

# Meteor Activity Outlook for March 13-19, 2021



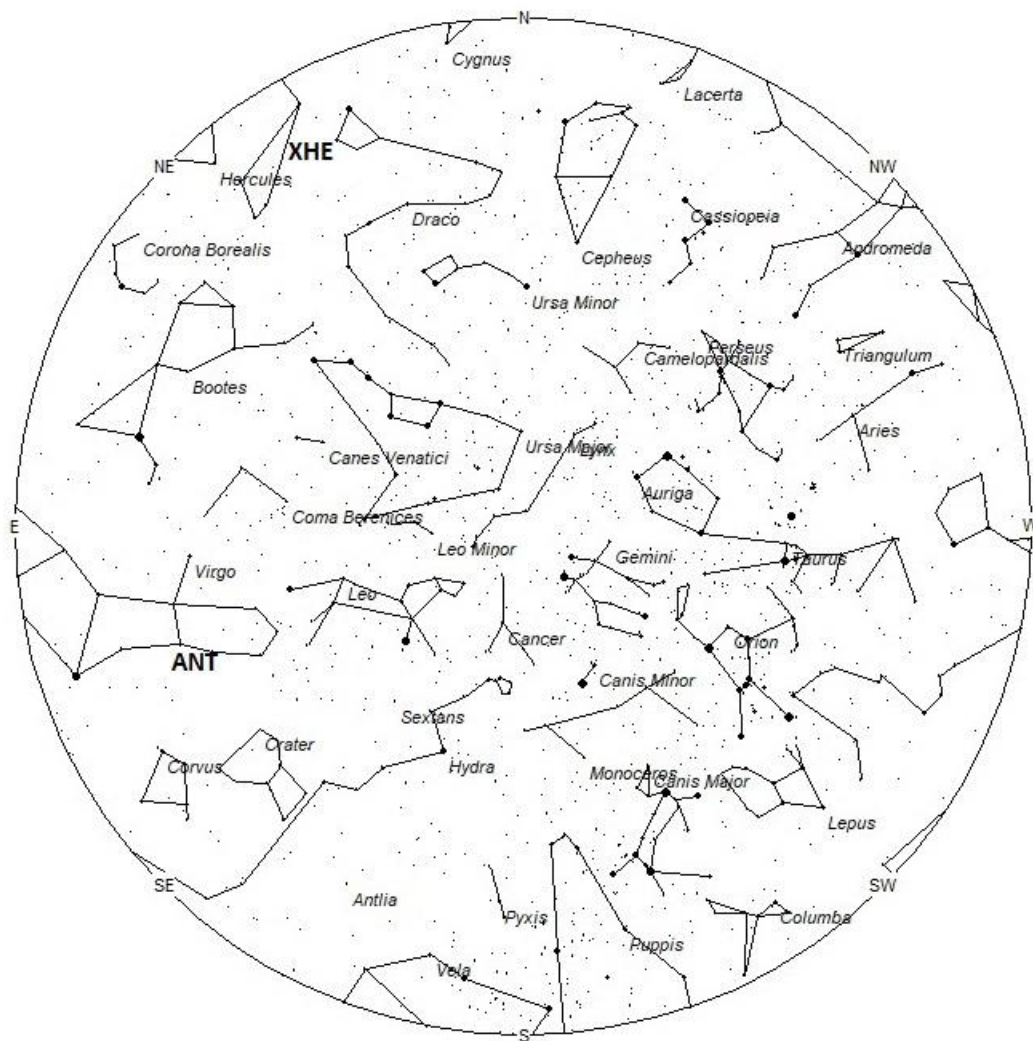
Hugues Courtois captured this bright fireball from Andeville, France, on February 18, 2021, at 02:19 CET (1:19 UT). For more reports on this fireball, visit:

[https://fireball.amsmeteors.org/members/imo\\_view/event/2021/954](https://fireball.amsmeteors.org/members/imo_view/event/2021/954) Credit Hugues Courtois

