

Meteor Activity Outlook for March 5-11, 2022

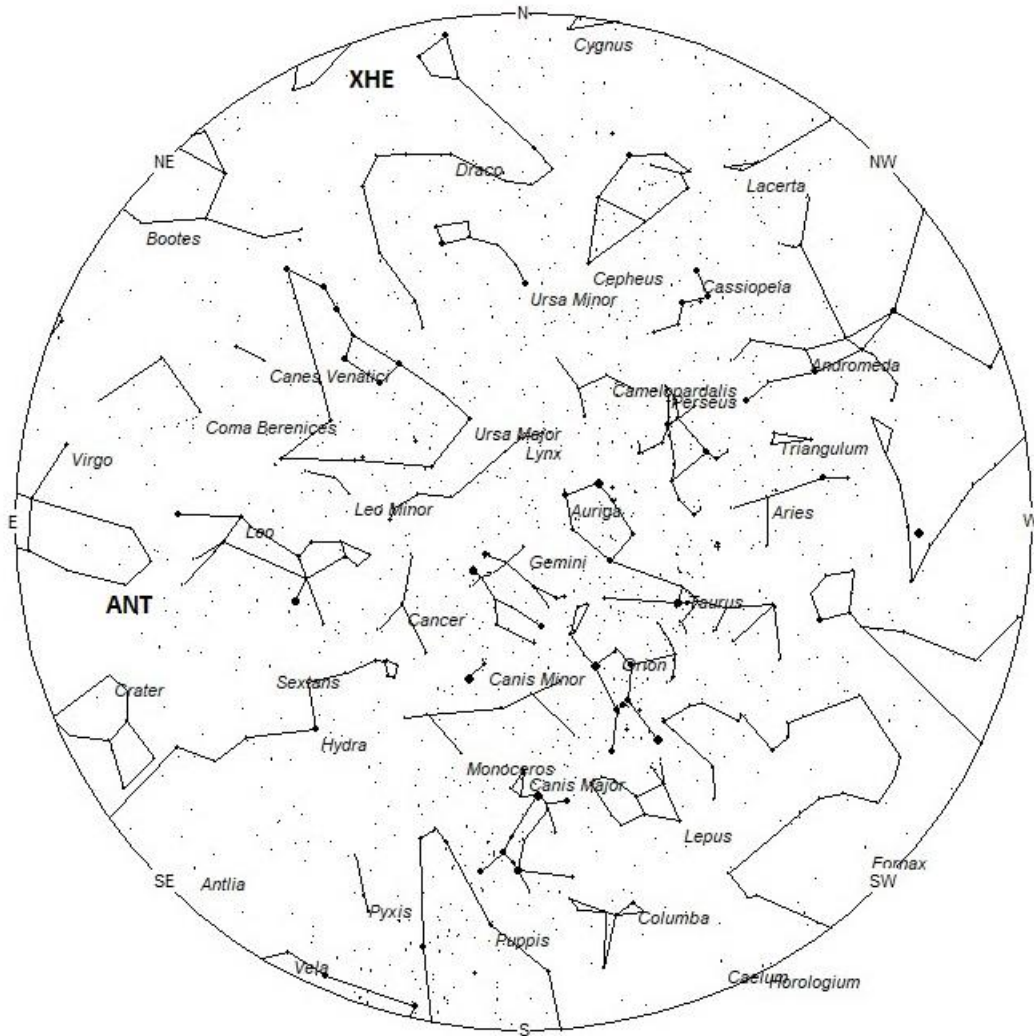


Samer Hobeika captured this bright meteor at 0:04 EST (05:04 UT) on 4 January 2022, from Val-Racine, Quebec, Canada. Although this was the morning of the Quadrantid maximum, this meteor was not a Quadrantid meteor. ©Samer Hobeika

