

Meteor 101 – HW #9

Lab objectives

- 1) Learn about wind maps, wind rotations and wind speeds at different altitudes
- 2) Learn about high pressure and low pressure systems and their movement
- 3) Learn about different weather forecast models

Open a web browser and go to the www.windy.com website. The website operates in a similar way as google maps, but overlays weather information like wind, pressure, temperature, cloud cover and dew point to visualize weather data.

1) Wind maps

Click on the wind map.

Zoom out until you see the Pacific Ocean and the US. Look for the high pressure (**H**) and low pressure (**L**) systems.

1a) The **L** systems are identified by the winds rotating _____.

Explain why the winds are rotating in that direction:

1b) The **H** systems are identified by the winds rotating _____.

Explain why the winds are rotating in that direction:

1c) Move your cursor over Bremerton, zoom in, and *click* to bring up the wind speeds. The wind speeds at the surface are about _____.

1d) On the **altitude sidebar**, *click* near the top of the bar to bring up the 10 km altitude wind map. The wind speeds aloft, over Bremerton, are about _____.

1e) The winds aloft are generally moving from _____ to _____ over the US. (Hint: you may want zoom out and advance time by *clicking* on the bottom **time bar** to establish a general wind pattern).

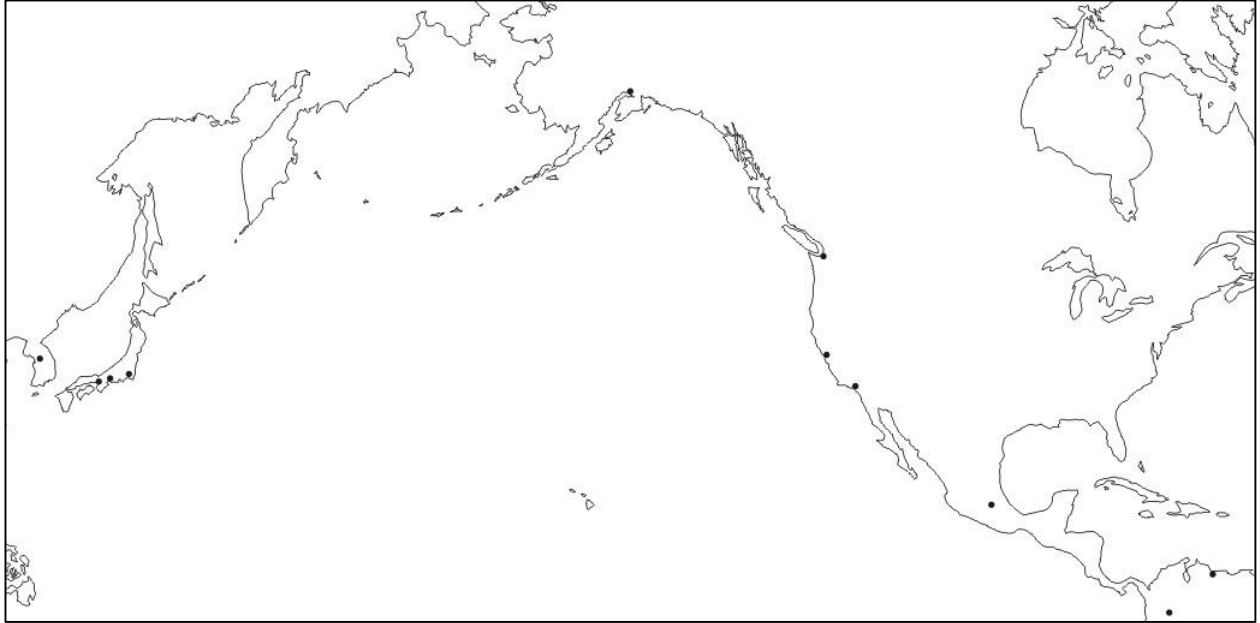
1f) Explain why the winds aloft are so much faster than the winds near the surface and explain why the winds aloft are generally moving in that direction.

2) Pressure maps

Click on the pressure map.

Zoom out until you see the Pacific Ocean and the US, like the map below.

2a) Locate the big high pressure and low pressure system. Label the areas of high pressure with **H** and the areas of low pressure with **L** on the map below. Include a number to indicate the day and circle the label. For example, a high pressure system on June6 should be labeled as H6. Advance time by *clicking* on the bottom **time bar** to track the movement of the pressure systems, each day, over the next week. Draw their paths on the map by using arrows. If H6 persists for the entire week, then your drawing will include the location of H6 on the beginning day and arrows to show its movement throughout the week. If the pressure system disappears, then draw an X at that location. If two pressure systems merge, then the arrows will merge. If a pressure system splits, then the arrows will split. If new **H** or **L** systems show up, then label them with a number to indicate the day the **H** or **L** systems show up and track their motion.



2b) What are the names of the semi-permanent **H** systems that persist off the West & East coast of the US during the summer? The _____ High & the _____ High.

2c) What type weather do they bring to the West coast and East coast during the summer?

2d) *Click* on the dew point map (if the dew point icon is not available, then *click* the : on the **sidebar** and turn on the dew point icon by using the dew point slider. Then *click* on the dew point map). On the **altitude sidebar**, *click* to bring up the surface dew point map. Is the dew point map consistent with the weather that the semi-permanent **H** systems bring? Explain.

3) Forecast models

Windy uses weather forecast models from multiple sources like ECMWF, GFS and NAM. *Click* on the top right **menu bar** and then *click* on **About these data** and **What data we use**, to learn more information about each dataset.

3a) Fill out the table below:

Model	Full Model Name	Grid Spacing (km)	Update Interval (hours)	Map Coverage
ECMWF				
GFS				
NAM	North American Mesoscale			

3b) Which forecast model is considered the most accurate? _____

3c) Which model, ECMWF or NAM, does a better job at forecasting the weather over Vancouver Island? Explain why. (Hint: *Click* on each model, on the bottom right of the Windy map. Survey each map to determine the area of coverage.)

3d) Which model, ECMWF or NAM, does a better job at forecasting Rain/Snow in WA state over the next week? Explain why. (Hint: *click* on the Rain/Snow map for each model & forward time)
