



Exploring the Universe Using Binoculars

Midcoast Senior College

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Unit 04

Moon

Moon – a few things to know

New Moon to New Moon

20 November 2025, 01:47 am to 19 December 2025, 8:43 pm

Full Moon to Full Moon

05 November 2025, 08:19 am to 04 December 2025, 06:14 pm

Beaver Moon

Cold Moon

One lunation or synodic period – 29.5 days

One Earth orbit or sidereal period – 27.3 days

New Moon, Waxing Crescent, First Quarter, Waxing Gibbous, Full Moon

Waning Gibbous, Third Quarter, Waning Crescent, New Moon

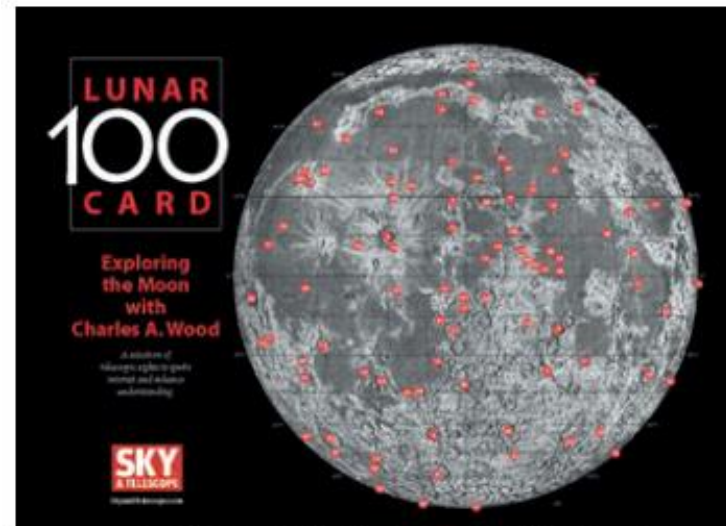
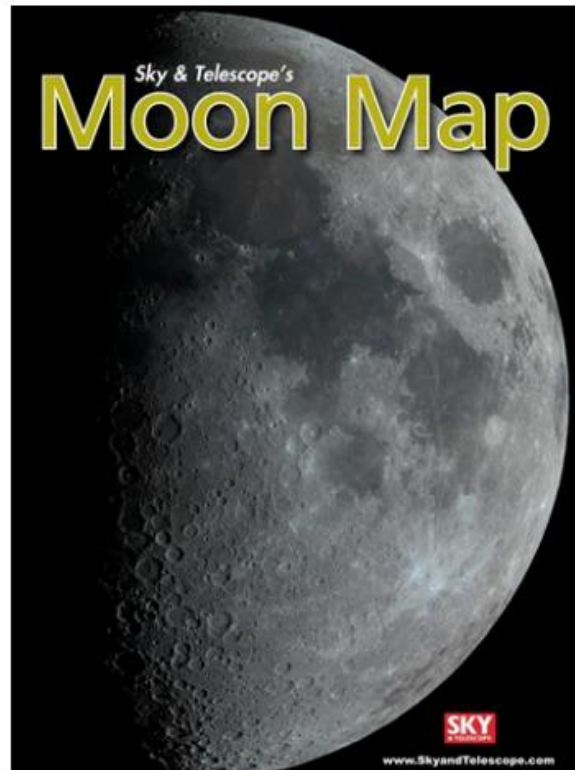
08:00 pm

Lunar Libration

Lunar libration is the apparent wobbling motion of the Moon that allows us to see slightly more than 50% of its surface from Earth over time.

Libration allows astronomers to see up to 59% of the Moon's surface from Earth, even though it nearly always shows us the same face due to tidal locking.

Sky and Telescope – Lunar Maps



Websites

Phases of the Moon

https://lsintspl3.wgbh.org/en-us/lesson/buac19-il-phasesmoon1/?as_guest=True&next=https://mainepublic.pbslearningmedia.org/resource/buac19-68-sci-ess-phasesmoon1/phases-of-the-moon/

Dial-A-Moon

<https://svs.gsfc.nasa.gov/gallery/moonphase/>

Space Out – 30 minute video

<https://plus.nasa.gov/video/space-out-moon-phases/>

Day Zero, 19 November 2025



Nothing to see here!



New Moon crescent - July 8 2013 7:14 UTC
© Thierry Legault

Day One, 20 November 2025



The start of an Islamic month is determined by the sighting of the new crescent moon after sunset. Muslims look for the hilal (crescent moon) on the 29th day of the current month; if it is sighted, the new month begins the next day. If it is not visible, the current month continues for another day, making it a 30-day month, and the new month begins after that.

