



<http://www.cdcc.sc.usp.br/cda/>

Lua: Origem e Evolução

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Conhecendo um
pouco mais...



Conhecendo um pouco mais...

Massa: 12% em relação a da Terra

Volume: 2% em relação ao da Terra

Distância da Terra: 384 403 km

Duração do dia: 27,32 dias terrestres



Conhecendo um pouco mais...

Duração da translação: 27,32 dias terrestres

Lunação: 29 dias, 12 h, 44 min

Temperatura média superficial:

Dia: 107°C

Noite: -153°C

Aceleração gravitacional: $1,62\text{ m/s}^2$

Conhecendo um pouco mais...

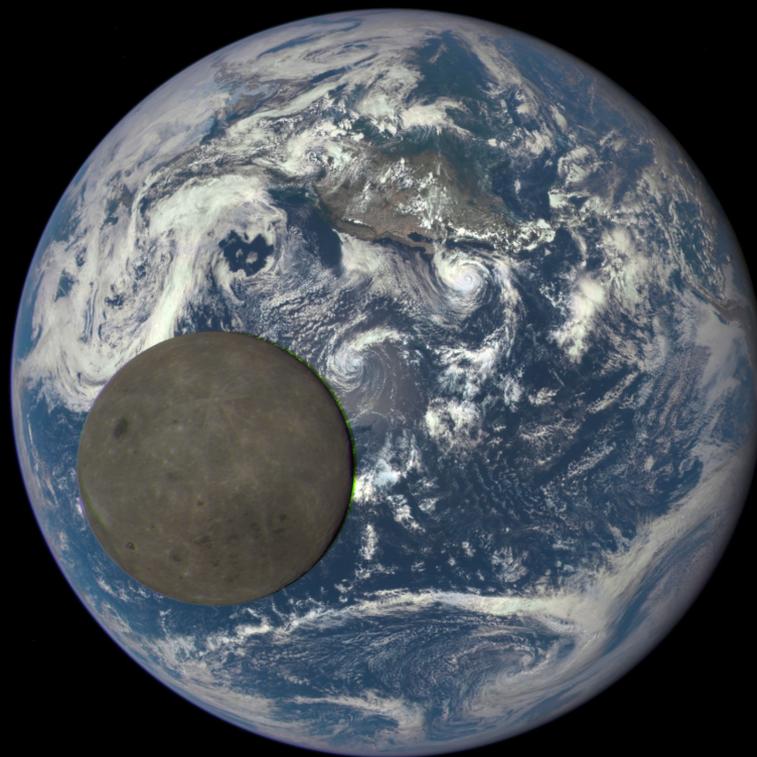


Imagem: aerospaceweb.org

Conhecendo um pouco mais...



Albedo:
0,12



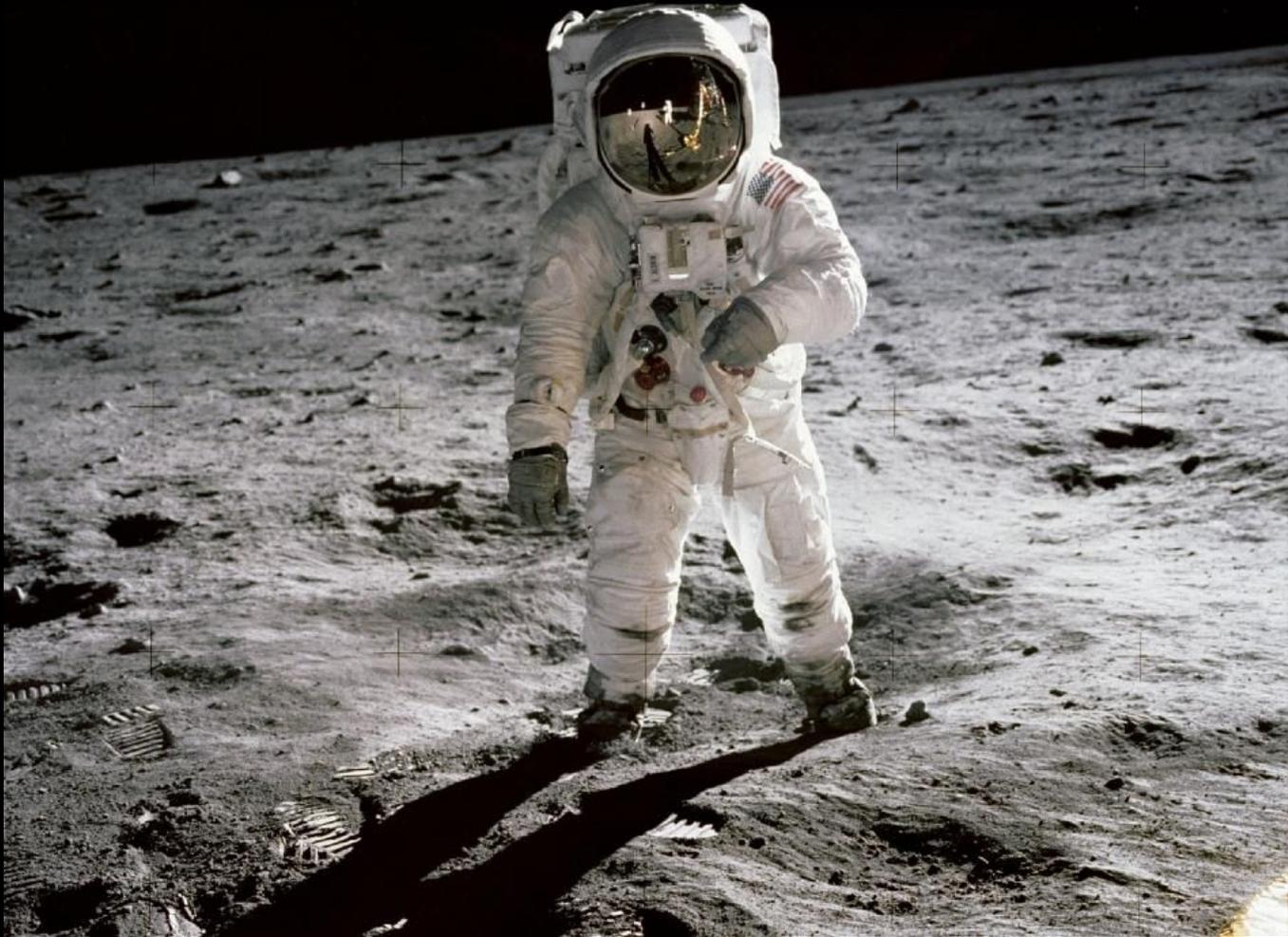


Conhecendo um pouco mais...





