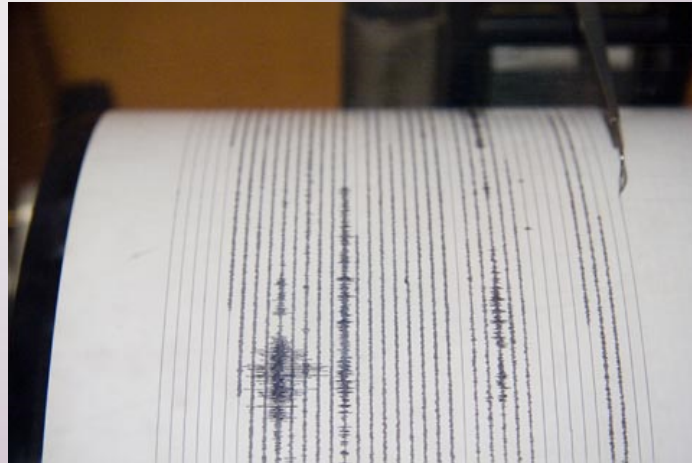


Monitoring Earthquakes

Lesson 3



Apr 26-9:33 AM



How do seismographs work?



What patterns do seismographic data reveal?

Apr 26-9:35 AM

How Do Seismographs Work?

Today's seismographs are complex electronic devices

Simple seismographs consists of a heavy weight attached to a frame by a wire or spring

A pen is connected to the weight that rests on a rotating drum

As drum rotates, the pen draws a straight line

Seismic waves cause the drum to vibrate, which causes the pen to record the vibrations

