

Meteor Activity Outlook for February 6-12, 2021

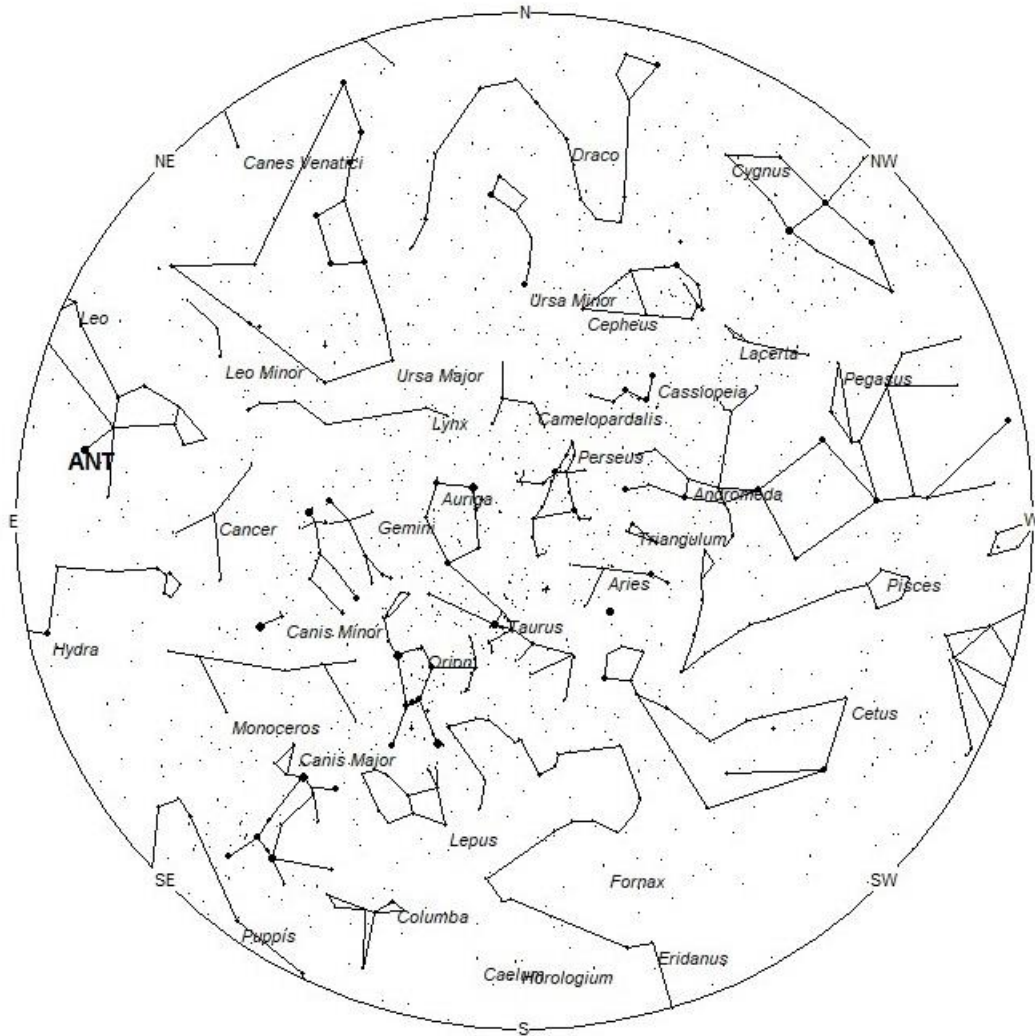


This bright fireball was recorded by the UND Atmospheric Sciences Skycam, located at Grand Forks, North Dakota, USA. This event occurred on 18 November 2020 at 01:52am CST (07:52 UT). Many thanks to Aaron Kennedy for sharing this image with us! For more on this fireball visit: https://fireball.amsmeteors.org/members/imo_view/event/2020/6365 Credit the Atmospheric Sciences Department of the University of North Dakota.

