

**AGRON/MTEOR 406**  
**Spring 2017**

**Questions submitted for midterm exam active review session**

**Team 1**

What happens to the saturation vapor pressure and vapor pressure throughout a day assuming the absolute amount of moisture in the air stays constant? How does this effect the relative humidity?

What effects do large scale wind currents have on the oceans, and how does it relate to the climate of areas near the coast?

What is the most commonly used classification to categorize world climates? What are the five main classes and their descriptions?

**Team 2**

Discuss the role of sensible and latent heat flux in the total radiation balance?

Why is it that the west coasts of many continents tend to be drier while the eastern coasts tend to be more moist?

How do salt content and temperature affect the density of ocean water?

**Team 3**

Describe an environment in which you would expect to find a small latent heat flux.

What effect does wind blowing across the surface of water have on the movement of the water?

How would friction affect the balance between forces and the direction of wind?

**Team 4**

Explain the relationship between radiation and latitude.

How does albedo change with the landscape?

Does the El Nino Southern Oscillation affect the Hadley Cell pattern?

**Team 5**

Why does Ames, IA have a different climate than somewhere on the equator?

How does the Coriolis force affect ocean circulation?

How do ocean circulations cause monsoons?

### **Team 6**

What is the difference between sensible and latent heat?

Explain the Hadley circulation to include its role at the midlatitudes and the ITCZ.

How do thermohaline circulations link the surface with the deep ocean?

### **Team 7**

What are the impacts of La Nina and El Nino on the North American climate and, how do these weather events effect plant's growth in the rejoin?

What effect does El Nino have on the composition of the thermohaline in the Pacific Ocean and why does this happen?

What drives the El Niño circulation?

What are the conditions that must be met to have a desert climate?

How does NOAA classify an El Niño is occurring?

### **Team 8**

Knowing that sensible heat flux, latent heat flux and ground conduction all contribute to the net radiation of different climates throughout the world: For a desert climate (Arizona): Which do you think would be the dominant contributor? When would this value be highest? For a more seasonal climate (Germany): Latent heat flux is high between April and October and low the remainder of the year, why does this happen?

Name and describe the three forces that act on winds at the surface.

What causes Kelvin waves to move the way they do?

### **Team 9**

The country of Scotland is in approximately the same latitude range as the Hudson Bay in Canada, but has a much warmer climate. What is the cause for these warmer temperatures?

- a.) The Coriolis force
- b.) The El Niño Southern Oscillation
- c.) Higher concentrations of greenhouse gasses in the atmosphere over Scotland
- d.) The Gulf Stream Current
- e.) The Canary Current

Explain your answer.

What drives the Thermohaline Circulation?

- a.) High-latitude cooling
- b.) The Coriolis force
- c.) Deep water mixing
- d.) Upwelling of deep waters
- e.) All of the above

Explain your answer.

True or False: Net Radiation is negative 40 degrees latitude North and South of the equator and positive pole ward. Correct the above statement if it is incorrect.

Explain how the Hadley and Ferrell cells effect world climate and how they work in both the Northern and Southern Hemispheres.