Day Two, 21 November 2025



Day Three, 22 November 2025



Langrenus

Petavius

Day Four, 23 November 2025



Cleomedes
Mare Crisium

Day Five, 24 November 2025



Hercules and Atlas

Mare Fecunditatis

Day Six, 25 November 2025



Posidonius

Mare Tranquilitatis

Theophilus and Cyrillus

Mare Nectaris

Day Seven, 26 November 2025



• Aristoteles and Eudoxus

Mare Serenitatis

• Apollo 17

• Apollo 11

Day Eight, 27 November 2025



Mare Vaporum and Manilius

Albategnius

Walter

Day Nine, 28 November 2025

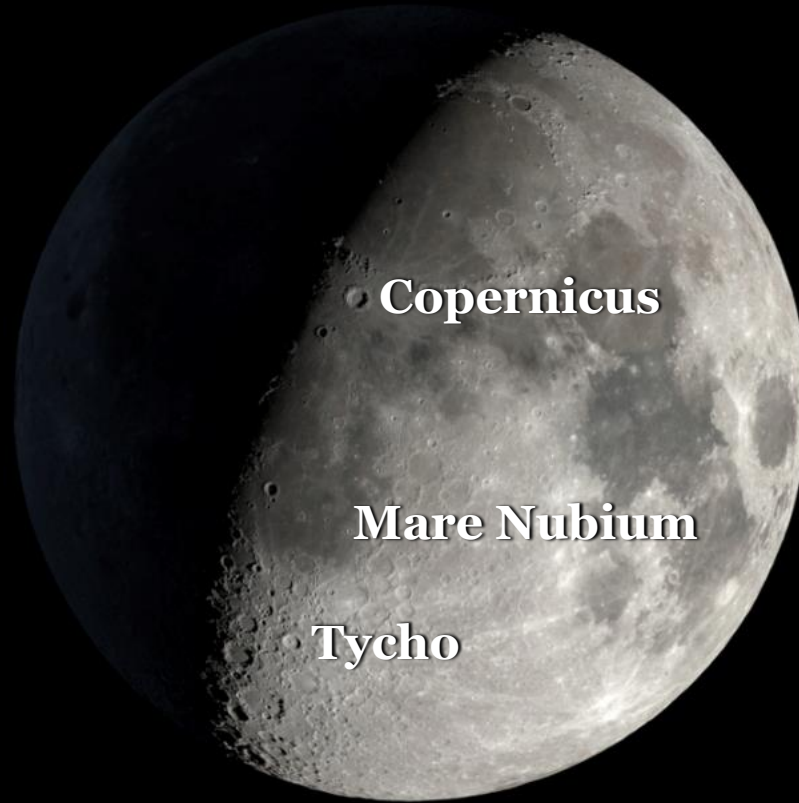


Plato

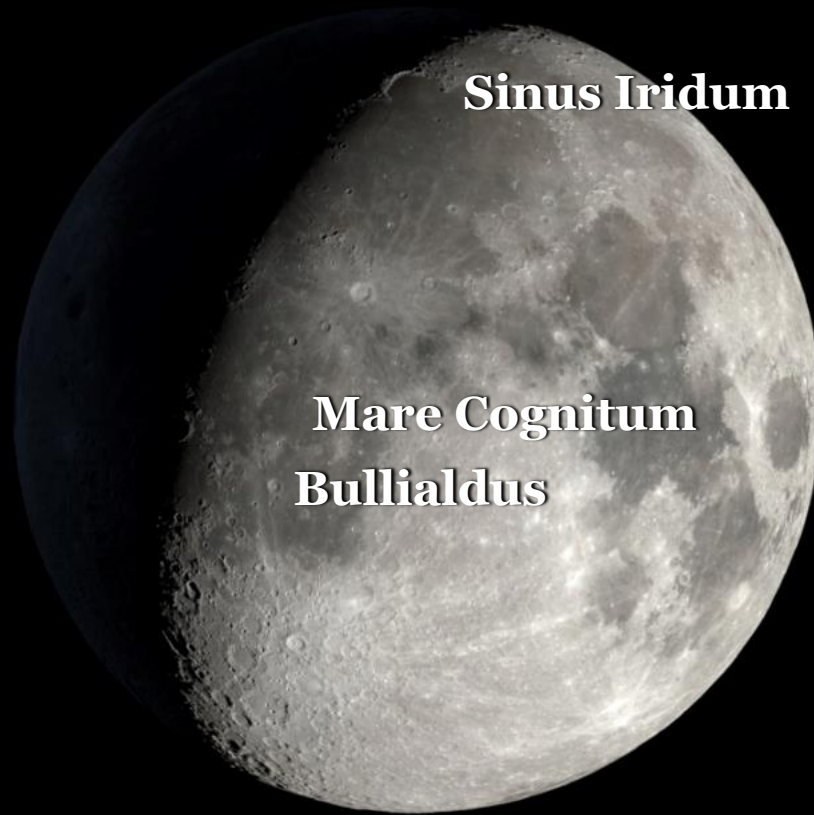
Mare Imbrium

Apennine Mountains

Day Ten, 29 November 2025



Day Eleven, 30 November 2025

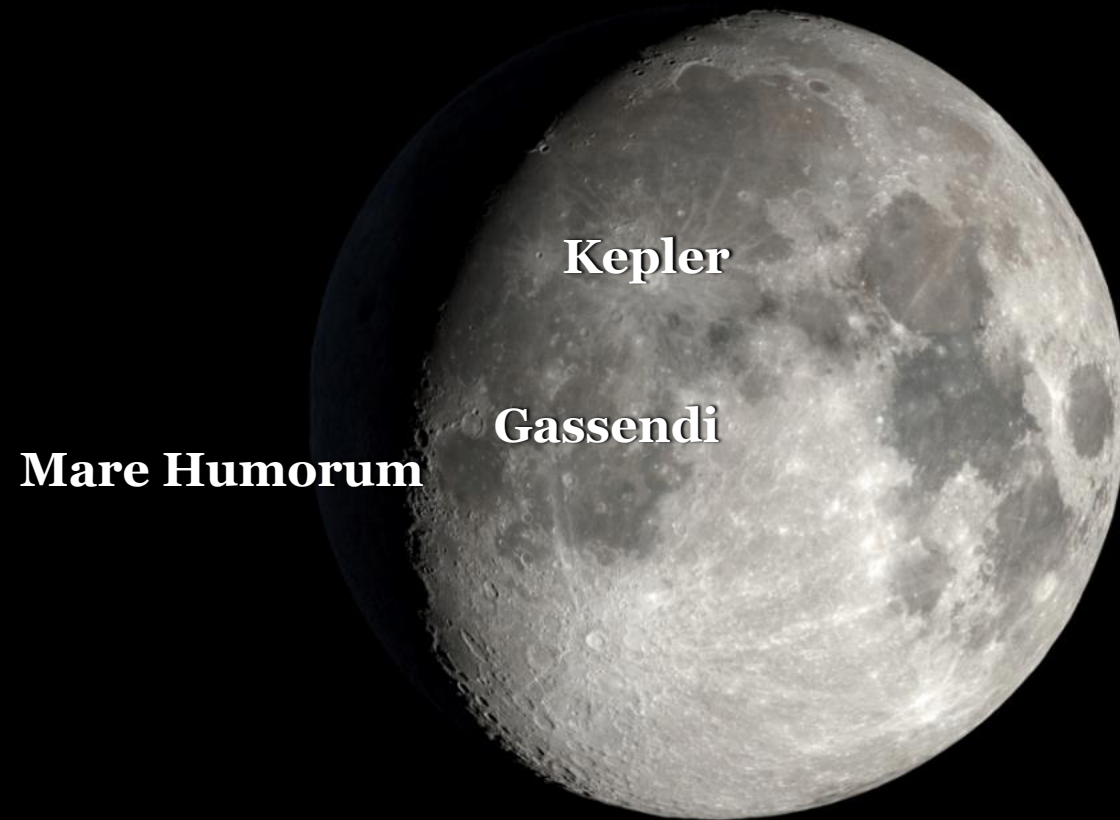


Sinus Iridum

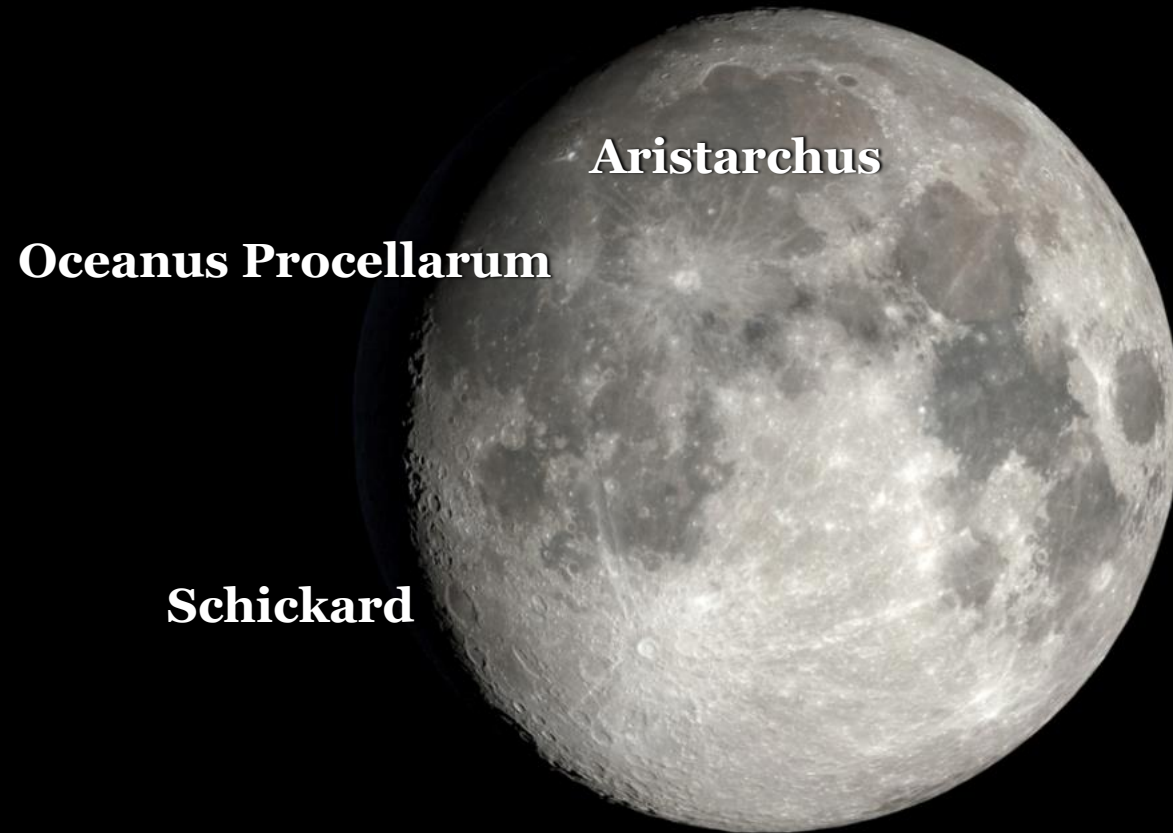
