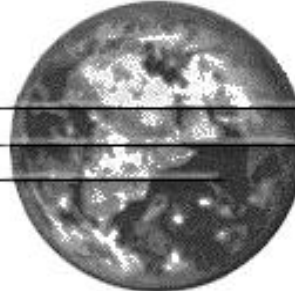


# Geoscience 101

## The Solid Earth



### Lecture 1

M-W September 25, 27  
T September 26

## Overview of the Earth System

### CHAPTER 1

This is only an outline of the lecture. You will need to go to class to fill in the outline, although much of the relevant information is also in the text.

# Overview of the Earth System

## FORMATION OF SOLAR SYSTEM

When?

Evidence?

1. Solar Nebula (rotating)
2. Flattened Disk (rotating)
3. Planetessimals Revolving around Sun
4. Planets Revolving around Sun

## FORMATION OF PLANET EARTH

### 1. Accretion

### 2. The Iron Catastrophe / Core Formation

What happened?

Sources of Heat

### 3. Formation of Moon

## OUR LAYERED EARTH

### 1. Compositional Layers / thickness / composition

-- --10-60 km --

-- -- 2800 km --

-- -- 3500 km --

(to center)  
outer core: liquid  
inner core: solid

## 2. Differentiation of the Crust

### EARTH'S ATMOSPHERE

1. Composition (dry)

2. Outgassing (Volcanism)

3. Sources of Water?

4. Photosynthesis

What organisms do it?

What does it produce?

When did it start?

## PLATE TECTONICS

1. What are plates? (Lithosphere)
2. Why do plates move?
3. Why does the mantle convect?
4. What allows plates to move? (Asthenosphere)
5. How fast do plates move?
6. Three kinds of plate boundaries:
  - Divergent
  - Convergent
  - Transform

## THREE KINDS OF PLATE BOUNDARIES

### 1. Divergent boundaries

what happens?

where?

features:

### 2a. Convergent boundaries: subduction zones

what happens?

where?

features:

### 2b. Convergent boundaries: Continental collision

what happens?

where?

features:

### 3. Transform fault boundaries

what happens?

where?

features: