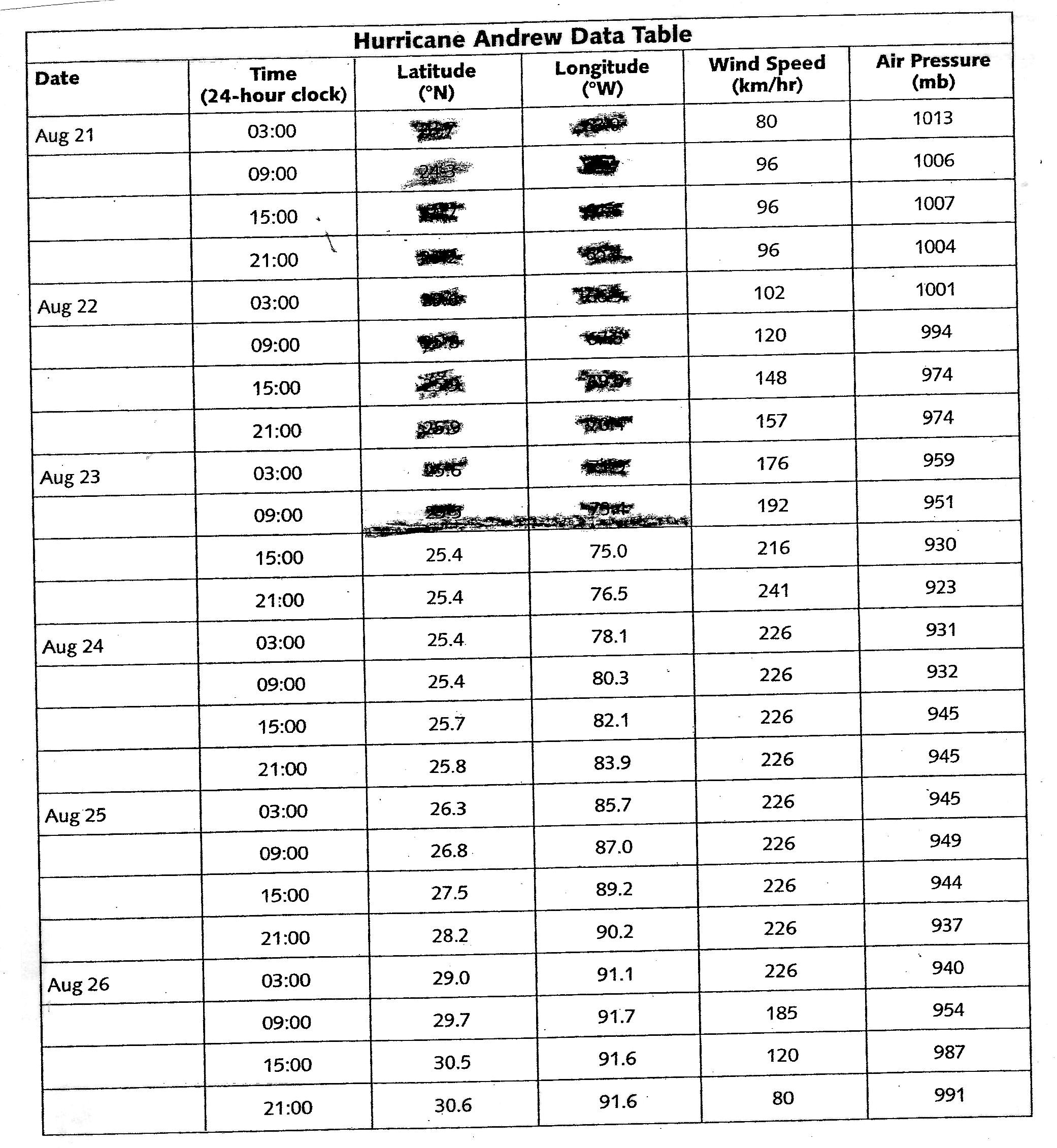
**Lab: Hurricane Andrew** **Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period\_\_\_\_\_\_\_\_**

**Procedure:** **NOTE:** A good map is necessary to answer the post-lab questions. Take care to follow the directions and plot the points accurately.

