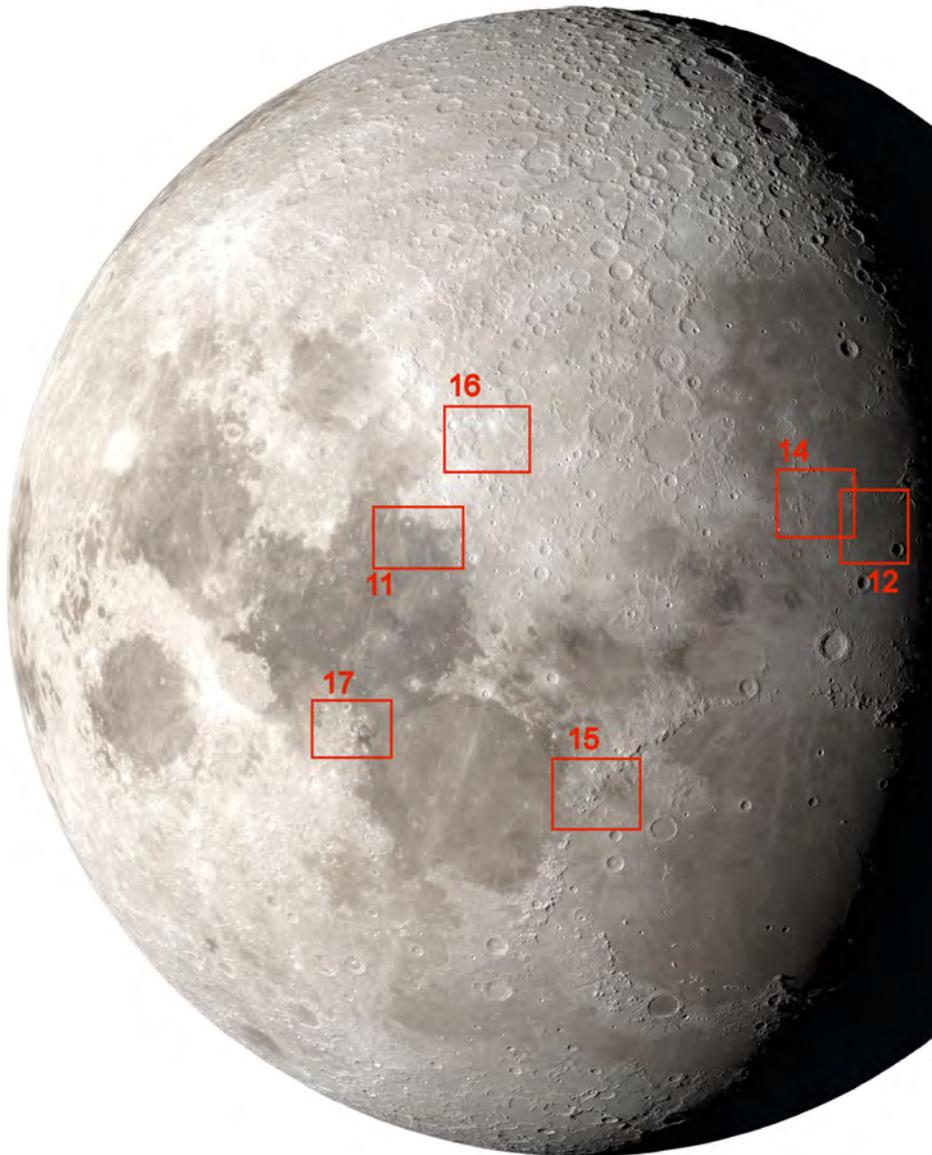




*International* OBSERVE  
THE **MOON** NIGHT 2020

SATURDAY 26<sup>TH</sup>  
SEPTEMBER 2020

**SOUTHERN HEMISPHERE MOON MAP  
with HUMAN LANDING SITES**



**Southern Hemisphere  
Moon Map**

This map depicts the Moon as it will appear from the southern hemisphere at approximately 2 a.m. GMT / 11 p.m. Brasilia on International Observe the Moon Night, September 26, 2020. Many of the best views will occur along the terminator (the line between the day and night side of the Moon).