Apollo 11

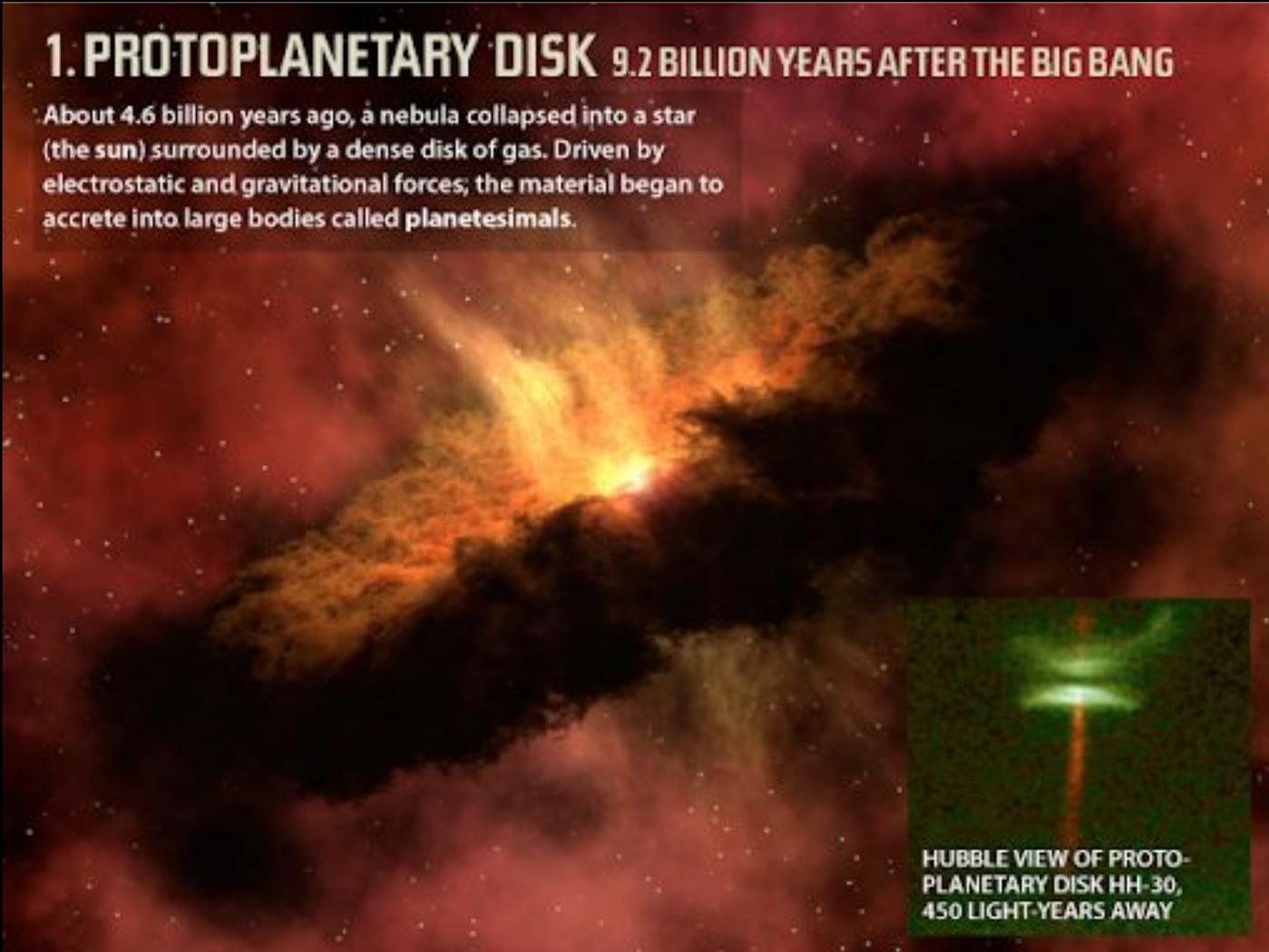




Nascimento

1. PROTOPLANETARY DISK 9.2 BILLION YEARS AFTER THE BIG BANG

About 4.6 billion years ago, a nebula collapsed into a star (the sun) surrounded by a dense disk of gas. Driven by electrostatic and gravitational forces, the material began to accrete into large bodies called planetesimals.



