

Meteor Activity Outlook for May 16-22, 2020



This is a composite of the brightest of 27 Lyrids 2020, recorded by Peter Slansky. He observed them from my roof top terrace in the Munich city center during the Corona lock down. His camera was a Sony a7S with IR cut filter removed in black + white mode at ISO 102.000 at 25 fps with a Canon FD 2.8/15mm fish eye lens at F = 2.8. From 23:20 to 03:09 UT this camera recorded 59 meteors, 41 of them Lyrids. © Peter Slansky.

During this period, the moon reaches its new phase on Friday May 22nd . This weekend the waning crescent moon will rise during the early morning hours and will only present a slight annoyance the remainder of the morning. One can easily obtain useful observations by keeping the moon out of your field of view. The estimated total hourly meteor rates for evening observers this week is near 2 for those viewing from the northern hemisphere and 3 for those located south of the equator. For morning observers, the estimated total hourly rates should be near 7 as seen from mid-northern latitudes (45N) and 14 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 interfering 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 May 16/17. 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



Radiant Positions at 1am Local Daylight Saving Time



Radiant Positions at 4am Local Daylight Saving Time

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

The **tau Herculids (TAH)** are an irregular shower not active every year. They are best known for being associated with comet Schwassmann-Wachmann 3 and the strong display seen in 1930. Due to recent activity from the comet, this shower could produce more activity in the upcoming decade. The Earth could start encountering particles from Schwassmann-Wachmann 3 around May 19. On that date the radiant is expected to lie near 14:36 (219) +37. This area of the sky is located in northern Bootes, 2 degrees southeast of the 3rd magnitude star known as Seginus (gamma Bootis). This is not that close to the star tau Herculis, for which this shower is named. Apparently, the discoverers of this display placed the radiant further east toward Corona Borealis and Hercules. It's also possible that past displays from this source had a different radiant area. This area of the sky is best placed near midnight local daylight saving time (LDST), when it lies high overhead for observers located in mid-northern latitudes. With an entry velocity of 15 km/sec., the average tau Herculid meteor would be of very slow velocity.

The center of the large **Anthelion (ANT)** radiant is currently located at 16:36 (249) -22. This position lies in northwestern Scorpius, 5 degrees north of the 1st magnitude orange star known as Antares (alpha Scorpii). Due to the large size of this radiant, Anthelion activity may also appear from eastern Libra and southern Ophiuchus as well as northwestern Scorpius. 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 2 per hour as seen from mid-northern latitudes (45 N) and 3 per hour as seen from the southern tropics (S 25). With an entry velocity of 30 km/sec., the average Anthelion meteor would be of slow velocity.

The **eta Aquariids (ETA)** are particles from Halley's Comet, produced in Earth-crossing orbits many centuries ago. The radiant is currently located at 23:12 (348) +03. This area of the sky is located in western Pisces, 2 degrees west of the 4th magnitude star known as gamma Piscium. The radiant does not rise until 1am local LDST so these meteors cannot be seen during the evening hours. The best time to view this activity is during the hour before the start of morning twilight, when the radiant lies highest in a dark sky. With the radiant low in the east it would be best to face halfway up in the sky in that same direction. Rates should be near 3 per hour as seen from mid-northern latitudes and 7 per hour as seen from the southern tropics. With an entry velocity of 66 kilometers per second, a majority of these meteors will appear to move swiftly with a high percentage of the bright meteors leaving persistent trains. Surprisingly, this shower produces very few fireballs.

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 1 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 2 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 Daylight Saving Time	North- South	
tau Herculids (TAH)	Jun 02	14:36 (219) +37	15	00:00	<1 - <1	III
Anthelions (ANT)	-	16:36 (249) -22	30	02:00	2 - 3	II
eta Aquariids (ETA)	May 06	23:12 (348) +03	67	09:00	1 - 3	I