**Human Lunar Landing Sites**

Between July 1969 and December 1972 a total of 12 astronauts landed on the surface of the Moon as part of the Apollo missions. Apollo missions 11, 12, 14, 15, 16, and 17 each landed in different locations on the lunar surface. These locations, each fascinating for their own particular reasons, sampled a wide range of lunar geology and terrain, from smooth mare plains to rugged ancient highlands. All six landing sites are visible tonight. Use this map and the magnified charts on the other side of this sheet to find and observe all six historic sites.





**Apollo 11:** The first human landing site was on the smooth, flat plains of the Sea of Tranquility. Despite how flat the area looks from Earth and from lunar orbit, astronauts Armstrong and Aldrin had to maneuver their lander at the last minutes of their descent in order to avoid a field of giant boulders.



**Apollo 12:** In November 1969, a pinpoint landing brought astronauts Conrad and Bean down right next to the robotic Surveyor 3 spacecraft, which had landed there in April 1967. The astronauts collected samples of material blasted from the formation of Copernicus crater over 350 km away and 800 million years ago.



**Apollo 14:** Astronauts Shepard and Mitchell landed in a broad expanse of low, rolling hills in February 1971. Rock samples returned by the mission told the story of how this landscape was formed nearly four billion years ago by deposits of debris blasted from the formation of the basin now occupied by Mare Imbrium.



**Apollo 15:** In July 1971, astronauts Scott and Irwin landed at the edge of Mare Imbrium at the base of the towering Apennine Mountains. Driving their rover across the mare and up the lower mountain slope, they gathered samples from the dark mare plains and the surrounding light lunar highlands.



**Apollo 16:** This was the first and only mission to land in the rugged lunar highlands. In April 1972, astronauts Young and Duke collected rock samples more than 4 billion years old. These showed that the ancient lunar crust formed from rock that crystalized and floated to the top of a global lunar magma ocean.