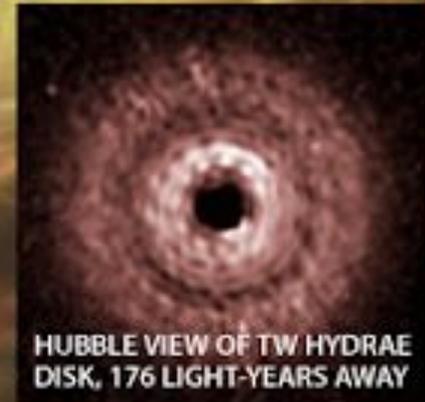
HUBBLE VIEW OF PROTO-PLANETARY DISK HH-30, 450 LIGHT-YEARS AWAY



Nascimento

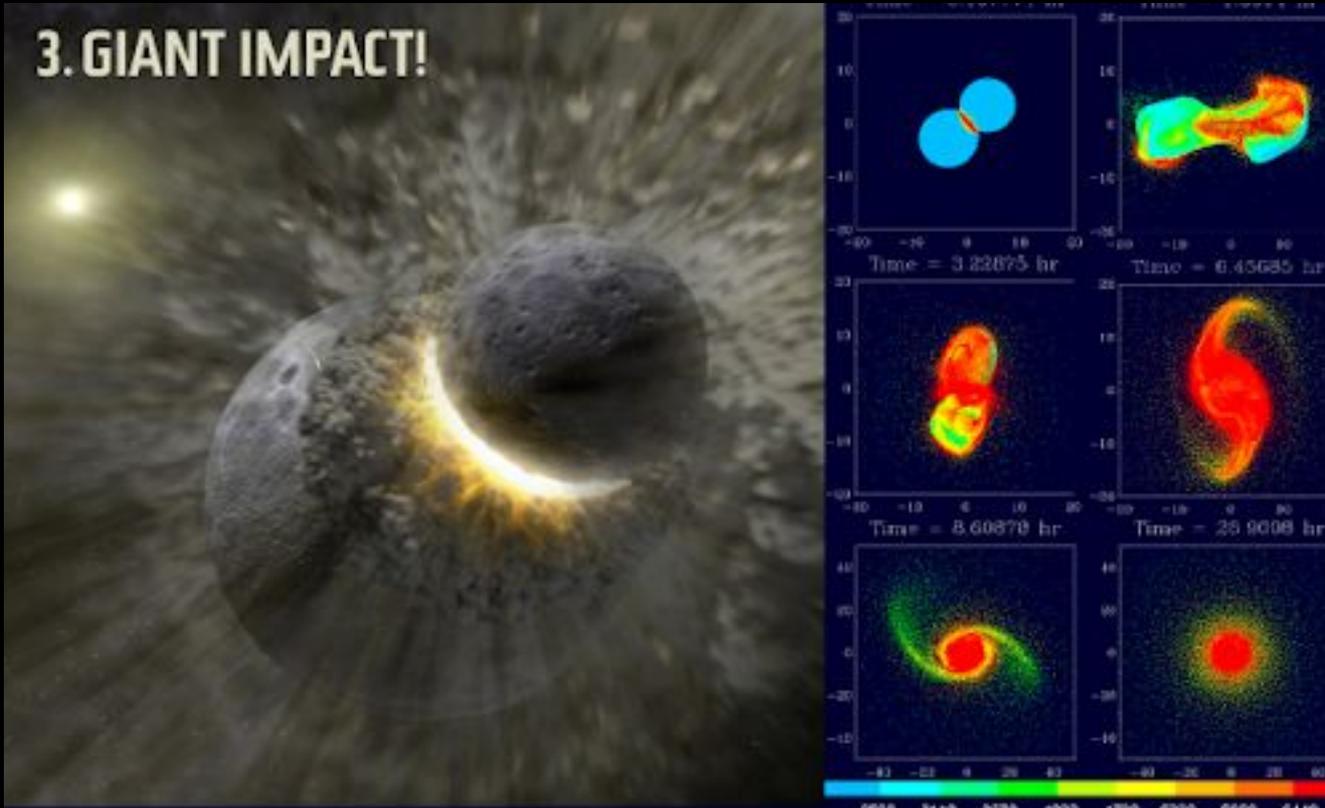
2. PLANETS ACCRETE

For several million years, planetesimals swept up the gas and dust in the nebula surrounding the new sun. Eventually, solar wind blew the remaining gas out of the solar system, and the planets' growth stopped.





Nascimento



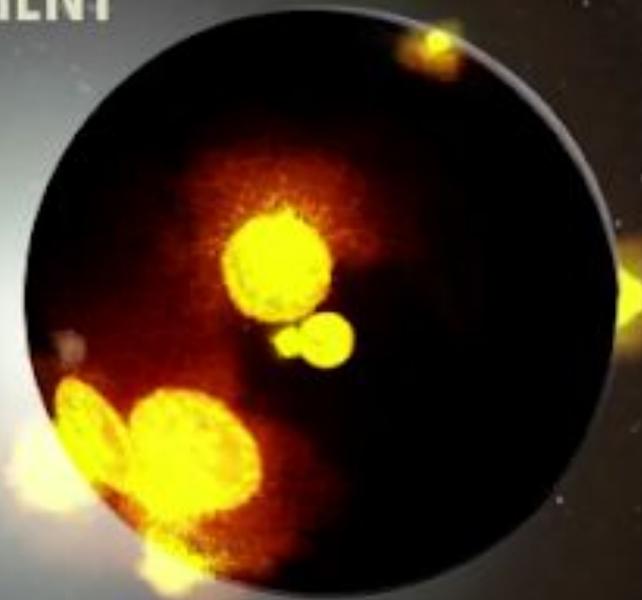
Initially, the solar system formed with many more planets than exist today. Most of these bodies collided and merged into larger planets. About 30 million to 50 million years after the solar system's birth, a Mars-size body called **Theia** struck the young Earth at an oblique angle. The simulated images above show that both bodies were shattered by the impact. Gravity reassembled the debris into a single planet (Earth) with a cloud of fragments orbiting it.



Evolução

5. LUNAR BOMBARDMENT

Around 4.1 billion to 3.8 billion years ago, the moon was violently struck by a huge number of asteroids. This **Late Heavy Bombardment** created large lunar plains (seas) and impact craters.



