

Planet at dusk: Jupiter, near mag. -2.6, ascends slowly from SE to SSE in October. On the 12th, Jupiter ends retrograde 0.7° W of 4.3-mag. Iota Capricorni and nearly 7° W of 2.8-mag. Delta, tail of Sea-goat, and so moves little this month against the stars. Faint **Neptune** (mag. 8) reaches max. dist. of 6.7° from Jupiter in first half of Oct., and is still 6.0° from Jupiter at month's end. (Jupiter will pass just 0.5° S of Neptune in finale of their triple conjunction in December.) To find Neptune in October, note the nearly straight line of three 5th to 6th mag. stars 0.9° long, visible in binoculars 1.6° to 2.5° NW of Delta Cap and nearly aligning with it. The 5.2-mag. star 42 Cap is the N' most and brightest of the three stars. During October, faint Neptune is 2.2° NNW of Delta Cap and nearly due E of 42 Cap, within 1.0° on the 1st to within 0.7° on the 31st. **Mutual occultations of Jupiter's moons** (Using telescope, watch for several minutes before and after times given here): **Sat. Oct. 24** at 9:22 p.m. EDT, Io occults Europa, best in E and central U.S. to Rockies; **Thurs. Oct. 29** at 10:07 p.m. EDT, Ganymede occults Io, good for most of contiguous 48 U.S.; and **Fri Oct. 30** at 8:59 p.m. PDT, Ganymede occults Europa, best in W & south central U.S.

Planets at dawn: Mars rises in ENE ~ 6 hrs. after sunset and by dawn climbs very high in SE to S. Mars at mag. +0.7 outshines Pollux by half a magnitude as it passes 6° S of the star on Oct. 4. Crossing from Gemini into Cancer, Mars brightens to +0.4 and approaches the Beehive. See diagrams Oct. 4, 11-12, and text for Oct. 31. Venus rises 2.1 to 1.5 hrs. before sunup in Oct. At dawn the planet of mag. -3.9 is easy to see, low in E to ESE. **Mercury** on Oct. 1 is 9° LL of Venus, closes the gap to stay 6° LL during Oct. 5-12, then pulls away to 11° LL by Oct. 23. Mercury brightens a full magnitude from +0.3 to -0.7 during first week, then brightens slowly to -1.1 by Oct. 23, but then rises in midtwilight. **Saturn** of mag. +1.1 is the faintest and, for the first week, the lowest of the four morning planets. On Oct. 1 it rises an hour before sunup, 5° LL of Mercury and 13° LL of Venus. **Striking planet gathering:** Higher daily, Saturn appears 0.4° N of Mercury on Oct. 8 and 0.5° N of Venus on Oct. 13. The threesome, plotted on this calendar for Oct. 1-20 and 22, spans 5.8° (its minimum size) on Oct. 8, and no more than 7° during Oct. 7-13. Thereafter Saturn is highest of the three, rising 3.2 hrs. before sunup on Oct. 31. Now until 2025, we'll see the N face of the rings, which are tipped 1.5° to 3.1° from edge-on during October.

Have you spotted Mira (Omicron Ceti) yet? It's plotted on our December sky map and is expected to reach peak brilliance in November. Compare Omi Ceti to Alpha (mag. 2.5), Gamma (3.6), and Delta Ceti (4.1), and check your results against those posted on <http://aavso.org>.

Planetarium business office:
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Night Sky Notes on World Wide Web:
<http://www.pa.msu.edu/abrams/nightskynotes/>

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SKY CALENDAR OCTOBER 2009

An aid to enjoying the changing sky

Use this scale to measure angular distances between objects on diagrams below.



SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	
<p>Thurs Oct 1 (see next box right): Saturn 5.0° LL of Mercury. Venus midway between Regulus & Saturn, ~ 13° from each.</p> <p>Sunday Oct 4 (below): Sa-Me-Ve span 10°. All three fit within 10° through Oct 15 with changes in their order as Saturn climbs past Mercury & Venus.</p>	<p>Thurs Oct 1, 45 min before sunrise</p> <p>Regulus</p> <p>Venus</p> <p>Denebola</p> <p>Lion's tail</p> <p>Saturn</p> <p>Mercury</p>	<p>Fri Oct 2, 45 min before sunrise</p> <p>Venus</p> <p>Denebola</p> <p>Saturn</p> <p>Mercury</p>	<p>Sat Oct 3, 45 min before sunrise</p> <p>Venus</p> <p>Denebola</p> <p>Saturn in E</p> <p>Mercury</p>	<p>Saturday, October 3 Harvest Moon rises before sunset on Sat Oct 3, near time of sunset on Sunday Oct 4, and in twilight on Mon Oct 5 & Tues Oct 6.</p> <p>Full Moon Sat Oct 3, 11:10 p.m. PDT (Sun Oct 4, 2:10 a.m. EDT).</p> <p>Beta Tauri, Bull's N horn</p> <p>One hour before sunrise</p> <p>Moon Thurs 8 in WSW</p> <p>Pleiades</p>	<p>Sunday October 4, one hour before sunrise</p> <p>Castor</p> <p>Pollux</p> <p>Mars high in ESE</p> <p>5.8° S of Pollux</p>	<p>Two hours after sunset</p> <p>TRIANGULUM</p> <p>ARIES</p> <p>Tues Oct 6</p> <p>ENE</p> <p>Wed 7</p>	
<p>Sunday Oct 4, one hour before sunrise See text in box above.</p> <p>Denebola</p> <p>Venus</p> <p>Saturn</p> <p>Mercury in E</p>	<p>Mon Oct 5, one hour before sunrise: Me-Ve stay ~ 6° apart Oct 5-12. Sa 3° from Me Oct 5.</p> <p>Venus</p> <p>Mercury in E, 18° from Sun</p> <p>Saturn</p>	<p>Tues Oct 6, one hour before sunrise: Saturn within 8° of Venus and 2° of Mercury.</p> <p>Venus</p> <p>Mercury</p> <p>Saturn</p>	<p>Wed Oct 7, one hour before sunrise: Saturn within 7° of Venus and 1° of Mercury.</p> <p>Venus</p> <p>Mercury</p> <p>Saturn in E</p>	<p>Fri 9 N' most Moon</p> <p>Aldebaran</p> <p>Hyades</p> <p>Moon Thurs 8 in WSW</p> <p>Pleiades</p>	<p>Thurs Oct 8, one hour before sunrise: Me passes 0.4° S of Sa; most compact gathering of Me-Sa-Ve, 5.8°.</p> <p>See margin!</p> <p>Venus</p> <p>Saturn</p> <p>Mercury</p>	<p>Fri Oct 9, one hour before sunrise: Sa 4.5° from Ve and 1.5° above Me. Saturn's rings 2.0° from edge-on.</p> <p>Ve</p> <p>Sa</p> <p>Me</p>	<p>Sat Oct 10, one hour before sunrise: Sa 3.4°, Me 6.0° from Ve.</p> <p>Ve</p> <p>Sa</p> <p>Me</p>
<p>Sunday Oct 11, one hour before sunrise: Sa 2.3° from Ve and 4.0° from Me.</p> <p>Venus</p> <p>Saturn</p> <p>Mercury</p>	<p>Castor</p> <p>POLLUX</p> <p>Moon at Last Qtr Sunday 11</p> <p>One hour before sunrise</p> <p>Mars closely aligns w/Twins Oct 12 & 13. Look high SE.</p> <p>Moon Mon 12</p>	<p>Mon Oct 12, one hour before sunrise: Saturn 1.2° from Venus and within 5.4° from Mercury.</p> <p>Sa</p> <p>Ve</p> <p>Me</p>	<p>Tues Oct 13, one hour before sunrise: Venus passes 0.5° S of Saturn. Mercury 6.8° to their E (LL), Mars 60° to their W.</p> <p>Sa</p> <p>Ve</p> <p>Me</p>	<p>Wed Oct 14, one hour before sunrise: Saturn 1.3° above Ve. Mercury 7° from Ve. Regulus 5° UL of Moon.