ASTR 1010
Lab 7: Lunar Features
A Little History

The same side of the Moon always faces us, but it has gone through many changes over the eons. Long ago, the Moon had a thinner crust and experienced volcanism, creating the dark mare.
The Moon does not exist in a vacuum. It flies through space in its orbit around us and the Sun and gets bombarded by meteorites. Unlike Earth, the Moon does not have a thick atmosphere to protect it from impacts. Thus the Moon is variously pockmarked.
Crater Zoo

We see three main types of craters:

Flat Bottom  Central Peak  Rays
Photograph Scale

Goal: Measure features on the photograph and, with your knowledge of the real size of the Moon, figure out how big the Lunar features are in real life. The Moon has a radius of 1738 km, diameter 3476 km. Your photo of the Moon is a lot smaller but captures the relative sizes of objects. Find how many kilometers each photo millimeter represents. This is the scale.

Scale = \frac{\text{Real Length (km)}}{\text{Photo Length (mm)}}

Real Length (km) = Scale (km/mm) \times \text{Photo Length (mm)}
Compare to Earth’s Mountains

You’ll get an estimate of the height of a Moon mountain. For reference, here are some mountain heights on Earth:

- Mt. Rundle: 2.9 km
- Stone Mountain: 0.32 km
- Mt. Everest: 8.8 km

Canadian Rockies
American Appalachians
Himalayas
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