

# Introduction to the College of DuPage NEXLAB Website

The purpose of this lab is to familiarize yourself with our website so that you will have an easier time following along in class and will be able to find products quickly. Please keep in mind that there are not necessarily any wrong answers to these questions. They are designed to make the instructor know that you were able to successfully navigate through our website. Feel free to ask questions if you need to. Follow the instructions carefully and answer the questions as you go along.

1. **Instructions:** Start by opening a web browser on a desktop computer and going to our homepage (<http://weather.cod.edu>). Click '**Weather Analysis Tools**' near the top of the page then click '**Analysis Data**' in this menu. The menu on the left will allow you to display all the products for this page. Open the '**Surface Maps**' section of the menu. This will display all of our raw and analyzed surface observational data. In the '**Surface Maps**' portion of the menu on the left, click on '**Temperature and SLP**' under '**Derived Products (US)**'. A US map displaying Temperature and Sea Level Pressure should load automatically.

**What color are the isobars and isotherms respectively?**

Hint: Isobars are lines of constant pressure. Isotherms are lines of constant temperature. Average Sea Level Pressure is approximately 1013mb(millibars). Typically temperatures year round across the US range from about -10 to 110 degrees Fahrenheit.

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2. **Instructions:** At the top of this page there are two tabs; '**Product Menu**' and '**Sector Map**'. Open the sector map and click on the '**Midwest**' sector. Now open the product menu and choose '**Raw Station Plots**'.

"What am I looking at?" - This map displays current observed weather in the form of Station Plots. The plots on this map are displaying Temperature, Dewpoint, Sea Level Pressure, Present Weather, Wind Speed, Wind Direction, and Cloud Cover wherever available (some plots may not display all of this data).

Examine this map and pick out a station that is easy for you to read. Then use this site, <https://www.wpc.ncep.noaa.gov/html/stationplot.shtml> as a reference to understand what each number or symbol represents.

Looking at the station you have chosen, what color are the values for Temperature, Dewpoint, and SeaLevel Pressure?

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**Important!** Notice that at the top of this page there is a row of numbers each followed by a '**Z**' across the top. These are hours of the day using 'Zulu' time (equivalent to Greenwich Mean Time and Coordinated Universal Time, GMT/UTC). Mousing over these hours will display the map for that hour. You may also animate all of these images by clicking '**Loop**' at the end of these rollover links. Loop links for various other products are also available in the product menu. This style of interface is common across our site, it will help to become familiar with it.

3. **Instructions:** Now open the ‘**Upper Air Soundings**’ portion of the menu on the left.

**Name the 4 different regions that we offer Upper Air Sounding Data for.**

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4. “What are upper air soundings?” - Upper Air Soundings are more commonly known as “Weather Balloons”, and are often referred to in meteorology by various names such as Soundings, Launches, or even RAOBs which is short for Radiosonde Observations. A Radiosonde is the physical unit with all the instruments attached to the balloon collecting data as it ascends through the atmosphere. It then periodically transmits data back to the ground via radio.

Using the ‘**Continental US**’ map, click the sounding that is located on the Iowa/Illinois border (KDVN – Davenport).

“What am I looking at?” – What you should now be looking at is data from the sounding on a graph referred to as a ‘Thermodynamic Diagram’ where the bottom of the chart is essentially near the ground, and the top of the chart is often in the lower stratosphere (this will vary based on latitude and time of year). The red line denotes ‘Temperature’, the dark green line (which often appears black on some monitors) denotes ‘Dewpoint’, and the blue line represents the temperature of a theoretical parcel of air as it rises (Ask for this to be explained in class, Don’t worry about it now.). We display sounding data in 4 basic formats; Two different versions of a thermodynamic diagram called a SKEW-T and a STUVE, a Hodograph which focus solely on wind data, and Raw Sounding Text.

Use the ‘**Product Menu**’ to display the ‘**Hodograph**’ for KDVN. The values printed on the left show wind readings from various levels in the atmosphere and are broken up into three chunks (Lower/Mid/Upper) represented by three different colors.

**What are the three colors used to show the wind readings?**

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5. **Instructions:** Open the section for ‘**Upper Air Maps**’ in the menu on the left. Now choose the ‘**700-500mb Delta-T (US)**’ map from the page that is now displayed in the middle of your screen.

“What am I looking at?” – This map shows values for the change in temperature (Delta-T) from 700mb to 500mb in the atmosphere. These are color-filled with various shades of orange. Also shown on this map is the temperature in Celsius at 700mb in red and blue dashed lines. Red for values above freezing, and blue for values at or below freezing. 700mb winds are represented as well by streamlines which are the curved lines with arrowheads indicating direction.

**What color are the streamlines on this map?**

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6. **Instructions:** Click **'RAP Mesoanalysis'** in the menu on the left. These are products which merge observed analysis data with high-resolution model data.

**How many RAP mesoanalysis products are available on this page?** Answer with a number, not the names of all the products.

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**Important!** Use caution when viewing these products as they are inherently prone to flaws because they incorporate model data into the final product. They are useful solely because they help fill in large blocks of time between observed upper air data. They must be scrutinized to determine whether or not their data is representative of actual observed data. The ability to do this comes with experience.

7. **Instructions:** Open **'Weather Analysis Tools'** in the top menu bar and go to **'Satellite and Radar'**. This will take you to our main GOES Satellite/NEXRAD Radar page

**What is the product and sector currently being displayed that is shown in the top left of the page?**

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8. **Instructions:** On the left side, open **'Dual-Pol NEXRAD'**. This will take you to a special page for viewing radar data and subsequently the KLOT "Chicago" radar. Click on the **'Product Menu'**.