Mare Cognitum

Bullialdus

Day Twelve, 01 December 2025



Day Thirteen, 02 December 2025



Day Fourteen, 03 December 2025



Day Fifteen, 04 December 2025

**Rays from
Tycho
Copernicus
Kepler**



Day Sixteen, 05 December 2025

Apollo 12 • • Apollo 14



Day Seventeen, 06 December 2025



Apollo 15 •

Cleomedes, Burckhardt, and Geminus

Furnerius

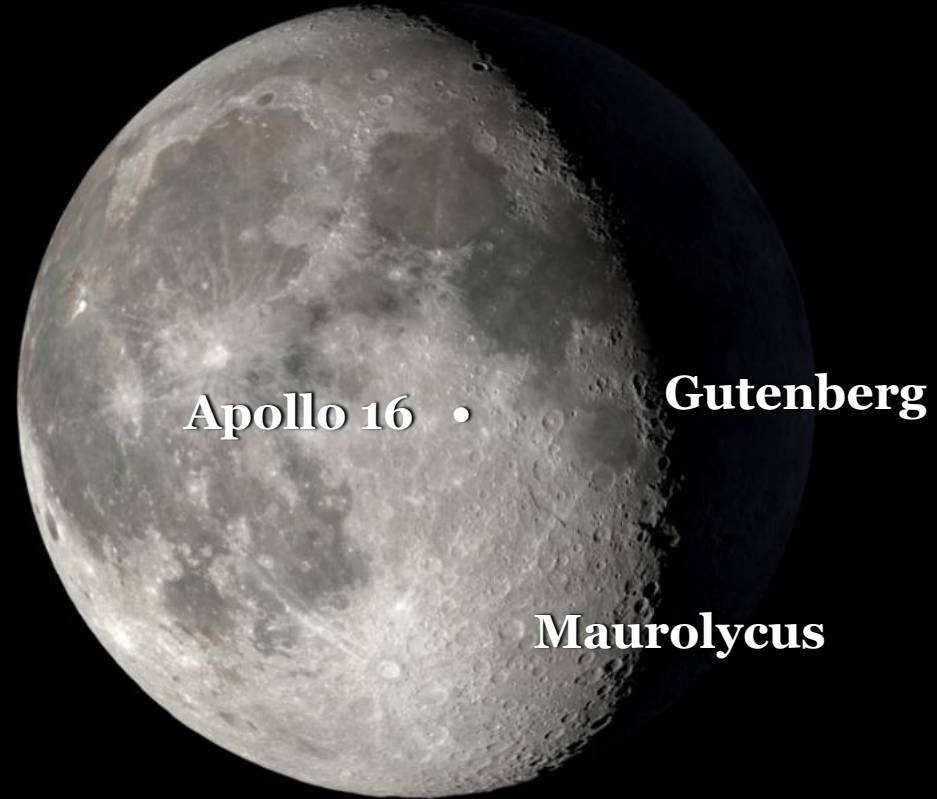
