

Mid-Atlantic Appalachian Orogen Traverse - Virtual Field Trip 1

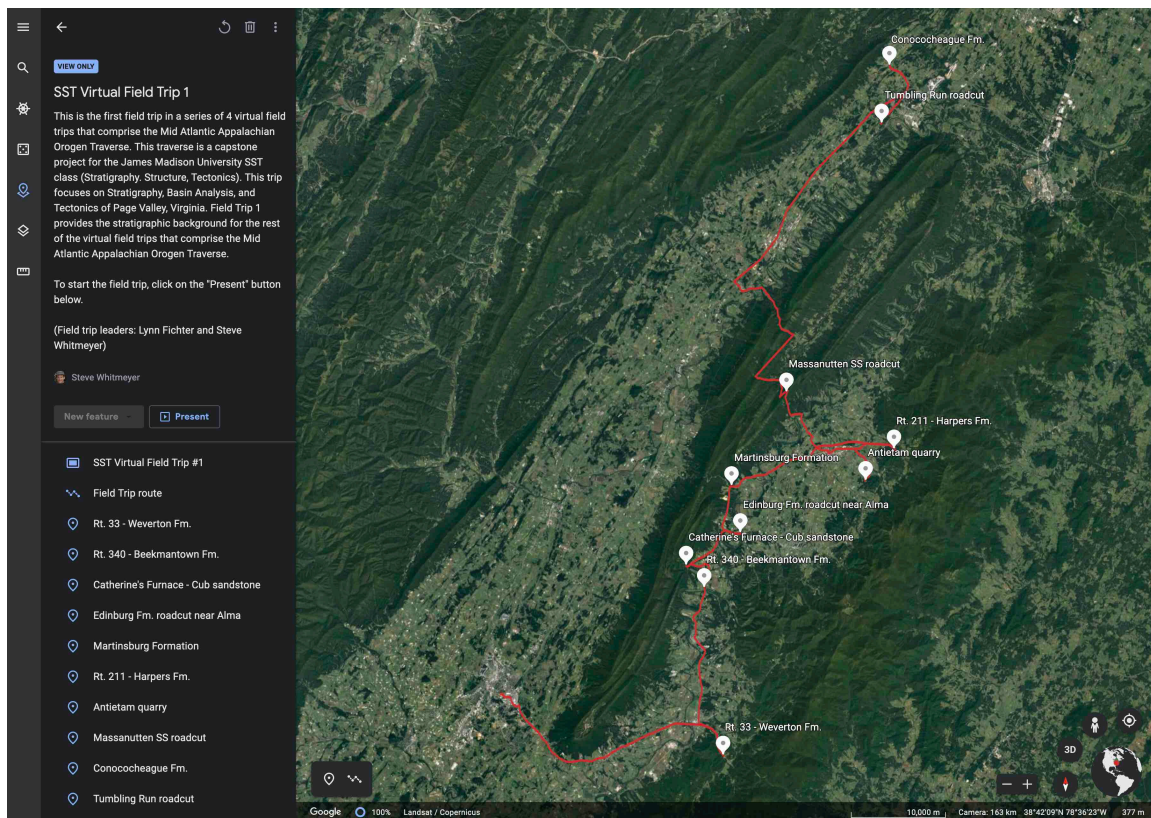
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Welcome to Virtual Field Trip 1, the first field trip in the Mid Atlantic Appalachian Orogen Traverse; a capstone project for the James Madison University SST: Stratigraphy, Structure, Tectonics course. On this field trip you will visit several locations that feature sedimentary rocks in Page Valley, Virginia. The lithologic units range from Ordovician carbonate rocks to Silurian sandstones. Each site has abundant geologic data that you will need to synthesize and integrate with data from other sites, in order to write a stratigraphic and tectonic history of the region.

The virtual field trip is accessed by the link below, which will open in the web version of Google Earth. Note: the virtual field trip will not run correctly in the desktop version of Google Earth.



<https://earth.google.com/earth/d/1sK1EHV99ZvanqpqnbPpKfCT2yCJOGHbc?usp=sharing>

When you click on the link, you should see an image like the one below in your web browser. The red line shows the general path of the field trip, from south to north. The field trip sites (or stops) are indicated by white Placemarks.



You can click on any Placemark to view the information at that site; note that each site has informational text in the balloon at the right side of the screen, as well as images at the top of the balloon. Clicking on these images will enlarge them on your screen.

It is probably best to view the field trip locations in order, starting in the south and progressing northward. The best way to do this is to run the field trip as a presentation; to run the

presentation click on the blue “Present” button  at the left side of the screen. Prior to starting the field trip we recommend that you remove unnecessary text labels from the Google Earth ground view; you can do this by clicking on the Map Style icon at the left side of your browser window (6th icon down: ) and choosing the “Clean” map style.

You will need to take notes for each field trip site that document the stratigraphic features, environmental interpretations, and tectonic models discussed. You will use this information to determine the stratigraphic and tectonic history of the region during the early to middle Paleozoic. Don’t forget to consult the PowerPoints and other supplemental materials.

Exercise Deliverable

Once you have visited all of the field trip locations (probably multiple times,) collected detailed notes, and reviewed the supplementary materials, you will need to prepare a geology history of the field trip region, including details of each unit/formation. Instructions for preparing these deliverables are below.

Deliverable: A Stratigraphic/Tectonic History of the Region

1. Arrange your field notes in sequential order from oldest formation to youngest.
2. Compile a list of tectonic events in sequential order from oldest event to youngest event, and indicate the lithologic units/formations involved in each event.
3. Write a tectonic history from formation to formation in chronologic order, oldest to youngest, following the instructions below:
 - Begin each stage in the history with the formation name as its title.
 - For each formation, in a bulleted list:
 - Stratigraphy: Briefly describe (1 sentence \pm) the facies elements: composition, color, texture, sequences (all those descriptive features of the rock).
 - Write an environmental interpretation and the evidence on which it is based.
 - Write a summary paragraph of your tectonic interpretation, in the following order (~ 1 sentence for each point below, with your evidence):
 - the kind of tectonic/depositional basin that existed and your evidence for it,
 - how conditions have changed from the previously described formation,
 - the kinds of tectonic processes/events responsible for the formation’s deposition, and in what sequence each event happened.

Your geologic history will be evaluated primarily on: 1. How well you use evidence from the field trip to logically argue or justify interpretations, and 2. How well you can weave a coherent tectonic story from formation to formation, based on theoretical models.