Summary of the Last Lecture

- Looking for geological records beyond Earth
- Learning about Earth's solar system neighbours
- The Dynamic Sun
- Star represents a group / Our Sun is a member
- Our solar system vs other solar systems
- What is a better reference? What is standard?
- Planets & Dwarf Planets
- Moon
  - *Earth's moon is called 'The Moon'*
  - *Other planet's moons have specific names…*

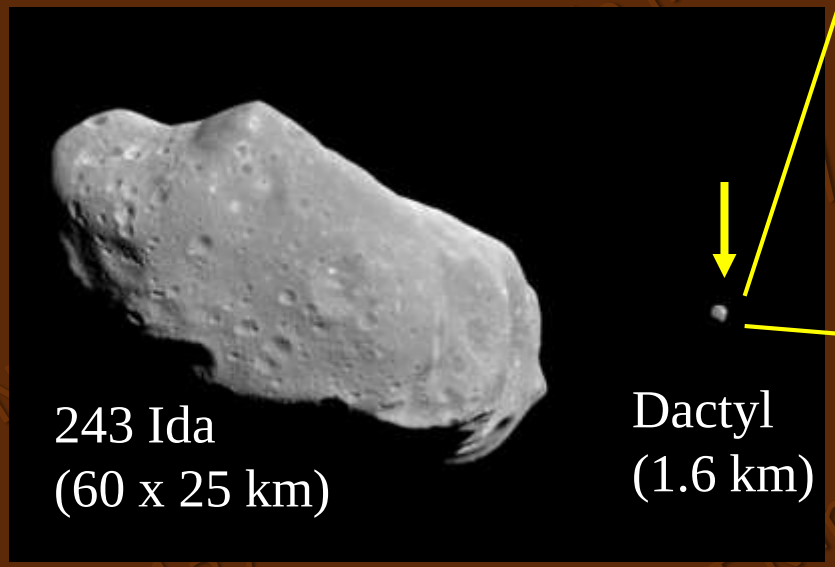
(Credit: Chuck Carter, Caltech, NRAO/AUI/NSF)

Continue the journey of the moons…

(More information: https://www.astronomy.com/science/astronomers-discover-a-free-range-planet-with-incredible-magnetism/)

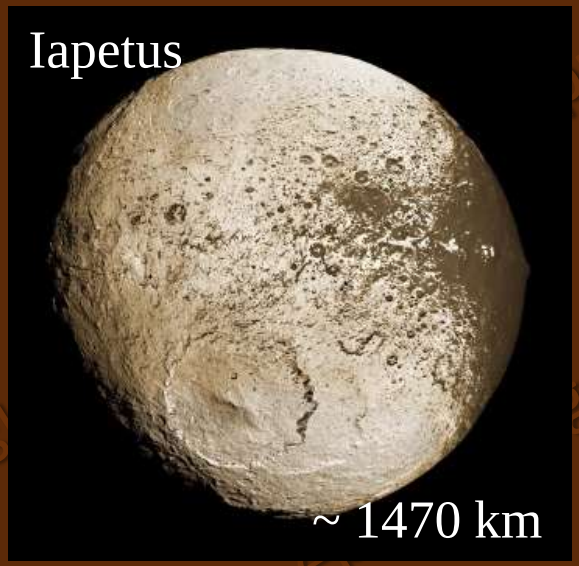
The moons of Planets in our Solar System