**How many elevation angles (or Tilts) are available for 'Base Reflectivity' and what are the degree values of each?**

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9. **Instructions:** Open the **'Radar Site Map'** (similar to Sector Map).

**What are the different map types available for the Radar Site Map?**

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10. **Instructions:** Hit the ESC button on your keyboard to close any open menus, then move your mouse over the radar image in the middle of the screen. You will notice controls on the top left and top right corners of the image. Click the NEXLAB logo which is the very first button in the controls on the upper right corner of the radar image.

**Where did this button take you?**

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11. **Instructions:** Click the radar image that is shown on our homepage.

**Where did clicking that image take you?**

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12. **Instructions:** Click the “Satellite Logo” in the controls in the upper right corner of the radar image (just below the NEXLAB logo you had to click in question #10). This will take you back to the Satellite and Radar Main Page. Click on the ‘**Sub Regional Sectors**’ section of the menu on the left, select ‘**Long-wave IR**’ and then select the location over Central Illinois. On the left side under ‘Choose Number of Frames’, load a 48 image loop of ‘**Long-wave IR**’. While the animation is running you will notice controls are displayed on the top left of the animating image. Among these controls, click on ‘**Product Overlays**’ and then choose ‘**Mapping**’. Click on both the ‘Rivers’ and ‘US interstate’ product. Two new colored lines should now display on the animation.

**What are the colors of these lines and what do each one of these lines indicate?**

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13. **Instructions:** Uncheck ‘US Interstates’ and ‘Rivers’

How many different ‘ABI Bands’ are there? How many different ‘RGB Color Products’ are there? Try a few of these enhancements for your own benefit.

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14. **Instructions:** Open ‘Global Sectors’ on the left menu

**How many different regions are there to select between both ‘West’ and ‘East’ sectors?**

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**Instructions:** Click on ‘Regional Sectors’ in the left menu and choose the sector centered over South Dakota and Nebraska. Next, click ABI Band ‘Visible (red)’. Lastly, click on the ‘Product Overlays’ again in the top left of the image and select ‘Mesoanalysis’.

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**How many overlays are now available?** Take some time to try a few of these overlays.

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16. **Instructions:** Using the top menu bar, open the ‘**Local Weather**’ menu and click ‘**DuPage Forecast**’.

**What color is the word ‘DuPage’?**

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17. **Instructions:** Open ‘**Severe Weather Text**’ in the menu on the left.

**What are the available products listed under the ‘Day 1 Convective Outlook’?**

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18. **Instructions:** Click ‘**NWS State Products**’ in the menu on the left then click ‘**MO**’ for Missouri text products issued by the National Weather Service. At the top of this page there is a table with links to surrounding states.

**How many states are in this table?**

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19. **Instructions:** Click ‘**Illinois**’ in this table, then under ‘**Northeastern Illinois**’ click ‘**Climate Report - ORD**’. This text product is formatted into a table that shows climate data for O’Hare International Airport. Examine the far left column of this text table labeled ‘**Weather Item**’.

**What are the FIRST THREE categories of ‘Weather Items’ that are listed in this climate report?** Feel free to examine the rest of the data in this climate report, or other climate reports.

Hint: The names of the first five categories should be the titles just above the word “YESTERDAY”. Only list the first 3.

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20. **Instructions:** Open ‘**Weather Analysis Tools**’ once more and go to ‘**Numerical Models**’. Notice the new tabs at the top of the page, these list our 9 available forecast models. Choose the ‘**RAP**’ model, this will load the RAP menu on the left and open a supplementary product page in the middle of the screen. Looking at the ‘**Select Model Run**’ section of the RAP menu.

**How many model runs are available for this model?**

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21. **Instructions:** Looking back at the page displayed in the middle of the screen;

**What does 'RAP' stand for?**

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22. **Instructions:** Now choose the '**NAM**' model with the tabs near the top (notice the menu on the left will change to the NAM menu and the supplementary product page now shows products for the NAM). Open the '**Select Sector View**' section of the menu on the left and select the '**Midwest**' sector. Now open the '**Surface**' section of the menu and select '**SLP and Precipitation**'.

**What color are the state borders?**

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23. **Instructions:** Open the '**500mb**' menu and select '**Relative Humidity**', then in the '**Select Forecast by Hour**' portion of the menu, click '**36**'.

"What do these numbers mean?" - The numbered the links that you are frequently seeing are representative of the number of hours into the future from the time that a model run started. The model runs always start at 00 hours, and then go further into the future. The NAM on our site for example is displayed in 3 hour intervals. So each step further into the future is 3 hours later than the previous. Different models go different lengths of time into the future.

**What color are the streamlines on this product?**

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24. **Instructions:** Mouse over the Relative Humidity image and click near Chicago, IL. This will open a new window with a forecast sounding generated by the model for the exact time and location you just clicked. You can adjust the different parameters for both the Forecast Sounding and the Map which can be opened by clicking the button on the right side of the page. Open the parameter setting for '**Model**' under '**Sounding Settings**'.

**What models are available in this menu?**

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25. **Instructions:** Close the Forecast Soundings Window and return to where you were on the Numerical Models page. Click the link at the bottom of this page that says '**Compare Models**'. When this page loads, change the '**Forecast Hour**' back to "+ 000 hr" then click '**Load**'.

**By viewing the slider control at the top of this page, What models are available in this comparison?**

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Now spend some time searching through our site on your own. Make sure you understand how to access all the different products that we will be using in class. Try to explore other products that weren't covered in this lab. Be sure to check out our '**Links**' page found in the '**Weather Analysis Tools**' menu.

If you'd like; Use the space below to write down questions that you'd like to ask in class. Things such as, how to get to a certain product, or what does the product mean are good examples. Remember, **your grade is LARGELY based on participation!**

**Notes & Questions:**

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