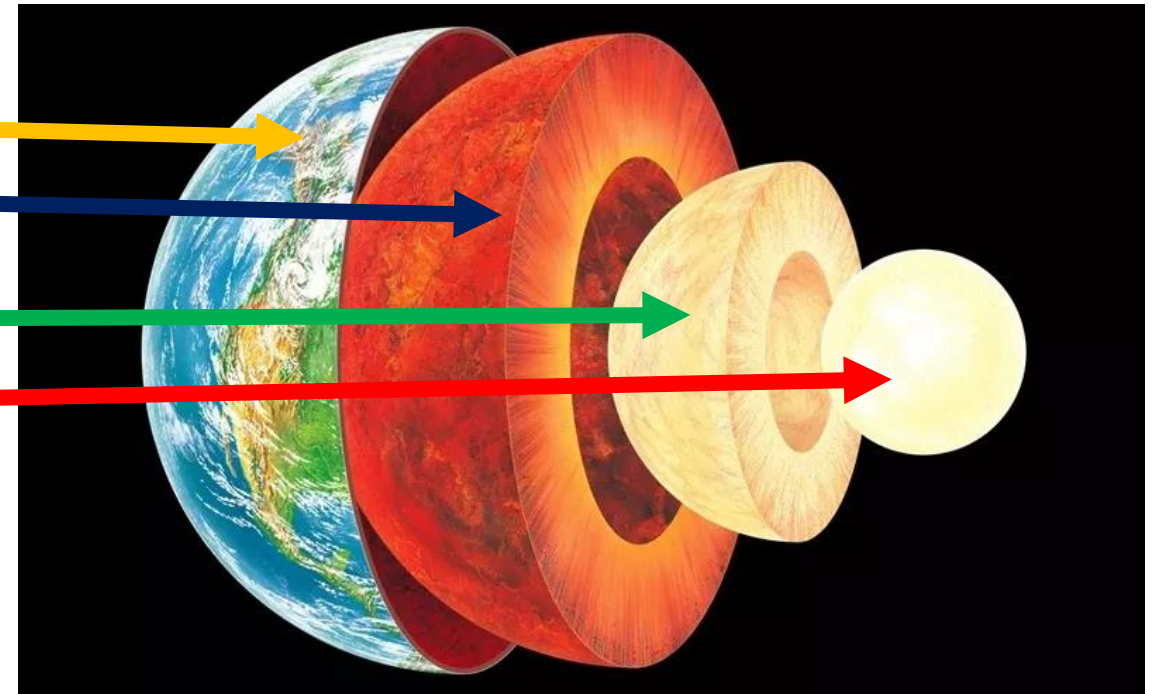
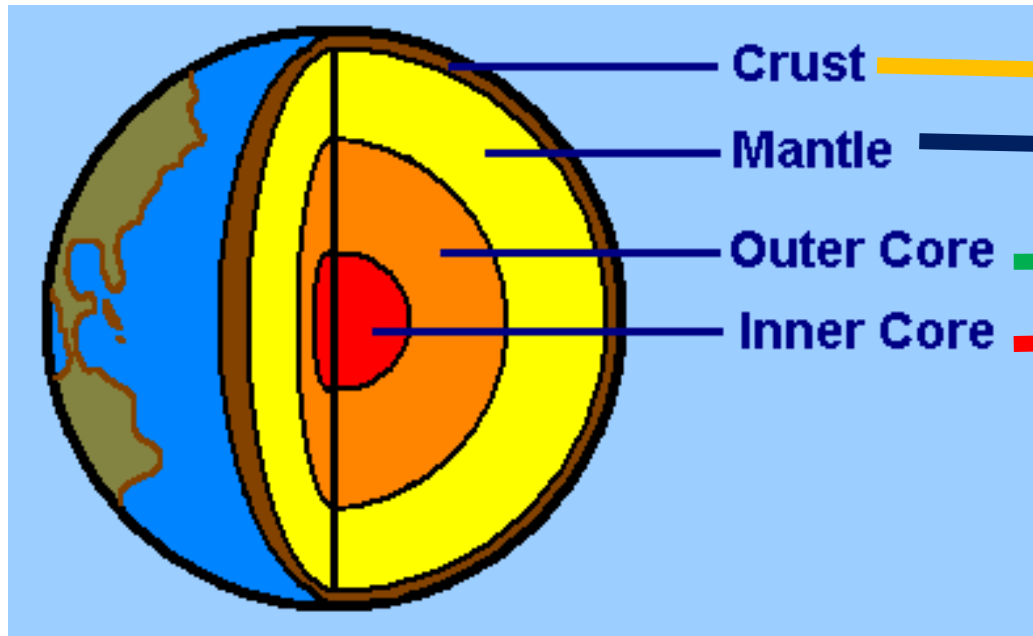


