



## Writing Assignment 2

### EAPS 10000 Y01 *Planet Earth* Online Course

**Summer 2014**

**June 10, 2014**



**June 10, 2014 – Writing Assignment 2 (WA 2):** Writing Assignment 2 should include topics in Chapters 6 through 10 in the textbook. Except for the topics, the instructions for completing Writing Assignment 2 are the same as for Writing Assignment 1. See the **Due Dates** file (on the **Course Content** area of BB Learn) for due dates of all assignments. **Be sure to read the instructions in the WA 1 assignment. Please pay particular attention to the plagiarism discussion!**

#### **Suggested topics for Writing Assignment 2:**

Statistics of earthquakes	Earth's magnetic field
Paleomagnetism	Elastic rebound theory
The 1906 San Francisco earthquake	The Mar. 11, 2011 Japan earthquake
Seismographs	Locating an earthquake
Earthquake magnitude scale	Largest historical earthquakes
Tsunami	Earth's interior structure
Rock deformation	Faults
N. Anatolian fault (Turkey)	Volcanoes
Intrusions (batholiths)	Hawaii volcanism
The eruption of Mt. St. Helens	Calderas
Crater Lake volcano	Yellowstone volcano
Super volcanoes	Plateau basalts (flood basalts)
Fossils	Radiometric dating
The geologic time scale	Tides
Ocean currents	Ocean pollution
Deep ocean circulation	Shoreline processes
Black smokers	Deep sea trenches
The Trieste (Mariana trench, 1960)	Marine biology
Deep sea drilling	Oil spills

#### **Suggested topics and Example References (links) for WA 2:**

##### **Statistics of earthquakes**

*Brief intro to EQ statistics:*

<http://www.stat.berkeley.edu/~brill/Papers/quakestat.pdf>

*EQ facts and stats in brief:*

<http://earthquake.usgs.gov/earthquakes/eqarchives/year/eqstats.php>

<http://earthquake.usgs.gov/learn/faq/?categoryID=11>

## **Paleomagnetism**

*Basics of paleomagnetism:*

<http://geology.cr.usgs.gov/capabilities/paleom.html>

*List of links to all things geo- and paleo-magnetism:*

<http://www.agu.org/sections/geomag/background.html>

## **The 1906 San Francisco earthquake**

*In depth look at the 1906 SF EQ:*

<http://earthquake.usgs.gov/regional/nca/1906/18april/index.php>

*Another view of the EQ:*

<http://bancroft.berkeley.edu/collections/earthquakeandfire/index2.html>

## **Seismographs**

*Basics of seismographs:*

<http://earthquake.usgs.gov/learn/faq/?categoryID=7>

*More basic seismographs:*

<http://www.earthquakescanada.nrcan.gc.ca/info-gen/smeters-smetres/seismograph-eng.php>

## **Earthquake magnitude scale**

*Intro to EQ magnitude scales:*

[http://eqseis.geosc.psu.edu/~cammon/HTML/Classes/IntroQuakes/Notes/earthquake\\_size.html](http://eqseis.geosc.psu.edu/~cammon/HTML/Classes/IntroQuakes/Notes/earthquake_size.html)

*Links to EQ magnitude scale topics at USGS:*

<http://earthquake.usgs.gov/search/?q=scale&x=0&y=0&cx=012856435542074762574%3A49ga9ubtojk&cof=FORID%3A11&sa=Search>

## **Tsunami**

*Comprehensive tsunami website:* <http://www.tsunami.noaa.gov/>

*Basic overview:* <http://www.tulane.edu/~sanelson/geol204/tsunami.htm>

## **Rock deformation**

*Basic overview:* <http://www.tulane.edu/~sanelson/geol111/deform.htm>

[http://web.eps.utk.edu/~faculty/tennmaps/lectures/TennMaps\\_Structure.pdf](http://web.eps.utk.edu/~faculty/tennmaps/lectures/TennMaps_Structure.pdf)

## **N. Anatolian fault (Turkey)**

*Very brief intro:* <http://www.ldeo.columbia.edu/tamam/tamam-background/the-north-anatolian-fault>

