

Assignment 3 - DVIA - Mapping Magnitude - Final version due 11/14

Idea 1 - Ring of Fire

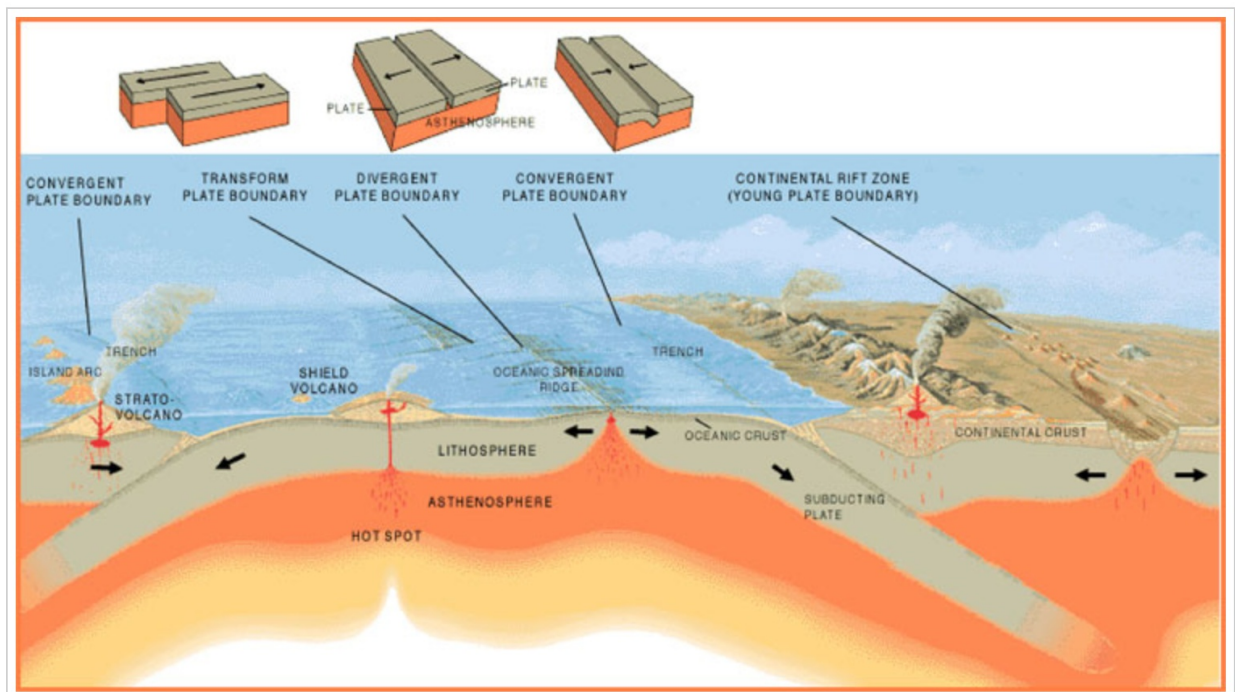
Magnitude

Frequency - weekly

Show changes in tectonic plates over time and projected future shifts

- light yellow, oranges, reds - don't use sequential palette or opacity for color assignment
- typography changes over time via shifts in fault lines, plates
- NOAA - list of seismic events for depth estimations which are generally difficult to render
- encoding directions of shift <- -> | -> <- | ^ V
- disparity of little shifts (e.g. 1 cm movement = 8.0 Richter scale, etc.)
- class of faults - separation, collision, slide, kind of fault to compare with quality of quakes

Data Source: <https://oceanexplorer.noaa.gov/facts/plate-boundaries.html>



This image shows the three main types of plate boundaries: divergent, convergent, and transform. *Image courtesy of the U.S. Geological Survey.*

There are three kinds of plate tectonic boundaries: divergent, convergent, and transform plate boundaries.

A **divergent boundary** occurs when two tectonic plates move away from each other. Along these boundaries, lava spews from long fissures and geysers spurt superheated water. Frequent earthquakes strike along the rift. Beneath the rift, magma—molten rock—rises from the mantle. It oozes up into the gap and hardens into solid rock, forming new crust on the torn edges of the plates. Magma from the mantle solidifies into basalt, a dark, dense rock that underlies the ocean floor. Thus at divergent boundaries, oceanic crust, made of basalt, is created.

When two plates come together, it is known as a **convergent boundary**. The impact of the two colliding plates buckles the edge of one or both plates up into a rugged mountain range, and sometimes bends the other down into a deep seafloor trench. A chain of volcanoes often forms parallel to the boundary, to the mountain range, and to the trench. Powerful earthquakes shake a wide area on both sides of the boundary.

If one of the colliding plates is topped with oceanic crust, it is forced down into the mantle where it begins to melt. Magma rises into and through the other plate, solidifying into new crust. Magma formed from melting plates solidifies into granite, a light colored, low-density rock that makes up the continents. Thus at convergent boundaries, continental crust, made of granite, is created, and oceanic crust is destroyed.

