MOON 101:
LUNAR GEOLOGY OF APOLLO 11
LANDING SITE

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• Large, dark basaltic plains
• Formed by volcanic eruptions
• Maria = Latin for “seas”
• Low albedo
  • Def. the proportion of the incident light or radiation reflected by a surface (reflectivity)
• Are caused by an impactor
  • Primary: caused by the initial impactor
  • Secondary: created by the ejecta of the initial impactor
  • Tertiary: caused by the ejecta of the secondary impactor
  • Ejecta: material that is forced or thrown out by the impact
  • Rim is more round and uniform for newer craters
  • A crater on the rim of a crater came later than the one underneath (could be secondary)

Oldest to newest (marked with arrows): Purple, Blue, White.

The green circle indicates a crater with noticeable ejecta.
Described as a channel cut by flowing lava. 
Most well known is in Schroeter’s Valley and it is:
- 160 kilometers long
- Up to 10 kilometers wide
- Up to 1300 meters deep
Very different to any lava flow observed on Earth
Grabens

- Formed approximately 3.8 billion years ago.
- Most are found bordering mare basins.
- They were created by lava filling the basins.
- Weight in the basins cause faulting and foundering of the Grabens.

Rima Ariadaeus Lat: 6.4N, Long: 14.0E, Length: 250 km, Depth: 0.48 km
Marks the highest level that lava reached.
When lava cooled it settled to the middle leaving the “ring” at its peak.
Bowditch is pictured adjacent.
A coincident land form where the fault plane has dislocated the ground surface

Lobate Scarps

Cliffs that form as the whole moon shrinks due to cooling

Formed from less than a billion years ago to as recent as a few hundred million years
Lunar Domes

- Vast majority found in the maria
- Formed in the latter stages of moon volcanism
Lunar Highlands

- The lighter area below the red line
- Impacts form breccias
- Use Apollo and Luna missions to learn about surviving pieces to learn about crust
- High Density regions below lunar maria
- These were discovered by noticing anomalies during the orbit of the Lunar Orbiter spacecraft in 1966-67.
- The Apollo program calculated the gravitational pulls of the mascons to allow for accuracy when landing manned spacecraft.
- The word “mascon” is made up using Mass and Concentration.
- These areas were created during a major heating time in the moon’s history, or through impacts.
-These are winding features that cover almost all of the moon’s surface.
-Most of the ridges are less than 300 meters in height.
-Wrinkle ridges are one of least-understood features on the moon.
-There are a few different theories about the formation of the features but none of them works for all of the Ridges.
Works Cited

- http://www.lpi.usra.edu/resources/
- http://www.nasa.gov/