

3 Moon Images

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A dark blue diagonal gradient bar that starts from the bottom left corner and extends towards the top right corner, covering the lower half of the slide.

Moon Formation Timeline

4.5 billion years ago

The moon formed when an object the size of Mars collided with Earth and spewed out material into orbit, where it combined into the moon. Lighter materials (calcium, magnesium, silicon) floated to the top and heavier materials (iron, titanium) sank.

3.85-3.75 billion years ago

The Lunar Cataclysm was a 100 million year period where the moon was bombarded by a storm of meteors and asteroids that obliterated its entire surface, creating the maria when the lava cooled down.

4.1-3.8 billion years ago
Basin Formation/Heavy Bombardment

3.8-1 billion years ago
Lunar Volcanism
Molten rock flowed through the cracks in the crust and filling the impact basins
Lava cooled to form the dark rocks/basalt



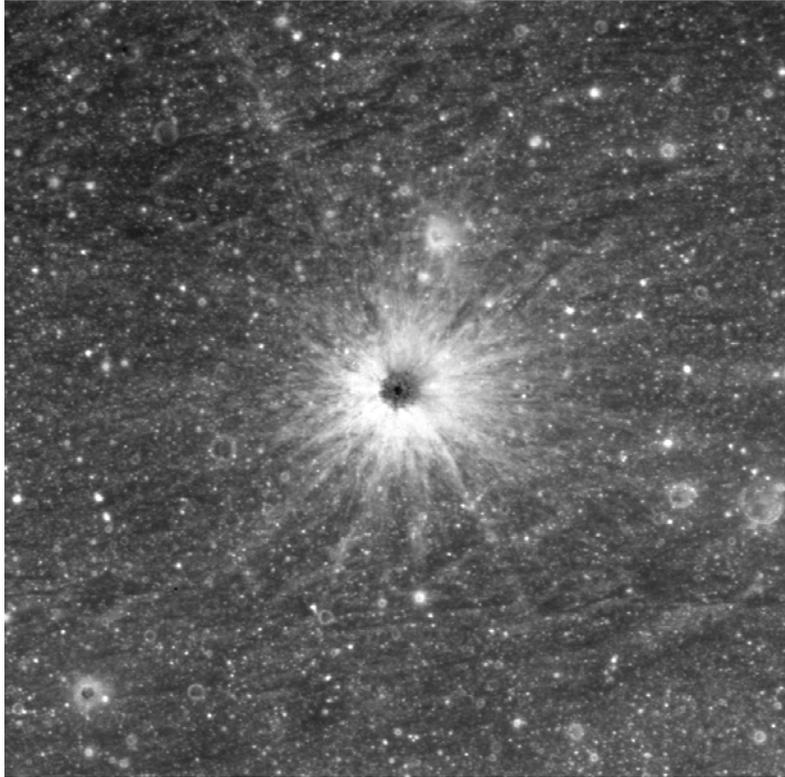
Lunar Highlands and Maria



The Lunar Near Side

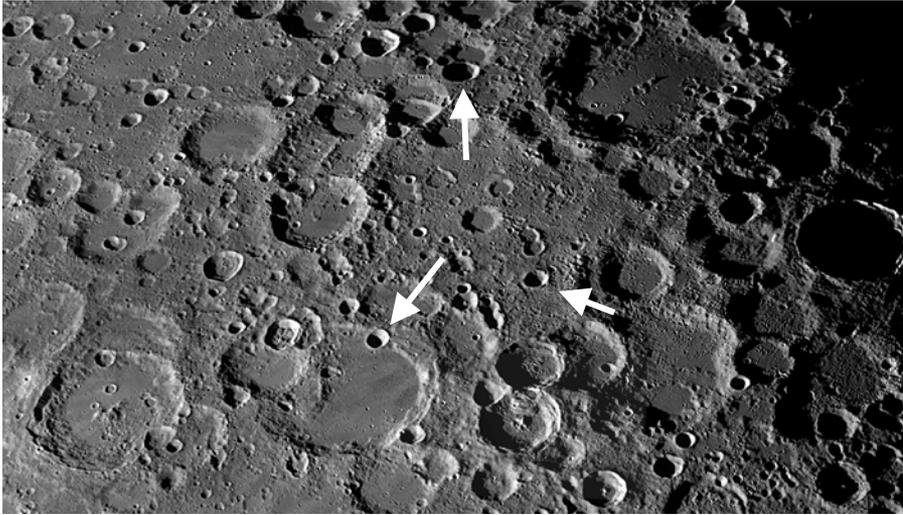
- Light areas called lunar highlands because that's what the moon looked like before the Lunar Cataclysm
- Darker areas called maria because of the lunar volcanism where lava solidified and became dark in those areas
- Maria has a lower altitude than lunar highlands

