

LUNAR GEOLOGY AND FORMATION

Presented by the Litheides:

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Topics

- Formation theories
- History and Evolution
- Geologic features
 - Highlands
 - Maria
 - Rilles
 - Impact Cratering
- Relative ages



Formation Theories

- Fission Theory: Fast spinning Earth caused ejection of material.
- Capture Theory: already formed body caught by Earth.
- Double Planet Theory: The Earth and Moon formed simultaneously .
- Giant Impact Hypothesis: Large foreign body impacted the Earth.

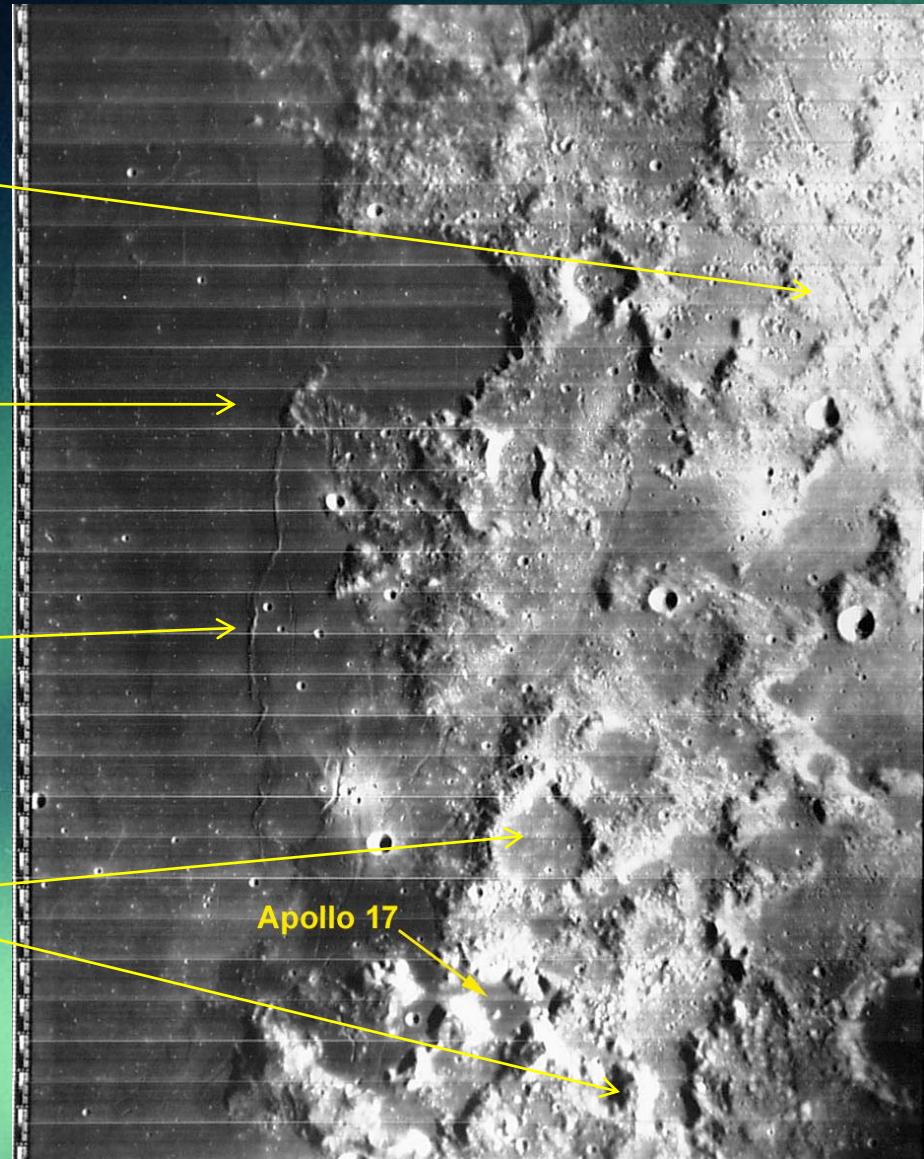
History of the Moon



- Formed 4.5 billion years ago
- Magma Sea
- Heavy bombardment
- Lunar cataclysm
- Maria formed 3.2- 3.8 billion years ago

Geologic Features

- Lunar Highlands
- Maria
- Rilles
- Impact Cratering



Lunar Highlands

- Elevated and rugged regions
- Formed by the crystallization of magma sea
- Composition: Anorthosites, norites, and troctolites
- Highlands vs. Maria

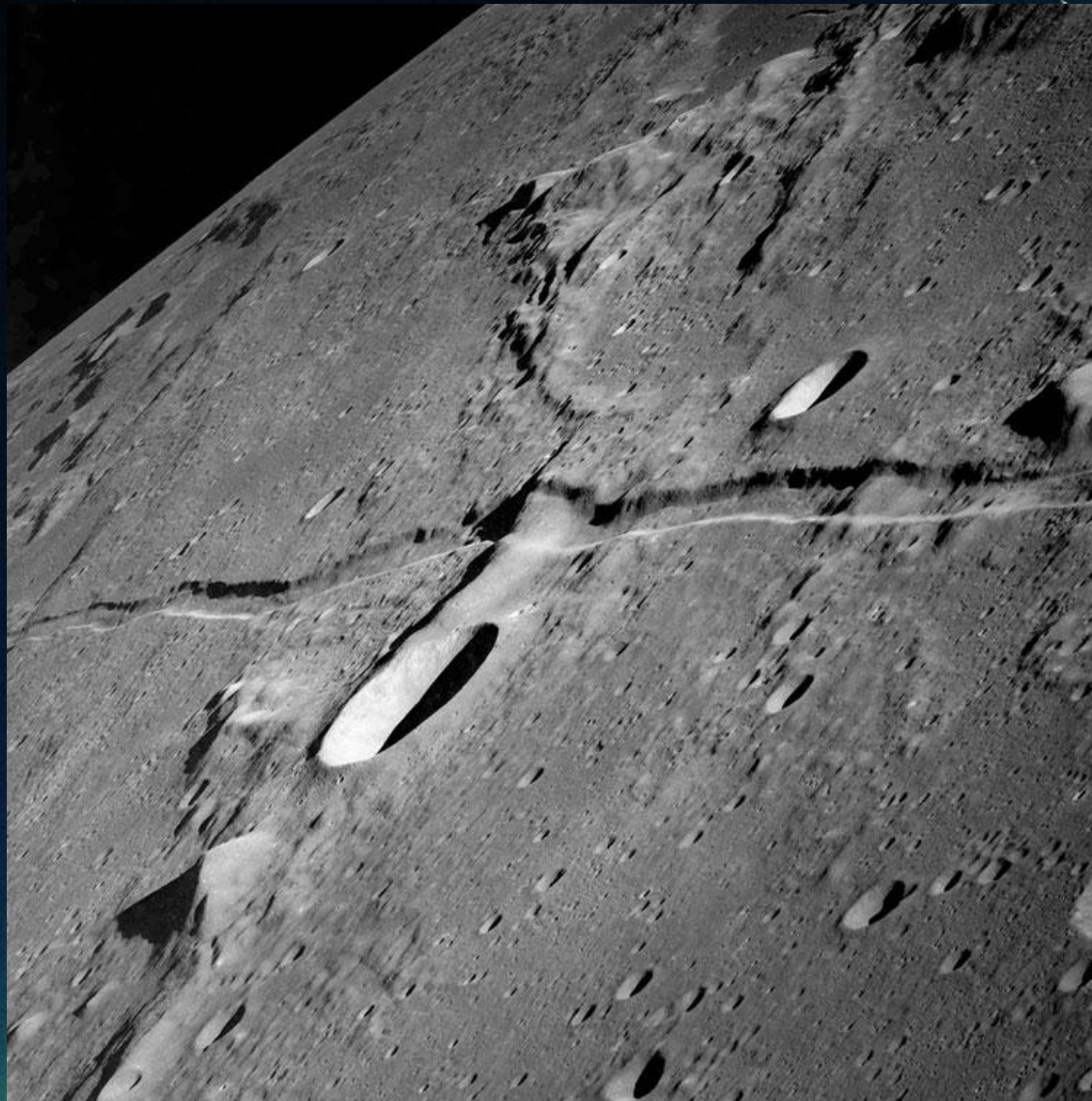
Maria



- Basaltic plains
- Formed by rapidly cooled magma
- Located on near side
- Two types: Circular and irregular

Rilles

- Sinuous - collapsed lava tubes
- Arcuate - contracting and sinking of curved lava flows
- Straight- sunken crust along faults
- Hybrid- combination of characteristics



