Astrochart Links:
Pennsic 43: coming July 25

Here are the views of the sky each night of Pennsic XLIII, July & August 2014.

Stars begin to come out half an hour after sunset, around 9 o'clock to half past, while optimal viewing starts about 10PM. Check the weather office for cloud cover forecasts up to two days in advance.

Highlights

Of the five planets, only Mars and Saturn are visible in the night sky. Saturn is in the middle of Libra. Mars is just east of Spica in Virgo. Watch for Venus in the early dawn sky. Mercury and Jupiter are lost in the glare of the Sun.

The Perseid meteor shower will peak between August 10 and August 13; watch for it at home.

Three visibly variable stars make an appearance during Pennsic.

The new Moon fills out to full during the course of Pennsic. Dimmer stars and the Milky Way are best seen the first week of Pennsic. The second week, use the Moon as a night-time clock.

The International Space Station (ISS) appears twice overhead and a bunch of times closer to the horizon. It is best viewed the evenings of August 3rd, 4th and 5th. Also, be on the lookout for Iridium Flares on July 28th, 30th, 31st, and August 2nd, 7th, 8th.

Every Night

The Sun is in Cancer, which is a surprise to all of the Leos celebrating a birthday during Pennsic. All of the other signs of the Zodiac are visible at some part of the night. Look to the West for Leo 10PM. Virgo, Libra and Scorpio set from midnight to 1AM. Sagittarius and Capricorn are out most of the night. Aquarius, Pisces, Aries, Taurus and Gemini rise over the course of the morning. Look up the dates below to see when the Moon is in your sign.

The Big Dipper is high in the Northwest in the early evening. Look for Hercules, the Summer Triangle, Pegasus, Andromeda and Cassiopeia occupying the zenith at some point in the night. Perseus and Auriga rise in the Northeast early in the morning.

The Big Dipper makes a great landmark because it is easy to find and it points to interesting locations. Below the Dipper is Leo. Above the Big Dipper is the Little Dipper and Cassiopeia. Follow the stars in the handle in an arc to find the bright star Arcturus and then another bright star Spica. Mars is just to the left of Spica, brighter and much redder.

The Milky Way should be visible if the sky is not cloudy and the Moon is set. See the constellations below for reference points. Vega and Arcturus are the starlight, star bright, first stars to be seen tonight. Mars is between Virgo and Libra. Saturn is in Libra. Venus rises about 4 in the morning. Jupiter and Mercury are too close to the sun to be viewed just before sunrise.

July 25, 2014

The first night of Pennsic. Now, that it is dark, it's too late to do much but to look at all of the pretty stars.

The waning crescent Moon is not visible tonight.

Watch for Iridium flares at 9:23, 10:58 and 4:40.

July 26, 2014

The new Moon is not visible tonight.

Watch for Iridium flares at 9:17, 11:01, 4:34 and 4:43.

July 27, 2014

The waxing crescent Moon is not visible tonight.

Watch for Iridium flares at 10:56, 4:28 and 4:37.

July 28, 2014

The waxing crescent Moon is not visible tonight. Tomorrow is the super full Moon, the bane of star gazing, even shooting stars.

Watch for Iridium flare at 10:50.

July 29, 2014
The waxing crescent Moon is in Leo.
Watch for Iridium flares at 10:44, 4:25 and 4:34.

July 30, 2014
The waxing crescent Moon is leaving Leo.
Watch for Iridium flares at 9:02, 10:46, 4:19 and 4:28.

July 31, 2014
The waxing crescent Moon is entering Virgo.
Watch for Iridium flares at 8:56, 10:40, 4:12, 4:20 and 4:22.

August 1, 2014
The waxing crescent Moon is in Virgo.
Watch for the ISS passing overhead from 5:08 to 5:16 AM.
Watch for Iridium flares at 10:35 and 4:15.

August 2, 2014
The waxing crescent Moon is leaving Virgo.
Algol starts to fade to minimum at midnight and reaches minimum at 5:08 AM.
Watch for the ISS passing low in the southeast from 9:48 to 9:55 PM and again on the western horizon at 11:27 PM and again high in the northeast from 4:17 to 4:27 AM.
Watch for Iridium flares at 10:28 and 4:09.

August 3, 2014
The waxing quarter Moon is entering Libra.
Watch for the ISS passing high in the northwest from 10:35 to 10:44 PM.
Watch for Iridium flares at 10:23 and 4:03.

August 4, 2014
The waxing gibbous Moon is in Libra.
Watch for the ISS passing overhead from 9:45 to 9:56 PM.
Watch for Iridium flares at 10:17 and 4:06.

August 5, 2014
The waxing gibbous Moon is in Scorpius.
Algol is already fading when it comes into view at 11:45, reaches minimum at 1:57 AM and returns to normal by sunrise.
Watch for the ISS passing high in the southeast from 8:56 to 9:06 PM.
Watch for Iridium flares at 3:50 and 4:00.

August 6, 2013
The waxing gibbous Moon is leaving Scorpius.
Watch for the ISS passing high in the northwest from 9:44 to 9:53 PM.
Watch for Iridium flares at 10:13, 3:44 and 3:54.

August 7, 2013
The waxing gibbous Moon is in Sagitarius.
Watch for the ISS passing high in the northwest from 8:45 to 9:04 PM.
Watch for Iridium flares at 10:07, 10:10, 3:45 and 3:48.

August 8, 2013

The waxing gibbous Moon is leaving Sagitarius.
Algol has already reached minimum when it comes into view at 11:30 and returns to normal by 3:45 AM.
Watch for an Iridium flares at 10:02 and 3:41.

August 9, 2014

The full Moon is in Capricorn.
Watch for the ISS passing low in the northwest from 8:52 to 9:01 PM.
Watch for an Iridium flares at 9:55, 3:35 and 3:45.

August 10, 2014

Why are you still here? It's time to go home now.

Top 10 Easiest Constellations to Find

1. The Big Dipper
2. Orion
3. Cassiopeia
4. Leo
5. Taurus
6. Cygnus
7. Gemini
8. Sagittarius
9. Scorpius
10. Andromeda/Pegasus

Four places to look in the sky

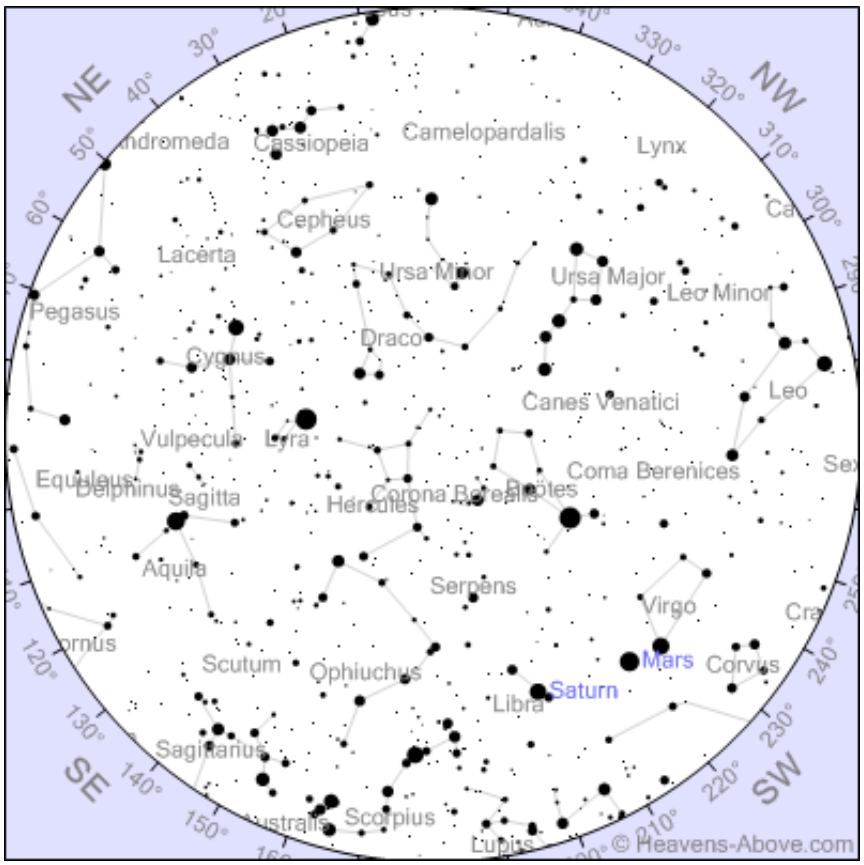
1. The North
    - The Big Dipper
    - The Little Dipper
    - Draco
    - Cassiopeia
    - Cepheus
2. The Zodiac
    - Leo 22 July – 22 August
    - Virgo 22 August – 22 September
    - Libra 22 September – 23 October
    - Scorpius 23 October – 22 November
    - Sagittarius 22 November – 21 December
    - Capricorn 21 December – 20 January
    - Aquarius 20 January – 18 February
    - Pisces 18 February – 20 March
    - Aries 20 March – 19 April
    - Taurus 19 April – 20 May
    - Gemini 20 May – 21 June
    - Cancer 21 June – 22 July
3. The Milky Way
    - Sirius
    - Orion

    - Auriga
    - Cassiopeia
    - Cepheus
    - Cygnus
    - Aquila
    - Sagittarius
    - Scorpius
4. The Zenith – Straight up
    - **Big Dipper**
    - Hercules
    - **The Summer Triangle**
    - Pegasus
    - **Cassiopeia**
    - Perseus and Andromeda
    - **Auriga**

Variable stars
Three well known (among astrologers) variable stars are visibly differentiated by the naked eye, Algol, X Cygni and Mira. Algol, or Beta Persei, is an eclipsing binary with a period of 68 hours. Chi Cygni, or X Cygni, is a pulsating, red giant with a period of 400 days. Mira, or Omicron Ceti, is also a pulsating, red giant, but with a period of 11 months.

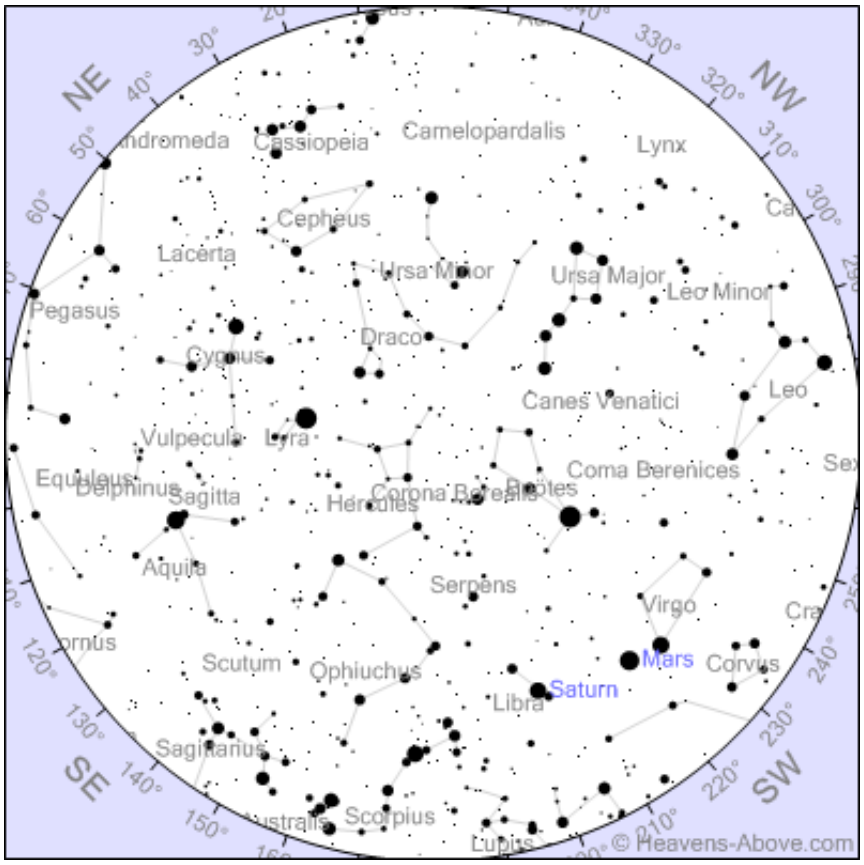
Algol is eclipsed three times by its companion star; watch for it the nights of August 2nd, 5th & 8th. Mira is already past full brightness and has started to fade. This will be the last chance to view it until March 2015. Chi Cygni is just coming into brightness.

Two out of five planets every night!
Jupiter and Mercury are lost the glare of the Sun during Pennsic.
Venus returns in her role as Lucifer, the Morning star. Look for her in the East immediately before bedtime (4:00 AM).
Saturn and Mars are the two brightest stars in the South. Look for them until midnight. Mars is the red one on the right.



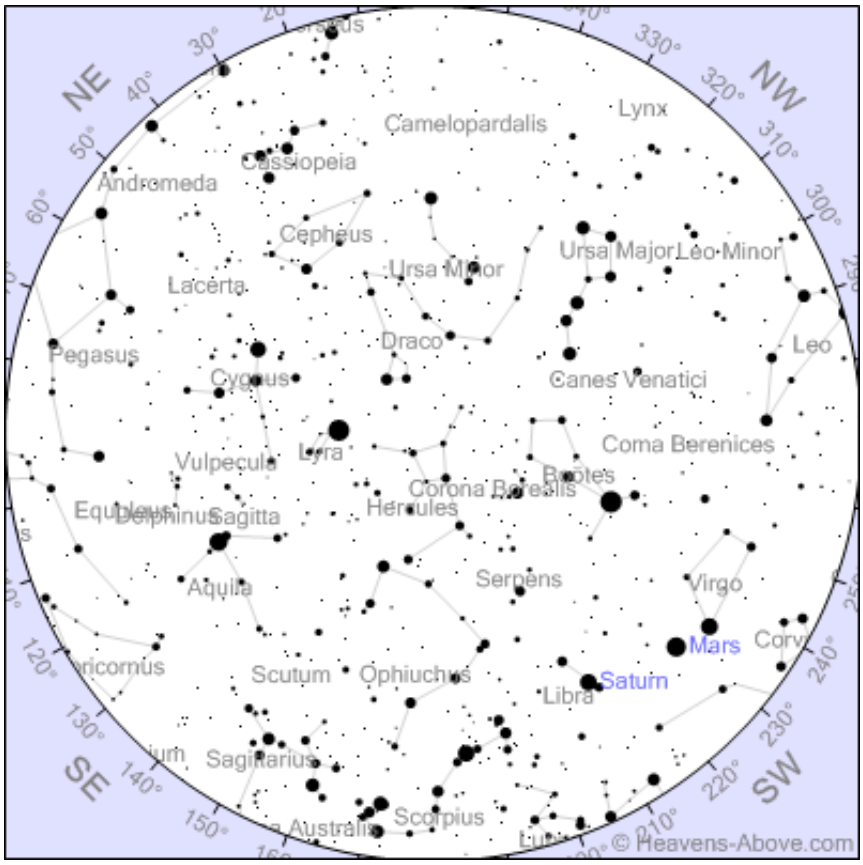
Jul 25, 9:22 PM

The waning crescent Moon is not visible tonight.



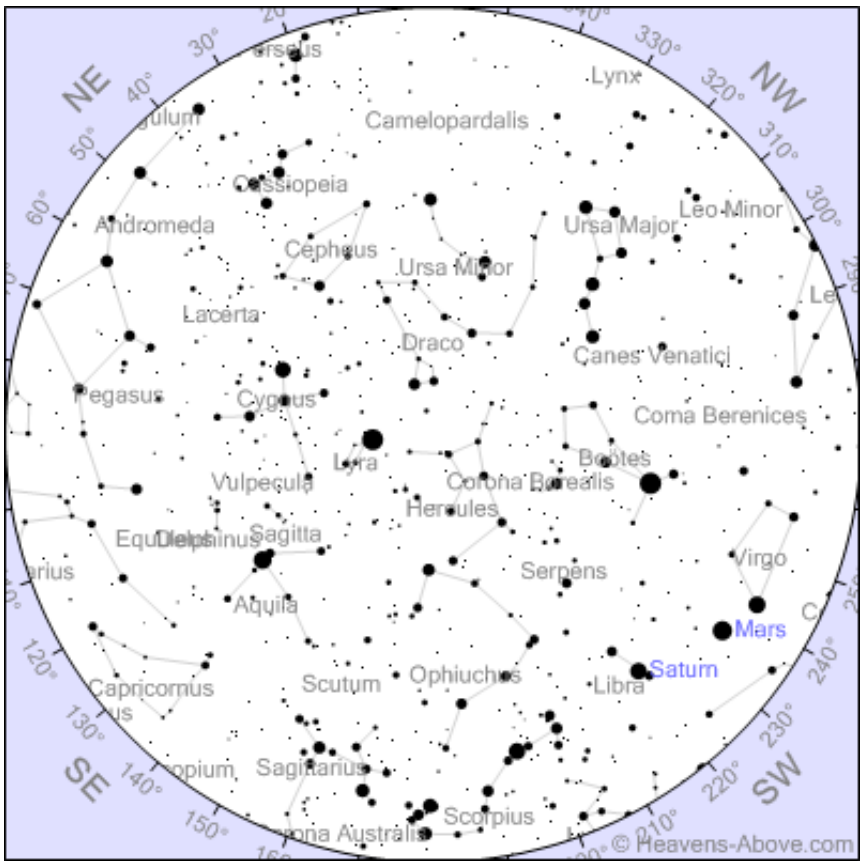
July 25, 9:22 PM

The waning crescent moon is not visible tonight.



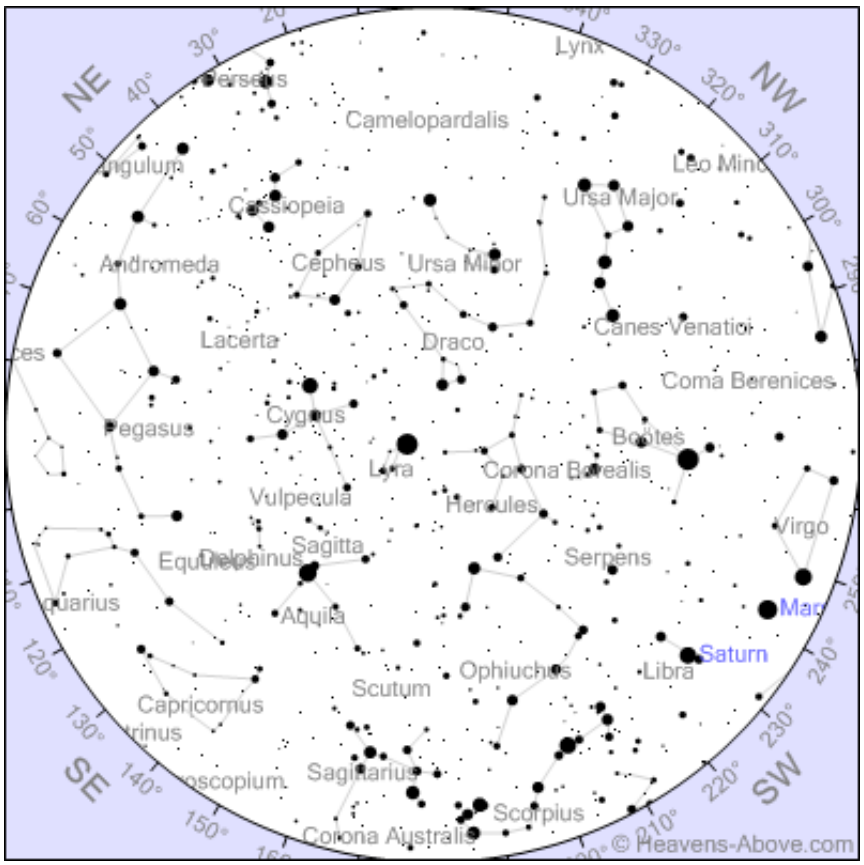
July 26, 9:55 PM

The new Moon is not visible tonight.



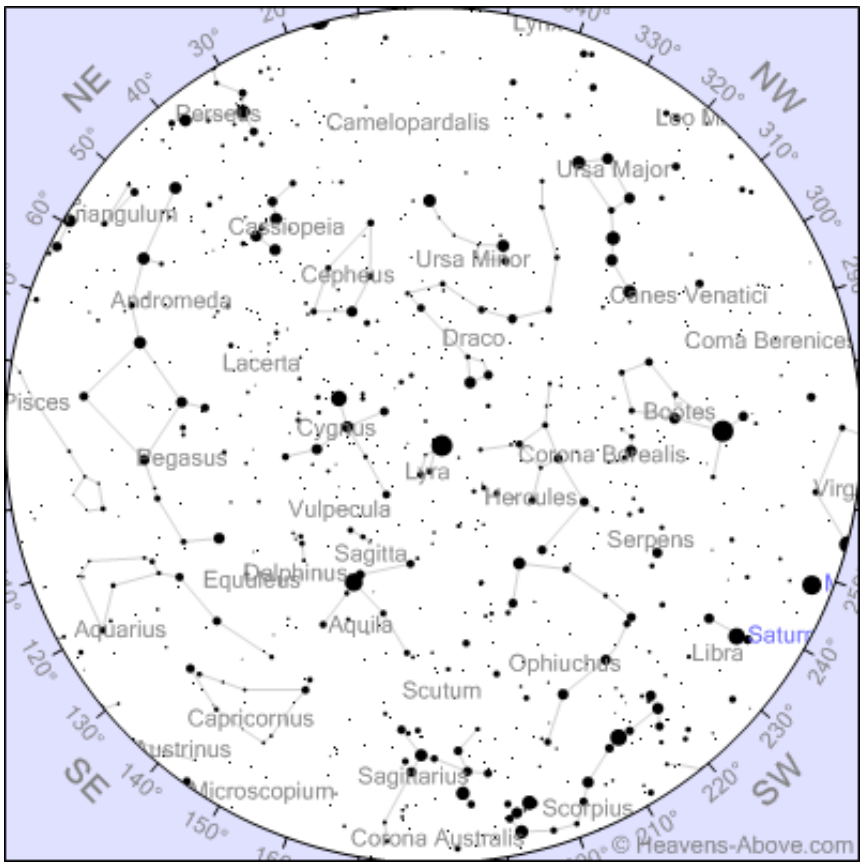
July 27, 10:29 PM

The waxing crescent Moon is not visible tonight.



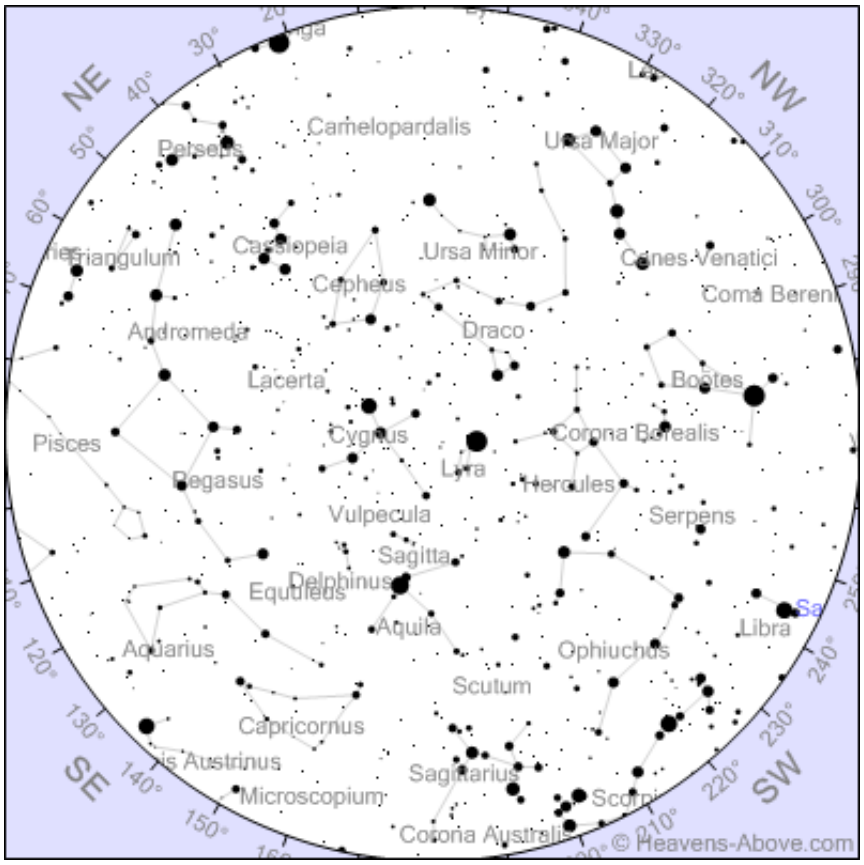
July 28, 11:02 PM

The waxing crescent Moon is not visible tonight.



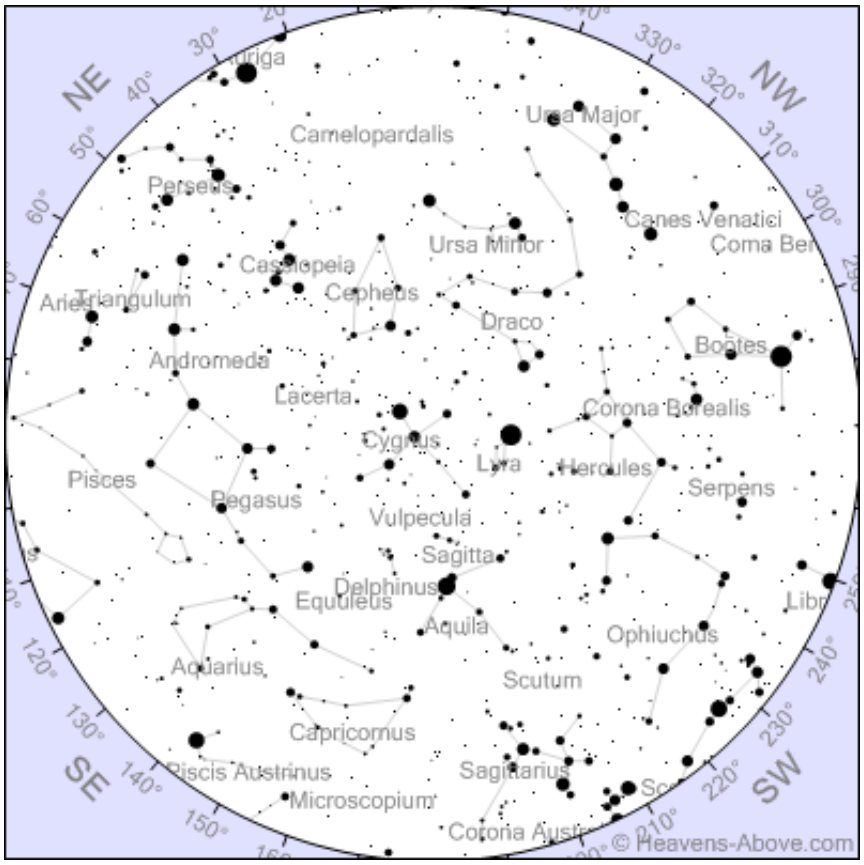
July 29, 11:36 PM

The waxing crescent Moon that is in Leo is not visible at this time.



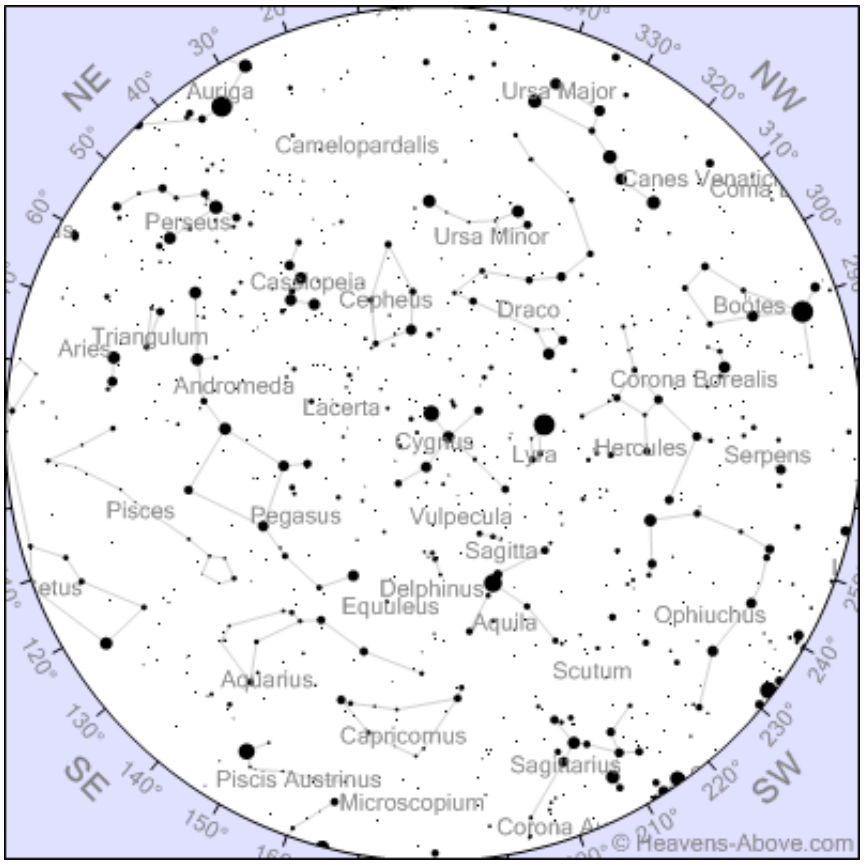
July 31, 12:09 AM

The waxing crescent Moon that is leaving Leo is not visible at this time.



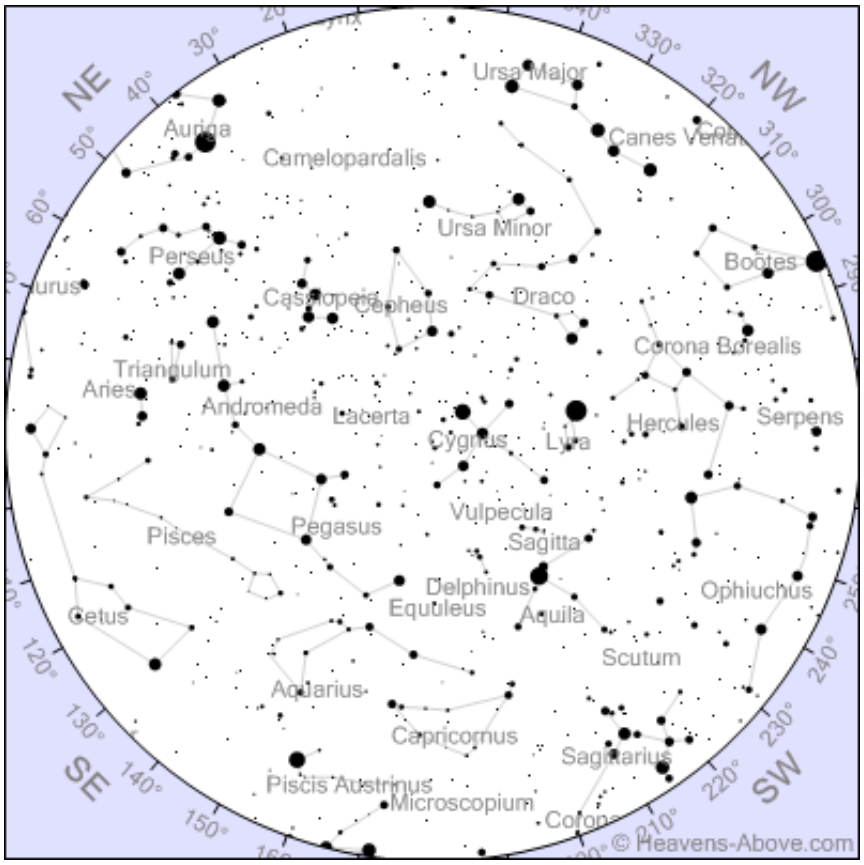
August 1, 12:43 AM

The waxing crescent Moon that is entering Virgo is not visible at this time.



