

Meteor Activity Outlook for July 23-29, 2022

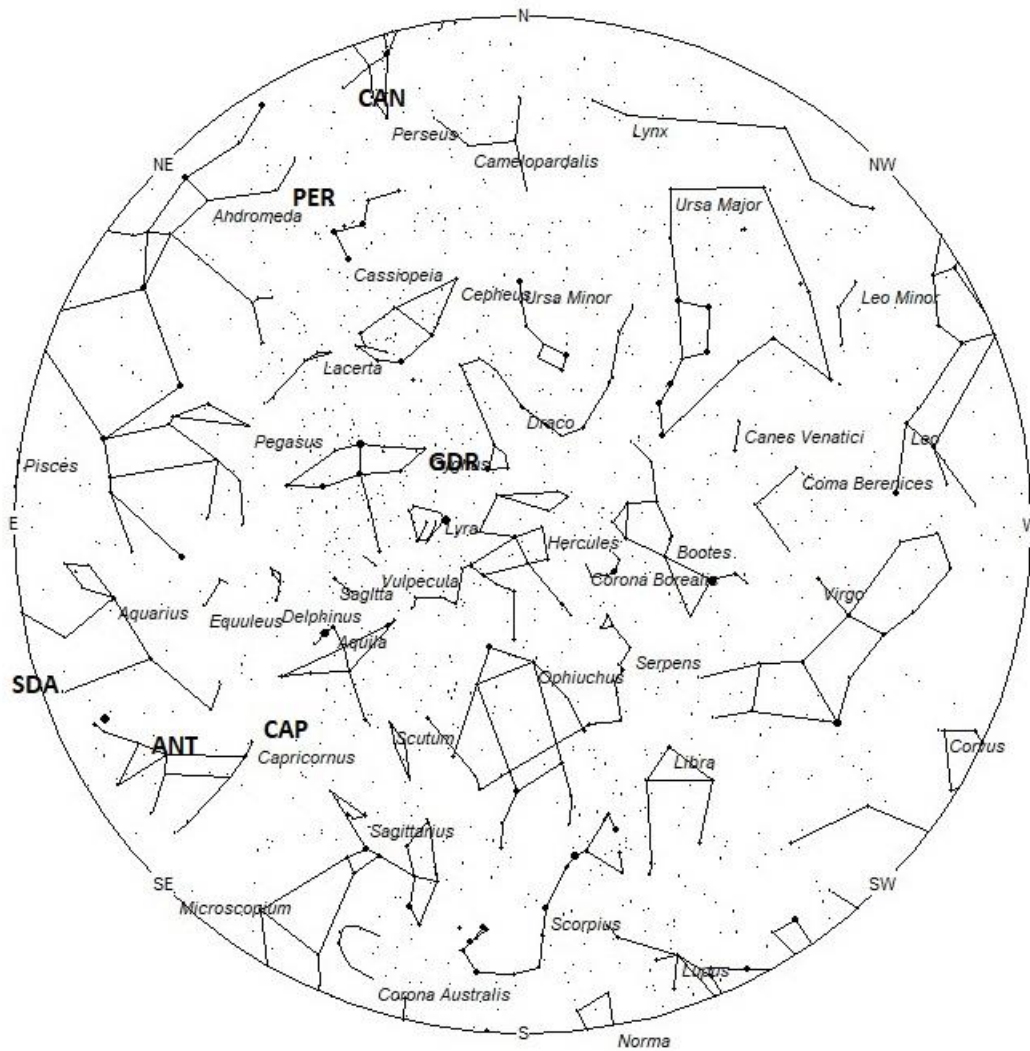


Ed Albin captured this brilliant fireball using his [AllSky7 Meteor Patrol Camera System](#) on May 7, 2022, at 04:47 EDT (8:47 UT) from the Deerlick Astronomy Village located at Crawfordville Georgia, USA. Notice the "Big Dipper" in the upper left side of the photo and the "W" of Cassiopeia in the lower right. Polaris, the North Star, lies just to the upper left of the starting point of the fireball. The secondary streak is an artifact created by the extreme brightness of the main fireball. ©Ed Albin

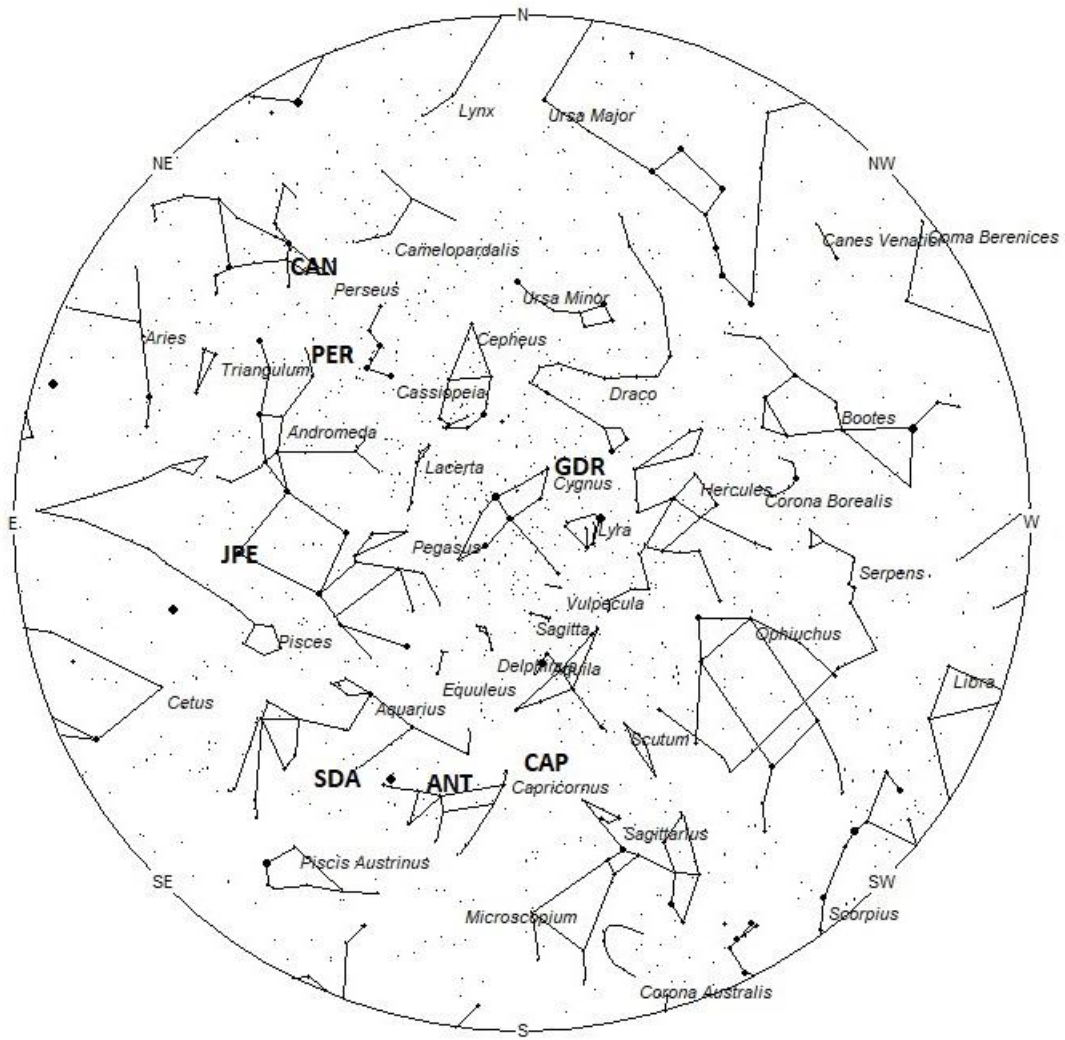
During this period, the moon reaches its new phase on Thursday July 28th. At that time the moon is located near the sun and is invisible at night. This weekend the waning crescent moon will rise during the early morning hours but will not interfere with meteor watching as long as you keep it out of your field of view. This week and the first week of August will be the best time to view meteor activity this summer as the moonlight will be limited to the late morning hours and the early evening hours. The estimated total hourly rates for evening observers this week should be near 4 as seen from mid-northern latitudes (45N) and 4 as seen from tropical southern locations (25S). For morning observers, the estimated total hourly rates should be near 17 as seen from mid-northern latitudes (45N) and 18 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 July 23/24. 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

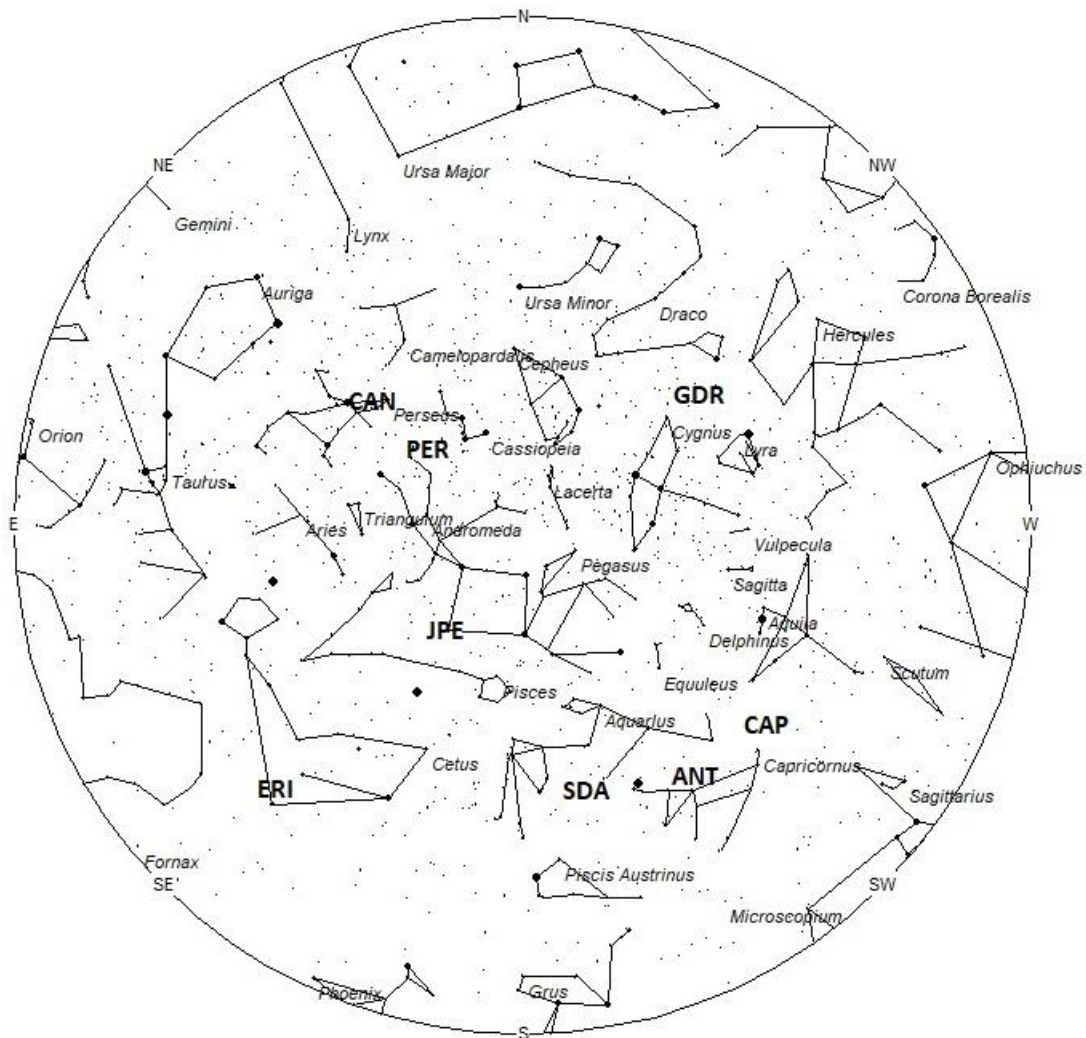
in showing the sky at any time of night on any date of the year. Activity from each radiant is best seen when it is positioned highest in the sky, either due north or south along the meridian, depending on your latitude. It must be remembered that meteor activity is rarely seen at the radiant position. 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 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 **July gamma Draconids (GDR)** were first noticed by Japanese observers of SonotoCo and the IMO's network team of Sirko Molau and Juergen Rendtel in 2009. This stream is active from July 23-August 3 with maximum activity occurring on July 28. The radiant is currently located at 18:46 (282) +50, which places it in southeastern Draco, 7 degrees east of the 2nd magnitude star known as Eltanin (gamma Draconis). The radiant also lies 12 degrees due north of the brilliant zero magnitude star Vega (alpha Lyrae). These meteors are not well seen from the Southern Hemisphere as the radiant does not rise very high in their northern sky. Observers concentrating on this activity should face high in the northern sky as soon as it becomes dark to best view these meteors. With an entry velocity of 29 km/sec., the average July gamma Draconid meteor would be of medium-slow velocity. In 2016, this stream produced a strong outburst that lasted approximately 1 hour. Nothing unusual has occurred since 2016. Some researchers feel these meteors are related to the kappa Cygnids, which are active in August. Normal rates for this shower is less than 1 shower member per hour no matter your location.

The **alpha Capricornids (CAP)** are active from July 7 through August 15, peaking on July 31st. The radiant is currently located at 20:10 (303) -11. This position lies in northwestern Capricornus, 2 degrees northwest of the naked eye double star known as (alpha Capricornii). Current rates are expected to be near 2 per hour as seen from the Northern Hemisphere and 3 per hour as seen from south of the equator. Observers concentrating on this activity should face half-way up in the southern sky near 01:00 Local Standard Time (LST) to best view these meteors. With an entry velocity of 23 km/sec., the average meteor from this source would be of slow velocity.

The large **Anthelion (ANT)** radiant is currently centered at 20:56 (314) -17. This position lies in north-central Capricornus, 2 degrees west of the 4th magnitude star known as Dorsum (theta Capricorni). Rates at this time should be near 2 per hour as seen from the Northern Hemisphere and 3 as seen from south of the equator. Observers concentrating on this activity should face high in the half-way up in the southern sky near 02:00 LST to best view these meteors. With an entry velocity of 30 km/sec., the average Anthelion meteor would be of slow velocity.

The **Southern delta Aquariids (SDA)** are active from a radiant located at 22:24 (336) -17. This area of the sky is located in southwestern Aquarius, 3 degrees southeast of the 4th magnitude star known as iota Aquarii A. This location is also 7 degrees southeast of the first magnitude planet Saturn. Hourly rates at this time should be near 1 as seen from the Northern Hemisphere and near 2 as seen from south of the equator. Observers concentrating on this activity should face half-way up in the southern sky during the last dark hour prior to dawn to best view these meteors. With an entry velocity of 41 km/sec., the average meteor from this source would be of medium velocity.

The **July Pegasids (JPE)** are active from July 4th through August 8th with maximum activity occurring on July 11th. The radiant is currently located at 23:54 (358) +14. This area of the sky is located in southern Pegasus, 3 degrees west of the 3rd magnitude star known as Algenib (gamma Pegasi). Rates are expected to be less than 1 per hour this week no matter your location. Observers concentrating on this activity should face half-way up in the southeastern sky during the last dark hour prior to dawn to best view these meteors. With an entry velocity of 63 km/sec., the average meteor from this source would be of swift velocity.

The **Perseids (PER)** are active from a radiant located at 01:32 (023) +53. This position lies on the Perseus/Cassiopeia border, 3 degrees southeast of the 4th magnitude star known as theta Cassiopeiae. Maximum is not until August 13th so current rates are expected to only 2 per hour as seen from the Northern Hemisphere and 1 per hour from the tropical Southern Hemisphere. Observers concentrating on this activity should face high in the northeastern sky during the last dark hour prior to dawn to best view these meteors. Observers in the northern hemisphere are better situated to view this activity as the radiant rises much higher in the sky before dawn compared to southern latitudes. With an entry velocity of 59 km/sec., the average meteor from this source would be of swift velocity.

The **eta Eridanids (ERI)** were discovered by the Tokyo Meteor Network back in 2001. The radiant is currently located near 01:59 (030) -18. This position lies in southern Cetus, 4 degrees southeast of the 3rd magnitude star known as tau Ceti. This source is active until September 10th, with maximum activity occurring on August 6th. Current rates would be less than 1 per hour no matter your location. Observers concentrating on this activity should face low in the southeastern sky during the last dark hour prior to dawn to best view these meteors. It should be noted that this radiant rises during twilight for the northern half of the Northern Hemisphere. Therefore, these meteors are not visible until later in the activity period when nights become longer for the Northern Hemisphere. With an entry velocity of 64 km/sec., the average meteor from this source would be of swift speed.

The last of the **c-Andromedids (CAN)** are expected this week from a radiant located at 03:05 (046) +52. This position is located in northwestern Perseus, 1 degree south of the 3rd magnitude star known as gamma Persei. Observers in the northern hemisphere are better situated to view this activity as the radiant rises much higher in the sky before dawn compared to southern latitudes. Observers concentrating on this activity should face low in the southeastern sky during the last dark hour prior to dawn to best view these meteors. Current rates would be less than 1 per hour no matter your location. With an entry velocity of 57 km/sec., the average meteor from this source would be of swift velocity.

As seen from the mid-northern hemisphere (45N) one would expect to see approximately 10 **sporadic** meteors per hour during the last hour before dawn as seen from rural observing sites. Evening rates would be near 3 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 3 per hour during the evening hours. Locations between these two extremes would see activity between the listed figures.

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 available at: <https://meteorshowers.seti.org/> 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 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	
July gamma Draconids (GDR)	Jul 25	18:46 (282) +50	28	22:00	<1 - <1	II
alpha Capricornids (CAP)	Jul 31	20:10 (303) -11	23	01:00	2 - 3	II
Anthelion (ANT)	-	20:28 (307) -19	30	02:00	2 - 3	II
Southern delta Aquariids (SDA)	Jul 31	22:24 (336) -17	41	04:00	1 - 2	I
July Pegasus (JPE)	Jul 11	23:54 (358) +14	63	05:00	<1 - <1	II
Perseids (PER)	Aug 13	01:32 (023) +53	59	06:00	2 - 1	I
eta Eridanids (ERI)	Aug 06	01:59 (030) -18	64	07:00	<1 - <1	II
c- Andromedids (CAN)	Jul 12	03:05 (046) +52	57	08:00	<1 - <1	IV