

greater than 40°. The limiting magnitude should be carefully recorded for each session, along with the UT and the centre of the field of view of the observer. The most basic observations should include an estimate of the brightness of the meteor, the time of observation, and a shower association (based on the radiant and apparent speed of the meteor). Information on collecting and reporting scientifically useful observations can be found at the International Meteor Organization's website, [www.imo.net](http://www.imo.net).

### TABLE OF METEOR SHOWERS FOR 2018

The table lists the major visual showers as well as those detectable by radio methods during the day. Of the strongest annual showers, the Moon is favourable for the **Perseids** and the **S Taurids**. Some models predict an enhancement in activity from a filament of the Perseid stream in 2018 about 5 hours before the traditional peak. There may also be a significant enhancement of the activity of the **Ursids** between one and two hours before the main peak, though the full Moon will make observing this shower more difficult.

Shower	Max Date		$\lambda$ 2000	$D$	ZHR	$\theta$ $\times 10^{-6}$	$R$	Moon		$r$	RA	Dec	$v$ km/s
	UT							%			h m	°	
Quadrantids	Jan. 3	20h	283.16	0.6	120	8.4	✓	96-	2.1	15 20	+49	43	
April Lyrids	Apr. 22	18h	32.3	1.3	20	4.6	✓	48+	2.9	18 10	+34	48	
$\eta$ -Aquariids	May 6	8h	45.5	5	60	6.4	>03	66-	2.4	22 30	-2	66	
S $\delta$ -Aquariids	Jul. 29	10h	126	8	20	6.2	>23	98-	3.2	22 44	-16	43	
<b>Perseids</b>	<b>Aug. 13</b>	<b>1h</b>	<b>140.0</b>	<b>2</b>	<b>90</b>	<b>6.0</b>	✓	<b>4+</b>	<b>2.1</b>	<b>3 08</b>	<b>+58</b>	<b>60</b>	
Orionids	Oct. 21	17h	208	2	20	2.2	>23	91+	2.4	6 20	+16	67	
<b>S Taurids</b>	<b>Nov. 5</b>	<b>18h</b>	<b>223</b>	<b>15</b>	<b>10</b>	<b>1.0</b>	✓	<b>5-</b>	<b>2.3</b>	<b>3 34</b>	<b>+14</b>	<b>31</b>	
NTaurids	Nov. 12	17h	230	15	15	1.4	✓	24+	2.3	4 00	+22	30	
Leonids	Nov. 17	23h	235.3	1	20	1.9	>00	72+	2.5	10 12	+22	71	
Geminids	Dec. 14	12h	262.2	1	120	11.0	✓	41+	2.3	7 28	+33	36	
Ursids	Dec. 22	21h	270.7	0.5	10	2.2	✓	100	3.0	14 36	+75	35	
S D $\omega$ -Cetids	May 6	20h	46	20	$\approx 20$	—	day	—	—	1 24	-6	36	
ND $\omega$ -Cetids	May 9	23h	49	30	$\approx 20$	—	day	—	—	0 47	+19	36	
D $\zeta$ -Perseids	Jun. 4	23h	74	19	$\approx 25$	—	day	—	—	3 47	+23	29	
D Arietids	Jun. 9	16h	78.5	16	$\approx 45$	—	day	—	2.1	2 52	+26	41	
D $\beta$ -Taurids	Jun. 25	21h	94	9	$\approx 20$	—	day	—	—	5 31	+20	29	
D Sextantids	Sep. 29	11h	186	12	$\approx 20$	—	day	—	—	10 17	-1	33	

The column **Max Date** lists the date and hour (in Universal Time) when Earth intersects the densest part of the stream, based on the solar longitude  $\lambda$  (J2000.0) given in the third column.

The fourth column,  **$D$** , gives the duration of the shower in days, which is the total number of days for which the activity level is over half the maximum activity.

The **ZHR**, or Zenithal Hourly Rate, is given for the peak of the shower. The  $\theta$  column gives the meteoroid flux at the time of maximum (see text for explanation).

The  **$R$**  column gives the local times for which the radiant is above the horizon for an observer at 45°N latitude (and therefore meteors from the shower are visible); a ✓ symbol indicates that the radiant is up throughout the night hours, while "day" indicates that the shower is not visible at night.

The **Moon** column gives the percent illumination of the Moon at the time of the shower peak (+ for waxing, - for waning). The population index,  **$r$** , at the time of the maximum is a measure of the size distribution of particles in the stream. A larger  **$r$**  value indicates an excess of small particles, while smaller  **$r$**  values indicate larger numbers of brighter meteors. A shower with a higher  **$r$**  value will therefore suffer more from background light such as moonlight or light pollution. Sporadic meteors at observable visual magnitudes have an  **$r$**  value near 3.0.

The **RA** and **Dec** columns show the position in the sky of the radiant at the time of the shower peak. The position of the radiant will vary from these values away from the time of the peak; tables published by IMO in their annual shower calendar provide details of radiant drift. The last column,  **$v$** , gives the apparent atmospheric speed of the meteors in the shower.