The moons of Planets in our Solar System

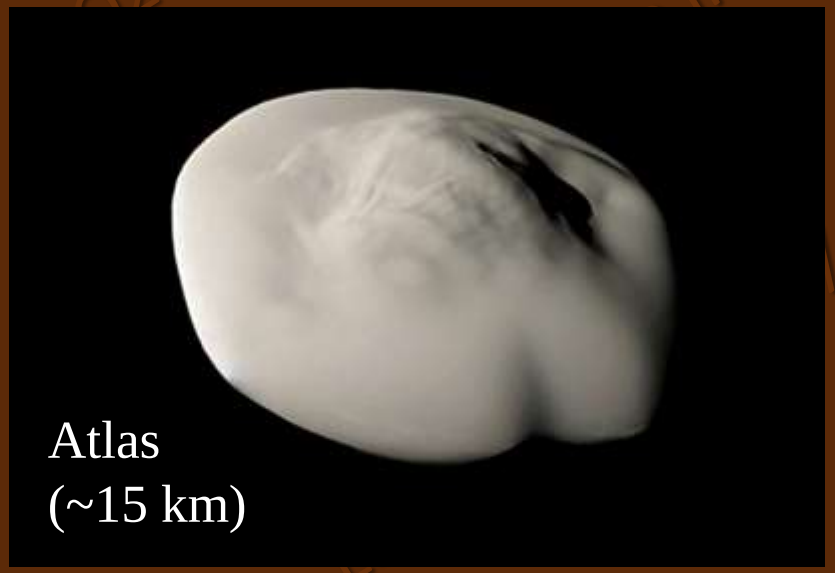


(Image Credit: NASA, JPL, Galileo Mission)

(Credit: NASA/JPL/Space Science Institute)



(Credit: NASA/JPL/Space Science Institute)



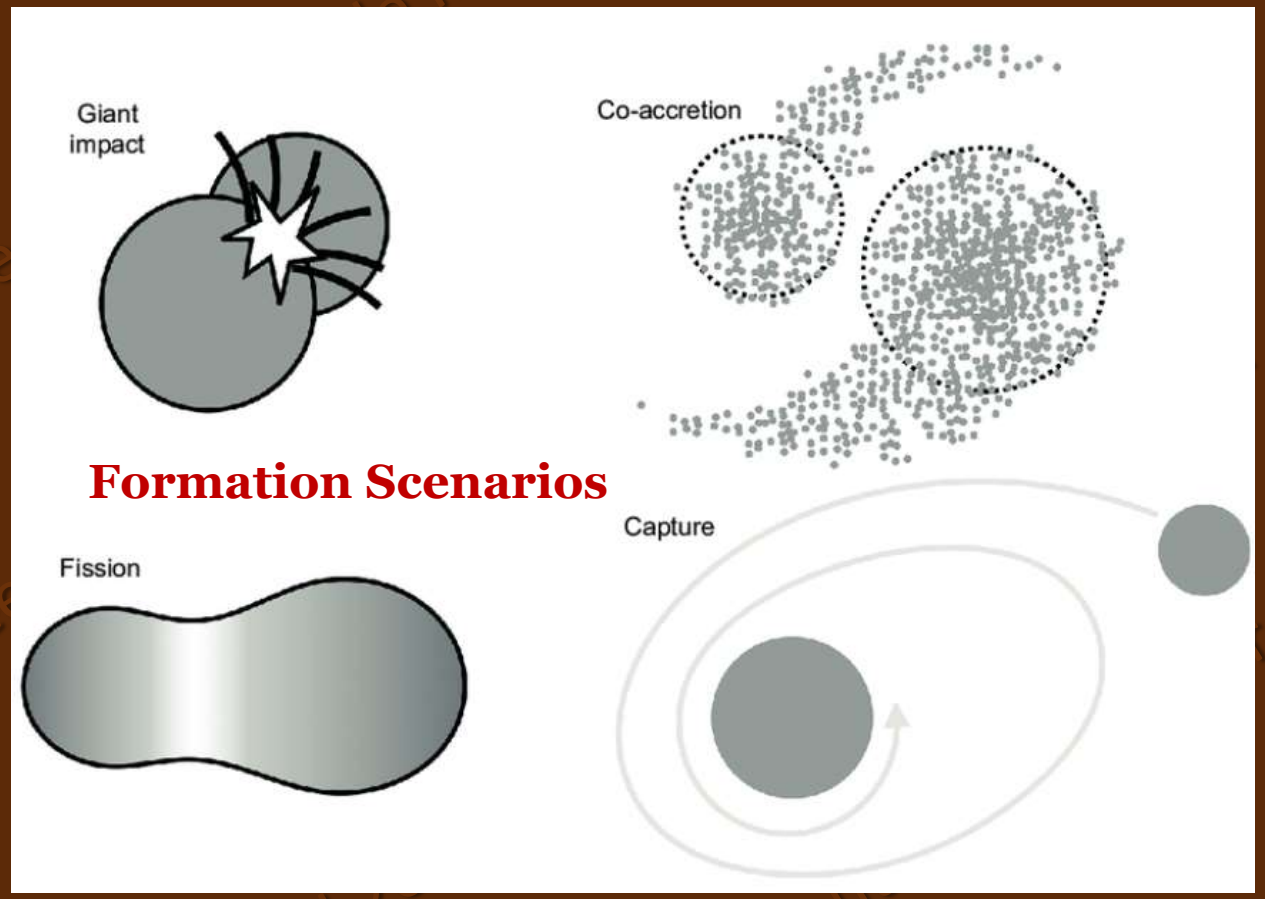
(Credit: NASA/JPL-Caltech/Space Science Institute)

