

# Meteor Activity Outlook for February 11-17, 2023

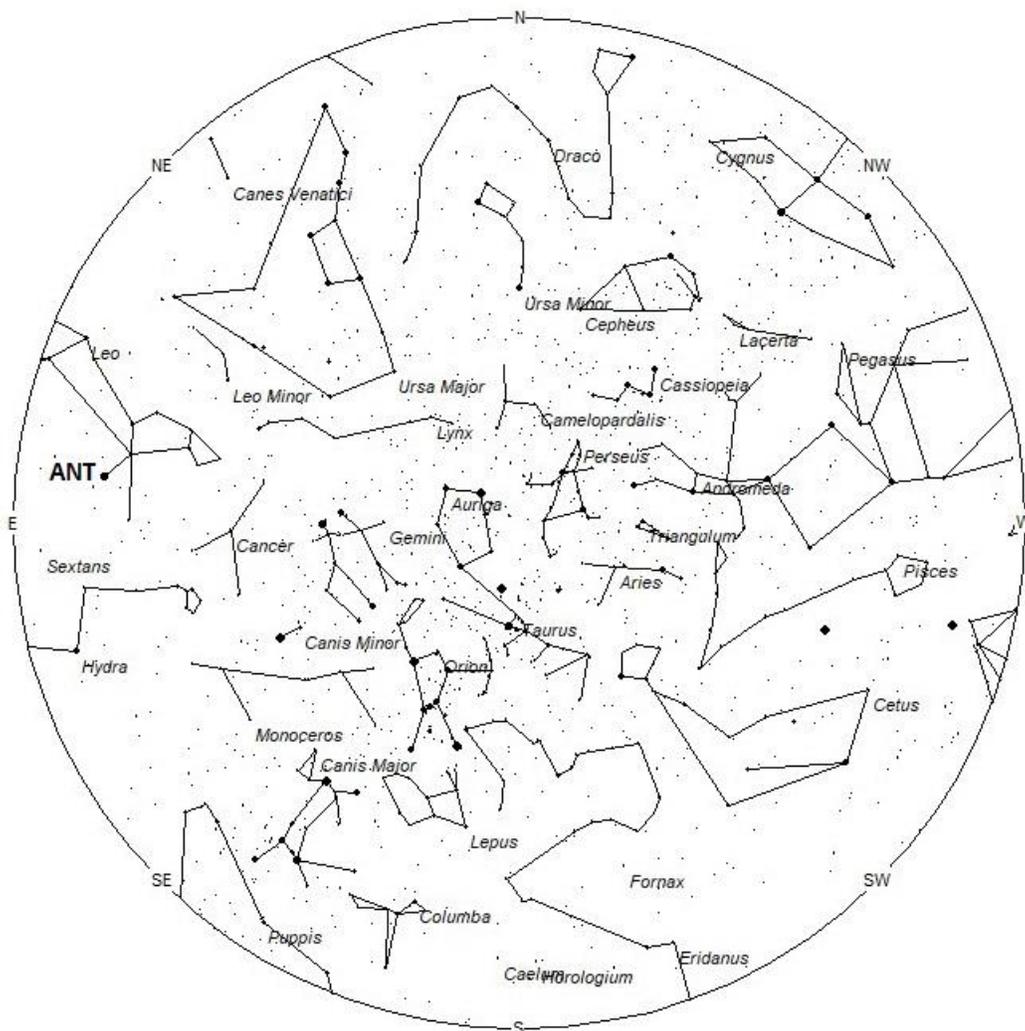


Andrea Lago was photographing the southern sky from Maleny, Queensland, Australia on August 20, 2022, at 19:53 AEST (9:53 UT) when this brilliant fireball shot through the Milky Way near the constellation of Crux (the Southern Cross). For more information on this event visit: [https://ams.imo.net/members/imo\\_view/event/2022/5347](https://ams.imo.net/members/imo_view/event/2022/5347) ©Andrea Lago

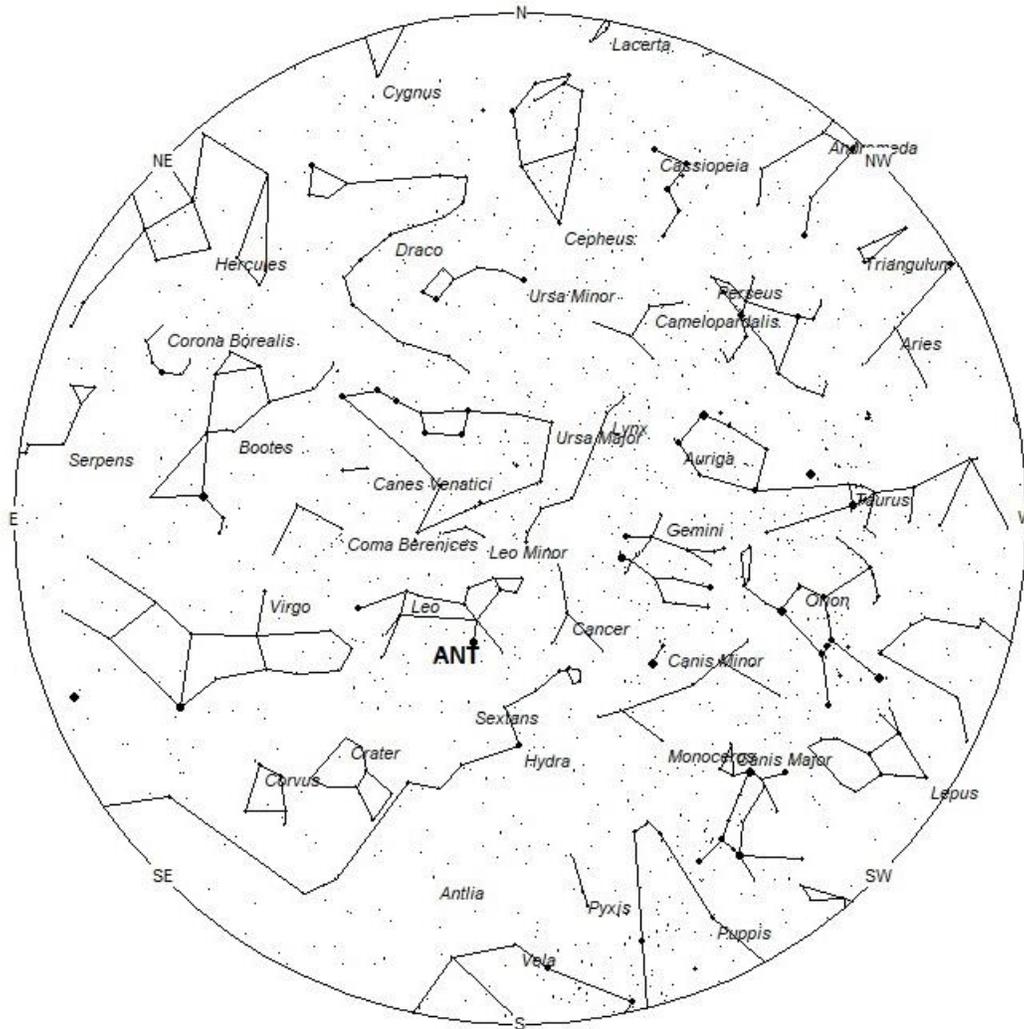
During this period, the moon reaches its last quarter phase on Monday February 13th. At that time the half-illuminated moon will lie 90 degrees west of the sun and will rise near between 0100 and 0200 local standard time (LST). As the week progresses the moon will rise later each night providing a larger window of opportunity to view the sky under dark conditions. The estimated total hourly rates for evening observers this week should be near 3 as seen from mid-northern latitudes (45N) and 5 as seen from tropical southern locations (25S) For morning observers, the estimated total hourly rates should be near 6 as seen from mid-northern latitudes (45N) and 12 as seen from tropical southern locations (25S). Morning rates are reduced by moonlight during this period. The actual rates seen will also depend on factors such as personal light and motion perception, local weather conditions, alertness, and experience in watching meteor activity. 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 February 11/12. 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 7pm Local Standard Time**



Radiant Positions at Midnight Local Standard Time



Radiant Positions at 5am Local Standard Time

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

The large **Anthelion (ANT)** is currently centered at 10:24 (156) +10. This position lies in western Leo, 3 degrees southeast of the 1st magnitude star known as Regulus (alpha Leonis). Due to the large size of this radiant, these meteors may also be seen from eastern Cancer as well as Leo. This radiant is best placed near 01:00 LST when it lies on the meridian and is highest in the northern sky. Rates at this time should be near 2 per hour as seen from the northern hemisphere and 1 per hour as seen from south of the equator. With an entry velocity of 30 km/sec., the average Anthelion meteor would be of slow velocity.

The **gamma Crucids (GCR)** were discovered in 2021 by the CAMS system of meteor cameras managed by Dr. Peter Jenniskens. This shower is active from February 11-15 with a peak on the 14<sup>th</sup>. At maximum, the radiant is located at 12:32 (193) -56. This area of the sky is located in northern Crux, only 1 degree north of the 2<sup>nd</sup> magnitude star known as Gacrux (gamma Crucis). Observers in the Southern Hemisphere are greatly favored in seeing these meteors as the radiant does not clear the horizon for the northern two-thirds of the Northern Hemisphere. 40 of these meteors were captured in 2021. It will be interesting to see what occurs this year as last year's observations were hampered by a full moon. These meteors are best seen near 03:00 LST when the radiant lies highest above the southern horizon. With an entry velocity of 56 km/sec., the average meteor from this source would be swift.

The **alpha Centaurids (ACE)** are active from January 31-February 20, with maximum activity occurring on February 8th. The radiant is currently located at 14:19 (215) -59. This position lies in southeastern Centaurus, 2 degrees northeast of the 1<sup>st</sup> magnitude star known as Hadar (beta Centauri). Due to the southern declination of this radiant, these meteors are not well seen in the northern hemisphere. Current hourly rates are expected to be less than 1 as seen from the Northern Hemisphere and near 1 as seen from south of the equator. These meteors are best seen near 05:00 LST when the radiant lies highest above the southern horizon. At 56 km/sec. the alpha Centaurids would produce mostly swift meteors.

As seen from the mid-northern hemisphere (45N) one would expect to see approximately 4 **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 4 per hour during the evening hours. Morning rates are slightly reduced due to moonlight.

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](#). 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.

The list below offers the information in tabular form of the showers that I feel are within reach of the visual observer to discern. Hourly rates are often less than 1 but noting parameters such as the radiant distance and the elevation of each meteor, one can compute the probability of shower association. Most showers discovered by video means have rates less than 1 per **night** away from maximum, so the showers listed in these outlooks are not as weak as they seem. Rates and positions are exact for Saturday night/Sunday morning except where noted in the shower descriptions.

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	
Anthelions (ANT)	-	10:24 (156) +10	30	01:00	2 - 1	II
gamma Crucids (GCR)	Feb 14	12:32 (193) -56	56	03:00	<1 - <1	III
alpha Centaurids (ACE)	Feb 08	14:19 (215) -59	59	05:00	<1 - 1	II

**Class Explanation:** A scale to group meteor showers by their intensity:

- **Class I:** the strongest annual showers with Zenith Hourly Rates normally ten or better.
- **Class II:** reliable minor showers with ZHR's normally two to ten.
- **Class III:** showers that do not provide annual activity. These showers are rarely active yet have the potential to produce a major display on occasion.
- **Class IV:** weak minor showers with ZHR's rarely exceeding two. The study of these showers is best left to experienced observers who use plotting and angular velocity estimates to determine shower association. These weak showers are also good targets for video and photographic work. Observers with less experience are urged to limit their shower associations to showers with a rating of I to III.