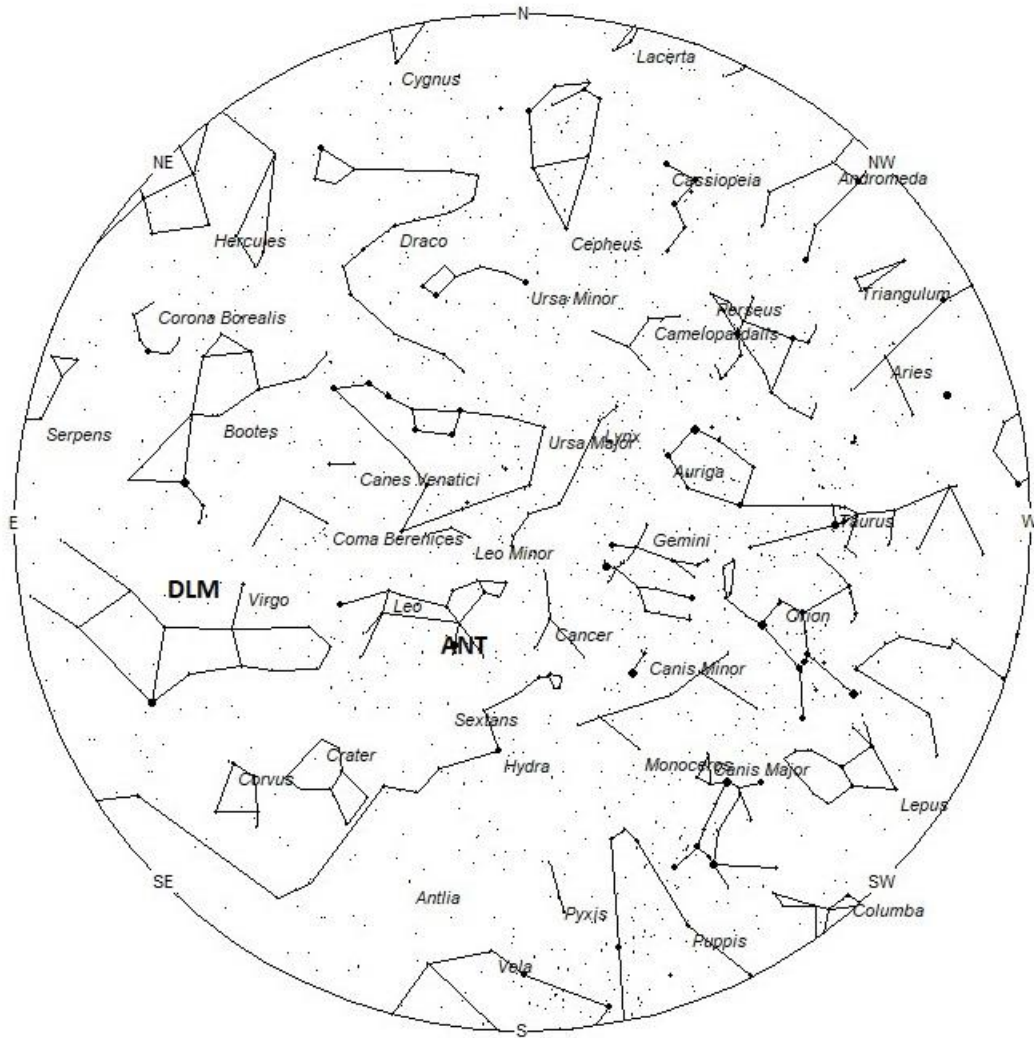
During this period, the moon reaches its new phase on Thursday February 11th. On that date the moon is located near the sun and is invisible at night. This weekend the waning crescent will rise during the early morning hours but will not cause any interference to viewing meteor activity as long as it is kept out of one's field of view while observing. The estimated total hourly meteor rates for evening observers this week is near 3 as seen from mid-northern latitudes and 4 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 15 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. Morning rates are slightly reduced during this period 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 February 6/7. 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

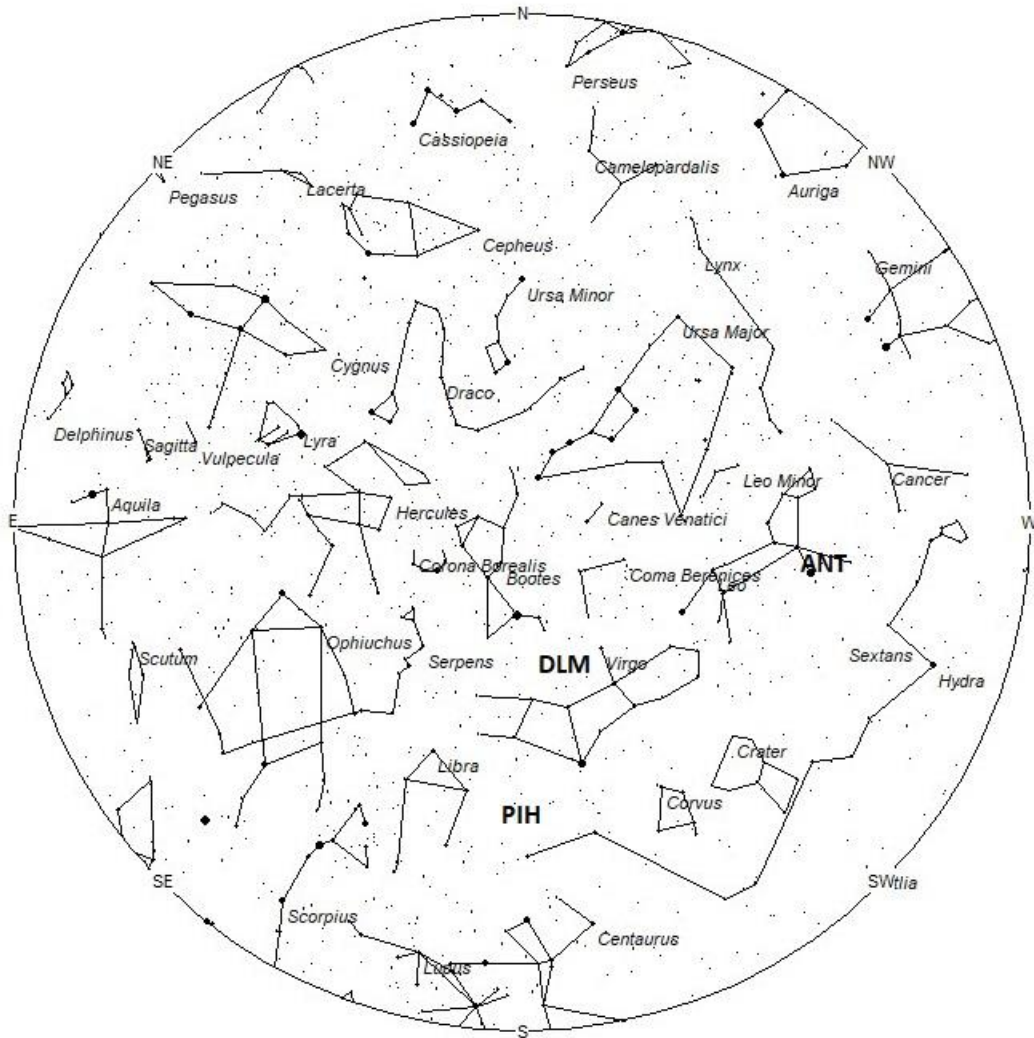
your latitude. It must be remembered that meteor activity is rarely seen at the radiant position. Rather they shoot outwards from the radiant, so it is best to center your field of view so that the radiant lies at the edge and not the center. Viewing there will allow you to easily trace the path of each 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 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 **Anthelion (ANT)** radiant is active from a position located at 10:04 (151) +12. This position lies in western Leo, just west of the 1st magnitude star known as Regulus (alpha Leonis). This radiant is a very large oval some thirty degrees wide by fifteen degrees high. Activity from this radiant can appear from more than one constellation., This week these meteors can also be seen from eastern Cancer as well as western Leo. The position listed here is for the center of the radiant. 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 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 **December Leonis Minorids (DLM)** are a shower of long duration active from December 1 through February 10th. Maximum occurred near December 20th. The radiant is currently located at 13:34 (204) +09. This position lies in northern Virgo, 6 degrees southeast of the 3rd magnitude star known as Vindemiatrix (epsilon Virginis). These meteors are best seen near 0500 LST when the radiant lies highest above the horizon. Current hourly rates are expected to be near less than 1 no matter your location. At 63 km/sec. the December Leonis Minorids produce mostly swift meteors.

The **alpha Centaurids (ACE)** are active from February 3-20, with maximum activity occurring on February 9th. The radiant is currently located at 13:54 (208) -58. This position lies in southeastern Centaurus, 3 degrees northwest of the 1st 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 3 as seen from the mid-southern hemisphere. These meteors are best seen near 05:00 LST when the radiant lies highest above the horizon. At 56 km/sec. the alpha Centaurids would produce mostly swift meteors.

The **pi Hydrids (PIH)** were discovered in Dr. Peter Jenniskens and mentioned in his book *Meteor Showers and their Parent Comets*. Studies of the IMO video database by Sirko Molau and Juergen Rendtel confirmed the existence of this shower. These meteors are active from February 3-9, which maximum activity occurring on the 6th. At maximum, the radiant is located at 14:00 (210) -21. This area of the sky is located in extreme southeastern Virgo, 6 degrees northwest of the 3rd magnitude star known as Pi Hydrae. These meteors are best seen during the last dark hour prior to dawn when the radiant lies highest above the horizon in a dark sky. Rates at maximum are expected to be near 1 per hour as seen from the northern hemisphere. Rates as seen from the southern hemisphere could reach 2 per hour at maximum. These meteors are visible over most of the Earth, with the southern hemisphere having slightly better viewing conditions. At 55 km/sec. the Pi Hydrids would produce mostly swift meteors.

As seen from the mid-northern hemisphere (45N) one would expect to see approximately 6 **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 11 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. Morning rates are slightly reduced due to moonlight.

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.

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	
Anthelion (ANT)	-	09:08 (137) +16	30	01:00	2 - 1	II
December Leonis Minorids (DLM)	Dec 20	12:48 (192) +14	63	05:00	<1 - <1	II
alpha Centaurids (ACE)	Feb 09	13:54 (208) -58	56	06:00	<1 - 3	II
pi Hydrids (PIH)	Feb 06	14:00 (210) -21	55	06:00	1 - 2	IV