Warm-up

p. 710, 1. The exact point where the earthquake originates is called the _____.

Focus

p. 710, 2. At the epicenter _____ is usually the greatest because it it directly above the focus.

Damage

p. 710, 3. Earthquakes generate _____ types of waves.

three

Warm-up 3/29

p. 711, 1. Which of the 3 waves cause the most destruction?

Surface waves or L-waves

p. 711, 2. The study of earthquakes is known as:

seismology

p. 711, 3. Records of seismic activity on paper or stored electronically are called ____.

seismograms

Warm-up quiz

1. What is the deepest trench? How deep is it?
2. What is a good example of a transform fault boundary (neutral boundary) shown here?
3. What helps at subduction zones that lowers the melting point of rocks?
4. The exact point where the earthquake originates is called the _____.
5. Which of the 3 waves cause the most destruction?

Warm-up 4/1

p. 712, 1. The difference in _____ between the P-wave and S-wave enables seismologist to calculate to the distance to the epicenter.

time

p. 712, 2. The _____ can be found by finding where the 3 seismographs distance inersect.

epicenter

p. 712, 3. S-waves which are _____ waves, cannot travel through a _____.

Transverse, liquid

Warm-up 4/2

p. 713, 1. The scale that rates the magnitude of earthquakes is called the _____ scale

Richter

p. 713, 2. In 1964, an earthquake in _____ had a magnitude of 8,4

Alaska

p. 713, 3. How may earthquakes a year have a magnitude of 7.0-7.3 serious damage?

15

Warm-up 4/3

p. 713, 1. Name two factors that made a difference in damage in California's earthquakes at San Francisco vs Armenia location:

Depth of focus, rock types, building construction

p. 713, 2. The Mercalli scale measures this: _____

intensity

p. 714, 3. In the past, people tried to predict earthquakes by watching _____ for strange behaviors.

animals

Warm-up 4/4

p. 710, 1. P-waves are also called _____ waves

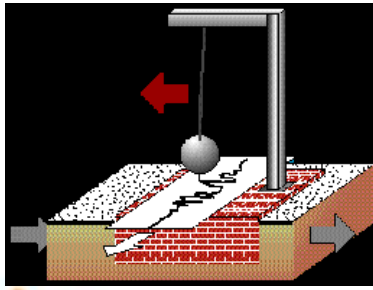
longitudinal

p. 710, 2. P-waves travel by _____ Earth's crust in front of it and _____ the crust in back of it.

compressing , stretching

p. 710, 3. S-wave is known as a _____ wave

transverse



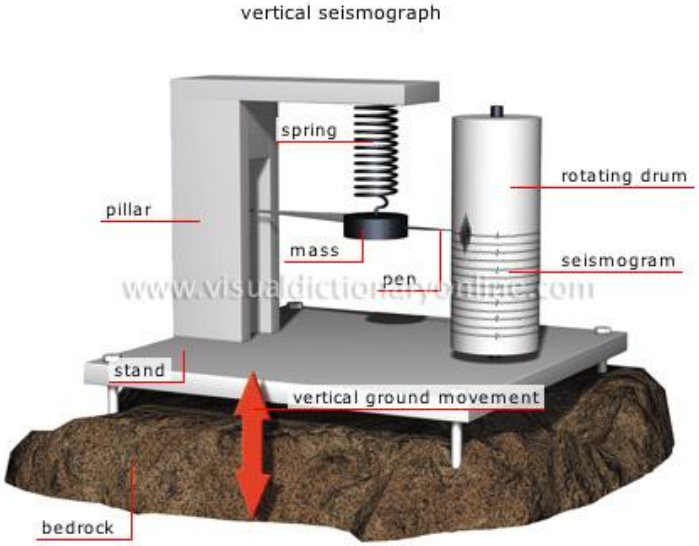
Seismologists:

