier?

Radar (3 points)

From the weather.gov page, click on “Radar.” This takes you to a view of a national radar mosaic on a 20-minute loop.

Does the mosaic show any precipitation? If so, where is it?

Does the animation show any movement of weather features? If so, how are they moving?

Satellites (10 points)

From the weather.gov page, click on “Satellite.” The display tiles begin with nine products, followed by the sixteen GOES channels from which the nine products are derived. Within each tile, you can select from different graphics formats, animation, and documentation.

Each student will be assigned one product or band to investigate. Study its documentation and the current view. Analyze the current view in light of the documentation to determine what the product is showing about current conditions. Present this information to the class in about two minutes.

Your product or band:

Summary of current insights.

SUNY-Albany

The site is https://www.atmos.albany.edu/index.php?d=wx_data. You can find surface data, radar data, and satellite data here as well. But here I'll have you look at Upper-Air data.

850 hPa (3 points)

Select "Surface and Upper Air Data." Under Upper Air Maps, select the 850 hPa map.

The map has black contours and pink contours.

What do the black contours display?

What do the pink contours display?

What other information does the map display?

Sketch the general pattern shown by the black contours.

Are there any dramatic features displayed, such as closed contours, ridges, troughs, or steep gradients?

500 hPa (2 points)

Select the 500 hPa map.

Sketch the general pattern shown by the black contours.

How do the values on this map compare to the corresponding values on the 850 hPa map?

250 hPa (2 points)

Select the 250 hPa map.

Sketch the general pattern shown by the black contours.

How do the values on this map compare to the corresponding values on the 850 and 500 hPa maps?