

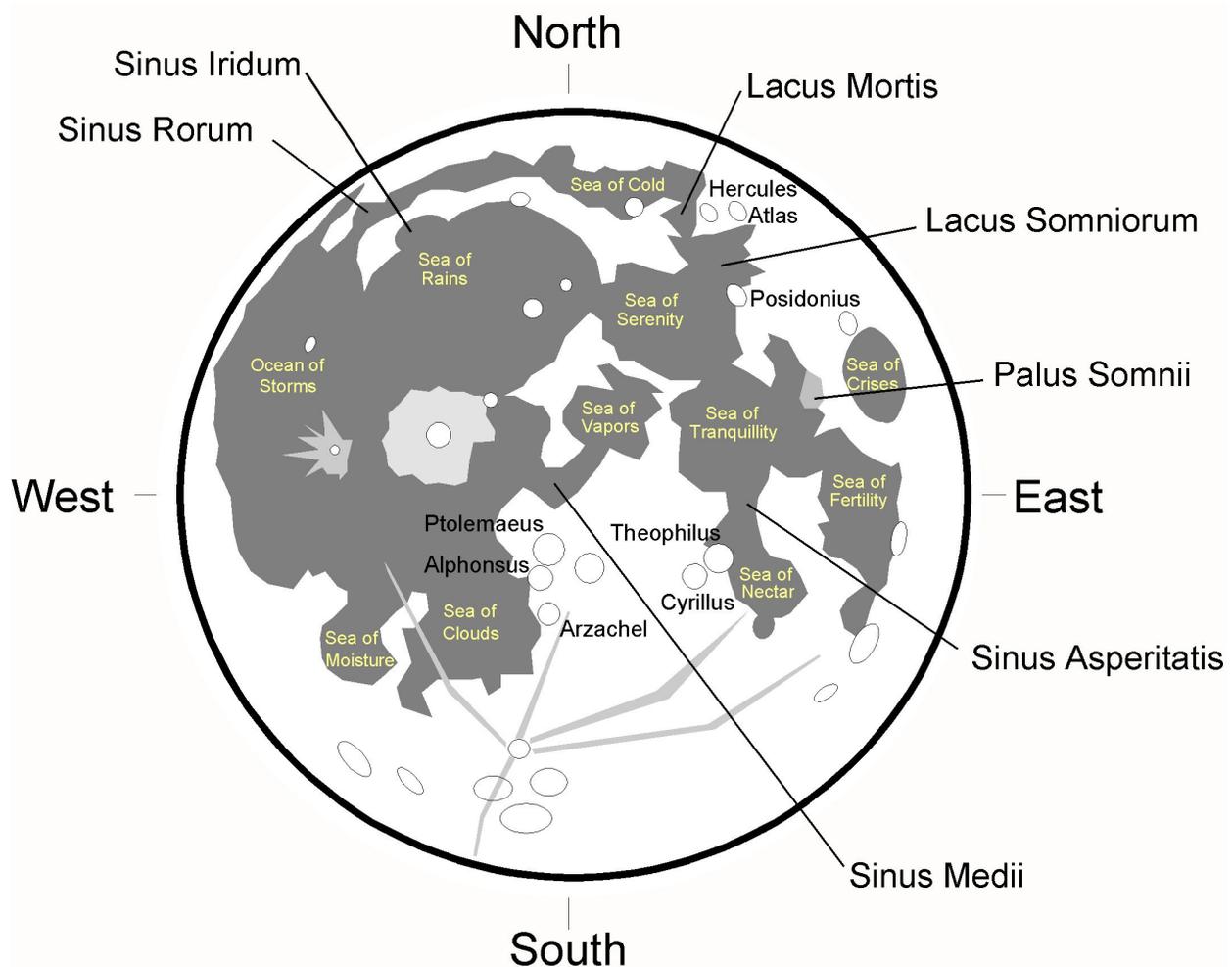
Binocular Universe: Some Lunar Lakes, Bays, and Marshes

June 2012

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Identifying each major lunar sea, or *mare*, using a pair of binoculars, or by eye alone for that matter, is a simple task as long as you have a good Moon map by your side. But how about some of the lesser known lunar features across the face of our neighbor in space? Most pass without drawing much attention. We change that this month as we take a look at some lunar lakes, bays, and even a swamp.



Map of the Moon showing this month's targets. Adapted from [Astronomy For All Ages](#) by Philip Harrington and Edward Pascuzzi.