Exam review Part 5

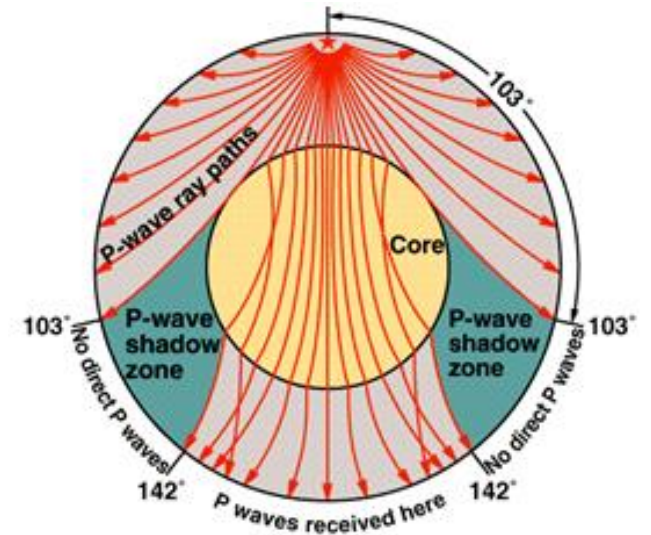
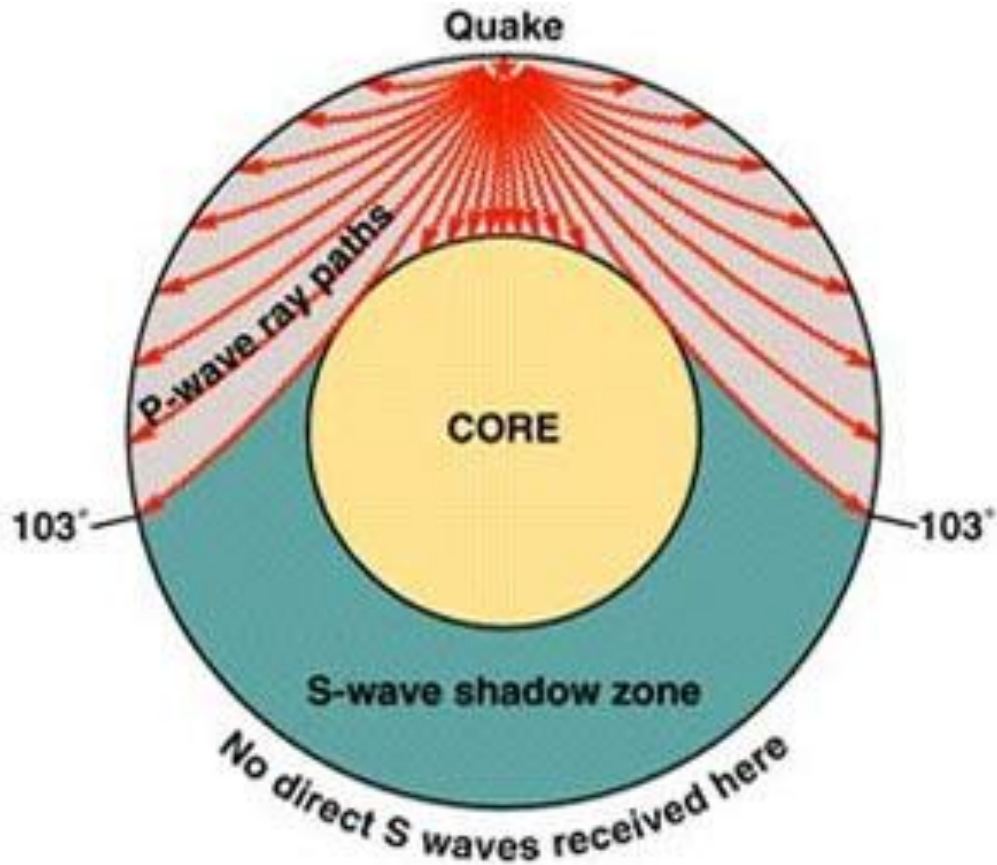
Plate Tectonics, Rocks,
Earthquakes & Volcanoes