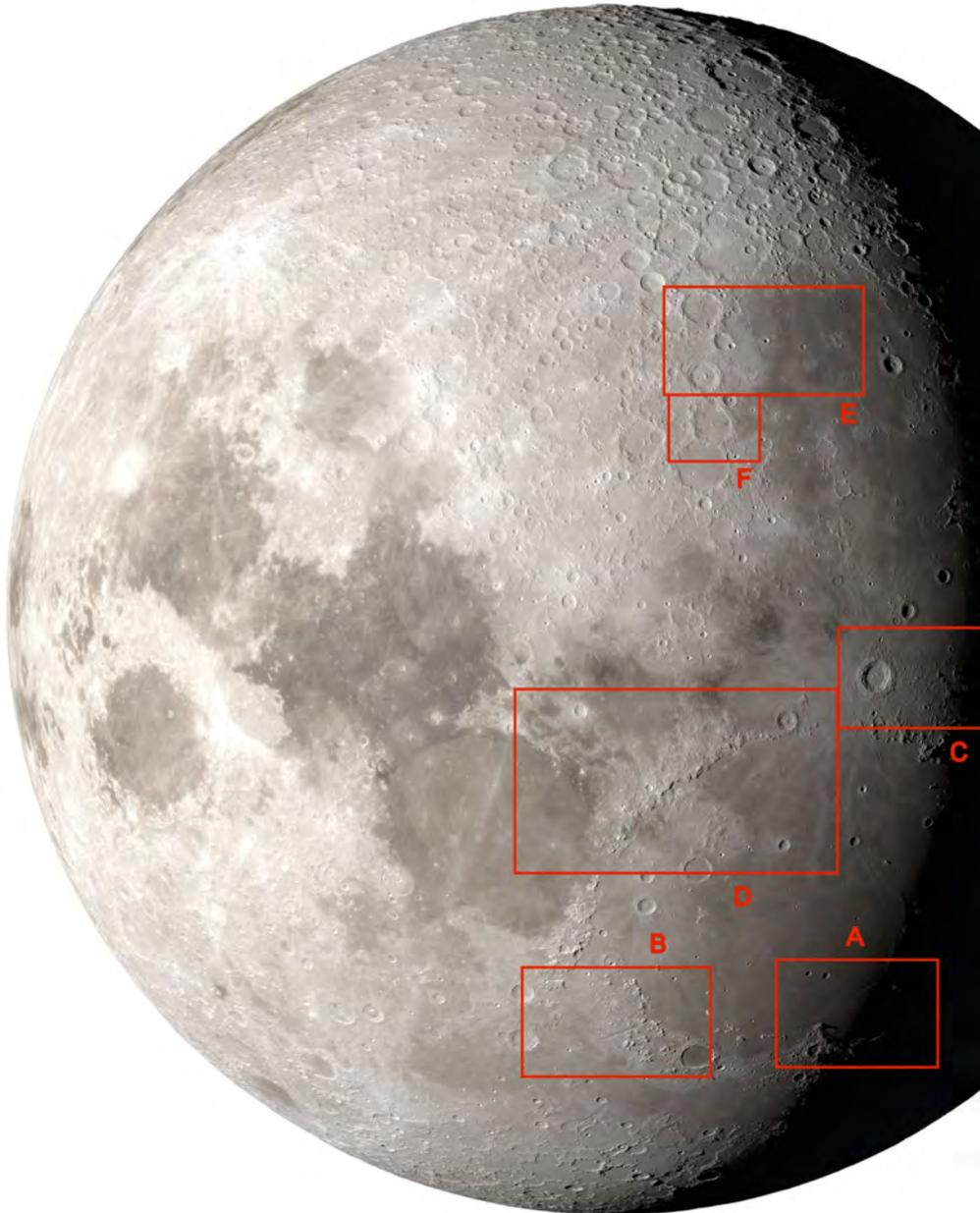
**Apollo 17:** The final Apollo mission to land on the Moon visited the spectacular Taurus-Littrow Valley, deeper than Earth's Grand Canyon. In December 1972, astronauts Cernan and Schmitt (the first professional geologist on the Moon) explored an active fault scarp, a gigantic landslide deposit, and brought back samples including beads of volcanic glass erupted in an ancient lunar fire fountain.



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**SOUTHERN HEMISPHERE MOON MAP  
with SELECTED TELESCOPIC OBJECTS**



**Moon Map**

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**Selected Telescopic Objects**

Some of the more interesting lunar landforms that have favorable lighting for viewing tonight are identified here. Details for each are on the reverse side of this map.

- A. Sinus Iridum
- B. Alpine Valley
- C. Copernicus Crater and Hortensius Domes
- D. Apennine Mountains
- E. Straight Wall
- F. Alphonsus Crater





A. Sinus Iridum, the “Bay of Rainbows,” lies along the northwest edge of Mare Imbrium. Watch tonight as peaks along the northwest inland side of the bay light up as they catch the rays of the lunar sunrise. Note how compressional wrinkle ridges along the solidified lava floor of Imbrium and Iridum look like lines of ocean waves entering the bay.



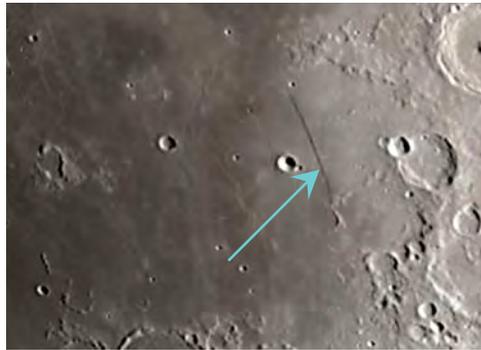
B. Alpine Valley: The Moon’s Alps Mountains form the northeastern rim of the Imbrium impact basin, which now holds the vast lava plains of Mare Imbrium. The mountains are cut through by the 190 km long and 10 km wide Alpine Valley. The Alpine Valley is an example of a graben, formed when land sinks between two parallel faults



