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## Mid-Latitude Cyclones

### ***WHAT YOU SHOULD LEARN IN THIS EXERCISE:***

- What weather is typically associated with the passage of fronts associated with a low pressure center.

### ***WHAT YOU NEED TO DO IN THE COMPUTER LAB:***

#### **Part A: Getting Started**

A1. Launch the application:

- Go to the Hands-On Meteorology web page
- Open the program “Cyclone”

A2. This program will show you typical tracks of mid-latitude cyclones. It will also show you how weather conditions may change at a single location during the passage of a cyclone. You do not need to save any graphs or charts for this exercise.

#### **Part B: Alberta Clippers**

B1. Choose “Alberta Clipper” from the pull-down menu at the top of the program.

B2. Start the Clipper on its typical path by clicking the “Start” button.

B3. Once the Clipper has reached its farthest position east, you can click on the Low and drag it along its path.

The meteogram to the right shows the conditions in Chicago, Illinois (red: temperature; blue: dewpoint; compass: wind direction). The yellow vertical line on the meteogram indicates conditions in Chicago for the center of the Low’s current position. The yellow line on the compass indicates the wind direction in Chicago for when the center of the Low’s is at a particular position.

B4. Position the low pressure center in eastern Minnesota. What are the weather conditions in Chicago, Illinois?

- a. temperature:
- b. dewpoint temperature:
- c. wind direction (remember to use the direction the wind is *coming from*):
- d. cloud cover/type (use your knowledge of fronts to answer this):
- e. precipitation (use your knowledge of fronts to answer this):

B5. Position the low pressure center over eastern Ontario. What are the weather conditions in Chicago now?

- a. temperature:
- b. dewpoint temperature:
- c. wind direction:
- d. cloud cover/type:
- e. precipitation:

B6. Over what location does the cyclone occlude?

### **Part C: Colorado Lows**

B0. Click the “Reset” button.

B1. Choose “Colorado Low” from the pull-down menu at the top of the program.

B2. Start the cyclone on its typical path by clicking the “Start” button.

B3. Once the cyclone has reached its farthest position east, you can click on the Low and drag it along its path.

The meteogram to the right shows the conditions in Nashville, Tennessee

B4. Position the low pressure center in eastern Arkansas. What are the weather conditions in Nashville, Tennessee?

- a. temperature:
- b. dewpoint temperature:
- c. wind direction:
- d. cloud cover/type:
- e. precipitation:

B5. Position the low pressure center over southern Illinois. Record the conditions in Nashville.

- a. temperature:
- b. dewpoint temperature:
- a. wind direction:
- b. cloud cover/type:
- c. precipitation:

B6. Move the low pressure center over central Ohio and record the conditions in Nashville.

- a. temperature:
- b. dewpoint temperature:
- c. wind direction:
- d. cloud cover/type:
- e. precipitation:

B7. Over what region does the cyclone occlude?

(Turn in all pages to your TA.)