Let's work our way from lunar east to lunar west. Before the idea of sending astronauts to the Moon flourished as the Apollo program, most references used a geocentric (Earth-based) frame of reference. In the old system, the western edge of the Moon was closest to *Earth's* western horizon. Likewise, the eastern edge was nearest *our* eastern horizon. In 1961, the International Astronomical Union (IAU) decided to flip things around. Although this seems contrary to appearance, it would make perfect sense if we were standing on the Moon. With this new system, an astronaut on the Moon would see the Sun rise in the east and set in west. Therefore, when a surface feature is referred to as being to the east of another, we are talking about *lunar east*, which is to the west, or right as seen from the Northern Hemisphere. Likewise, west refers to *lunar west*, which is to our east, or left as seen from the north of Earth's equator. Got it?

First stop on our tour is a lunar marshland known as **Palus Somnii**, the Marsh of Sleep. Lunar marshes are lava-covered areas like the maria, but are much smaller in size. Palus Somnii, covering an area some 110 miles by 145 miles (177 x 233 km), borders the eastern shore of Mare Tranquillitatis, the Sea of Tranquility. Look for a small, grayish area shaped a little like a diamond with rounded points. Unlike the mare, which looks quite smooth through binoculars, Palus Somnii has a roughly textured surface.

From the Marsh of Sleep, it's only natural to continue on to the Lake of Dreams. Set sail northward, crossing from Mare Tranquillitatis into Mare Serenitatis, the Sea of Serenity. Notice how there is a tributary of sorts extending to the northeast (remember, that's "lunar northeast") that seems to flow into the mare. That's **Lacus Somniorum**, an irregular plain with indistinct borders. You'll know you're in the right place if you see the crater Posidonius, which spans some 59 miles (95 km).

Lacus Somniorum blends into **Lacus Mortis**, the Lake of Death, to the north. Sounds spooky! It's tough to tell where the Dreams end and Death looms, since the two are only separated by a vague line of ripples. As a visual clue, Lacus Mortis is due west of the prominent craters Atlas and Hercules.

The best time to look for all three of these features is after the Sun has gotten fairly high in their sky, between 5 and 10 days after New Moon.

Our next stop, bridging the gap between the Sea of Tranquility and the Sea of Nectar, is **Sinus Asperitatis**, the Bay of Roughness. Look for a prominent pair of craters along its south shore. The closer of the two is Theophilus, while the second is named Cyrillus. Measuring about 125 miles (200 km) in diameter, Sinus Asperitatis likely gets its name from the parallel ridges that cross the region as well as the rugged terrain bordering it to the east and west. You'll certainly need giant giant binoculars to see any hint of them.

Sinus Medii, the Central Bay, is appropriately named since it is almost exactly centered on the lunar disk. This small mare, which spans a little more than 200 miles (350 km), is located north of a line of prominent craters -- Ptolemaeus, Alphonsus, and Arzachel -- that are visible through 10x binoculars. Look for Sinus Medii and these craters between 7 and 9 days after New Moon.

One of the most striking features on the Moon has to be **Sinus Iridum**, the Bay of Rainbows. Ten days after New, the terminator has moved across the lunar disk and is now casting sunlight onto Oceanus Procellarum, the Ocean of Storms. As sunrise creeps across this largest of the lunar maria, it lights this unusual claw-shaped appendage on the ocean's northeast coast. Originally, Sinus Iridum must have been a complete crater, but lava from the subsequent impact that created Mare Imbrium overflowed its southern wall to create the bay that we enjoy today. Two promontories, Heraclides and Laplace, mark the opening of the bay's mouth, while the Juras Mountains outline its northern perimeter.

Finally, before the Moon gets too close to Full phase, let's look for **Sinus Roris**, the Bay of Dew. Rather than a stand-alone feature, Sinus Roris is an extension of the Ocean of Storms as it "flows" into Mare Frigoris (the Sea of Cold). The area carries a separate designation because its higher albedo (reflectivity) is higher than the two maria. Dimensions vary depending on the source quoted, but most state its size as about 125 miles (200 km).

I hope you enjoy these underappreciated lunar features during June as well as throughout the year. Use the calendar below to plan your lunar adventures, to see when each feature will be optimally placed for viewing. And for more binocular-friendly lunar targets, be sure to revisit my e-column from [June 2011](#).

2012 June 2012						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 	5	6	7	8	9
10	11 	12	13	14	15	16
17	18	19 	20	21	22	23
24	25	26 	27	28	29	30

Until next month, when we again venture into the deep sky, remember that, near or far, two eyes are better than one.



About the Author:

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