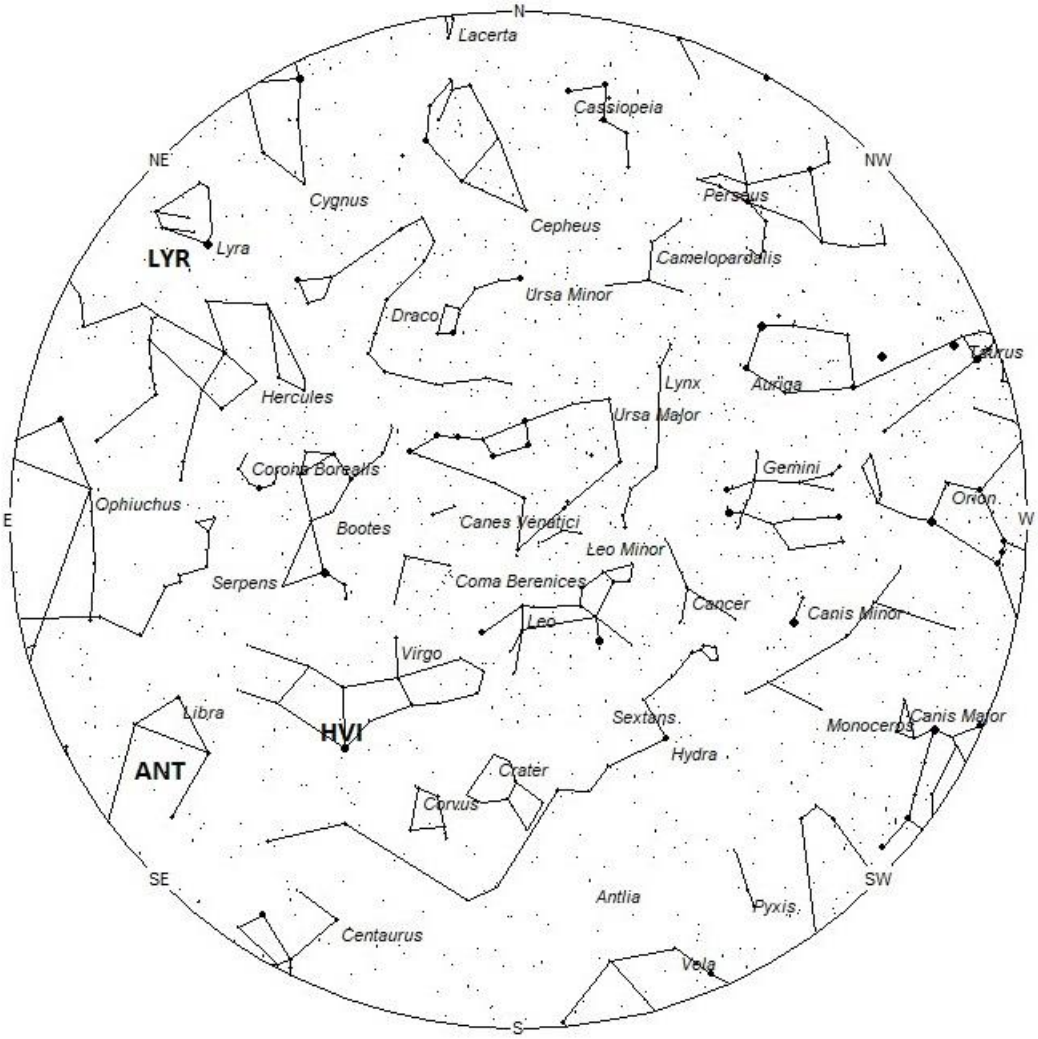
Meteor Activity Outlook for April 25-May 1, 2020

This composite image was created by Ms. Heather M. Wendelboe of Cheyenne, Wyoming USA. The pictures were taken on the night of April 21/22 2020, from Curt Gowdy State Park, Wyoming. She used a Nikon D750 camera, Nikkor AF-S 24mm lens set to ISO 6400, f/2.8, 11 second exposures. You can see more of Heather's work at: BOLO Photo Wild West Automotive Photography. © Bolo Photo

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 9 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. 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.

