1   Instructions

This lab assignment requires that you use only Google Earth—no MATLAB or Python. (You're welcome!) Save any images that you import or marks you make to a `.kmz` or `.kml` file and send that file to me via email (at `m3becker@ucsd.edu`). (See Exercise 4 below.) Type up your responses to the individual questions in a separate document and send that to me as well. As always, please be sure to provide an answer for each and every component of each exercise!

Google Earth is a useful tool with which to look at remote sensing data in its geographic context. Because it is free and can be downloaded on any computer—see `http://www.google.com/earth/index.html`)—Google Earth is also an easy way to share your findings with others. If you have never used Google Earth before, find and go through a tutorial. You may want to change your preferences to allow for faster navigating. Try looking at the Rocky Mountains, the Eiffel Tower, Victoria Falls, Manhattan, and anything else interesting.

2   Exercises

1) Find any place that you have visited before (such as a tourist attraction). Find a place that you would like to visit. Create a `Placemark` for each. Note that you can immediately return to these places by double-clicking on the `Placemark` icon in the left panel.

2) Download seven files (five `.tif` files, one `.kmz` file, and `ReadmeLab4`) from `http://topex.ucsd.edu/rs/labs2019/lab4/files`. The file `phase_II.tif` is an interferogram made by differencing two scenes from an active-source microwave swath altimeter (like on the front cover of your textbook). It shows ground motions across the southern San Andreas Fault. Import this image into Google Earth (using `Add Image Overlay`) and position it correctly using the NSEW edges. (See ReadmeLab4 file.) Adjust the transparency so that you can see both the interferogram and the Google Earth imagery. Do they line up? Are all the roads and farms in the right place? If not, adjust the location of the image in the `Properties` window.

3) Import the four `SAF01_116_*_45.tif` images. They constitute a section of high-resolution altimetry data along the San Andreas Fault. Can you see the fault in the altimetry? In the interferogram? In the Google Earth imagery? Open the Painted Canyon `.kmz` file. This file contains benchmarks whose locations are regularly measured using GPS. Can you see where they cross the fault? Remember, Google Earth is most useful for looking at multiple data sets in context.

4) To save your work, create a new folder in the `Places` section of the left panel. Put any `Placemark`s or `Images` you have created or imported into this folder. Right-click on the folder and hit `Save As`. The default format is a `kmz` (binary) file format; alternatively, you may choose to save in the `kml` (ASCII) format. Send this file to me (at `m3becker@ucsd.edu`).