*A paper on fault activity since 1939:* <http://www.ipgp.fr/~armijo/paraseminario/Stein-97.pdf>

## **Intrusions (batholiths)**

*Intrusion terms:* <http://vulcan.wr.usgs.gov/LivingWith/VolcanicPast/Notes/plutons.html>

*Basics of plutons and batholiths:*

<http://www.pitt.edu/~cejones/GeoImages/3IntrusiveBodies/1Plutons.html>

*Case study:*

<http://imnh.isu.edu/digitalatlas/geo/bathlith/bathdex.htm>

<http://abacus.bates.edu/acad/depts/geology/jcreasy.WM.html>

## **The eruption of Mt. St. Helens**

*Intro to Mt. St. Helens eruptions:* <http://pubs.usgs.gov/fs/2000/fs036-00/>

*Eruption history pre-1980:* <http://pubs.usgs.gov/fs/2005/3045/>

*Brief info and stats:* <http://www.volcano.si.edu/world/volcano.cfm?vnum=1201-05->

## **Crater Lake volcano**

*Basic info:* [http://vulcan.wr.usgs.gov/Volcanoes/CraterLake/description\\_crater\\_lake.html](http://vulcan.wr.usgs.gov/Volcanoes/CraterLake/description_crater_lake.html)

*Brief intro and stats:* <http://www.volcano.si.edu/world/volcano.cfm?vnum=1202-16->

## **Super volcanoes**

*Basics:* [http://volcanoes.usgs.gov/volcanoes/yellowstone/yellowstone\\_sub\\_page\\_49.html](http://volcanoes.usgs.gov/volcanoes/yellowstone/yellowstone_sub_page_49.html)

*Topic intro:* <http://www.nasa.gov/topics/earth/features/2012-superVolcano.html>

## **Fossils**

*Intro to paleontology:* <http://evolution.berkeley.edu/evosite/history/fossils.shtml>

*Links to a variety of resources:* <http://www.paleoportal.org/>

### **The geologic time scale**

*Intro:* <http://www.ucmp.berkeley.edu/help/timeform.php>

*History of the geologic timescale:* <http://www.ucmp.berkeley.edu/exhibit/histgeoscale.html>

*Intro with timescale of life development:*  
<http://www.uky.edu/KGS/education/geologictimescale.pdf>

### **Earth's magnetic field**

*Brief intro:* [http://science.nasa.gov/science-news/science-at-nasa/2003/29dec\\_magneticfield/](http://science.nasa.gov/science-news/science-at-nasa/2003/29dec_magneticfield/)

*Discussion on effects of magnetic field:*  
[http://www.esa.int/esaSC/SEMXXWW7YBZG\\_index\\_0.html](http://www.esa.int/esaSC/SEMXXWW7YBZG_index_0.html)

### **Elastic rebound theory**

*Brief intro to Reid's ERT:* <http://earthquake.usgs.gov/regional/nca/1906/18april/reid.php>

[http://peer.berkeley.edu/course\\_modules/eqrd/EQDef/eqdef2.htm](http://peer.berkeley.edu/course_modules/eqrd/EQDef/eqdef2.htm)

*ER on a strike-slip fault:*  
[http://www.iris.edu/hq/files/programs/education\\_and\\_outreach/aotm/4/StrikeSlipRebound\\_BACKGROUND.pdf](http://www.iris.edu/hq/files/programs/education_and_outreach/aotm/4/StrikeSlipRebound_BACKGROUND.pdf)

### **The Mar. 11, 2011 Japan earthquake**

*Basics:* <http://earthquake.usgs.gov/earthquakes/recenteqsww/Quakes/usc0001xgp.php>

*Brief details of EQ:* [http://www.ngdc.noaa.gov/hazard/tsunami/pdf/2011\\_0311.pdf](http://www.ngdc.noaa.gov/hazard/tsunami/pdf/2011_0311.pdf)

### **Locating an earthquake**

*How EQs are located:* <http://www.mgs.md.gov/seismics/edu/no6.pdf>

<http://earthquake.usgs.gov/learn/faq/index.php?categoryID=2&faqID=118/index.html>

