

March 4, 2015

Warm-Up

Today you will need your notebook , and pencil.
HW due Friday.

- o **Predict:** How do you think wind forms?

Global Winds

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March 4, 2015

Where Does Wind Come From?

- Four "steps" to create wind

1. The sun's **radiation** heats Earth's surface unevenly
2. Air near Earth's surface warms by **conduction**
3. The warm air rises and cool air moves in to replace the rising warm air, known as **convection**
4. We feel the moving air as wind

Sea Breeze

Land Breeze

Instruments Measuring Wind

- **Wind Sock**
 - o Measures direction and speed of wind using fabric
- **Anemometer**
 - o Measures direction and speed of wind

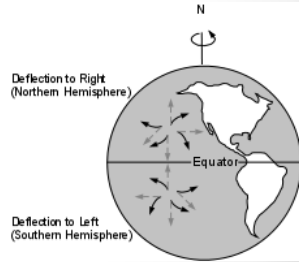
Different degrees of the angle and length of the sock infer wind speed

Measuring instruments in aluminum cases
<https://www.youtube.com/watch?v=5nlmGRL1NEk>

Coriolis Effect

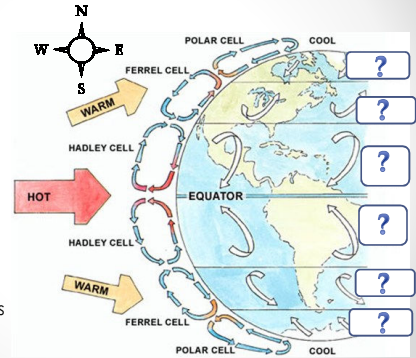
- **Coriolis Effect**
Earth's rotation causes winds to curve

- **Application:**
Along with the heat imbalance on Earth, creates the three global winds



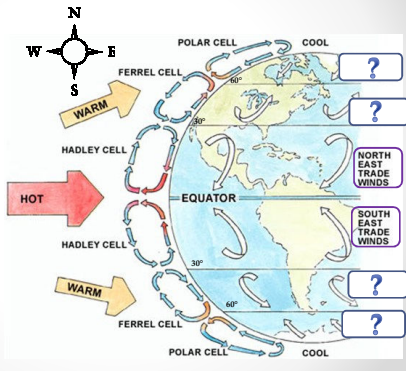
Global Winds

- The Coriolis Effect combines with the heat imbalance found on Earth to create a distinct global wind system
- Transports colder air to warmer areas and warm air to colder areas



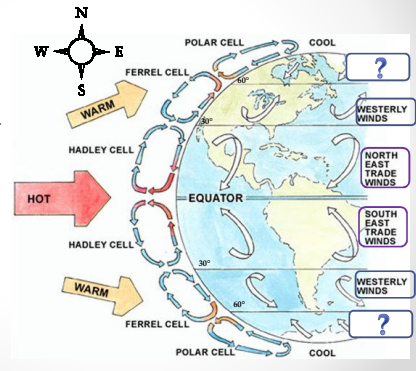
Trade Winds

- Air sinks, warms, and moves toward the equator in a west direction
- It rises again and moves back to latitude 30°
- Hadley Cell



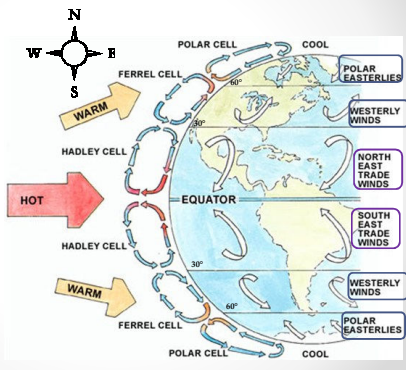
Prevailing Westerlies

- Blows opposite trade winds, west to east
- Influences most of North Carolina's weather
- Ferrel Cell



Polar Easterlies

- Characterized by cold air
- Polar Cell

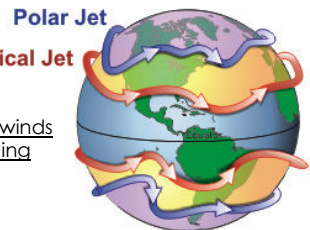


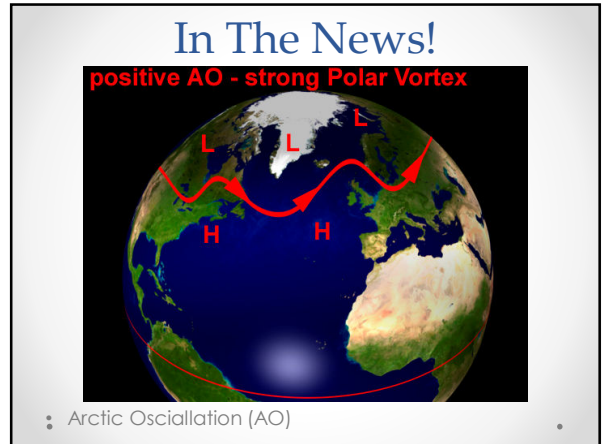
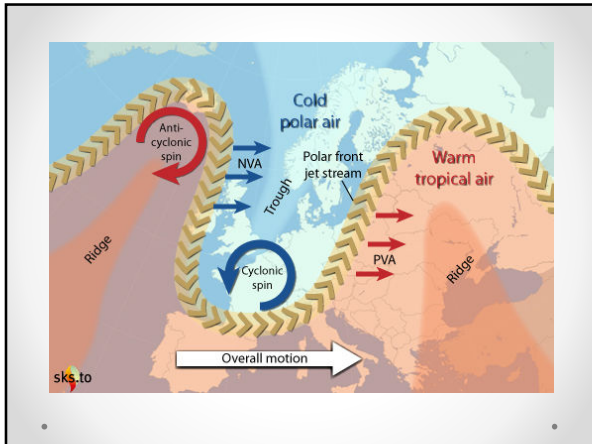
Jet Streams

- **Jet Streams:** Strong fast moving winds that blow about 10km off the ground. Greatly affect the weather. Move west to east.

- **Polar Jet Streams**
Separate the polar easterlies [cold] from prevailing westerlies [warm]

- **Subtropical Jet Streams**
Located where the trade winds [warmer] meet the prevailing westerlies [warm]





Summary Video on Wind

- <http://pbearthscience.wikispaces.com/Wind>
- 2 Minutes