Lunar Surface Material



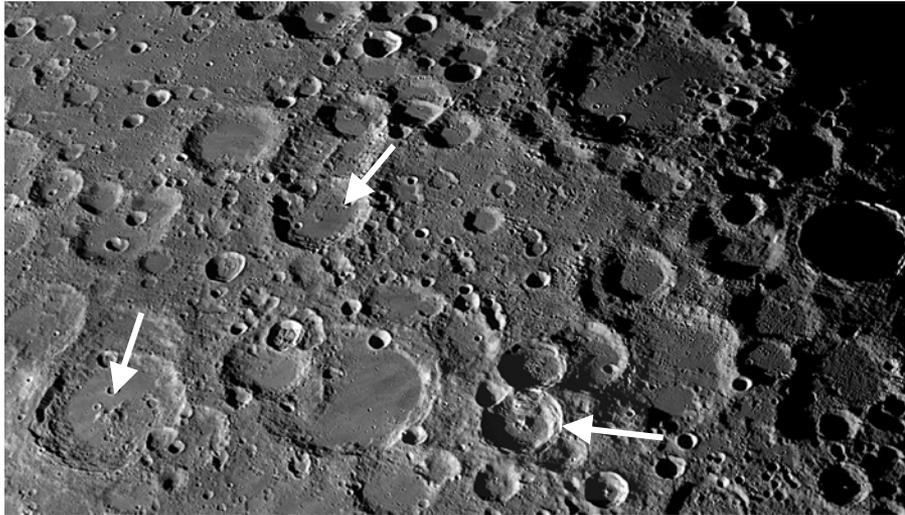
- Regolith is the layer of powdery soil and scattered rocks on the moon
- Regolith made from debris blasted out of lunar craters because of meteor impacts
- Lunar craters are surrounded by ejected material called the ejecta blanket

Simple Craters



- Most common type of craters on the moon
- Basic definition; A bowl shaped depression on the surface of the moon
- No central uplift or any special features
- Smooth and are usually small

Complex Craters



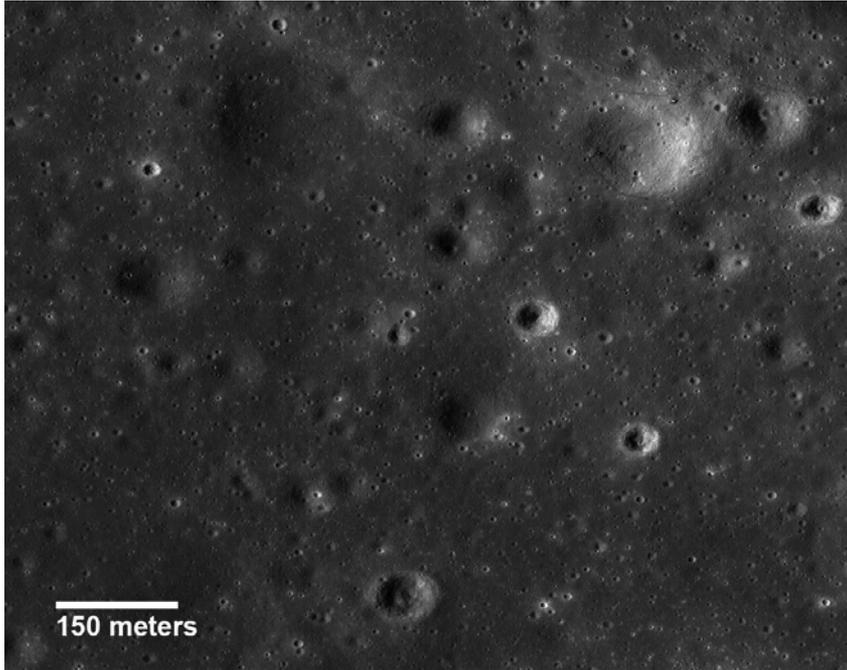
- Basic definition; A bowl shaped depression on the surface of the moon, with a small central uplift
- Has multiple layers called terrace zone
- Also terrace walls around the perimeter of the crater

Moon Image 1



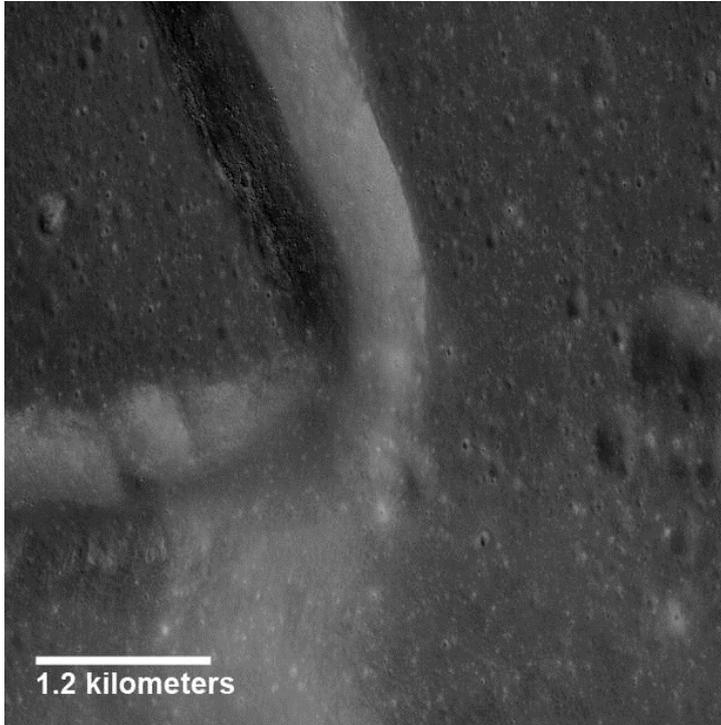
- Whole area is maria because it's all part of one big crater from the Lunar Cataclysm and it looks dark (because of basalt)
- The area is part of one big crater because the Lunar Cataclysm had huge craters that hit the moon surface and magma came flowing out
- Small shadows represent the craters
- Maria formed after 3.4 billion years ago
- Small craters like these keep appearing on the moon's surface till this day

