Moon 101

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Craters

- Craters are formed when asteroids, meteorites, or comets impact the surface of the moon. The components of the impactor are thrown outwards, creating ejecta and sometimes a central peak, which would make the crater complex.
- There are 3 phases in the impact process:
  - Compression phase
  - Excavation phase
  - Modification phase

Image 1

Image 1

- Simple craters (A, B, C) and complex craters (D)
  - Simple craters: bowl shaped with smooth, circular base and side
  - Complex craters: flat floors, terraced walls, and central peaks

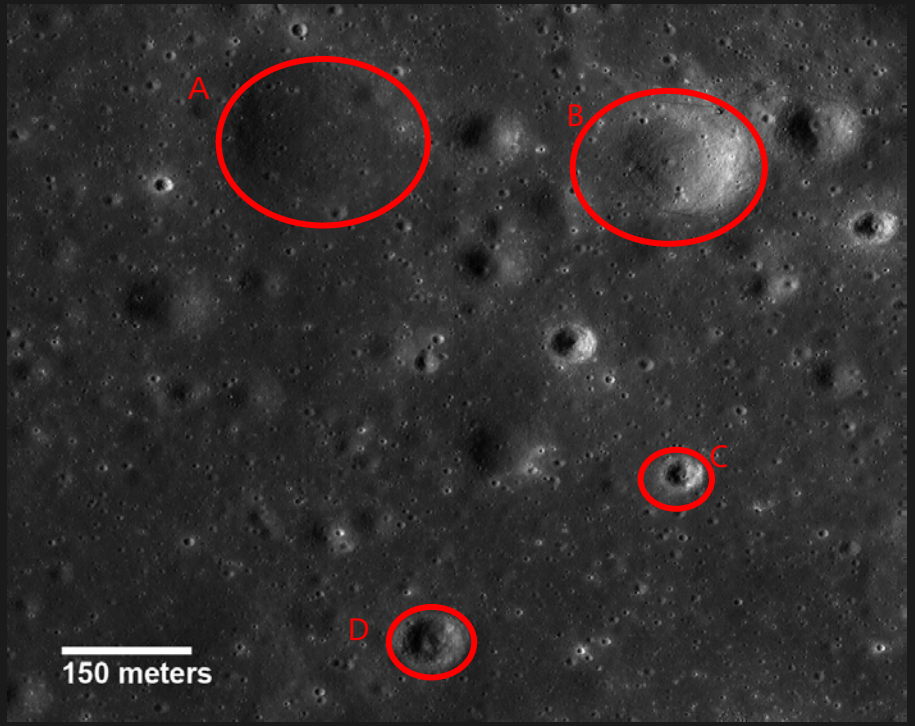
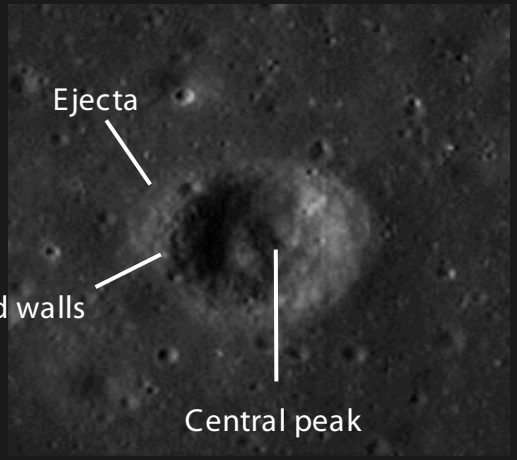
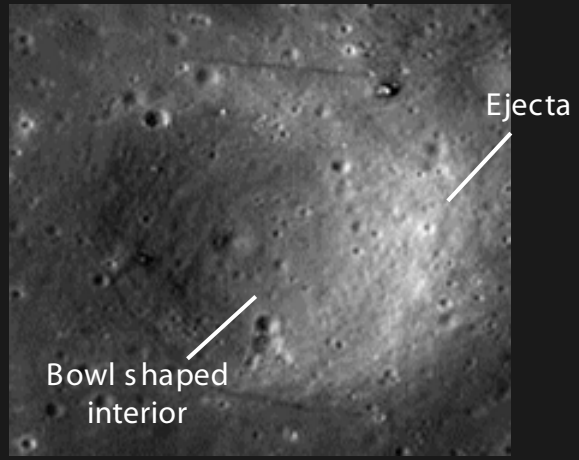