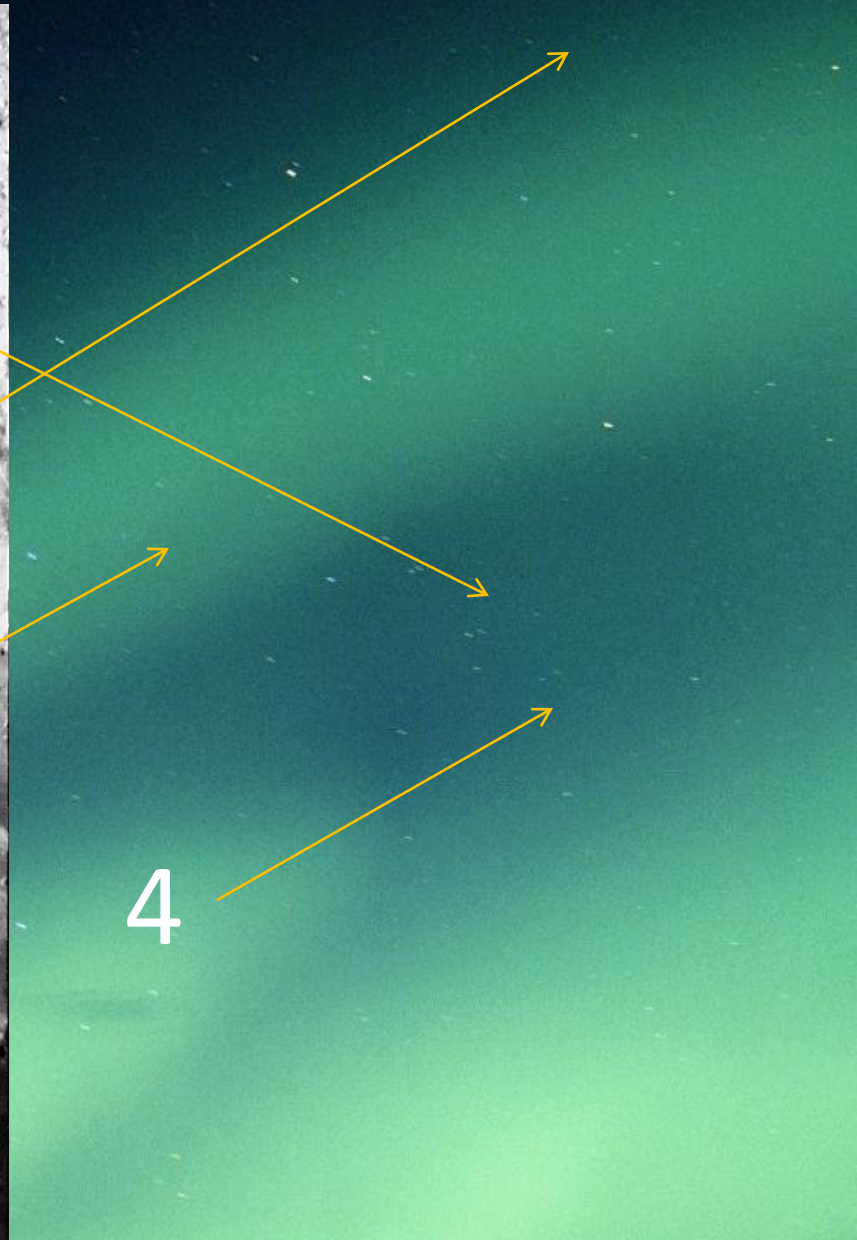
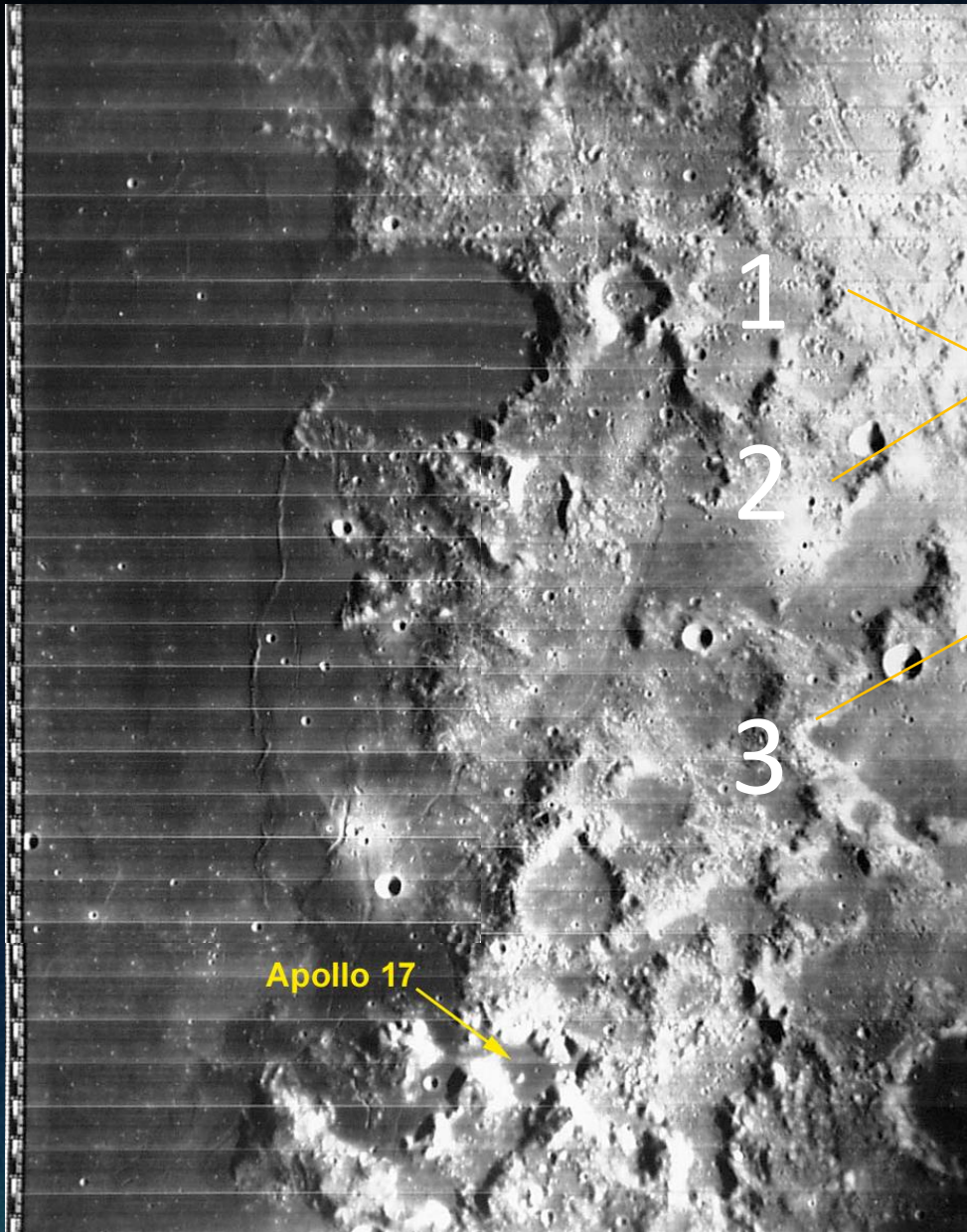
Rima Ariadaeus - a
straight and
branching rille