Day Eighteen, 07 December 2025

Boundary of Mare Crisium



Jansen and Fabricius

Day Nineteen, 08 December 2025



Day Twenty, 09 December 2025



Day Twenty-one, 10 December 2025

W. Bond and Archytas

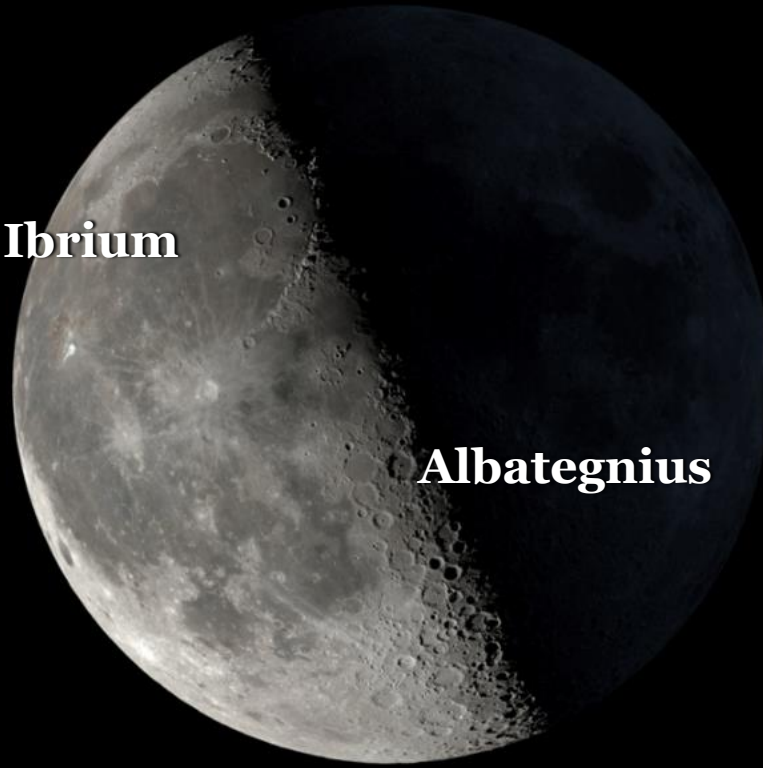
Archimedes

Agrippa and Godin



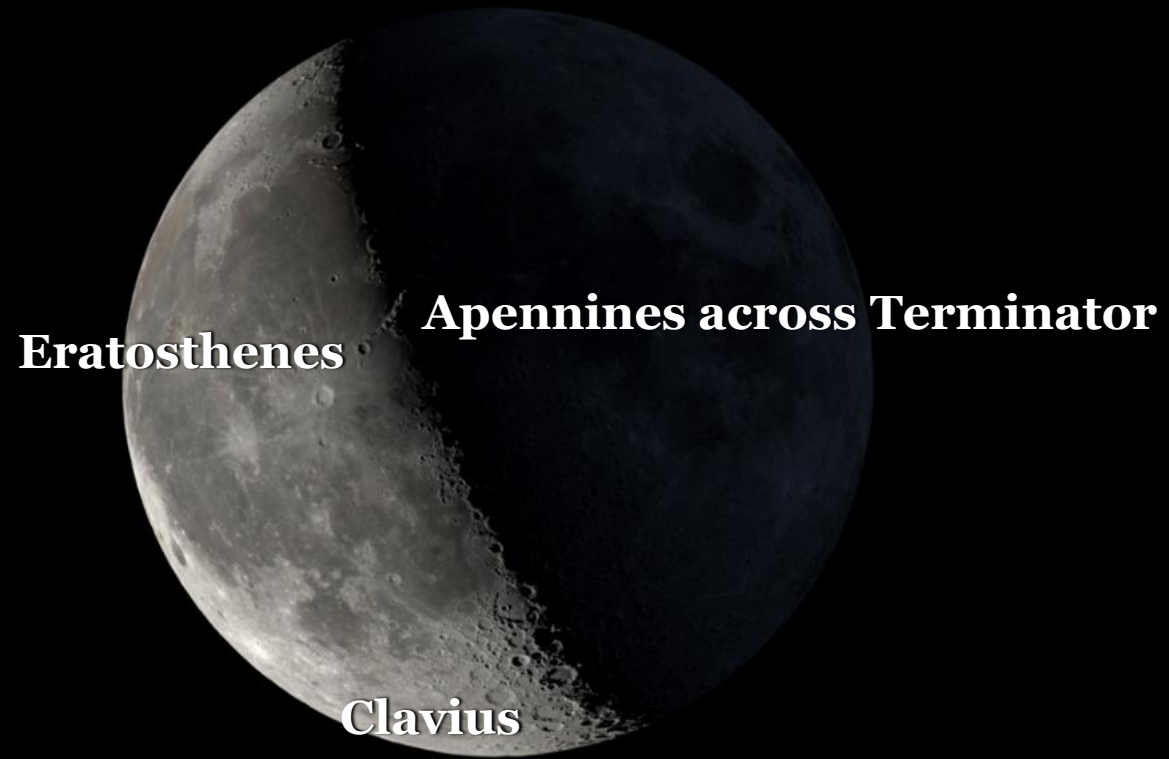
Day Twenty-two, 11 December 2025

Mare Ibrium



Albategnius

Day Twenty-three, 12 December 2025