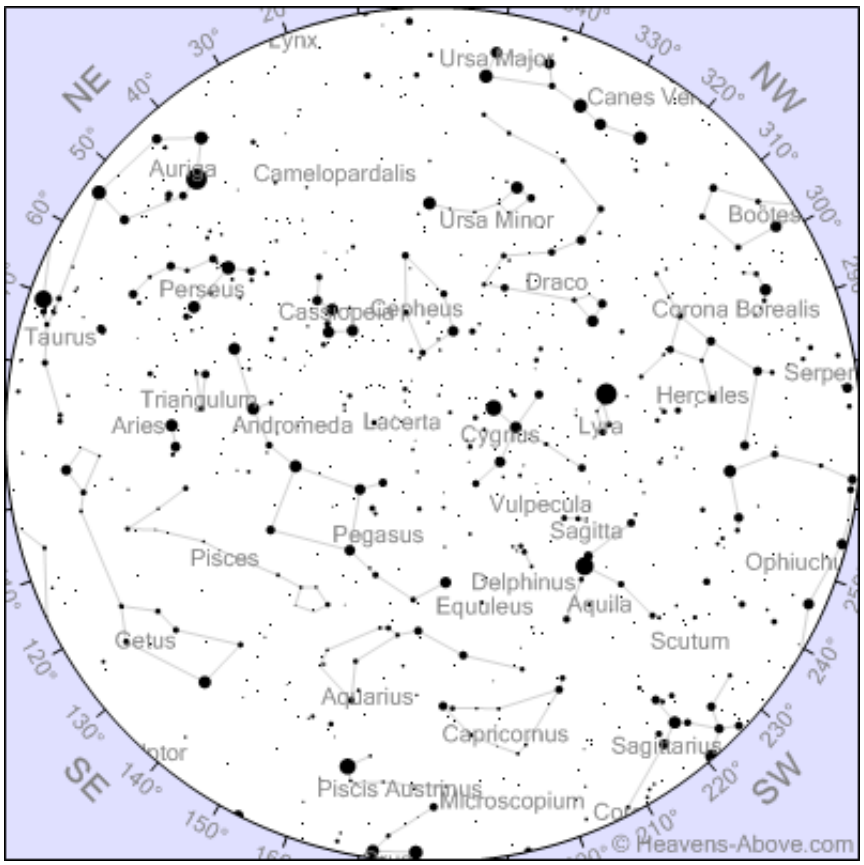
August 2, 1:16 AM

The waxing crescent Moon that is in Virgo is not visible at this time.



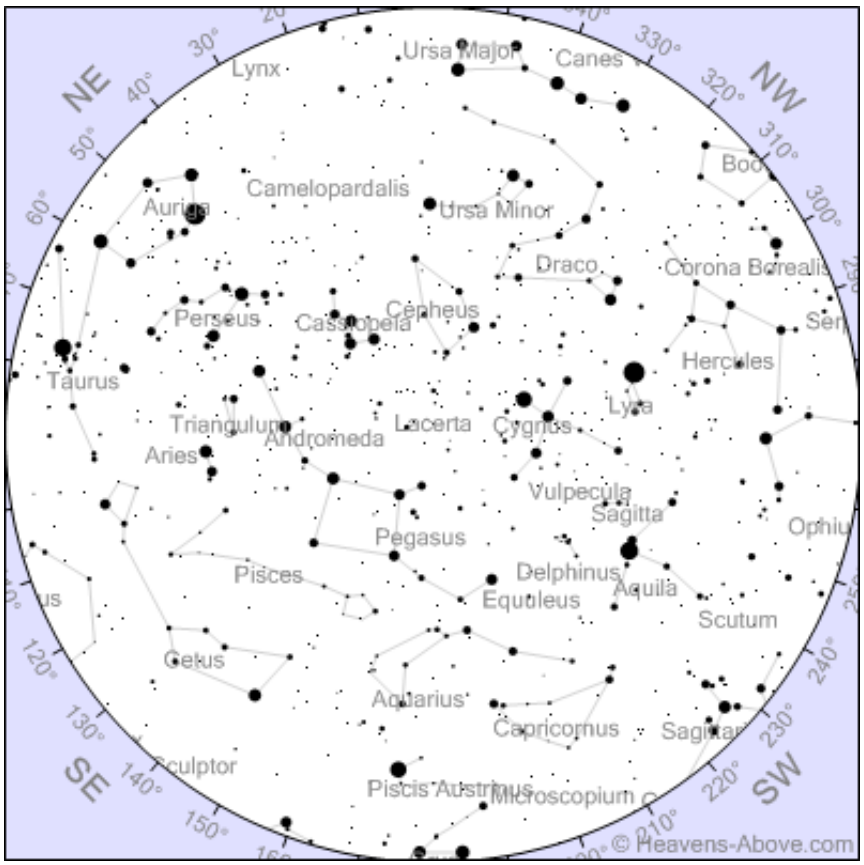
August 3, 1:50 AM

The waxing crescent Moon that is leaving Virgo is not visible at this time.



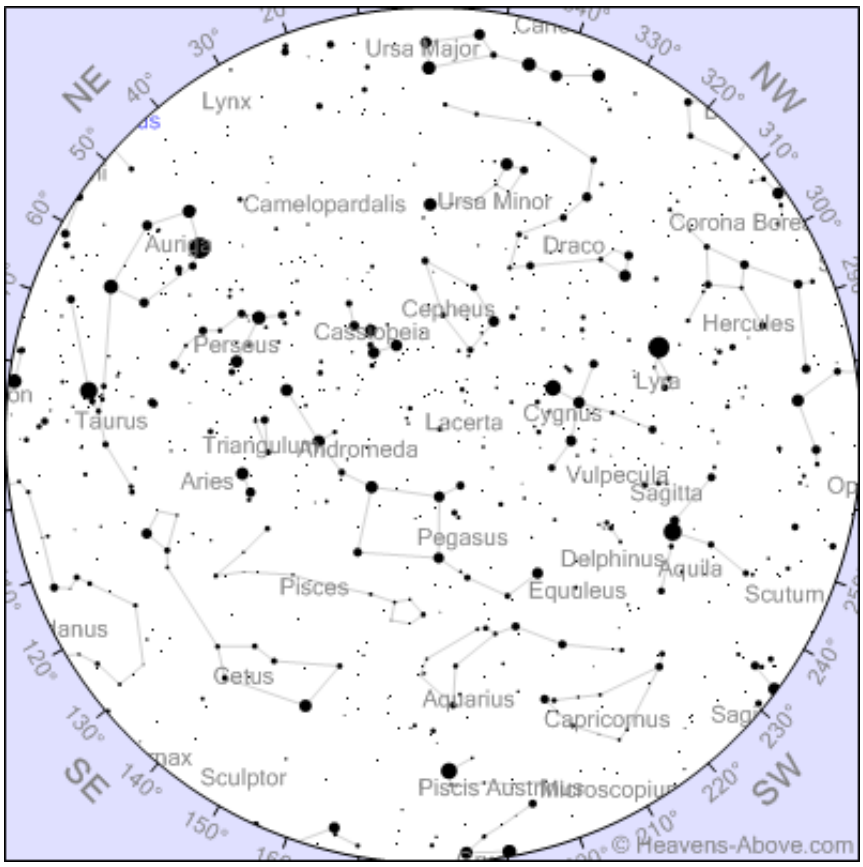
August 4, 2:23 AM

The waxing quarter Moon that is entering Libra is not visible at this time.



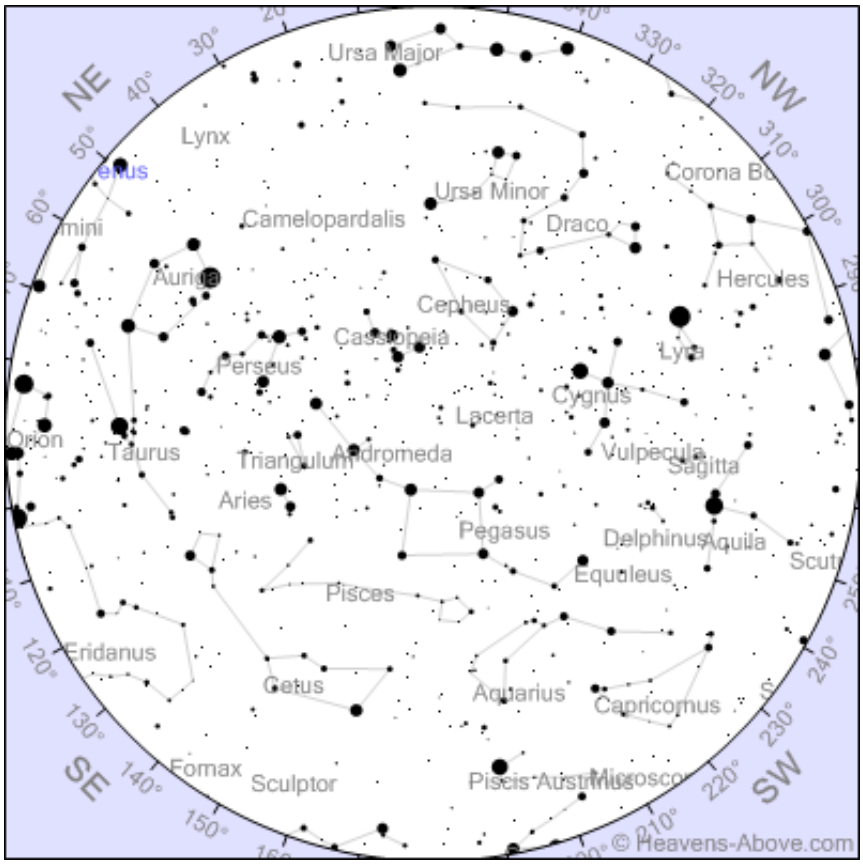
August 5, 2:57 AM

The waxing gibbous Moon that is in Libra is not visible at this time.



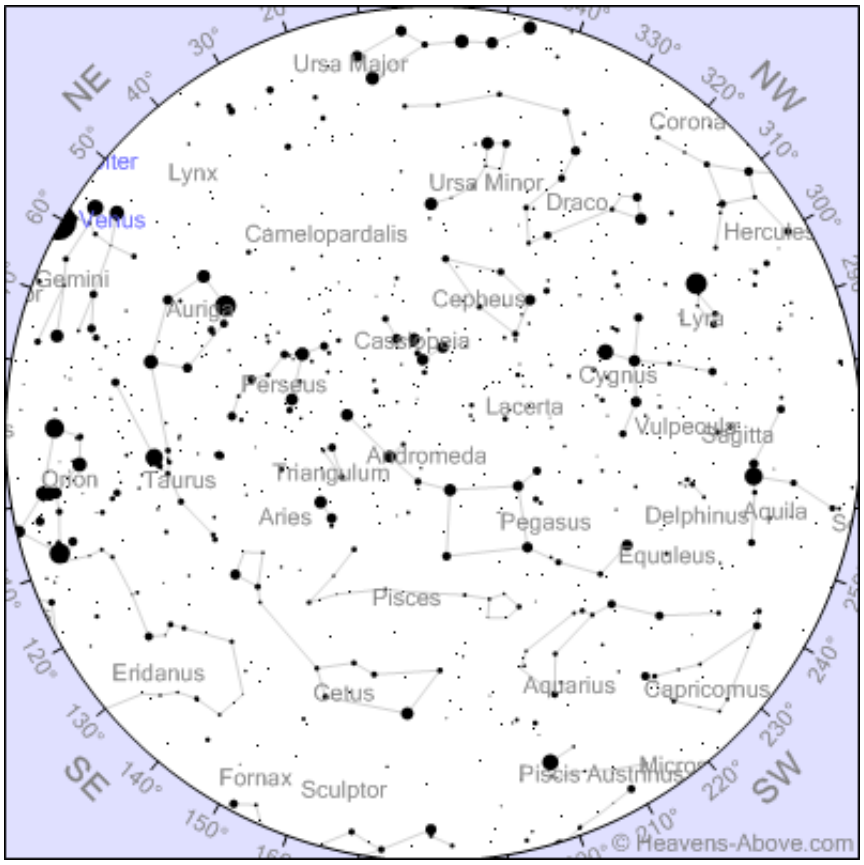
August 6, 3:30 AM

The waxing gibbous Moon that is in Scorpius is not visible at this time.



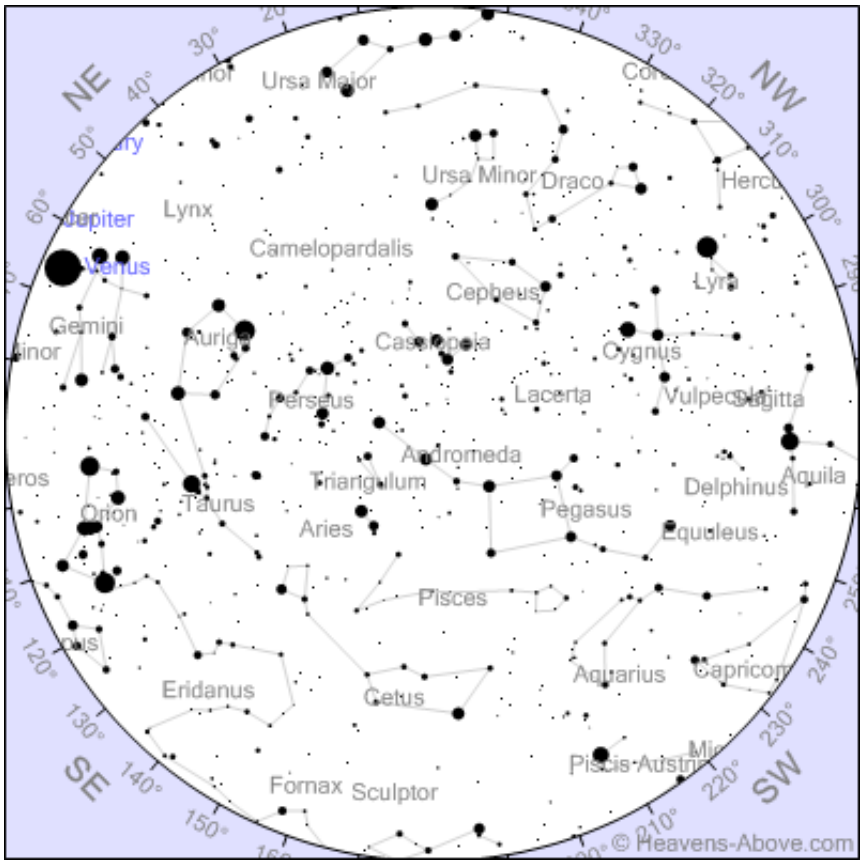
August 7, 4:04 AM

The waxing gibbous Moon that is leaving Scorpius is not visible at this time.

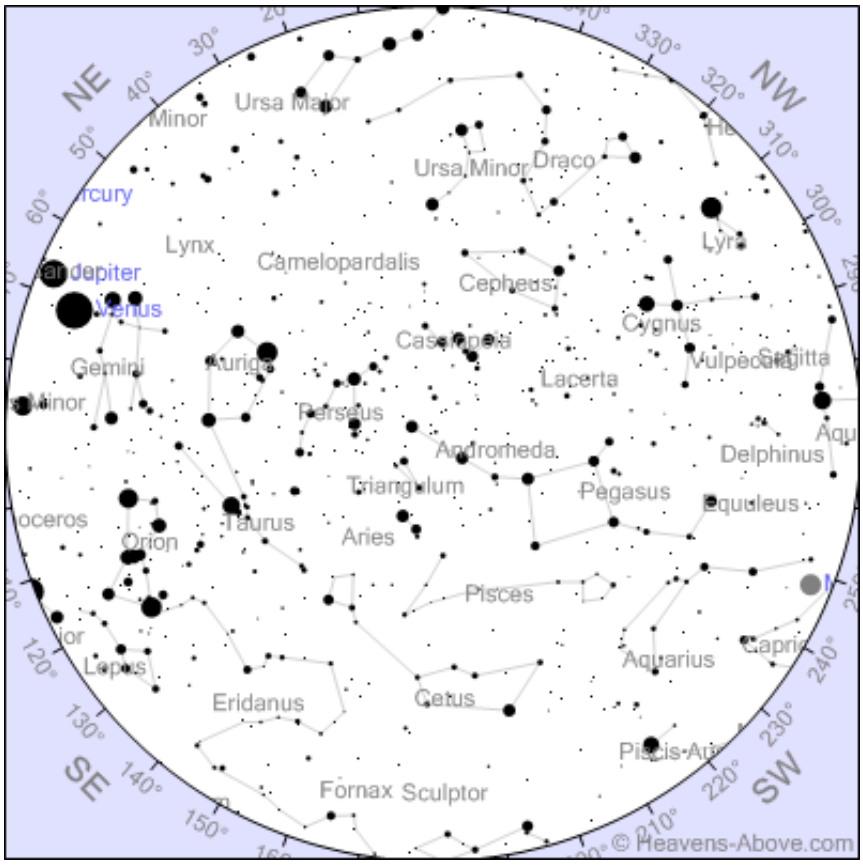


August 8, 4:37 AM

The waxing gibbous Moon that is in Sagitarius is not visible at this time.

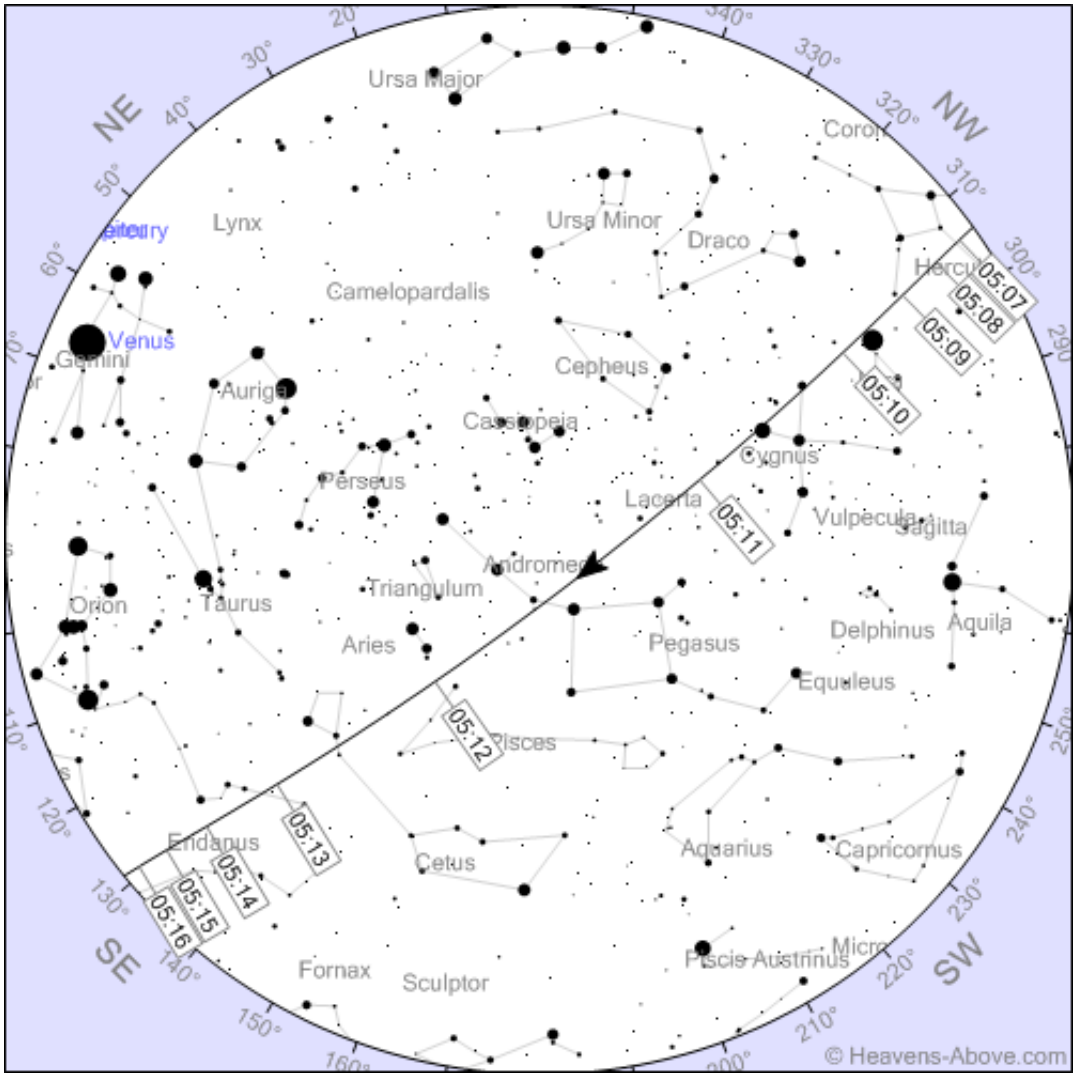


August 9, 5:11 AM
The waxing gibbous Moon that is leaving Sagitarius is not visible at this time.



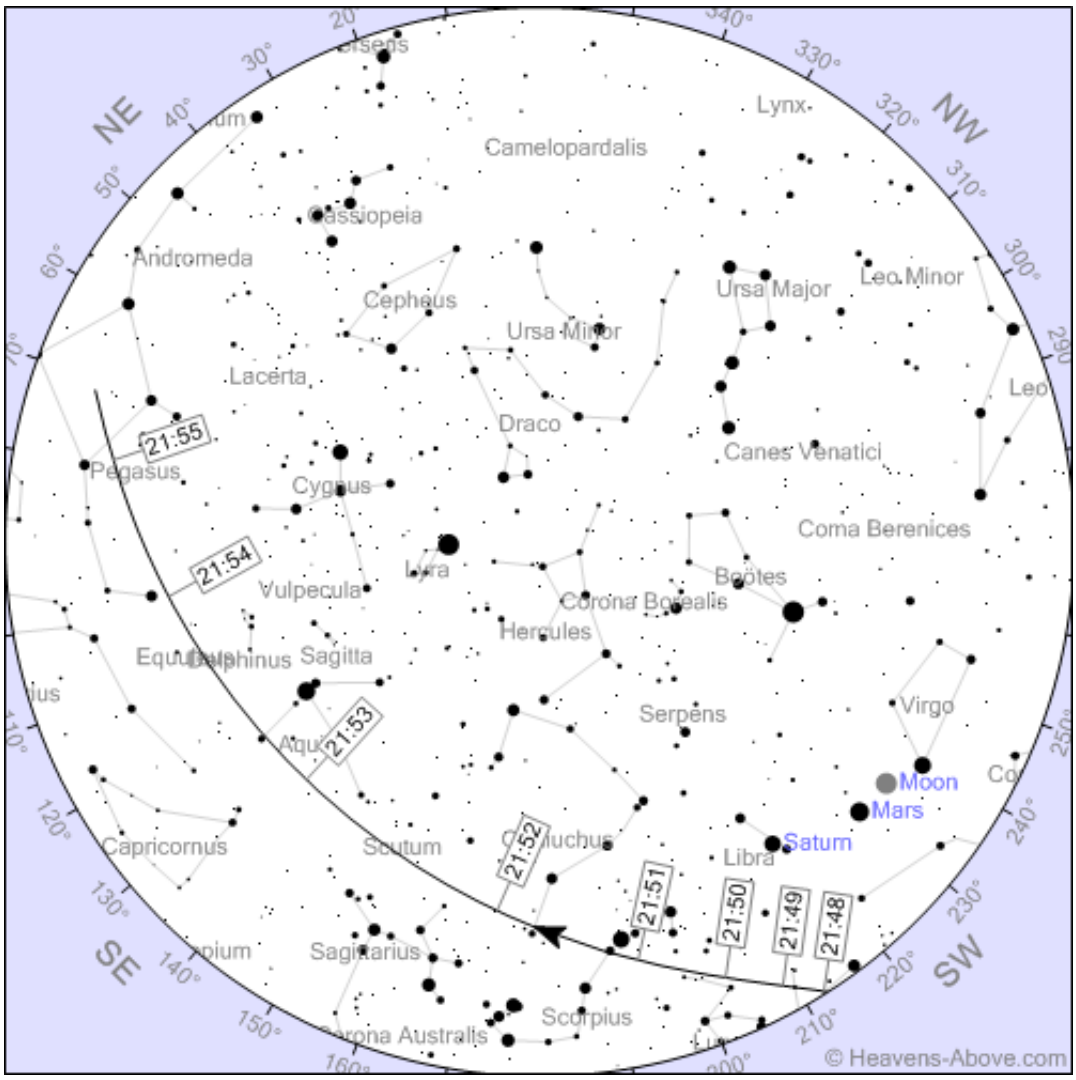
August 10, 5:45 AM
The full Moon is in Capricorn.

Q. What is an ISS?
A. The International Space Station (ISS) is a space station, or a habitable artificial satellite, in low Earth orbit. It is a modular structure whose first component was launched in 1998. Now the largest artificial body in orbit, it can often be seen at the appropriate time with the naked eye from Earth.



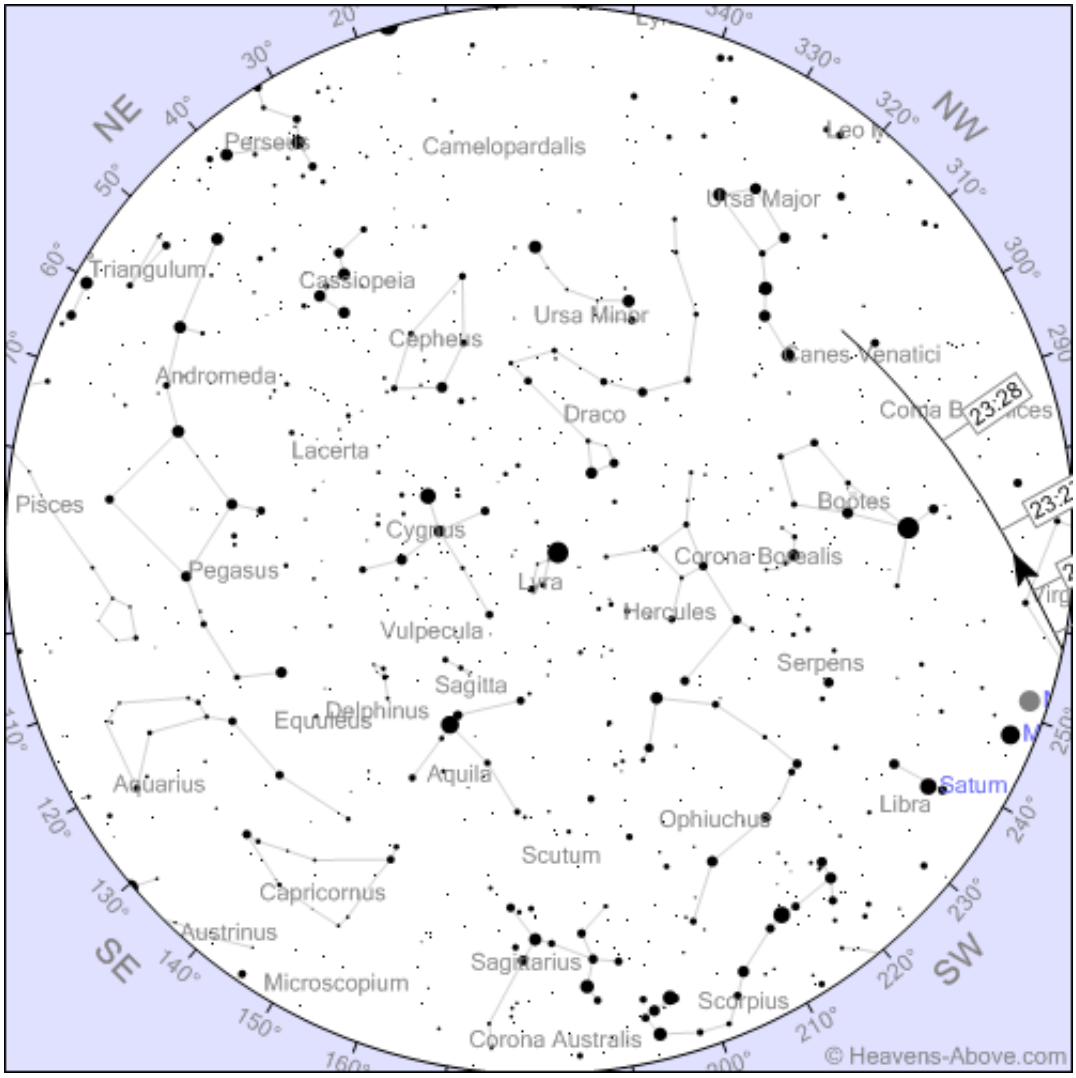
August 2, 5:08 AM

The ISS appears at the horizon in the north-west, passes through Lyra and Cygnus before directly overhead in Andromeda then descends to the horizon in the south-east.



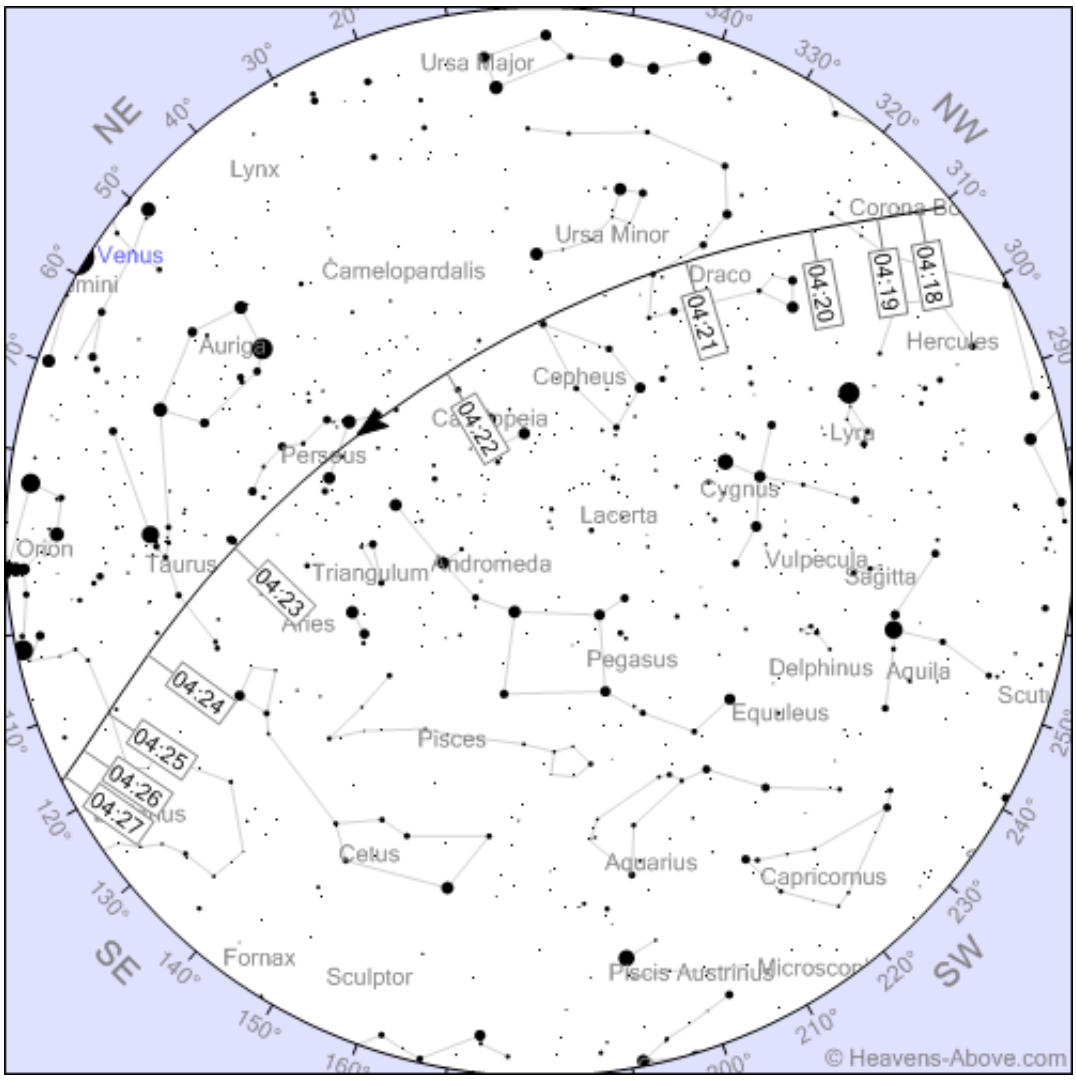
August 2, 9:50 PM

The ISS appears at the horizon in the south-west, passes close to the horizon in the west through Scopius, Ophiuchus and Aquila before falling into shadow in Pegusus. If you missed this one, look to the west in 90 minutes.



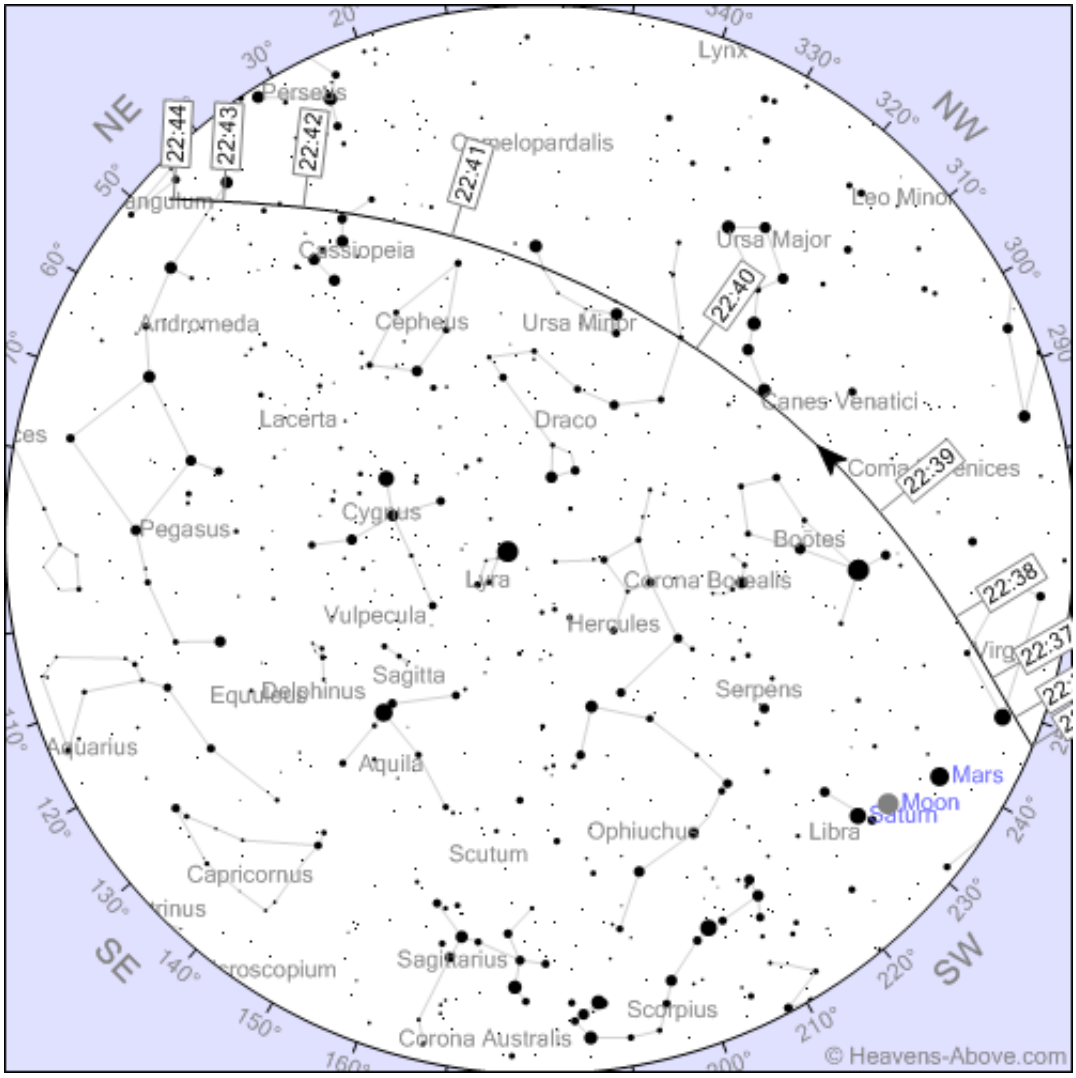
August 2, 11:27 PM

The ISS appears at the horizon in the west, passes close to the horizon towards the north before falling into shadow in Ursa Major.



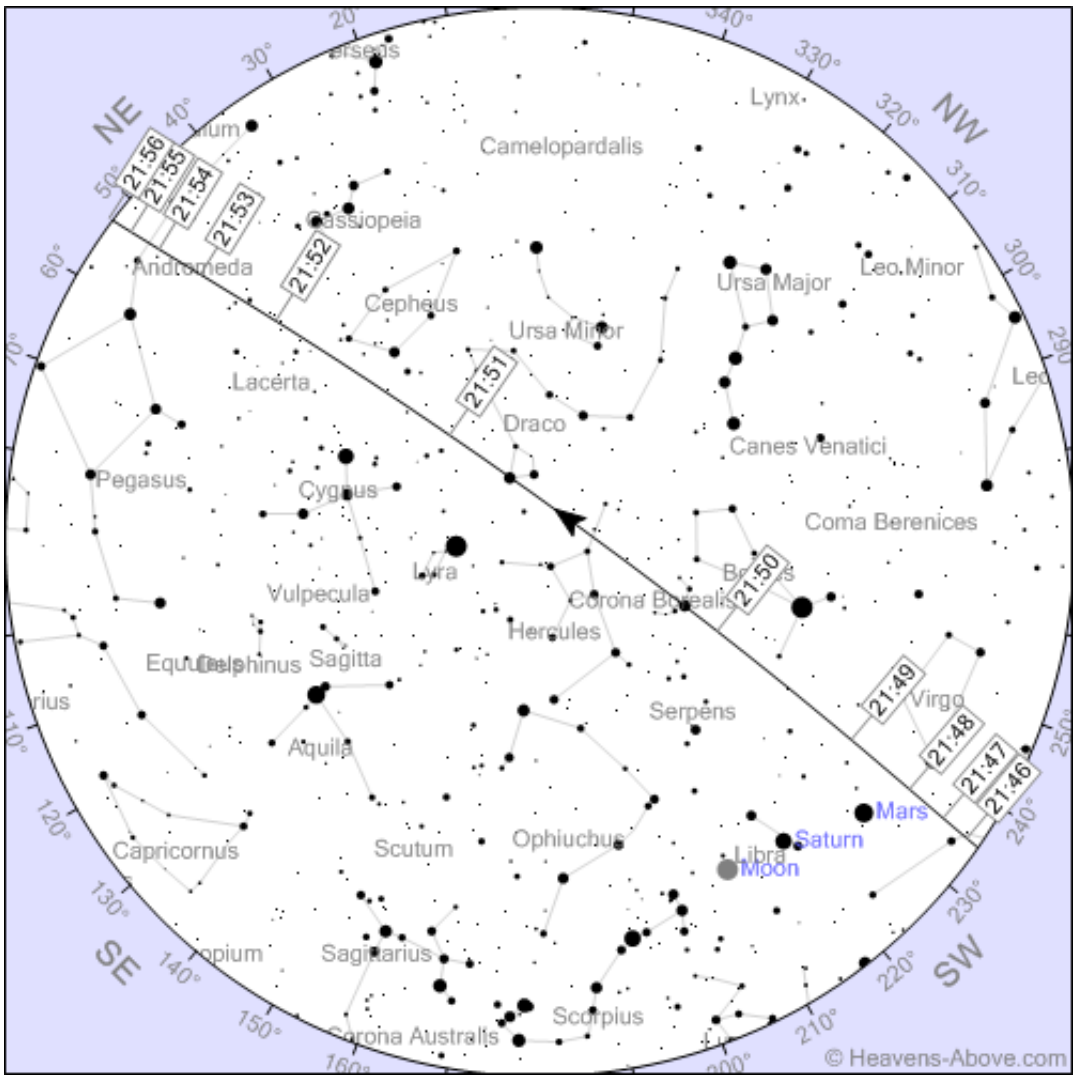
August 3, 4:19 AM

The ISS appears at the horizon in the north-west, passes high in the north through Draco, Cassiopeia and Perseus before descending through Taurus to the horizon in the east-south-east.



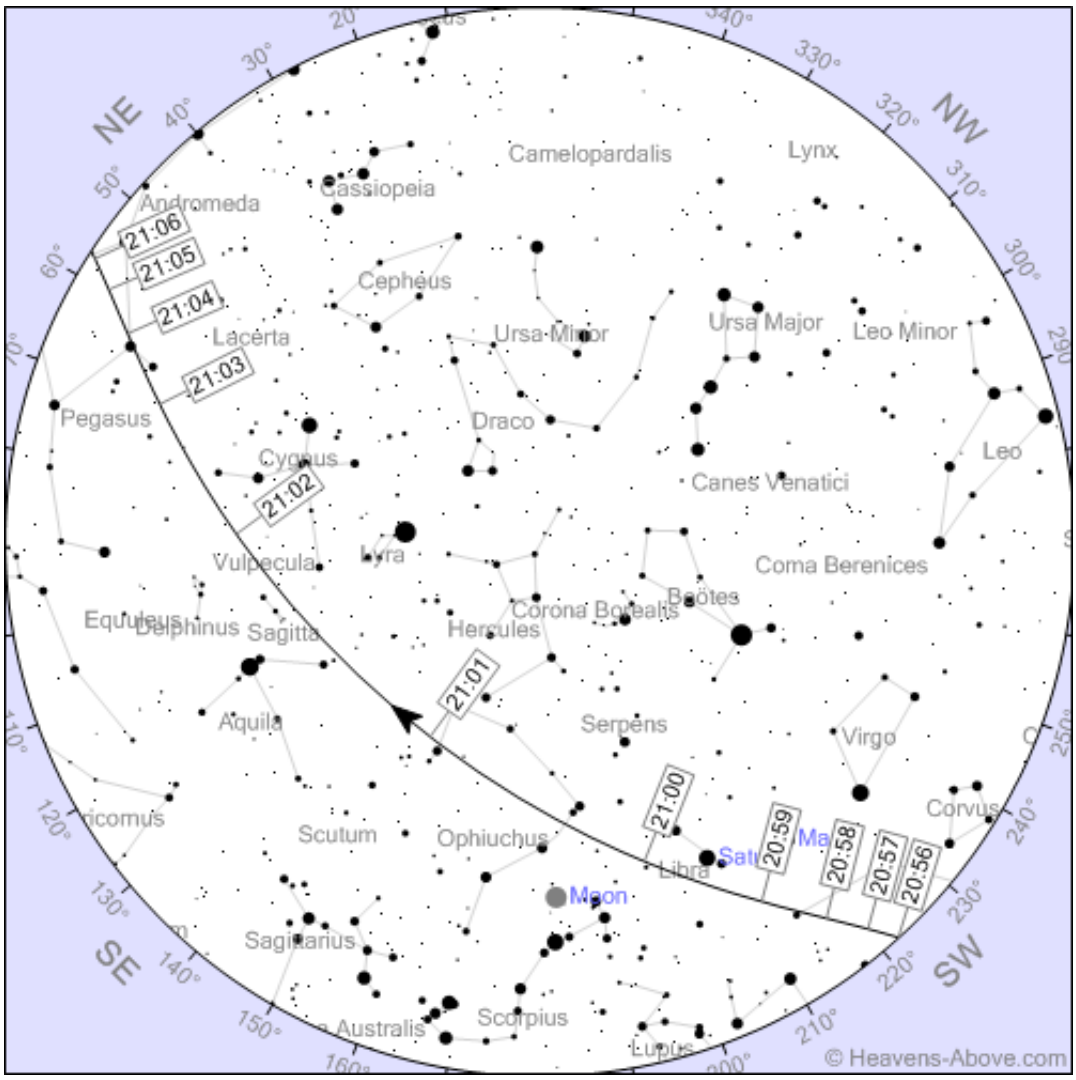
August 3, 10:37 PM

The ISS appears at the horizon in the west-south-west, passes through Virgo and Bootes before soaring high in the north-west through Draco and Ursa Minor then descends through Cassiopeia to the horizon in the north-east.



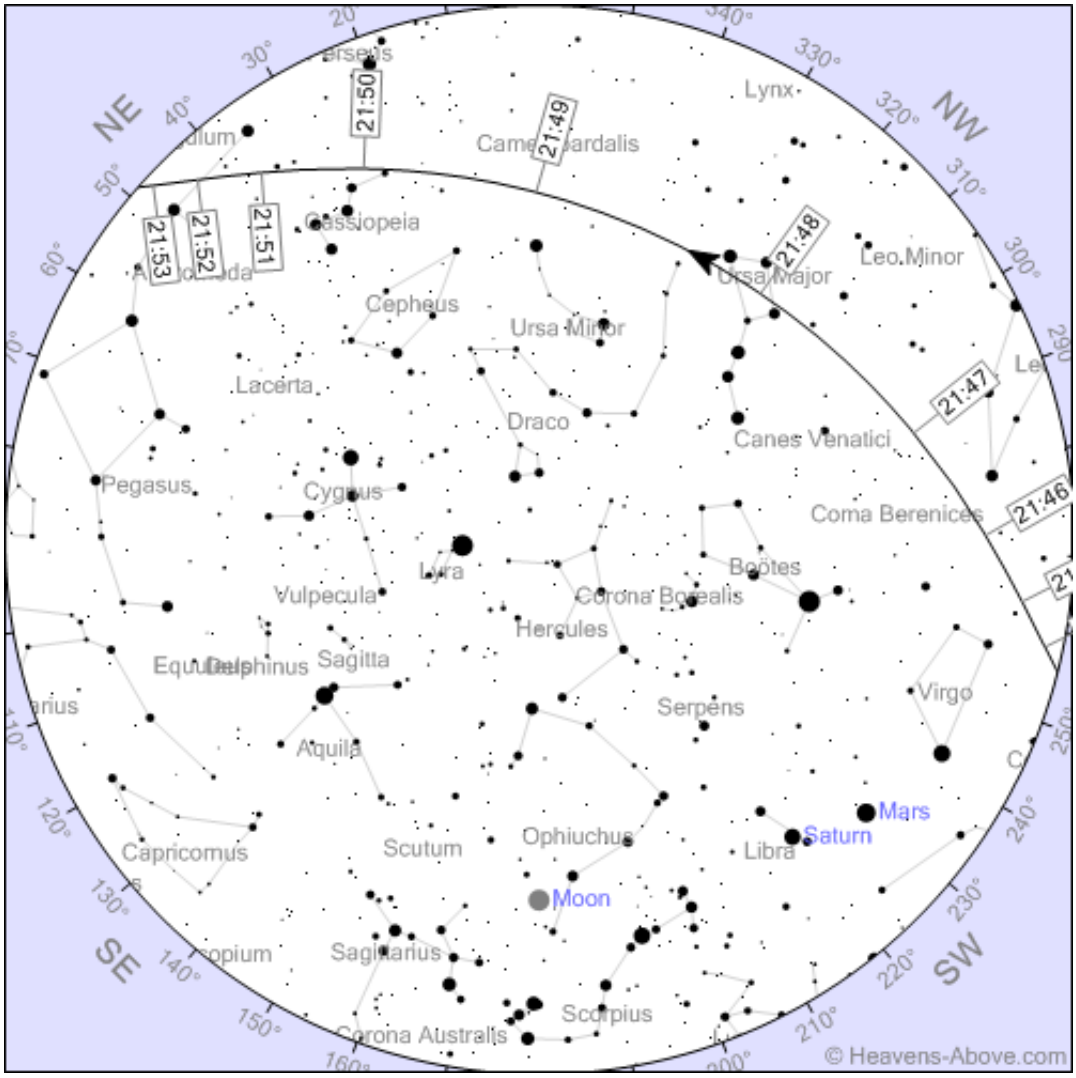
August 4, 9:47 PM

The ISS appears at the horizon in the south-west, passes by Virgo and Mars before soaring directly overhead in Corona Borialis (Aurvandil's Toe), Hercules and Draco then descends through Andromeda to the horizon in the north-east.



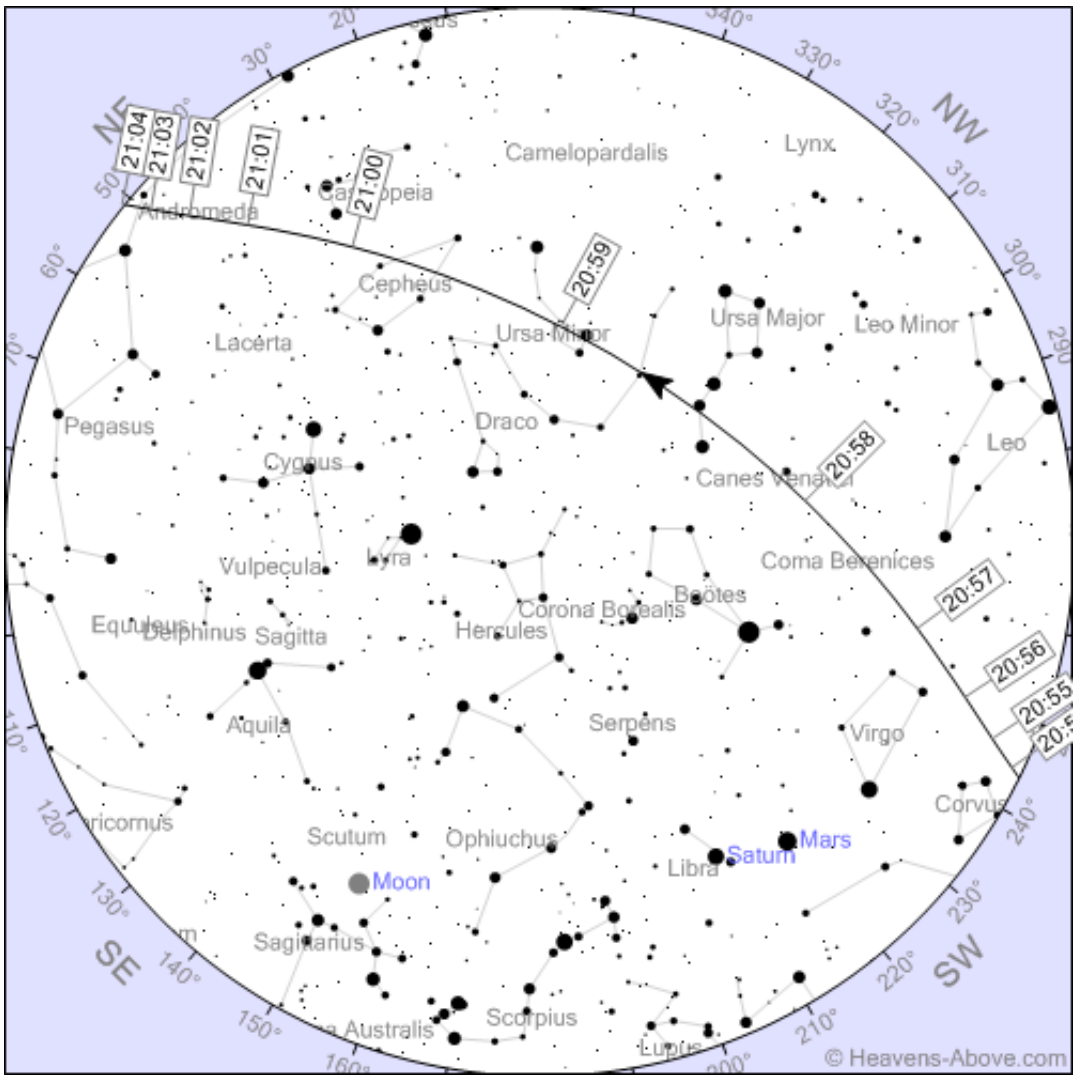
August 5, 8:58 PM

The ISS appears at the horizon in the south-west, passes by Libra and Saturn before rising to the south-west in the Summer Triangle (Deneb, Vega & Altair) then descends to the horizon in the north-east. This pass is just after sunset, so few stars, if any, will have emerged from the twilight.



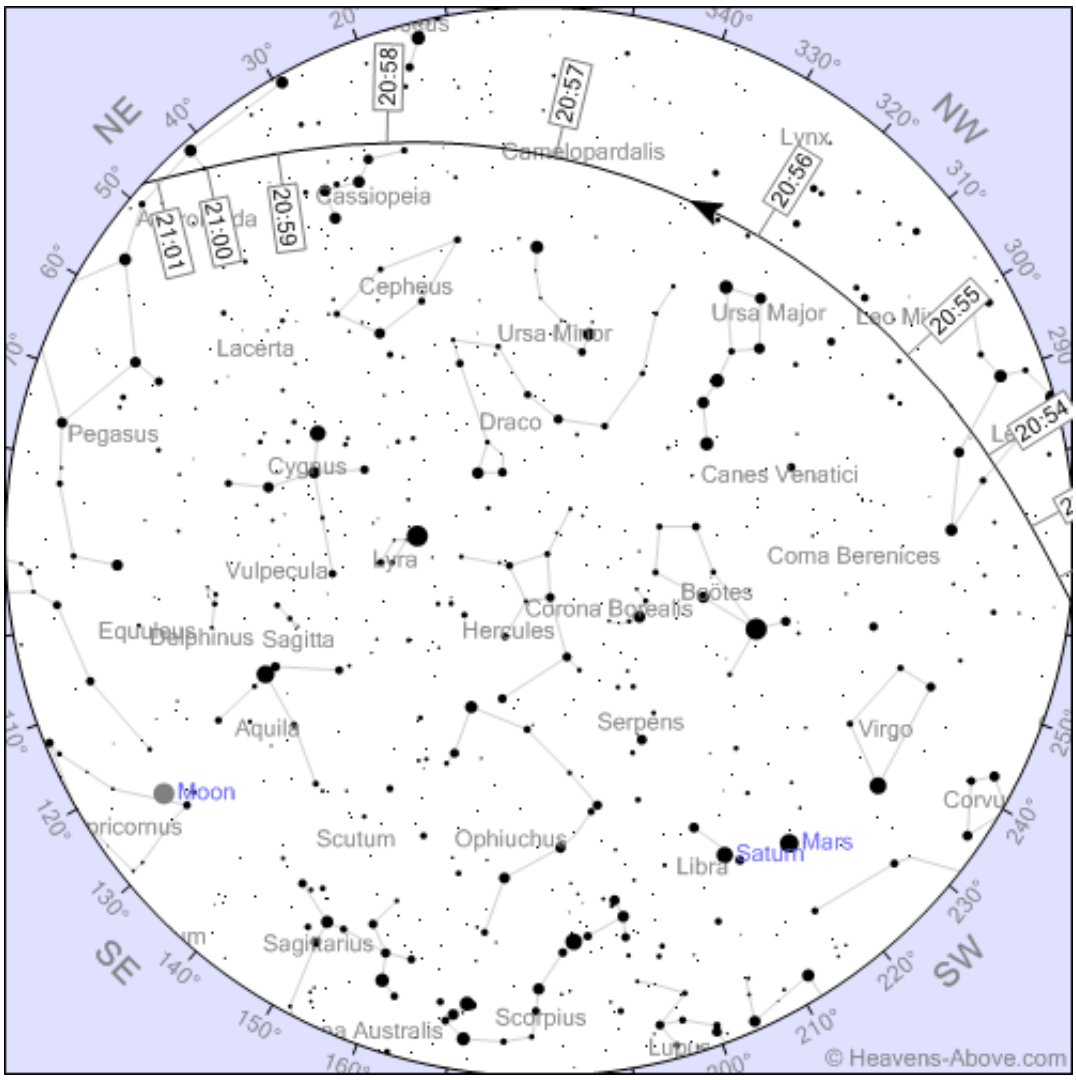
August 6, 9:45 PM

The ISS appears at the horizon in the west, rises through the Big Dipper in the north-west before descending to the horizon in the north-east.



August 7, 8:55 PM

The ISS appears at the horizon in the west-by-south-west, rises high in the north-west then descends to the horizon in the north-east. This pass is just after sunset, so few stars, if any, will have emerged from the twilight.

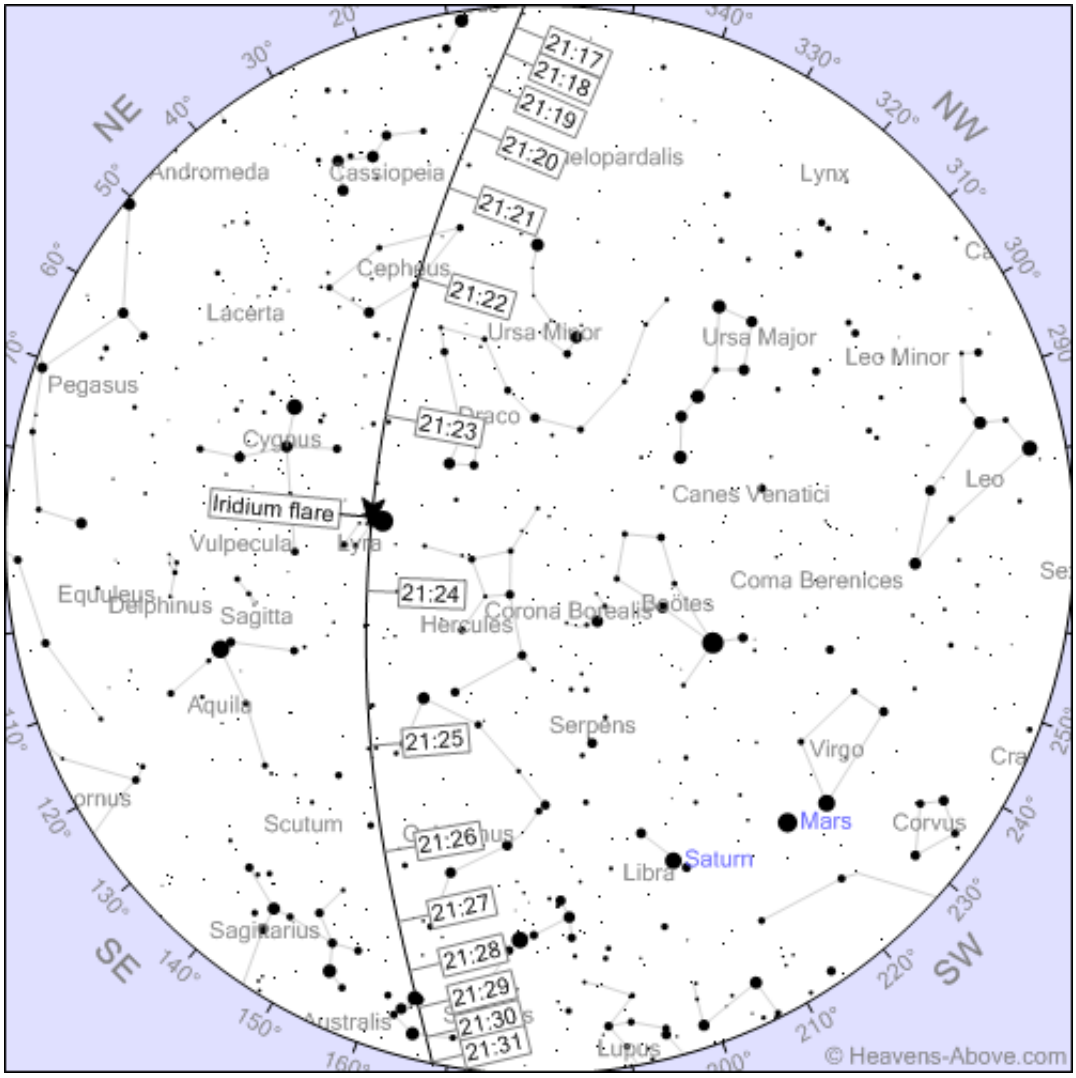


August 9, 8:54 PM

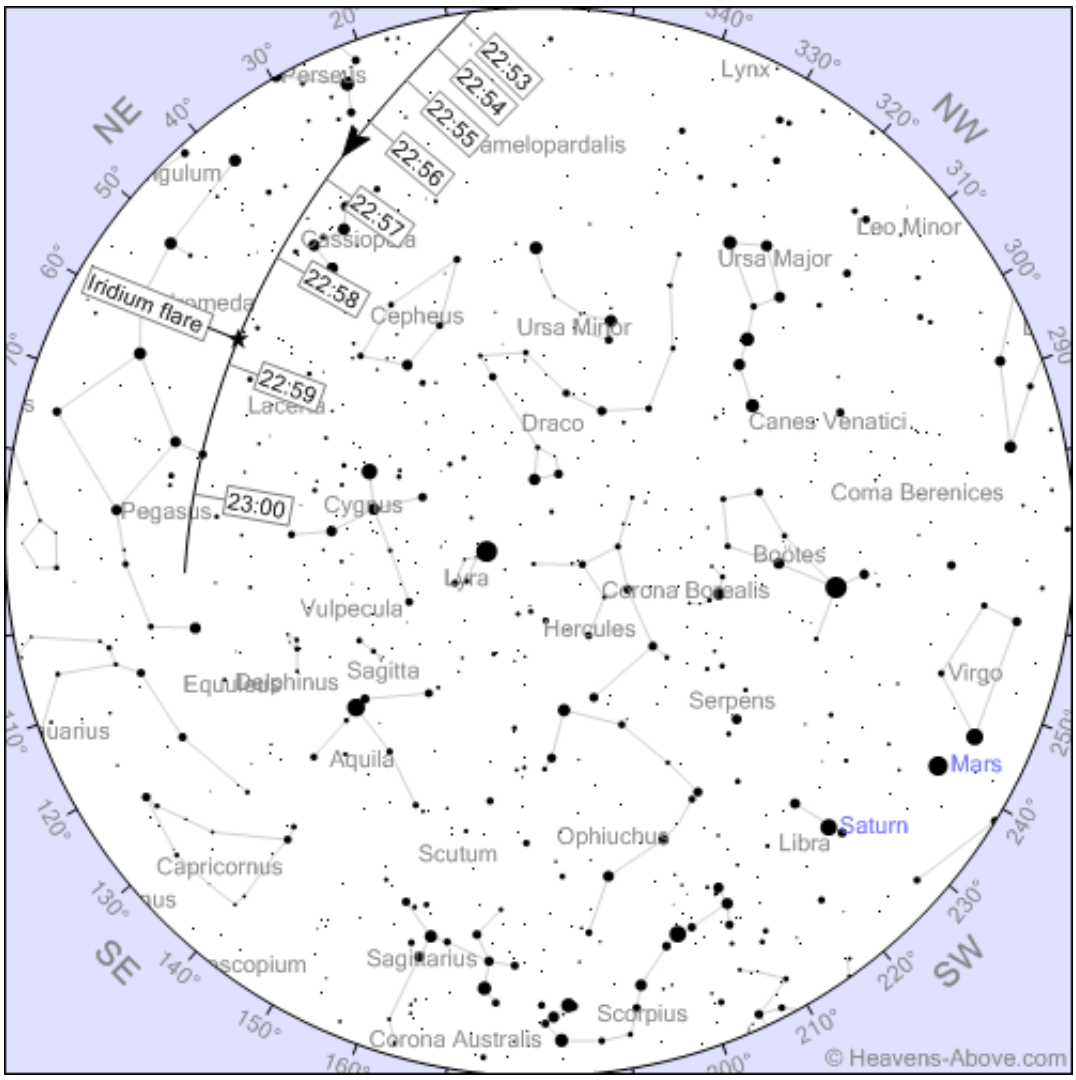
The ISS appears at the horizon in the west, rises low in the north-west then descends to the horizon in the north-east. This pass is just after sunset, so few stars, if any, will have emerged from the twilight.

Q. What is an Iridium flare?

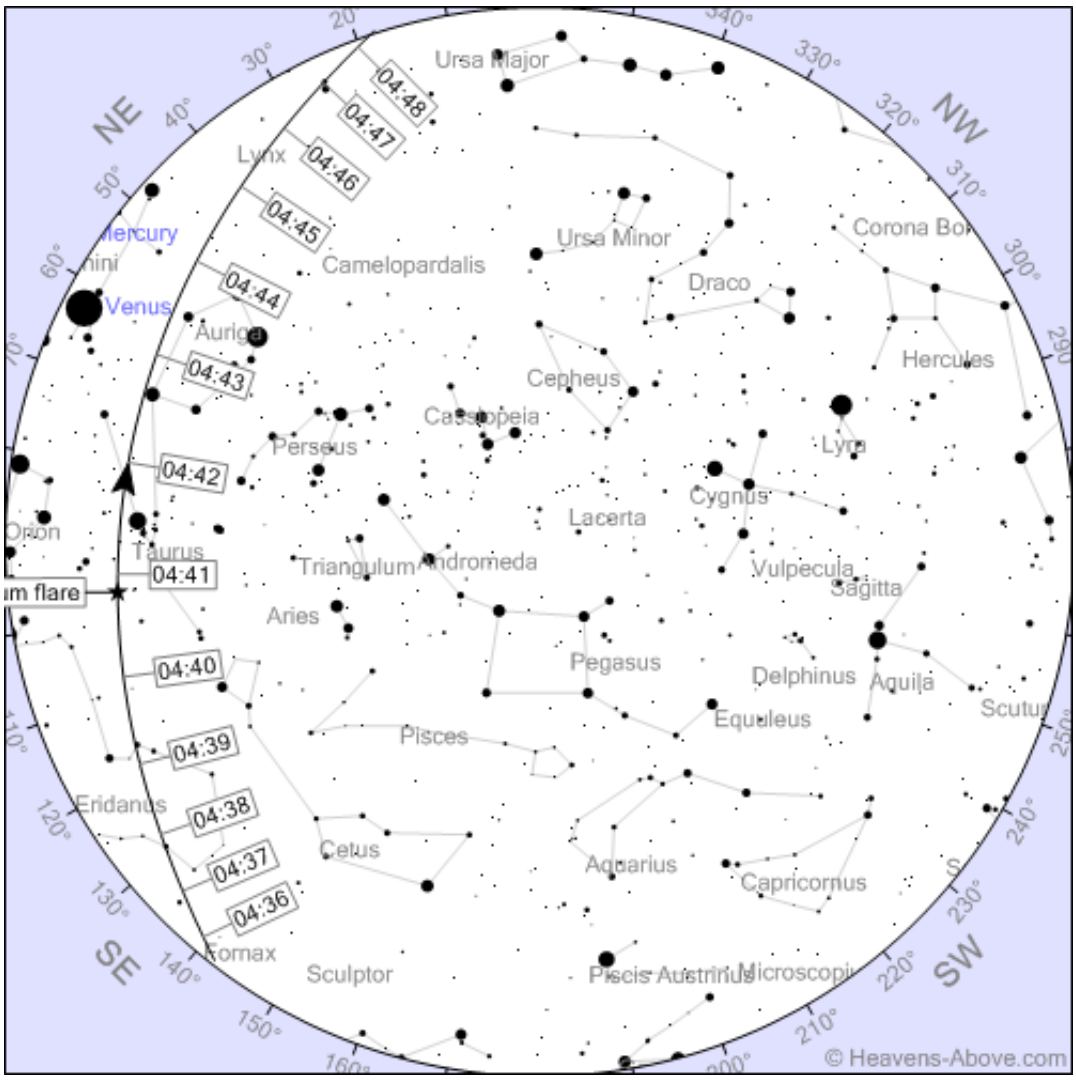
A. An Iridium flare is caused by the sun being reflected from one of the three main mission antennae (MMA) of an Iridium satellite. The MMAs are flat, highly polished aluminium surfaces, and when the angles are just right, they can reflect the sun just like a mirror. There are over 80 of these communications satellites in orbit, and they are operated by the Iridium LLC Consortium.



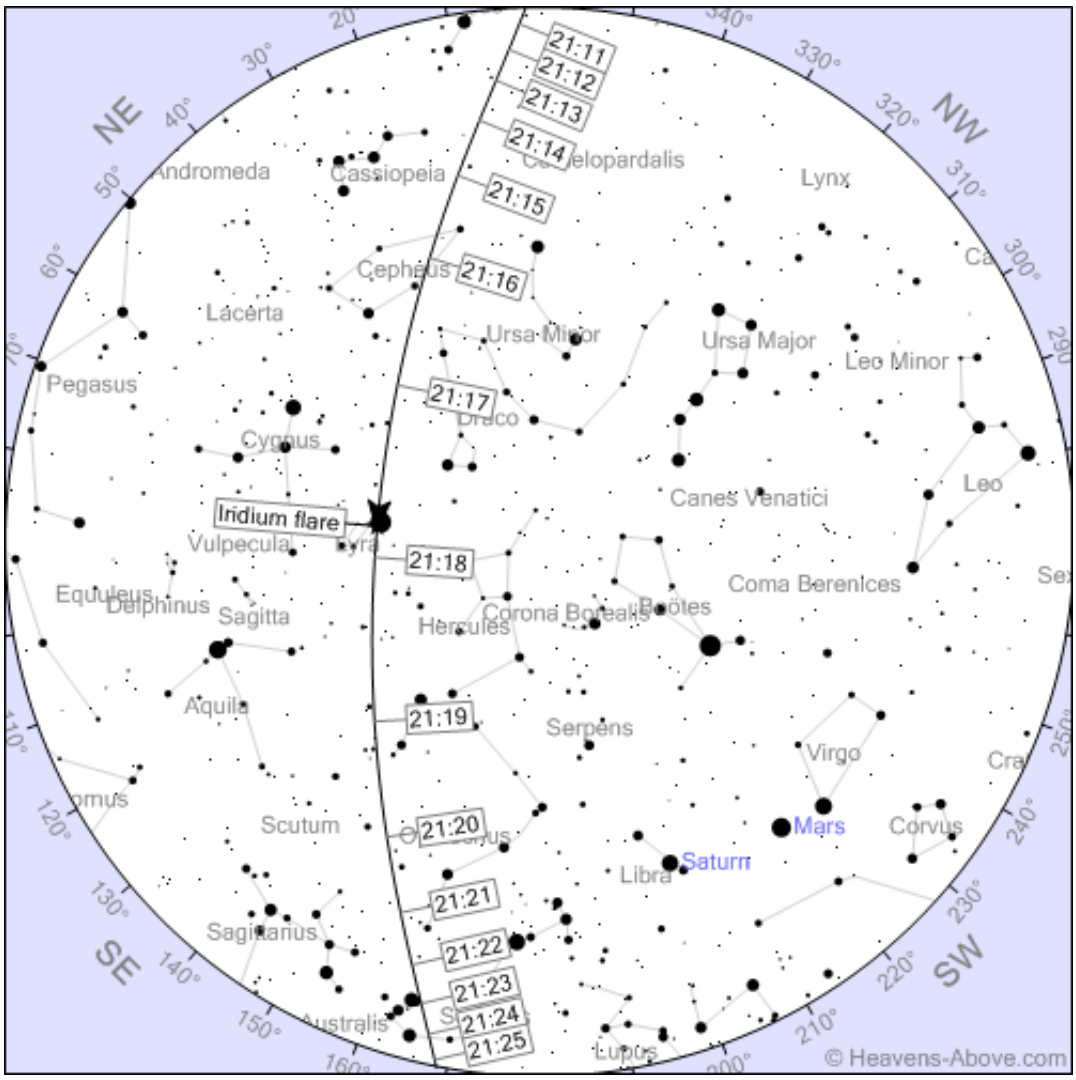
July 25, 9:23:34 PM Mag: -0.2 Alt: 61° Azm: 82° (E)



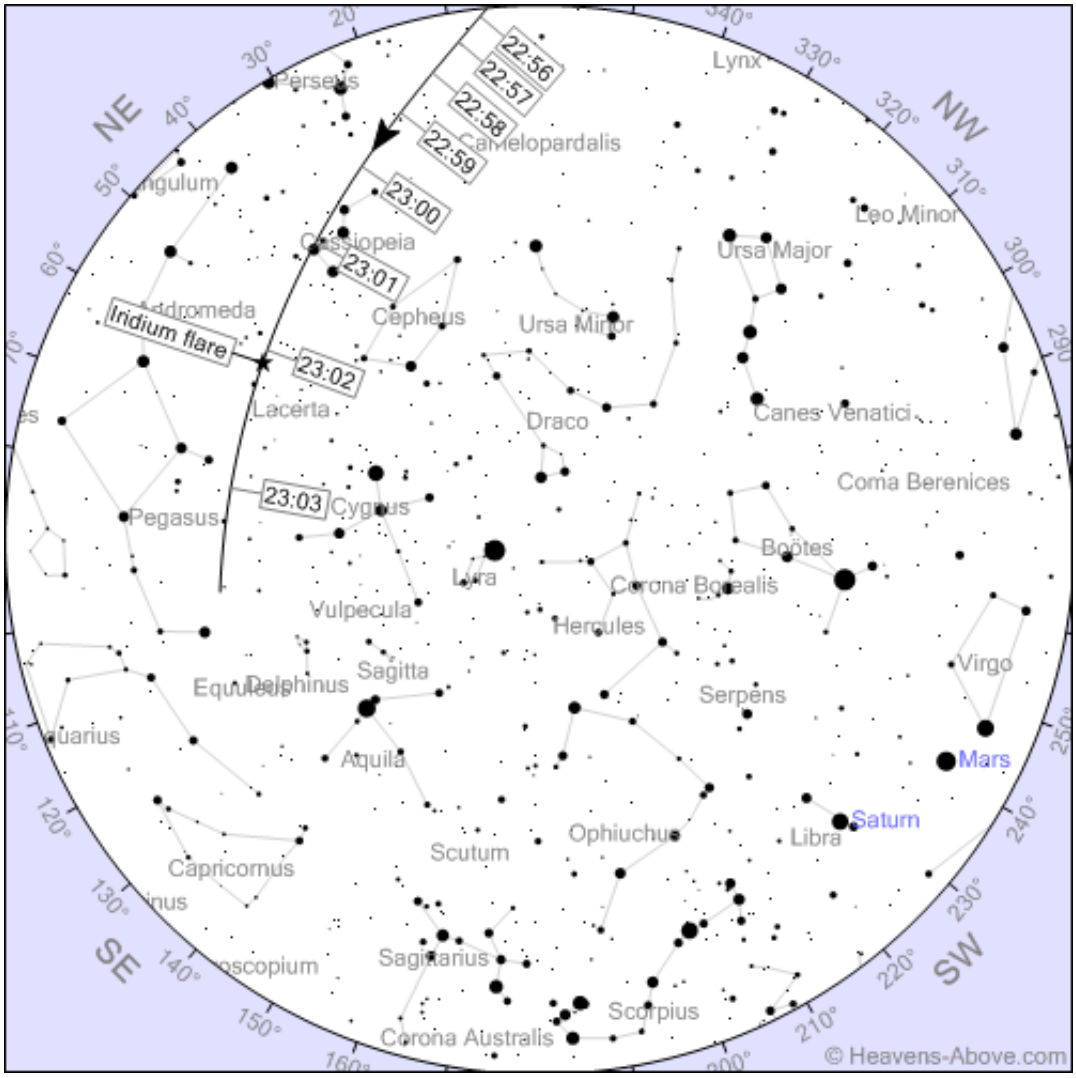
July 25, 10:58:45 PM Mag: 0.1 Alt: 29° Azm: 56° (ENE)



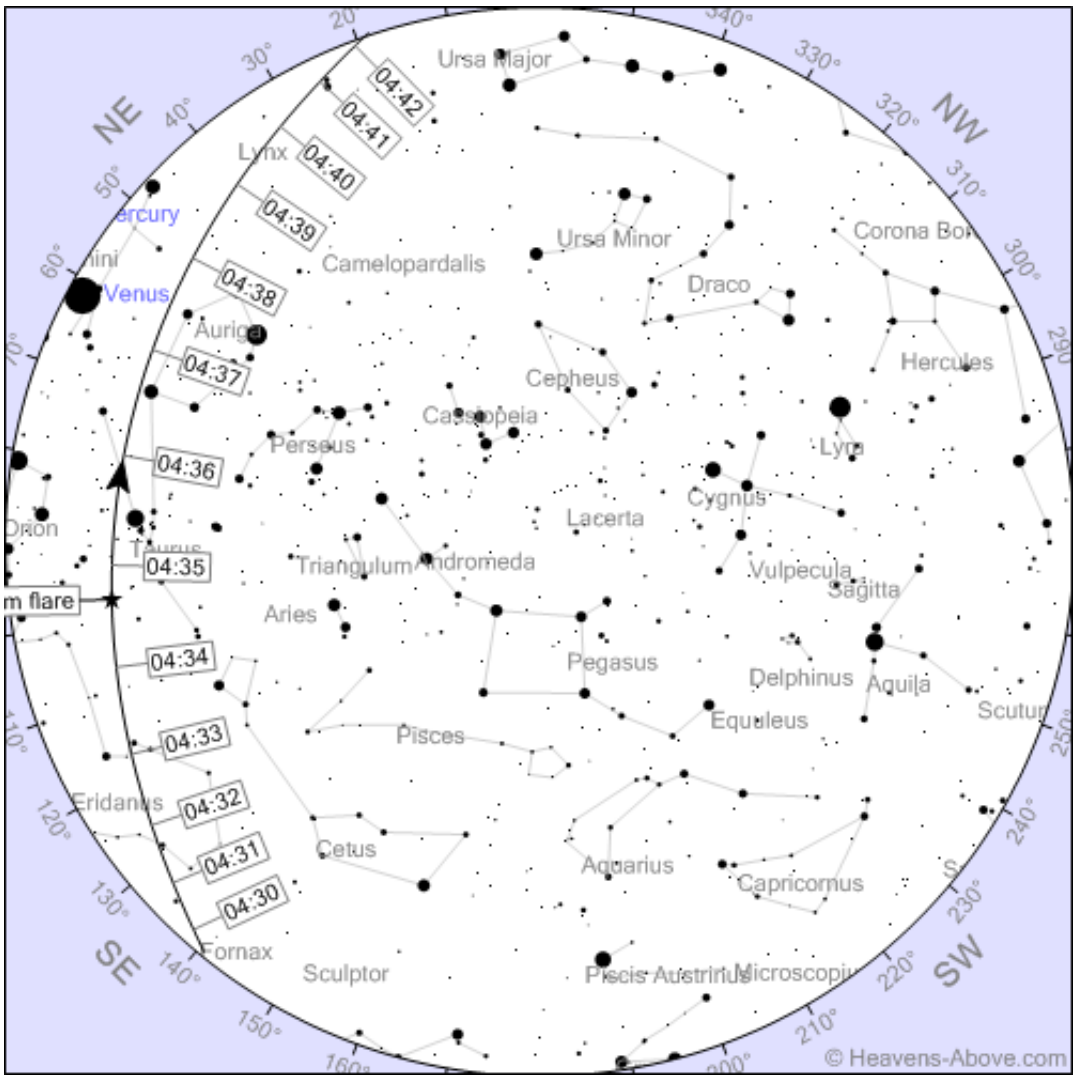
July 26, 4:40:45 AM Mag: -3.7 Alt: 18° Azm: 97° (E)



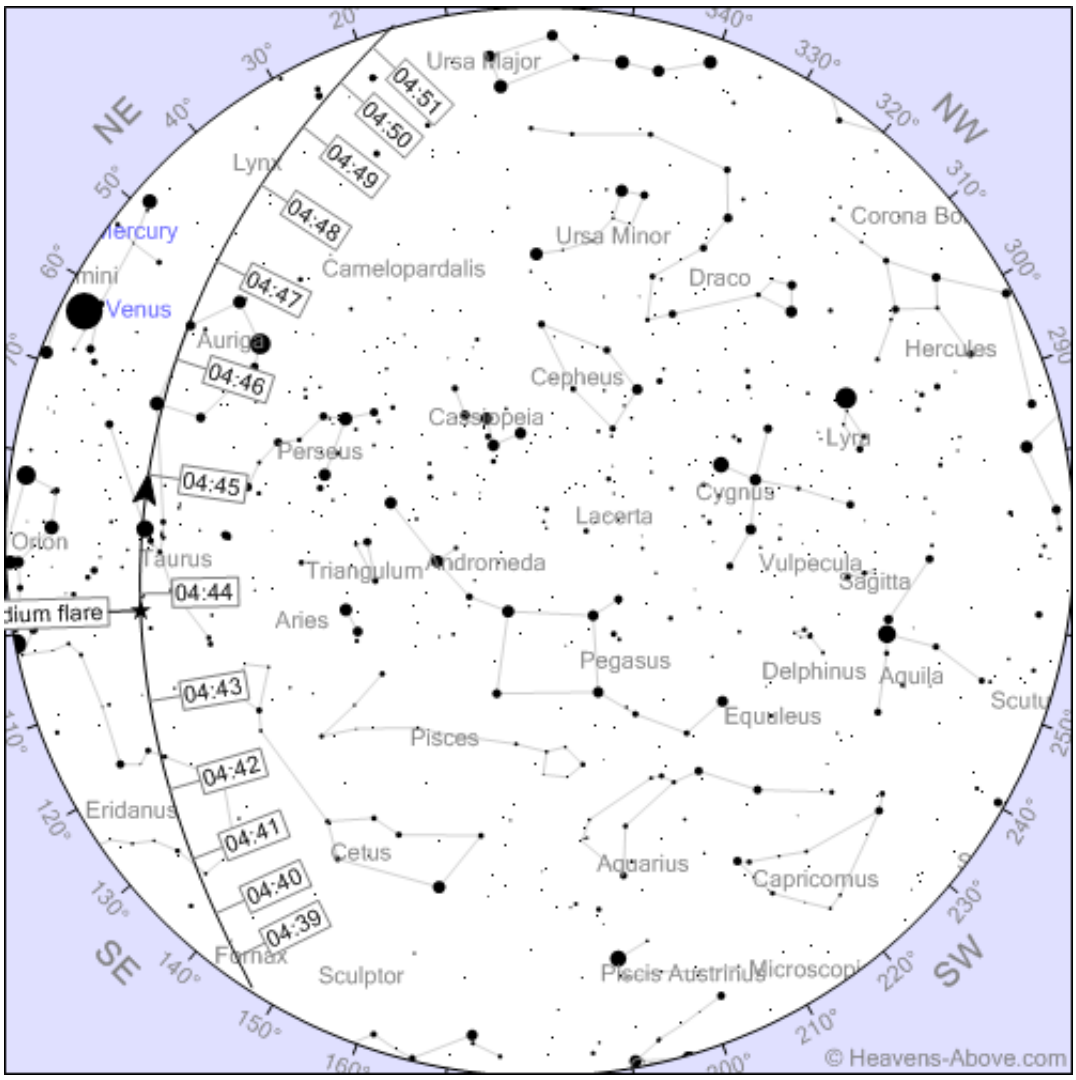
July 26, 9:17:49 PM Mag: 0.4 Alt: 63° Azm: 84° (E)



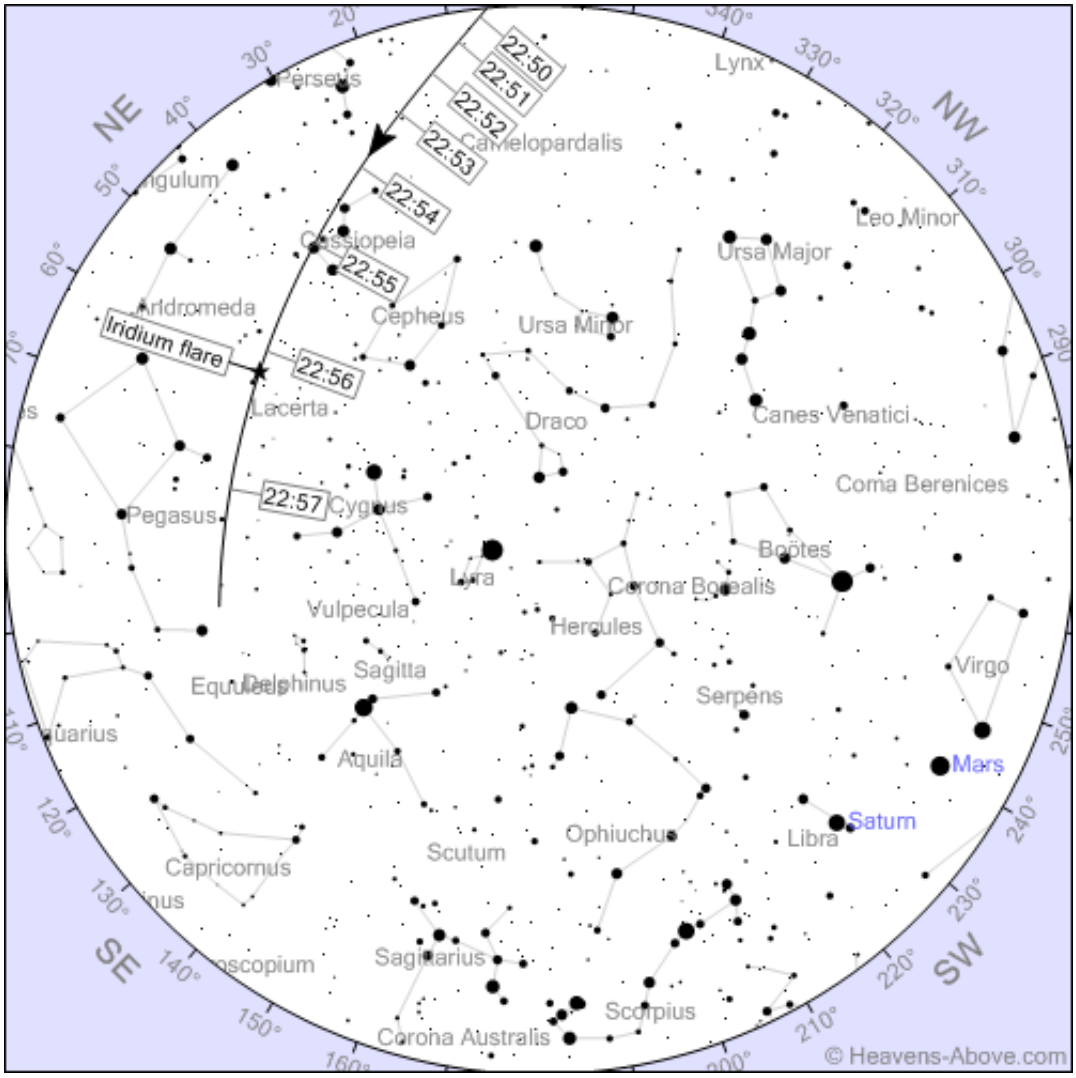
July 26, 11:01:56 PM Mag: 0.6 Alt: 35° Azm: 58° (ENE)



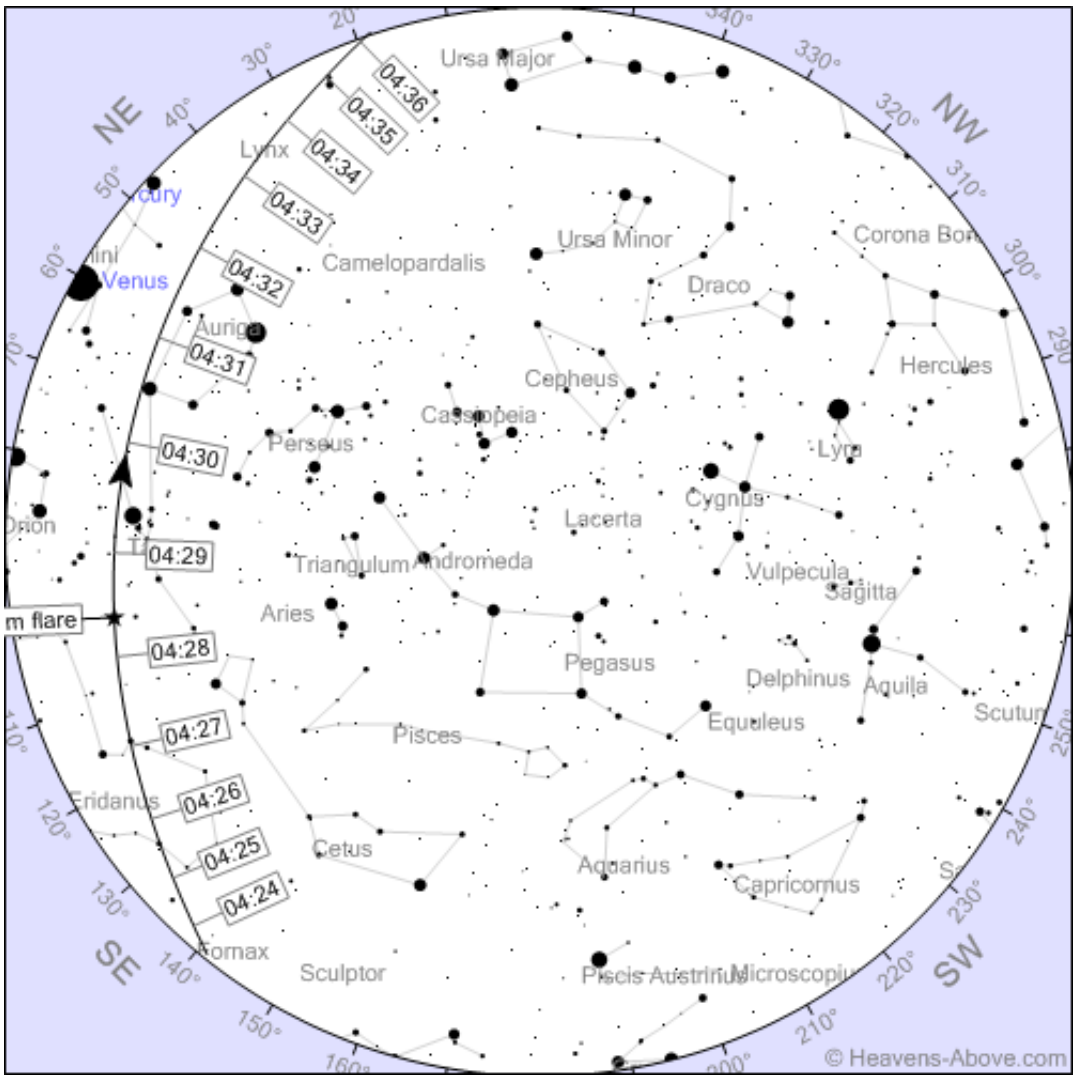
July 27, 4:34:40 AM Mag: -0.2 Alt: 17° Azm: 97° (E)



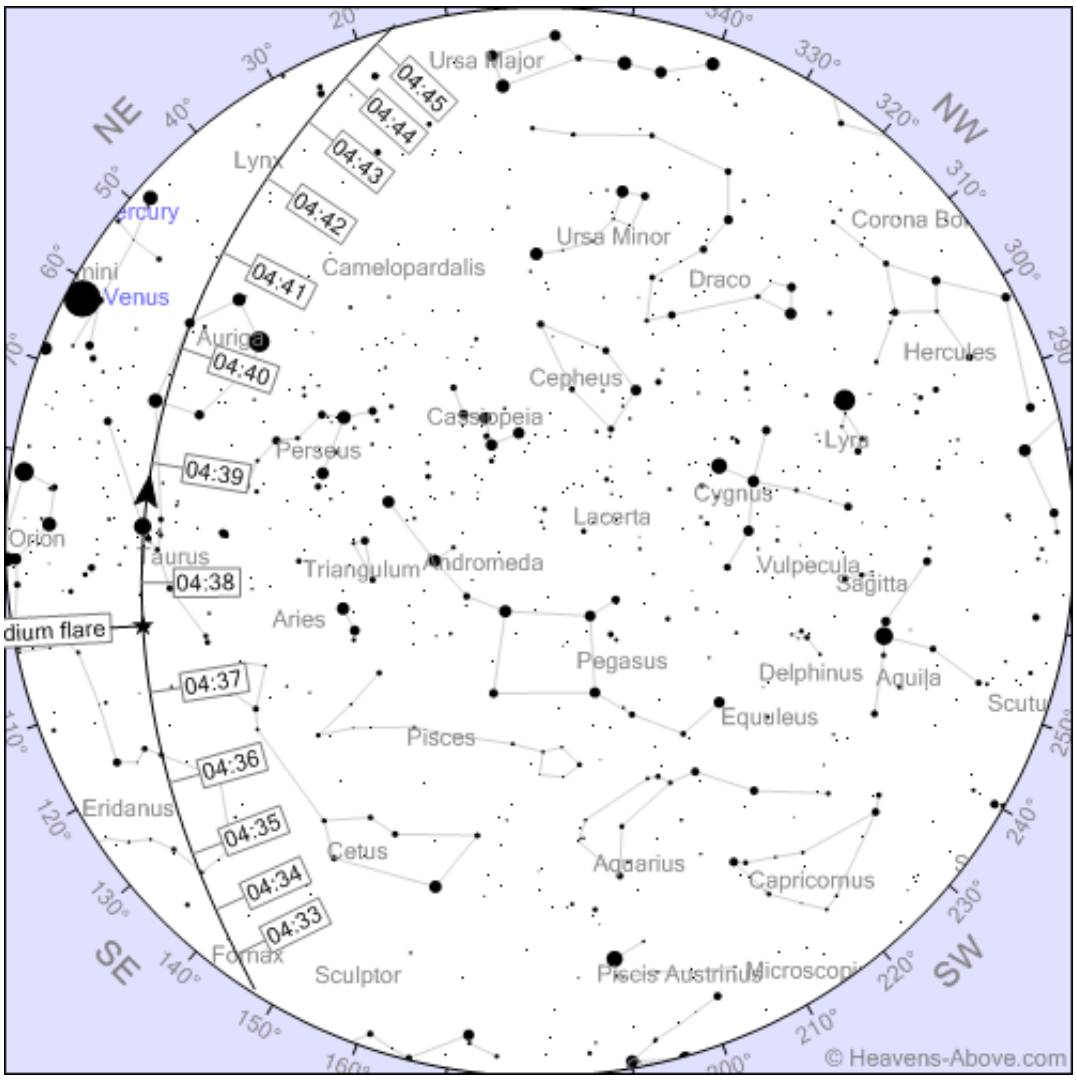
July 27, 4:43:51 AM Mag: -0.1 Alt: 22° Azm: 100° (E)



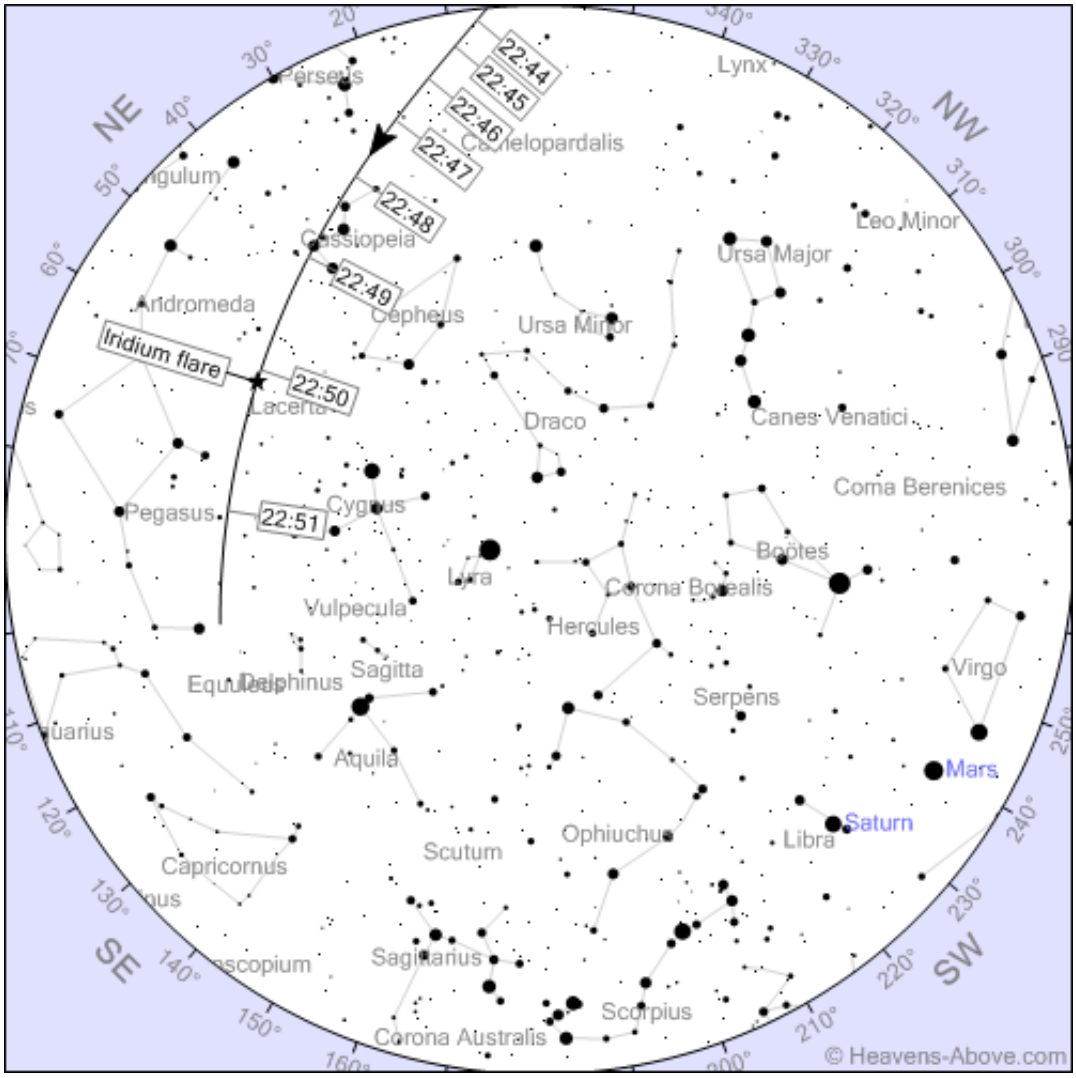
July 27, 10:56:11 PM Mag: -1.2 Alt: 35° Azm: 59° (ENE)



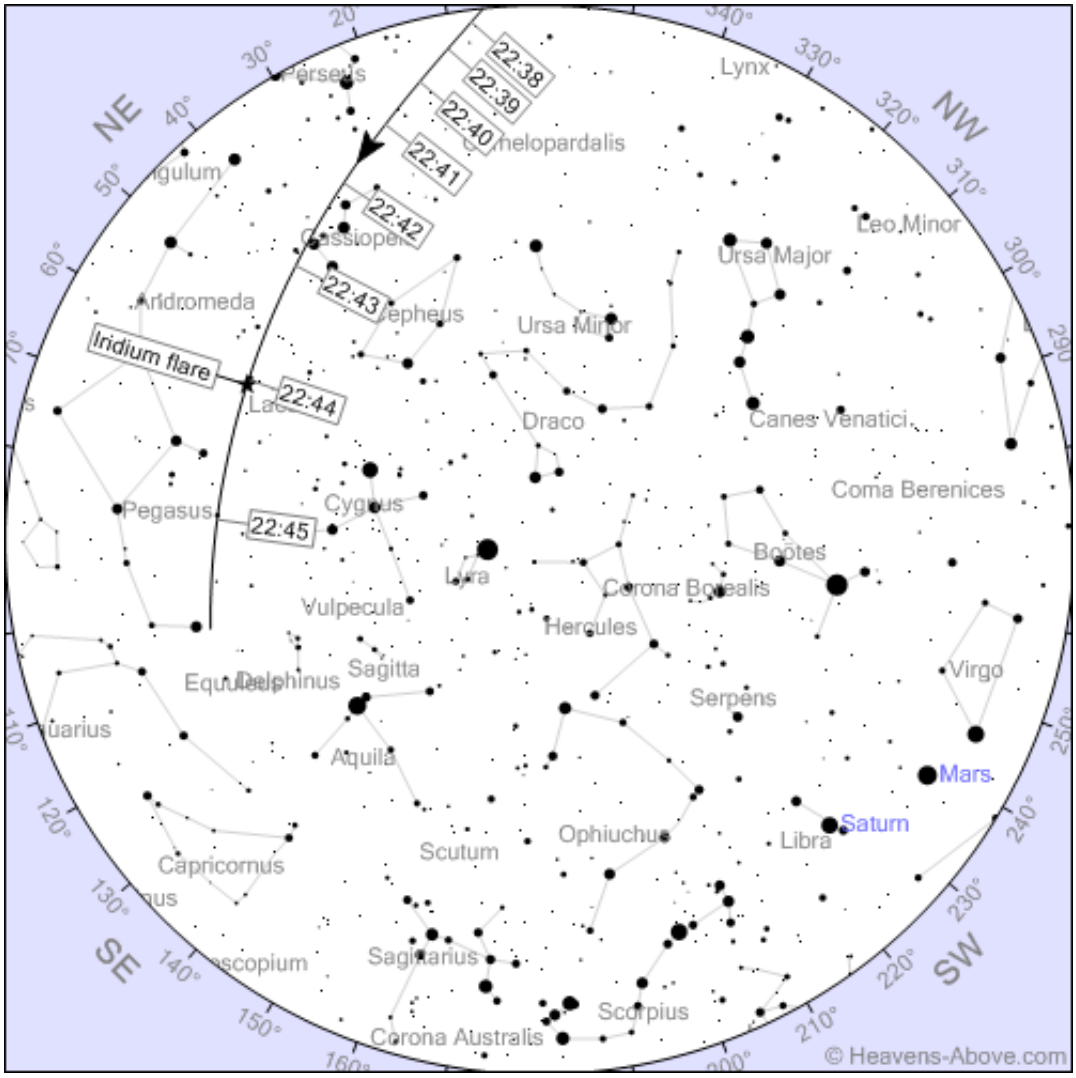
July 28, 4:28:23 AM Mag: 0.8 Alt: 17° Azm: 100° (E)



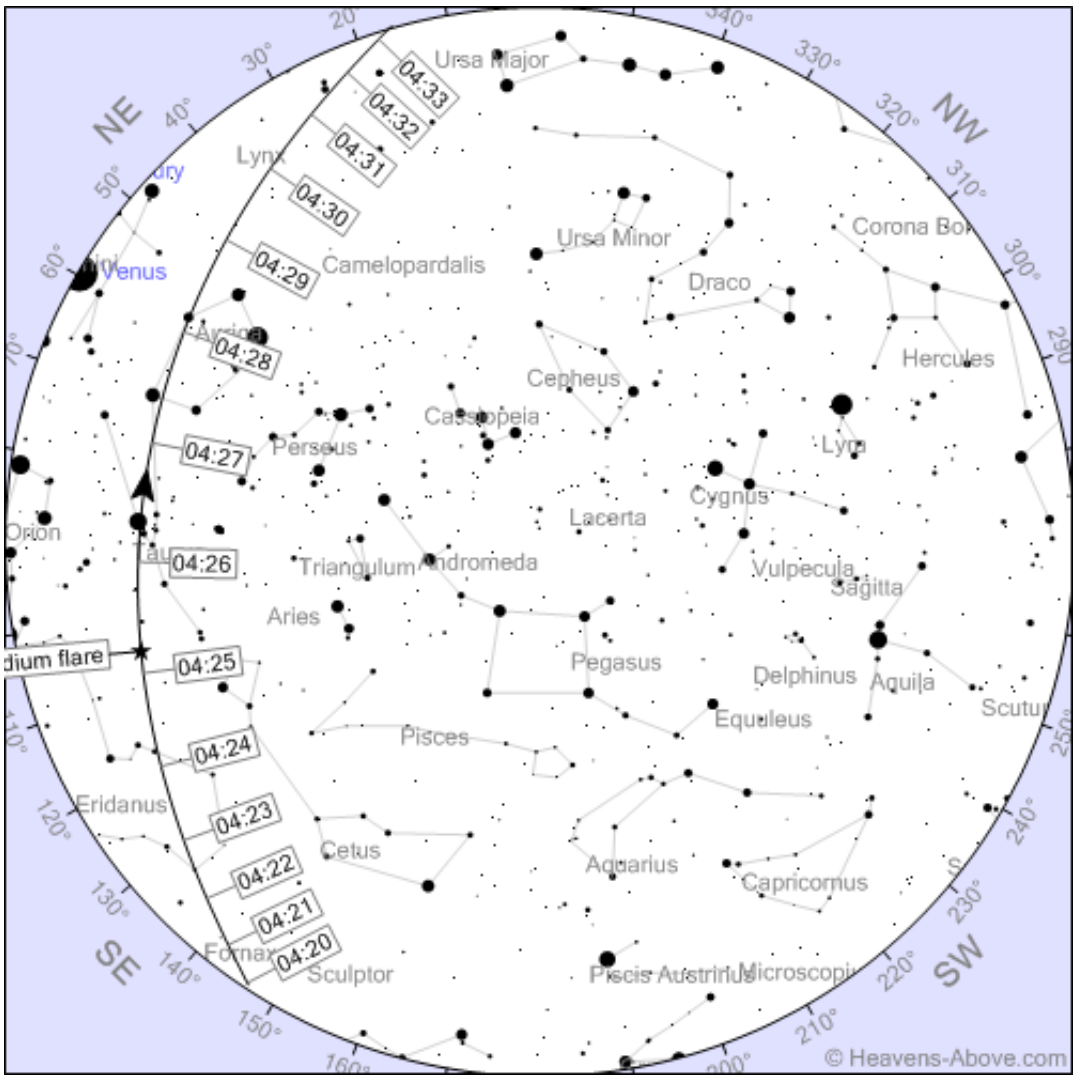
July 28, 4:37:37 AM Mag: -1.6 Alt: 36° Azm: 102° (ENE)



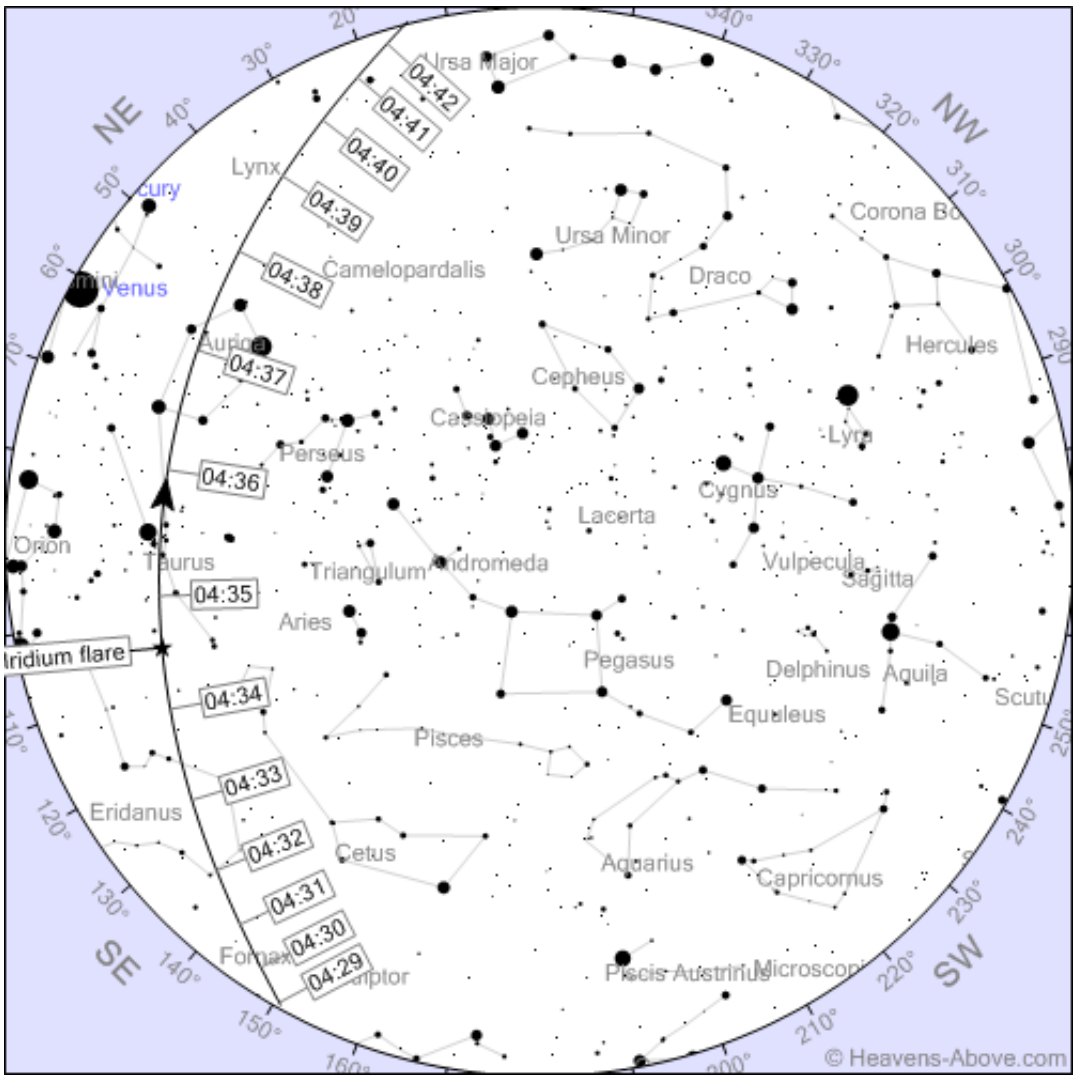
July 28, **10:50:02 PM** Mag: -6.4 Alt: 36° Azm: 61° **(ENE)**



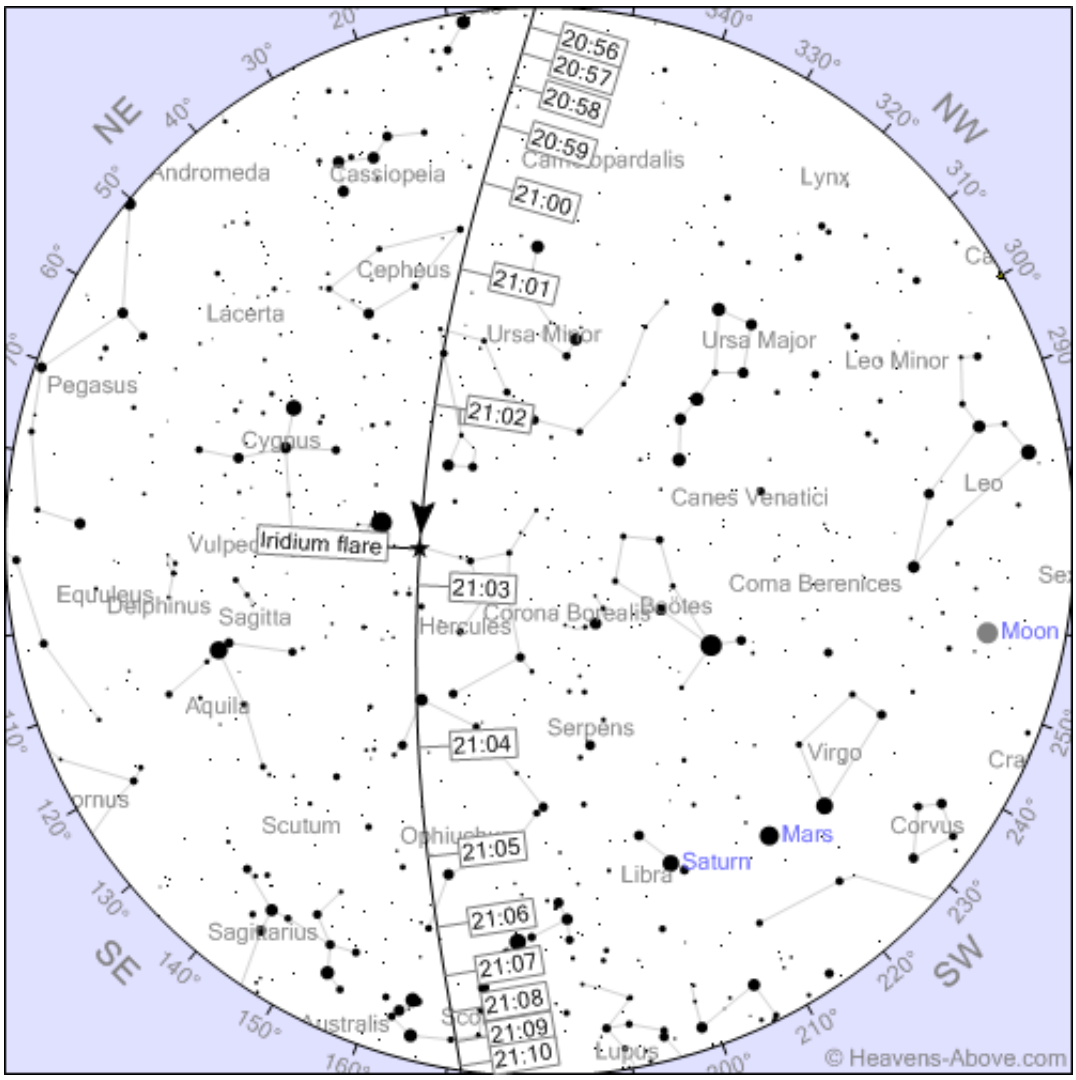
July 29, 10:44:03 PM Mag: -0.3 Alt: 35° Azm: 62° (ENE)



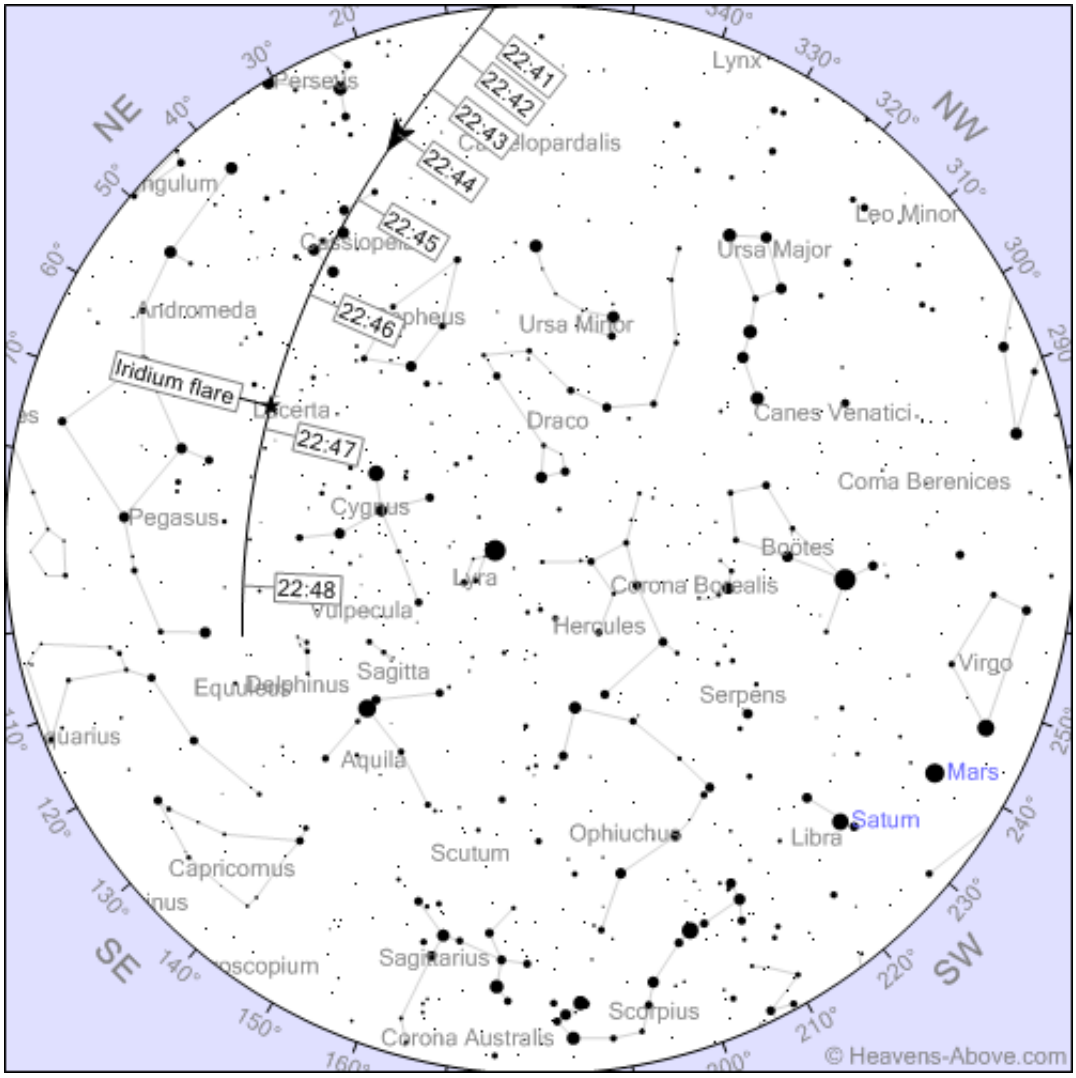
July 30, 4:25:12 AM Mag: -3.7 Alt: 20° Azm: 105° (ENE)



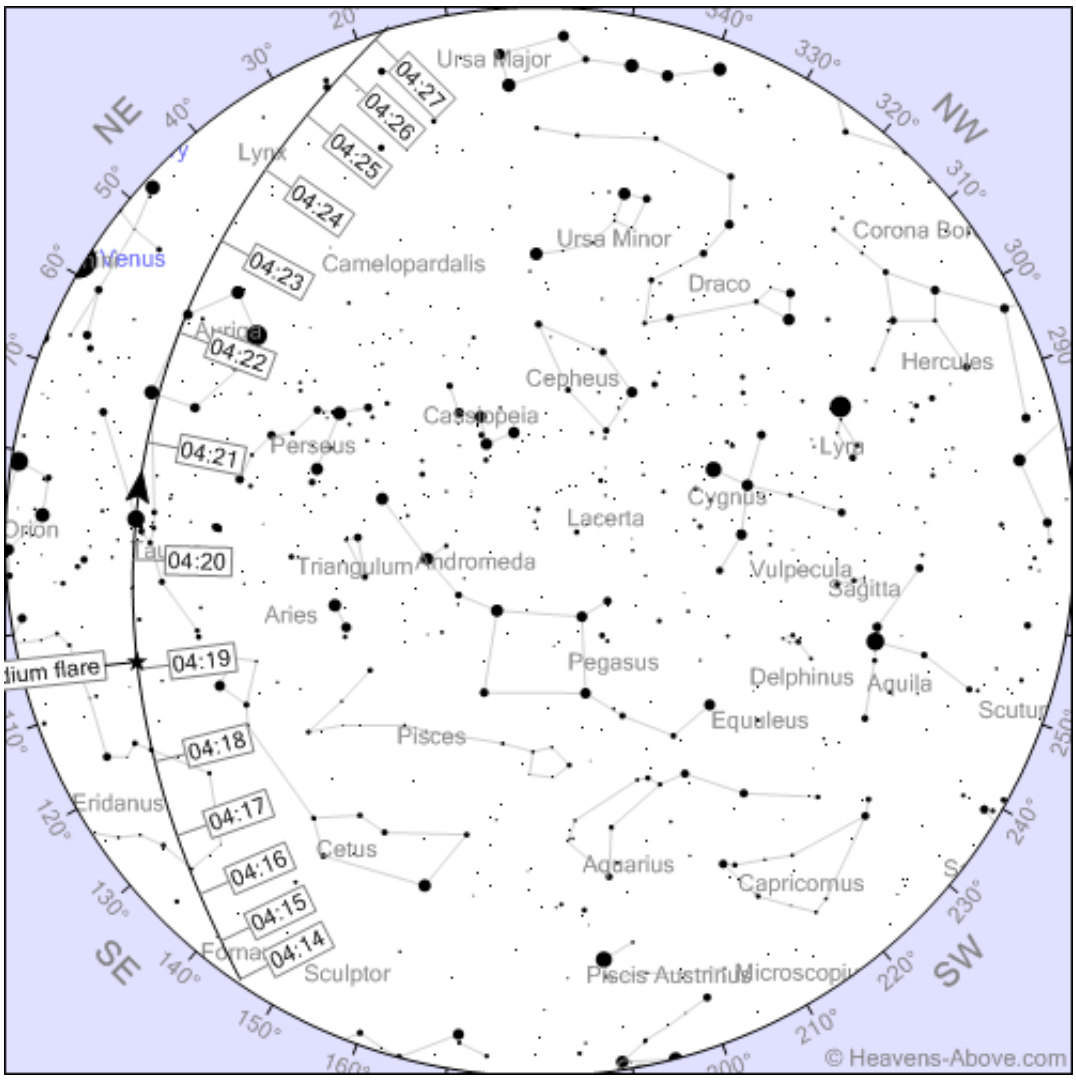
July 30, 4:34:33 AM Mag: 0.9 Alt: 24° Azm: 105° (ESE)



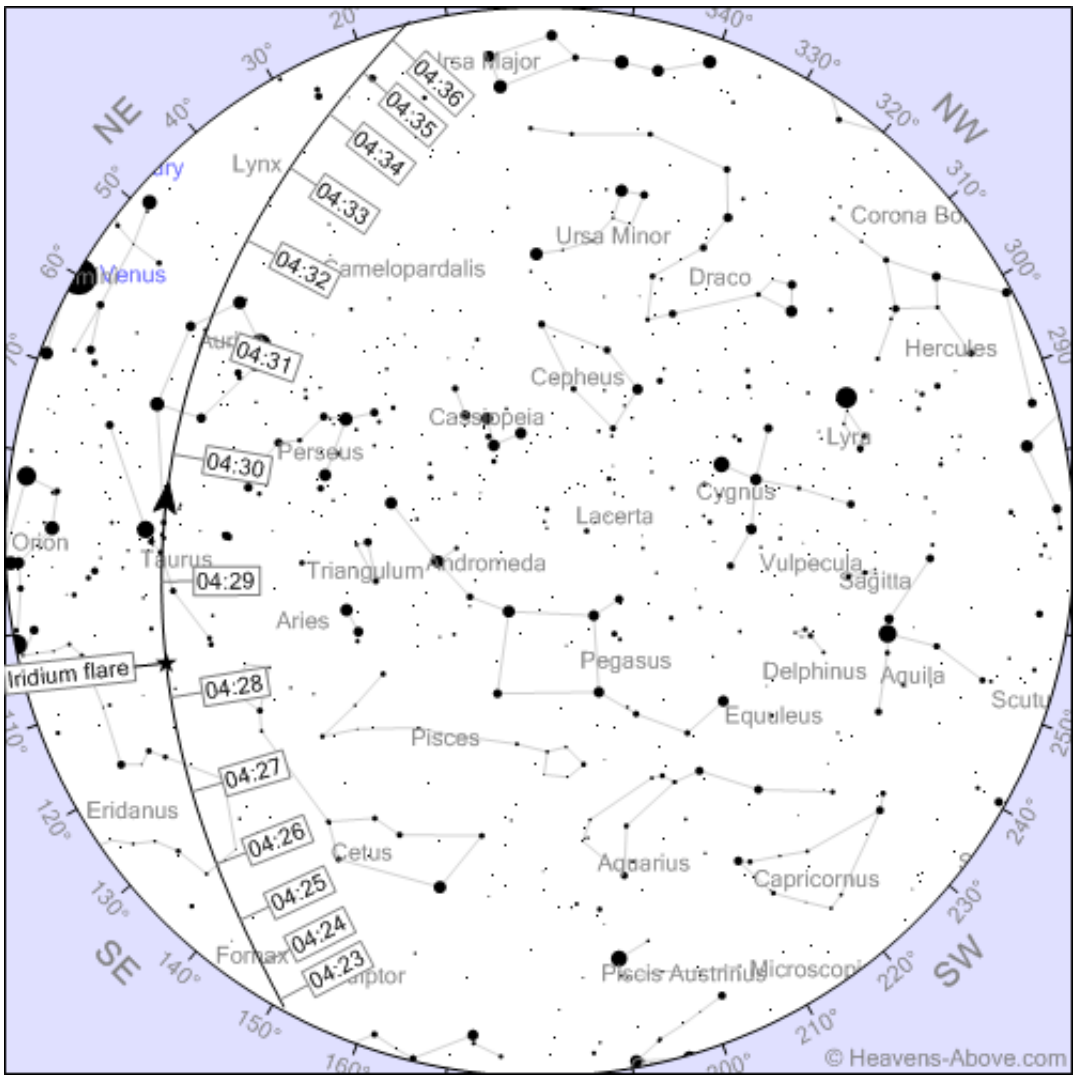
July 30, **9:02:48 PM** Mag: -8.4 Alt: 70° Azm: 93° **(E)**



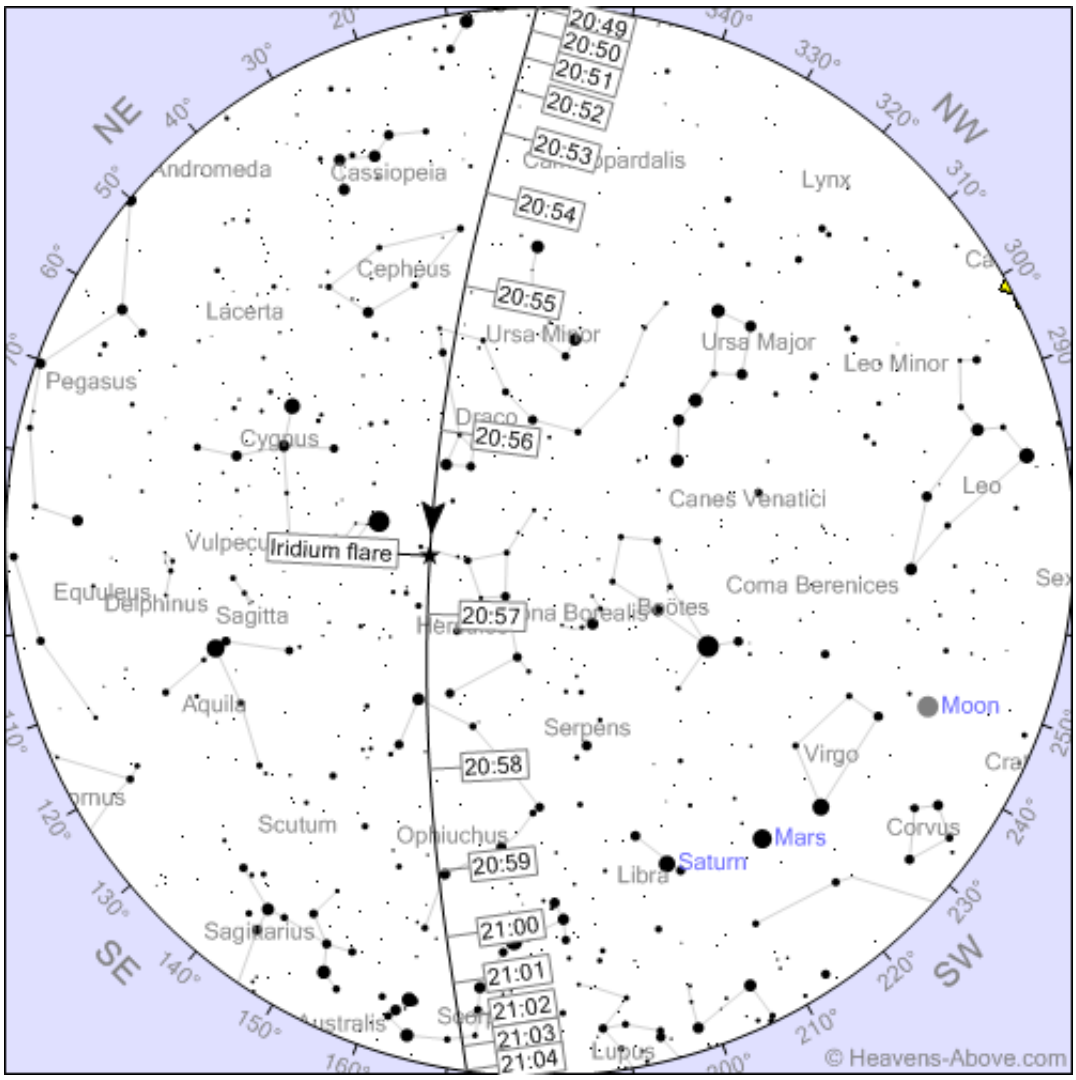
July 30, 10:46:49 PM Mag: -0.5 Alt: 40° Azm: 64° (ENE)



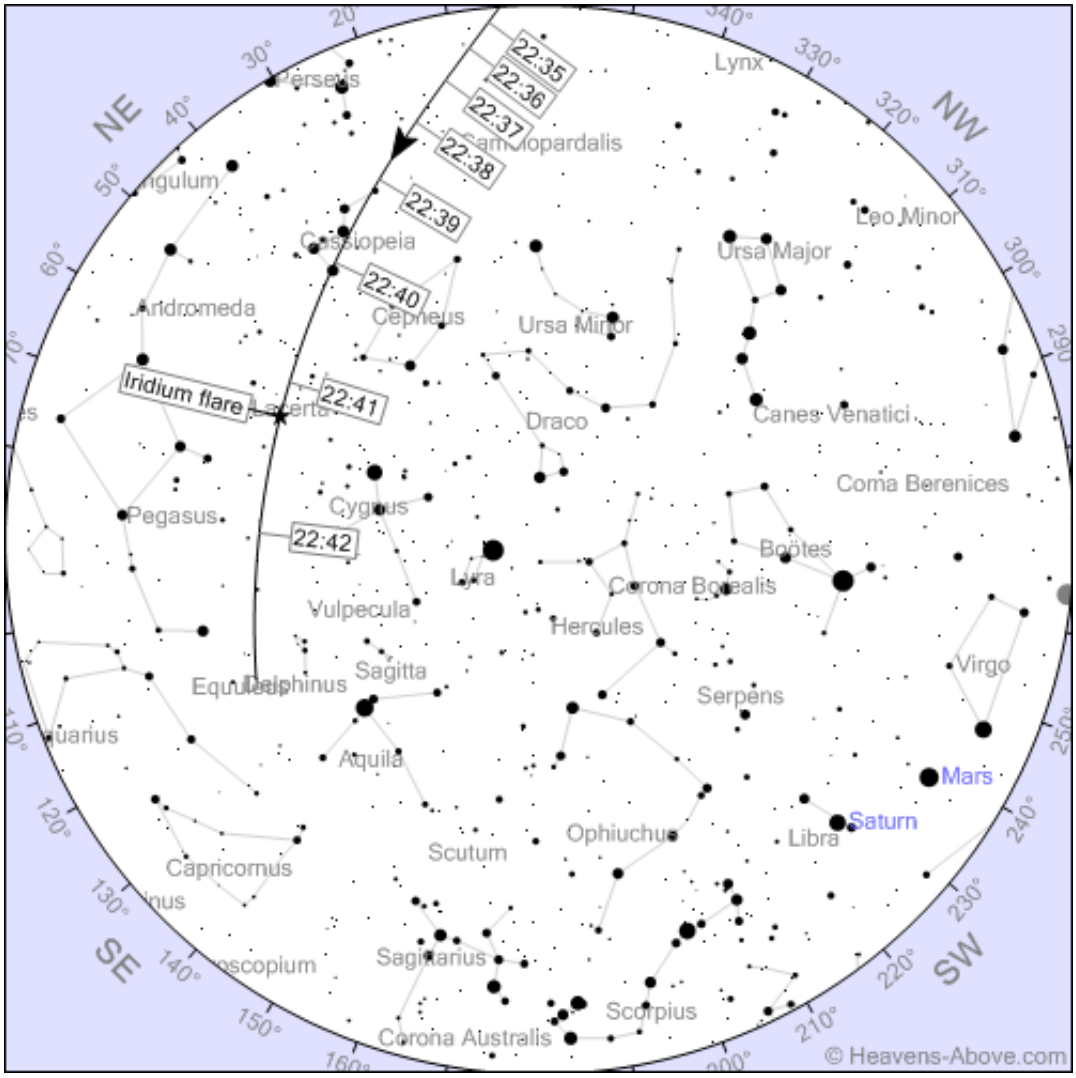
July 31, 4:19:04 AM Mag: -0.5 Alt: 19° Azm: 106° (ESE)



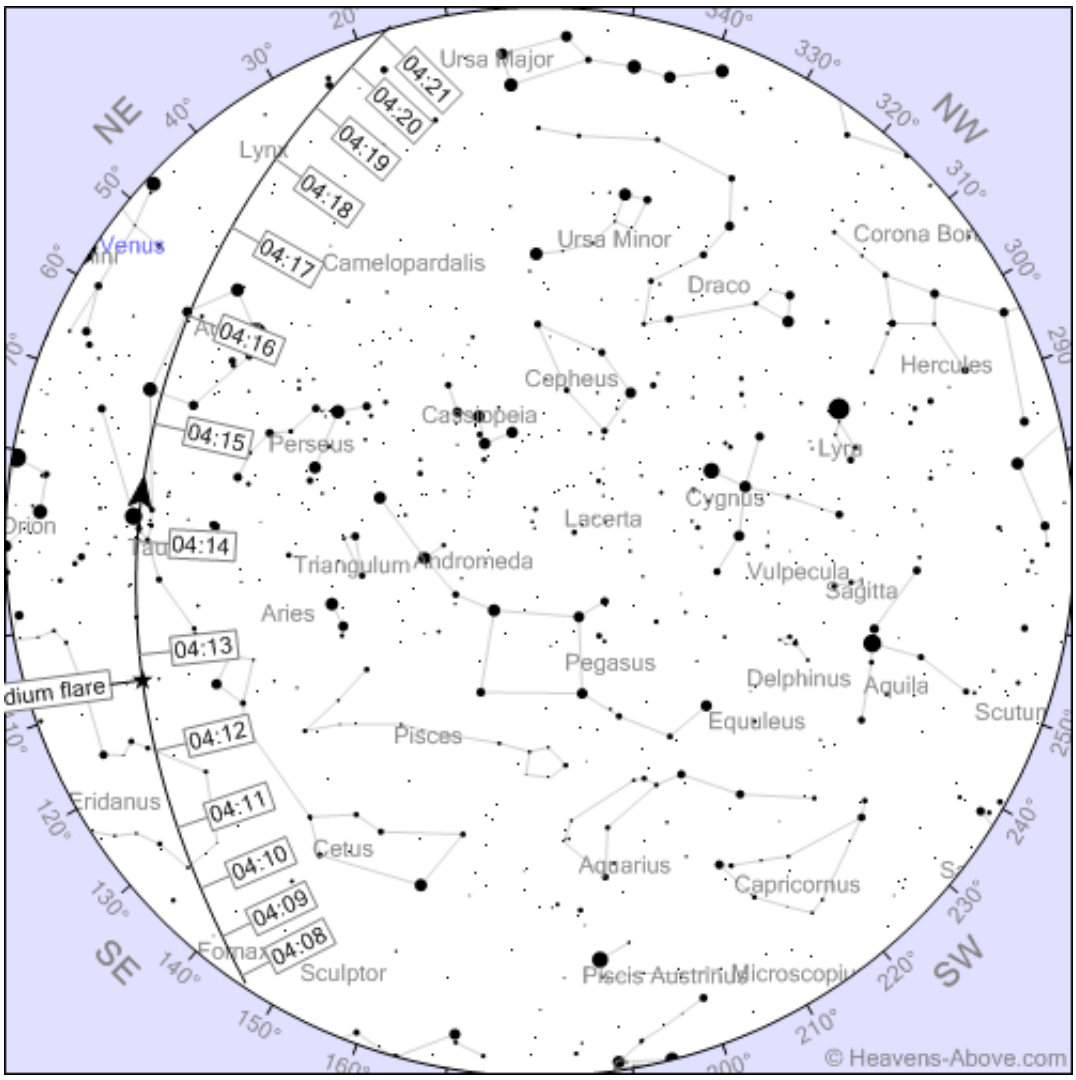
July 31, 4:28:18 AM Mag: 0.2 Alt: 24° Azm: 108° (ESE)



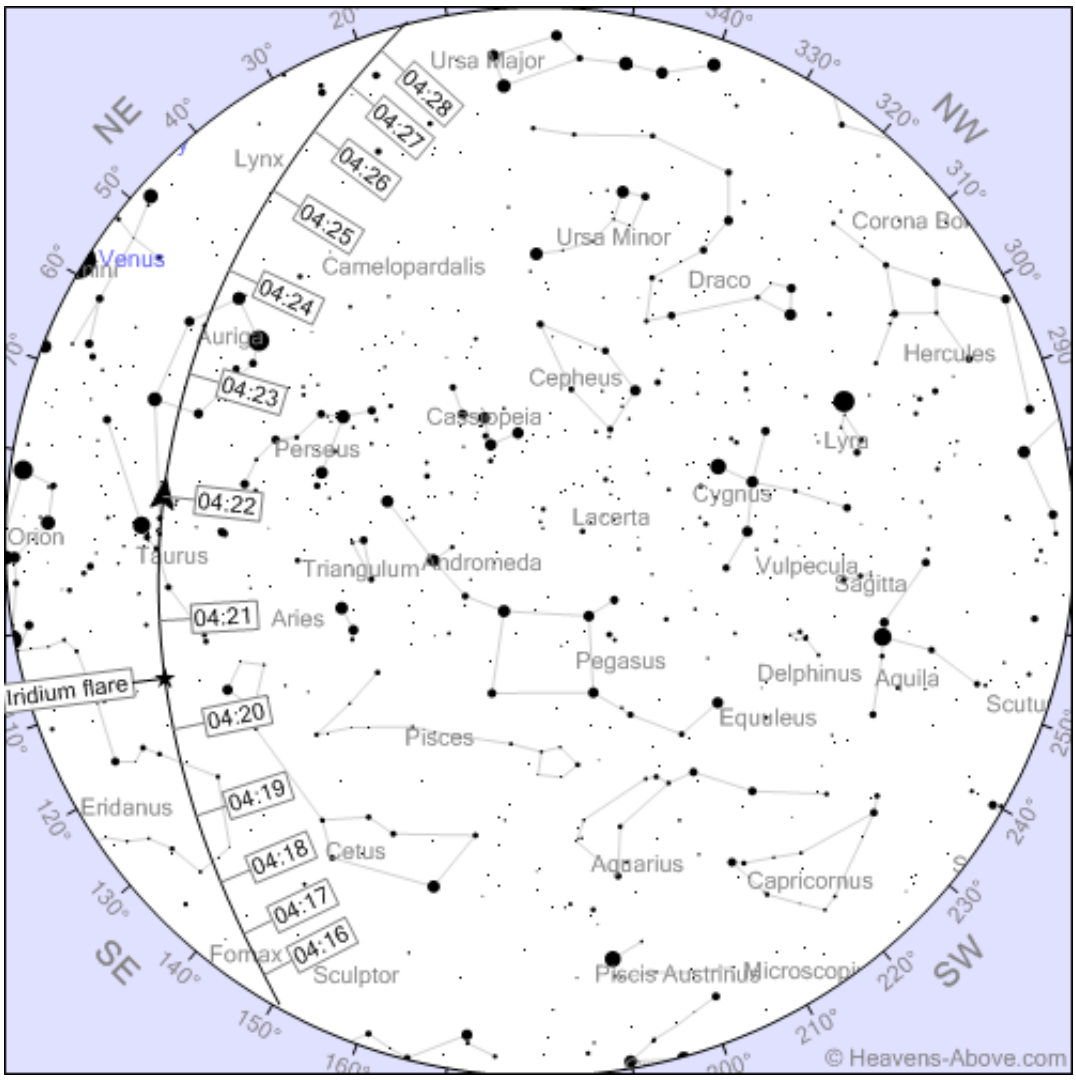
July 31, **8:56:33 PM** Mag: -8.4 Alt: 71° Azm: 97° **(E)**



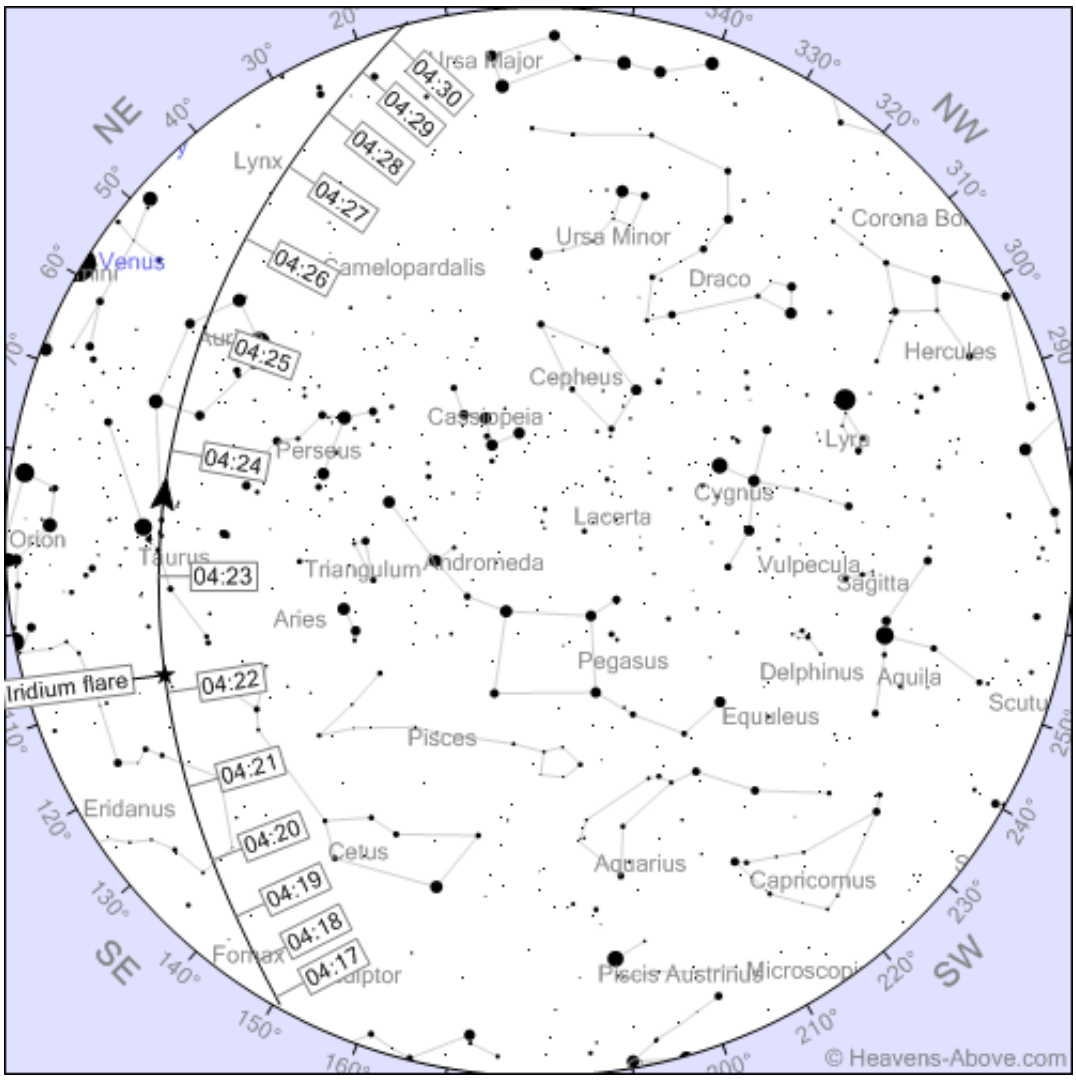
July 31, 10:40:56 PM Mag: 0.3 Alt: 42° Azm: 65° (ENE)



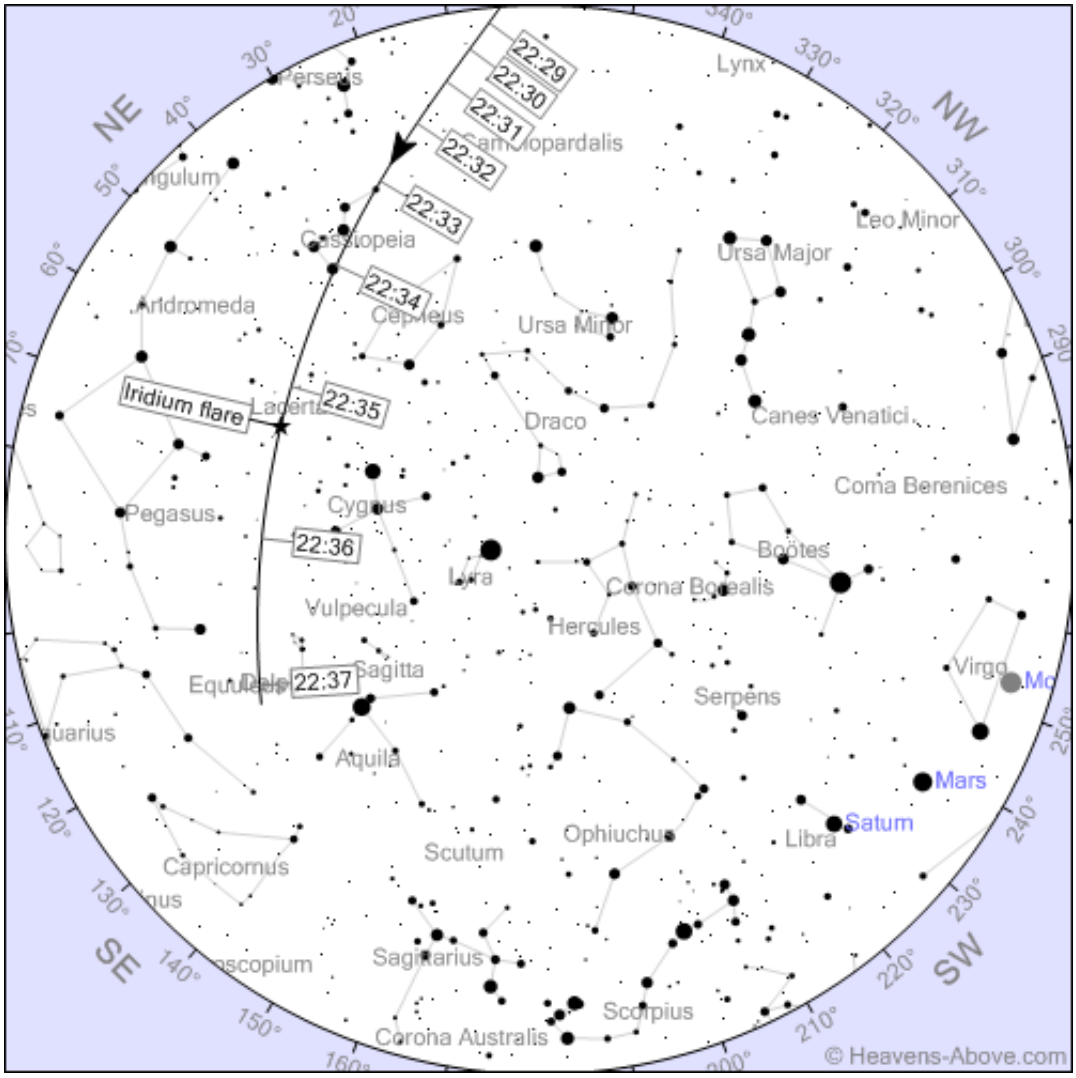
August 1, 4:12:45 AM Mag: 0.2 Alt: 19° Azm: 109° (ESE)



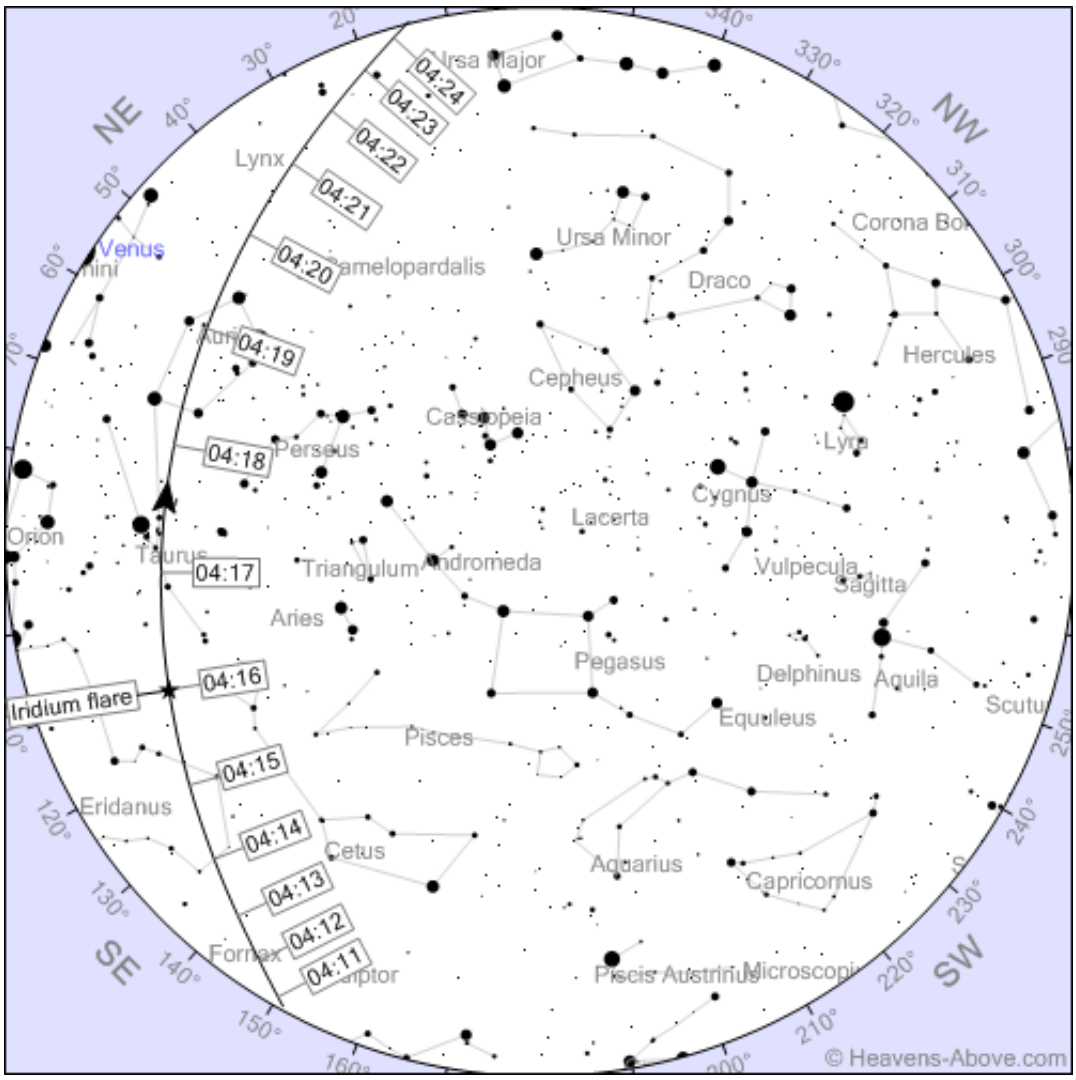
August 1, 4:20:29 AM Mag: -2.7 Alt: 23° Azm: 110° (ESE)



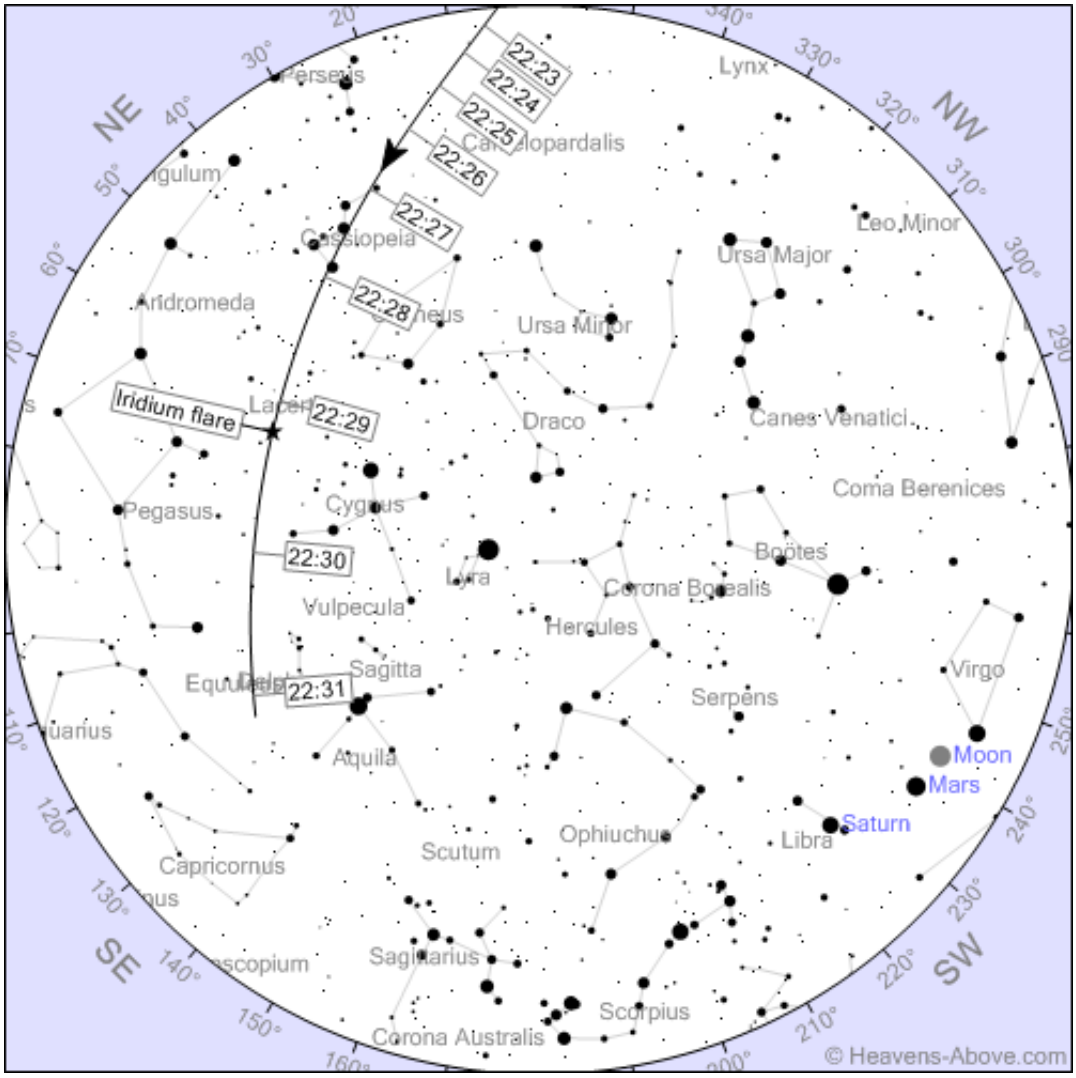
August 1, 4:22:09 AM Mag: -1.7 Alt: 23° Azm: 109° (ESE)



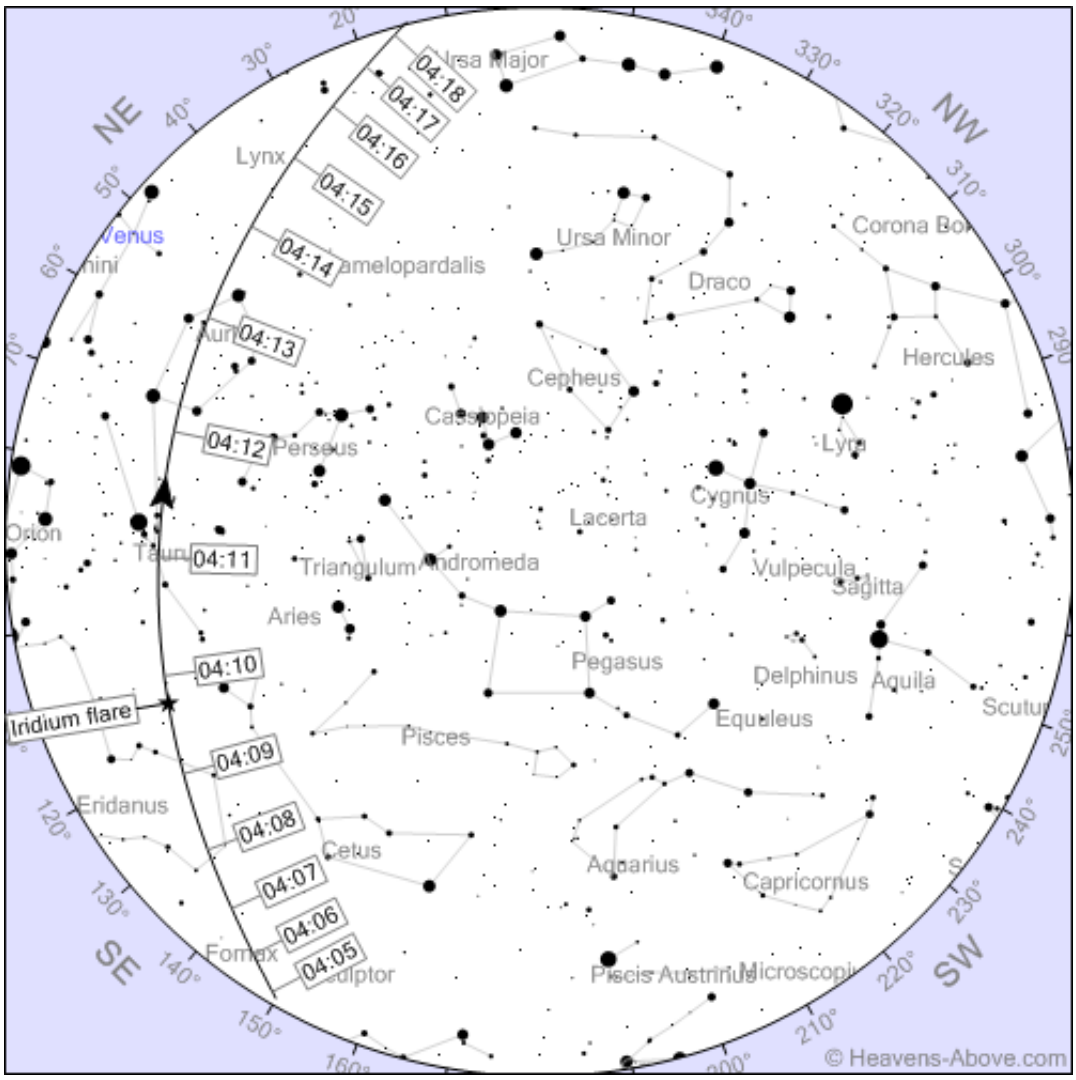
August 1, 10:35:12 PM Mag: -0.7 Alt: 43° Azm: 67° (ENE)



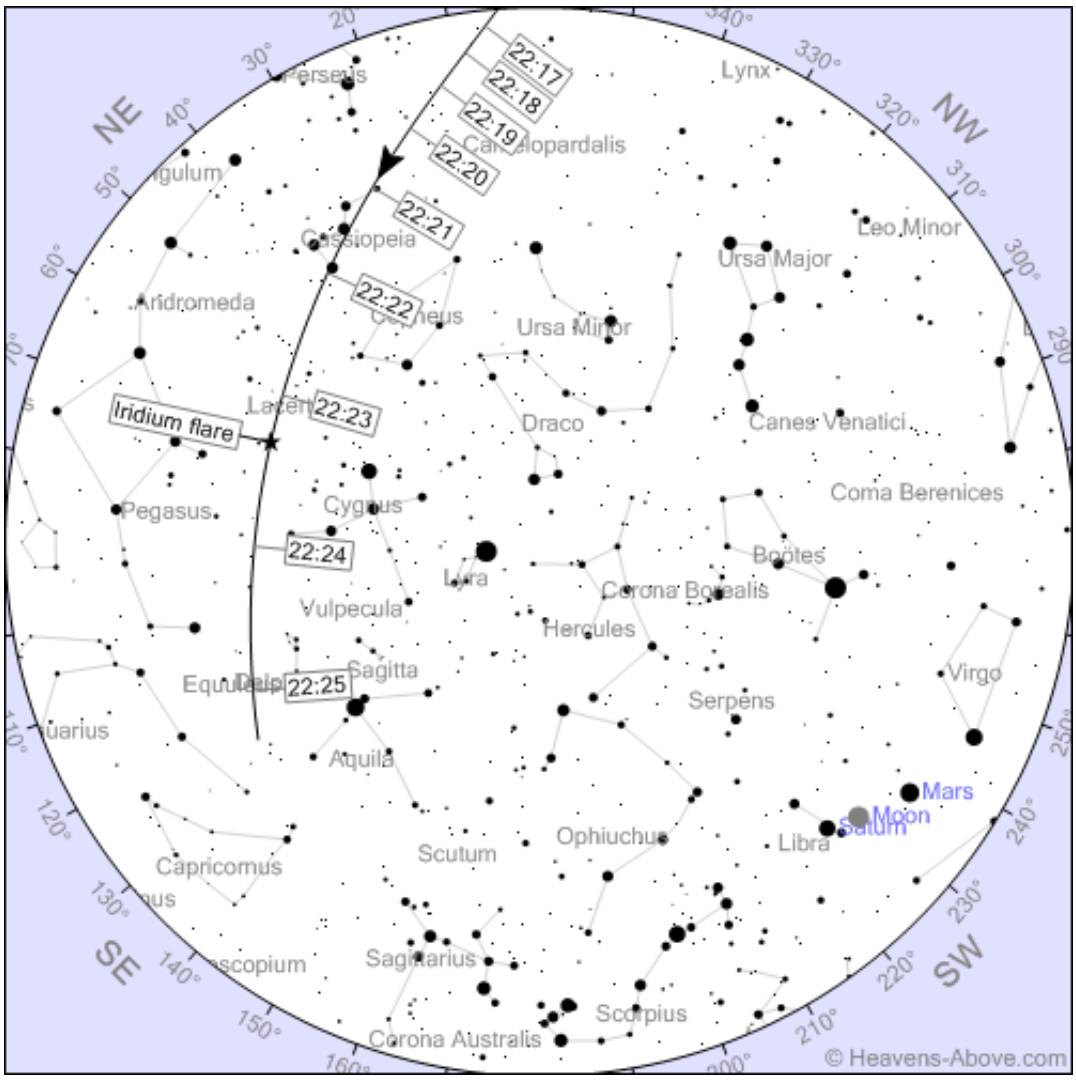
August 2, 4:15:54 AM Mag: -3.7 Alt: 22° Azm: 112° (ESE)



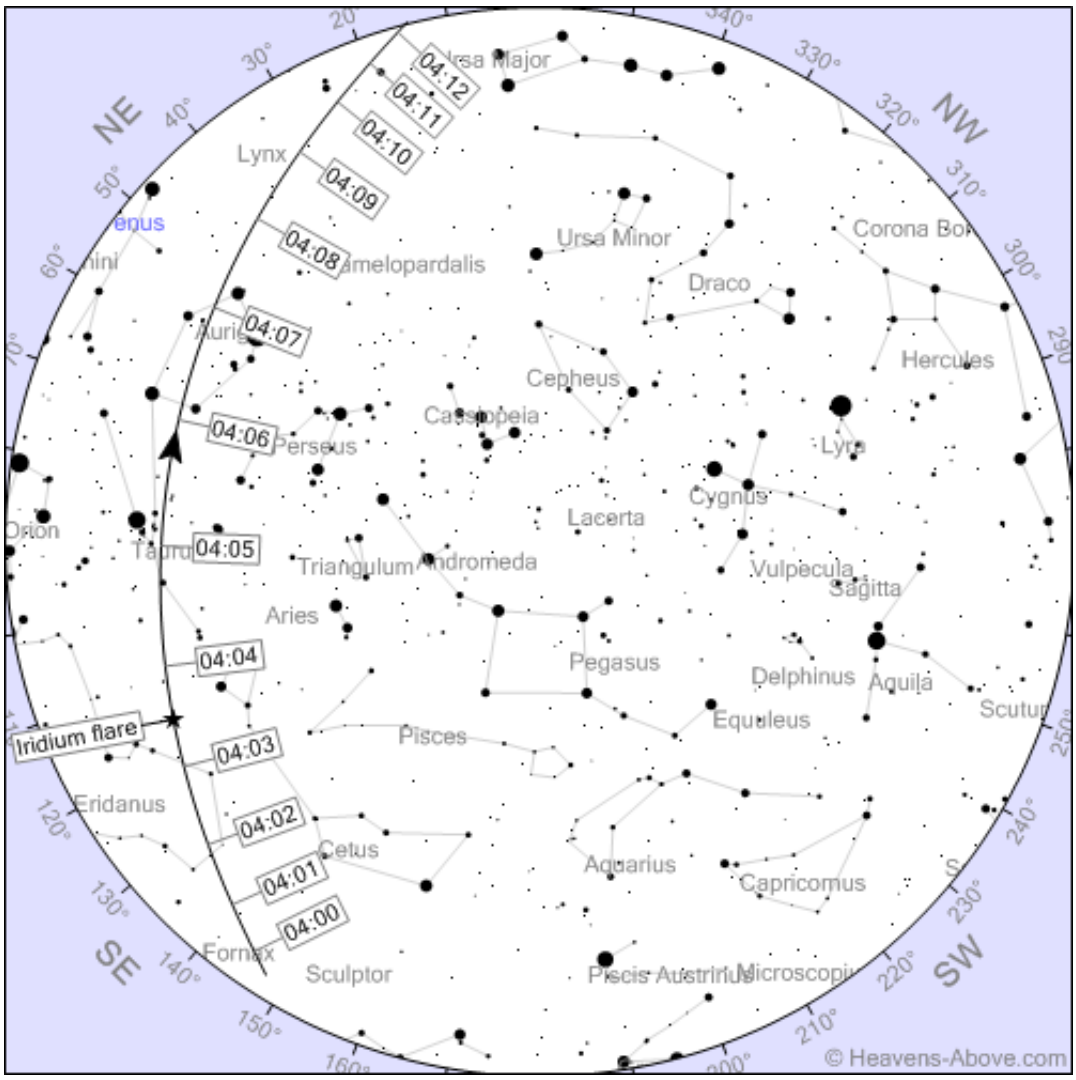
August 2, **10:28:53 PM** Mag: -5.3 Alt: 42° Azm: 68° **(ENE)**



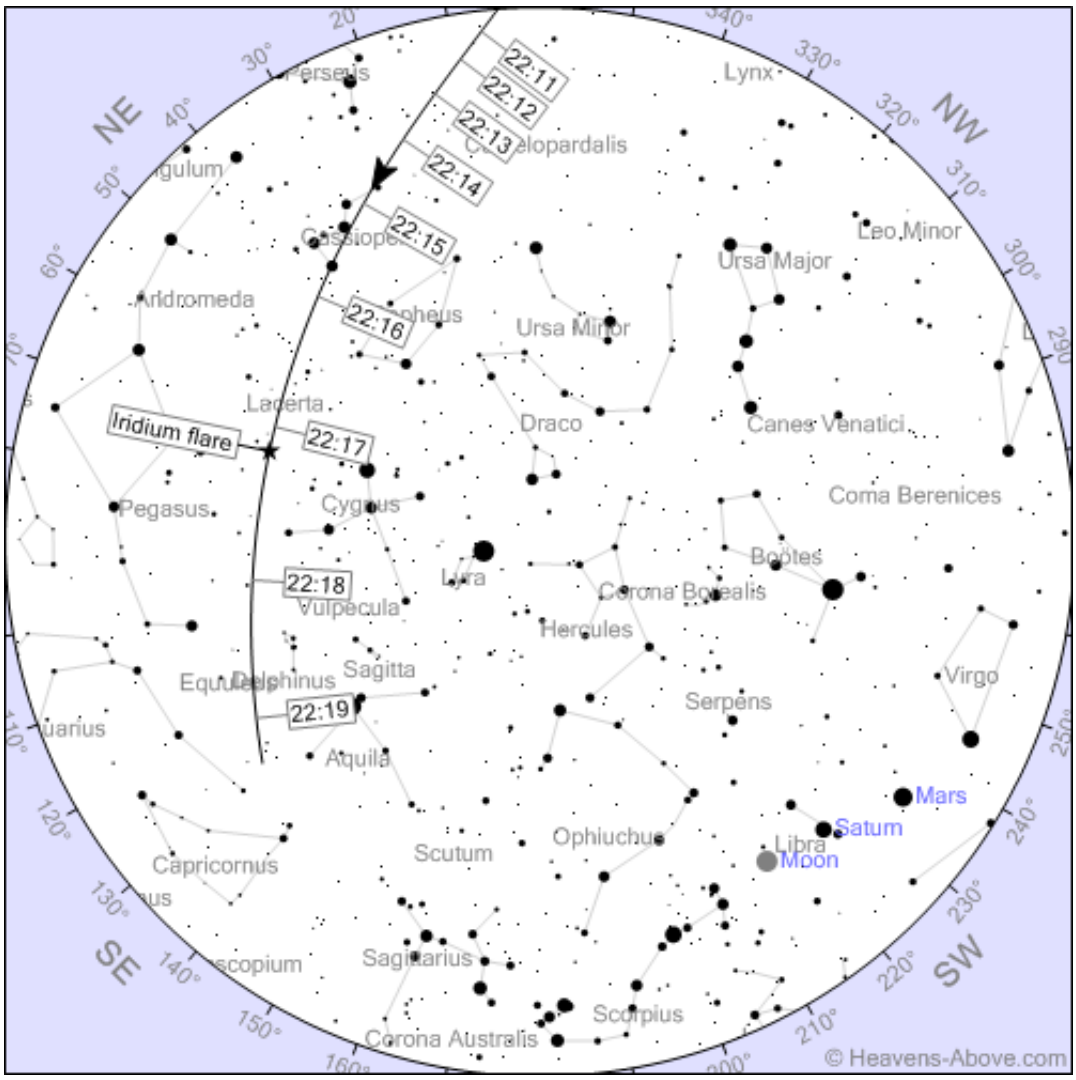
August 3, 4:09:44 AM Mag: -6.6 Alt: 21° Azm: 113° (ESE)



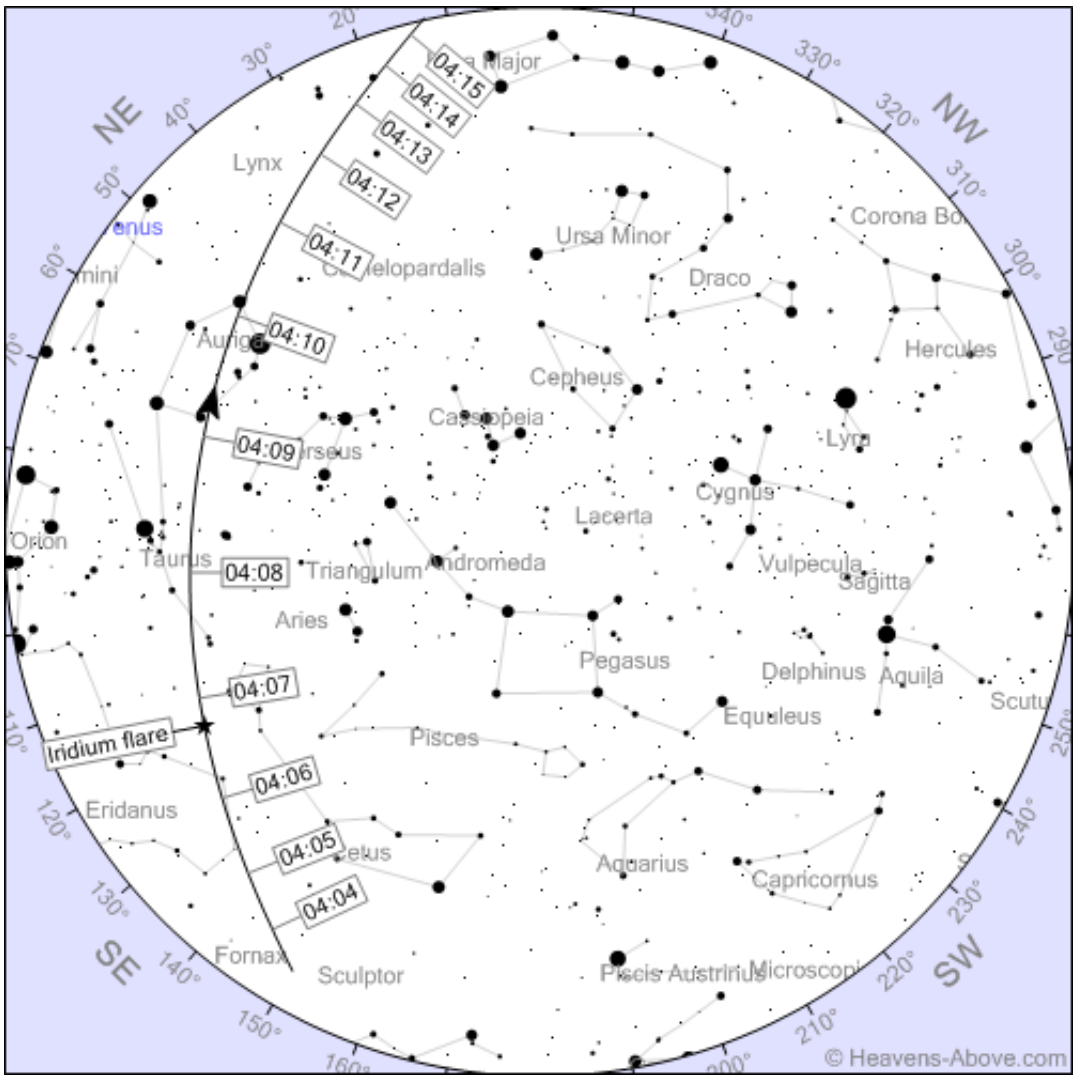
August 3, 10:23:21 PM Mag: -1.8 Alt: 42° Azm: 70° (ENE)



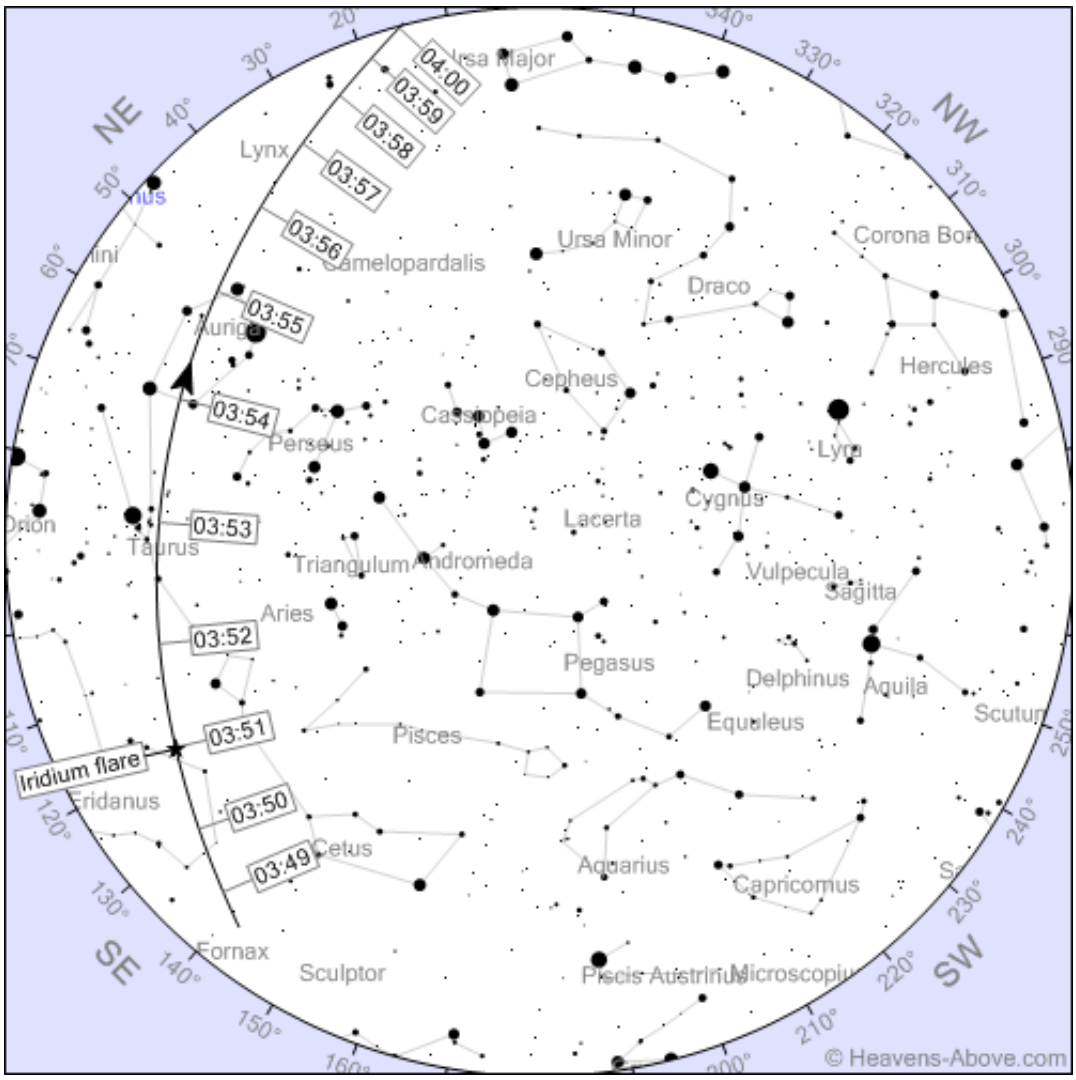
August 4, 4:03:29 AM Mag: -3.5 Alt: 21° Azm: 115° (ESE)



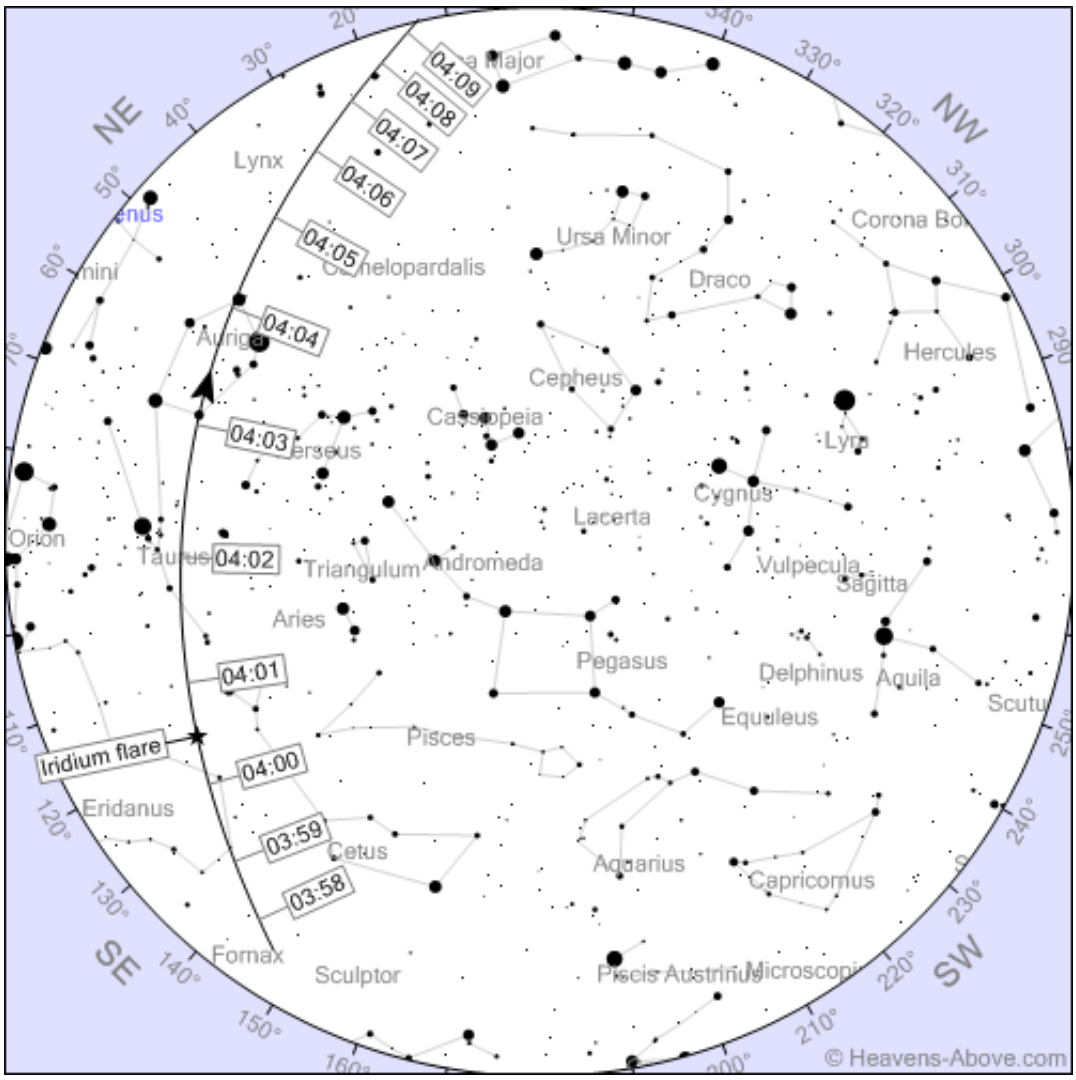
August 4, 10:17:05 PM Mag: 0.4 Alt: 42° Azm: 72° (ENE)



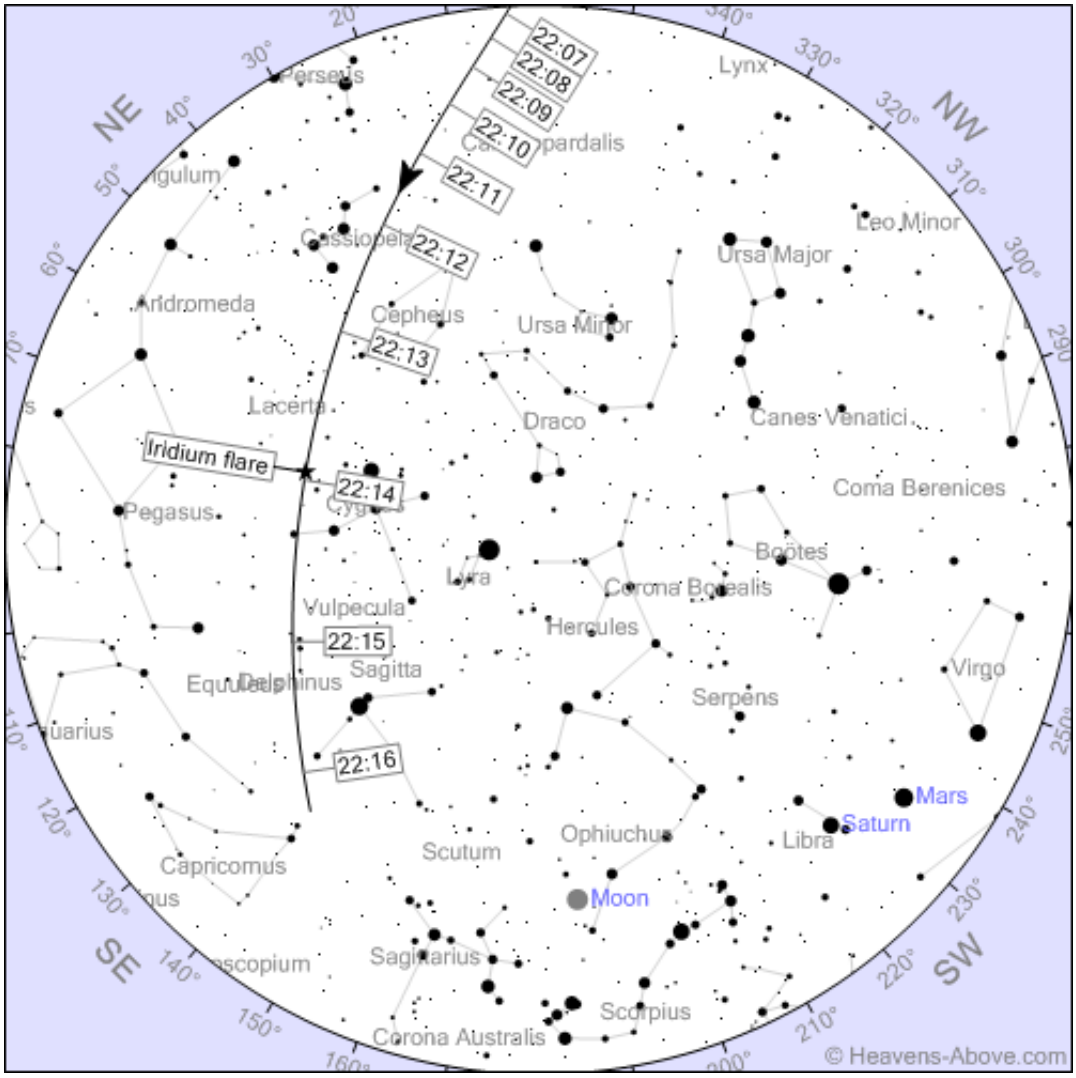
August 5, 4:06:35 AM Mag: 0.5 Alt: 25° Azm: 118° (ESE)



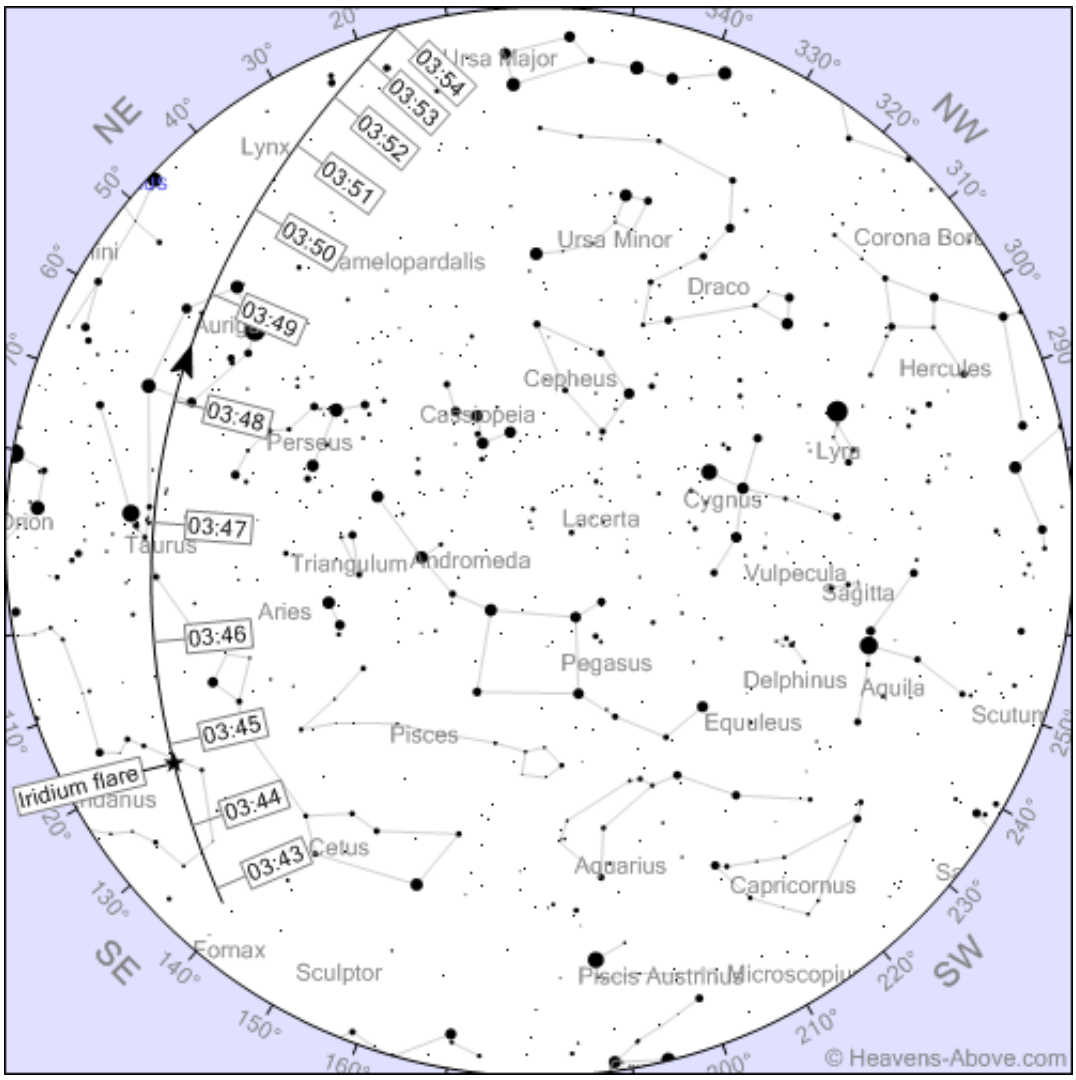
August 6, 3:50:58 AM Mag: 0.0 Alt: 19° Azm: 119° (ESE)



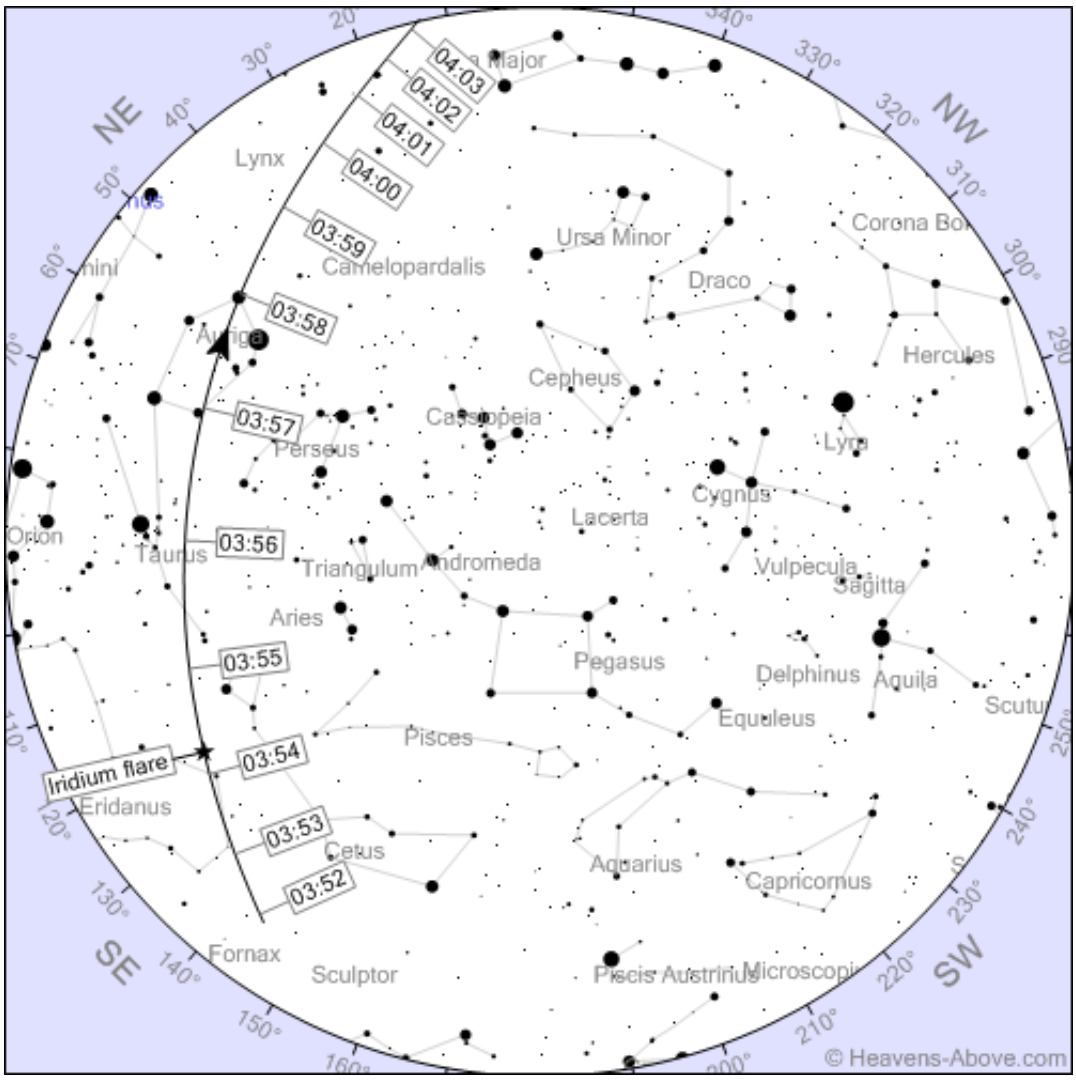
August 6, 4:00:29 AM Mag: -2.2 Alt: 23° Azm: 119° (ESE)



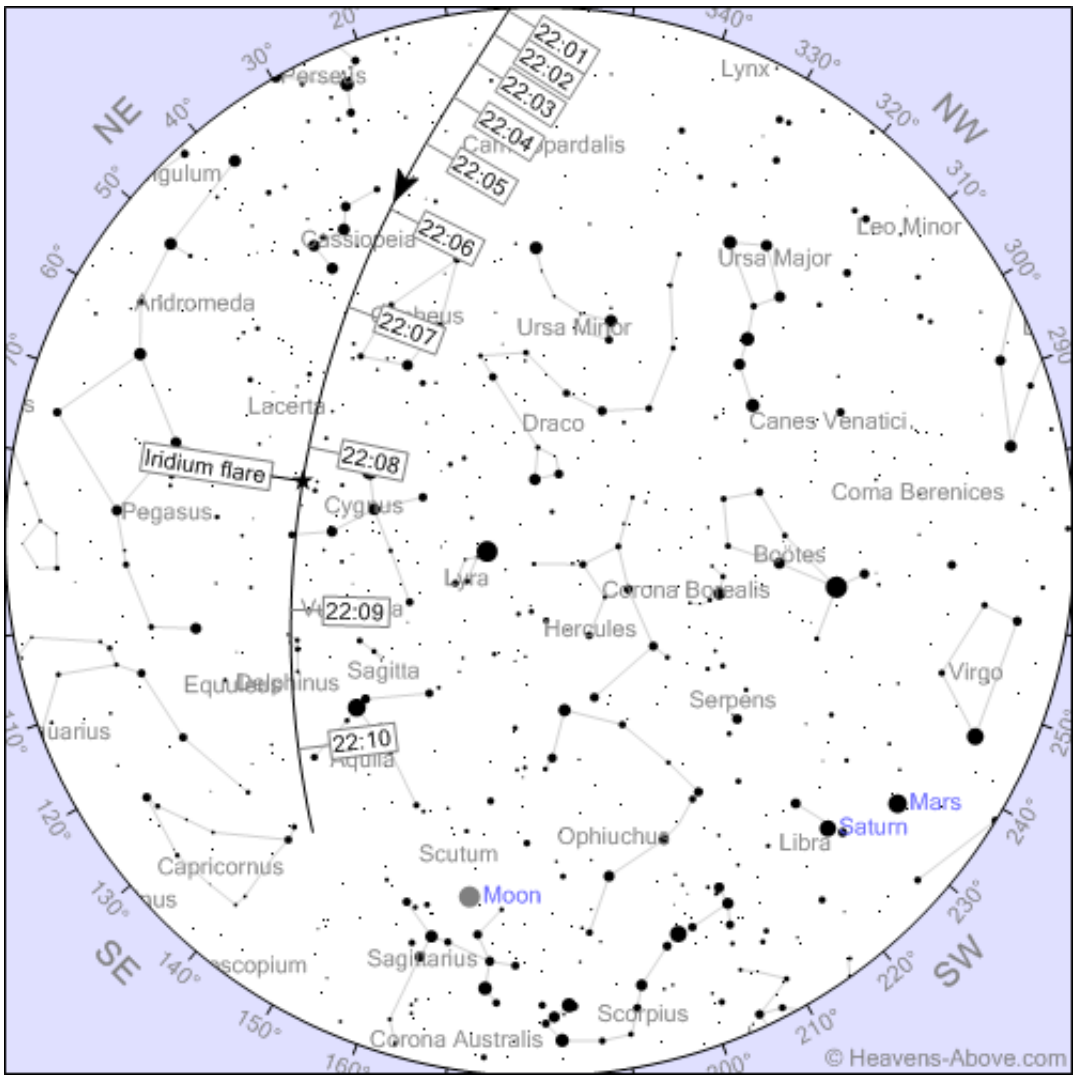
August 6, 10:13:56 PM Mag: -0.3 Alt: 49° Azm: 74° (ENE)



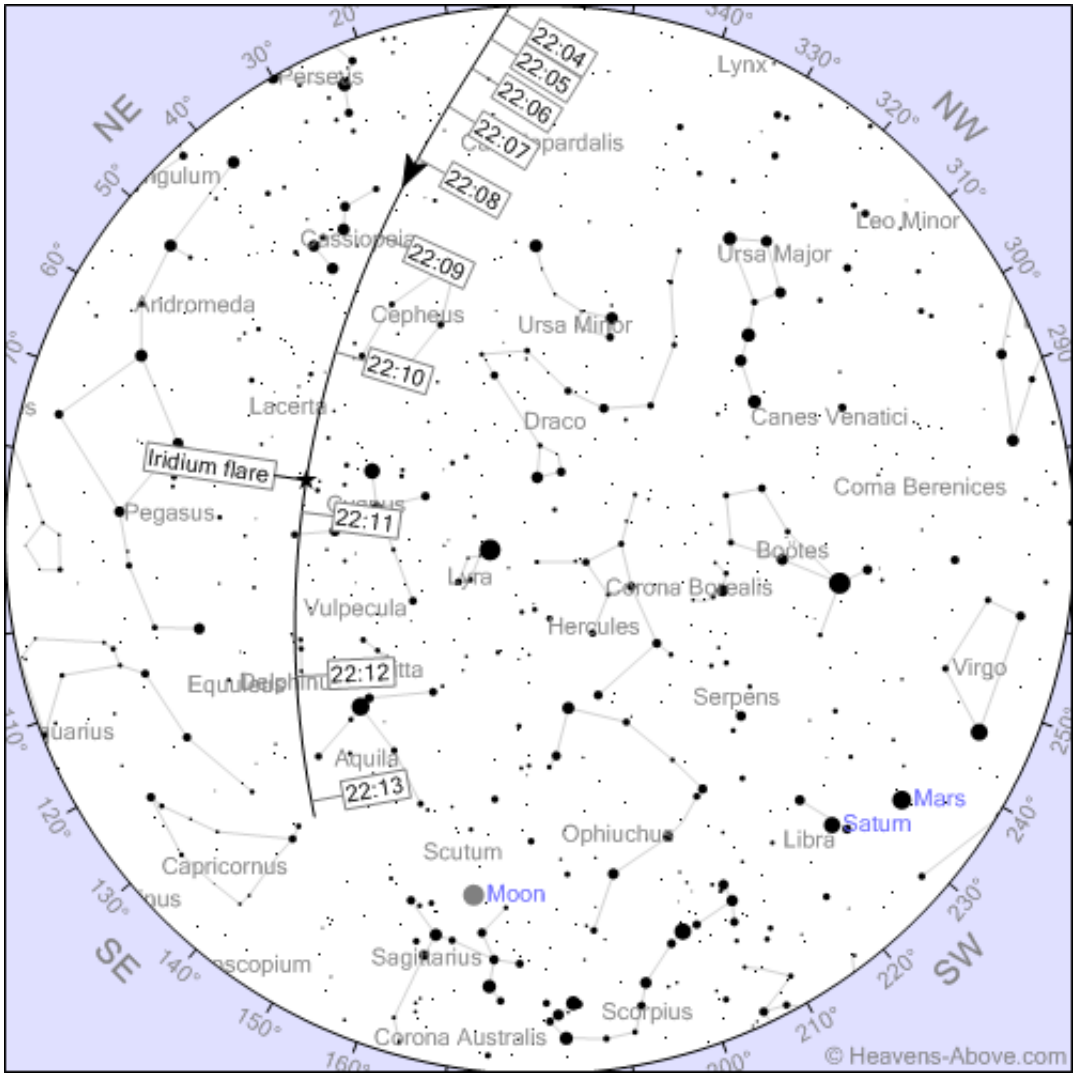
August 7, 3:44:47 AM Mag: 0.9 Alt: 17° Azm: 120° (ESE)



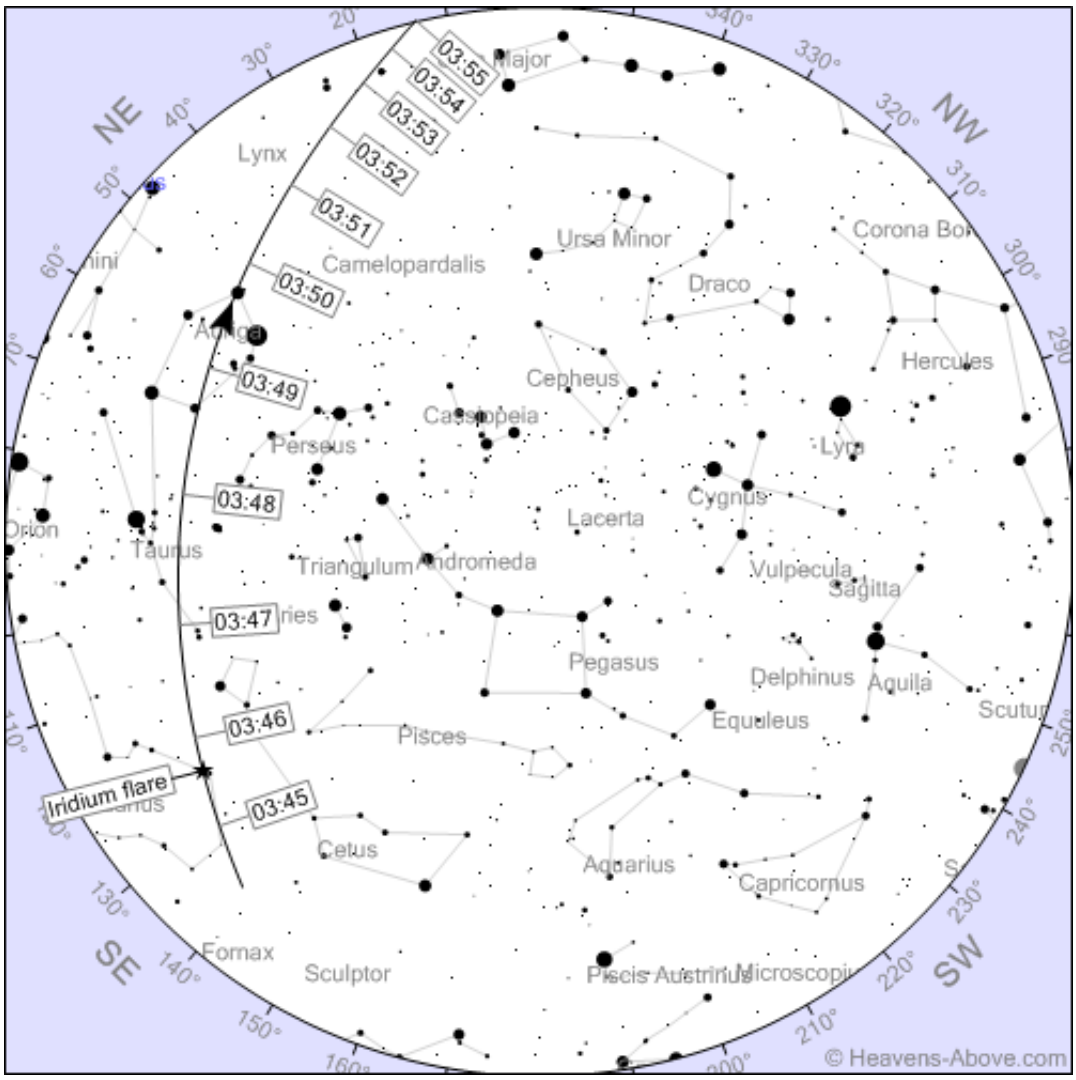
August 7, 3:54:13 AM Mag: -3.3 Alt: 23° Azm: 121° (ESE)



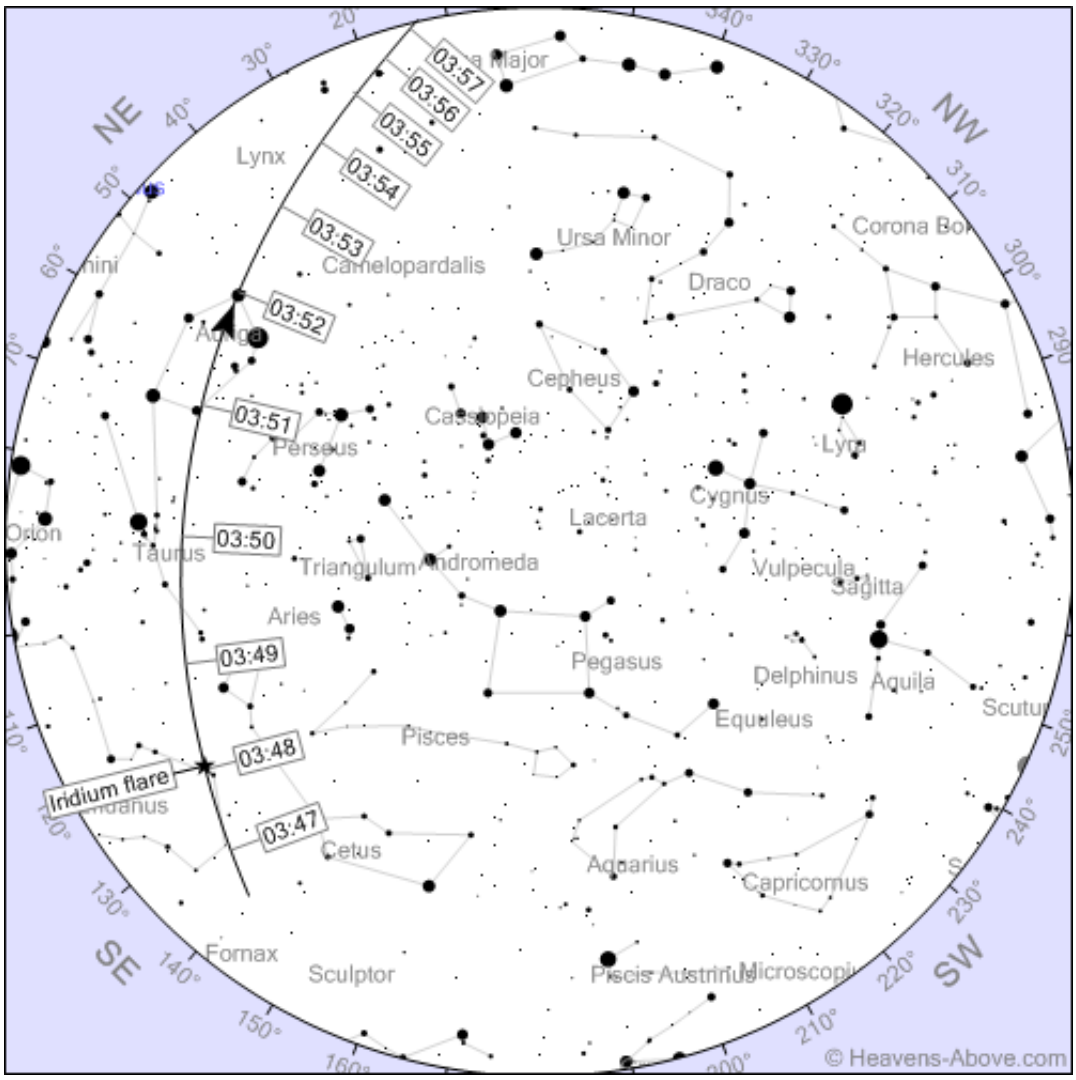
August 7, **10:07:48 PM** Mag: -6.0 Alt: 49° Azm: 76° **(ENE)**



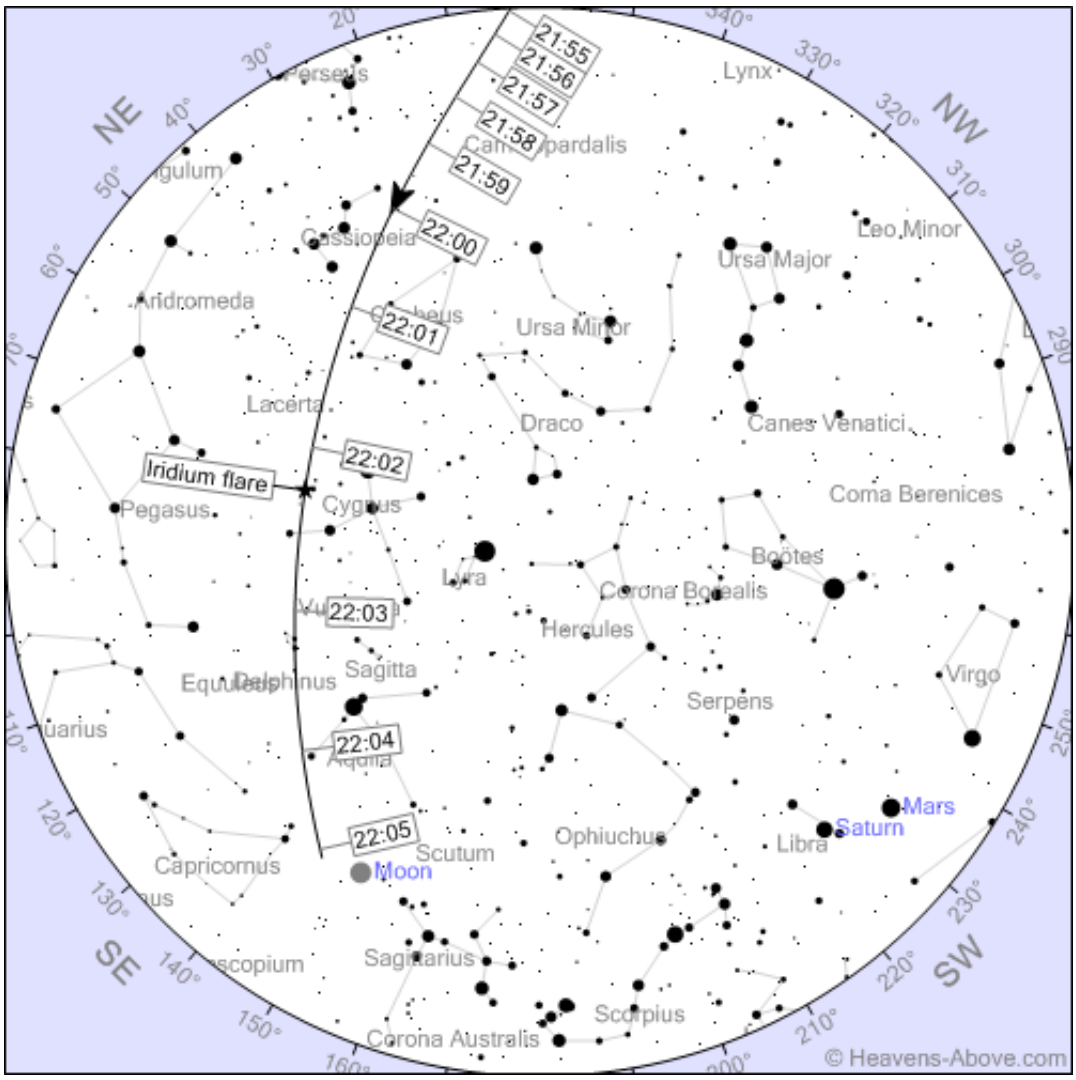
August 7, 10:10:46 PM Mag: -1.6 Alt: 50° Azm: 76° (ENE)



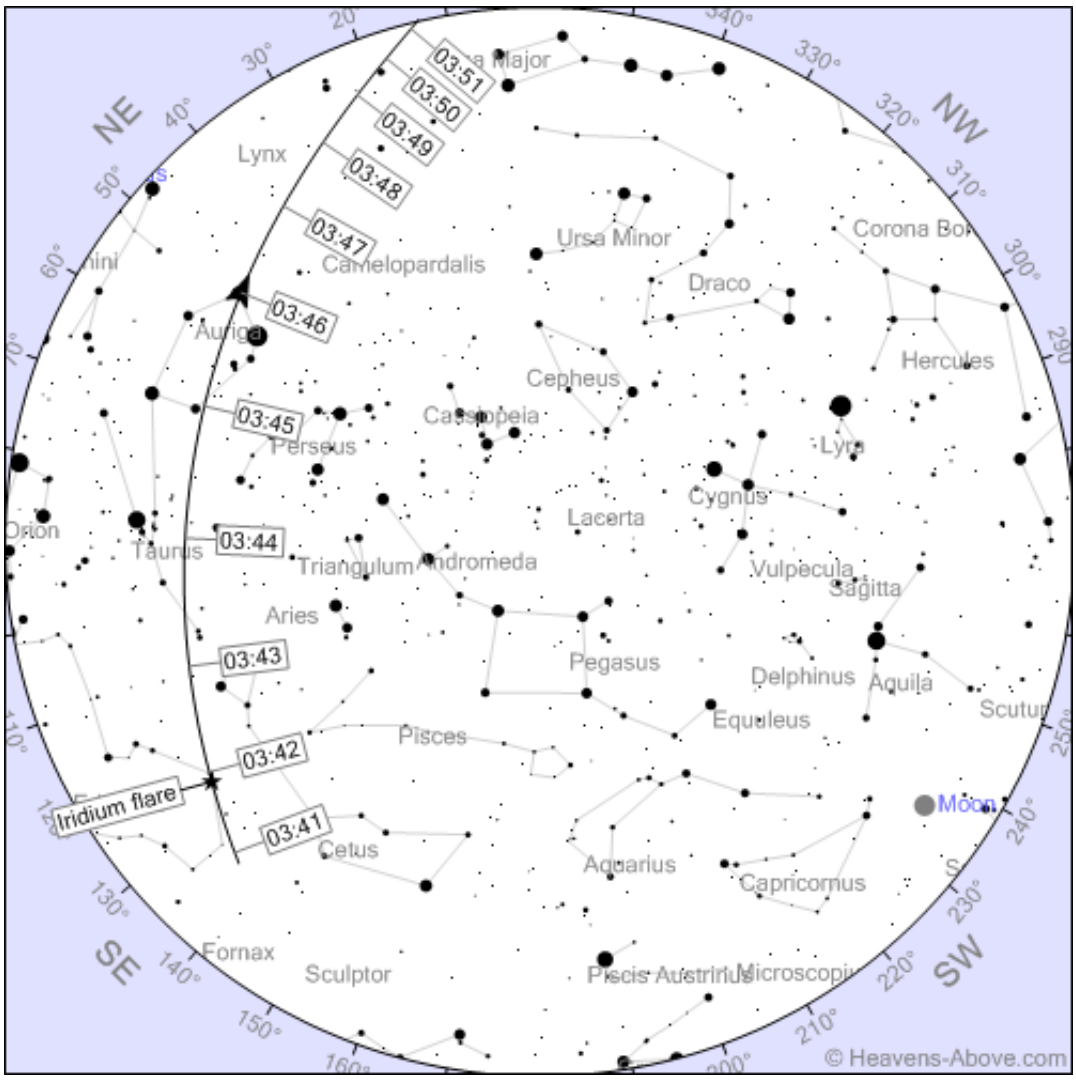
August 8, 3:45:39 AM Mag: -4.2 Alt: 21° Azm: 123° (ESE)



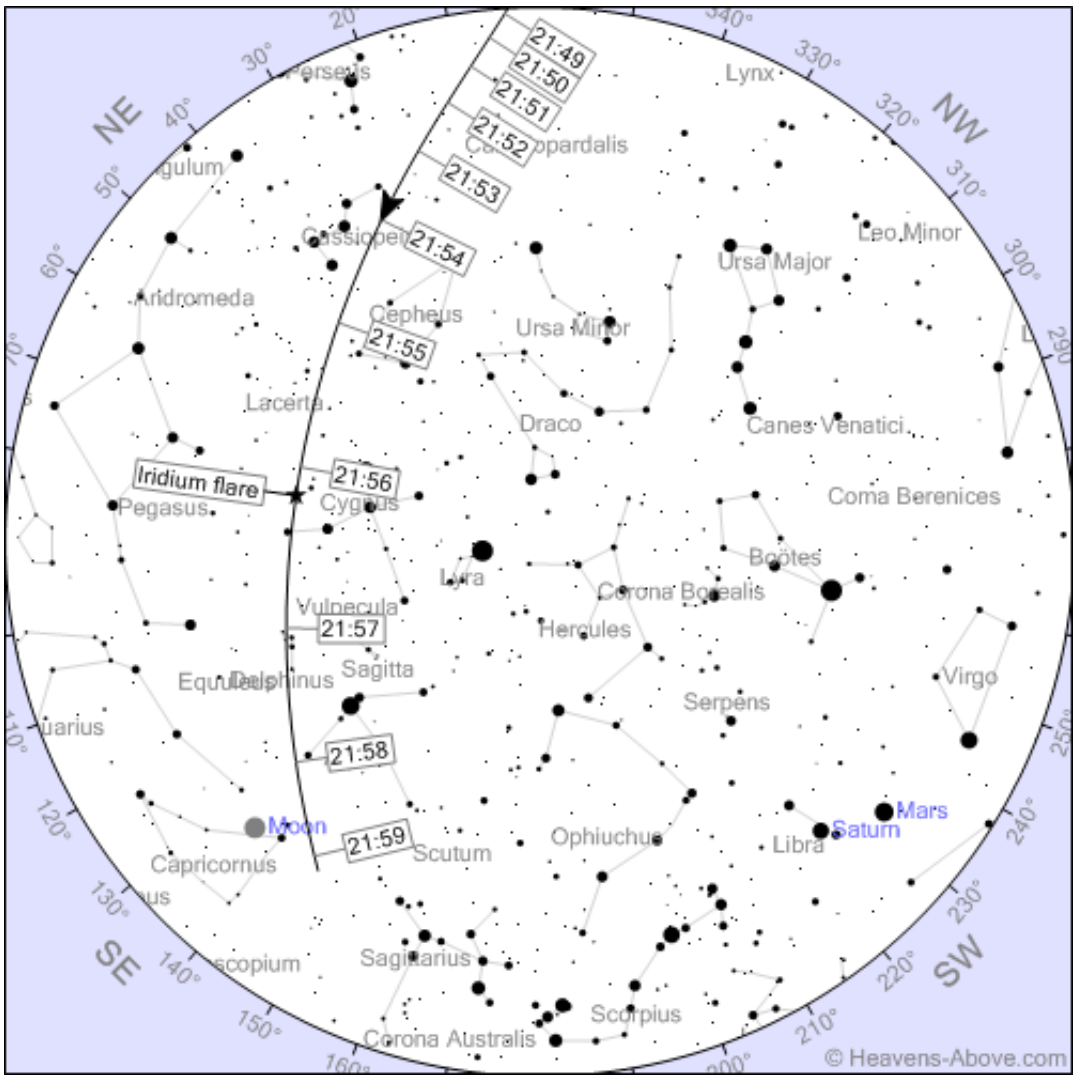
August 8, 3:48:02 AM Mag: -6.9 Alt: 22° Azm: 123° (ESE)



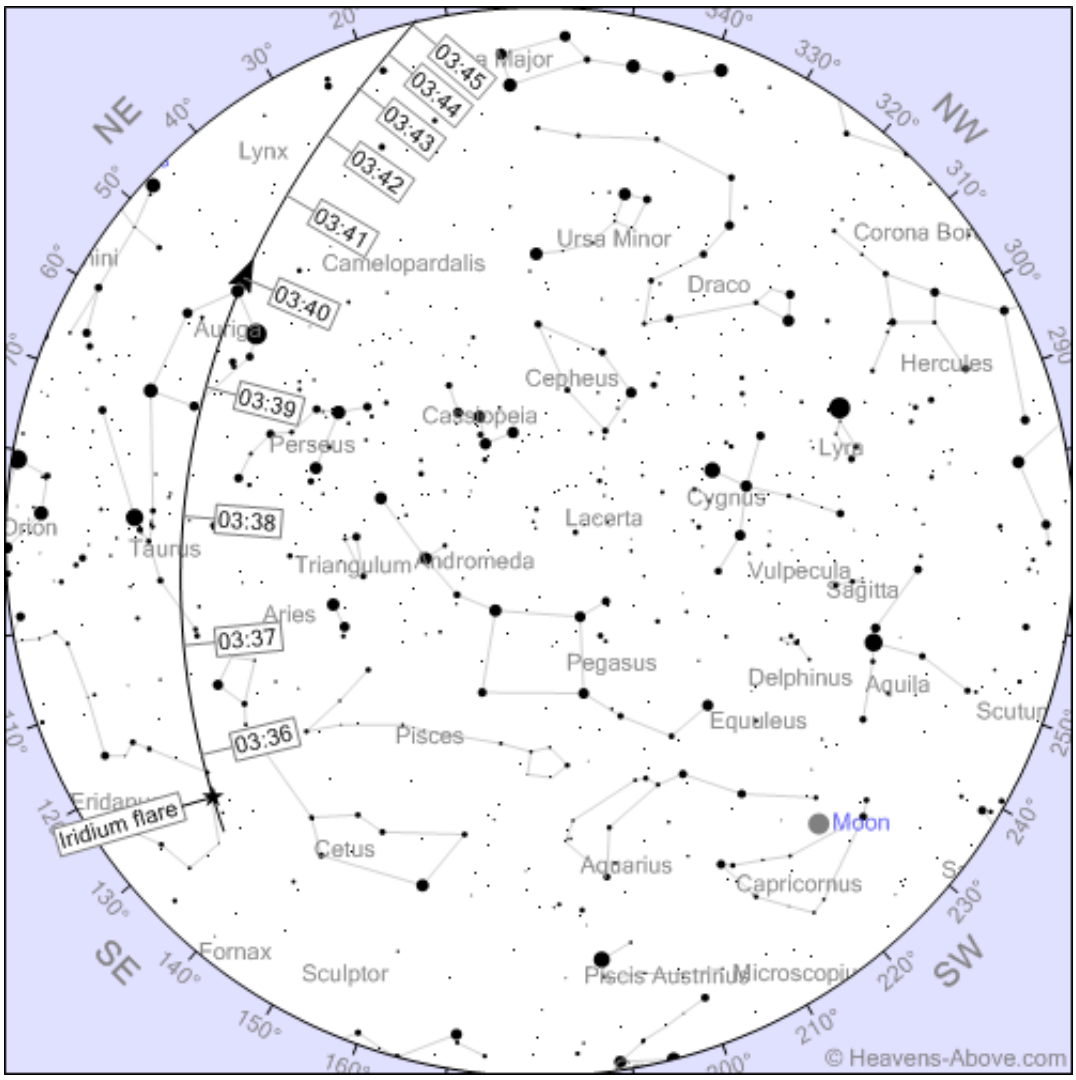
August 8, **10:02:08 PM** Mag: -8.1 Alt: 50° Azm: 78° (ENE)



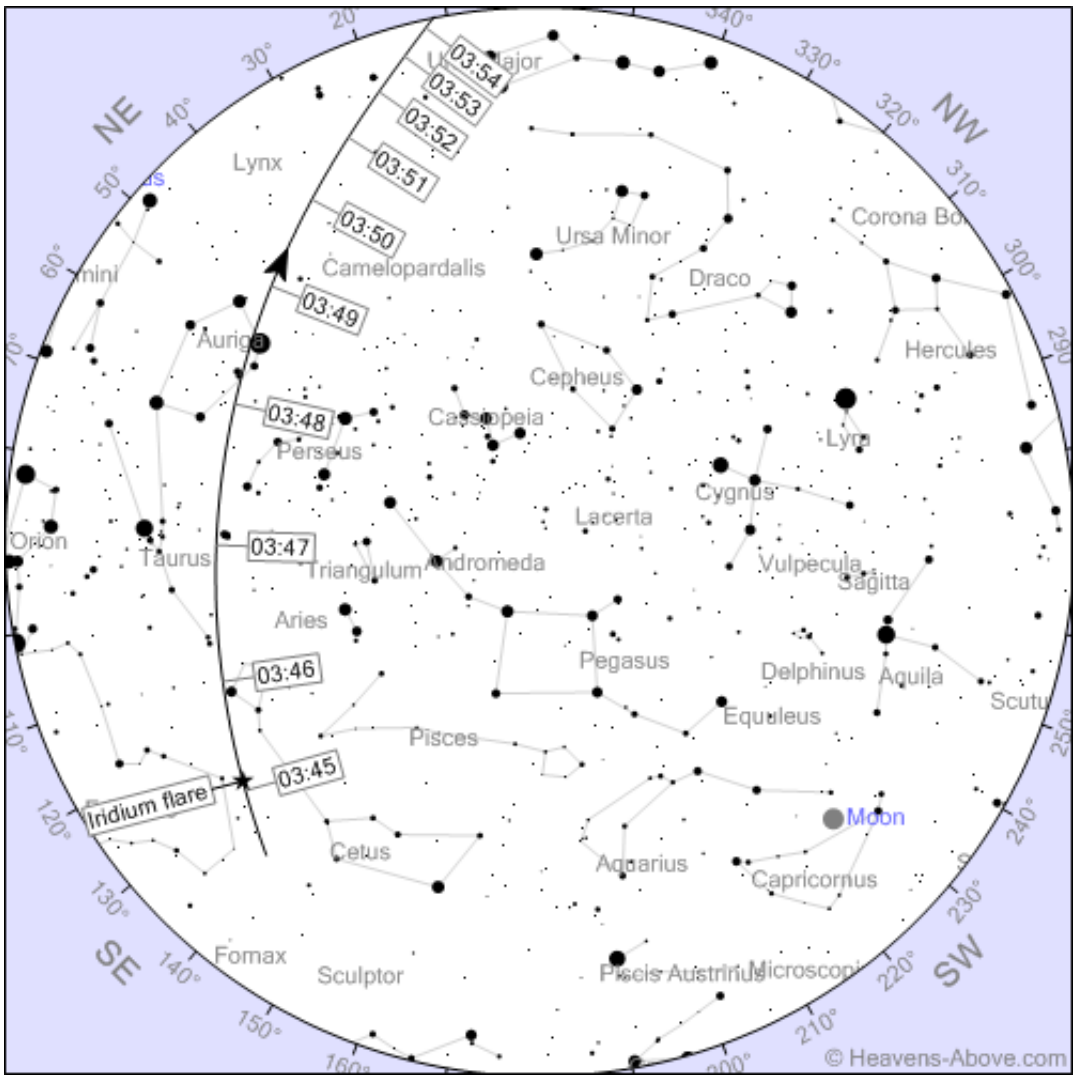
August 9, 3:41:45 AM Mag: -6.2 Alt: 21° Azm: 125° (SE)



August 9, 9:55:38 PM Mag: 0.6 Alt: 48° Azm: 80° (E)



August 10, 3:35:31 AM Mag: -2.6 Alt: 19° Azm: 127° (SE)



August 10, 3:45:06 AM Mag: 0.9 Alt: 25° Azm: 128° (SE)