Astronomical Events for 2017 (compiled from Astropixels.com and RASC Observer's Handbook)

Date	Day	EST (hr:min)	Event
Jan	**01**	**Sun**	**03:00 Mars 0.02° S of Neptune (1.2 minutes separation!)**
	02	**Mon**	**04:20 Venus 1.9°S of Moon**
	02	**Mon**	**23:00 Neptune 0.4°S of Moon (occultation visible W. coast N. America)**
	03	**Tue**	**01:47 Mars 0.2°S of Moon** (occultation not visible in N. America)
	03	Tue	09:00 Quadrantid Meteor Shower peak 09:00 EST, moon 27%
	04	Wed	10:00 Earth at Perihelion: 0.98331 AU (147 100 998 km)
	05	Thu	14:47 FQ
	09	Mon	04:00 Mercury 6.7° of Saturn
	09	Mon	09:07 Aldebaran 0.4°S of Moon (occultation not visible in N. America)
	10	Tue	01:07 Moon at Perigee: 363 242 km
	12	Thu	06:34 FM
	12	**Thu**	**08:00 Venus at Greatest Elongation: 47.1°E (50% sunlit)**
	12	**Thu**	**20:00 Venus 0.4° N of Neptune (separation about 22 min until pair set 9 pm)**
	13	Fri	08:59 Beehive 3.9°N of Moon
	14	Sat	23:07 Regulus 0.9°N of Moon
	14	Sat	Venus at dichotomy (50% illuminated)
	17	Tue	20:00 Vesta at opposition mag 6.1 in Cancer (6° from Pollux)
	19	Thu	00:26 Jupiter 2.7°S of Moon
	19	Thu	05:00 Mercury at Greatest Elongation: 24.1°W
	19	Thu	17:14 LQ
	21	Sat	19:14 Moon at Apogee: 404 913 km
	24	Tue	05:37 Saturn 3.6°S of Moon
	25	Wed	19:46 Mercury 3.7°S of Moon
	27	Fri	07:47 Thin last crescent Moon (11.0 hours old, elevation 3.3°)
	27	Fri	19:07 NM
	28	Sat	17:27 Thin first crescent Moon (21.8 hours old, elevation 8.3°)
	31	Tue	08:11 Jupiter 3.5°N of Spica
	30	**Wed**	**06:00 Neptune 0.2° S of Moon** (occultation not visible in N. America)
	31	Tue	**09:34 Venus 4.1°N of Moon**
	31	Tue	**20:09 Mars 2.3°N of Moon**
Feb	02	Thu	21:00 Ceres 1.0° S of Moon (occultation visible in N. Canada)
	03	Fri	23:19 FQ
	05	Sun	16:14 Aldebaran 0.2°S of Moon (occultation not visible in N. America)
	06	Mon	08:59 Moon at Perigee: 368 817 km
	09	Mon	18:46 Beehive 3.9°N of Moon
	10	Fri	19:33 FM
	10	Fri	**19:44 Pen. Lunar Eclipse; mag=0.988 (some darkening should be visible)**
	11	Sat	09:04 Regulus 0.8°N of Moon (occultation not visible in N. America)
	11	Sat	14:44 Comet 45P/Honda-Mrkos-Pajdusakova closest to Earth, magnitude 6 to 7
	15	Wed	09:55 Jupiter 2.7°S of Moon
	17	**Fri**	**02:00 Venus greatest illuminated extent, -4.63 magnitude**
	18	Sat	14:33 LQ
	18	Sat	16:14 Moon at Apogee: 404 376 km
	20	Mon	18:44 Saturn 3.6°S of Moon
	25	Sat	06:48 Thin last crescent Moon (28.5 hours old, elevation 1.3°)
	26	Sun	09:53 Annular Solar Eclipse; mag=0.992 (S. hemisphere event)
	26	Sun	09:58 NM

	26	**Sun**	**19:00**	**Mars 0.6° N of Uranus (minimum separation 34 min 7 sec. at 7:00 pm)**
	27	Mon	18:39	Thin first crescent Moon (34 hours old, elevation 8.0°)

No Leap Year this February (next one is 2020)

Mar	01	Wed	13:58	Mars 4.3°N of Moon
	01	Wed	21:00	Neptune in Conjunction with Sun (not visible)
	03	Fri	02:24	Moon at Perigee: 369 065 km
	04	**Sat**	**21:38**	**Aldebaran 0.2°S of Moon (Graze near Teeswater)**
	05	Sun	06:32	FQ
	06	Mon	19:00	Mercury at Superior Conjunction (not visible)
	09	Thu	02:12	Beehive 3.9°N of Moon
	10	Fri	17:20	Regulus 0.8°N of Moon
	12	**Sun**	**02:00**	**Daylight Saving Time begins** (set clocks forward 1 hr)
	12	Sun	10:54	FM (times in DST until Nov 5)
	14	Tue	16:04	Jupiter 2.5°S of Moon
	18	Sat	13:25	Moon at Apogee: 404651 km
	20	Mon	06:29	Vernal Equinox
	20	Mon	06:49	Saturn 3.4°S of Moon
	20	Mon	11:58	LQ
	25	Sat	07:00	Venus at Inferior Conjunction (not visible)
	27	Mon	22:57	NM
	30	Thu	08:39	Moon at Perigee: 363 855 km
	30	Thu	09:03	Mars 5.5°N of Moon
Apr	01	Sat	04:50	Aldebaran 0.3°S of Moon
	01	Sat	06:00	Mercury at Greatest Elongation: 19.0°E
	03	Mon	14:39	FQ
	05	Wed	08:45	Beehive 3.8°N of Moon
	07	Fri	00:30	Regulus 0.7°N of Moon
	07	**Fri**	**17:00**	**Jupiter at Opposition** (mag -2.46, 44 arc-sec diameter)
	10	Mon	17:20	Jupiter 2.2°S of Moon
	11	Tue	02:08	FM
	14	Fri	02:00	Uranus in Conjunction with Sun (not visible)
	15	Sat	06:05	Moon at Apogee: 405 478 km
	16	Sun	14:39	Saturn 3.2°S of Moon
	19	Wed	05:57	LQ
	20	Thu	02:00	Mercury at Inferior Conjunction (not visible)
	21	**Fri**	**04:16**	**Mars 3.4°S of Pleiades**
	22	Sat	08:00	Lyrid Meteor Shower (20 per hour, Moon 20%)
	23	Sun	13:59	Venus 5.2°N of Moon
	26	Wed	08:16	NM
	27	Thu	12:18	Moon at Perigee: 359 325 km
	28	**Fri**	**13:19**	**Aldebaran 0.5°S of Moon (Mars and M45 nearby)**
May	02	Tue	14:23	Beehive 3.6°N of Moon
	02	Tue	22:47	FQ
	04	Thu	05:49	Regulus 0.5°N of Moon (occultation miss and below our horizon)
	05	Fri	09:51	Mars 6.1°N of Aldebaran
	05	Fri	22:00	Eta-Aquarid Meteor Shower (60 per hour, Moon 79%)
	07	Sun	17:24	Jupiter 2.1°S of Moon
	10	Wed	17:43	FM
	12	Fri	15:51	Moon at Apogee: 406 212 km
	13	Sat	19:07	Saturn 3.1°S of Moon

	17 Wed	19:00	Mercury at Greatest Elongation: 25.8°W
	18 Thu	20:33	LQ
	22 Mon	**08:32**	**Venus 2.4°N of Moon**
	23 Tue	21:20	Mercury 1.6°N of Moon
	25 Thu	15:44	NM
	25 Thu	21:23	Moon at Perigee: 357 210 km
	29 Mon	21:50	Beehive 3.4°N of Moon
	31 Wed	12:08	Regulus 0.3°N of Moon (occultation miss, daytime and below our horizon)
Jun	01 Thu	08:42	FQ
	03 Sat	07:00	Venus at Greatest Elongation: 45.9°W
	03 Sat	19:57	Jupiter 2.3°S of Moon
	06 Tue	23:19	Mercury 5.3°S of Pleiades
	08 Thu	18:21	Moon at Apogee: 406 402 km
	09 Fri	09:10	FM
	09 Fri	21:25	Saturn 3.1°S of Moon
	15 Thu	**05:00**	**Saturn at Opposition** (mag -0.1, disc is 18.4 arc-sec across, ring tilt 26°)
	17 Sat	07:33	LQ
	20 Tue	00:25	Summer Solstice
	20 Tue	18:13	Venus 2.4°N of Moon
	21 Wed	10:00	Mercury at Superior Conjunction (not visible)
	22 Thu	**10:23**	**Aldebaran 0.5°S of Moon (daytime occultation)**
	23 Fri	06:49	Moon at Perigee: 357 938 km
	23 Fri	22:31	NM
	26 Mon	07:18	Beehive 3.2°N of Moon
	27 Tue	20:26	Regulus 0.1°N of Moon (occultation miss locally)
	30 Fri	20:51	FQ
Jul	01 Sat	03:28	Jupiter 2.7°S of Moon
	03 Mon	16:00	Earth at Aphelion: 1.01668 AU (152 092 504 km)
	04 Tue	**20:21**	**Venus 6.5°S of Pleiades (Venus between M45 & Hyades in morning sky)**
	05 Wed	00:27	Moon at Apogee: 405 934 km
	06 Thu	23:34	Saturn 3.2°S of Moon
	09 Sun	00:07	FM
	09 Sun	21:33	Mercury 0.1°N of Beehive (close to Sun)
	13 Thu	14:03	Venus 3.1°N of Aldebaran
	16 Sun	15:26	LQ
	19 Wed	**19:37**	**Aldebaran 0.4°S of Moon**
	20 Thu	**07:13**	**Venus 2.7°N of Moon (beautiful in am sky)**
	21 Fri	13:09	Moon at Perigee: 361 238 km
	23 Sun	05:46	NM
	25 Tue	04:49	Mercury 0.9°S of Moon: (occultation miss locally)
	25 Tue	06:14	Regulus 0.0°S of Moon (occultation below our horizon)
	25 Tue	13:03	Mercury 0.8°S of Regulus
	26 Wed	20:00	Mars in Conjunction with Sun (not visible)
	28 Fri	16:15	Jupiter 3.1°S of Moon
	29 Sat	00:00	Delta-Aquarid Meteor Shower (20 per hour, moon 35%)
	30 Sun	00:00	Mercury at Greatest Elongation: 27.2°E
	30 Sun	11:23	FQ
Aug	02 Wed	13:55	Moon at Apogee: 405 026 km
	03 Thu	03:31	Saturn 3.5°S of Moon
	07 Mon	14:11	FM