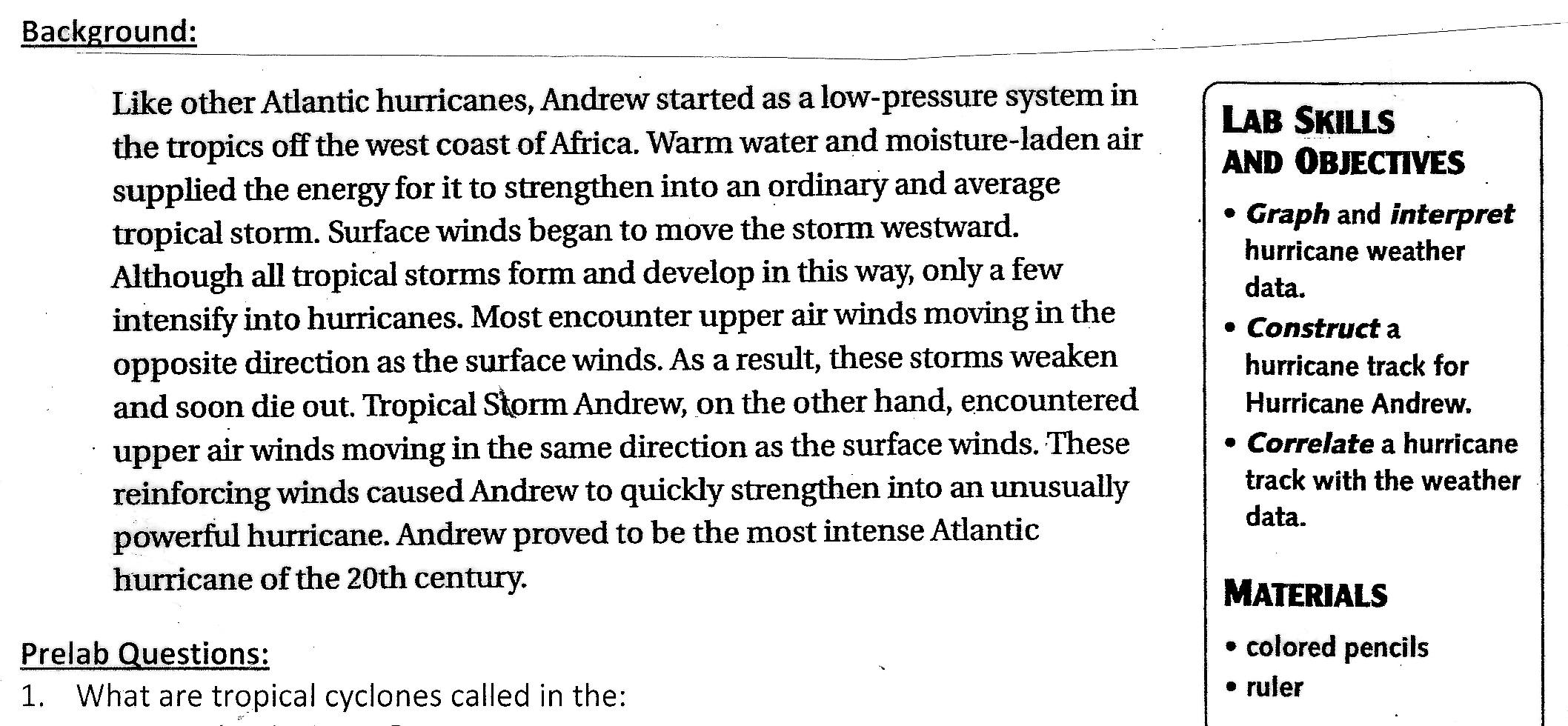
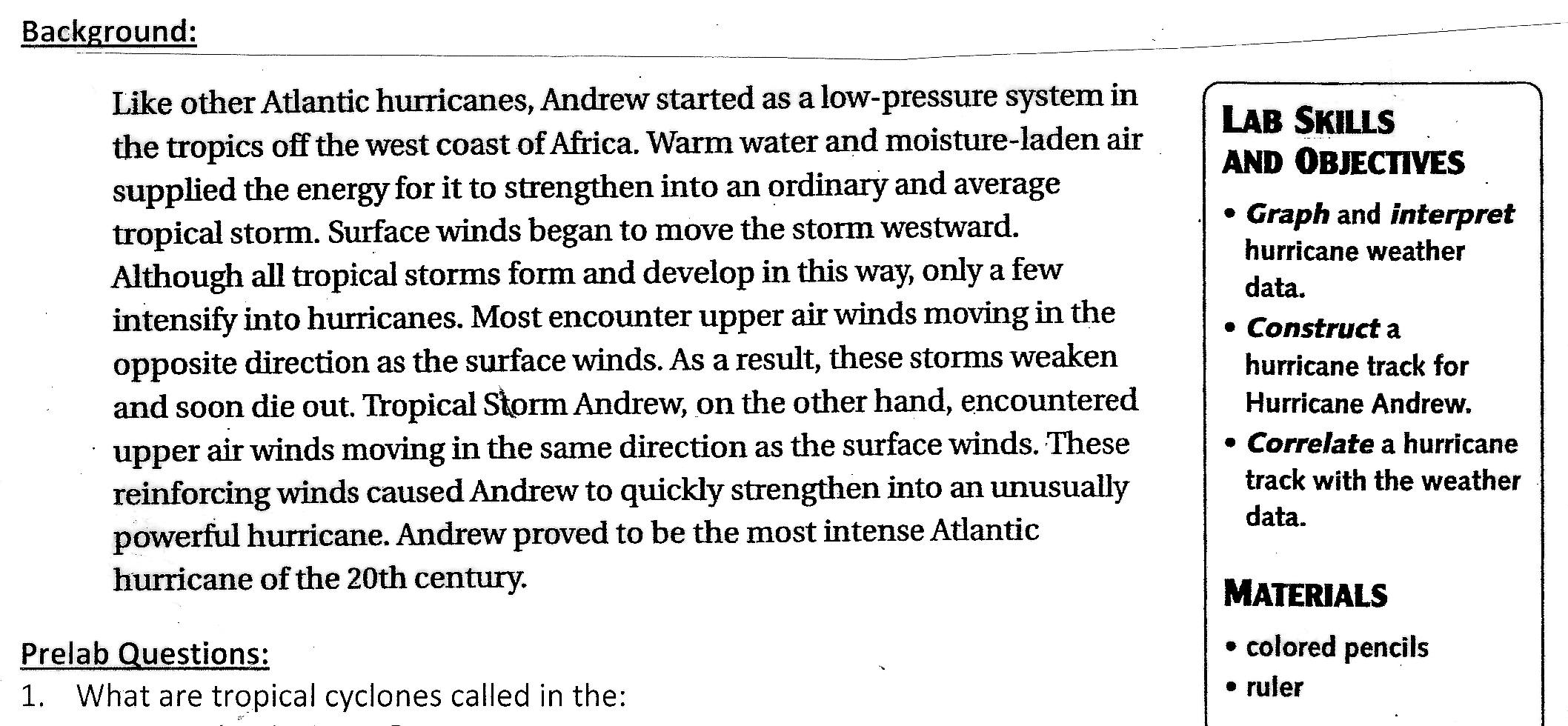
1. **Suggestion:** Draw light lines on the axes to show placement of every latitude and longitude degree to make plotting of points easier.
2. **Plot the points**, **labeling each point** with the date and time in the following format, “day/time”
   1. The data point for August 21, 03:00 should be labeled 21/03
   2. The data point for August 21, 09:00 should be labeled 21/09
3. After all points have been plotted:
   1. **Connect the points with a line**
   2. **Draw 4 arrowheads**, spaced evenly along the line, to show the direction that the hurricane moved.
4. **Wind speed vs. time**:
   1. Plot the data for Hurricane Andrew’s wind speed vs. time on the wind speed and pressure grid/graph located under the map.
   2. Connect the points using a colored pencil with a smooth curve.
   3. Circle the axis label “Wind speed km/hr” to show the color used.
5. **Pressure vs. time**:
   1. Plot the data for Hurricane Andrew’s pressure vs. time on the wind speed and pressure grid/graph located under the map.
   2. Connect the points using a 2nd colored pencil with a smooth curve.
   3. Circle the axis label “Air Pressure (millibars) to show the color used.
6. Use the hurricane track you plotted on the MAP in Steps 2-3 **to determine the landfall times** for the hurricane. Landfall occurs when the hurricane **first** passes over land.
   1. Use a 3rd colored pencil and a ruler to draw vertical lines ON THE GRID/GRAPH (not the map) corresponding to the landfall times. \*\*\*This line will be used in the post-lab questions to help you determine if change occurs in wind speed or pressure when the hurricane makes landfall.
   2. Label the line with the location (state) that the landfall occurred.
7. Use the hurricane track you plotted on the MAP in Steps 2-3 to determine the time that Hurricane Andrew **passed back onto water** after being on land.
   1. Use a 4th colored pencil and a ruler to draw ONE vertical lines ON THE GRID/GRAPH (not the map) corresponding to t time. \*\*\*Note- there will be only 1 line, as Hurricane Andrew went back onto water only 1 time.
   2. Label the line as “back onto water”.

