

**Planets at dusk: Saturn** (mag. +0.9) with +1.0-mag. Spica ~ 10° to left are already very low in WSW at dusk on September 1 and set near end of twilight, about 1.6 hours after sunset (lat. 40° N). Saturn departs after midmonth, but observers at low latitudes can try to keep it in view until its pairing 1.3° N (UR) of Venus on September 29. **Venus** at mag. -4 in bright twilight can be spotted through binoculars just after sunset. During September 1-30 it is 4.8° to 12° to UL of setting Sun, and follows Sun over the horizon by 16-32 min., from lat. 40° N.

**Rising in early evening:** **Jupiter** rises some 18° N of E about 2.5 hours after sunset on September 1, to 1.3 hours after (during twilight) on the 30th. Watch for Jupiter's impressive rising below Alpha & Beta in Aries, 4° apart. On night of September 6-7, Jupiter forms an isosceles triangle with them, 11.6° from each, but the configuration barely changes for several nights as Jupiter retrogrades slowly. **Asteroids for binoculars:** On September 16, #1 **Ceres** (mag. 7.6) is at opposition, 0.7° W of 4.5-mag. 2 Ceti. It is best seen in middle hours of night, when highest. But wait a few days, until Moon rises late. On September 17, #4 **Vesta** (mag. 6.6) ends retrograde 1.2° WSW of 4.1-mag. Psi Capricorni; see finder on August calendar.

**Dawn: Jupiter** is highest when due south, near start of twilight on September 1, shifting earlier to four hours before sunrise by September 30. Some 16°-17° south and a few degrees W of Jupiter is the **long-period variable star Mira**, expected at peak brightness this month; see September 7. As Jupiter approaches its opposition of late next month (the closest until 2022), the giant planet attains mag. -2.8 in September. At dawn, you'll find Jupiter high in SSW to WSW. Using the nearby waning gibbous Moon on September 16, you can spot Jupiter in daytime, just after sunrise. **Mars** is well up in E to ESE at dawn. Crossing from Gemini into Cancer, the red planet passes within 6° S of similarly-colored Pollux September 8 & 9, and is near waning crescent Moon on September 23. Mars enters the "Lozenge" of four stars enclosing the Beehive on September 28. On the 30th, Mars lies just W of the famous cluster (see October 1). Glowing at mag. +1.3, Mars now begins to brighten, slowly at first, until its distant opposition in Leo in early March 2012. **Mercury** has an excellent morning apparition in early September. Look low about 10° N of E in midtwilight for a "star" brightening from mag. 0.0 to -1.3 during September 1-18. See calendar for Mercury's pairing with +1.4-mag. Regulus, closest on September 9.