Impact Cratering

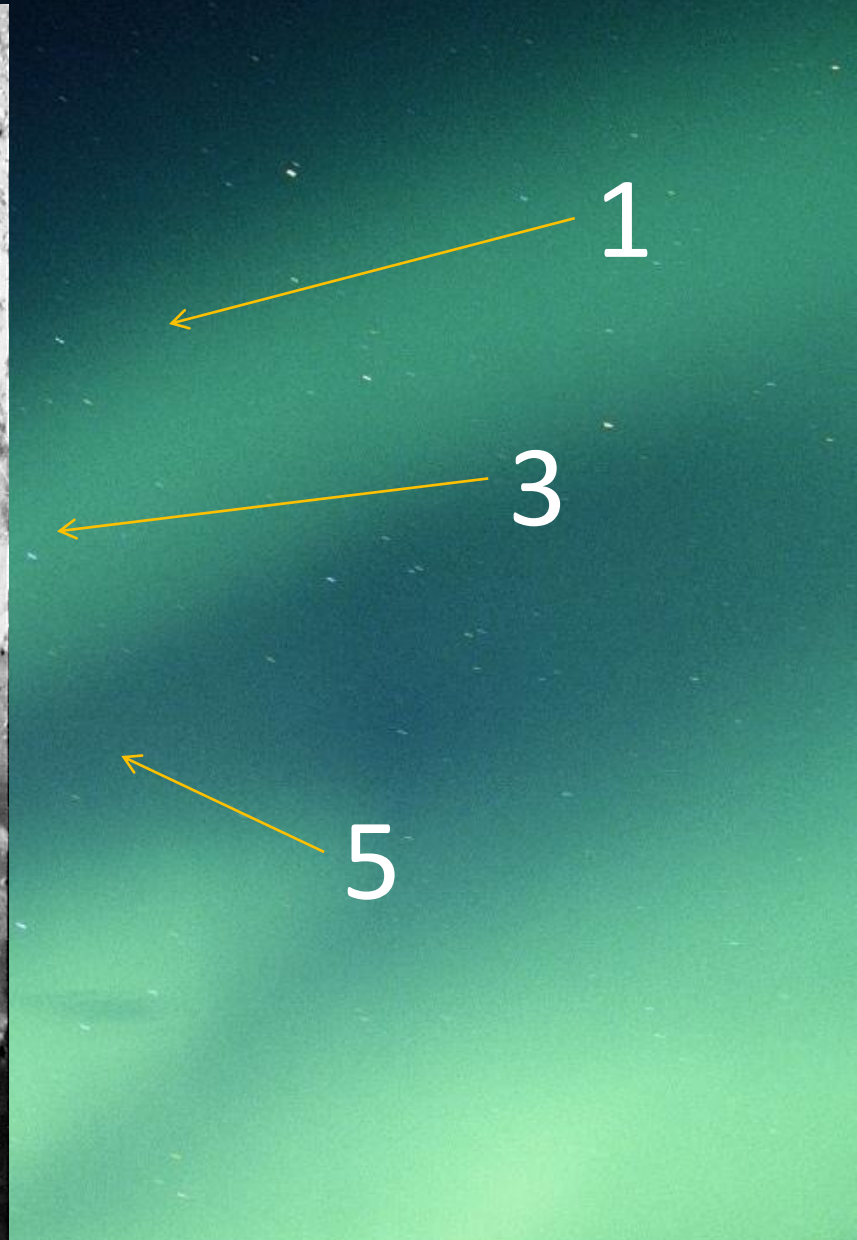
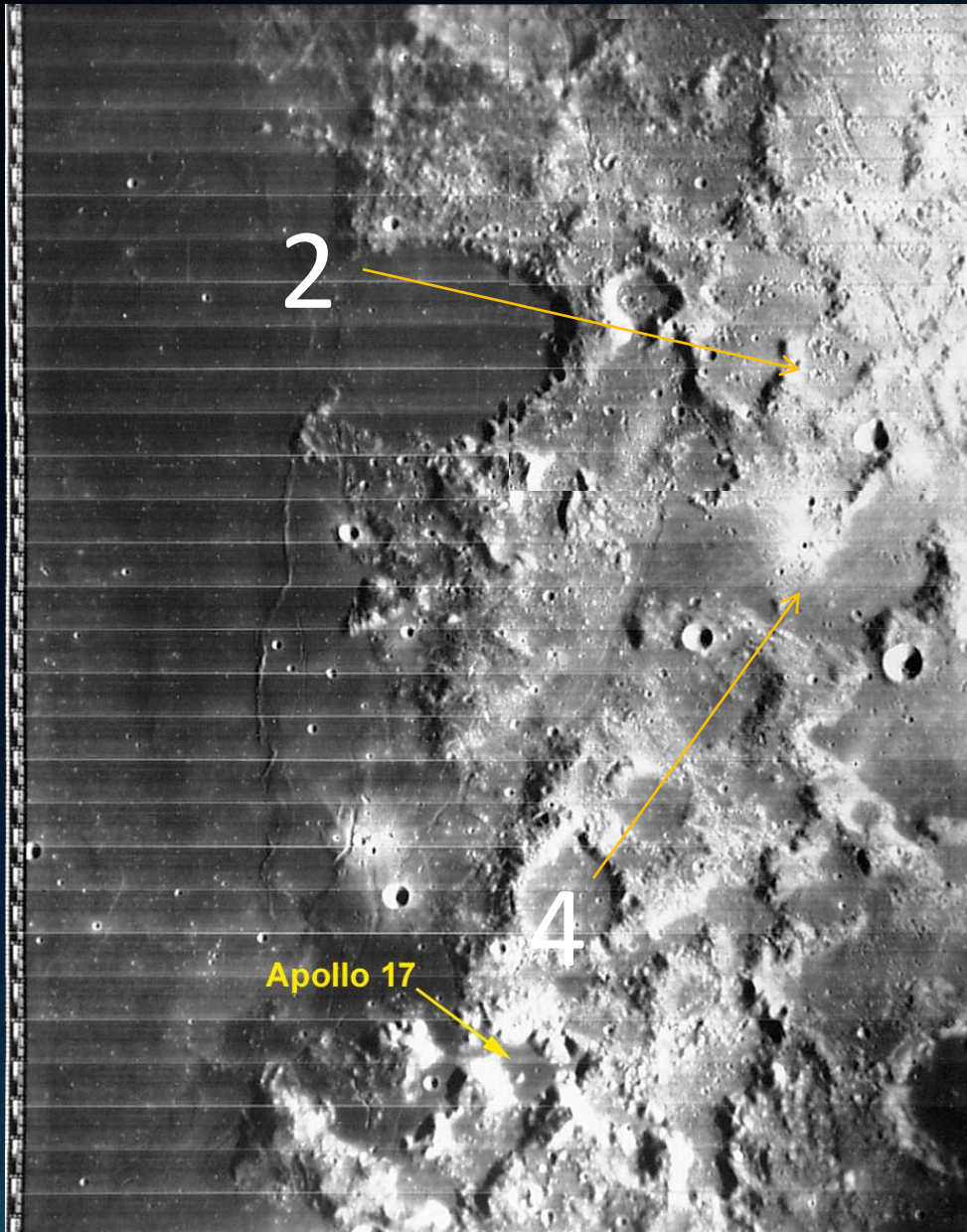
- Primary craters
 - Simple craters
 - Complex craters
- Secondary craters