Image 1



Enlarged image of crater D (complex crater)



Enlarged image of crater B (simple crater)

Image 1

- By looking at the size, ejecta, and number of smaller craters within each crater in image 1, we are able to deduce that the age order from oldest to youngest is: A, B, D, C
- The sizes of the craters are as follows:
  - A ≈ 150 m wide
  - B ≈ 140 m wide
  - C ≈ 50 m wide
  - D ≈ 70 m wide

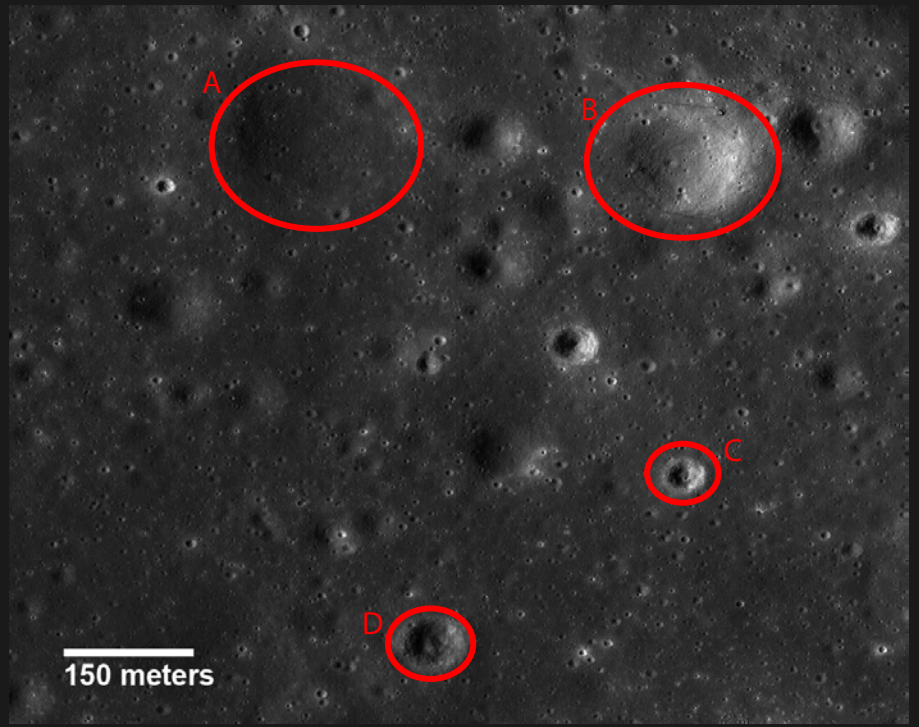


Image 2

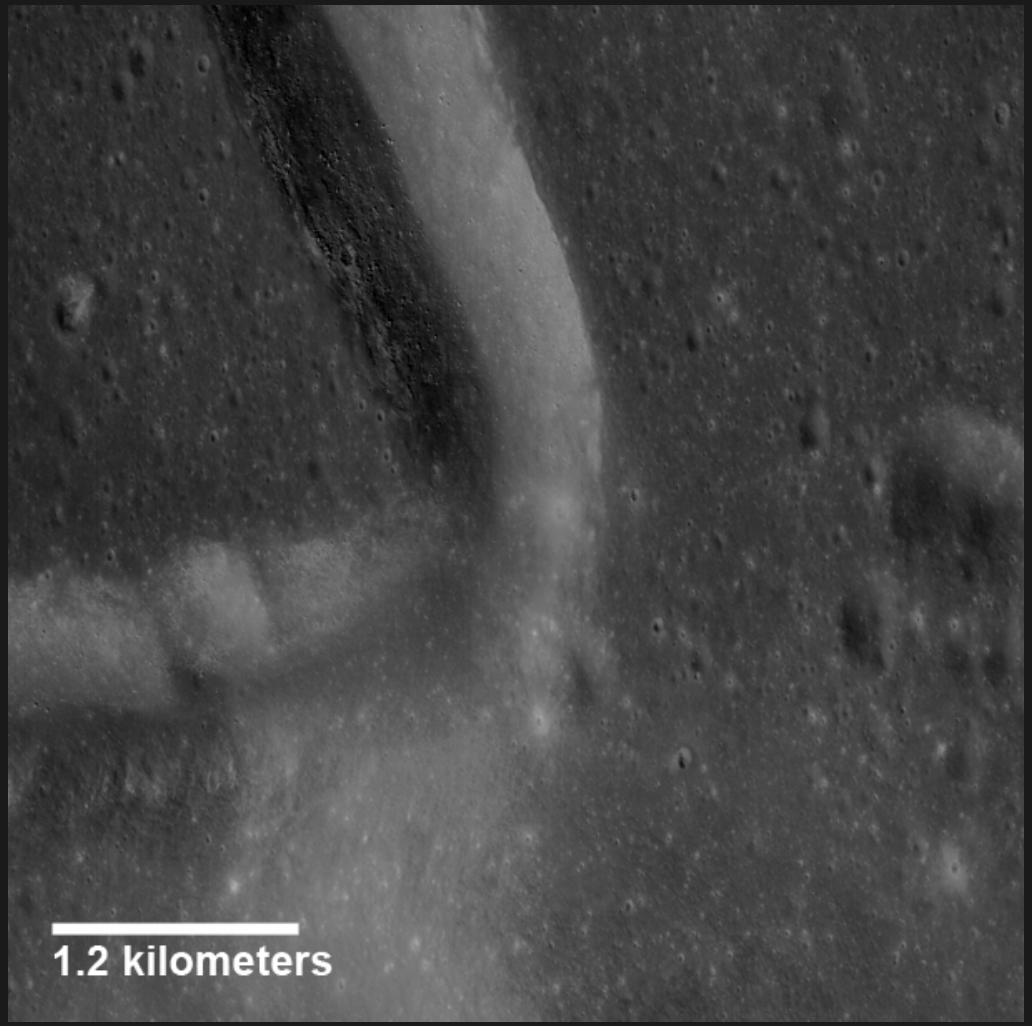


Image 2

- There appears to be one large ridge, several small crater impact sites, and a relatively smooth surface surrounding them
- The site is most likely on the maria, or the smooth side of the moon.