Moon Image 1



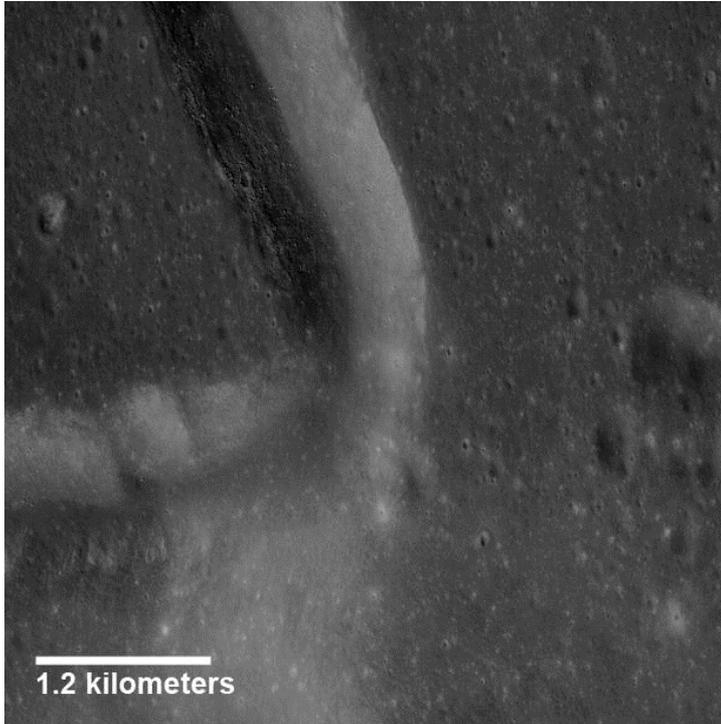
- Sunlight coming from the left because the shadow of the craters are to the left
- Largest craters tend to be most aged because they have smaller craters on top of it and that shows they occurred before the smaller ones

Rilles



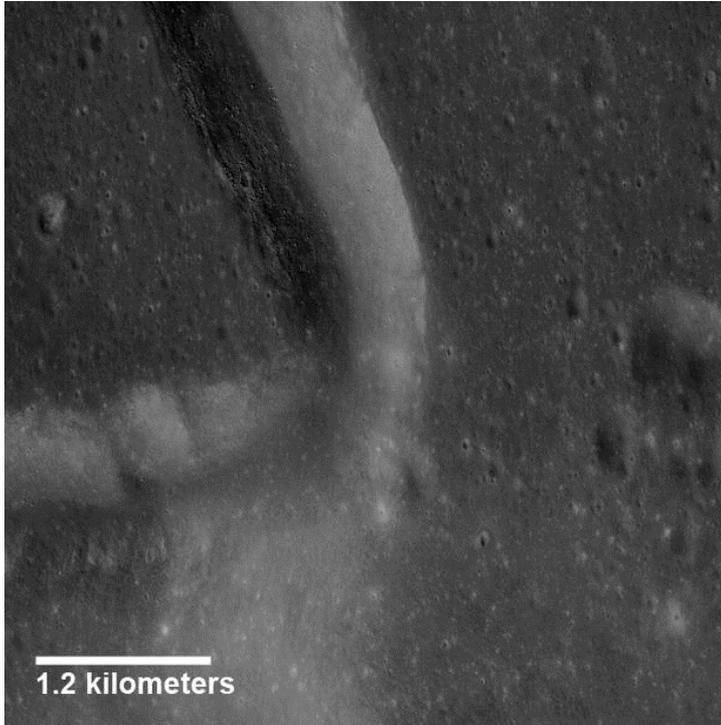
- A narrow depression on the moon
- Resembles channels

Moon Image 2



- Close up image of an arcuate rille
- Formed by lava flow
- Estimated time of occurrence is 4.25 billion years ago

Moon Image 2



- There seems to be a low, bump to the left
- There are some craters to the right which supports the sun being on the left because their left side is also dark

Moon Image 3



- The Hadley rille (sinuous rille type)
- Near Apollo 15 landing site
- Formed by lava flow
- Hadley crater as shown

Moon Image 3



- The compact crater formed after the rille, most likely around 4.25-4 billion years ago
- Apollo 11 and 12 found that lava was present in maria