Apr 26-9:37 AM

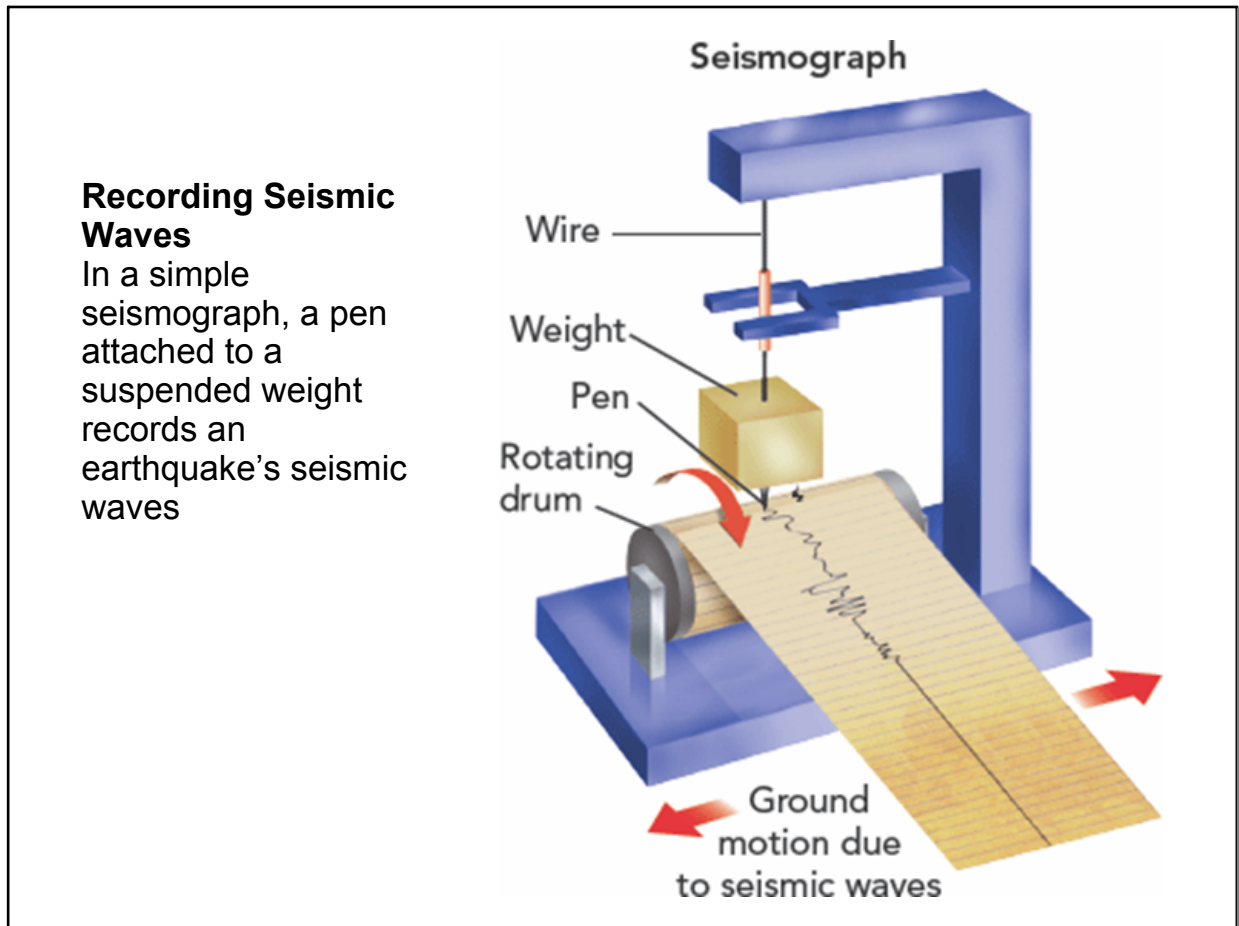
Measuring Seismic Waves

All seismographs make use of a basic principle of physics: whether moving or at rest, every object resists any change to its motion

Seismograph's (pen) heavy weight resists motion during an earthquake

The rest of a machine is anchored and vibrates when seismic waves arrive

Apr 26-9:53 AM



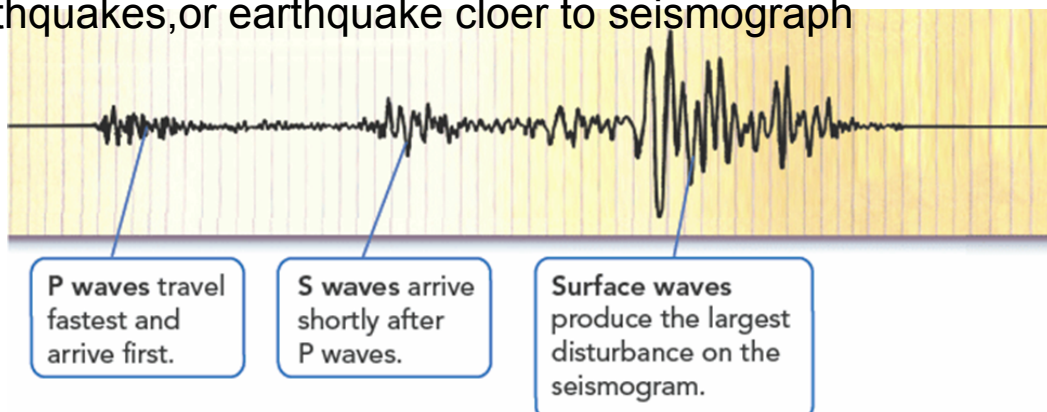
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Reading a seismogram

The pattern of lines that called a seismogram is the record of an earthquake's seismic waves

P-waves arrive first, then S-waves and then surface waves

Height of the lines is greater for more serve earthquakes, or earthquake cloer to seismograph



Apr 26-9:59 AM

What Patterns Do Seismographic Data Reveal

Geologists use seismographs to monitor earthquakes

use other devices to detect motion on faults
with all the data, geologists cannot yet predict
when and where earthquakes might strike
from past seismographic data, geologists
have created maps of where earthquakes
occur around the world.
maps show earthquakes most often occur on
plate boundaries