C. Copernicus is a magnificent 93 km diameter crater with terraced walls, a flat floor, and a group of central peaks towering 1200 m above the floor. The crater is over 3700 m deep. To the west of Copernicus, just emerging into the lunar dawn and just north of the small crater Hortensius, you may be able to catch glimpses of a cluster of small, round, blister-like landforms. These are the Hortensius Domes, classic examples of low lunar shield volcanoes.



D. Enjoy some of the Moon’s most spectacular mountain scenery among the towering peaks of the Apennine Mountains. This range, part of the east rim of the Imbrium impact basin, is 250 km long and reaches over 5 km high. The Apollo 15 landing site is located along the range’s western edge.



E. Straight Wall: Also known as Rupes Recta, the most spectacular example of a lunar fault cuts a long, straight line across the floor of Mare Nubium. Along its 120-km length, the ground steps up from west to east along a scarp that in places is more than 400 meters high. This fascinating feature stands out even in small telescopes.

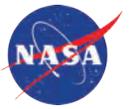


F. Alphonsus Crater measures 110 km in diameter and was the target of the 1965 Ranger 9 robotic lunar mission. A network of straight rilles fracturing the floor of the crater test the best seeing conditions and optics. Dark patches of volcanic ash deposits are easier to see. These were erupted from small volcanic craters along the rilles.



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**SOUTHERN HEMISPHERE MOON MAP  
with LUNAR MARIA (SEAS)**



**Moon Map**

This map depicts the Moon as it will appear from the southern hemisphere at approximately 2 a.m. GMT / 11 p.m. Brasilia on International Observe the Moon Night, September 26, 2020. Many of the best views will occur along the terminator (the line between the day and night side of the Moon).