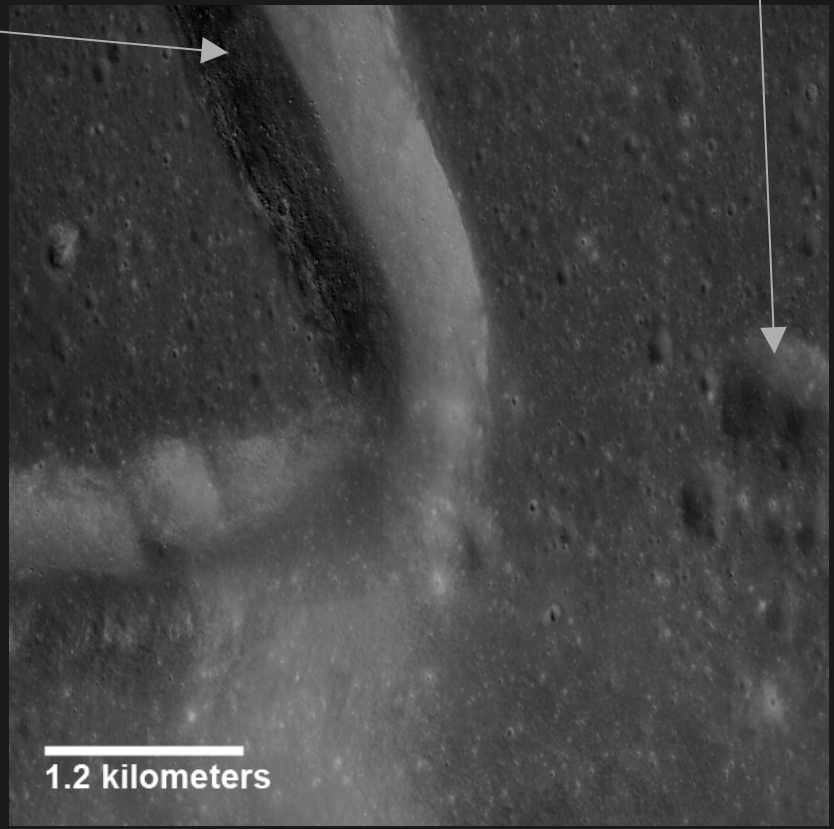


Image 2

- The ridge appears to be very elevated based on the length of the shadow
- It looks approximately 12 km long
- The ridge is younger than the maria because it cuts through the surface
- The ridge may extend both to the left of the image and the bottom based on the ambiguous shape along the bottom of the image.

Image 3

Image 3

- It appears that there is a simple crater beside a groove
- The groove or rille appears to be around 80 km long
- The crater looks about 5 or 6 km in diameter
- Surrounding the features are the highlands on the right and lunar maria, the plains, in the center and on the left.

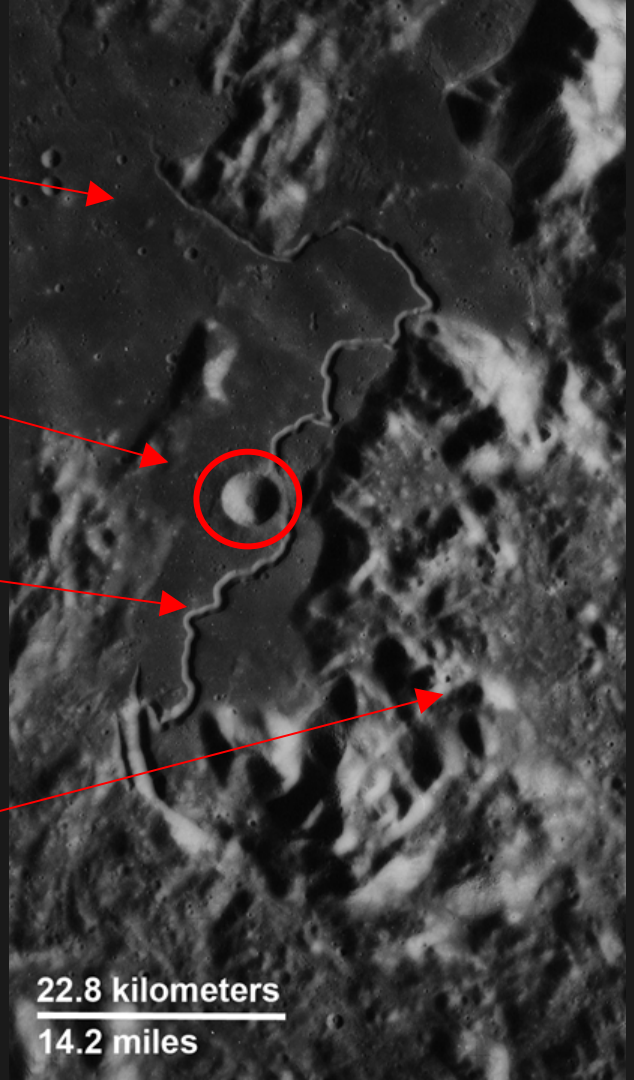


Image 3

- The crater is most likely new
- This can be inferred because of the lack of smaller craters within it; the crater itself is smooth and largely untouched, which also tells us that it is a simple crater.

Image 3

- Shown is a sinuous rille, also known as “meandering channels”.
- Their physical appearances resembles zigzagged or u-shaped streaks across the surface, and they usually start from craters like the one in the picture.
- The rilles of the moon were proven to have formed from lava channels and collapsed lava tubes.