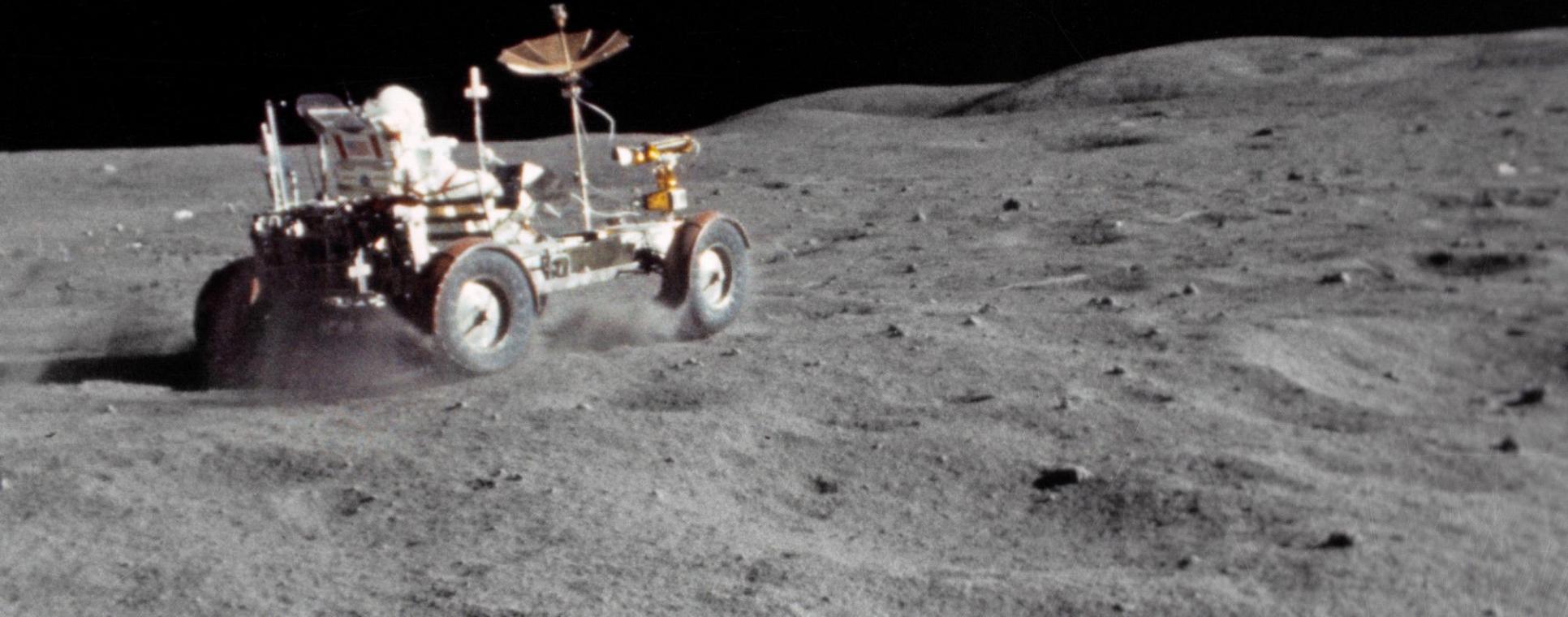
SOURCES: NASA, ESA, JPL, CALTECH, DANIEL HERWARTZ/NATURE
<http://svs.gsfc.nasa.gov/vis/a010000/a010900/a010930/>

KARL TATE / © Space.com



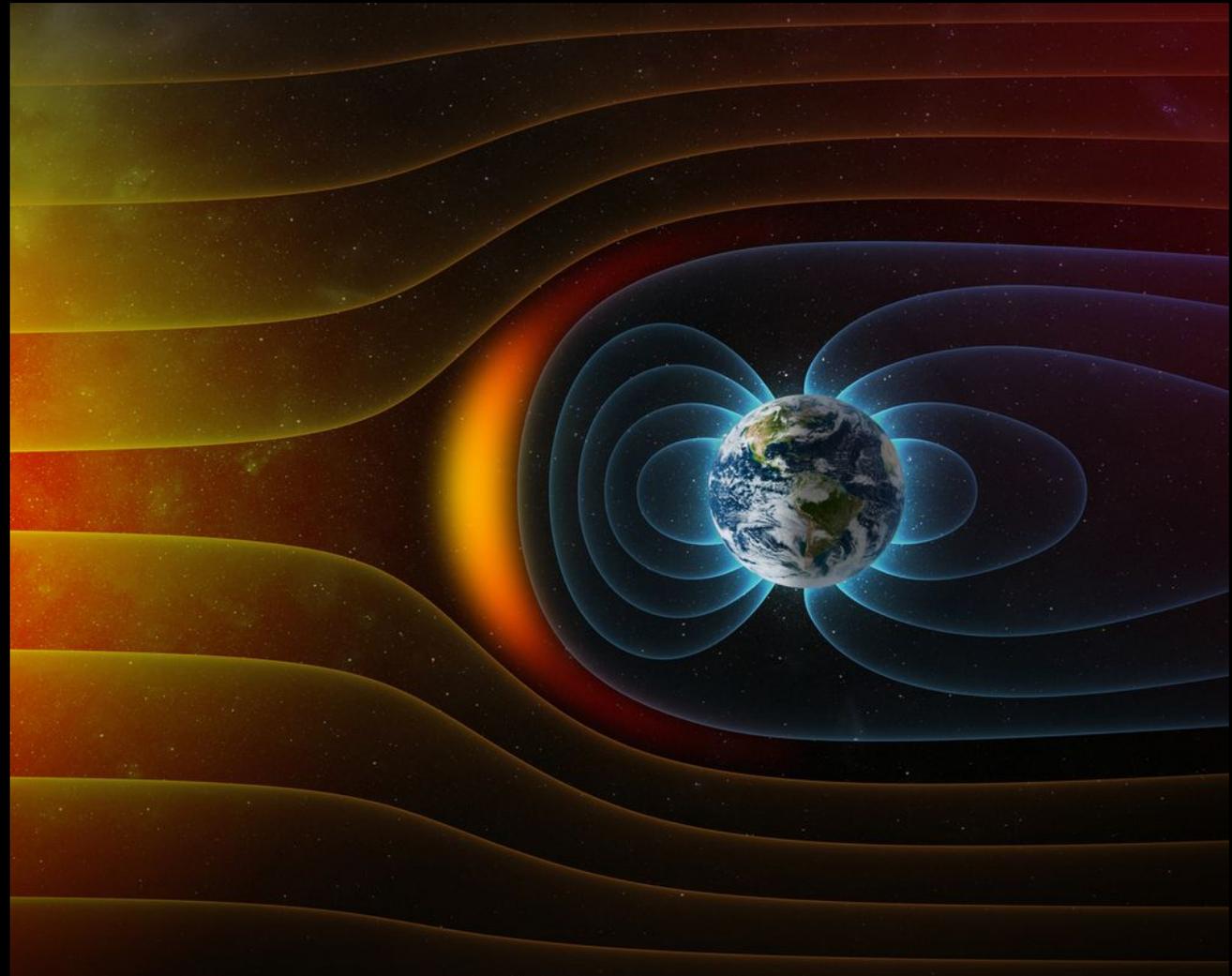
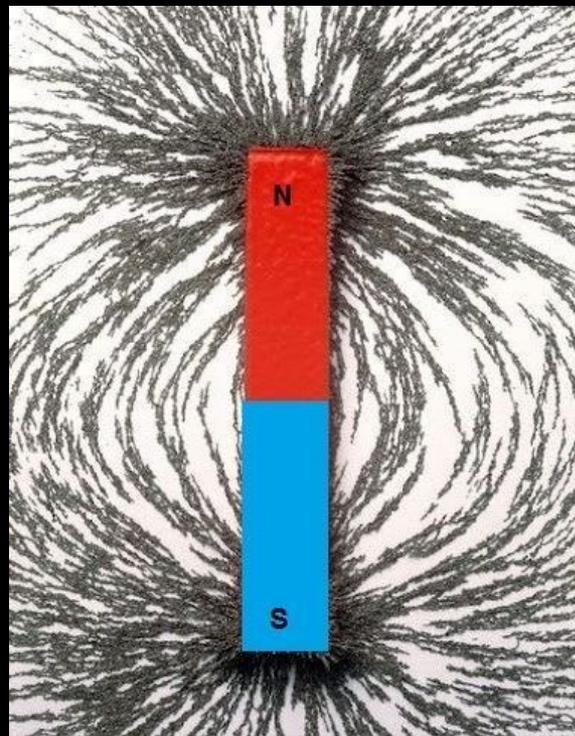
Evolução

