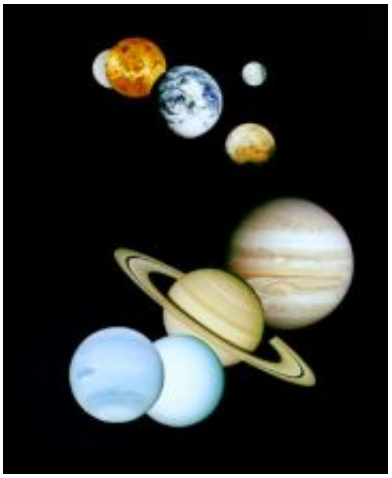
December: Ursid meteor shower out-performs the Geminids

December 1 2008



The annual Geminid meteor shower, which will reach its maximum on the night of Dec. 13-14, usually offers the best show of the year, outperforming even the Perseid shower of August.

But this year the Geminid meteors will peak just a day after full moon, so only the brightest streaks will be visible. Some meteors will appear as soon as the sky is completely dark, and the numbers will increase as the evening advances. The nights before and after the peak should also provide good opportunities for seeing the meteors that are not washed out by bright moonlight.

These "shooting stars" will seem to be coming from a point called the radiant near the bright stars Castor and Pollux in the constellation Gemini the Twins, which gives the shower its name. The radiant will be well above the eastern horizon a few hours after sundown and will remain high in the sky for the rest of the night. The higher the radiant is above the horizon, the more meteors there will be. Try facing southeast if you have a clear view in that direction, though meteors will be visible in all parts of the sky. For details about the Geminid shower, see www.amsmeteors.org/showers.html#geminids .

To stay comfortable in the frigid night, wear several layers of your warmest clothing and keep a thermos of hot coffee, tea or chocolate handy. A sleeping bag or blankets also will help. No special equipment is needed to watch a meteor shower -- a reclining lawn chair will work fine. Try facing in different directions and see how the meteors vary in appearance. The ones closer to the radiant will be short, because they will appear to be coming toward you. Those farther from the radiant will be longer.

If the Geminid meteors are overwhelmed by moonlight, you'll have another opportunity when the Ursid shower peaks before dawn on Dec. 22. The Ursid radiant is near the bright star Polaris, the north star, which is above the horizon all night. The usual rate is about five meteors per hour, but sometimes there are bursts of 30 or more per hour. The Ursid shower will be active from Dec. 17 to Dec. 26, and moonlight won't be much of a problem after midnight.

Planets

Venus and Jupiter, the brightest planets, will complete their spectacular conjunction low in the southwestern sky after sunset on Dec. 1. The two were closest on Nov. 29, and they will be joined by the crescent moon on Dec. 1. Brilliant white Venus will dominate the trio, while Jupiter will be

noticeably fainter nearby to the upper right (west). The Milky Way will add even more to the lovely scene, for those lucky enough to have clear, dry air and a dark sky. After the conjunction ends, Venus will climb higher for the rest of the month while Jupiter descends toward the sun's afterglow.

Saturn will trail the bright star Regulus up into the eastern sky around 1 a.m. local time at the beginning of December, and two hours earlier by month's end. During the predawn hours the planet will be high in the south, the best position for viewing with a telescope. Saturn's famous rings are now tilted close to edgewise, showing only a thin line of light. Viewers in North America will see Titan, Saturn's largest moon, closest to the planet on Dec. 6, 7, 14, 15, 22, 23, 30 and 31.

Mercury will come shooting out of the afterglow of sunset in the last week of December to meet Jupiter as it sinks toward the southwestern horizon. You may need binoculars at first to see Mercury, when it will be deep in the twilight glow to Jupiter's lower right (west). By Dec. 28, Mercury will be easy to spot below Jupiter, with a thin crescent moon about the same distance below Mercury. The biggest and smallest planets will be closest on Dec. 31, when Mercury will be barely to the left (south) of much brighter Jupiter.

Mars will be out of sight behind the sun all month.

Occultation

The nearly full moon will cross part of the Pleiades star cluster on the night of Dec. 10-11. Details can be found at www.lunar-occultations.com .

Solstice

The sun will be farthest south in Earth's sky on Dec. 21 at 7:04 a.m. Eastern Standard Time (12:04 Universal Time), marking the beginning of winter in the Northern Hemisphere and summer in the Southern Hemisphere. For the next six months in the Northern Hemisphere the days will be getting longer.

Moon phases

The moon will be at first quarter on Dec. 5, full on Dec. 12, at third quarter on Dec. 19 and new on Dec. 27.

Provided by Indiana University