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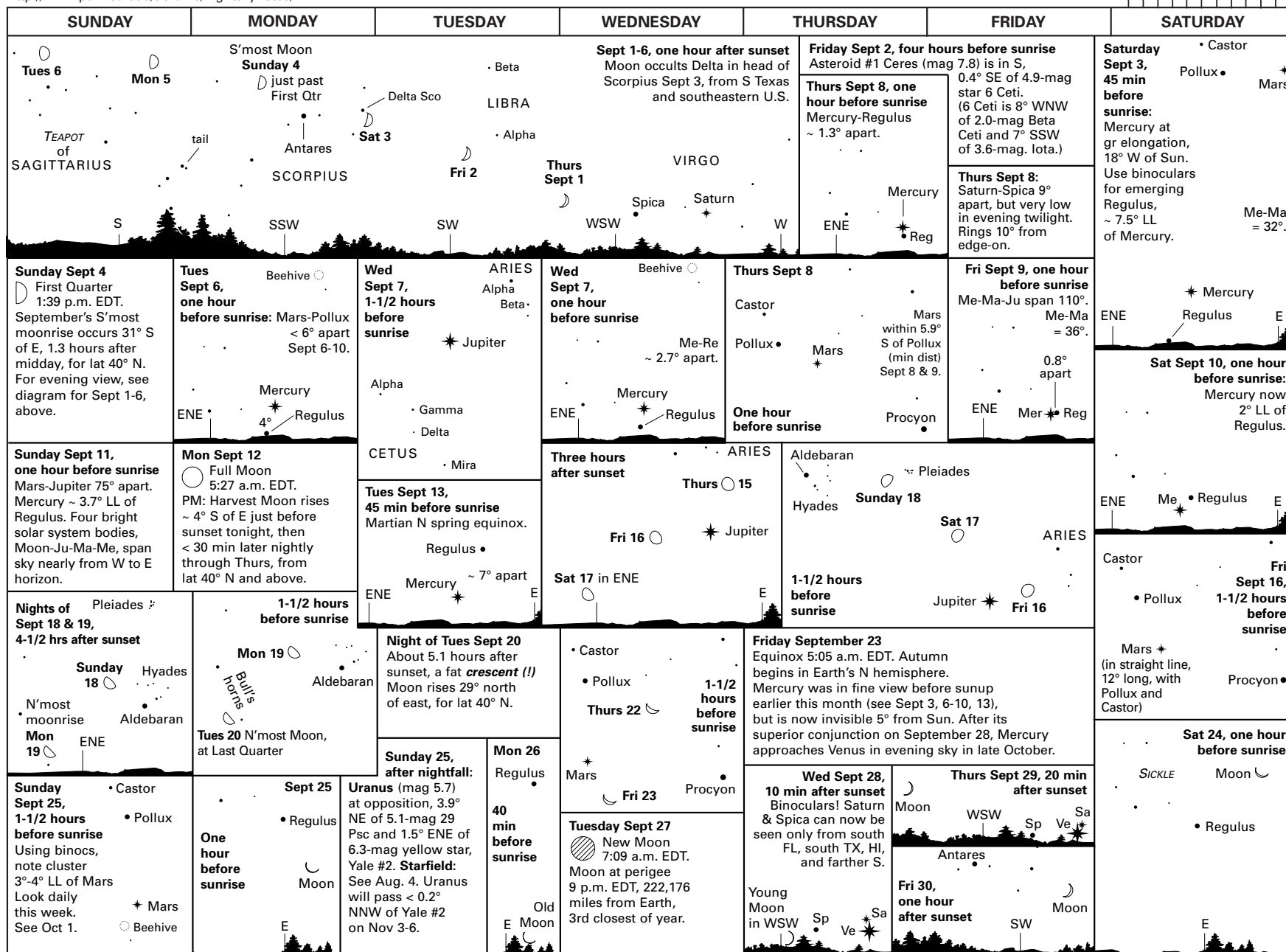
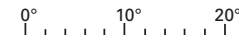
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# SKY CALENDAR SEPTEMBER 2011

An aid to enjoying the changing sky

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



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**Subscription:** \$11.00 per year, starting anytime, from *Sky Calendar*, Abrams Planetarium, Michigan State University, East Lansing, MI 48824 or online at [www.pa.msu.edu/abrams/SkyCalendar/](http://www.pa.msu.edu/abrams/SkyCalendar/)