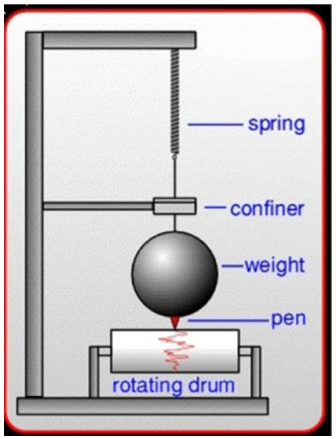
Always ready to

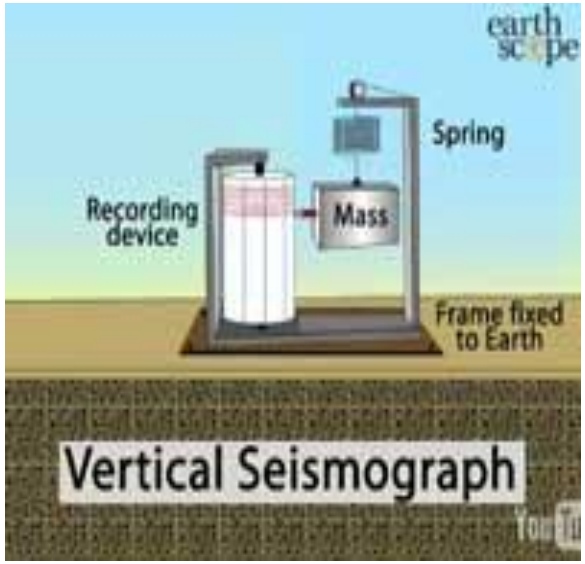
RUMBLE

Recording Earthquakes

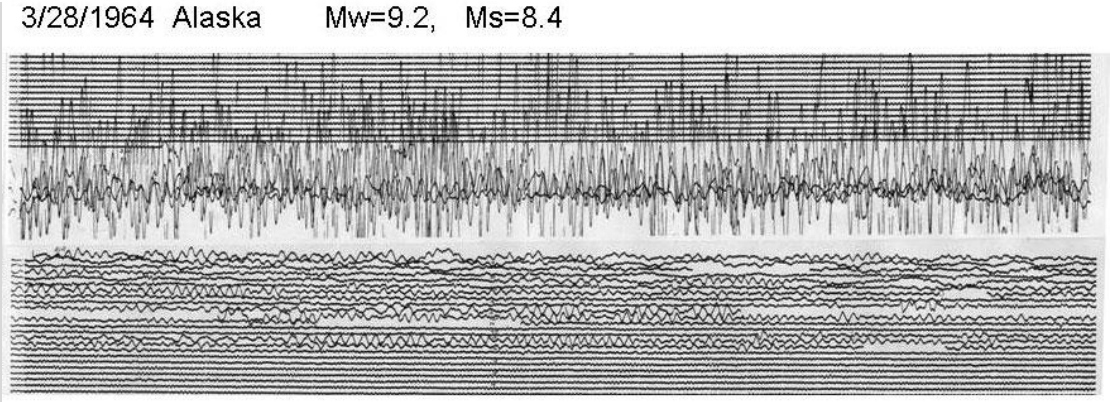
Seismograph – is an instrument that detects, measures, and records seismic waves produced by earthquakes. *"Seismometer"*



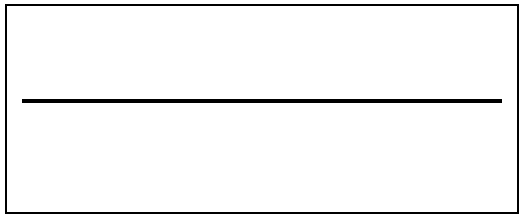




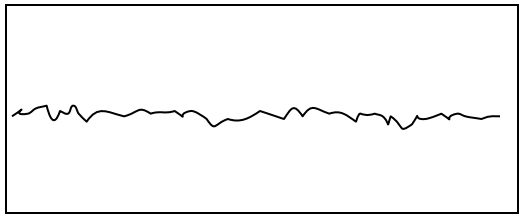
Seismogram – the zig-zag line recorded on paper by a seismograph *(also recorded electronically on computer files)*



Types of seismic waves recorded



No Earthquake

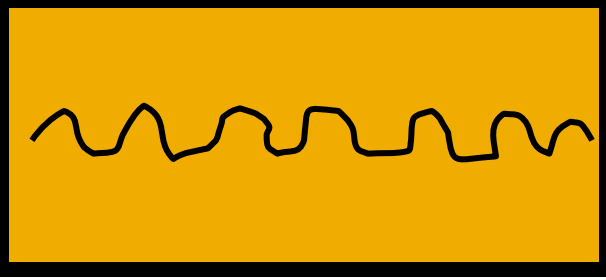


P - wave

Primary wave *(body wave)* – travels the fastest and are the 1st to be recorded by a seismograph.