Earth's layers



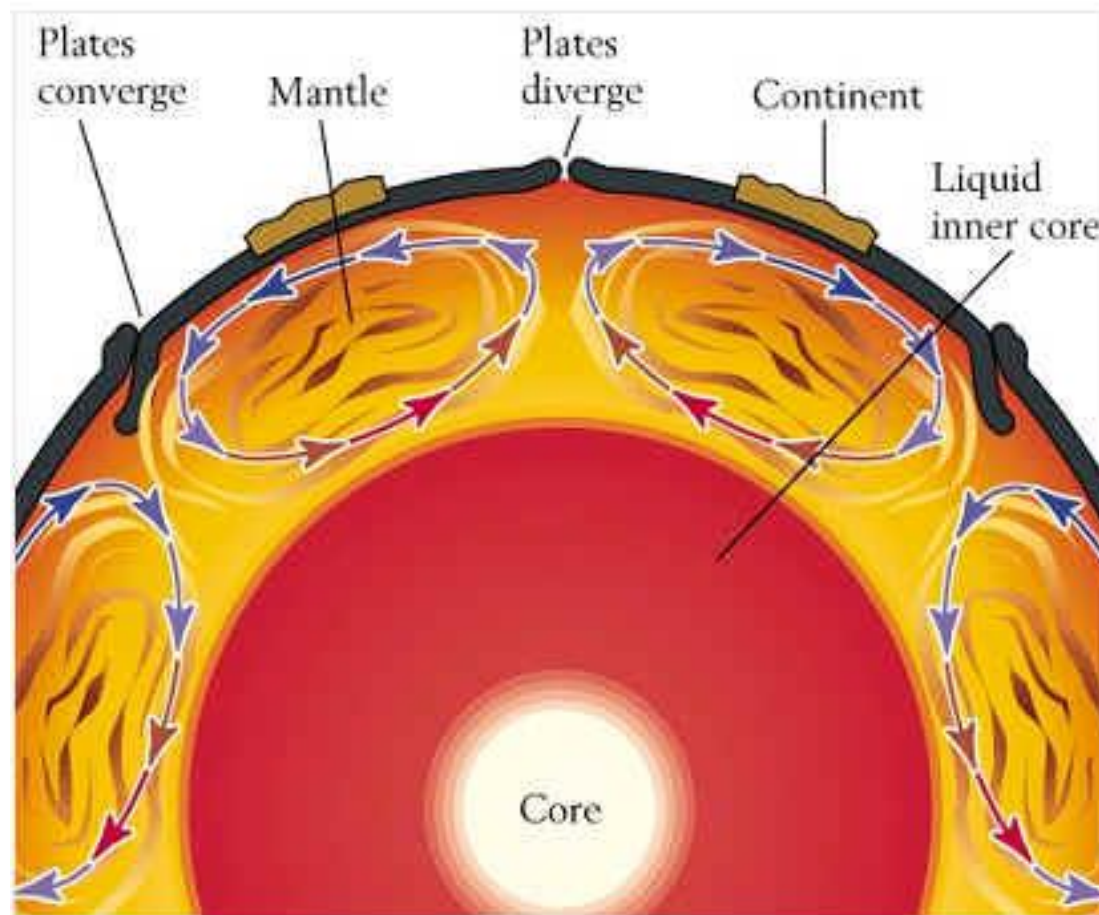
1. Crust- 2 types Ocean, Continental, Boundary between the crust and the mantle= Moho = seismic waves change speed
2. Mantle – thickest layer, crustal plates move due to convection currents in this layer
3. Outer Core- believed to be liquid iron – Secondary seismic waves will not penetrate which determines the boundary between the mantle and the outer core
4. Inner Core- Primary seismic waves are bent as they travel through- which determines the boundary between the outer and inner core Believed to be radioactive- giving off the heat that creates the convection currents in the mantle that leads to crustal movement