# September Evening Skies

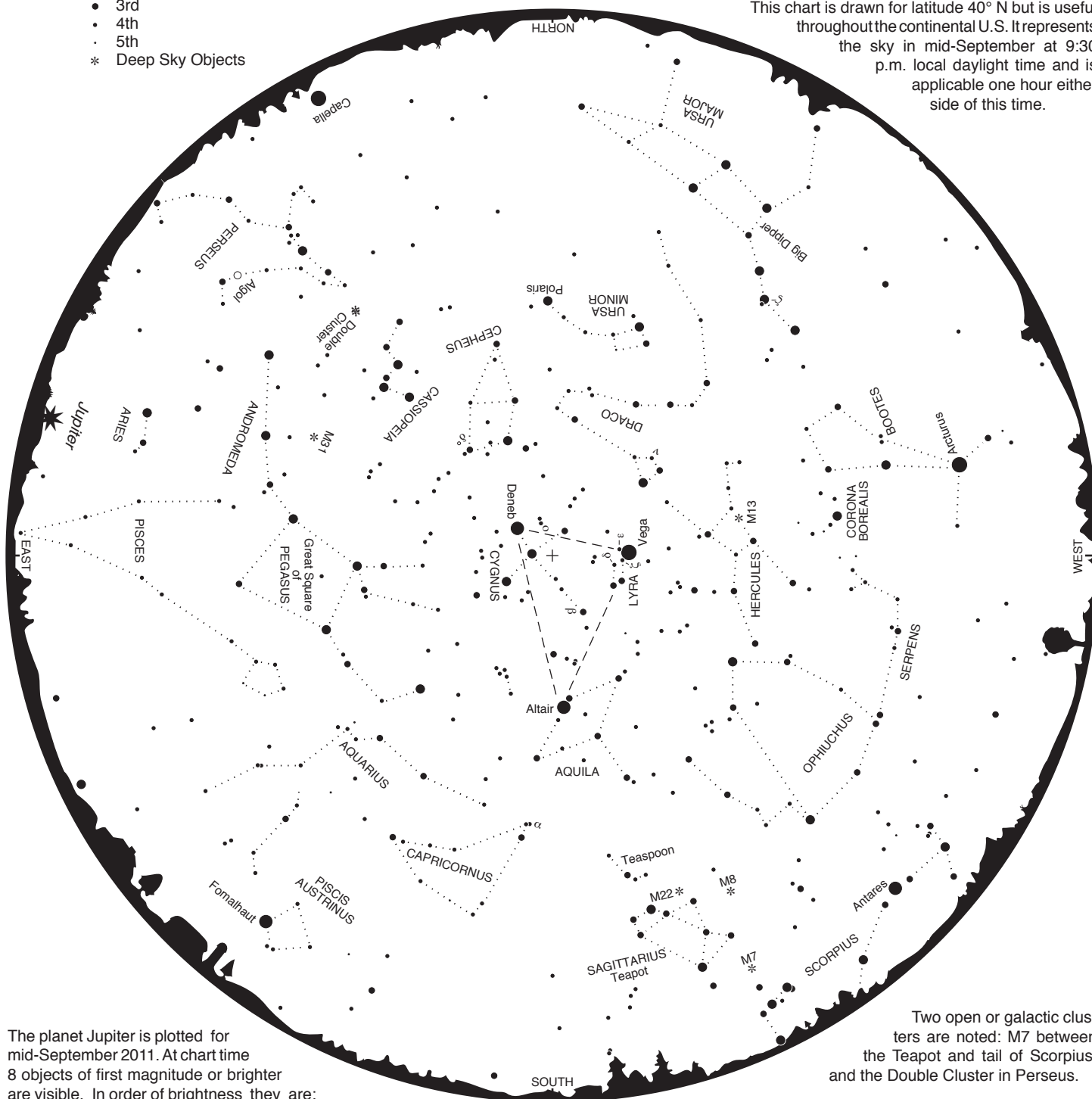
## LEGEND Star Magnitudes

- Zero or brighter
- 1st
- 2nd
- 3rd
- 4th
- 5th
- \* Deep Sky Objects

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This chart is drawn for latitude 40° N but is useful throughout the continental U.S. It represents the sky in mid-September at 9:30 p.m. local daylight time and is applicable one hour either side of this time.



The planet Jupiter is plotted for mid-September 2011. At chart time 8 objects of first magnitude or brighter are visible. In order of brightness they are: Jupiter, Arcturus, Vega, Capella, Altair, Antares, Fomalhaut, and Deneb.

Our usual monthly maps are designed for stargazers just beginning to find their way around the sky. This month's map is useful for serious stargazing from dark locations. It contains many more stars, inclusive to magnitude 4.5, and some fainter stars as needed to complete patterns or assist in locating special objects.

A selection of double stars (labeled with Greek letters) and "deep sky objects" is also plotted. All are visible with modest equipment; most are within the range of the unaided eye or binoculars.

The double stars, in order of decreasing angular separation, are  $\zeta$  UMa,  $\delta$  Lyr,  $\alpha$  Cap,  $\sigma$  Cyg,  $\epsilon$  Lyr,  $\nu$  Dra,  $\zeta$  Lyr,  $\beta$  Cyg.

Two open or galactic clusters are noted: M7 between the Teapot and tail of Scorpius, and the Double Cluster in Perseus.

Two globular clusters, more compact concentrations of hundreds of thousands of stars, can be found: M13 in Hercules and M22 in Sagittarius.

M8 in Sagittarius is the Lagoon Nebula, a gas and dust cloud from which stars are forming.

M31 is the famous Andromeda Galaxy, a collection of 300 billion stars located 2 million light years from Earth. It is barely visible to the unaided eye.