Lab #5 — Astronomy 184L — Life in the Universe

Sandys Canyon

Field trip on Friday, October 2, 2009

Lab due by Thursday, October 15, 2009, by 3:00 pm *sharp*

There are three main scientific goals of this lab: (1) Learn about the hydrology of northern Arizona; (2) See local rocks in their native habitat; and (3) Start to piece together a more global understanding of the geologic history of northern Arizona.

The assignment is described below, and is due in my office or my mailbox by 3:00 pm *sharp* on Thursday, October 15. For this assignment, please work in pairs, and please work with someone you have not worked with before. You can turn in just single lab for your pair. Naturally, you need to show all your work.

The assignment

Question 1: The water that flows through Walnut Canyon eventually ends up flowing out into the Gulf of California. Draw a sketched map of the path of the water from Walnut Canyon to the Gulf of California.

Make a plot of canyon width (vertical axis) as a function of distance from the mouth of the Colorado River (horizontal axis). Make your measurements at the points labeled on the map for this lab (see course web page) and at least 8 additional points between Walnut Canyon and the Gulf of California. Clearly mark on your sketched map where you measured your points.

Question 2: Estimate the volume of lava at Sandys Canyon. How does this compare to the volume of the canyon? Looking at the map, identify a possible source for the lava flow here. How does the amount of volcanic rock here compare to that at Sunset Crater (in the Bonito Lava Flow)? What are the differences and similarities of the volcanic rock types here compared to at Sunset Crater? How would you explain these differences?