

Meteor Activity Outlook for July 18-24, 2020

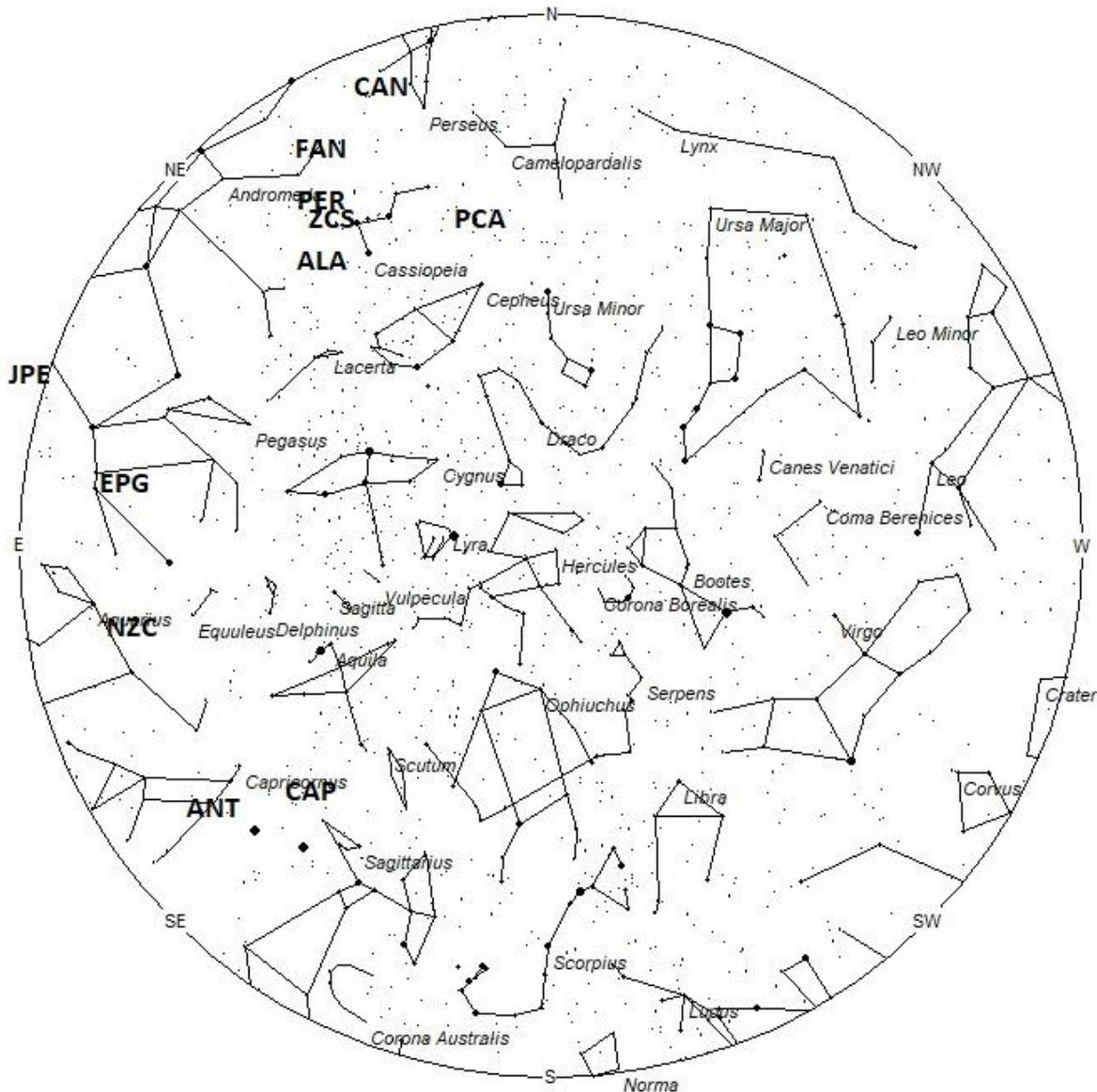


Meteor and currently naked-eye [Comet 2020/F3 aka "NEOWISE"](#) Above Iron Mountain, San Diego, CA July 10th, 2020 - Single shot, 1s, ISO1600, Sony a6300 and Sigma 30mm f1.4 Shared on AMS Website by [Rob Colatutto](#) - Credits: Rob Colatutto

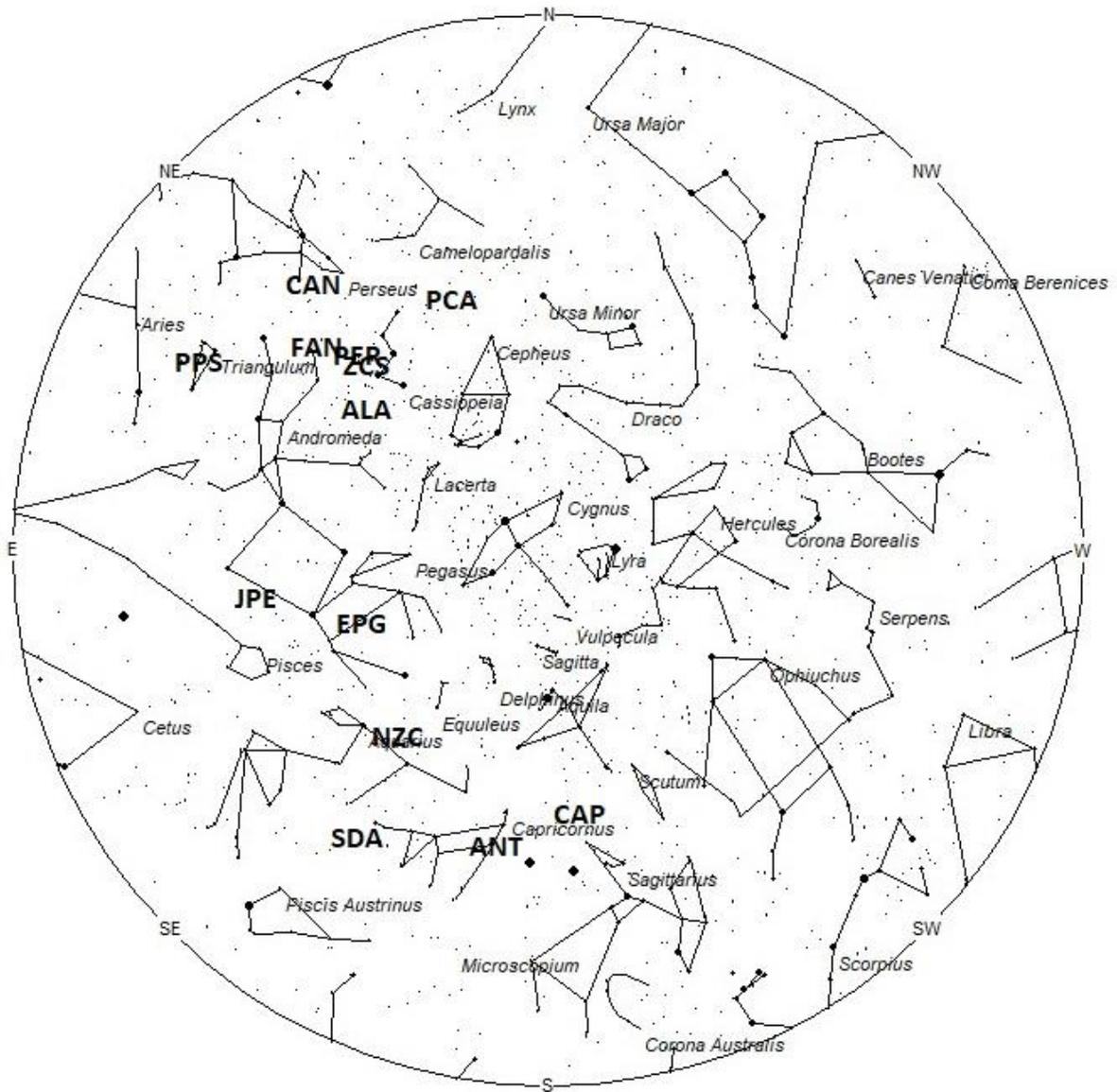
During this period, the moon reaches its new phase on Tuesday July 21st. At this time, the moon is located near the sun and is invisible at night. The moon will be located near the sun during this entire period; therefore, meteor observations can be held at any time of the night without lunar interference. The estimated total hourly meteor rates for evening observers this week is near 3 no matter your location. For morning observers, the estimated total hourly rates should be near 19 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 18/19. 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

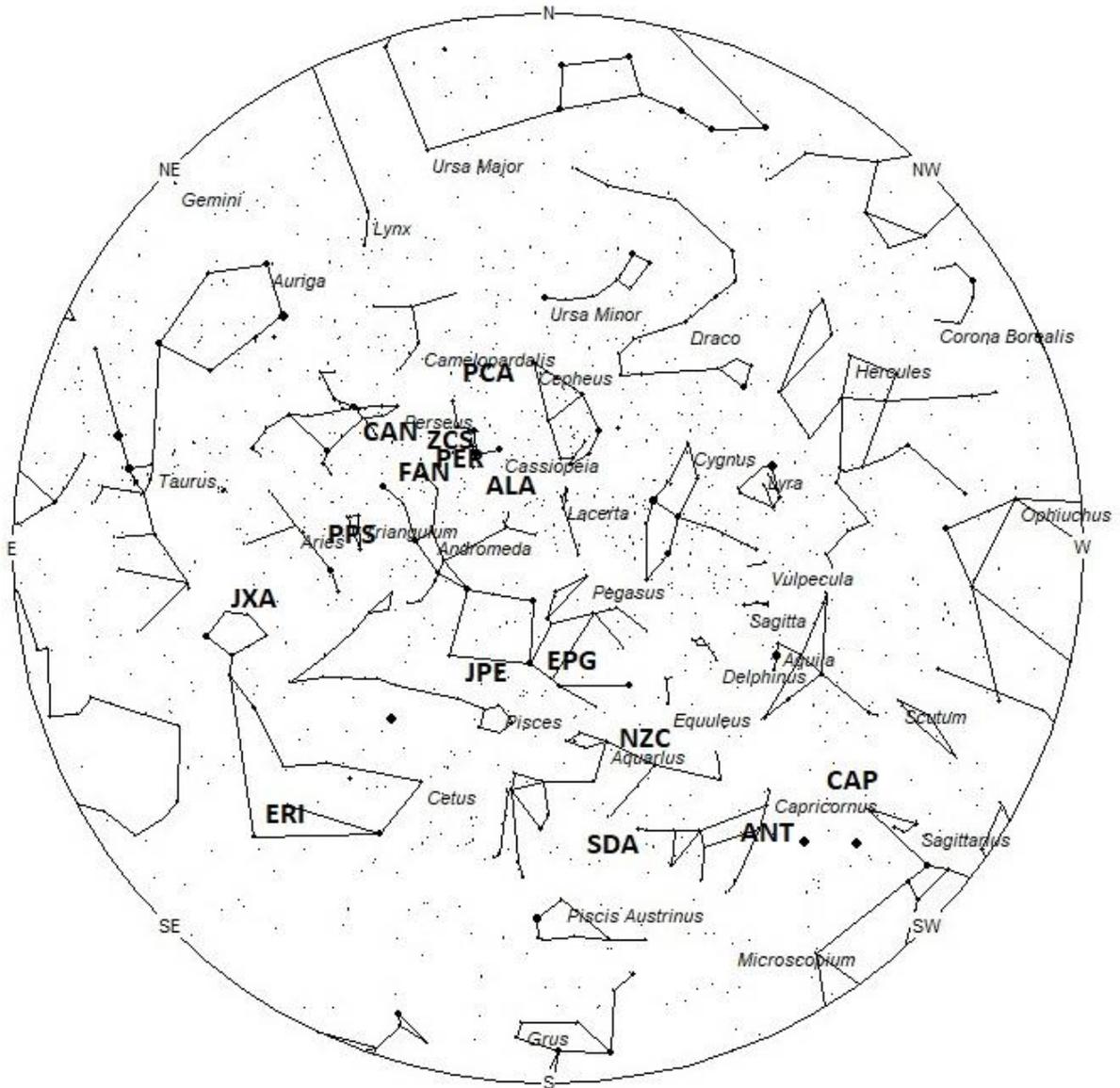
the center. Viewing there will allow you to easily trace the path of each meteor back to the radiant (if it is a shower member) or in another direction if it is a sporadic. Meteor activity is not seen from radiants that are located far below the horizon. The positions below are listed in a west to east 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 using SonotoCo and the IMO's network team of Sirko Molau and Juergen Rendtel in 2009. This stream is active from July 21-29 with maximum activity occurring on July 28. The radiant is currently located at 18:24 (276) +50, which places it in southeastern Draco, 4 degrees southeast 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). This radiant is best placed near midnight local daylight saving time (LDST), when it lies on the meridian and is located highest in the sky. With an entry velocity of 28 km/sec., the average gamma Draconid meteor would be of medium-slow velocity. In 2016, this stream produced a strong outburst that lasted approximately 1 hour. If a repeat performance occurs this year it will most likely occur near 00:52 Universal Time on July 28. Nothing unusual has occurred since 2016. Some researchers feel these meteors are related to the kappa Cygnids, which are active next month.

