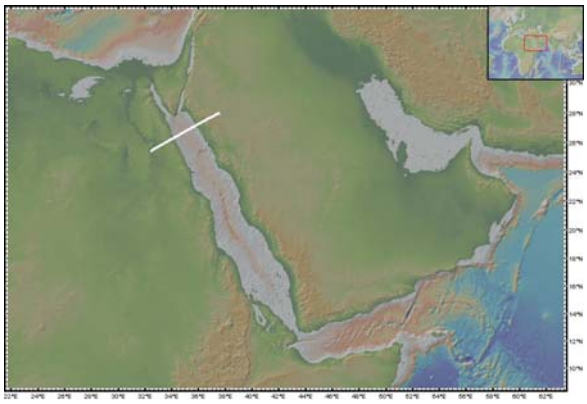
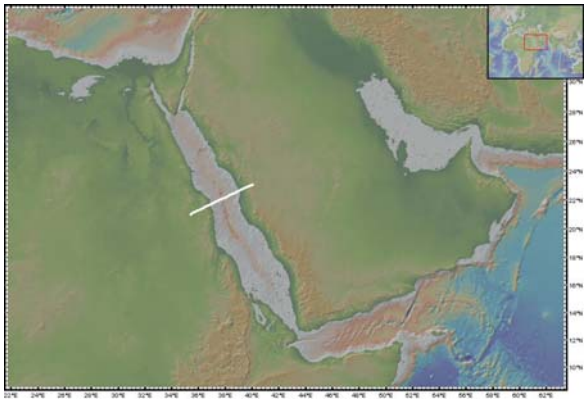
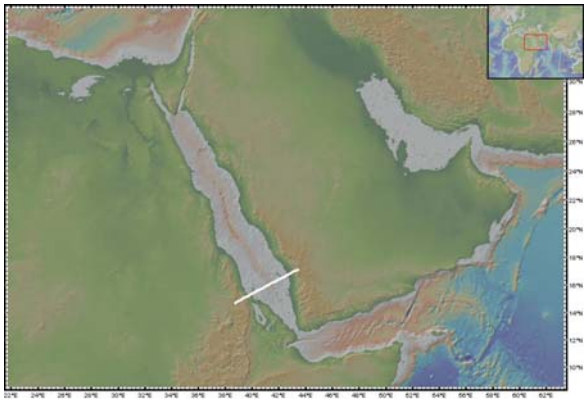
Cross-Sections of the Red Sea - Locations

Lay each cross-sectional profile next to the corresponding location.