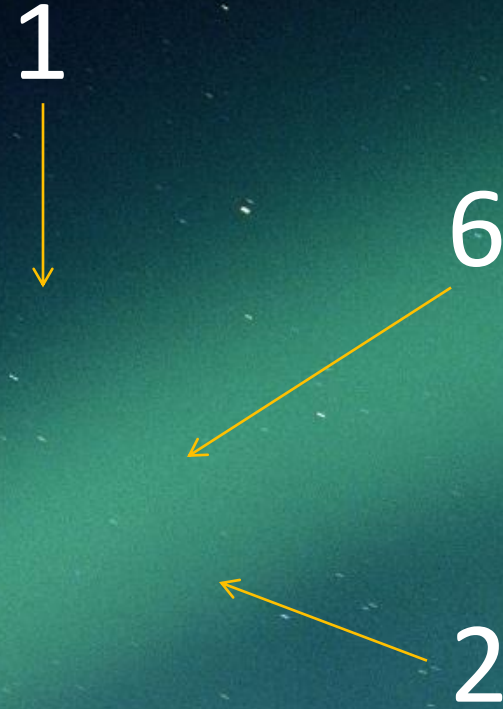
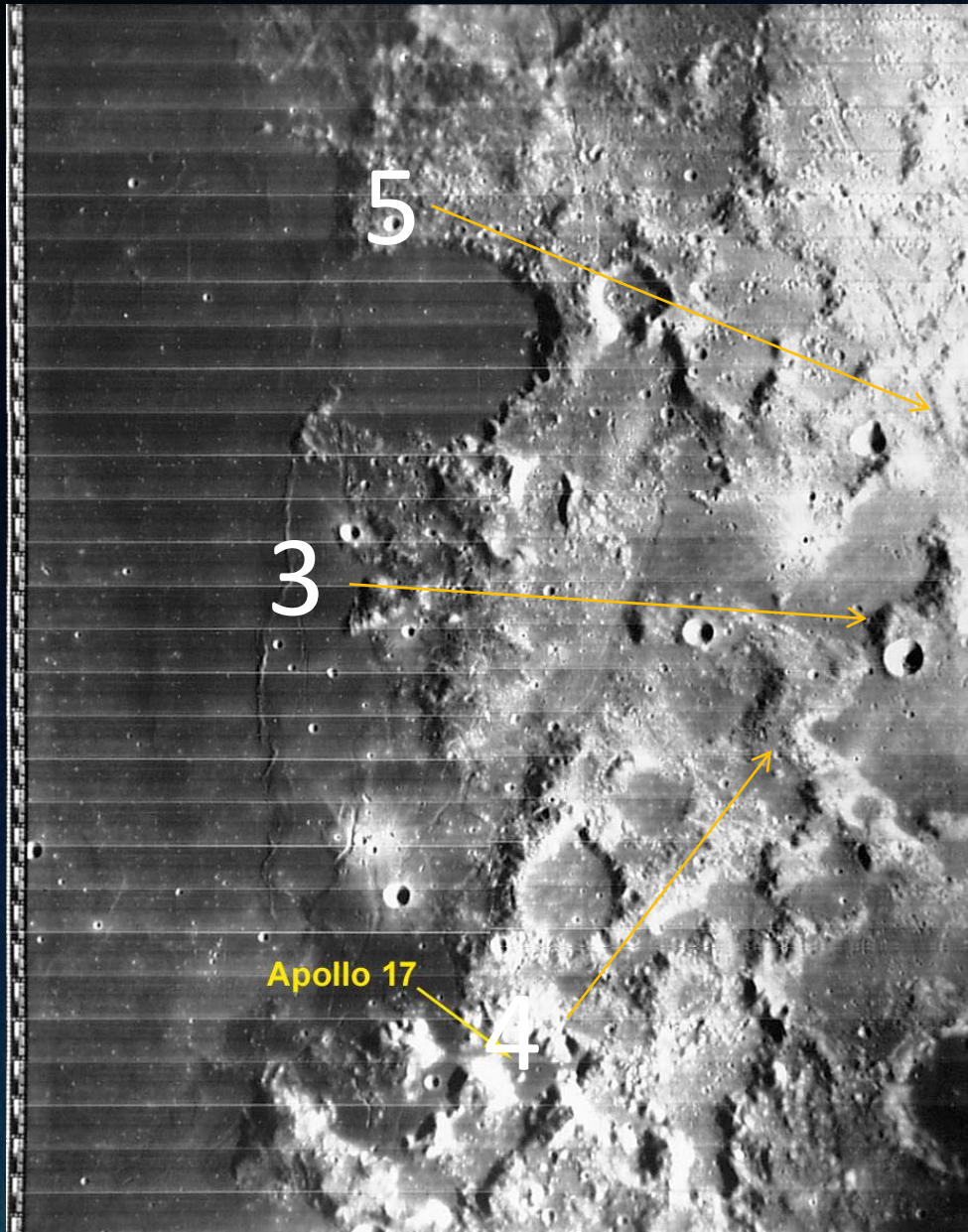
Relative Ages: part 1



