

Oceanography Exercise 3
BATHYMETRIC FEATURES & PLATE TECTONICS

Locate the following bathymetric features in the world ocean; use the numbers to identify each feature on the appropriate map. For those features marked with an asterisk, give a **brief** written description of the feature, describing where it is and what it looks like, then discuss the process of formation.

Atlantic Ocean Basin

- | | | | |
|---|---------------------------|----|------------------------|
| 1 | Hatteras Abyssal Plain | 6 | Romanche Fracture Zone |
| 2 | * Lesser Antilles Islands | 7 | Falkland Plateau |
| 3 | Reykjanes Ridge | 8 | Tristan da Cunha |
| 4 | * Puerto Rico Trench | 9 | South Sandwich Trench |
| 5 | Azores Islands | 10 | Walvis Ridge |

Indian Ocean Basin

- | | | | |
|----|---------------------|----|--------------------------|
| 11 | * Java Trench | 16 | * Ganges Cone |
| 12 | Ninety East Ridge | 17 | Southwest Indian Ridge |
| 13 | Krakatau (Krakatoa) | 18 | Gulf of Aden |
| 14 | * Kerguelen Plateau | 19 | Chagos-Laccadive Plateau |
| 15 | * Red Sea | 20 | Deccan Traps (on land) |

Pacific Ocean Basin

- | | | | |
|----|------------------------|----|---|
| 21 | Kermadec-Tonga Trench | 28 | * Ontong-Java Plateau |
| 22 | * Juan de Fuca Ridge | 29 | Mariana Trench |
| 23 | Easter Island | 30 | * Hawaiian Islands / Emperor Seamount Chain |
| 24 | Eltanin Fracture Zone | 31 | Aleutian Trench |
| 25 | Nazca Ridge | 32 | Philippine Sea |
| 26 | Shatsky Rise | 33 | * Mendocino Fracture Zone |
| 27 | Columbia River Basalts | 34 | Yellowstone caldera |

Links for Exercise 3:

Look for the detailed topographic/bathymetric maps on the website for this course

In the Garrison textbook: Appendix IV and Fig. 4.31

Regional ocean bathymetry maps: <http://topex.ucsd.edu> and <http://www.ngdc.noaa.gov/mgg/image>

http://go.hrw.com/atlas/norm_htm/world.htm maps of the world's oceans with named features

<http://www.ngdc.noaa.gov/mgg/image/2minrelief.html> **** great index to color bathymetry maps of the entire ocean **** **use this to zoom in on a particular section of the ocean**

http://en.wikipedia.org/wiki/Main_Page Wikipedia – an “open source” online encyclopedia

<http://www.maps.ethz.ch/maplibraries.html> links to map libraries on the web

<http://www.volcano.si.edu/gvp/volcano/index.htm> active volcanoes of the world;

has links to specific web sites, some good, some not so good

Sources of the shaded relief maps:

<http://walrus.wr.usgs.gov/infobank/gazette/html/regions/pac.html> U.S. Geological Survey

http://denali.gsfc.nasa.gov/dtam/data/ftp/dtam_hires.jpg Digital Tectonic Activity Maps

shaded relief maps of ocean basins (and globe)

http://earthobservatory.nasa.gov/Newsroom/NewImages/Images/dtam_poles_south.jpg

http://earthobservatory.nasa.gov/Newsroom/NewImages/Images/dtam_poles_north.jpg

shaded relief maps with views from north and south poles

<http://www.crystalinks.com/oceanography.html> extended discussion, all text, but good explanations from Encyclopedia Britannica { note “Continue” at bottom of page }