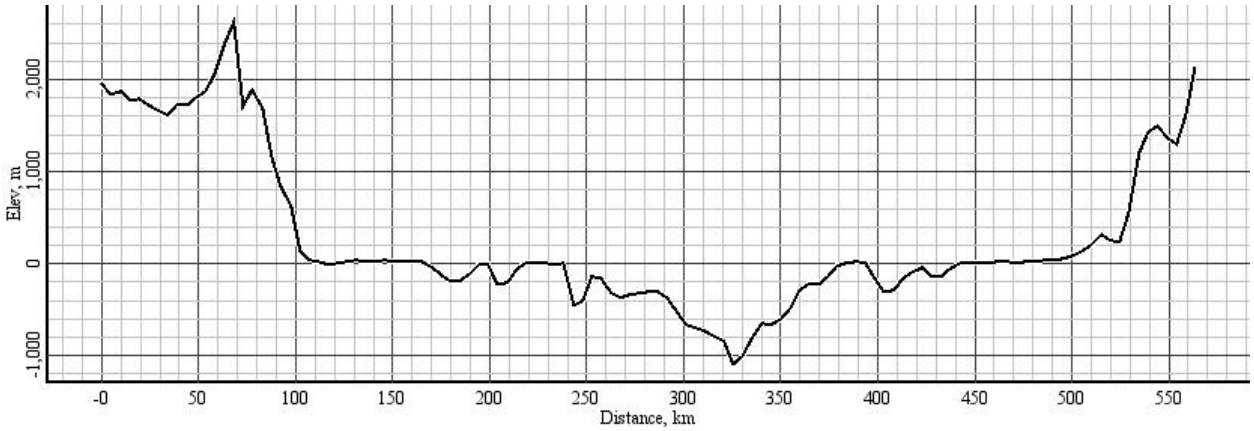


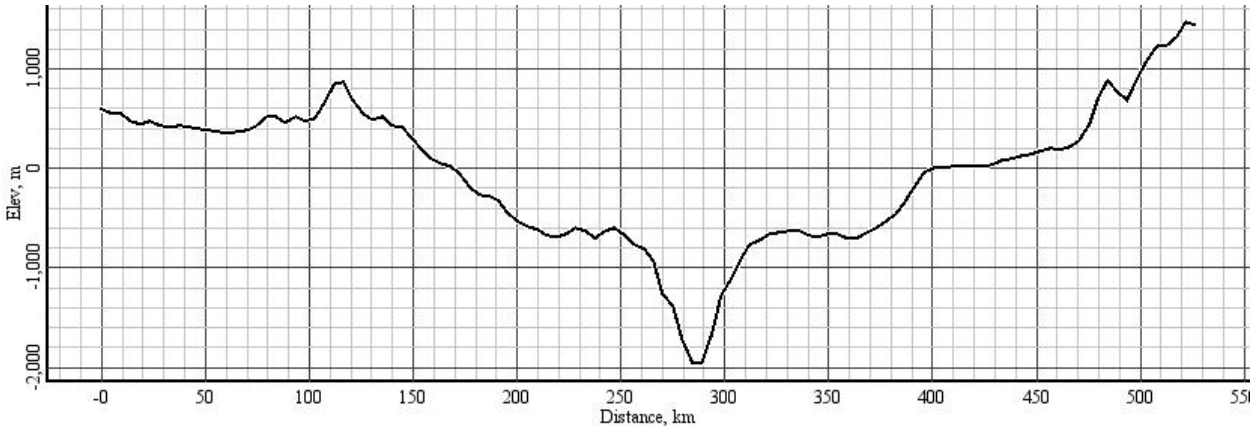


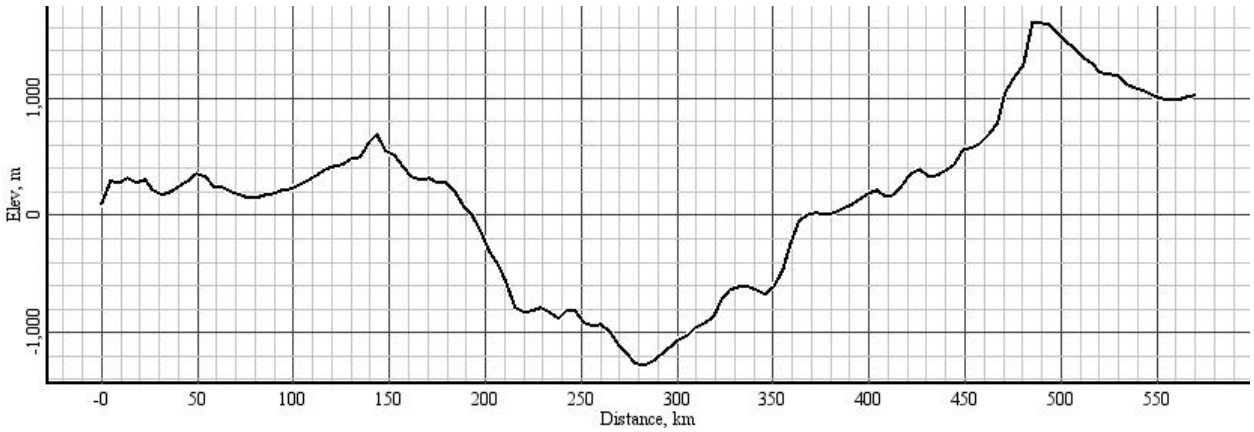


Cross-Sections of the Red Sea Profiles

Cut out and lay each cross-sectional profile next to the corresponding location on the worksheet.







Cross-Sections of the Red Sea Worksheet

Answer the following questions when looking at the Red Sea images in map view and cross section.

What criterion did you use to match the profiles with their images in map view? Why do you think you are accurate?

What is the deepest depth of the sea at:

- the northern profile?
- the middle profile?
- the southern profile?

How wide is the sea at:

- the northern profile?
- the middle profile?
- the southern profile?

What is the total relief across:

- the northern profile?
- the middle profile?
- the southern profile?

Are the three profiles symmetrical? Where do variations occur across and between the profiles? Explain.

Make a prediction as to why you think there are variations between these three cross sections.

Now go into Google Earth. First, open the KMZ file "Red_Sea." You should see the same map that had the profiles marked on it laid over that part of the world. In the ***Layers*** window (lower-left side of the Google Earth interface), make sure there is a checkmark in the box next to the category for ***Geographic Features*** and deselect all other layers.

Click on each volcano symbol for the four volcanoes located in the southern portion of the Red Sea. Read the descriptions for each, provided by the Smithsonian Institution's Global Volcanism Program.

Give a general description of the volcanoes. How do you think these features impact what is seen in the cross-sectional profiles of the Red Sea?

Let's think… could the floor of the Red Sea represent a plate boundary? Why/why not? If so, which type of plate boundary, and what further evidence would you need to confirm?

Next, open the KML files "Plate_Name" and "Types_of_Plate_Boundaries." The globe may try to rotate away from you. You can use the navigation compass to rotate and orient the Earth back to the Red Sea. Under the ***Places*** window, you will want to select and deselect the boxes next to "Plate Name" so you can see the original Red Sea image. You will also want to open the folder under "Plate Name" to see the color key for the names of the tectonic plates. After viewing the Red Sea with the different layers highlighted, answer the following questions.

What type of plate boundary is running through the Red Sea? Which plates are on either side of the boundary?

After identifying the type of plate boundary, does it make sense to have volcanoes along the bottom of the Red Sea? Explain.

With this new knowledge, why is the Red Sea widest at the southernmost profile location? Explain.

Describe in a paragraph what you predict the future of the Red Sea will be (in geologic time). What information would you like to have to confirm your prediction?

*NOTE: The "Red_Sea" KMZ file was created in GeoMapApp. The "Types_of_Plate_Boundaries" and "Plate_Name" KMZ files were modified from the JOI Learning activity: http://www.joilearning.org/classroom/seafloor_spreading.html