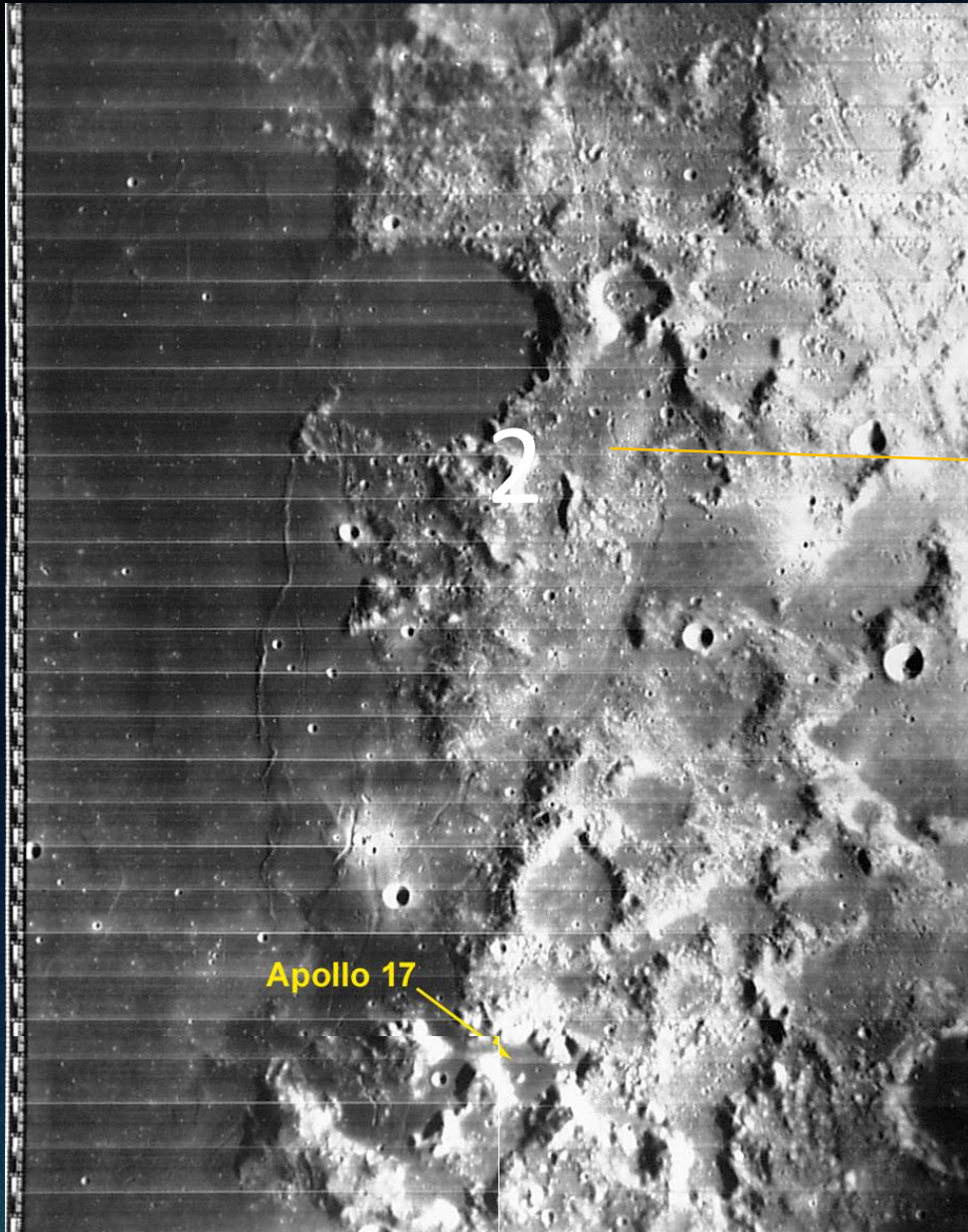
Relative Ages: part 2



Relative Ages: part 3



Relative Ages: part 4

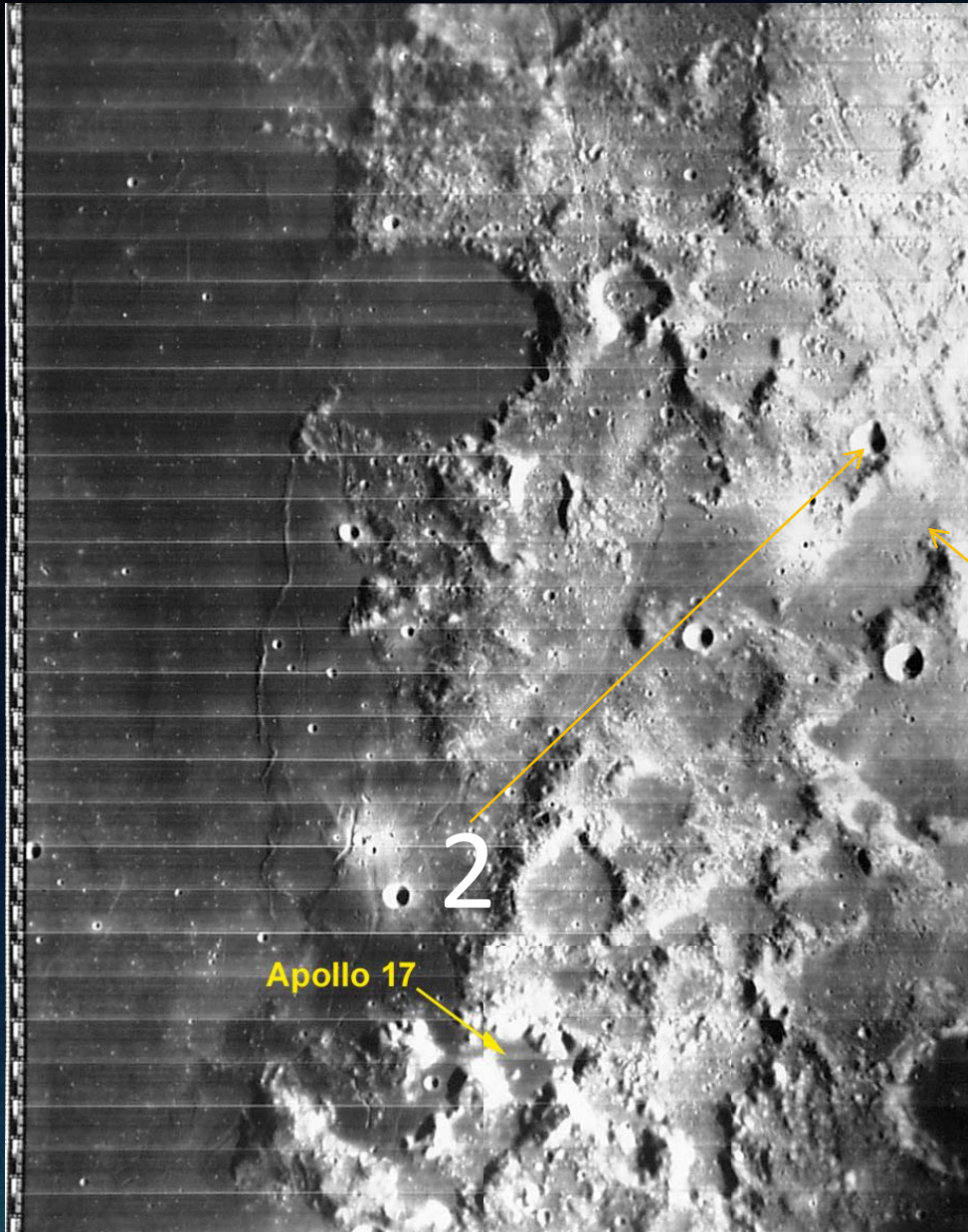


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1