Apollo 16 - Comandante John Young





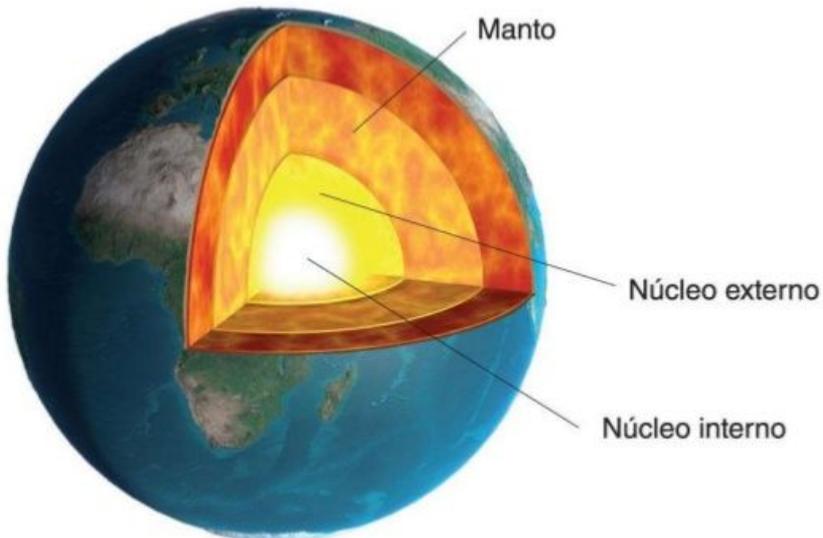
Evolução





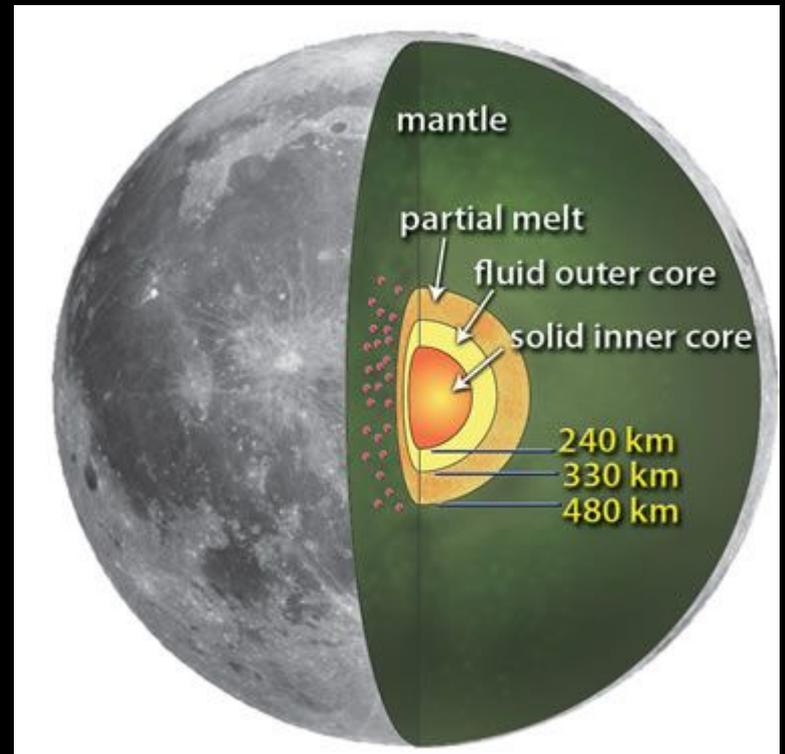
Evolução

Estrutura interna da Terra



Divandr Padilha

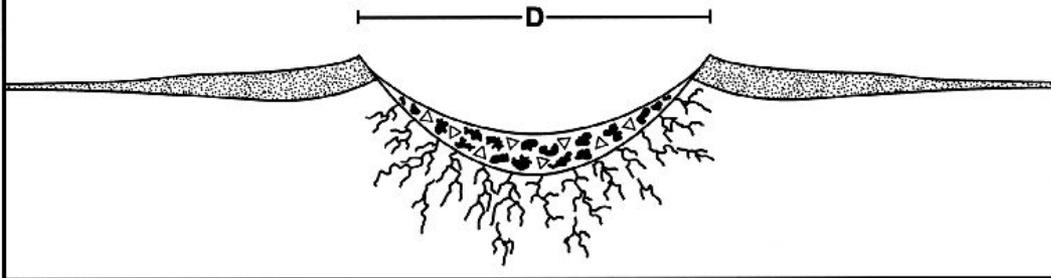
Figura ilustrativa, representação sem escala.