Lab: Hurricane Andrew



**Lab: Hurricane Andrew** **Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period\_\_\_\_\_\_\_\_**

**Background:**

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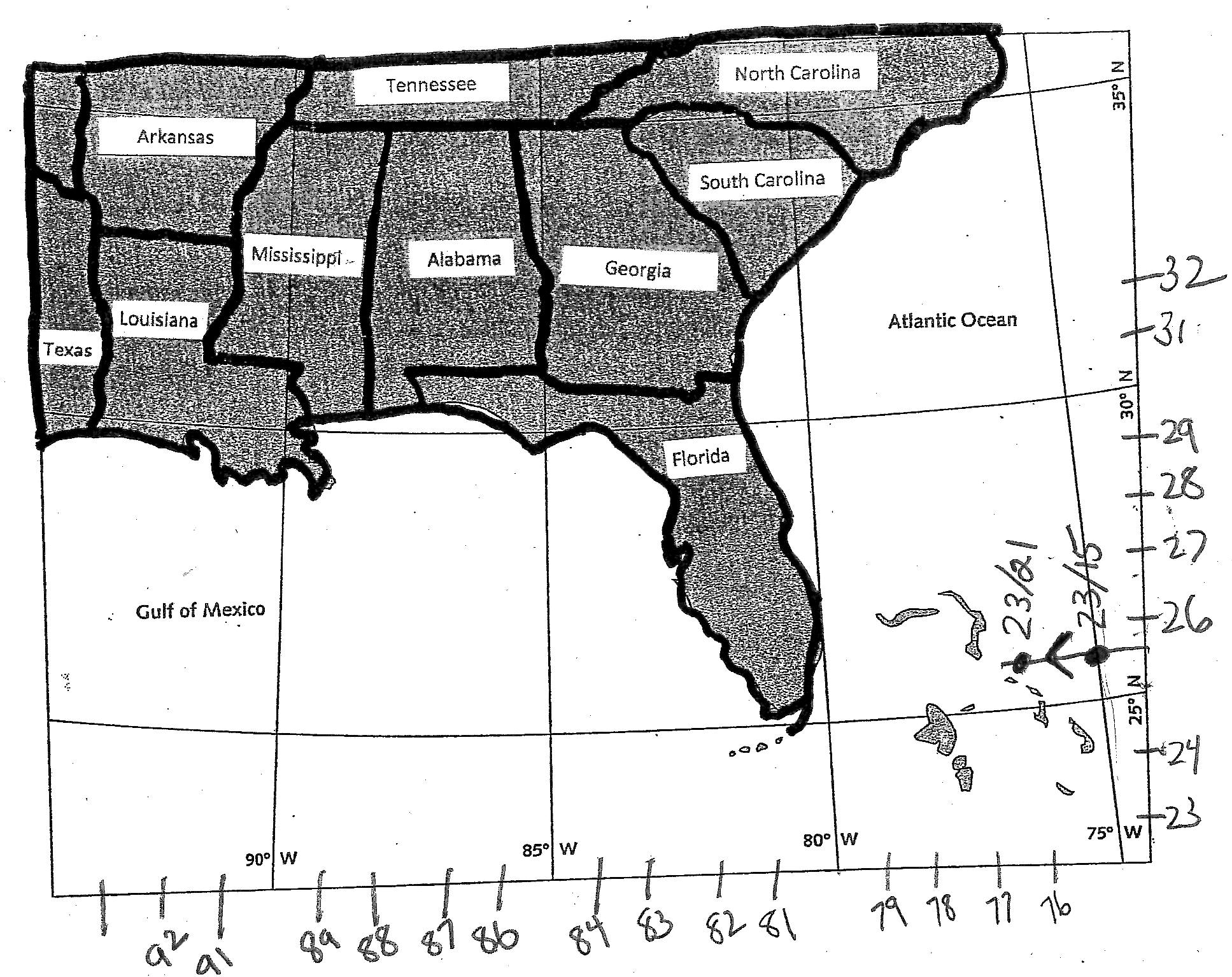
**Prelab Questions:**