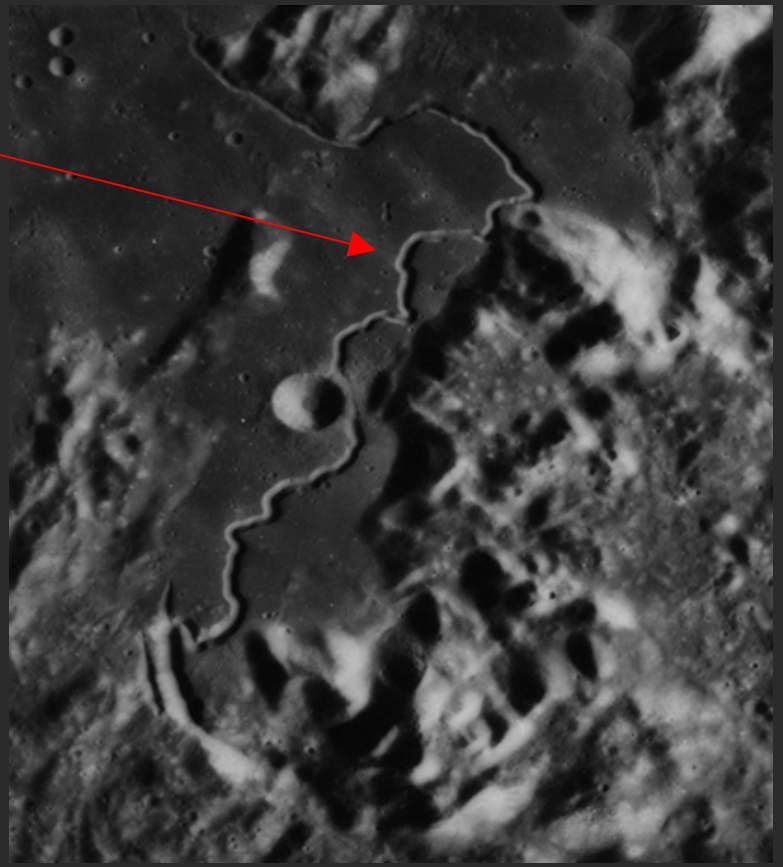
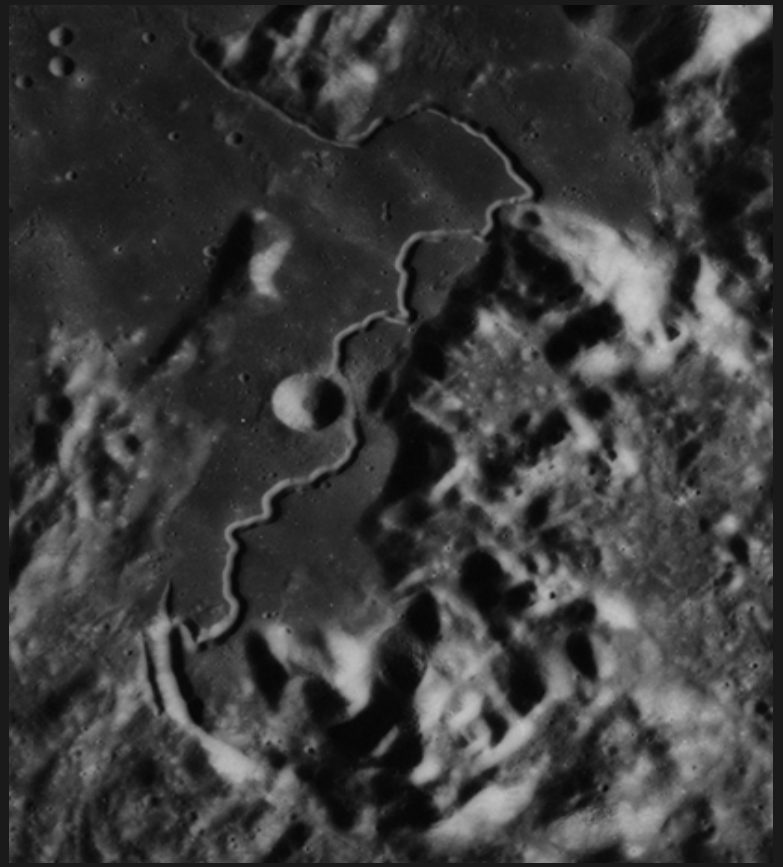


Image 3

Possible Measurements:

- Possible Length of the rille ranges up to 80 km (kilometers).
- The possible width is up to about 3 km (kilometers).