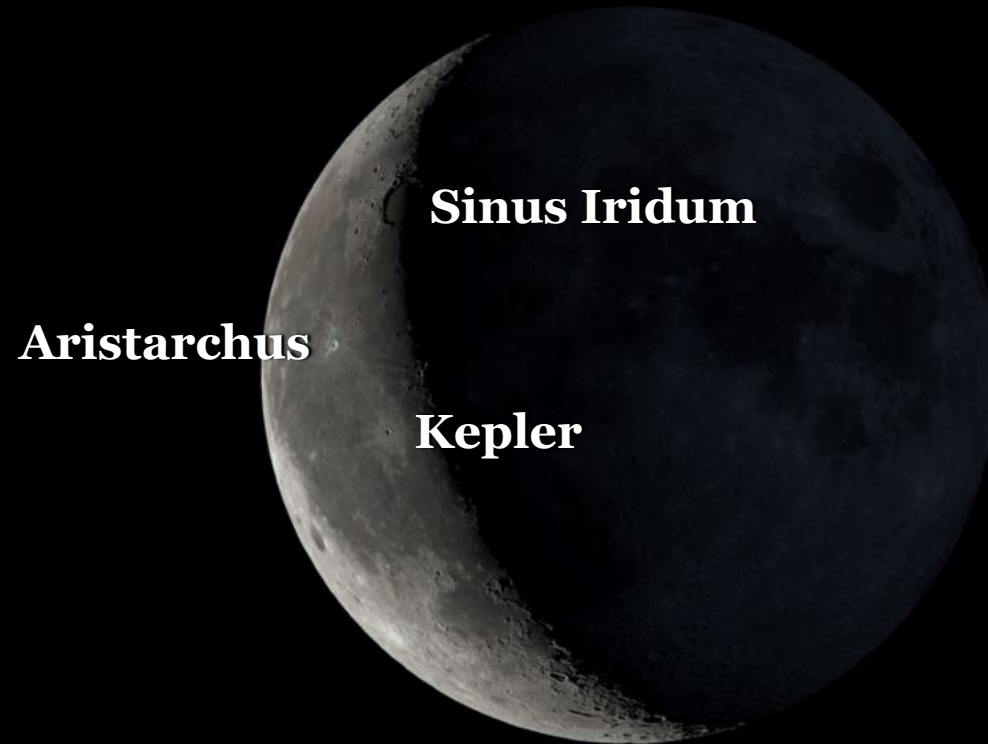


Day Twenty-four, 13 December 2025



Mountains above Copernicus

Day Twenty-five, 14 December 2025



Day Twenty-six, 15 December 2025

Northern Highlands



Southern Highlands

Day Twenty-seven, 16 December 2025



Day Twenty-eight, 17 December 2025



Day Twenty-nine, 18 December 2025



Day Zero, 19 December 2025



Nothing to see here!