### **Largest historical earthquakes**

*USGS lists (select location for more detail):*  
[http://earthquake.usgs.gov/earthquakes/world/10\\_largest\\_world.php](http://earthquake.usgs.gov/earthquakes/world/10_largest_world.php)

<http://earthquake.usgs.gov/earthquakes/eqarchives/year/byyear.php>

## **Earth's interior structure**

*Basic look at Crust, Mantle, and Core:* <http://pubs.usgs.gov/gip/interior/>

*Brief look at tomography techniques used to gather information on earth's interior:*  
[http://www.iris.edu/hq/files/programs/education\\_and\\_outreach/aotm/7/SeismicTomography\\_Background.pdf](http://www.iris.edu/hq/files/programs/education_and_outreach/aotm/7/SeismicTomography_Background.pdf)

## **Faults**

*Brief overview:* <http://www.see.leeds.ac.uk/structure/faults/>

*Basics of faults and related topics:* <http://scign.jpl.nasa.gov/learn/plate6.htm>

*More basics:* <http://pages.uoregon.edu/millerm/faults.html>

## **Volcanoes**

*Detailed look at volcanoes and related topics:*  
[http://www.geology.sdsu.edu/how\\_volcanoes\\_work/](http://www.geology.sdsu.edu/how_volcanoes_work/)

*Stats and general info:* [http://volcano.oregonstate.edu/volcano\\_table](http://volcano.oregonstate.edu/volcano_table)

*Types:* <http://pubs.usgs.gov/gip/volc/types.html>

## **Hawaii volcanism**

*Hawaiian Volcano Observatory, a database of volcanism info:* <http://hvo.wr.usgs.gov/>

*Kilauea status reports, updates, and info releases:*  
<http://hvo.wr.usgs.gov/activity/kilaueastatus.php>

*General info about Hawaiian shield volcanoes:*  
[http://www.soest.hawaii.edu/GG/HCV/haw\\_volc.html](http://www.soest.hawaii.edu/GG/HCV/haw_volc.html)

## **Calderas**

*Intro to calderas:* [http://www.geology.sdsu.edu/how\\_volcanoes\\_work/Calderas.html](http://www.geology.sdsu.edu/how_volcanoes_work/Calderas.html)

*Basics on caldera formation and caldera examples:*  
[http://vulcan.wr.usgs.gov/Glossary/Caldera/description\\_caldera.html](http://vulcan.wr.usgs.gov/Glossary/Caldera/description_caldera.html)

## **Yellowstone volcano**

*National Parks Service FAQ:* <http://www.nps.gov/yell/naturescience/volcanoqa.htm>

*Brief geology and history:*  
[http://volcanoes.usgs.gov/volcanoes/yellowstone/yellowstone\\_geo\\_hist\\_52.html](http://volcanoes.usgs.gov/volcanoes/yellowstone/yellowstone_geo_hist_52.html)

## **Plateau basalts (flood basalts)**

*Basics of flood basalts:* [http://www.geolsoc.org.uk/gsl/education/flood\\_basalts\\_1](http://www.geolsoc.org.uk/gsl/education/flood_basalts_1)

*More basics with info on specific examples:* <http://volcano.oregonstate.edu/flood-basalts>

*Siberian Flood Basalts:* <http://siberia.mit.edu/>

## **Radiometric dating**

*Intro to radiometric time scale:* <http://pubs.usgs.gov/gip/geotime/radiometric.html>

*Principles of radiometric dating:*  
[http://www.tulane.edu/~sanelson/eens211/radiometric\\_dating.htm](http://www.tulane.edu/~sanelson/eens211/radiometric_dating.htm)

## **Ocean currents**

*Ocean currents and climate—types, forces, and paleocurrents:*  
<http://earth.usc.edu/~stott/Catalina/Oceans.html>

*Basics of currents—types, measurement, and affects on humans (menu options at right):*  
[http://oceanservice.noaa.gov/education/tutorial\\_currents/](http://oceanservice.noaa.gov/education/tutorial_currents/)

## **Ocean pollution**

*Intro to ocean pollution types:*  
[http://seawifs.gsfc.nasa.gov/OCEAN\\_PLANET/HTML/peril\\_pollution1.html](http://seawifs.gsfc.nasa.gov/OCEAN_PLANET/HTML/peril_pollution1.html)