Apr 26-10:04 AM

Earthquake risk in North America

Earthquake risk depends on how close a
location is to a plate boundary

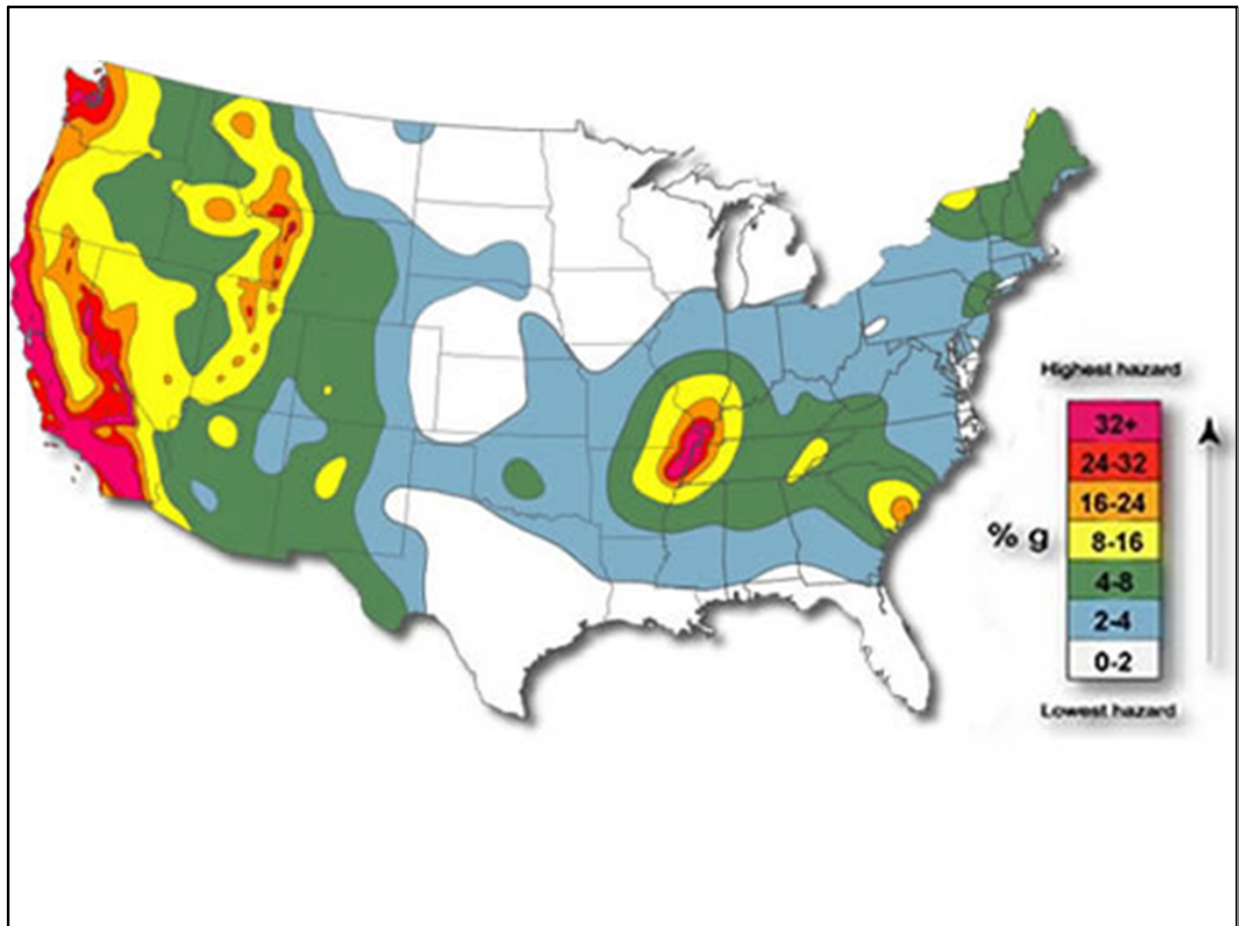
In USA, two plates meet along Pacific coast
in California, Washington and Alaska