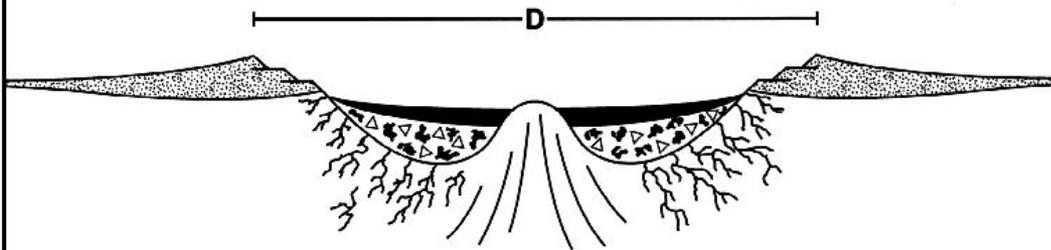
Evolução

Simple Crater

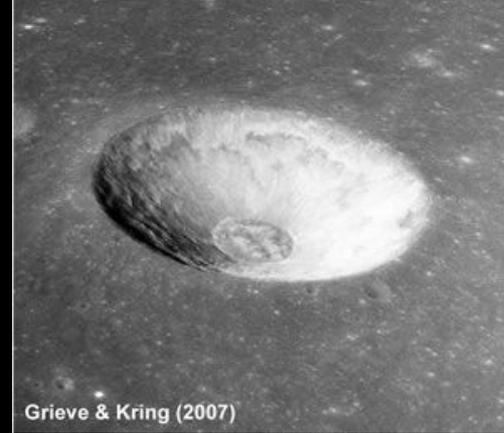


-  Breccia
-  Impact melt
-  Impact ejecta
-  Fractured bedrock
-  Central peak uplift

Complex Crater



Taruntis H (8.5 km)

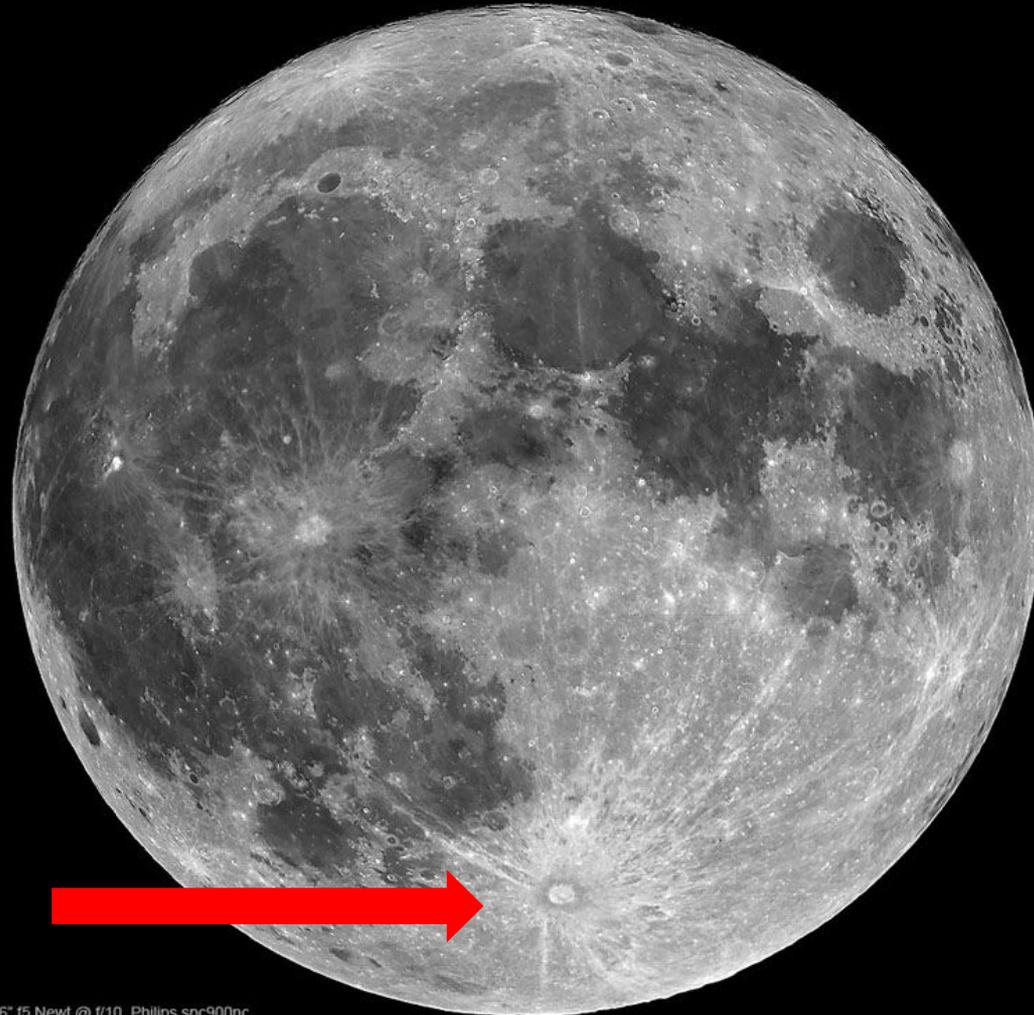


Grieve & Kring (2007)

Tycho (85 km)