*Basics of ocean pollution (see menu left for more):*  
[http://wwf.panda.org/about\\_our\\_earth/blue\\_planet/problems/pollution/](http://wwf.panda.org/about_our_earth/blue_planet/problems/pollution/)

## **Deep ocean circulation**

*Intro to thermohaline circulation:* <http://www.ncdc.noaa.gov/paleo/ctl/thc.html>

*Thermohaline circ, global conveyor belt, and affects of climate change:*  
[http://oceanservice.noaa.gov/education/tutorial\\_currents/05conveyor1.html](http://oceanservice.noaa.gov/education/tutorial_currents/05conveyor1.html)

*A paper describing deep ocean circ in more detail:*  
[http://cdiac.ornl.gov/oceans/glodap/glodap\\_pdfs/Thermohaline.web.pdf](http://cdiac.ornl.gov/oceans/glodap/glodap_pdfs/Thermohaline.web.pdf)

## **Shoreline processes**

*Intro to coastal geology (see link to coast processes):*  
[http://www.nature.nps.gov/views/kcs/coastalg/html/ET\\_Intro.htm](http://www.nature.nps.gov/views/kcs/coastalg/html/ET_Intro.htm)

*Shoreline processes and evolution of coastal landscape:*

<http://www.tulane.edu/~geol113/COASTAL-PROCESSES-1a.htm>

### **Black smokers**

*Intro to black smokers:* <http://www.ceoe.udel.edu/kiosk/blacksmoker.html>

*Mid-ocean ridge setting of hydrothermal vents:*

[http://oceanexplorer.noaa.gov/explorations/05galapagos/background/mid\\_ocean\\_ridge/mid\\_ocean\\_ridge.html](http://oceanexplorer.noaa.gov/explorations/05galapagos/background/mid_ocean_ridge/mid_ocean_ridge.html)

*More detail on black smokers:* <http://www.mbari.org/volcanism/Ridge/R-Hydrothermal.htm>

### **Deep sea trenches**

*Basic info:* [http://en.wikipedia.org/wiki/Oceanic\\_trench](http://en.wikipedia.org/wiki/Oceanic_trench)

*Mariana Trench:* [http://en.wikipedia.org/wiki/Mariana\\_Trench](http://en.wikipedia.org/wiki/Mariana_Trench)

### **The Trieste (Mariana trench, 1960)**

*Brief history/account of the Trieste:*

<http://www.expeditions.udel.edu/extreme08/tools/trieste.html>

*Don Walsh describes the trip to the Mariana Trench:* <http://spectrum.ieee.org/geek-life/profiles/don-walsh-describes-the-trip-to-the-bottom-of-the-mariana-trench>

### **Marine biology**

*List of marine biology resources by type:* <http://www.mbari.org/topics/biology/bio-main.htm>

*List of facts about marine biology:*

[http://seawifs.gsfc.nasa.gov/OCEAN\\_PLANET/HTML/education\\_marine\\_life\\_factsheet.html](http://seawifs.gsfc.nasa.gov/OCEAN_PLANET/HTML/education_marine_life_factsheet.html)

*Student resources for marine bio info (click links):* <http://biology.jbpub.com/marine10e/>

### **Deep sea drilling**

*Website of the Integrated Ocean Drilling Program (see menu links):* <http://www.iodp-usio.org/About/default.html>

*Basic intro to the drilling program:* <http://www.oceanleadership.org/programs-and-partnerships/scientific-ocean-drilling/integrated-ocean-drilling-program/>

### **Oil spills**

*EPA response to oil spills:* <http://www.epa.gov/oilspill/>

*Basic intro to issues:* <http://oceanworld.tamu.edu/resources/oceanography-book/oilspills.htm>

**Tides**

*Brief intro to ocean tides:* <http://www.onr.navy.mil/focus/ocean/motion/tides1.htm>

[http://oceanservice.noaa.gov/education/kits/tides/tides02\\_cause.html](http://oceanservice.noaa.gov/education/kits/tides/tides02_cause.html)