

Name: _____

Introduction to Oceanography 112 - M. Yasuda

Date: October 29, 2009

Assignment 10

Reading – Week 10 - The atmosphere (cont.) & Waves Part I

1. **Chapter 10** Pages 264-283
2. **Chapter 17** Pages 481-484

Vocabulary list

Parts of a wave	Capillary waves
Motion of a wave	Wind waves
Frequency	Tides
Wave period	Tsunami
Wave front	Seiche
Ray	Development of wind waves
Progressive waves	Wind strength
Orbital waves	Wind duration
Standing wave	Fetch
Shallow water waves	Wave behavior
Deep water waves	Dispersion
Wave-cut platforms	Wave interference
Erosion	Rogue waves
Classification of waves	Wave reflection
Disturbing force	Wave diffraction
Restoring force	Wave refraction

Homework

1. Prepare for the quiz week about electromagnetic waves, the Sun's radiation, atmospheric circulation and wind waves.

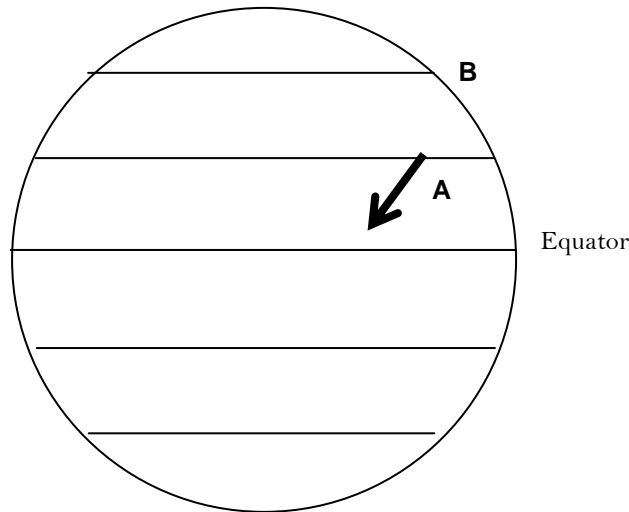
No notes, no book, no groups next week.

In-class/homework activities

Type your answers on a separate sheet of paper, double-spaced with wide margins so I have space to write comments. Where an essay answer is required, make sure to write out a complete and logical explanation using the best grammar and spelling you can.

A. Atmospheric circulation

1. Answer the following questions based on the diagram below.



- The name of the wind labeled A is _____.
- Does the arrow at A represents the direction of wind at the surface or high in the atmosphere?
_____.
- The latitude marked B is _____ degrees **North** or **South**?
- Draw an arrow showing the trade winds in the southern hemisphere. Label it C.
- Draw a line showing the location of the ITCZ. Label it ITCZ.
- What do the letters ITCZ stand for?

- What converges at the ITCZ and defines its position?
- Is San Diego located closer to the equator or 30° N? _____
- Is the atmospheric pressure generally high or low at the latitude where San Diego sits?

- Where atmospheric pressure is low, does air tend to rise or sink? _____
- Where do clouds form - where air rises or sinks? _____

- I. It is both **hot** and **rainy** over equatorial rainforests and equatorial oceans.

Both conditions affect sea surface salinity by controlling evaporation and precipitation at the sea surface.

What is the net effect of evaporation and precipitation on sea surface salinity under the ITCZ?

Does it result in overall lower or higher salinity? _____

2. How do different factors affect the salinity of seawater? Circle the usual net effect.

- | | | |
|---|-----------------------|-----------------------|
| a. Where rivers flow out to the sea | Lower salinity | Raise salinity |
| b. Where glaciers melt into the sea | Lower salinity | Raise salinity |
| c. Where ice forms from in seawater | Lower salinity | Raise salinity |
| d. Where water evaporates off the sea surface | Lower salinity | Raise salinity |
| e. Where it rains on the sea surface | Lower salinity | Raise salinity |

3. In each case, are the relative proportions of the different types of dissolved ions in seawater affected? Circle your selection.

- | | | |
|---|------------|-----------|
| a. Where rivers flow out to the sea | Yes | No |
| b. Where glaciers melt into the sea | Yes | No |
| c. Where ice forms from in seawater | Yes | No |
| d. Where water evaporates off the sea surface | Yes | No |
| e. Where it rains on the sea surface | Yes | No |

4. Why is it important to know about the atmosphere before we cover some of the remaining topics in Oceanography? Explain.

B. Monsoon

Read:

What is the Monsoon?

<http://www.wrh.noaa.gov/fgz/science/monsoon.php?wfo=fgz>

The North American Monsoon

http://www.wrh.noaa.gov/twc/monsoon/monsoon_NA.php

- 2. What is the definition of a monsoon?**
- 3. What part of the U.S. experiences a monsoon?**
The remnants of these events can bring high humidity to San Diego.

C. Cyclones

- 1. Which way do cyclones rotate in the northern hemisphere?**

2. Do cyclones form around high or low pressure centers?
3. What kinds of forces result in the circular motion we find in northern hemisphere cyclones? Make a drawing.
4. Which of these are cyclones?
 - a. Dust devil
 - b. Storm center
 - c. Hurricane
5. Why do hurricanes die out when they encounter land? Explain

D. Waves

1. Begin to fill out the wave chart as you do your reading. The completed chart will be due with the next homework.