S waves can not penetrate the outer core

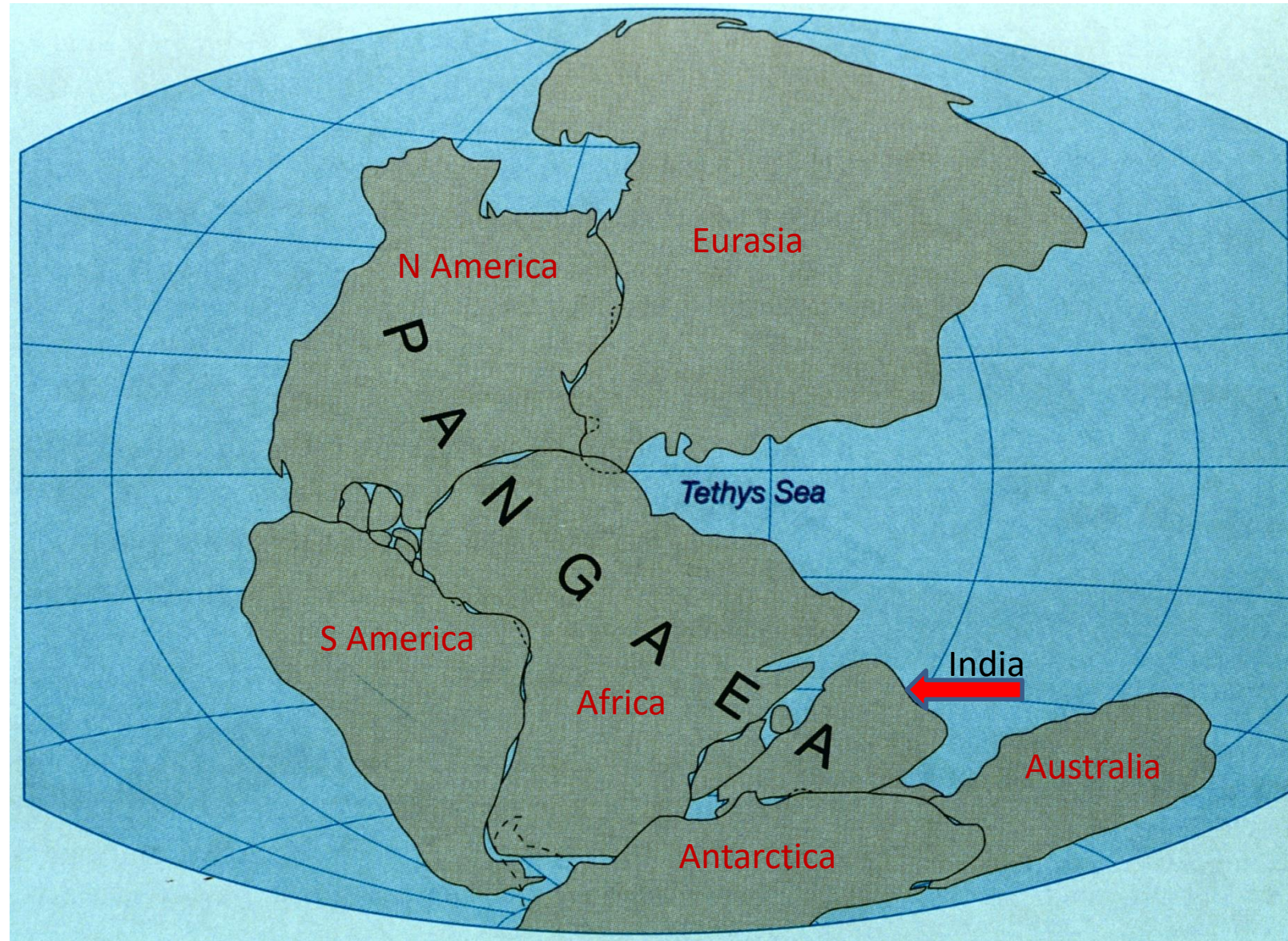


P waves are bent as they travel through

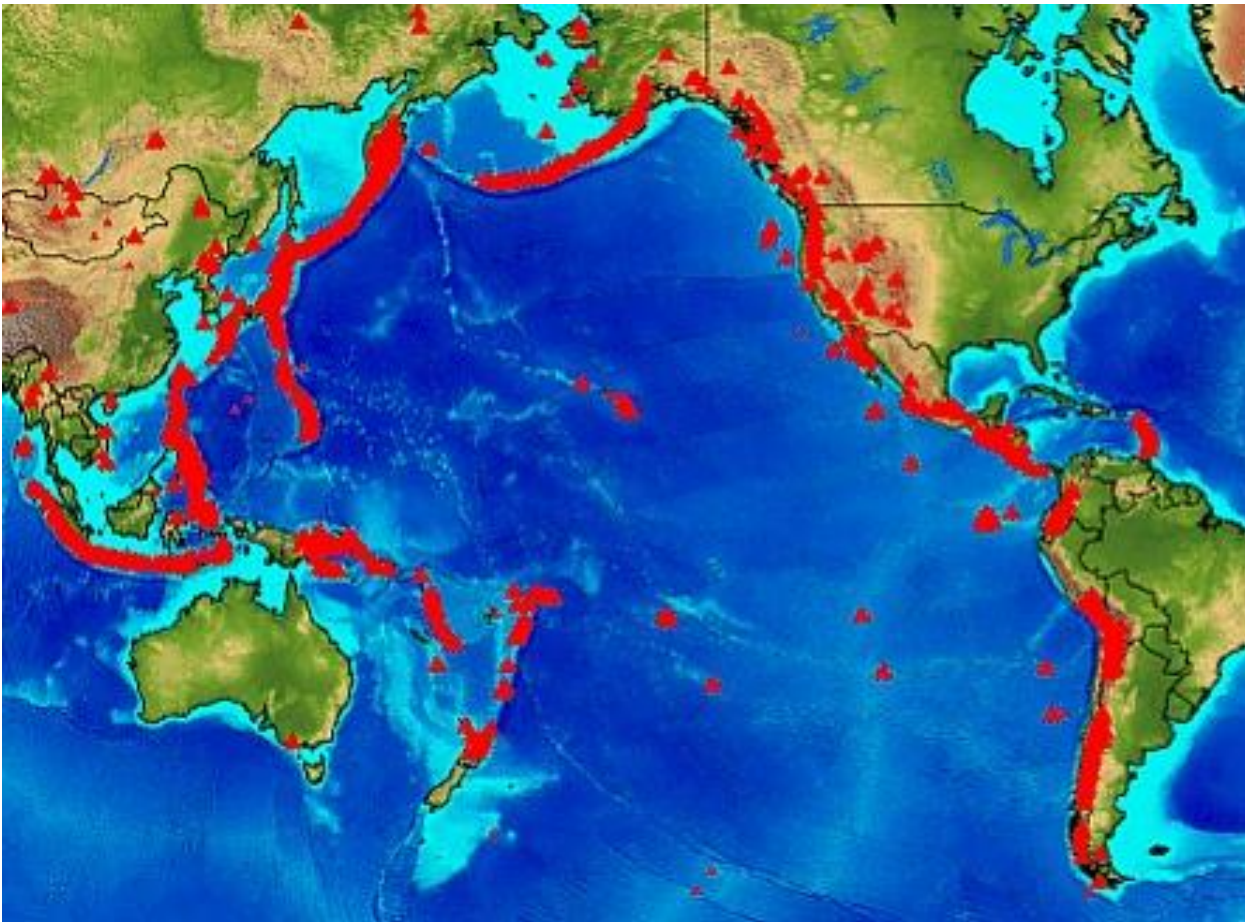
Heat from the core causes Convection Currents



Alfred
Wegener
Named the
super
continent



Seismic Activity around the Ring of Fire due to Plate Tectonics



Why is there a concentration of earthquakes and volcanoes in this region?

Boundary	Type of Plate Boundary	Geologic Event	Resulting Features	Modern Examples
Convergent	Continent To Continent	Crust is folded, bent-- Mountain Building	Mountains	Himalayas
	Continent To Ocean	Subduction = Friction, melting- Volcanism	Mountains, Ocean Trenches	Andes
	Ocean To Ocean	Subduction = Friction, melting Volcanism	Island Arcs, Ocean Trenches	Western Aleutians
Divergent	Continent splits	Crust fractures Magma rises at Rift, Volcanism	Rift Valleys	East African Rift
	Oceans splits	Seafloor Spreading, Volcanism	Mid Ocean Ridge	Mid Atlantic Ridge
Transformed	Continent sliding past Continent	Crust is Deformed, bent, folded	Crust Deformed Along the fault, buckling	San Andreas Fault
	Ocean sliding past Ocean	Earthquakes Possible Tsunami	Offset Oceanic Ridges,	East Pacific Rise

Where did the water come from?
(Comets and outgassing)

Ways to map ocean floor:

Ropes

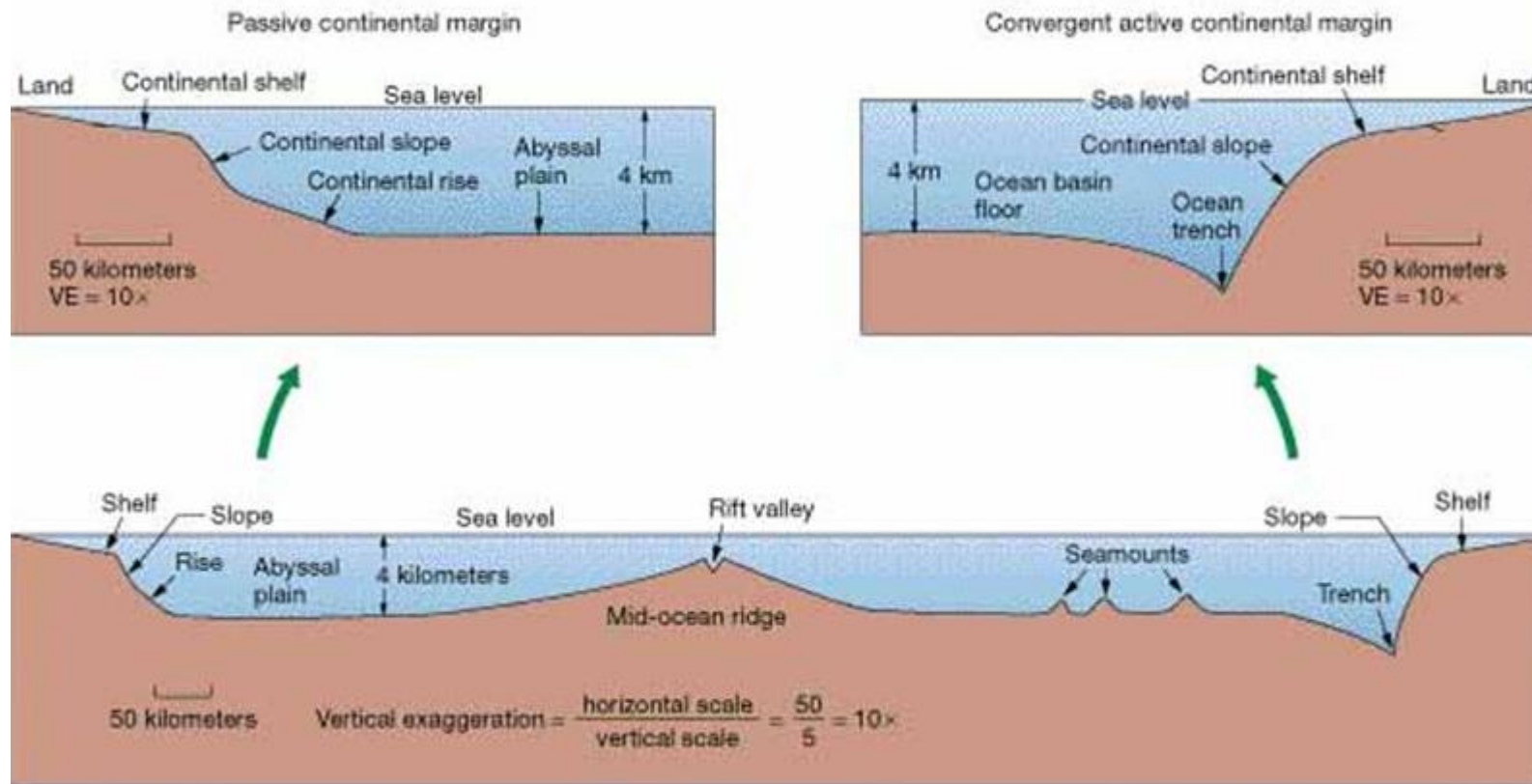
Sonar

Side scan

Multibeam

Satellites

Continental Margins for active & passive coasts



Types of Seismic Waves

PRIMARY / P / Push and Pull, fastest,
travels through solids and liquids

SECONDARY / S / Side to Side, most
destructive, travels through solids only

SURFACE / L / Long

Other ways to learn about the Earth's interior



Drilling or
Volcanoes



Terms to know:

Isostasy

Geothermal gradient

	Shield Volcano	Cinder Cone Volcano	Composite Volcano
Shape/Size	10 km high, 100 km wide DOME SHAPED	500 m high, 500 m wide, STEEP SLOPES	1,000-4,000 m high, 1,000-4,000 m wide TALL- USUALLY WITH SNOW
Composition	Mafic	Mafic	Felsic
Rock Type	Basalt	Scoria / Andesite	Andesite, Rhyolite
Eruption Type	Hawaiian	Strombolian	Plinian
Viscosity	Yes "low"	Yes "medium"	Yes "High"
Name of Volcanoes	Kilauea, Mauna Loa, Hawaii Medicine Lake, CA	Paricutin	Mount St. Helens, WA Mount Shasta Mount Lassen, CA Many around the Ring of fire

How to predict a volcano:

- 1.increase in earthquakes/ tremors,
- 2.uplift / budging,
- 3.gas/ ash emissions
- 4.there is a change in the amount of CO₂ in the surrounding air, or
- 5.nearby bodies of water are warmer than normal.