**LUNAR
FAR
SIDE**

North Pole

Sommerfeld

Birkhoff

Rowland

D'Alembert

Campbell

Moscow Sea

Mendeleev

Korolev

Aitken

Gagarin

Tsiolkovsky

Eastern Sea

Apollo

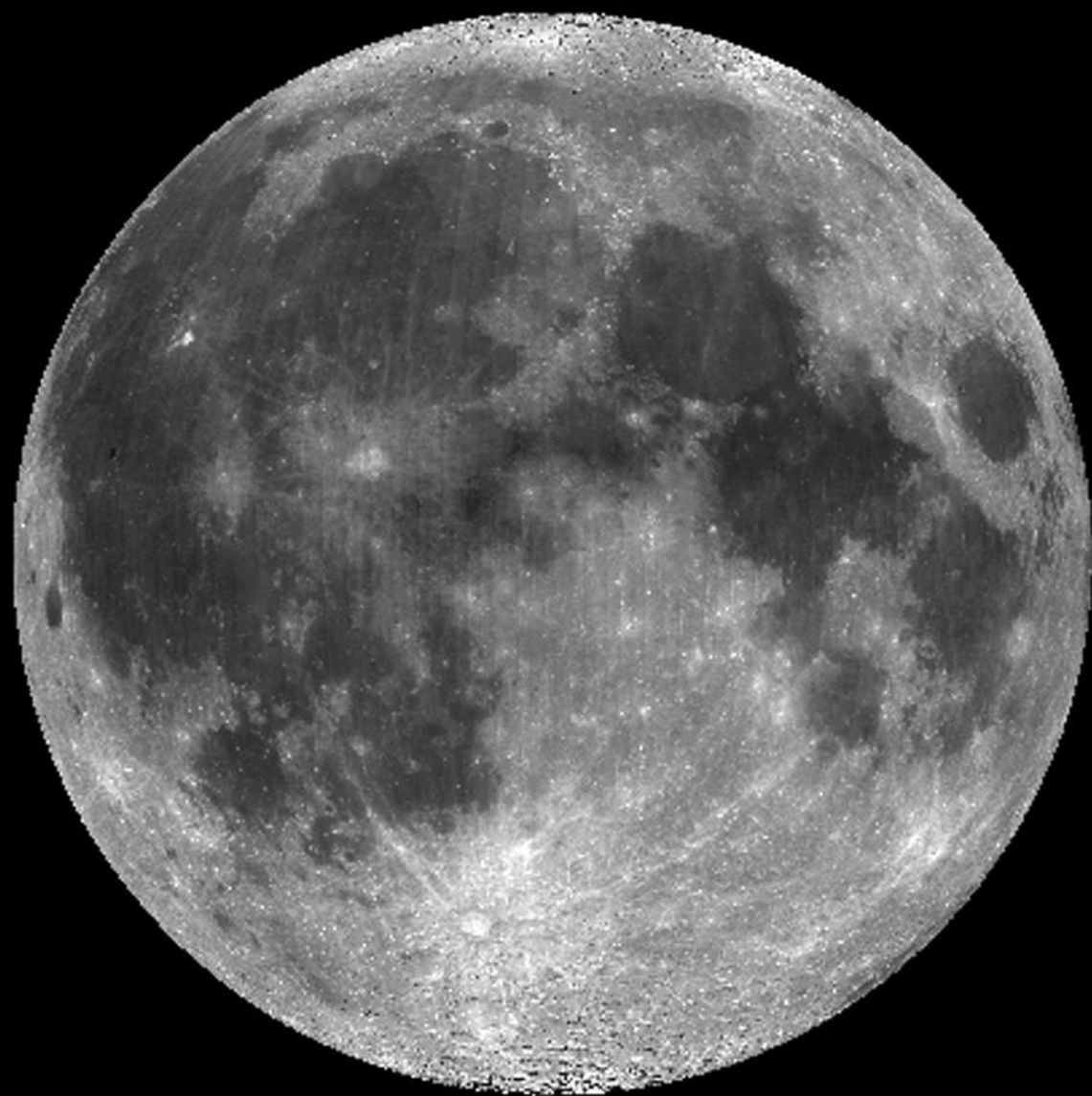
Leibnitz

Von Karman

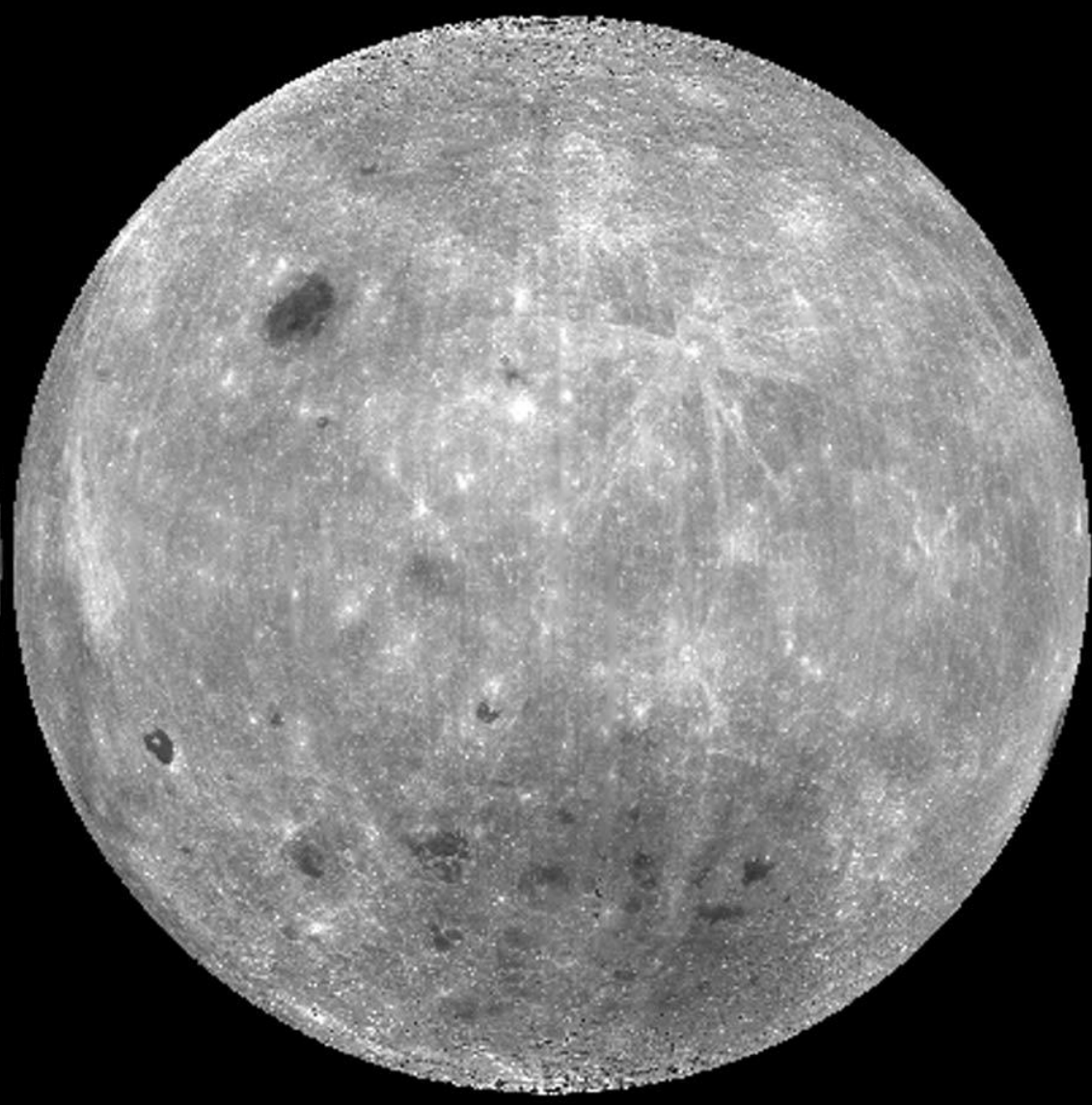
