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 Data**' 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?

   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. 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.

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 hodograph show wind observations from various levels in the atmosphere which are labeled (the height above the ground is given in kilometers).

   What is the altitude of the plotted wind observation highest above the ground?

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?

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.

   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 Data**' 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. The products you may view are displayed on the left side.

   How many elevation angles (or Tilts) are available for 'Base Reflectivity' and what are the degree values of each (these are listed on the top bar and the bottom of the images)?

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9. **Instructions:** Click the "**Radar Selection**" button(top left on the rada image itself).

   What are the different map regions available for the Radar Site Map?

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10. **Instructions:** Hit the ESC button on your keyboard to close any open menus. Click on the NEXLAB logo.

    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?

12. **Instructions:** Click “Weather Data" near the top of the screen and select "Satellite and Radar" from the drop down menu. 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’**. Play the animation by clicking the white triangle button on the lower right. As the imagery loops, click on **‘Product Overlays’** (middle button on top left of image) 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?

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.

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

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

15. **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**’.

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

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

    What days are forecasts provided for?

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

    What are the available products listed under the 'Day 1 Convective Outlook'?

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?

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.

20. **Instructions:** Open '**Weather Data**' once more and go to '**Numerical Models**'. Notice the new tabs at the top of the page, these list our 9 available deterministic forecast models. Choose the '**RAP**' model, this will load the RAP menu on the left and open a sector selection map in the middle of the screen. Look at the '**Select Run**' section of the RAP menu.

    How many model runs are available for this model?

21. **Instructions:** Look back at the sector selection map in the middle of the screen;

    What "Large Sectors" are available?

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). Select the '**Midwest**' sector (hovering over the dots will make the sector names pop up if you are unsure what each one is). Now open the '**Surface**' section of the menu and select '**Temperature**'.

    What color are the state borders?

23. **Instructions:** Open the '**500mb**' menu and select '**Relative Humidity**', then change the forecast hour to "36". (You can change the forecast hour by clicking on the table at the lower left, or by dragging the number on the green slider bar at the bottom of the image.

    "What do these numbers mean?" - The forecast hour represents the number of hours into the future from the time that a model run started. The model run (which shows next to "Select Run") gives the start time of the forecast model, adding the forecast hour to the start time will tell you when the model forecast is valid for. Don't worry, at the top right of every image this math is done for you indicating when the forecast is valid for.

    What color are the streamlines on this product?

24. **Instructions:** Mouse over the Relative Humidity image, click and hold near Chicago, IL. This opens 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 by using the menus underneath the sounding display. Open the parameter setting for '**Model**' under '**Sounding Settings**'.

    What models are available in this menu? Press the letter "m", what does this do?

25. **Instructions:** Close the Forecast Soundings Window and return to where you were on the Numerical Models page. Click the '**Comparison Products**' button (3rd down from the top on the left of the image). Select the "Current Models" option.

    What does dragging the white label across the blue slider bar at the bottom of the image do?

Spend some time searching through our site on your own. Make sure you become comfortable navigating to different products on this website. Try to explore other products that weren't covered in this lab, they will likely be used at some point during the semester!

Below, write down any questions you have about using/navigating the website or list anything you are hoping to learn about weather forecasting this semester.

Notes & Questions: