NIGHT SKY HAPPENINGS

The Night Sky for September 2017

By Faylene Roth

Moab UT (at City Hall)
38˚34' N Latitude - 109˚33' W Longitude
4048 ft - 1234 m Elevation

Ursa Major (Big Dipper) continues to scoop low towards the northern horizon, but the arc of the Dipper's handle is high enough to direct your view westward towards Boötes. Cepheus, king to Cassiopeia, the queen, is easy to pick out overhead when facing north. Look for a typically drawn childhood house—box with steeply pitched roof—but inverted with the pointed roof directed northward. The trapezoidal body of Hercules hangs high in the western sky halfway between red-orange Arcturus (Boötes) and bright overhead star Vega. The Summer Triangle frames the overhead sky: Deneb (Cygnus) and Vega (Lyra) forming an east-west line with the apex of the triangle marked by Altair (Aquila) on the celestial equator about 40˚south. The ecliptic (apparent path of the sun across the sky) dips below the celestial equator in the southwestern sky. Follow its line from the head of Scorpius eastward above Sagittarius, onward through Capricornus and the top of Aquarius. The ecliptic then crosses the celestial equator about 7˚east of the head of Pisces which is where the Sun appears at the spring equinox in March. On the September 22 autumnal equinox the Sun appears to cross the celestial equator in Virgo very near the location Jupiter has occupied in our western sky over the last six months. Pegasus (flying horse) dominates the eastern sky. The Great Square which forms its body directs our view perpendicular to the plane of our galaxy into the universe beyond.

VISIBLE PLANETS

Evening (Before Midnight)

Jupiter ♃ –Visible low on the western horizon in Virgo during the first week in September. (Magnitude -1.7)

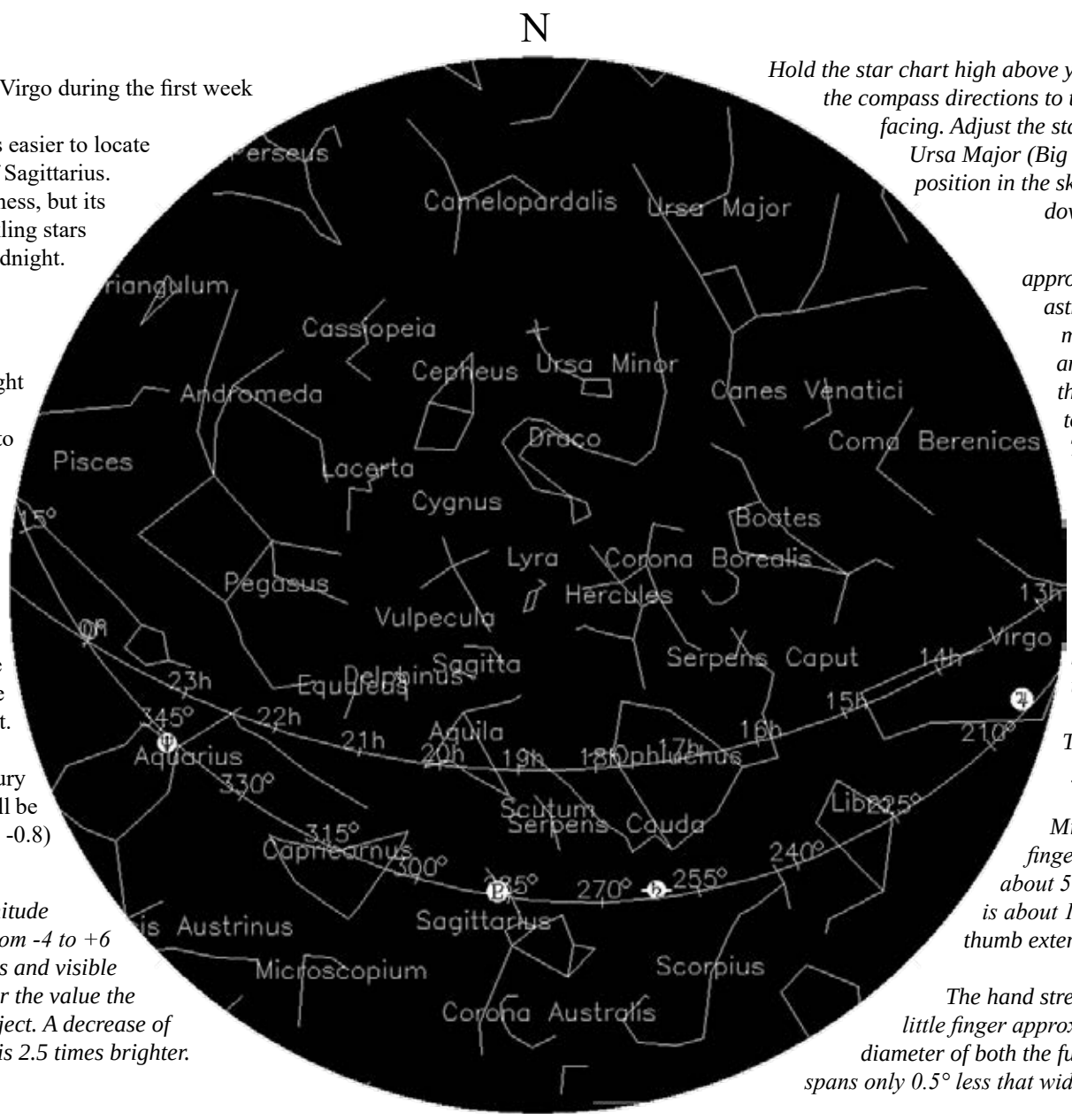
Saturn ♄ – While officially in faint Ophiucus, it is easier to locate Saturn a short distance west of the teapot shape of Sagittarius. Saturn competes with surrounding stars for brightness, but its steady golden glow differentiates it from the sparkling stars surrounding it. It sets below the horizon before midnight. (Magnitude +1.4))

Morning (At Twilight)

Venus ♀ – Our brightest planet pierces the eastern sky about one-half hour before astronomical twilight brightens the horizon. Venus begins the month in Cancer. As it rises later each morning, it moves into Leo's mane at midmonth. By month's end, Venus mingles with the rear legs of Leo, trailed by Mars. (Magnitude -3.9)

Mars ♂ – The small red disk of Mars sticks with Leo throughout the month. It rises earlier each morning, but remains very low on the horizon. By month's end Venus has descended to hover only 3 ˚ above Mars, although both will be less than 10 ˚ above the horizon which will make them difficult to see without a high vantage point. (Magnitude +1.8)

Mercury ☿ – Early risers might locate Mercury midmonth a few degrees west of Mars, but both will be only a few degrees above the horizon. (Magnitude -0.8)



Apparent magnitude values range from -4 to +6 for most planets and visible stars. The lower the value the brighter the object. A decrease of 1.0 magnitude is 2.5 times brighter.

Hold the star chart high above your head and match the compass directions to the direction you are facing. Adjust the star chart by orienting Ursa Major (Big Dipper) to match its position in the sky and pull the edges down to create a dome.

The star chart approximates the sky from astronomical twilight to midnight. As the night and month progresses, the constellations shift toward the northwest. The celestial equator is measured in hours (h). The ecliptic is measured in degrees.

Hold your hand at arm's length to measure apparent distances in the sky. The width of the little finger approximates 1.5 °. Middle, ring, and little finger touching represent about 5 °. The width of a fist is about 10°. The fist with the thumb extended at a right angle equals 15°. The hand stretched from thumb to little finger approximates 20°-25°. The diameter of both the full moon and the Sun spans only 0.5° less that width of the little finger.

SEPTEMBER SUNRISE & SUNSET TIMES

(The time of sunrise and sunset assumes a flat horizon. Actual time may vary depending upon the landscape.)

DATE	SUNRISE	SUNSET
1	6:48am	7:48pm
2	6:49am	7:46pm
3	6:50am	7:45pm
4	6:50am	7:43pm
5	6:51am	7:42pm
6	6:52am	7:40pm
7	6"53am	7:38pm
8	6:54am	7:37pm
9	6:55am	7:35pm
10	6:56am	7:34pm
11	6:57am	7:32pm
12	6:57am	7:31pm
13	6:58am	7:29pm
14	6:59am	7:27pm
15	7:00am	7:26pm
16	7:01am	7:24pm
17	7:02am	7:23pm
18	7:03am	7:21pm
19	7:04am	7:19pm
20	7:04am	7:18pm
21	7:05am	7:16pm
22*	**7:06am**	**7:15pm**
23	7:07am	7:13pm
24	7:08am	7:11pm
25	7:09am	7:10pm
26	7:10am	7:08pm
27	7:11am	7:07pm
28	7:12am	7:05pm
29	7:13am	7:04pm
30	7:13am	7:02pm
***Equinox 2:02pm**		

MOON HAPPENINGS

September 6 – Full moon (1:03pm) rises at 8:12pm.

September 13 – Dark evening skies return with the waning last quarter moon rising after midnight.

September 20 – New moon (11:30am) yields dark skies for several nights.

September 28 – Waxing first quarter moon lights the evening sky then sets soon after midnight.

(The moon rises later each day—as little as 30 minutes to as much as one hour. Time of moonrise and moonset may also be delayed in mountainous terrain.)

Twilight transitions between night and day in three stages at each end of the day. Morning twilight begins with astronomical twilight as the eastern horizon brightens —about 1-1/2 hours (nearly 2 during summer months) before sunrise when the sun is 18° below the horizon. Nautical twilight takes over for another 30-40 minutes—as the sun passes 12° below the horizon and the overhead sky turns blue and color returns to the surrounding landscape. The final stage—civil twilight—begins when the sun ascends to 6° below the horizon and provides adequate light for most outdoor activities for the half hour before the sun crests the horizon. The opposite progression occurs after sunset. Civil twilight covers the period after sunset during which daytime light quality persists for about one-half hour. Color then fades from the landscape during the 30-40 minute period of nautical twilight during which the overhead sky darkens while the western sky retains color. Astronomical twilight then transitions to night skies that are now darkened along the horizon.

MAJOR METEOR EVENTS						
Shower	**Peak** (Sept.)	**Range** (Sept.)	**Constellation Radiant**	**Rate** (/hr)	**Details**	**Conditions**
Sporadic	None	1-30	Random	10-20	Sporadic meteors originate from interplanetary debris	Often produce large fireballs, exploding bolides, and meteorite landings
Best time to view any meteor event is between midnight and morning twilight when the radiant is overhead. Trace the path of any meteor backwards through the sky to reach its radiant--the region of the sky from which meteors appear to originate.						

Primary Sources: USGS; U.S. Naval Observatory; The SkyLive at https://theskylive.com/; Your Sky at http://www.fourmilab.ch/yoursky/

To find out when the International Space Station is visible from your location, go to: https://spotthestation.nasa.gov/