Benefits of a volcano?

(4)

New land

Part of the rock cycle

Enriched soil

Renews mineral resources

Fatalities Due to?

Toxic Gasses

Pyroclastic Flows

Lahars

Ash Accumulation

Lava Flows/Volcanic Bombs

Effects of Earthquakes?

(6-7)

Tsunami

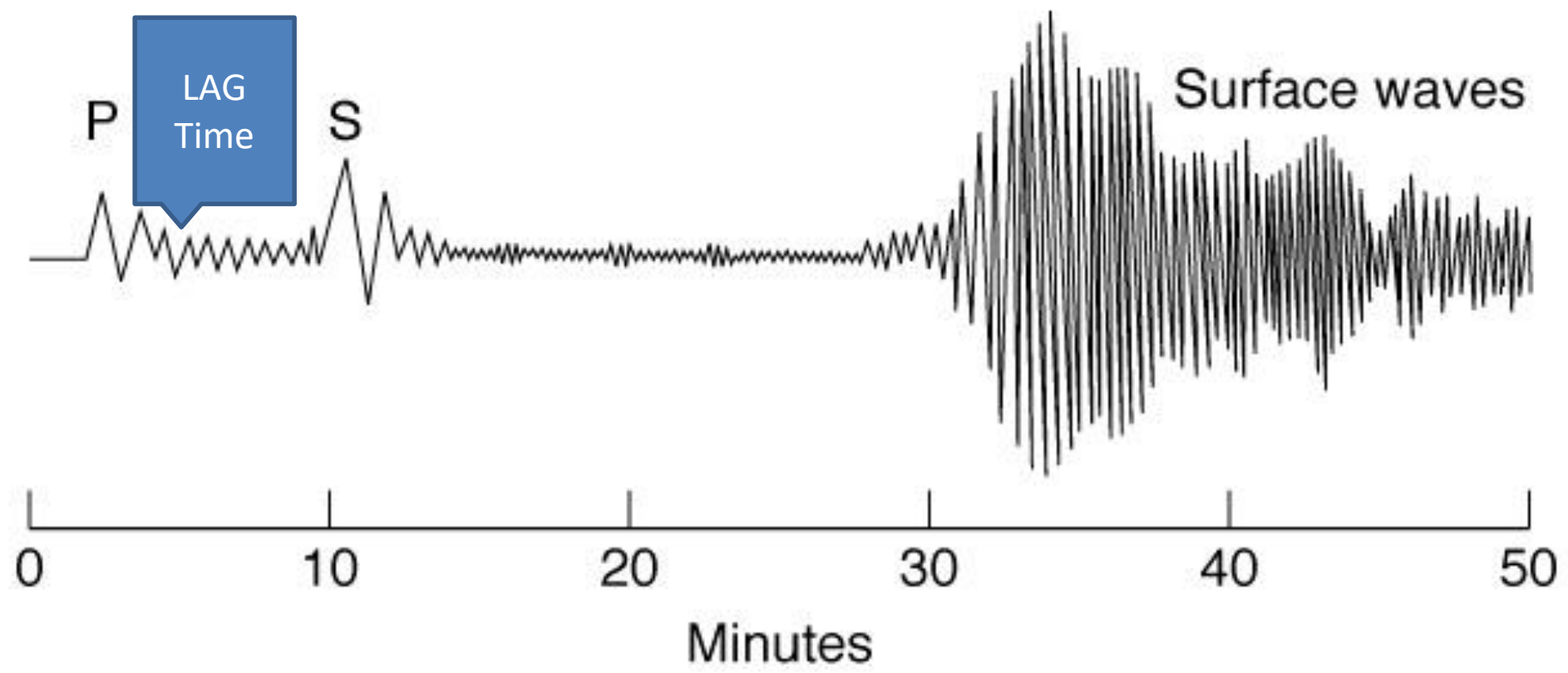
Landslides

buildings collapse/ Pipes Break

Fires

Liquefaction

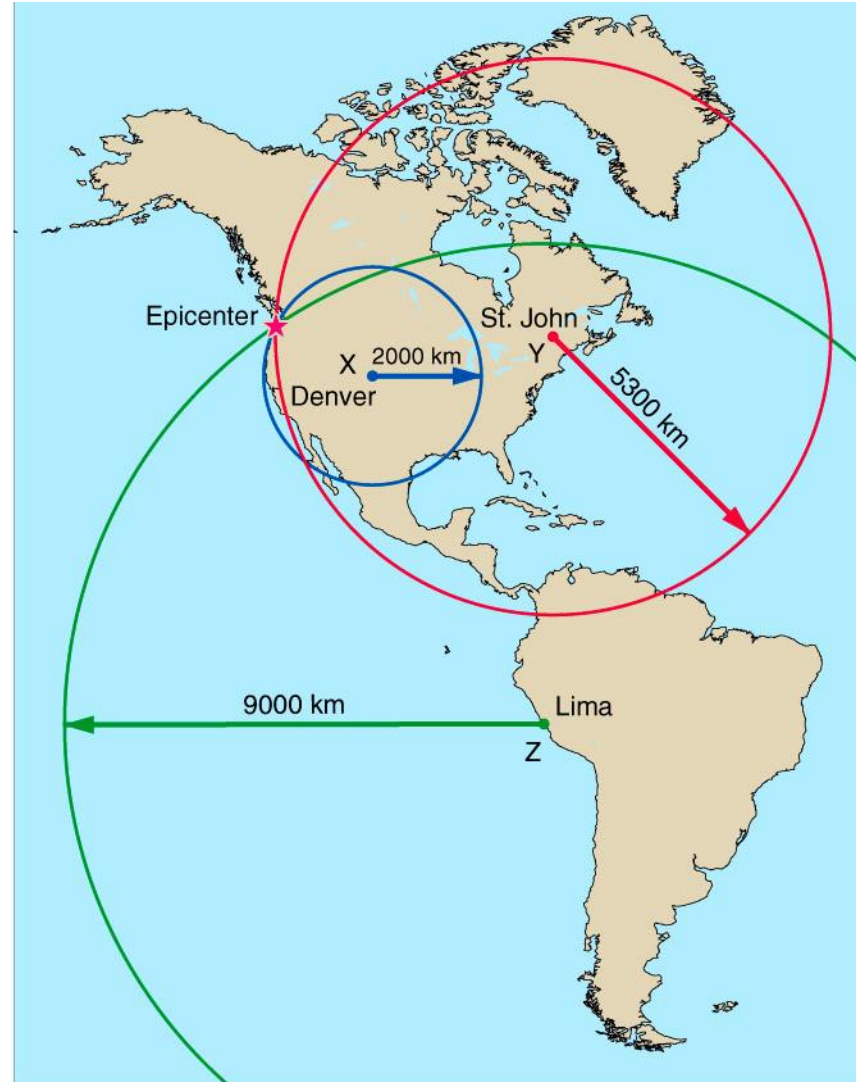
Land Movement



(b) Seismogram

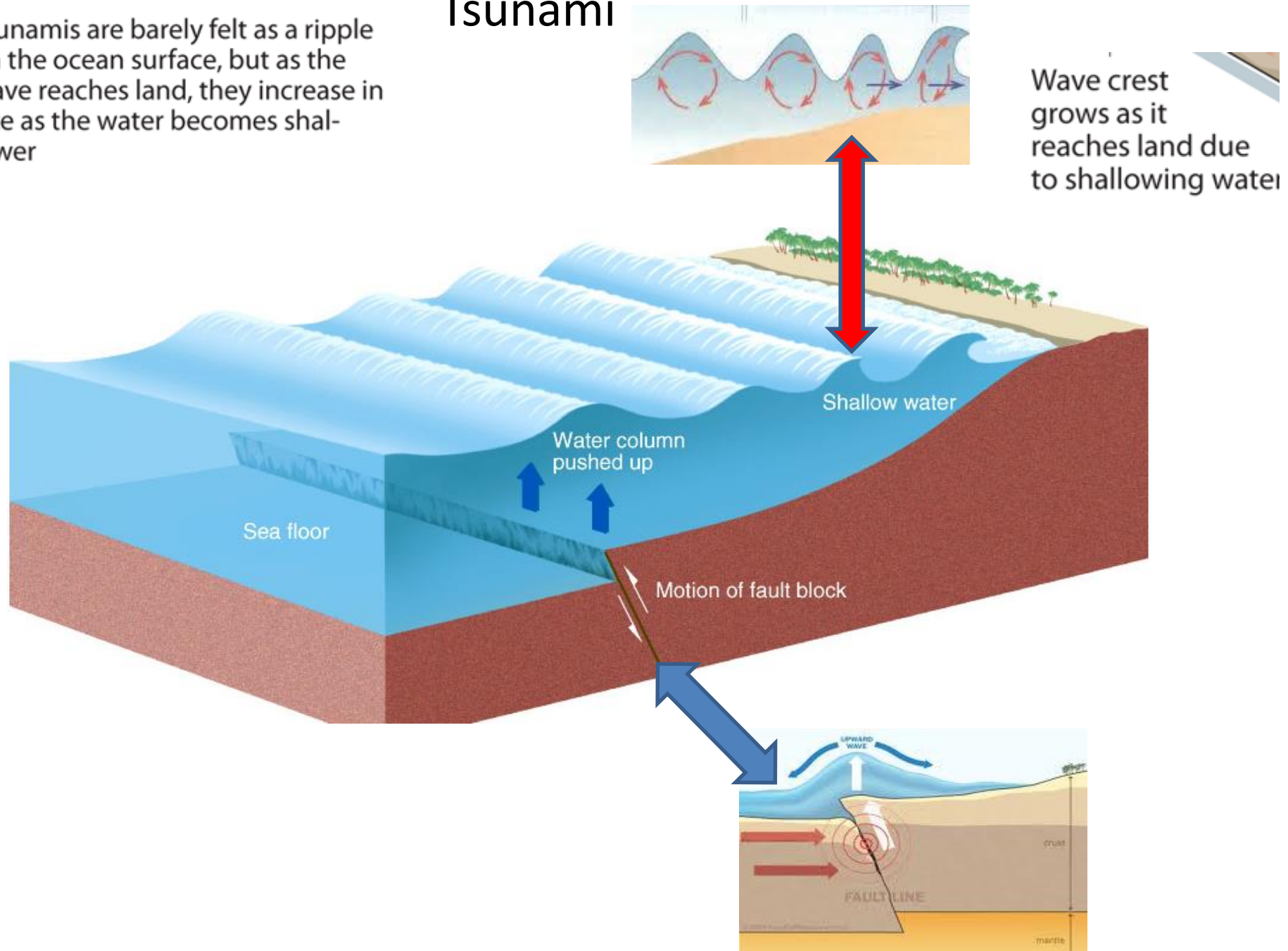
Triangulation:

3 or more
recording
stations are
needed to
locate the
epicenter of
an
earthquake

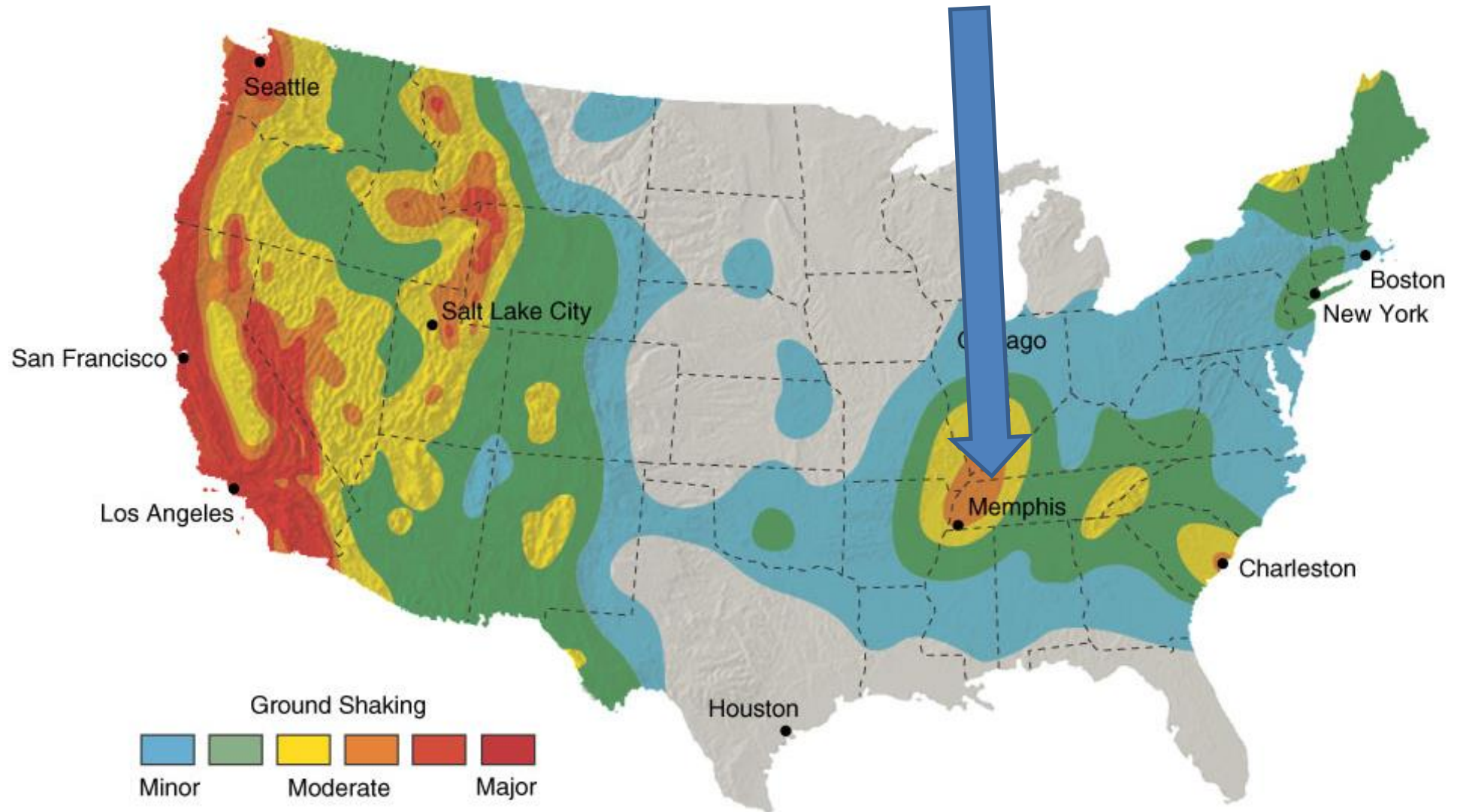


Tsunami

Tsunamis are barely felt as a ripple on the ocean surface, but as the wave reaches land, they increase in size as the water becomes shallower



New Madrid Fault Line



Three kinds of rocks

1. Igneous - from molten material

Intrusive(granite, gabbro) or

extrusive(pumice, obsidian, scoria)

2. Sedimentary – made from particles/ sediment “glued”
together

Clastic-pieces of rocky material –
(sandstone, conglomerate, breccia)

Chemical- shell of marine animals or evaporates
(limestone, rock salt)

3. Metamorphic – rocks changed due to heat and pressure

Foliated- (Gneiss, Schist, Slate)

Non foliated –(Marble, Quartzite)

Everything we own or hope to buy in the future
comes from the earth in some form or fashion
Geology- how the earth works affects us every
day – remember Geologic Hazards
Go out and kiss a rock today and say
“Thank You”