(Credit: NASA/JPL/USGS)

(Credit: NASA/JPL/Space Science Institute)

Planet – Moon Relationship ?

- Enormous diversity in the moons
- Size
- Shape
- Surface morphology
- Relation between the planet and the moon?
  - *Co-accretion?*
  - *Moon: Extracted part of planet ?*
  - *Unrelated companions?*
- How was our moon formed ?
- Does it have any implications for the Earth?



(Credit: Canup et al., 2021)

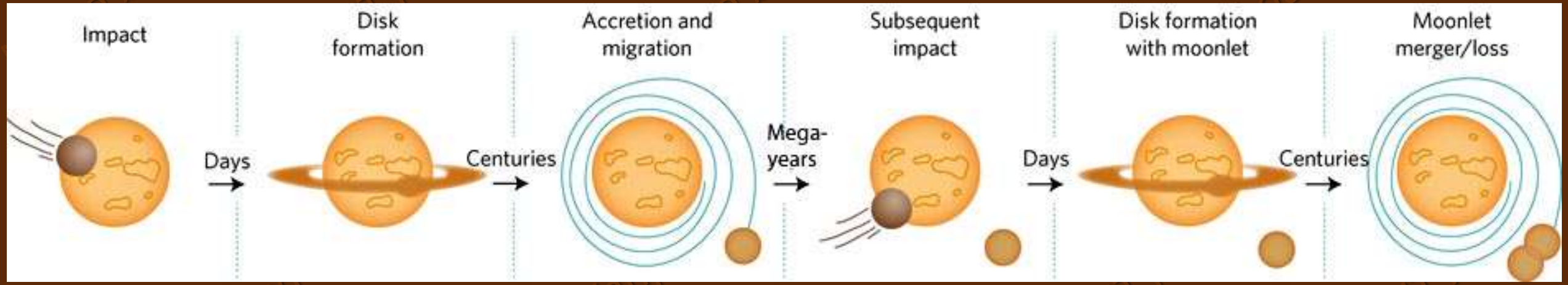
The story of our Earth and its Moon

Food for thought from the movie:

1. There were a large number of planets orbiting the Sun in the beginning. What happened to them that we only have eight planets today ?
2. The Moon was much closer to the Earth at the time of formation.
   a) *Does it matter? In what way?*
   b) *Why the Moon is much farther away today?*
   c) *Is it still drifting?*
   d) *How about other moons?*

(Source: https://youtu.be/ZLLlbD68S_g)

The story of our Earth and its Moon



(Rufu et al., 2017)

Rufu, R., Aharonson, O. & Perets, H. A multiple-impact origin for the Moon. *Nature Geosci* **10**, 89–94 (2017). https://doi.org/10.1038/ngeo2866