**Lunar Maria (Seas)**

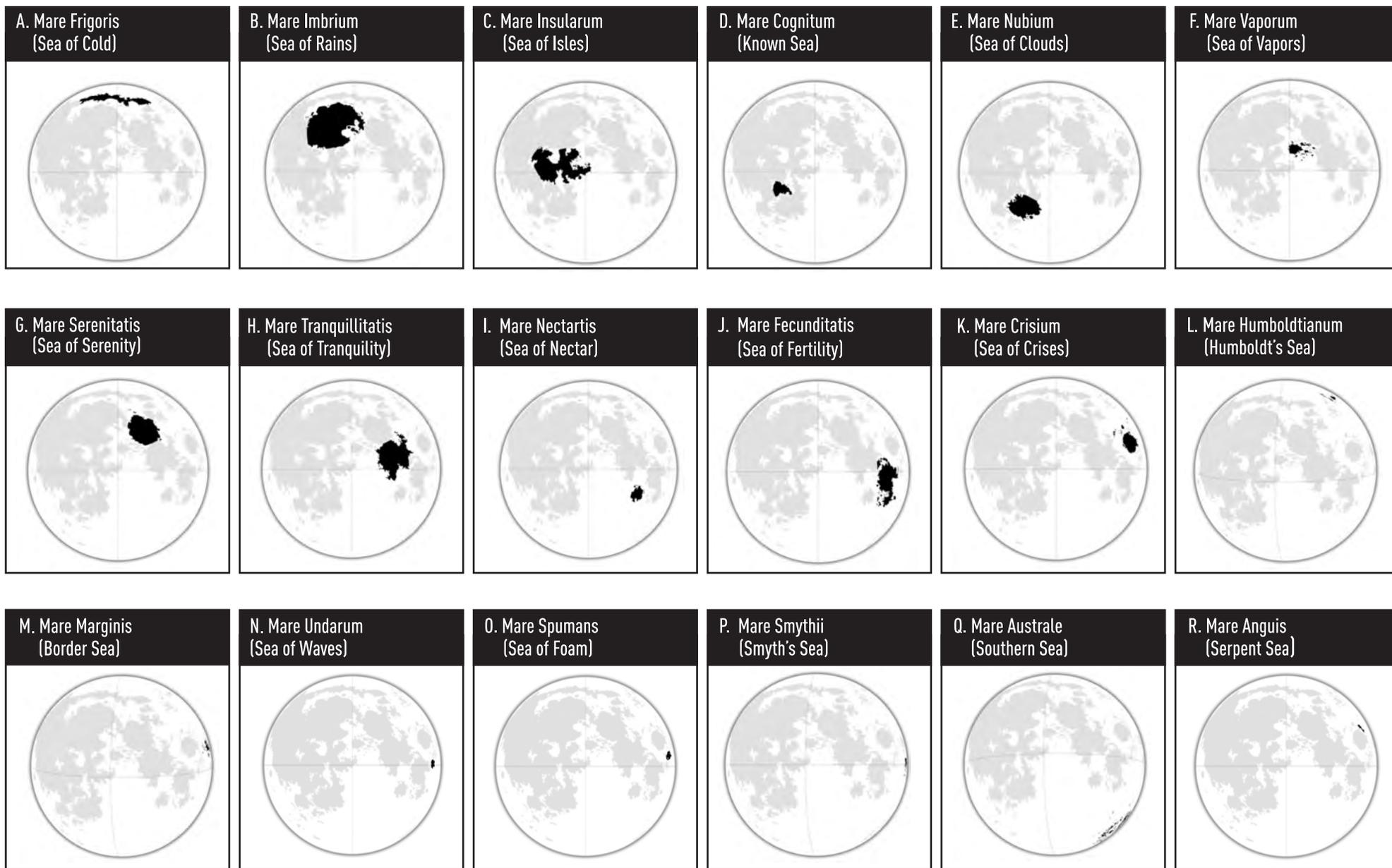
You can see a number of maria tonight. Once thought to be seas of water, these are actually large, flat plains of solidified basaltic lava. They can be viewed in binoculars or even with the unaided eye. Tonight, you may be able to identify 18 maria on the near side of the Moon. This includes four seas along the eastern edge that are often hard to see. Because of libration, a slight apparent wobble by the Moon in its orbit around the Earth, tonight we get to peek slightly around the northeast edge of the Moon, glimpsing a sliver of terrain normally on the Moon's far side.

- A. Mare Frigoris (Sea of Cold)
- B. Mare Imbrium (Sea of Rains)
- C. Mare Insularum (Sea of Isles)
- D. Mare Cognitum (Known Sea)
- E. Mare Nubium (Sea of Clouds)
- F. Mare Vaporum (Sea of Vapors)

- G. Mare Serenitatis (Sea of Serenity)
- H. Mare Tranquillitatis (Sea of Tranquility)
- I. Mare Nectaris (Sea of Nectar)
- J. Mare Fecunditatis (Sea of Fertility)
- K. Mare Crisium (Sea of Crises)
- L. Mare Humboldtianum (Humboldt's Sea)

- M. Mare Marginis (Border Sea)
- N. Mare Undarum (Sea of Waves)
- O. Mare Spumans (Sea of Foam)
- P. Mare Smythii (Smyth's Sea)
- Q. Mare Australe (Southern Sea)
- R. Mare Anguis (Serpent Sea)





These charts show the positions and extents of the 18 lunar seas visible on the Moon tonight, with north up and lunar west to the left. Some of the larger seas might be easy for you to see with your unaided eyes. Other smaller seas may provide challenges even through binoculars. Combine these charts with the accompanying map to see how many of the Moon's maria you can track down tonight! Note: three lunar seas that can be sometimes seen on the near side of the Moon are not included here, because they are obscured in the dark western portion of the Moon as seen tonight. They are Mare Humorum, Mare Orientale and Oceanus Procellarum.