Causes many faults

Frequent earthquakes occur in California
(San Andreas Fault)

In Washington, Juan de Fuca plate is
subducted = earthquakes

Apr 26-10:14 AM



Apr 26-10:16 AM

Earthquake Risk Around the World

Many of the world's earthquakes occur in an area of geologic activity called the Ring of Fire

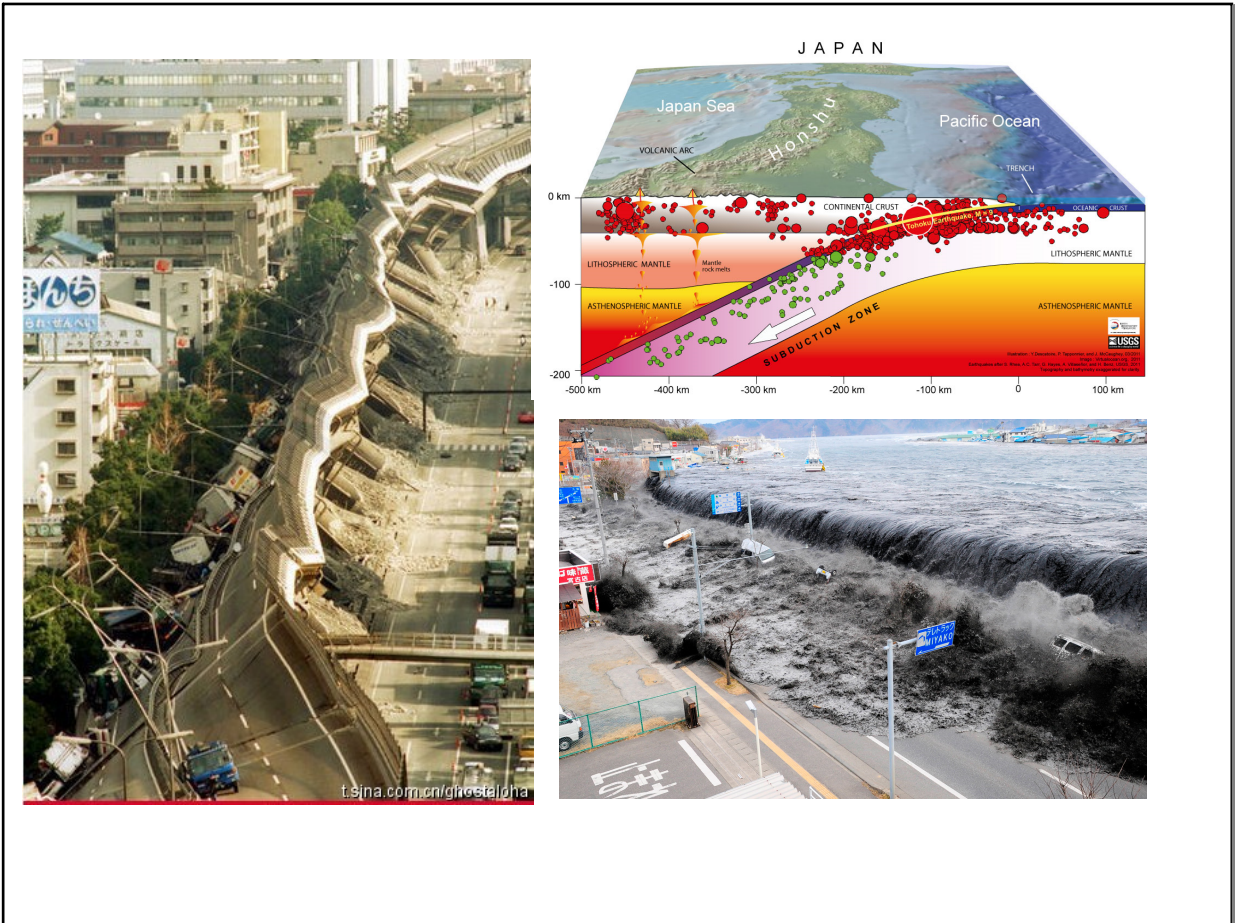
Place where plate boundaries form a ring
around the Pacific Ocean

