

Meteor Activity Outlook for August 24-30, 2024

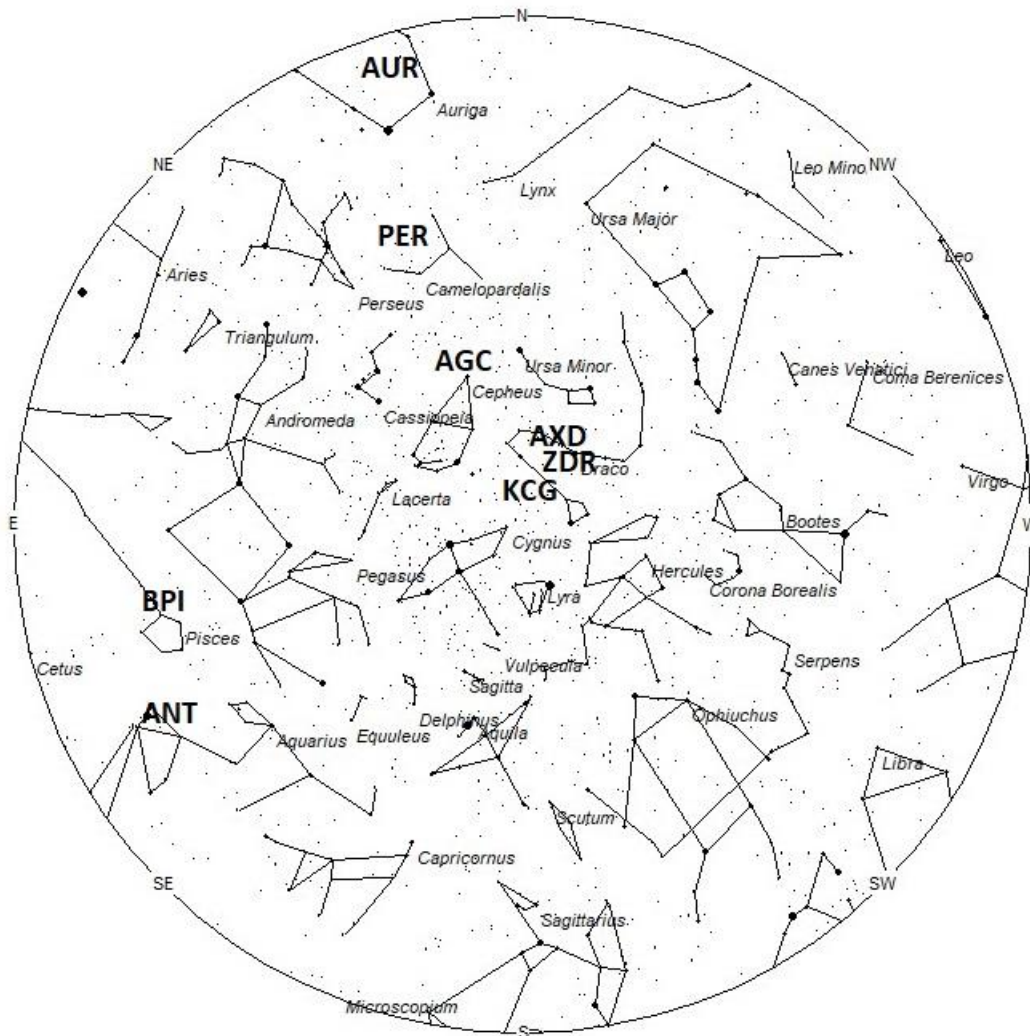


Bernhard Häusler captured this brilliant fireball on March 8, 2024, at 23:47 CEST (22:47 UT) from Dettelbach, Germany . The "wings" on each side of the fireball are artifacts due to the intense brightness of the fireball. ©Bernhard Häusler

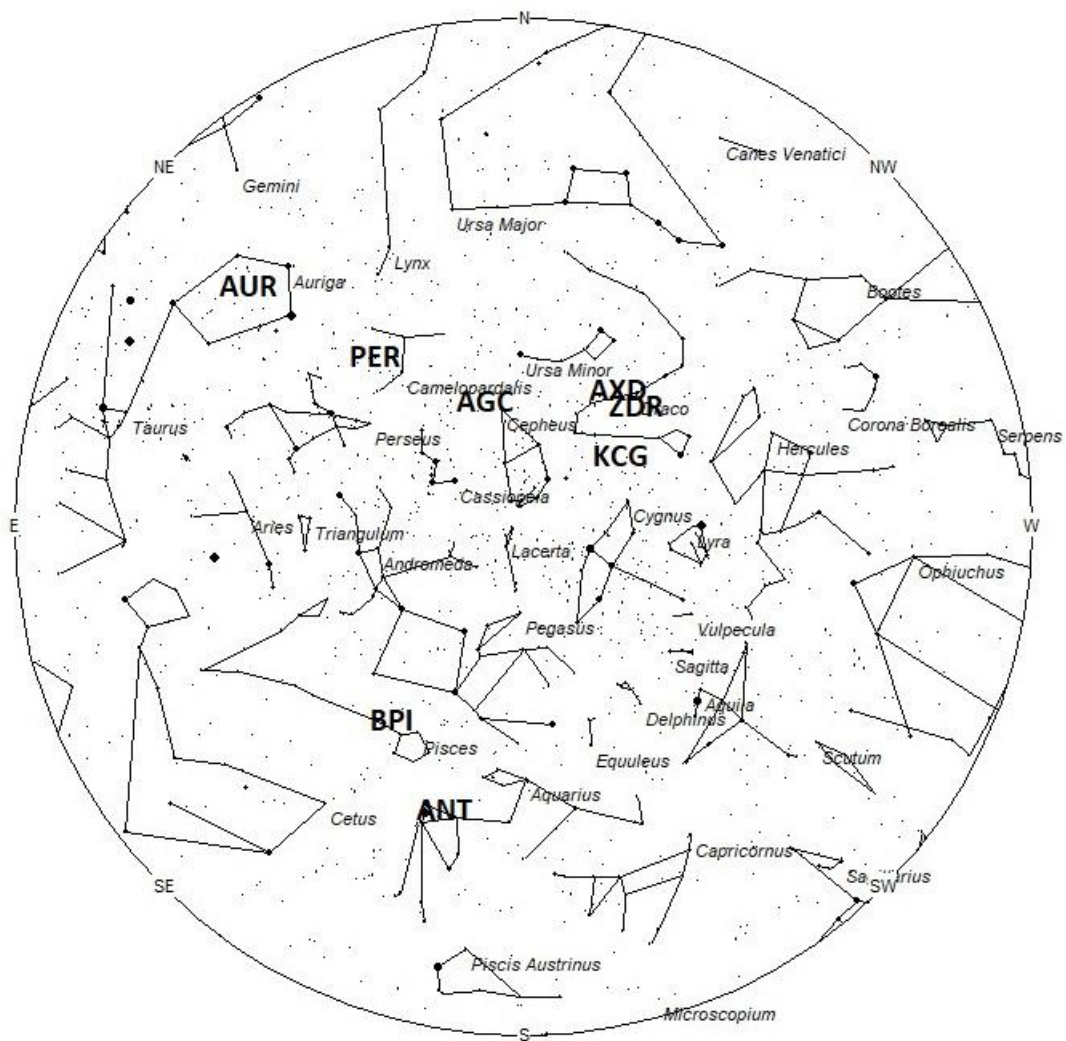
During this period, the moon reaches its last quarter phase on Monday August 26th. At that time the moon will lie 90 degrees west of the sun in the sky and will rise near 23:00 local daylight saving time on the previous evening. As the week progresses the waning crescent moon will rise later in the morning, providing a longer opportunity to view under dark skies between moon rise and dawn. The estimated total hourly rates for evening observers this weekend should be near 3 as seen from mid-northern latitudes (45N) and 2 as seen from tropical southern locations (25S) For morning observers, the estimated total hourly rates should be near 5 as seen from mid-northern latitudes (45N) and 4 as seen from tropical southern locations (25S). The actual rates seen 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 reduced 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 August 24/25. 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

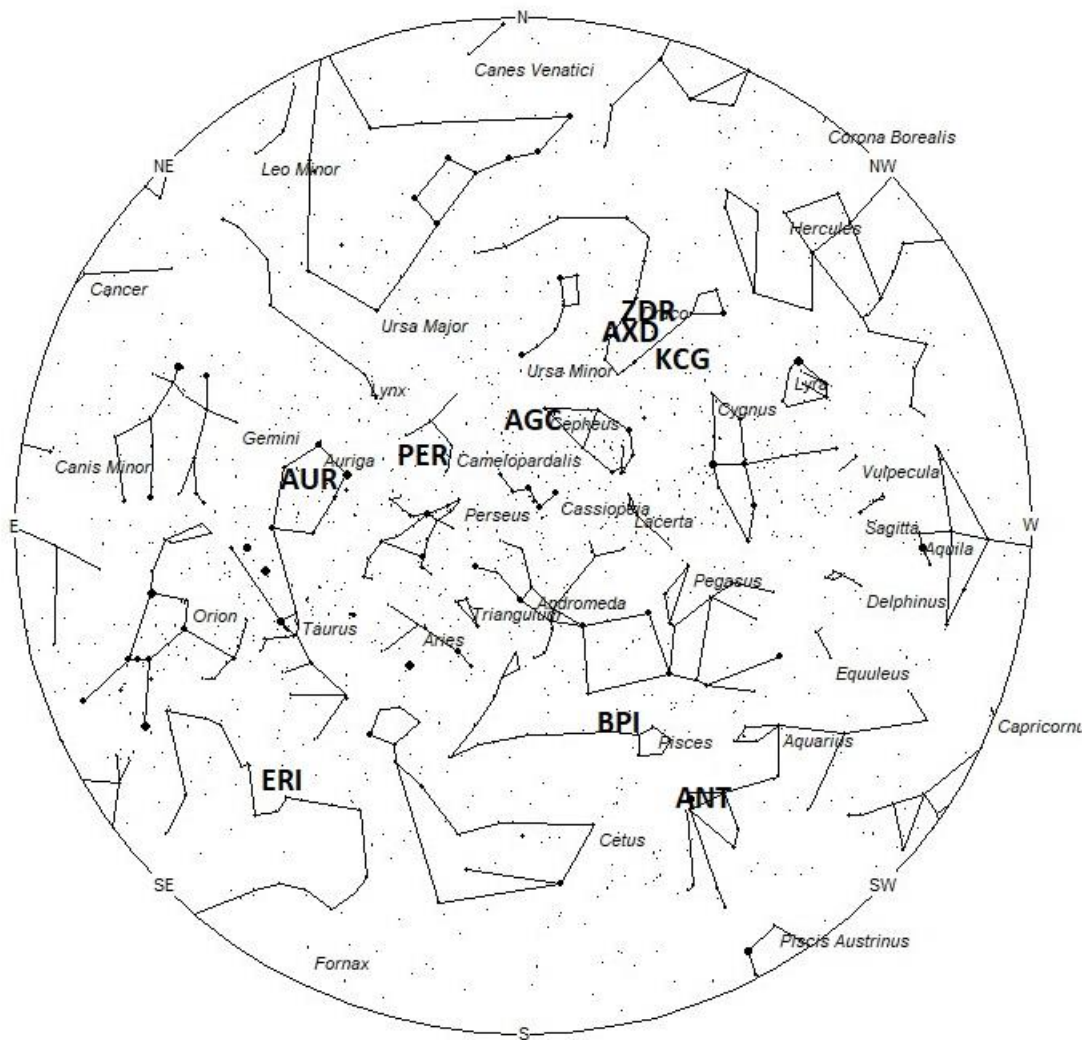
on any date of the year. Activity from each radiant is best seen when it is positioned highest in the sky, either due north or south along the meridian, depending on your latitude. Radiants that rise after midnight will not reach their highest point in the sky until daylight. For these radiants, it is best to view them during the last few hours before dawn. It must be remembered that meteor activity is rarely seen at its radiant position. Rather they shoot outwards from the radiant, so it is best to center your field of view so that the radiant lies toward 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 **zeta Draconids (AUD)** were discovered by Zdenek Sekanina in his study of meteor streams using radio methods. This stream is active from August 12-September 5 with maximum activity occurring on August 26. The radiant is currently located at 17:28 (262) +63, which places it in southeastern Draco, 3 degrees south of the 3rd magnitude star known as Aldhibah (zeta Draconis A). This radiant is best placed near 2200 Local Daylight-Saving Time (LDST), when it lies on the meridian and is located highest in the northern sky. With an entry velocity of 22 km/sec., the average zeta Draconid meteor would be of slow velocity. Rates this week are expected to be less than 1 no matter your location. Due to the high northern declination these meteors are difficult to observe from the southern hemisphere. This position is close to that of the August xi Draconids radiant so care should be taken to differentiate between these meteors. These meteors are synonymous with the August Draconids (AUD).

The **August xi Draconids (AXD)** was discovered by Masahiro Koseki in his study of SonotaCo video observations 2007–2018. These meteors were long considered part of the kappa Cygnids but Koseki states that they are clearly distinct*. This stream is active from August 4-28 with maximum activity occurring on the 15th. The radiant is currently located at 17:44 (266) +64, which places it in southeastern Draco, 4 degrees southeast of the 2nd magnitude star known as Eltanin (gamma Draconis). To best see these meteors, face low toward the north near 2200 LDST, when it lies on the meridian and is located highest in the northern sky. With an entry velocity of 22 km/sec., the average August Draconid meteor would be of slow velocity. Rates this week are expected to be less than 1 no matter your location. Due to the high northern declination these meteors are difficult to observe from the southern hemisphere.

*The activity of meteor showers recorded by SonotaCo video observations 2007–2018, Masahiro Koseki, 2021, Page 147

The **kappa Cygnids (KCG)** are active from August 1-27, with maximum occurring on the 14th. The radiant is currently located at 19:24 (291) +59. This area of the sky is located in southeastern Draco, 6 degrees north of the 4th magnitude star known as kappa Cygni. To best see these meteors face toward the north near midnight LDST when it lies on the meridian and is located highest in the northern sky. With a high northern declination, these meteors are difficult to view from the southern hemisphere. Expected hourly rates this week are less than 1 no matter your location. With an entry velocity of 24 km/sec., the average meteor from this source would be of slow velocity.

The large **Anthelion (ANT)** radiant is currently centered at 22:56 (344) -07. This position lies in central Aquarius, 4 degrees west of the 4th magnitude star known as phi Aquarii. This location is also 4 degrees northwest of the first magnitude planet Saturn. This radiant is best placed near 02:00 LDST when it lies on the meridian and is highest in the southern sky. Rates at this time should be near 1 per hour as seen from the northern hemisphere and 2 as seen from south of the equator. With an entry velocity of 30 km/sec., the average Anthelion meteor would be of medium-slow velocity.

The **August beta Piscids (BPI)** are part of the Northern delta Aquariid complex, active from August 18-September 8. This second peak of the NDA's occurs on August 20th, when the radiant

lies well within the boundaries of the constellation of Pisces. The radiant currently is located near 23:43 (356) +06. This area of the sky is located in western Pisces, 3 degrees west of the 4th magnitude star known as omega Piscium. To best see these meteors, look high in the southern sky near 0300 LDST, when it lies on the meridian and is located highest in the northern sky. Hourly rates at this time should be less than 1 no matter your location. With an entry velocity of 38 km/sec., the average meteor from this source would be of medium velocity.

The **August gamma Cepheids (AGC)** are a recent discovery by Damir Šegon and the Croatian Meteor Network team based on studying SonotaCo and CMN observations (SonotaCo 2007-2011, CMN 2007-2010). Meteors from this source are expected from August 17 through September 6, with maximum activity occurring on August 29. The current position lies at 23:53 (358) +76, which lies in northern Cepheus, 1 degree southeast of the 3rd magnitude star known as Errai (gamma Cephei A). To best see these meteors, face toward the north near 0300 LDST, when it lies on the meridian and is located highest in the sky. Rates at this time should be less than 1 per hour as no matter your location. With an entry velocity of 44 km/sec., the average meteor would be of medium velocity. These meteors are not visible south of latitude 20 South.

The **eta Eridanids (ERI)** are active from a radiant near 03:46 (057) -08. This position lies in northern Eridanus, 1 degree north of the 4th magnitude star known as Rana (delta Eridani). This source is active until September 10th, with maximum activity occurring on August 7th. Current rates are expected to be less than 1 per hour no matter your location. These meteors are best seen during the last dark hour prior to dawn when the radiant lies highest above the southeastern horizon in a dark sky. With an entry velocity of 64 km/sec., the average meteor from this source would be of swift speed.

The **Perseids (PER)** are still active from a radiant located at 04:26 (066) +60. This position lies in southwestern Camelopardalis, 4 degrees west of the 4th magnitude star known as beta Camelopardalis. This area of the sky is best placed for viewing during the last dark hour before dawn when it lies highest in the northern sky. Current hourly rates are expected to be near less than 1 no matter your location. With an entry velocity of 59 km/sec., the average meteor from this source would be of swift velocity. Viewers in the southern hemisphere have a limited view of this shower as the radiant only rises just before dawn.

The **Aurigids (AUR)** are active from August 26 through September 4, peaking on August 31st. The radiant is currently located at 05:35 (084) +38. This position lies in central Auriga, 4 degrees northwest of the 3rd magnitude star known as Mahasim (theta Aurigae A). To best see these meteors, it is suggested to view half-way up in the northeastern sky during the last hour prior to dawn. Normally, hourly rates are less than 1 except on the night of maximum activity. With an entry velocity of 66 km/sec., the average meteor from this source would be of swift velocity.

Sporadic meteors are those meteors that cannot be associated with any known meteor shower. All meteor showers are evolving and disperse over time to the point where they are no longer recognizable. Away from the peaks of the major annual showers, these sporadic meteors make up the bulk of the activity seen each night. As seen from the mid-northern hemisphere (45N) one would expect to see during this period approximately 8 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 3 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 these listed figures. Morning rates are reduced due to moonlight.

The list below offers the information in tabular form of the showers that I feel are within reach of the visual observer to discern. Hourly rates are often less than one, so these sources are rarely listed as visual targets in most meteor shower lists. If you are like me and wish to associate as many meteors as possible with known sources, then you will appreciate these listings. Before listing meteors from these obscure sources, you should attempt to prove these meteors belong to them and are not chance alignments of sporadic meteors. You can note parameters such as duration, length, radiant distance and the elevation of each meteor to help compute the probability of shower association. It should be remembered that slow meteors can be seen from fast showers, but fast meteors cannot be produced from slow showers. Slower showers are those with velocities less than 35/km per second. Slow meteors can appear from fast showers when they appear close to the radiant or low in the sky. The table located on page 22 of the [IMO's 2024 Meteor Shower Calendar](#) is a big help in aiding in the identification of meteors. If you record the length and duration of each meteor, you can use this chart to check the probability of the meteor belonging to a shower of known velocity. If the angular velocity is similar to the figure in the table, then your meteor probably belongs to that shower. Rates and positions are exact for Saturday night/Sunday morning.

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	
zeta Draconids (AUD)	Aug 26	17:28 (262) +63	23	22:00	<1 - <1	IV
August xi Draconids (AXD)	Aug 15	17:44 (266) +64	22	22:00	<1 - <1	IV
kappa Cygnids (KCG)	Aug 13	19:24 (291) +59	24	00:00	<1 - <1	II
Anthelions (ANT)	-	22:56 (344) -07	30	02:00	<1 - 1	II
August beta Piscids (BPI)	Aug 21	23:43 (356) +06	38	03:00	<1 - <1	IV

August gamma Cepheids (AGC)	Aug 28	23:53 (358) +76	44	03:00	<1 - <1	IV
eta Eridanids (ERI)	Aug 06	03:46 (057) -08	64	06:00	<1 - <1	II
Perseids (PER)	Aug 12	04:26 (066) +60	59	07:00	<1 - <1	I
Aurigids (AUR)	Aug 31	05:35 (084) +38	66	08:00	5 - 2	II

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](#). 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.

Class Explanation: A scale to group meteor showers by their intensity:

- **Class I:** the strongest annual showers with Zenith Hourly Rates normally ten or better.
- **Class II:** reliable minor showers with ZHR's normally two to ten.
- **Class III:** showers that do not provide annual activity. These showers are rarely active yet have the potential to produce a major display on occasion.
- **Class IV:** weak minor showers with ZHR's rarely exceeding two. The study of these showers is best left to experienced observers who use plotting and angular velocity estimates to determine shower association. These weak showers are also good targets for video and photographic work. Observers with less experience are urged to limit their shower associations to showers with a rating of I to III.