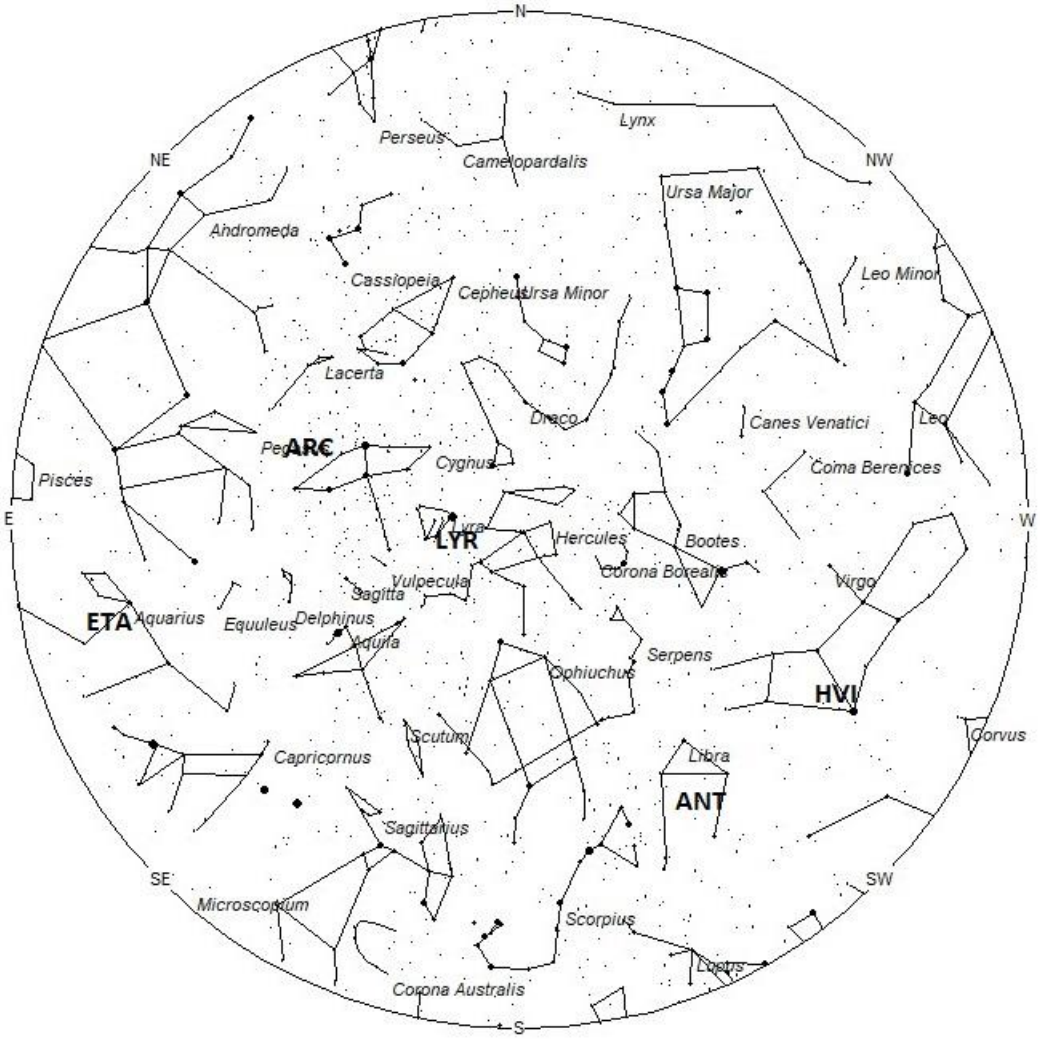
The radiant (the area of the sky where meteors appear to shoot from) positions and rates listed below are exact for Saturday night/Sunday morning April 25/26. These positions do not change greatly day to day so the listed coordinates may be used during this entire period. Most star atlases (available 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 a sporadic. Meteor activity is not seen from radiants that are located 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 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 **pi Puppids (PPU)** are active from April 16-30 with maximum activity predicted to occur on the 23rd. Some of these meteors may be seen from the southern hemisphere from a radiant located at 07:28 (112) -46. This area of the sky is located southern Puppis, 3 degrees south of the 3rd magnitude star known as sigma Puppis. This area of the sky is best seen as soon as it becomes dark during the early evening hours. No matter your location, rates are expected to be low. Observers located in the tropical northern hemisphere may also see some activity but at latitudes north of 30 degrees north, the odds are against seeing any activity at all. At 15km/sec. the Pi Puppids would produce meteors of very slow velocity.

The **h Virginids (HVI)** were discovered by Japanese observers (SonotaCo) based on video observations in 2007-2008. These meteors are active from April 20-May 04 with maximum activity predicted to occur on the 30th. The radiant is currently located at 13:24 (201) -10. This area of the sky is located central Virgo just 1 degree north of the 1st magnitude star known as Spica (alpha Virginis). This area of the sky is best seen near midnight LDST, when it is located highest in the sky. No matter your location, rates are expected to be less than 1 per hour. At 17km/sec. these meteors would produce meteors of very slow velocity.

The center of the large **Anthelion (ANT)** radiant is currently located at 15:12 (228) -18. This position lies in western Libra, 6 degrees southeast of the 3rd magnitude star known as Zubenelgenubi (alpha Librae). Due to the large size of this radiant, Anthelion activity may also appear from eastern Virgo and western Scorpius as well as Libra. 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 1 as seen from the northern hemisphere and 2 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 **Lyrids (LYR)** radiant is currently located at 18:20 (275) +34. This area of the sky is located in western Lyra, 2 degrees south of the faint star known as kappa Lyrae. The brilliant zero magnitude star known as Vega (alpha Lyrae) also lies 6 degrees to the northeast. This radiant is best placed during the last hour before dawn when it lies highest above the horizon in a dark sky. Current rates are expected to be near 1 per hour as seen from the northern hemisphere and less than 1 as seen from south of the equator. With an entry velocity of 46 km/sec., the average meteor from this source would be of medium-fast velocity.

The **April rho Cygnids (ARC)** were discovered by Dr. Peter Brown during his meteoroid stream survey using the Canadian Meteor Orbit Radar. These meteors are active from April 26-May 4 with maximum activity occurring on the 28th. The radiant is currently located at 21:24 (321) +46. This area of the sky is located in eastern Cygnus, 2 degrees west of the 4th magnitude star known as Deneb (rho Cygni). This radiant is best placed during the last hour before dawn when it lies highest above the horizon in a dark sky. Current rates are expected to be near 1 per hour as seen from the northern hemisphere and less than 1 as seen from south of the equator. With an entry velocity of 41 km/sec., the average meteor from this source would be of medium velocity. Note that these meteors are synonymous with the Nu Cygnids (Molau and Rendtel, 2009).

The **eta Aquariids (ETA)** are particles from Halley's Comet, produced in Earth-crossing orbits many centuries ago. We pass closest to these orbits from May 3 through the 11th. During this period the eta Aquariids are at their best, capable of producing zenith hourly rates (ZHRs) of 60. The actual visible

rates are most often less than half this figure due to the low altitude of the radiant at dawn. Observed hourly rates at maximum normally vary from zero at 60 degrees north latitude to 30 near the equator and back down to near zero again in Antarctica, where the radiant elevation is again very low. Hourly rates this weekend will most likely be 1-2 per hour as seen from mid-northern latitudes. The radiant is currently located at 22:00 (330) -04. This area of the sky is located in northern Aquarius, 4 degrees south of the 3rd magnitude star known as Sadalmelik (alpha Aquarii). 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. If the radiant has sufficient altitude eta Aquariid meteors can also be seen shooting down toward the eastern horizon. 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 2 per hour. As seen from the tropical southern latitudes (25S), morning rates would be near 8 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.

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	
pi Puppids (PPU)	Apr 23	07:28 (112) -46	15	18:00	<1 - <1	III
h Virginids (HVI)	Apr 30	13:24 (201) -10	17	00:00	<1 - <1	IV
Anthelions (ANT)	-	15:12 (228) -18	30	02:00	2 - 3	II
Lyrids (LYR)	Apr 22	18:24 (276) +34	46	05:00	<1 - <1	I
April rho Cygnids (ARC)	Apr 28	21:24 (321) +46	42	08:00	1 - <1	IV
eta Aquariids (ETA)	May 07	22:16 (334) -03	67	09:00	1 - 2	I