**From Aitken to South
Pole including Apollo &
Von Karman is
South Pole Aitken (SPA) Basin**

Schroedinger

Image by LRO-NASA-GSFC-ArizonaStateUniv



Near Side



Far Side

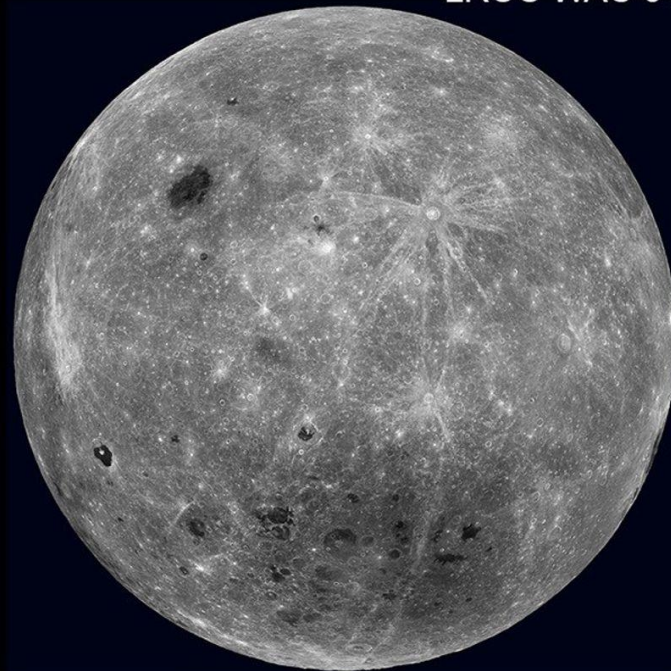
Nearside



East



LROC WAC 643 nm Reflectance



Farside



West

