

Get ready - it's the month of the Harvest Moon



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SKY WATCH
The remainder of September is when skywatchers will find the major activity of the month. There will be a nice triangular formation in the morning sky as autumn officially begins for the northern hemisphere, but the Harvest Moon will be the highlight in the sky.

Use binoculars and locate bright Jupiter in the west. The planet will be only four degrees above the horizon. Mars will be four degrees to the left of Jupiter, and Spica will be four degrees to the left of Mars.

The distance from Venus to Regulus will have decreased to six degrees on the morning of the 16th. Regulus will be rising higher in the sky from morning to morning, as if rushing up to meet Venus. Venus will be directly above Regulus on the morning of the 19th.

Notice the waxing crescent moon on the evening of the 20th. The bright red star to the left of the moon will be Antares, the "heart" of Scorpius the scorpion. On the following evening the moon will have passed Antares.

Venus and Regulus have their close conjunction (grouping) on the morning of the 21st. Venus will be located one-half of a degree to the left of the star. It makes for an interesting sight. Consider: Venus is closer to the sun than the earth; Regulus is light-years away, yet the two appear to be side by side. This is

obviously an optical illusion; don't fret about a "near miss" between the two objects. The moon will be at first quarter phase at 3:22 p.m. on the 22nd. It will be found in the south after sunset above the "spout" of the "teapot" that marks the constellation of Sagittarius the archer. On the following evening the moon will be above the "handle" of the "teapot."

Depending on your personal preference, you will either be delighted or dismayed at 8:22 p.m. on Sept. 22, for that is when autumn officially begins for the northern hemisphere. What is it that determines the exact moment? It's a combination of the earth's orbit and the tilt of its axis.

Earth is divided into northern and southern hemispheres by the equator. If this equator is extended out into space it cuts the sky into northern and southern hemispheres, but now it's called the celestial equator.

Because the axis of the earth is tilted 23.5 degrees, the sun can appear to be 23.5 degrees above the celestial equator or 23.5 degrees below it. When the sun is at its highest point north of the celestial equator, we have summer. When the sun is at its lowest point, we have winter.

Obviously there are two spots where the sun must cross the celestial equator, once when going from above the equator to below, and another going from below to above.

The precise moment of the crossover, going from north to south, is when autumn officially begins for the northern hemisphere. The sun will rise due east and set due west. The length of the day and length of night are about the same, so this is called the equinox, from the Latin term for "equal night."

Although we will be confronting the start of autumn, people in the southern hemisphere will be facing the first day of spring.

The distance from Venus to Regulus will have increased considerably by the 25th; the two objects will be five degrees apart. As Regulus has been climbing higher each morning, Venus has been dropping lower as it heads around the sun.

Look for the moon in the southeast on the evening of the 26th. The object five degrees directly below it is Saturn. The moon will appear to be full tonight, as well as for the next several evenings, but full moon doesn't officially occur for four more days. On the evening of the 29th the moon will be 87 percent illuminated; on the following evening it will be 92 percent, and on the 28th it will be 97 percent. Close, but no chewing gum. (People are giving up cigars.) Even on the 29th, the moon, 89 percent illuminated, will not officially be full.

The full moon officially occurs at 2:54 p.m. on Sept. 30. This is a very special full moon; the Harvest Moon. We have full moons

every month throughout the year, but this is the one with all the folklore and romance.

What makes this moon special? Because the moon is in orbit around the earth, it appears in different parts of the sky from night to night. Generally the moon will rise about one hour later each night. But in autumn the full moon is located at the part of its orbit that has the least tilt with respect to Earth's horizon line. The moon seems to skim along the horizon, rising at about the same time each evening, in about the same part of the sky, looking "full" for several consecutive nights. The full moon that occurs closest to the autumn equinox is the Harvest Moon.

The light scattered by the full moon was a help to farmers, allowing them to continue their harvesting after sunset, hence it was called the Harvest Moon. The full moon that follows the Harvest Moon was said to be a help to hunters. (Hopefully you can fig-

ure out what THAT full moon is called.)

Coincidentally, this full moon will be the most distant in 1993. The moon will be 406,425 kilometers (which is 252,540,786 miles, give or take a millionth of a mile) away from the earth. The moon's orbit around the earth is not perfectly circular, it is eccentric (oval). There is a point each month where the moon is at its closest to the earth, and a point where it is at its farthest. This month's closest point happens to coincide with the full phase.

People invariably argue whether the full moon has any unusual effect on humans. Well, it really shouldn't be expected to have any special effect at all. We see different phases of the moon depending on what part is being illuminated by the sun. The moon is ALWAYS somewhere near the earth, so any effect it would have ought to be a constant one, not dependent on how much of the moon is being illuminated.

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51-55	51-55
56-60	56-60
61-65	61-65
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