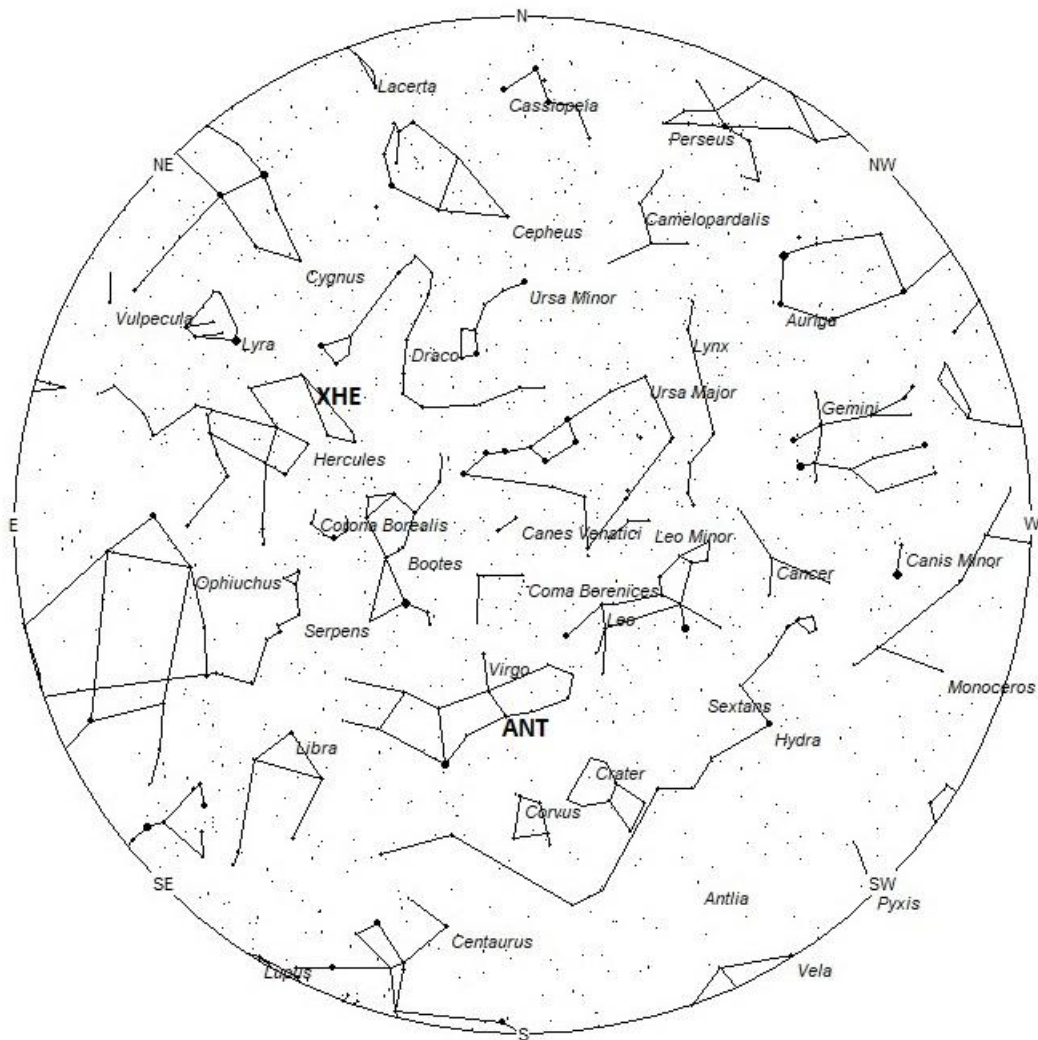
During this period the moon reaches its new phase on Saturday March 13th. On this date the moon is located near the sun and is invisible at night. Later in this period, a waxing crescent moon will enter the evening sky but will not interfere with meteor observing, especially during the more active morning hours. The estimated total hourly meteor rates for evening observers this week is near 3 as seen from mid-northern latitudes and 5 as seen from tropical southern locations (25S). For morning observers, the estimated total hourly rates should be near 8 as seen from mid-northern latitudes (45N) and 13 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. 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 13/14. 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

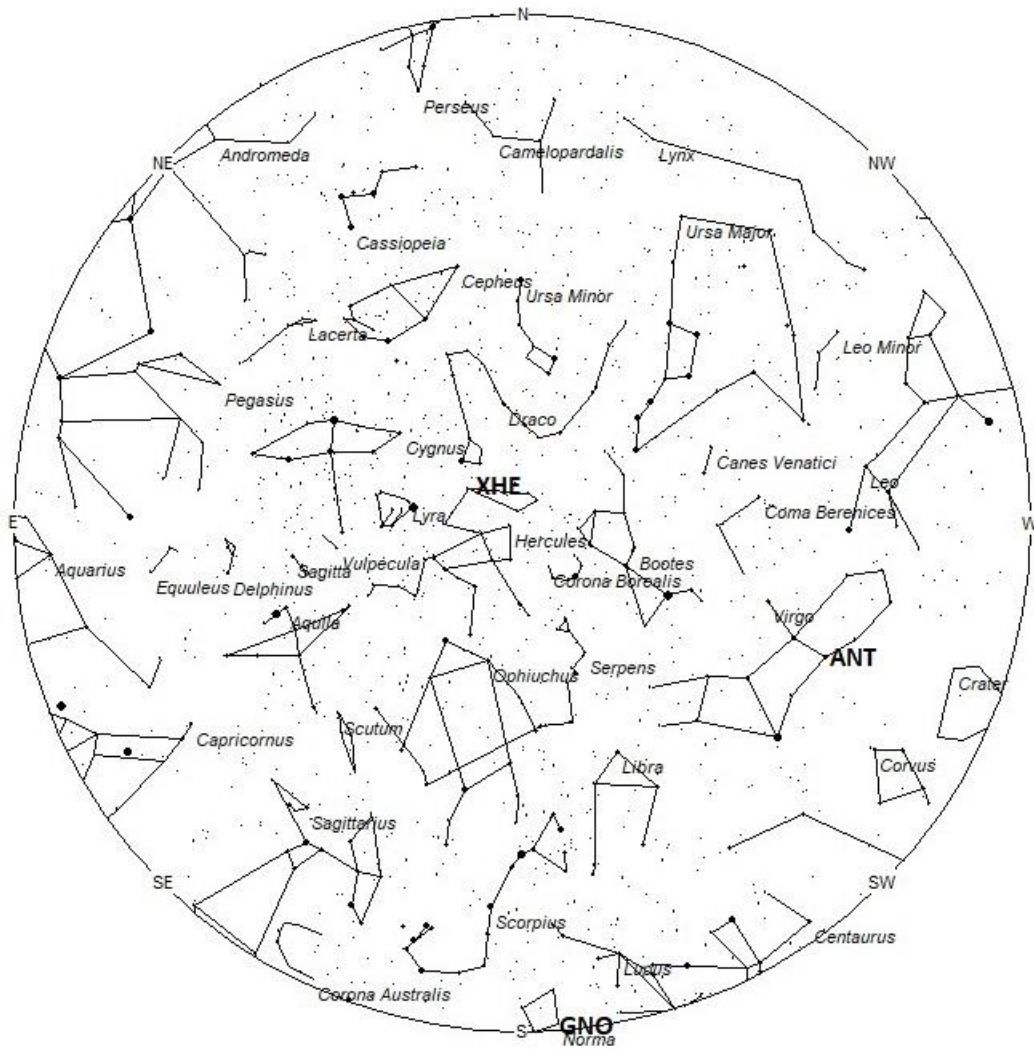
and planetariums) will provide maps with grid lines of the celestial coordinates so that you may find out exactly where these positions are located in the sky. A planisphere or computer planetarium program is also useful in showing the sky at any time of night on any date of the year. Activity from each 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 10pm Local Daylight Saving Time



Radiant Positions at 2am Local Daylight Saving Time



Radiant Positions at 6am Local Daylight Saving Time

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

The center of the large **Anthelion (ANT)** radiant is currently located at 12:24 (186) -03. This position lies in western Virgo, 2 degrees southeast of the 4th magnitude star known as Zaniah (eta Virginis). Due to the large size of this radiant, Anthelion activity may also appear from eastern Leo and Crater, as well as western Virgo. This radiant is best placed near 0200 LDST, when it lies on the meridian and is located highest in the sky. Rates at this time should be near 3 per hour no matter your location. With an entry velocity of 30 km/sec., the average Anthelion meteor would be of slow velocity.

The **gamma Normids (GNO)** are an ill-defined source, only well seen from the Southern Hemisphere. Some sources dispute its existence while others have differing activity periods in March. Here we list the parameters from the International Meteor Organization\*. They believe the activity period is from February 25 through March 28, with maximum activity occurring on March 14. At maximum, the radiant is located at 15:56 (239) -50. This area of the sky lies in central Norma, 1 degree southwest of the faint star known as eta Normae. 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 56km/sec., the average meteor from this source would be of medium-fast velocity. Zenith hourly rates are listed as 6 at maximum, but I believe this is overly optimistic.

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 12<sup>th</sup>. Rates are low during the entire activity period, never surpassing 1 per hour. The radiant is currently located at 17:08 (257) +48. This position lies in extreme northern Hercules, 4 degrees southwest of the 3<sup>rd</sup> magnitude star known as Rastaban (beta Draconis). 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 35km/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 9 per hour as seen from rural observing sites and 4 per hour during the evening hours. Locations between these two extremes would see activity between the listed figures.

\*2021 Meteor Shower Calendar, by Juergen Rendtel, page 25

The list below offers the information from above in tabular form. Rates and positions are exact for Saturday night/Sunday morning except where noted in the shower descriptions.

<b>SHOWER</b>	<b>DATE OF MAXIMUM ACTIVITY</b>	<b>CELESTIAL POSITION</b>	<b>ENTRY VELOCITY</b>	<b>CULMINATION</b>	<b>HOURLY RATE</b>	<b>CLASS</b>
		<b>RA (RA in Deg.) DEC</b>	<b>Km/Sec</b>	<b>Local Daylight Saving Time</b>	<b>North- South</b>	
Anthelion (ANT)	-	12:24 (186) -03	30	02:00	3 - 3	II
gamma Normids (GNO)	Mar 14	15:56 (239) -50	56	05:00	<1 - 1	IV
xi Herculids (XHE)	Mar 12	17:08 (257) +48	35	06:00	<1 - <1	IV