Volcanoes and earthquakes common here

Ring of Fire includes west coast of North, Central and South America, Japan, Indonesia, New Zealand and New Guinea

March 11, 2011- Japan, one of the most powerful earthquakes ever record

Apr 26-10:22 AM



Apr 26-10:33 AM

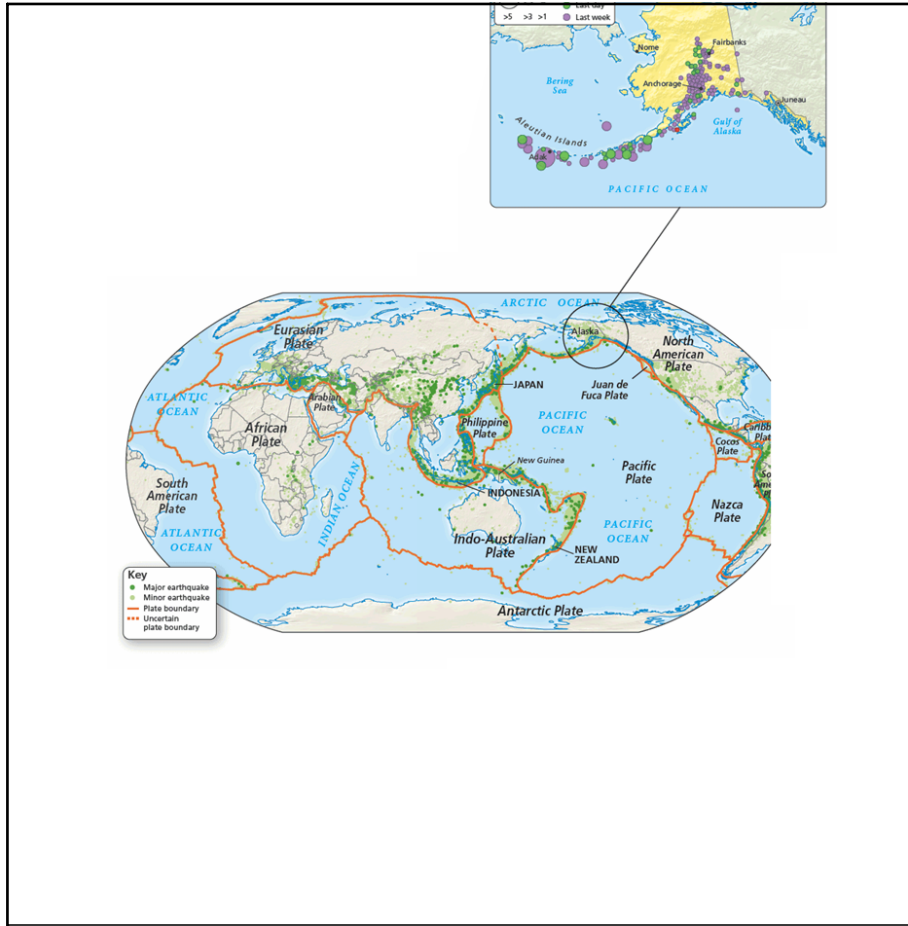
India, China and Pakistan have also been struck by large earthquakes

Indo-Australian plate collides with Eurasian plate

Saturday, there was an earthquake in Nepal. Registered 7.8 with aftershocks 6.7 recorded on Sunday



Apr 26-10:35 AM



Apr 26-10:20 AM

Lesson 3 - Monitoring Earthquakes

_____ cause a simple seismograph's _____ to _____ which in turn causes the _____ to _____ the drum's _____

From past _____, geologists have created _____ where _____ occur around the world. The _____ show that _____ often occur along _____

Apr 26-10:51 AM