Evolução



Tycho Brahe



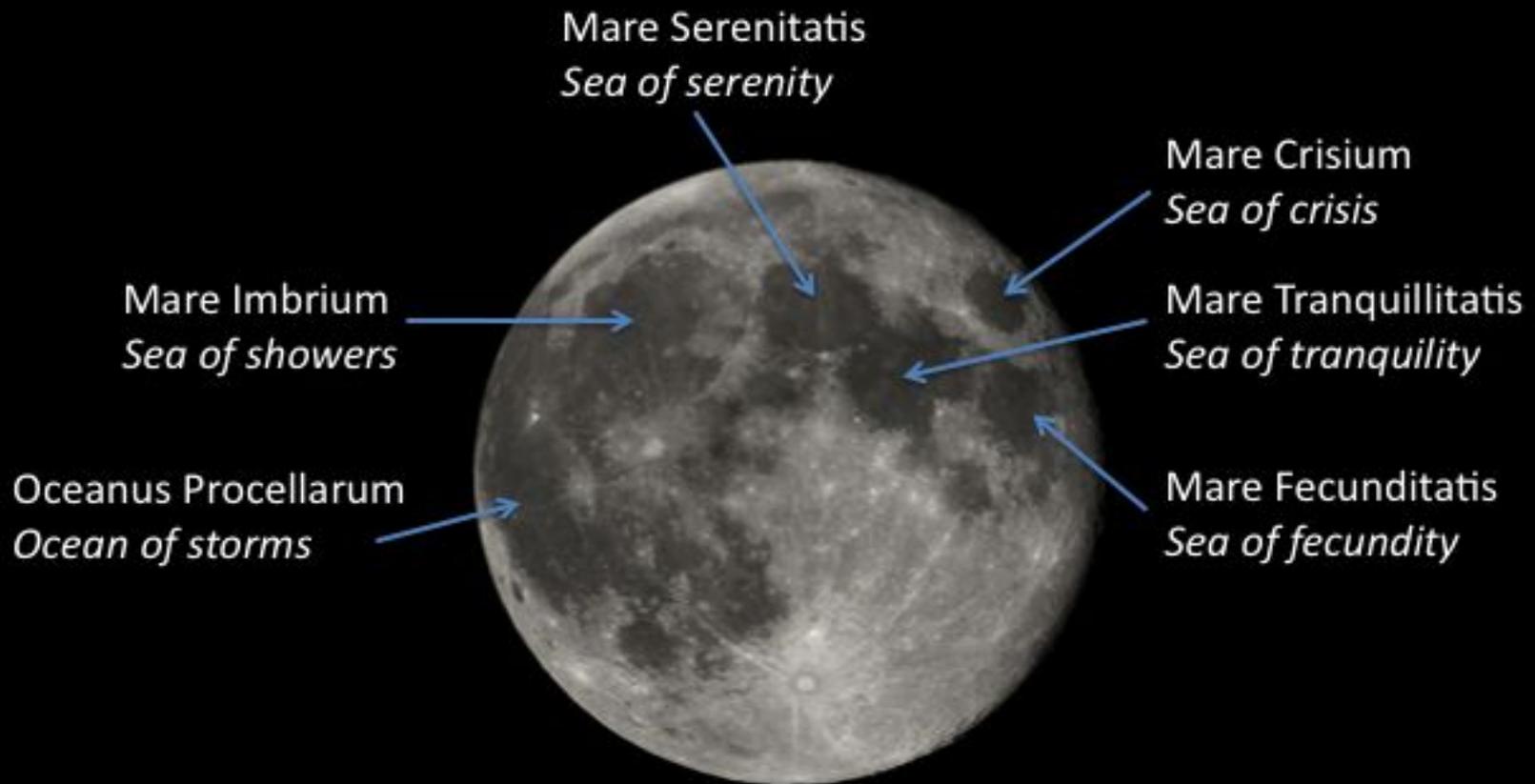


Evolução



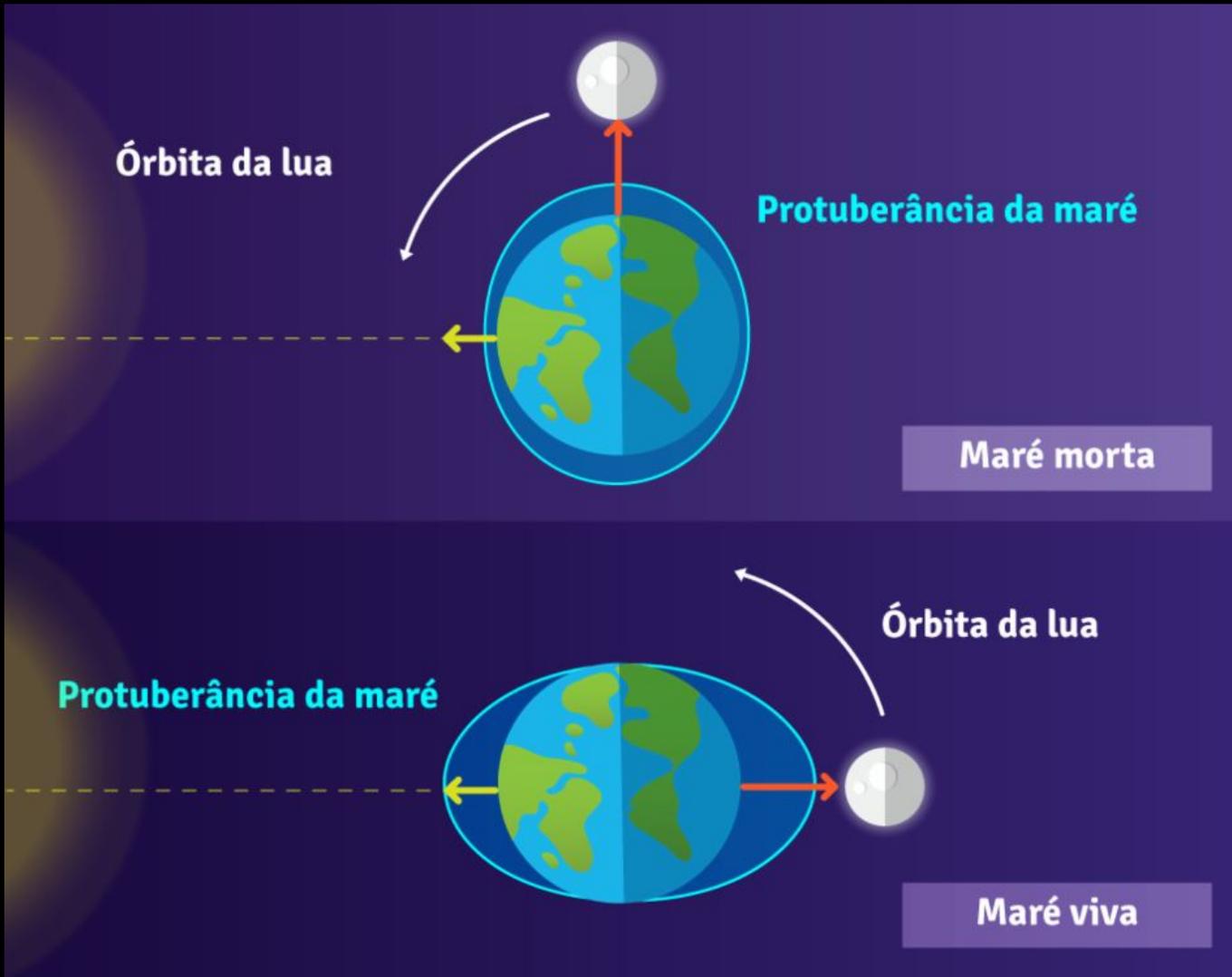


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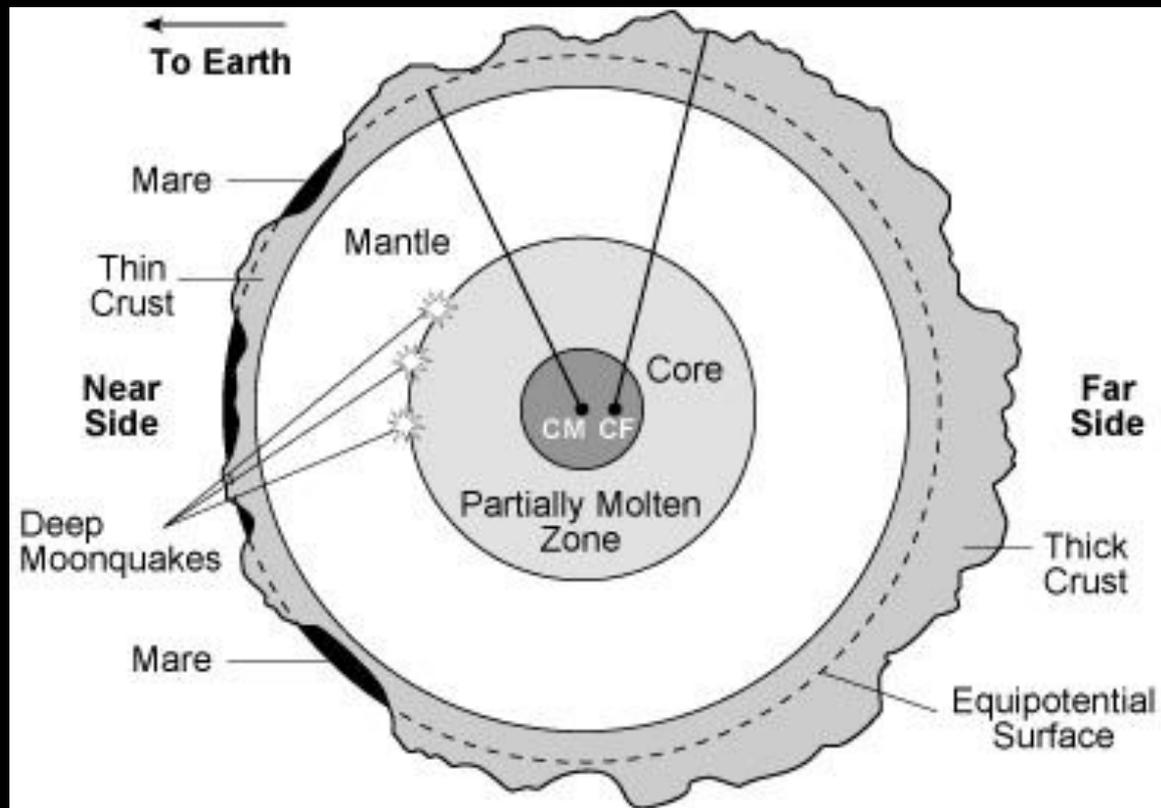


Evolução





Evolução

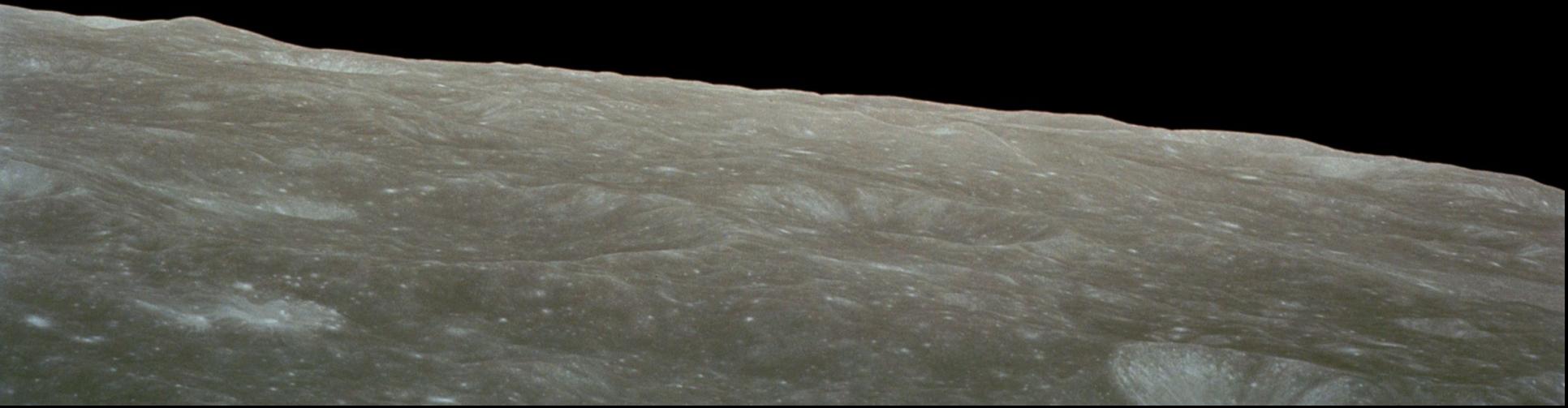


Evolução



Distância aumenta 3 cm/ano

Tempo: 1 milésimo de segundo a cada 50 anos





Evolução

Para finalizar...





Evolução

Uma citação!



Perguntas





Referências

- <https://www.space.com/40274-nasa-moon-in-4k-video-tour.html>
- <https://www.space.com/25332-moon-formation-history-lunar-evolution-infographic.html>
- Exploring the Solar System (Peter Bond)
- Lua Nosso Planeta Irmão (Peter Cadogan)