

# astronomical calendar

BUHL PLANETARIUM & OBSERVATORY

summer  
2018



## JUNE

1	Fr	Saturn 3 degrees lower right of Moon (Look south in the am)
3	Su	Mars 2 degrees below Moon (Look south in the am)
6	We	☾ Last Quarter Moon – 2:31 pm
13	We	☀ New Moon – 3:43 pm
16	Sa	Venus 6 degrees right of crescent Moon (Look west after sunset)
20	We	☾ First Quarter Moon – 6:50 am
21	Th	Summer Solstice – 6:07 am
23	Sa	Jupiter 3 degrees lower right of the Moon (Look south in the pm)
27	We	Saturn at opposition (Look east in the pm) Saturn 1 degree below Moon (Look southeast in the pm)
28	Th	☾ Full Moon (Strawberry Moon) – 12:53 am Mars starts retrograde (backward) motion westward in Capricorn



## JULY

6	Fr	Earth at aphelion (farthest from the Sun at 94,507,803 miles away) ☾ Last Quarter Moon – 3:50 am
7	Sa	Venus 2 degrees right of Regulus (Look west after sunset)
12	Th	Mercury at greatest elongation (Look west after sunset) ☀ New Moon – 10:47 pm
15	Su	Venus 2 degrees left of crescent Moon (Look west after sunset)
19	Th	☾ First Quarter Moon – 3:52 pm
20	Fr	Jupiter 2 degrees below Moon (Look southwest in the pm)
27	Fr	☾ Full Moon (Buck Moon) – 4:20 pm Mars at opposition (Look southeast in the pm)
31	Tu	Mars at closest point to the Earth – 35.7 million miles



## AUGUST

4	Sa	☾ Last Quarter Moon – 2:17 pm
11	Sa	☀ New Moon – 5:57 am
12	Su	Perseid meteor shower (Overnight until dawn on Aug. 13)
16	Th	Jupiter 7 degrees left of the Moon (Look southwest in the pm)
18	Sa	☾ First Quarter Moon – 3:48 am
20	Mo	Saturn 4 degrees left of the Moon (Look south in the pm)
23	Th	Mars 8 degrees below the Moon (Look south-southeast in pm)
26	Su	☀ Full Moon (Sturgeon Moon) – 7:56 am Mercury at greatest elongation (Look east at dawn)
28	Tu	Mars resumes normal forward (eastward) motion

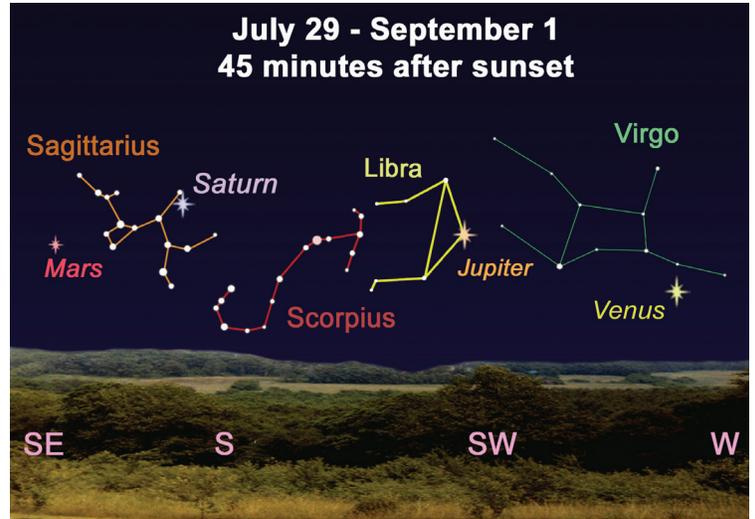
**Summer Planet Visibilities**

<b>June</b>	<b>Morning:</b>	Mars (S), Saturn (SW), and Mercury late June (WNW)
	<b>Evening:</b>	Venus (W), Saturn (SE), and Jupiter (S)
<b>July</b>	<b>Morning:</b>	Mars (SW)
	<b>Evening:</b>	Mercury early July (W), Venus (W), Jupiter (S), Saturn (SE), and Mars (SE)
<b>August</b>	<b>Morning:</b>	No Planets Visible
	<b>Evening:</b>	Venus (W), Jupiter (SW), Saturn (S), and Mars (SE)

**Close Encounter with Mars**

On July 27, Mars will be at its biggest and brightest since 2003 when it arrives at opposition to the Sun. The Red Planet will be only about 35.7 million miles from the Earth during opposition and will shine at a dazzling -2.7 magnitude from July 21 to Aug. 6. That's about two times brighter than its previous opposition in 2016. Due to its location in Capricorn, the Red Planet should still be a good target through medium and large telescopes around opposition. Mars' apparent disk diameter will be about one-third larger than its last opposition. That's the largest apparent disk size that Mars will show to the Earth until 2035. Instead of seeing a blurry, small blob in their telescopes, stargazers with a little patience should be able to resolve some of the Red Planet's dark surface markings and white polar cap.

During the time around opposition, Mars, located in Capricorn, will be visible throughout the night and set around sunrise. Because Capricorn is located just above the turbulent atmosphere near the horizon, the best time for viewing Mars with a telescope will be when the planet is at its highest point in the southern sky, about 25 degrees, around midnight. Due to limited viewing conditions, you might need to look often at Mars to catch a steady night.



**Four Planets Brighten the Evening Sky**

Stargazers are in for a treat this summer, as four of the five bright naked-eye planets will be visible after sunset from the end of July until September. These planets have been known since ancient times. They were named by our ancestors and seen in the morning and evening sky long before the invention of the telescope. It's been three years since four bright planets illuminated the evening sky simultaneously.

From the southeastern to the western horizon, the lineup of "evening stars" are Mars, Saturn, Jupiter, and Venus. Mars, the second brightest planet in the evening sky this summer, will shine at its brightest since 2003. Look above the southeastern horizon near Capricorn in late July to locate the red planet. Saturn, sparkling in the southern sky in Sagittarius, will be the dimmest. However, the wide-open rings will make a great target for telescopes. Jupiter will be a beacon in the southwestern sky in Libra, shining just a shade dimmer than Mars. Our brightest "evening star" is Venus. Our sister planet will be blazing above the western horizon in Virgo until she sinks below the horizon in October.

**The Perseid Meteor Shower**

The Perseid meteor shower comes every year, beginning in late July and stretching into August. Stargazers outdoors at the right time can see colorful fireballs, occasional outbursts, and almost always long hours of gracefully streaking meteors.

If you look at the sky long enough on any clear night, you can see a meteor. However, at certain times of the year we are treated to a shower of shooting stars. The showers result from a cloud of particles in orbit around the Sun left over from a passing comet. The Perseid meteor shower comes from Comet Swift-Tuttle. When the Earth passes through this cloud of particles in its yearly trip around the sun, tiny bits of comet dust hit Earth's atmosphere traveling up to 132,000 mph. At that speed, even a tiny dust particle will make a vivid streak of light—a meteor—when it disintegrates.

Among the many nights of the shower, one night always is the best for viewing. This year, peak activity will occur from about 11 pm on Aug. 12 through dawn on Aug. 13. Maximum activity with exceptional skies during the Perseids normally is about 50 or 60 shooting stars per hour. With a one-day-old Moon, observing conditions should be nearly perfect.



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**astronomical fact:**

In 2003, Mars came within 34.6 million miles to the Earth. That was the Red Planet's closest approach to the Earth in 60,000 years. Mars will only be 1.2 million miles farther away from the Earth this summer.