</p> <p>Saturn</p> <p>Venus</p> <p>Mercury</p>	<p>Thurs Oct 15, one hour before sunrise:</p> <p>Me-Ve-Sa span 10°.</p> <p>Moon</p> <p>Saturn</p> <p>Venus</p> <p>Mercury</p>	<p>Fri Oct 16, 45 min before sunrise: Ve-Sa = 3.4°, Ve-Me = 8°.</p> <p>Saturn</p> <p>Venus</p> <p>Mercury</p> <p>Last easy old Moon</p>	<p>Sat Oct 17, 25 min before sunrise, southeast U.S.: Use binocs for very old Moon.</p> <p>Saturn</p> <p>Venus</p> <p>Mercury</p> <p>Moon</p>
<p>Sunday Oct 18, 45 min before sunrise: Ve-Sa within 6°, Me-Ve within 9°.</p> <p>New occurred 1:33 a.m. EDT.</p> <p>Saturn</p> <p>Venus</p> <p>Mercury</p>	<p>Mon Oct 19, 45 min before sunrise: Me-Ve-Sa span 16°.</p> <p>Saturn</p> <p>Venus</p> <p>Mercury</p>	<p>Mon Oct 19: Thin crescent young Moon is 22° E (UL) of setting Sun, but from lat 40° N is only 4° above horizon at sunset and sets only ~ 30 min later. Easier from locations farther south, where Moon is higher and sets later.</p> <p>Saturn</p> <p>VIRGO</p> <p>Gamma</p> <p>Venus</p>	<p>Tues Oct 20, 45 min before sunrise: Ve-Sa = 8°. Ve-Me nearly 10°.</p> <p>Saturn</p> <p>Venus</p> <p>Mercury</p>	<p>Fri 23</p> <p>TEAPOT in SAGITTARIUS</p> <p>Thurs 22</p> <p>45 min after sunset Stars become visible as sky darkens</p> <p>tail of SCORPIUS</p> <p>Antares</p> <p>Tuesday 20</p>	<p>Thurs Oct 22, 40 minutes before sunrise Ve-Sa 10° apart. On Fri, Sa-Ve-Me spaced at 11°, but Me will rise in midtwi.</p> <p>Saturn</p> <p>Venus</p> <p>Mercury</p>	<p>Sat Oct 31, one hour before sunrise Ve-Sa 20° apart. Look for Spica rising 5° LR of Venus.</p> <p>Saturn</p> <p>Venus</p> <p>Spica</p>	
<p>1½ hours after sunset Detailed finder chart needed for faint Neptune, now 6.3° from Jup.</p> <p>Alpha Cap</p> <p>Beta</p> <p>Mon 26</p> <p>Jupiter</p> <p>Delta Cap, tail of Sea-goat</p> <p>Sunday 25 First Qtr</p>	<p>Venus-Saturn 15° apart. Mars 55° W (UR) of Saturn. Spring equinox for N hemisphere of Mars.</p> <p>Arcturus</p> <p>ENE</p>	<p>Mon Oct 26, one hour before sunrise</p> <p>Saturn</p> <p>VIRGO</p> <p>Gamma</p> <p>Venus</p>	<p>Wed & Thurs, Oct 28 & 29 Saturn 30° E of Regulus in morning sky on Oct 28 & 29. Saturn's rings 3.0° from edge-wise on Thurs Oct 29, with illuminated N face in view.</p>	<p>Friday October 30 Watch for Spica emerging within 6° LR of Venus in morning twilight. Venus-Spica within 5° apart Oct 31-Nov 5.</p>	<p>Sat Oct 31, predawn Mars closely W of Beehive cluster in dark moonless sky before twilight begins. (Use binoculars to see cluster.) On Nov 1, when Mars passes through cluster, bright moonlight spoils view.</p>	<p>Sat Oct 31, one hour before sunrise Ve-Sa 20° apart. Look for Spica rising 5° LR of Venus.</p> <p>Venus</p> <p>Spica</p>	

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ISSN 0733-6314

Subscription: \$11.00 per year, starting anytime, from *Sky Calendar*, Abrams Planetarium, Michigan State University, East Lansing, MI 48824