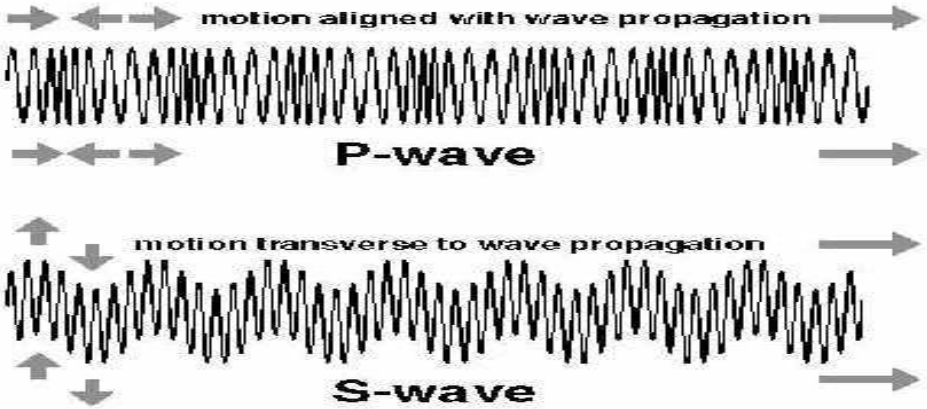
- caused by compression forces
- can travel through solids, liquids, gases

