# Earth 107: Module 2 Lab

Important! We advise you to either print or download/save this document as it contains the steps you need to take to complete the Lab in Google Earth. In addition, it contains prompts for questions that you should take note of (by writing down or typing in) as you work through the Lab.

Once you have worked through all of the steps and answered the questions, you will go to the **Module 2 Lab** **in Canvas** to complete the Lab by answering multiple-choice questions available in quiz format. The answers to questions on this Lab worksheet for questions 6-17 only will match choices in the multiple-choice questions in Canvas. Submit the quiz in Canvas for credit.

## General Instructions for Module 2 Lab

* Questions 1-5 of this Lab are in Canvas only. Be sure that you read the “Review of Coastlines” on the Module 2 Lab page on the course web site to help you answer these questions.
* Questions 6-17 of this Lab are located here in this worksheet and in Canvas. For these questions you will be prompted by this worksheet to work in Google Earth and fly to the coordinates listed for each part of the Lab. You willfollow the steps in each part below and answer the accompanying questions.
* Questions 18-20 of this Lab are in Canvas only. You will be asked to match coastal classification terms to complete sentences.

### Greenland

Fly to 60º 00’ 00” N 44º 00’ 00” W at an eye altitude of approximately 3,000 km. Be sure to check out this USGS.gov web page ([https://pubs.usgs.gov/gip/dynamic/slabs.html)](https://pubs.usgs.gov/gip/dynamic/slabs.html%29) to get some additional insight on tectonic boundaries relative to Greenland. Keep in mind that the west coast of Greenland faces a formerly active spreading center and that the east coast of Greenland faces the currently active Reykjanes spreading center that runs through Iceland.

*6. What is the most appropriate Inman and Nordstrom (1971) tectonic classification for this location?*

Zoom in to an eye altitude of 300 km and examine the morphology of the southern tip of Greenland.

*7. What process do you think is dominantly shaping this coastline?*

Examine some of the photos in Google Earth along the coastline in this area.

8. *Do you think this is a submerged or emergent coastline?*

*9. Is this an erosional or depositional coastline?*

### Cascadia

Fly to 46º 12’ 00” N 122º 11’ 00” W at an eye altitude of approximately 1,500 km.

1. Compare this coastline to the one you just observed in southern Greenland. Look at the morphology of the coast and the bathymetry of the seafloor just to the west, noting, in particular, the narrow shelf, steep dropoff, and submarine canyons.

*What is the most appropriate Inman and Nordstrom (1971) tectonic classification for this location?*

Zoom in to ~50 km eye elevation.

*11. What kind of geologic feature is this?*

1. *Based on your observations and what you have learned about plate boundaries, what type of plate tectonic setting does Cascadia represent?*

### Niger and Ganges-Brahmaputra River Deltas

Now fly to Niger River Delta (04º 23’ 30” N 06º 00’ 00” E) and examine the shoreline at an eye altitude of ~150 km.

*13. Do you think this is a wave-dominated or tide-dominated coastline?*

Now fly to the shoreline of the Ganges-Brahmaputra River Delta (21º 45’ 00” N 89º 15’ 00” E) and view it from an eye altitude of ~300 km.

*14. Do you think this is a wave-dominated or tide-dominated coastline?*

Go back to the Niger River Delta, and fly out to an eye altitude of approximately 1000 km. Notice how the shoreline in the area of the Niger delta protrudes into the Atlantic Ocean. Also, examine the bathymetry in front of the subaerial part of the delta.

*15. Integrating your new-found knowledge of plate tectonics and observations of this stretch of coastline, identify the plate tectonic setting.*

Now, go back to the Ganges-Brahmaputra River delta and fly out to an eye altitude of approximately 1500 km. Examine the configuration of the many rivers and drainage networks delivering sediment to the delta.

*16. Where do these rivers originate?*

*17. What type of plate tectonic setting was responsible for creating the interior landform from which the Ganges (to the east) and Brahmaputra (to the west) rivers originate?*