## Assignment 3: Air photos & Quaternary Geologic mapping of alluvial fan units in the area of the Landers Earthquake Due Wednesday September 16 2020

- There are a variety of resources for finding airphotos. Go to <u>https://earthexplorer.usgs.gov</u> and make an account. Find a place that interests you. Search for imagery. For datasets, select aerial imagery. Then find (a) an aerial photo single frame and (b) high resolution orthoimagery in your area of interest. Download one aerial photo and one orthoimage. Display them in QGIS and turn in a screen shot. Write a paragraph describing your imagery- When were the images acquired? Are they georeferenced? (don't georeference if not already georeferenced) Are they in color? What is the resolution? What else is noteworthy? (Hint: For aerial photo single frames, search for earlier times. There is more high resolution orthoimagery in the eastern US and in Western urban areas. Think about why this might be true.)
- 2. Download the georeferenced images for the Lander's Earthquake included with this assignment. This aerial imagery was acquired in 1975, prior to the 1992 M7.3 Landers Earthquake. Display both georeferenced aerial photos (you only need to use the geo\_1VDWF00010175.tiff file for the mapping however. *Do not look at the base imagery*. Spend 90 minutes mapping the area outlined in the shape file. Use the Suggested mapping units from Reheis, et al. Make sure to add a FAULT polyline shape file to indicate where you think the fault traces are. They are fairly ambiguous so be conservative. Turn in a screenshot of your mapping as well as the shapefile(s) with a legend.
- 3. Write a one page summary: The first paragraph should be a description of the observed landforms and Quaternary units; their sizes, shapes, orientations, and other characteristics. The second paragraph should be an interpretation (only based on your mapping, no need to look anything up). What do you think the main processes were that formed the mapped features? Include a very brief geologic history. In the third paragraph, begin to develop a quality ranking for your mapping. What landscape characteristics or map relationships make some features such as faults stand out? Describe areas with less certain evidence for faulting.