Two plates sliding past each other forms a **transform plate boundary**. Natural or human-made structures that cross a transform boundary are offset—split into pieces and carried in opposite directions. Rocks that line the boundary are pulverized as the plates grind along, creating a linear fault valley or undersea canyon. As the plates alternately jam and jump against each other, earthquakes rattle through a wide boundary zone. In contrast to convergent and divergent boundaries, no magma is formed. Thus, crust is cracked and broken at transform margins, but is not created or destroyed.

To do:

- find which kind of faults are along the ring of fire
- find polygon line to break into pieces with line - look for a shape file. geo json/topo json to convert into vector line to overlay on map, pull into leaflet to draw lines and dots of earthquakes. use sketch to draw on dots.
- ID major cities, and significance of dots where geo and socio portions are explained
- find another version of the ring of fire and find way to pull into leaflet

DUMP THESE IDEAS

Idea 2 - LA vs SF

"Prize Fight" look

Talk to Dan - get base line on how frequent the small one happen then look back in History

for the major one to put in perspective

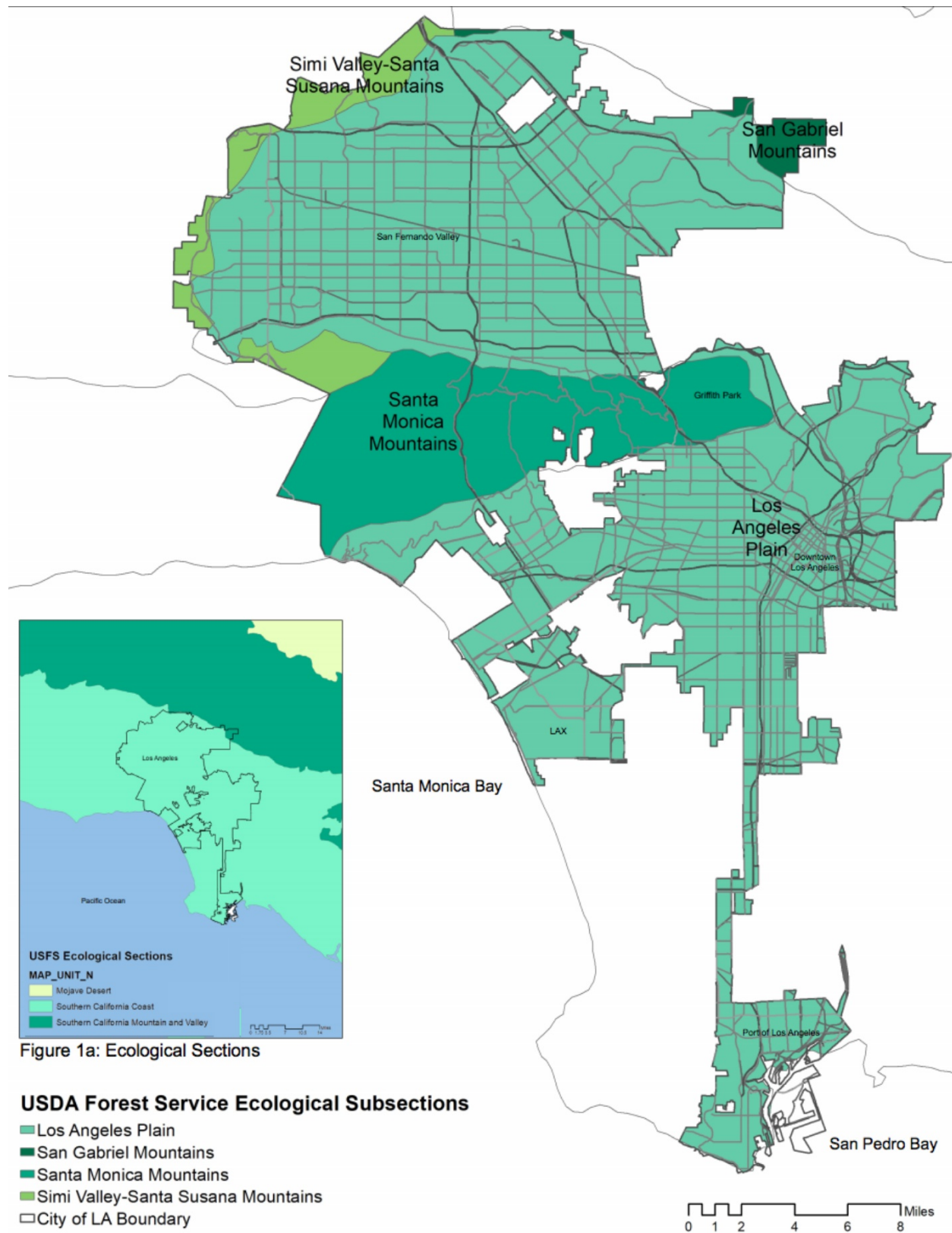


Figure 1a: Ecological Sections

USDA Forest Service Ecological Subsections

- Los Angeles Plain
- San Gabriel Mountains
- Santa Monica Mountains
- Simi Valley-Santa Susana Mountains
- City of LA Boundary

VS.



Idea 3 - Safest Cities

Safest cities re: natural disasters, progressive politics

Size to show magnitude - especially circles there are trade offs when it comes to location.
Interpreting magnitude becomes difficult