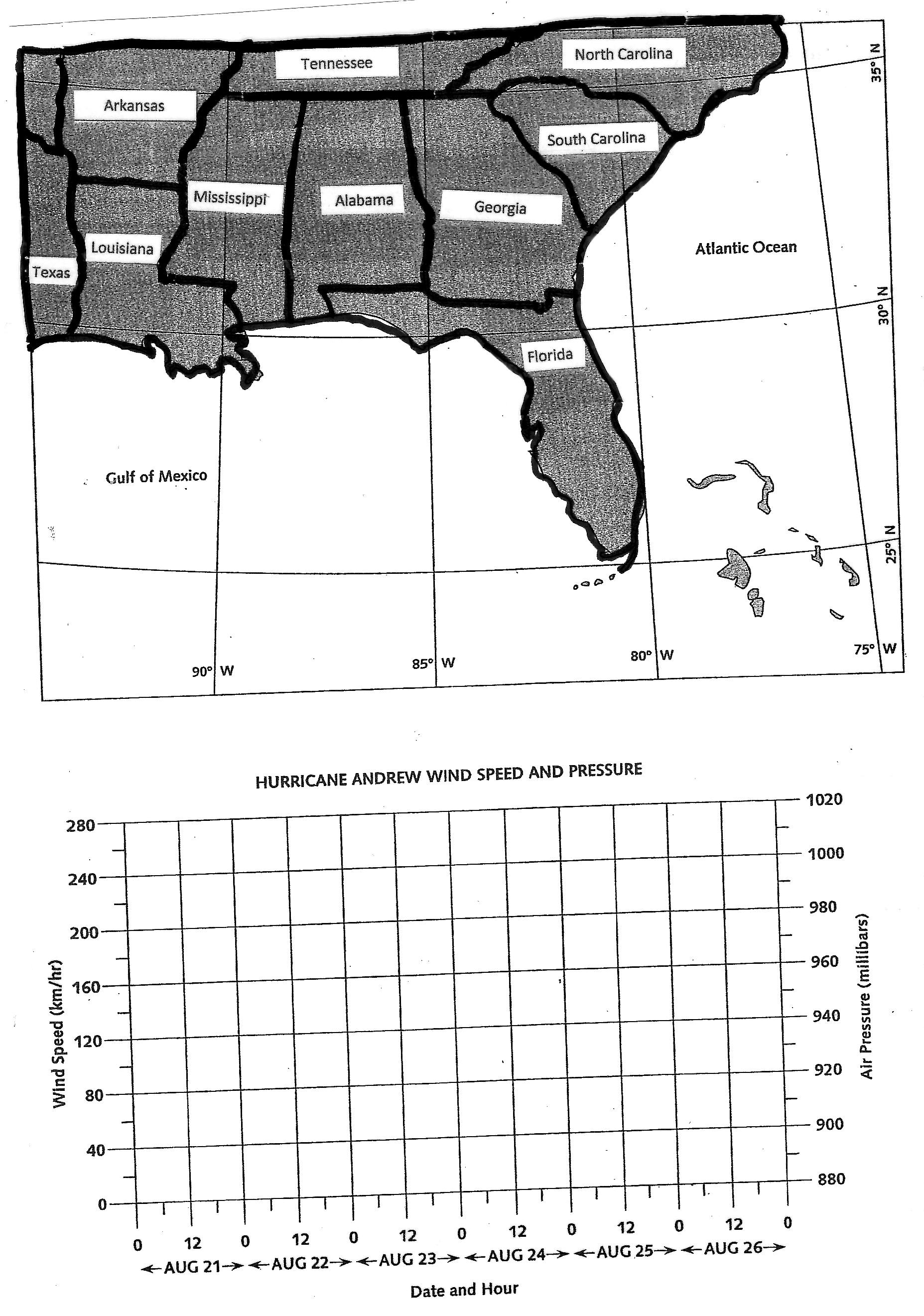
1. What are tropical cyclones called in the:
   1. Atlantic Ocean?
   2. Pacific Ocean?
2. Complete the following table of the stages of hurricane formation:

|  |  |  |
| --- | --- | --- |
|  | **Name of Stage** | **Description of Stage** |
| 1st Stage |  |  |
| 2nd Stage |  |  |
| 3rd Stage |  |  |
| 4th Stage |  |  |

1. List 2 areas a hurricane may move, resulting in loss of energy, and explain why it loses energy.
2. Measurement of the strength of a hurricane:
   1. What is the name of the scale used to measure the intensity (strength) of a hurricane?
   2. List 3 things the scale uses to determine the strength of a hurricane.
3. Explain why hurricanes generally hit the east coast of continents.

Lab: Hurricane Andrew





**Post lab Questions**

1. **Basic Graph Analysis:**
   1. Between August 24, 15:00, and August 26, 03:00, the wind speed for Hurricane Andrew remained essentially the same. Where was Hurricane Andrew located during this period of time?
   2. According to your graph, what is the general relationship between air pressure and wind speed?
   3. **Landfalls:**
      1. How did Hurricane Andrew’s **air pressure** change around the time of both landfalls?
      2. How did Hurricane Andrew’s **wind speed** change around the time of both landfalls?
   4. **Movement from land back onto water:**
      1. How did Hurricane Andrew’s **air pressure** change around the time the hurricane left the west coast of Florida and moved over water?
      2. How did Hurricane Andrew’s **wind speed** change around the time the hurricane left the west coast of Florida and moved over water?
2. **Explain** why air pressure and wind speed are affected by the surface over which a hurricane moves.
3. **Change in Pressure:**
   1. What is the difference (subtract) between the highest and lowest air pressure value in the **data table? (Show your work.)**
   2. Would you expect this value to be more or less than the air pressure change of a typical mid-latitude low? **EXPLAIN** your choice. (Mid-latitude lows include tornados, blizzards, severe thunderstorm, etc.)
4. Compare the length of the hurricane track between the points plotted from

* August 24, 15:00, and August 25, 15:00.
* August 25, 15:00, and August 26, 15:00.
  1. During which 24-hour time period did the hurricane move faster? How do you know?
  2. Why did the hurricane’s speed change?

1. A tropical storm officially becomes a hurricane when it attains speeds greater than 119 km/hr. Using the data table, when did Hurricane Andrew:
   1. Change from a tropical storm to a hurricane?
   2. Change back to a tropical storm?