Seismic Waves

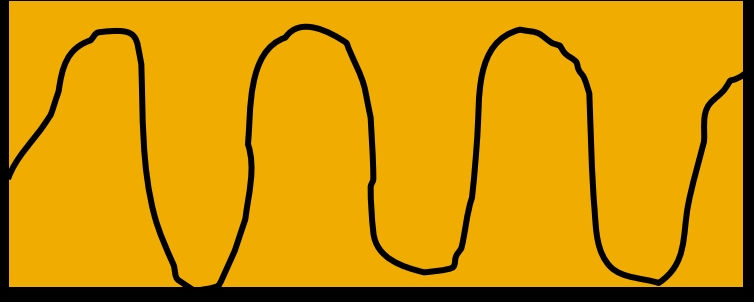


Secondary wave – second wave to reach seismograph and be recorded

- Caused by shearing forces
- Travel only through solids

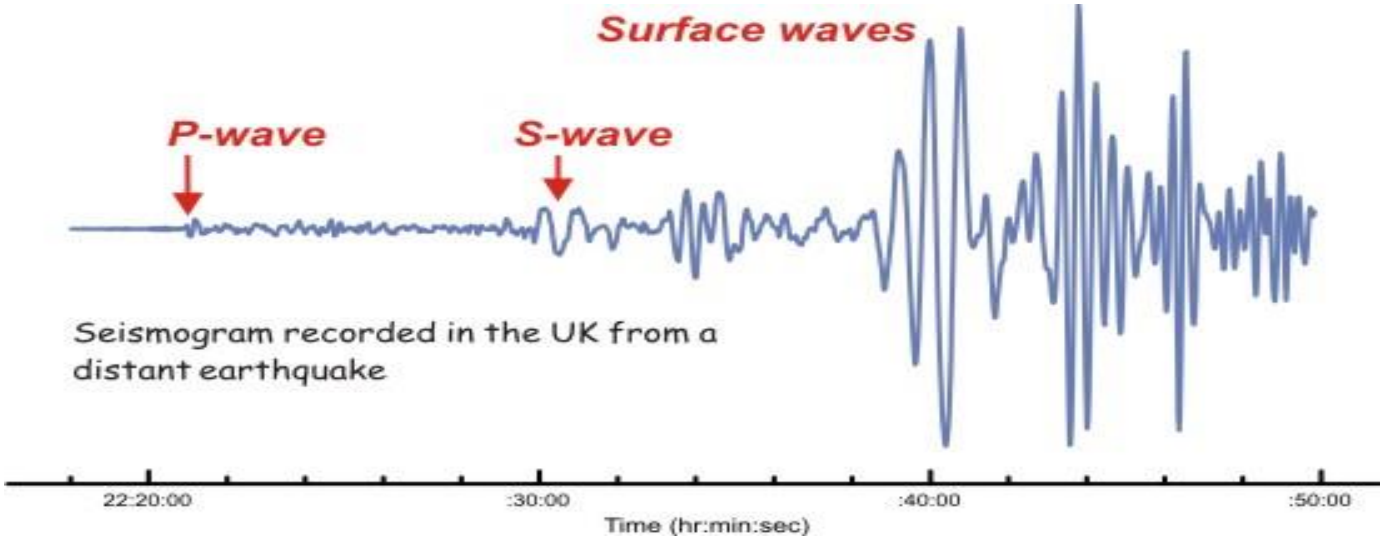


Seismic waves



Long wave (surface wave) – travel the slowest and are last to be recorded on a seismograph

- Cause the most damage
- Travel directly from the focus to the epicenter from there waves move outward along earth's surface

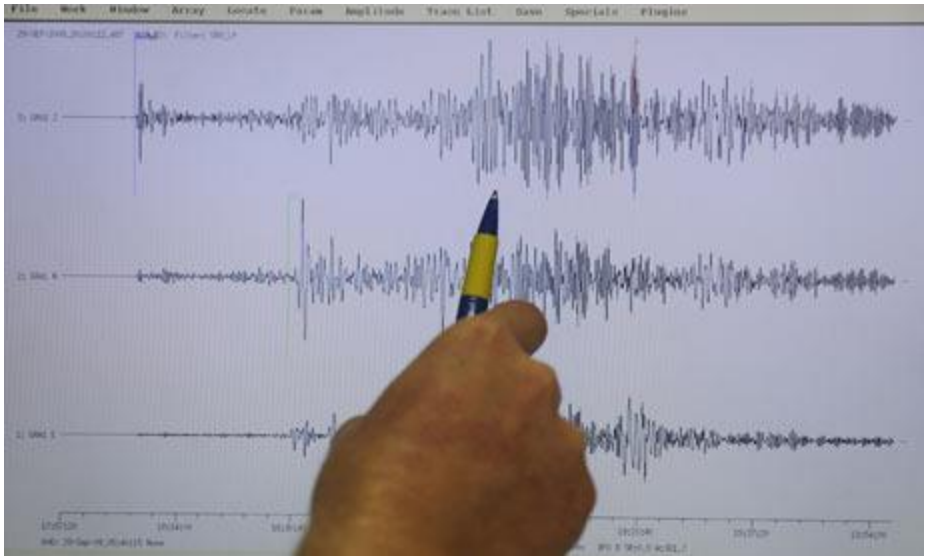


LOCATING THE EPICENTER

Scientists use the *different speeds* of waves to locate where an earthquake has occurred.

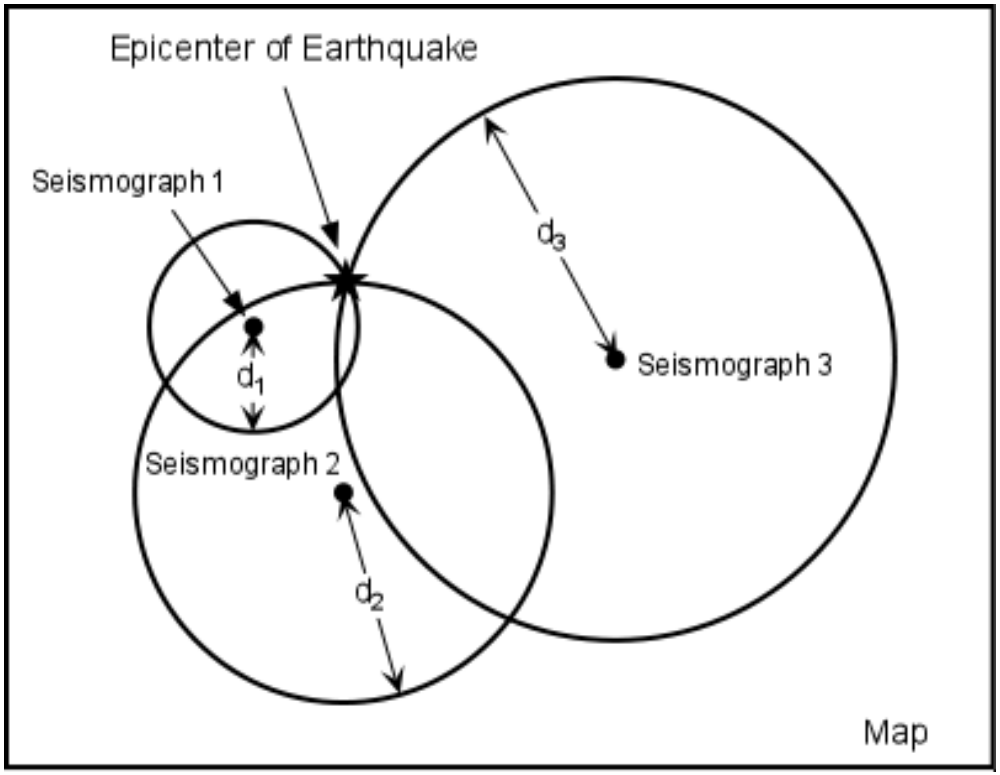
LOCATING THE EPICENTER

Seismologists need **at least 3** seismograph recordings from different locations **to find the epicenter.**



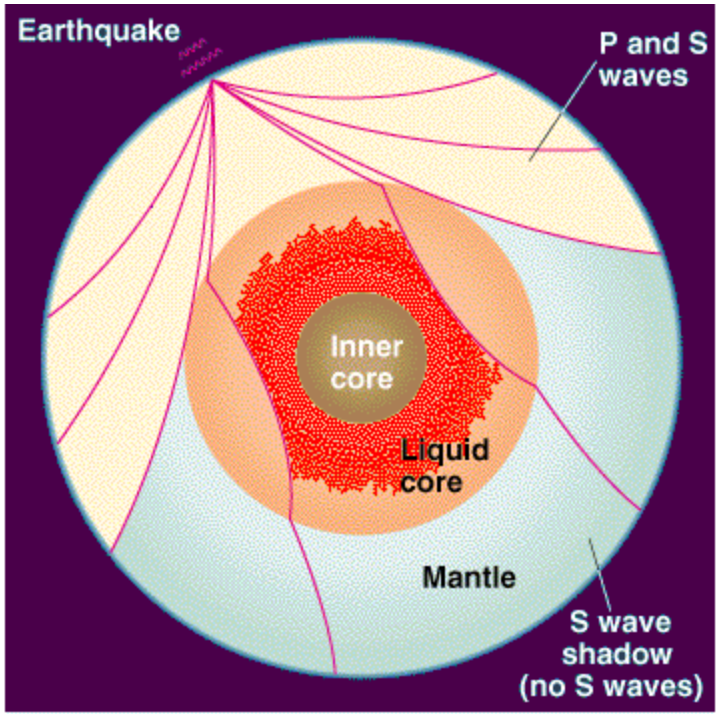
LOCATING THE EPICENTER

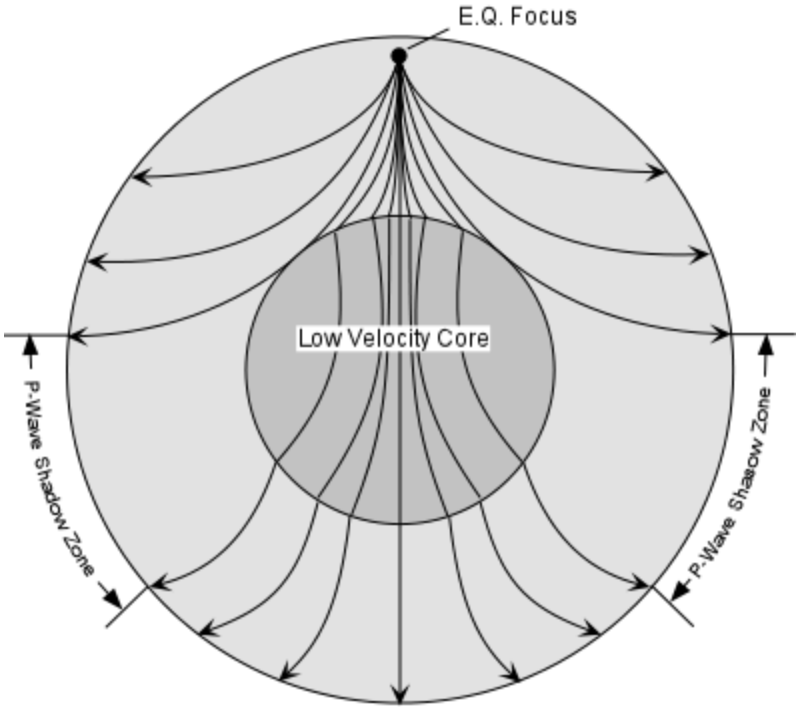
The epicenter is located where all 3 stations' data cross.



Earth's interior (what's inside)

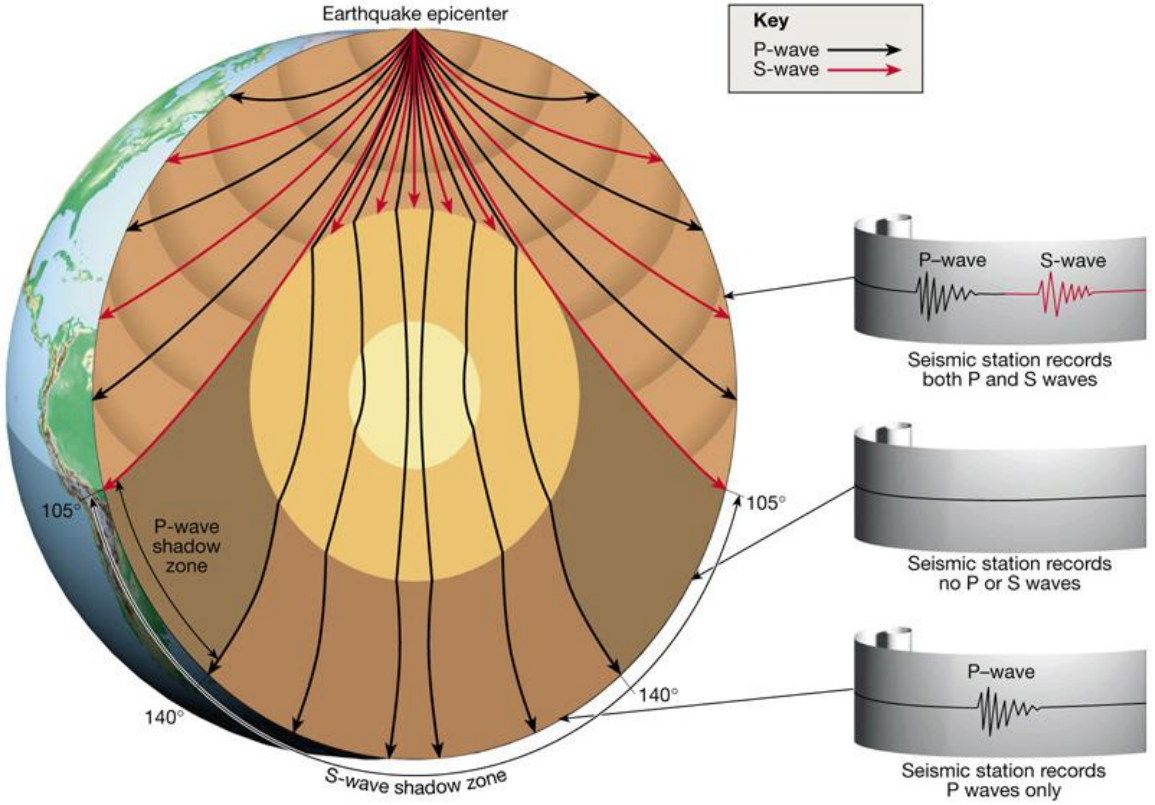
Seismologists have plotted the **paths** of **Seismic waves** and they have shown us the **boundaries** of **layers** in the earth.



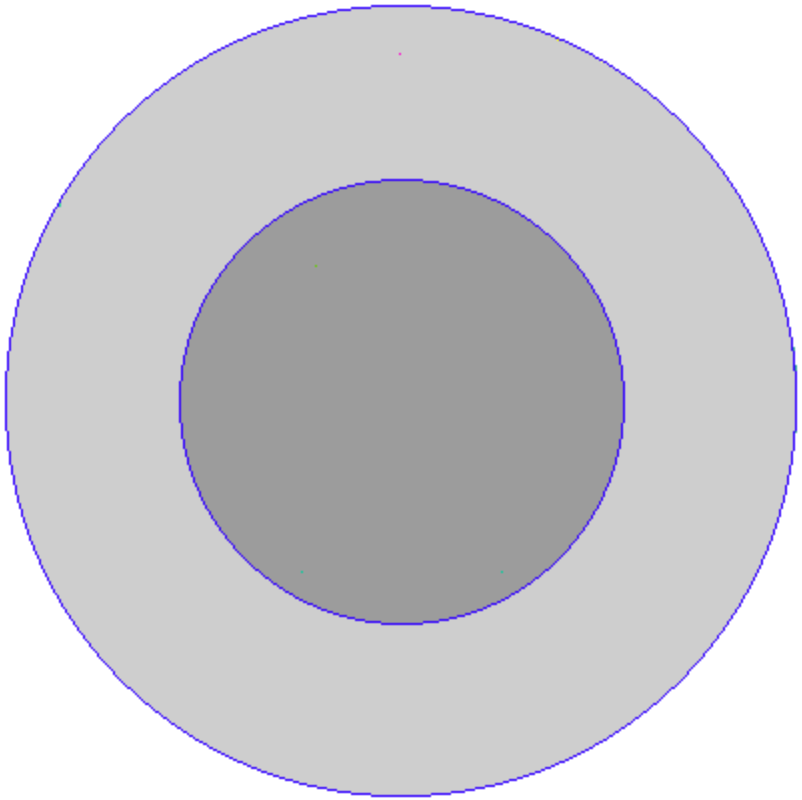


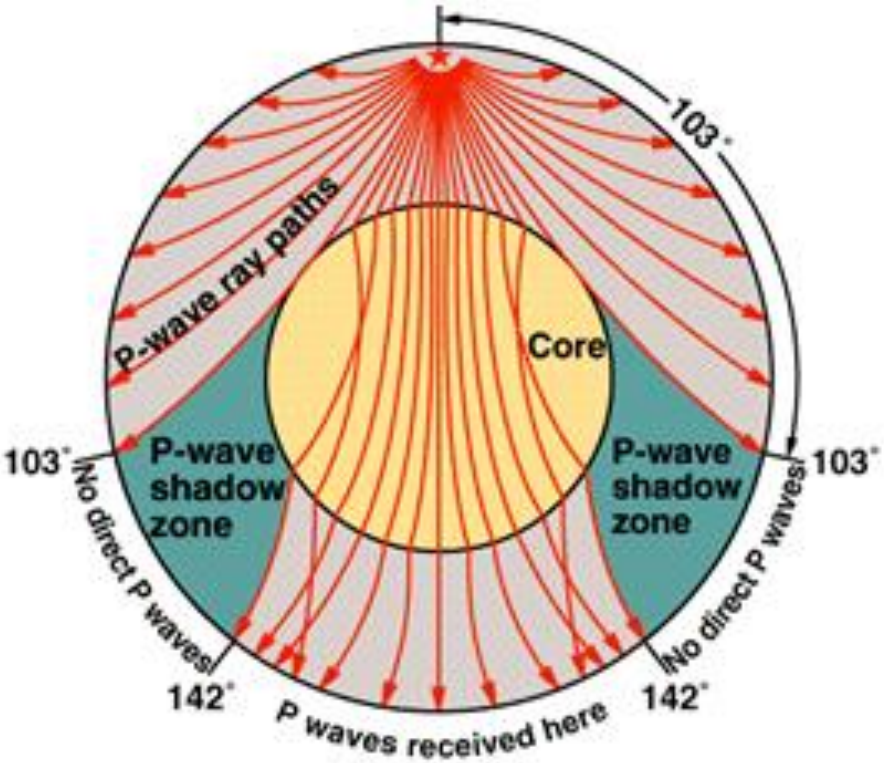
Shadow zone

Shadow zone – is a band or area on earth where **seismic waves** are **not detected**, located **102°** to **143°** from earthquake epicenter/focus.

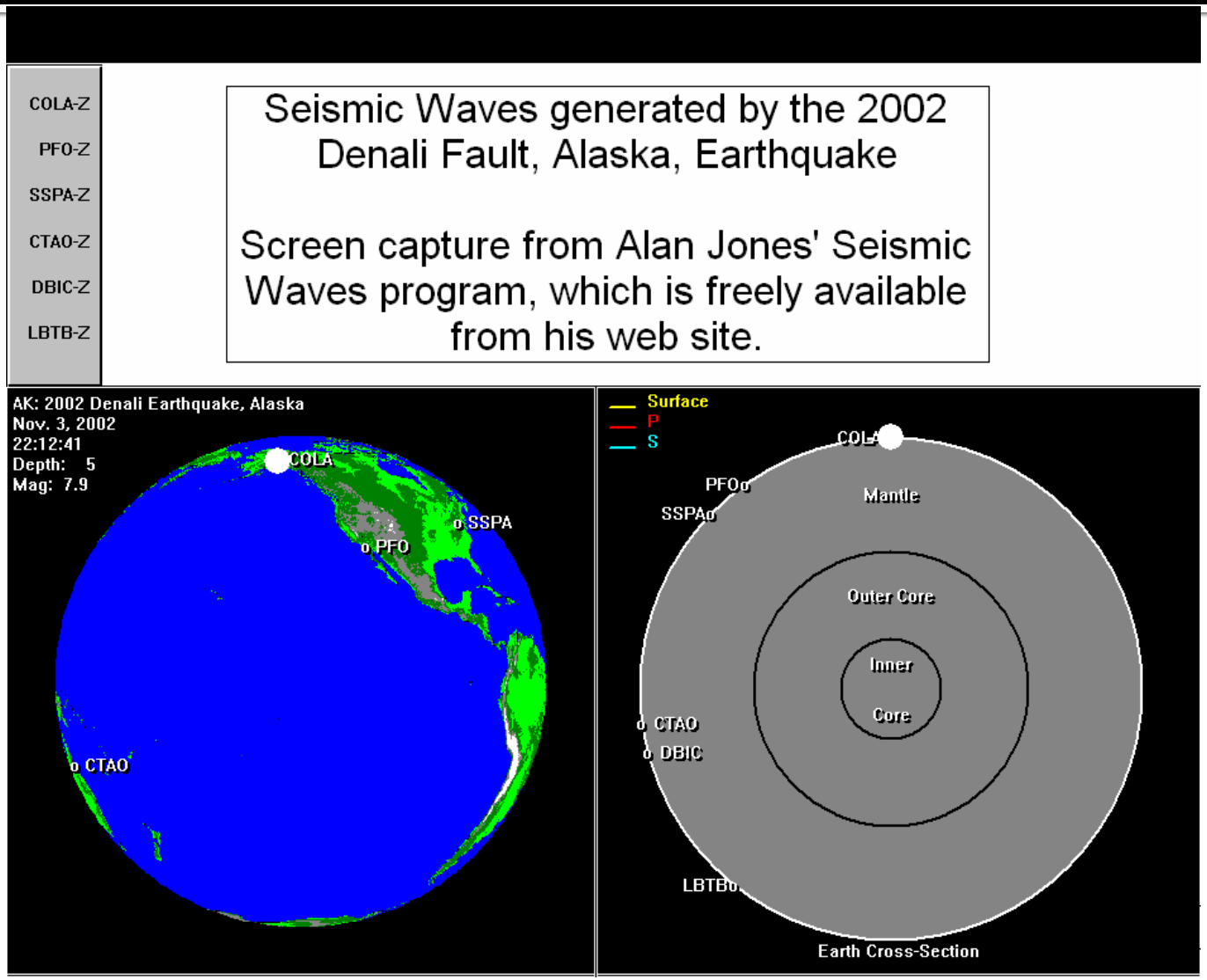


Shadow zone animations





Wave animation



Video clip

Cool down

1. How much do the tectonic plates move per year?

2 cm

2. Which seismic wave will not travel through liquids?

S-wave (transverse wave)