Relative Ages: part 5

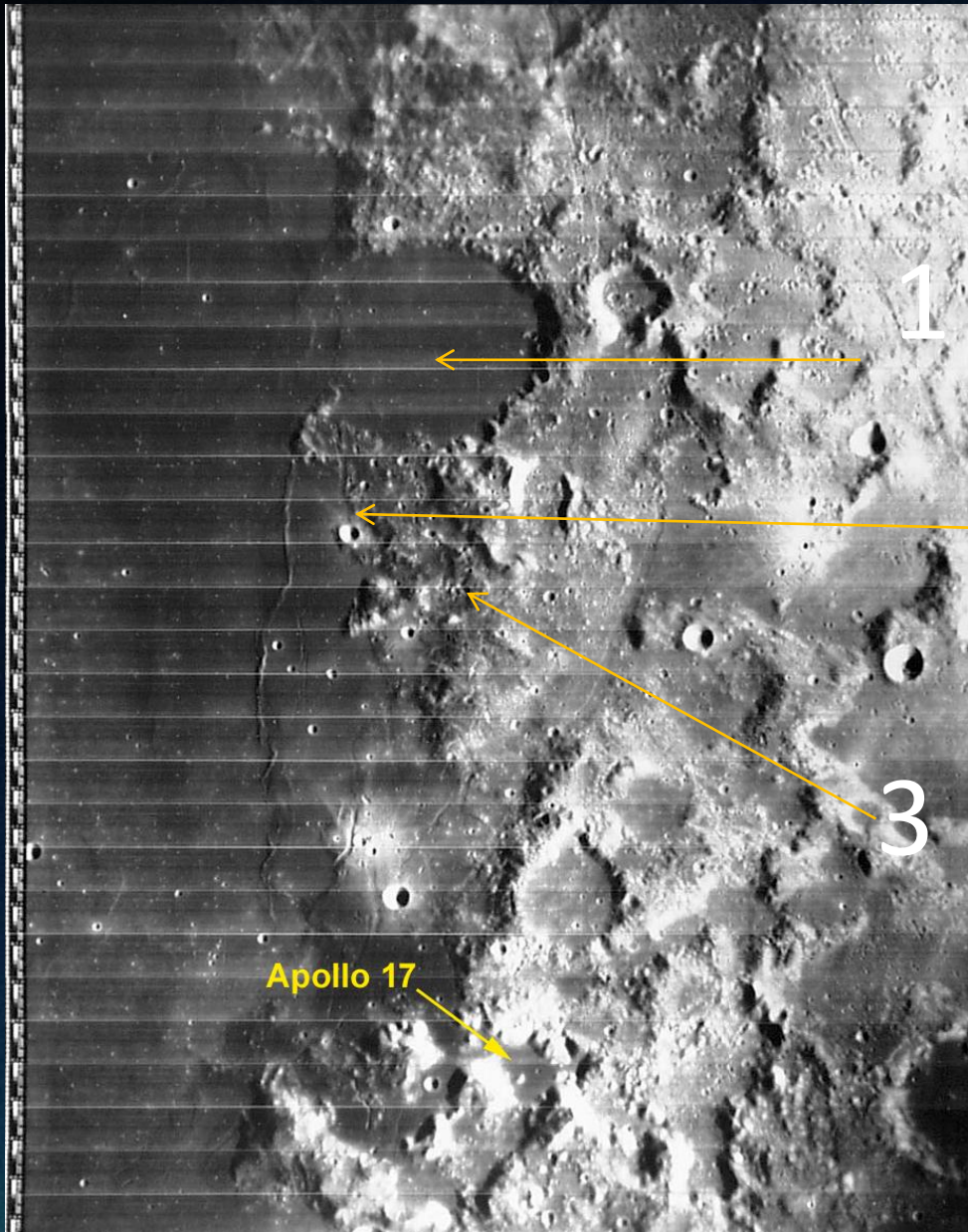


Apollo 17

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1

Relative Ages: part 6



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2

3

Apollo 17