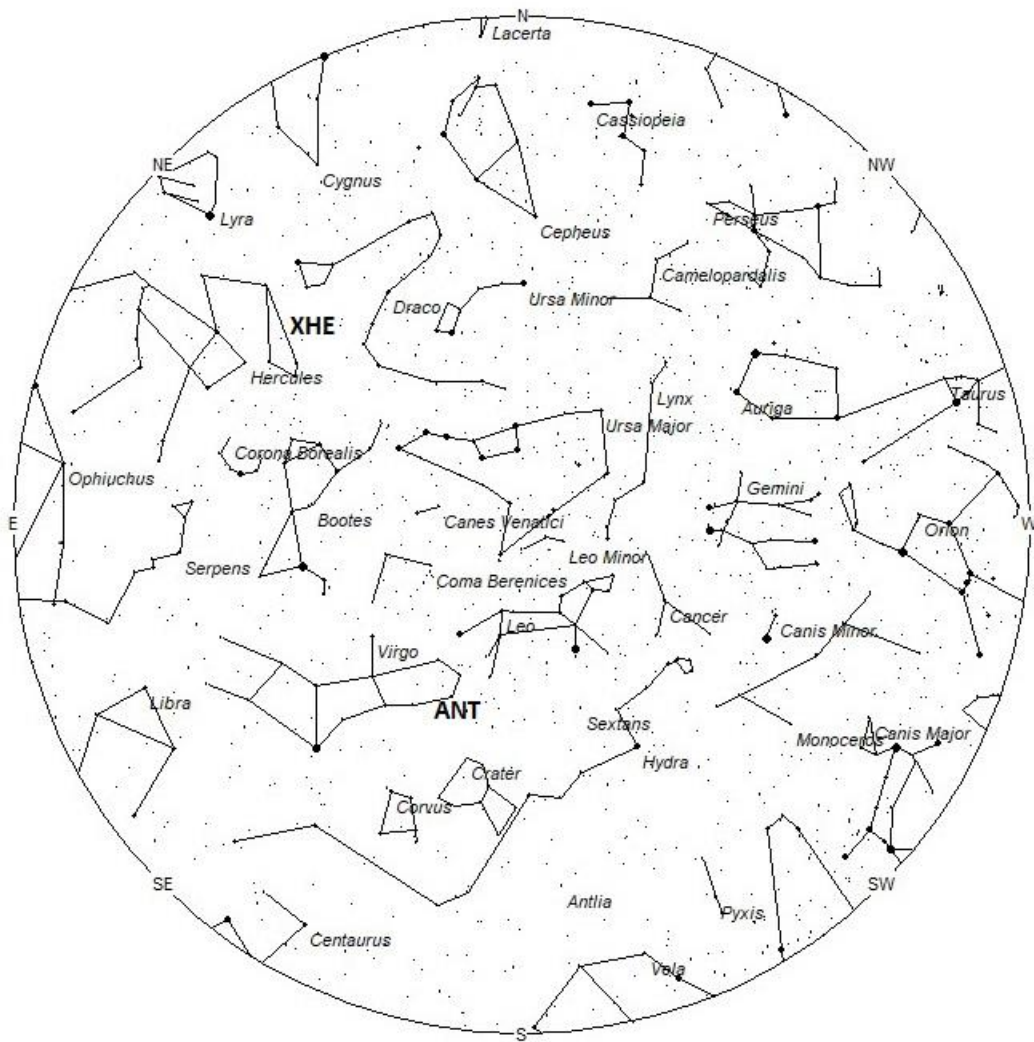
During this period, the moon reaches its first quarter phase on Thursday March 10th. At that time the moon lies 90 degrees east of the sun and sets near 02:00 local standard time (LST). This weekend the waxing crescent moon will set during the early evening hours but will not interfere with meteor observing during the more active morning hours. For evening observers, the estimated total hourly rates should be near 3 as seen from mid-northern latitudes (45N) and 4 as seen from tropical southern locations (25S) For morning observers, the estimated total hourly rates should be near 7 as seen from mid-northern latitudes (45N) and 12 as seen from tropical southern locations (25S). The actual rates will also depend on factors such as personal light and motion perception, local weather conditions, alertness, and experience in watching meteor activity. Evening rates are reduced due to moonlight. Note that the hourly rates listed below are estimates as viewed from dark sky sites away from urban light sources. Observers viewing from urban areas will see less activity as only the brighter meteors will be visible from such locations.

The radiant (the area of the sky where meteors appear to shoot from) positions and rates listed below are exact for Saturday night/Sunday morning March 5/6. These positions do not change greatly day to day so the listed coordinates may be used during this entire period. Most star atlases (available at science stores and planetariums) will provide maps with grid lines of the celestial coordinates so that you may find out exactly where these positions are located in the sky. I have also included charts of the sky that display the radiant positions for evening, midnight, and morning. The center of each chart is the sky directly overhead at the appropriate hour. These charts are oriented for facing south but can be used for any direction by rotating the charts to the desired direction. A planisphere or computer planetarium program is also useful in showing the sky at any time of night on any date of the year. Activity from each radiant is best seen when it is positioned highest in the sky, either due north or south along the meridian, depending on your latitude. It must be remembered that meteor activity is rarely seen at the radiant position. Rather they shoot outwards from the radiant, so it is best to center your field of view so that the radiant lies at the edge and not the center. Viewing

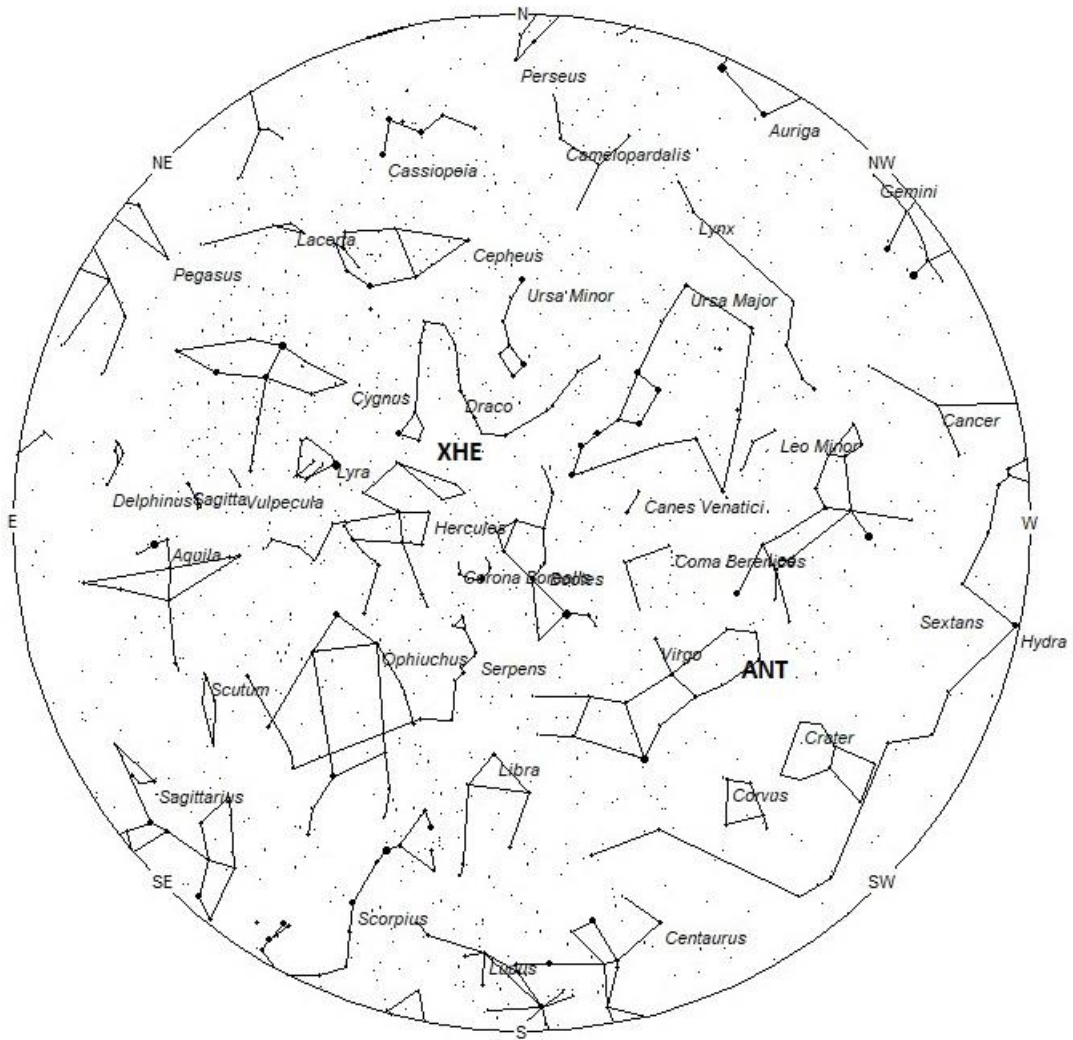
there will allow you to easily trace the path of each meteor back to the radiant (if it is a shower member) or in another direction if it is sporadic. Meteor activity is not seen from radiants that are located far below the horizon. The positions below are listed in a west to east manner in order of right ascension (celestial longitude). The positions listed first are located further west therefore are accessible earlier in the night while those listed further down the list rise later in the night.



Radiant Positions at 8pm Local Standard Time



Radiant Positions at Midnight Local Standard Time



Radiant Positions at 4am Local Standard Time

These sources of meteoric activity are expected to be active this week.

The **delta Mensids (DME)** are active from March 13-25, with maximum occurring March 18-22. This is normally a very weak shower with rates near 1 shower member per night. Recently though, a spike of activity has occurred between March 20-22. A report of recent activity from this radiant on March 12 was actually from the nearby beta Tucanid radiant. At maximum, the radiant is located near 03:52 (058) -80. This area of the sky is located in western Mensa, 6 degrees south of the 3rd magnitude star known as gamma Hydri. These meteors are best seen as soon as it becomes dark in the deep Southern Hemisphere. They are not visible from the Northern Hemisphere. With an entry velocity of 33 km/sec., these meteors would be of slow velocity.

The **beta Tucanids (BTU)** produced an outburst last year on 12 March. This was unexpected as activity of around one per night is more common for this display. If the outburst re-occurs again in 2022, it should occur on a 20-hour time frame centered on 6:00 Universal Time on 13 March. Early members of this shower may appear as early as 2 March, but rates would be extremely low. On the night of 12 March, the radiant is located at 04:07 (062) -77. The current location should not be much different due to the high southern declination. This area of the sky is located in western Mensa, two degrees southeast of the 3rd magnitude star known as gamma Hydri. These meteors are best seen as soon as it becomes dark in the deep Southern Hemisphere. They are not visible from the Northern Hemisphere. With an entry velocity of 31 km/sec., these meteors would be of slow velocity. Don't confuse these meteors with the delta Mensids, which become active a bit later in March and peak near 20 March.

The large **Anthelion (ANT)** is currently centered at 11:52 (178) +01. This position lies in western Virgo, 1 degree south of the 4th magnitude star known as Zavijava (beta Virginis). Due to the large size of this radiant, these meteors may also be seen from eastern Leo as well as western Virgo. This radiant is best placed near 01:00 local standard time (LST) when it lies on the meridian and is highest in the sky. Rates at this time should be near 2 per hour no matter your location. With an entry velocity of 30 km/sec., the average Anthelion meteor would be of slow velocity.

The **xi Herculids (XHE)** were discovered by Sirko Molau and Javor Kac in 2009, using data from the IMO Video Network. These meteors are active from March 6-20, with maximum activity occurring on March 12th. Rates are low during the entire activity period, never surpassing 1 per hour. The radiant is currently located at 16:38 (249) +50. This position lies in extreme northern Hercules, just northwest of the faint star known as 42 Herculis. The 3rd magnitude star Rastaban (beta Draconis), lies 8 degrees to the northeast. These meteors are not well seen from the Southern Hemisphere due to the high northern location of the radiant. These meteors are best seen during the last dark hour before dawn, when the radiant lies highest in a dark sky. With an entry velocity of 37km/sec., the average meteor from this source would be of medium velocity.

As seen from the mid-northern hemisphere (45N) one would expect to see approximately 5 **sporadic** meteors per hour during the last hour before dawn as seen from rural observing sites. Evening rates would be near 2 per hour. As seen from the tropical southern latitudes (25S), morning rates would be near 10 per hour as seen from rural observing sites and 3 per hour during the evening hours. Locations between these two extremes would see activity between the listed figures.

You can keep track of the activity of these meteor showers as well as those beyond the limits of visual observing by visiting the NASA Meteor Shower Portal available at: <https://meteorshowers.seti.org/> You can move the sky globe to see different areas of the sky. Colored dots indicate shower meteors while white dots indicate sporadic (random) activity. The large orange disk indicates the position of the sun so little activity will be seen in that area of the sky.

SHOWER	DATE OF MAXIMUM ACTIVITY	CELESTIAL POSITION	ENTRY VELOCITY	CULMINATION	HOURLY RATE	CLASS
		RA (RA in Deg.) DEC	Km/Sec	Local Standard Time	North- South	
delta Mensids (DME)	Mar 20	03:52 (058) -80	33	17:00	<1 - <1	III
beta Tucanids (BTU)	Mar 13	04:07 (062) -77	31	17:00	<1 - <1	III
Anthelions (ANT)	---	11:52 (178) +01	30	01:00	2 - 2	II
xi Herculids (XHE)	Mar 12	16:38 (249) +50	37	06:00	<1 - <1	IV