The **alpha Capricornids (CAP)** are active from July 2 through August 10 with maximum activity occurring during the last week of July. The broad maximum occurs anywhere from July 25 to the 30th with visual rates usually around 3 per hour. The radiant is currently located at 19:40 (295) -12, which places on the Sagittarius/Aquila border, just southeast of the faint star known as 37 Aquilae. This position also lies 10 degrees west of the 4th magnitude star known as Alpha² Capricorni (Algedi). This radiant is best placed near 0100 LDST when it lies on the meridian and is located highest in the sky. Hourly rates at this time should be near 2 no matter your location. With an entry velocity of 22 km/sec., the average alpha Cap meteor would be of slow velocity.

The center of the large **Anthelion (ANT)** radiant is currently located at 20:36 (309) -19. This position lies in western Capricornus, between the faint stars known as nu and omicron Capricorni. The 3rd magnitude star known as Dabih (beta Capricorni) also lies 7 degrees to the northwest. Due to the large size of this radiant, anthelion activity may also appear from eastern Sagittarius as well as Capricornus. 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 last of the **Northern June Aquilids (NZC)** are expected this week from a radiant located near 21:40 (325) -01. This area of the sky is located in western Aquarius, 8 degrees west of the 3rd magnitude star known as Sadalmelik (alpha Aquarii). This radiant is best placed near 0300 LDST, when it lies on the meridian and is located highest in the 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-slow velocity. An interesting fact about this source is that it may be related to the August beta Piscids (Northern delta Aquariids) of August. Where and when this source ends coincides with the start and position of the August beta Piscids.

The **Southern Delta Aquariids (SDA)** are now active from a radiant located at 22:00 (330) -21. This position is located on the Aquarius/Capricornus border, 6 degrees southeast of the 3rd magnitude star known as Deneb Algedi (delta Capricorni). Maximum activity is expected on July 29th. Current hourly rates will depend on your latitude. Those viewing from the southern tropics

will see the best rates of near 1 per hour. Rates seen from mid-northern latitudes will be less than 1 per hour. The radiant rises near 22:00 LDST but is best placed near 0300 LDST, when it lies highest in the sky. With an entry velocity of 41 km/sec., most activity from this radiant would be of average velocities.

The last of the **epsilon Pegasids (EPG)** are expected this week from a radiant position near 22:29 (337) +16. This area of the sky lies in western Pegasus, 8 degrees west of the 2nd magnitude star known as Markab (alpha Pegasi). These meteors are best seen near 0400 LDST when the radiant lies highest in the sky. Hourly rates are expected to be less than 1 no matter your location. With an entry velocity of 28 kilometers per second, most of these meteors will appear to move with medium-slow velocities. Being discovered by radar, a majority of these meteors may be dim and difficult to see.

The **July Pegasids (JPE)** are active during the entire month of July with maximum activity occurring on July 10th. The radiant is currently located at 23:41 (355) +13. This area of the sky is located in southern Pegasus, 9 degrees southwest of the 3rd magnitude star known as Algenib (gamma Pegasi). This radiant is best placed near 0500 LDST, when it lies on the meridian and is located highest in the sky. Rates are expected to be near 1 per hour this week no matter your location. With an entry velocity of 68 km/sec., the average meteor from this source would be of swift velocity.

The last of **alpha Lacertids (ALA)** are expected this week from a radiant located at 23:47 (357) +55. This area of the sky lies in southwestern Cassiopeia, 5 degrees southwest of the 2nd magnitude star known as Caph (beta Cassiopeiae). These meteors are best seen near 0500 LDST when the radiant lies highest in the sky. Hourly rates are expected to be less than 1 no matter your location. With an entry velocity of 37 kilometers per second, most of these meteors will appear to move with medium velocities. Being discovered by radar, a majority of these meteors may be dim and difficult to see.

The **Perseids (PER)** are active from a radiant located at 00:48 (012) +51. This position is not in Perseus, rather it lies in southern Cassiopeia, 6 degrees south of the 2nd magnitude star known as Schedar (alpha Cassiopeiae). This area of the sky also lies between the faint stars known as xi and nu Cassiopeiae. This area of the sky is best placed for viewing during the last dark hour before dawn when it lies highest in the sky. Maximum is not until August 12 so current rates are expected to be 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.

The **zeta Cassiopeiids (ZCS)** were discovered by Przemysław Żoładek and Mariusz Wisniewski during a Polish meteor workshop in 2005 and also by members of the Croatian Meteor Network. These meteors are active from July 2-27 with maximum activity occurring on July 15. The current position of the radiant is 00:58 (014) +53. This position lies in a southern Cassiopeia, 6 degrees southeast of the 2nd magnitude star known as Schedar (alpha Cassiopeiae). Rates are currently expected to be near 1 per hour for those in the northern hemisphere and less than 1 for those viewing from south of the equator. These meteors are best seen near during the last dark hour of the night when the radiant lies highest in a dark sky. With an entry velocity of 57 km/sec., the

average zeta Cassiopeiid meteor would be of swift speed. These meteors may be early members of the Perseids.

The first **eta Eridanids (ERI)** of the season may be seen this week from a radiant near 01:37 (024) -19. This position lies in southern Cetus, 3 degrees south of the 3rd magnitude star known as tau Ceti. This source is active until September 16th, with maximum activity occurring on August 10th. Current rates would 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 horizon in a dark sky. With an entry velocity of 65 km/sec., the average meteor from this source would be of swift speed.

The **49 Andromedids (FAN)** were discovered by Željko Andreić and the Croatian Meteor Network team based on studying SonotaCo and CMN observations (SonotaCo 2007-2011, CMN 2007-2010). These meteors are active from July 5 through August 13 with maximum activity occurring on July 20. The current position of the radiant is 01:37 (024) +48. This position lies in northeastern Andromeda, only 1 degree southwest of the 4th magnitude star known as Nembus (51 Andromedae). A fainter star, 49 Andromedae, also lies just 1 degree southwest of the radiant. Rates are currently expected to be near 1 per hour for those in the northern hemisphere and less than 1 for those viewing from south of the equator. These meteors are best seen near during the last dark hour of the night when the radiant lies highest in a dark sky. With an entry velocity of 60 km/sec., the average meteor from this source would be of swift speed.

The **psi Cassiopeids (PCA)** were discovered by Zdenek Sekanina in his study of radio streams. These meteors are active from July 4 through August 7 with maximum activity occurring on July 21. The current position of the radiant is 02:06 (032) +73. This position lies in a remote area of northern Cassiopeia near the 4th magnitude star known as 50 Cassiopeiae. Rates are currently expected to be near 1 per hour for those in the northern hemisphere and less than 1 for those viewing from south of the equator. These meteors are best seen near during the last dark hour of the night when the radiant lies highest in a dark sky. With an entry velocity of 42 km/sec., the average psi Cassiopeiid meteor would be of medium speed. Being discovered by radio, a majority of these meteors may be dim and difficult to see.

The **phi Piscids (PPS)** were another discovery by Dr. Peter Brown and associates using data from the Canadian Meteor Orbit Radar (CMOR) installation. These meteors are active from June 8-August 02 with maximum activity occurring on July 4th. The radiant position currently lies at 02:06 (032) +31. This area of the sky lies in central Triangulum, 3 degrees northeast of the 3rd magnitude star known as Mothallah (alpha Trianguli). These meteors are best seen near during the last dark hour of the night when the radiant lies highest in a dark sky. Current rates should 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 67 kilometers per second, most of these meteors will appear to move with swift velocities. Being discovered by radio, a majority of these meteors may be dim and difficult to see.

The **c-Andromedids (CAN)** were discovered by Sirko Molau and Juergen Rendtel using video data from the IMO network. Activity from this source is seen from June 25 through July 26 with maximum activity occurring on July 9. The radiant currently lies at 02:40 (040) +51, which places

it in northwestern Perseus, 2 degrees north of the 4th magnitude star known as theta Persei. This area of the sky is best seen during the last dark hour before dawn when the radiant lies highest in a dark sky. 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. Current rates should be less than 1 per hour no matter your location. With an entry velocity of 58 km/sec., the average meteor from this source would be of swift velocity.

The **July chi Arietids (JXA)** were discovered by two investigating teams in Europe using video data from European video Meteor Network Database (EDMOND), SonotaCo, 2013; and CMN, 2013. Activity from this stream is seen from July 2 through August 1 with maximum activity occurring on July 13. The radiant currently lies at 02:45 (041) +11, which places it in southern Aries, just 1 degree north of the 4th magnitude star known as mu Ceti. This area of the sky is best seen during the last dark hour before dawn when the radiant lies highest in a dark sky. Current rates are expected to be near 1 per hour no matter your location. With an entry velocity of 69 km/sec., the average meteor from this source would be of swift velocity.

Sporadic rates have evened out at this time of year with morning rates near 10 per hour and evening rates near 3 no matter your location.

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 28	18:24 (276) +50	28	00:00	1 - 1	IV
alpha Capricornids (CAP)	Jul 26	19:40 (295) - 12	22	01:00	2 - 2	II
Anthelion (ANT)	-	20:36 (309) - 19	30	02:00	2 - 3	II
Northern June Aquilids (NZA)	Jul 02	21:40 (325) - 01	41	03:00	<1 - <1	IV
South delta Aquiriids (SDA)	Jul 29	22:00 (330) - 21	41	03:00	<1 - 1	I

epsilon Pegasids (EPG)	Jul 11	22:29 (337) +16	28	04:00	<1 - <1	IV
July Pegasids (JPE)	Jul 10	23:41 (355) +13	68	05:00	1 - 1	IV
alpha Lacertids (ALA)	Jul 11	23:47 (357) +55	37	05:00	<1 - <1	IV
Perseids (PER)	Aug 12	00:48 (012) +51	59	06:00	<1 - <1	I
zeta Cassiopeiids (ZCS)	Jul 15	00:58 (014) +53	57	06:00	1 - <1	IV
eta Eridanids (ERI)	Aug 10	01:37 (024) - 19	65	07:00	<1 - <1	IV
49 Andromedids (FAN)	Jul 20	01:37 (024) +48	60	07:00	1 - <1	IV
psi Cassiopeiids (PCA)	Jul 21	02:06 (032) +73	42	07:00	1 - <1	IV
phi Piscids (PPS)	Jul 04	02:06 (032) +31	67	07:00	1 - <1	IV
c- Andromedids (CAN)	Jul 09	02:40 (040) +51	58	08:00	<1 - <1	IV
July chi Arietids (JXA)	Jul 13	02:45 (041) +11	69	08:00	1 - 1	IV