	07 Mon	**14:20**	**Partial Lunar Eclipse; mag=0.246 (vis. in Eastern hemisphere only)**
	12 Sat	**15:00**	**Perseid Meteor Shower** (90 per hour, moon 75%)
	14 Mon	21:15	LQ
	16 Wed	02:39	Aldebaran 0.4°S of Moon (occultation miss locally)
	18 Fri	09:14	Moon at Perigee: 366 129 km
	19 Sat	**00:45**	**Venus 2.2°N of Moon (nicest on 19th in morning)**
	20 Sun	03:15	Beehive 3.2°N of Moon
	20 Sun	14:08	Venus 7.2°S of Pollux
	21 Mon	**14:26**	**Total Solar Eclipse; mag=1.031**
	21 Mon	14:30	NM
	25 Fri	09:00	Jupiter 3.5°S of Moon
	26 Sat	17:00	Mercury at Inferior Conjunction (not visible)
	29 Tue	04:13	FQ
	30 Wed	07:25	Moon at Apogee: 404 307 km
	30 Wed	10:23	Saturn 3.6°S of Moon
Sep	**01 Fri**	**02:08**	**Venus 1.4°S of Beehive**
	04 Mon	20:00	Mercury 3.2° of Mars
	05 Tue	01:00	Neptune at Opposition
	06 Wed	01:00	Neptune 0.8° N of Moon (occultation visible Antarctica)
	06 Wed	03:03	FM
	10 Sun	08:00	Mercury 0.7°S of Regulus
	10 Sun	17:44	Jupiter 2.9°N of Spica
	12 Tue	06:00	Mercury at Greatest Elong: 17.9°W
	12 Tue	**08:45**	**Aldebaran 0.4°S of Moon** (daytime occultation visible locally)
	13 Wed	02:25	LQ
	13 Wed	12:04	Moon at Perigee: 369 856 km
	16 Sat	10:50	Beehive 3.1°N of Moon
	16 Sat	**14:00**	**Mercury 0.1° of Mars (18 min. sep'n at rise shrinks to 3 min. at 2:45 pm)**
	17 Sun	21:00	Venus 0.5° N of Moon (occultation in S. hemisphere)
	18 Mon	**01:00**	**Regulus 0.1° S of Moon (occultation visible in E. Hemisphere)**
	18 Mon	**16:00**	**Mars 0.1° S of Moon (occultation visible in Central and S. Pacific)**
	18 Mon	**19:00**	**Mercury 0.03° N of Moon (occultation visible in Polynesia)**
	19 Tue	**19:00**	**Venus 0.5° N of Regulus**
	20 Wed	01:30	NM
	22 Fri	03:51	Jupiter 3.7°S of Moon
	22 Fri	16:02	Autumnal Equinox
	26 Tue	20:09	Saturn 3.5°S of Moon
	27 Wed	02:49	Moon at Apogee: 404 342 km
	27 Wed	22:54	FQ
Oct	05 Thu	14:40	FM
	05 Thu	**19:00**	**Venus 0.2° N of Mars (16 min at rise, shrinking to 12.5 min.)**
	08 Sun	17:00	Mercury at Superior Conjunction (not visible)
	09 Mon	01:51	Moon at Perigee: 366 858 km
	09 Mon	14:05	Aldebaran 0.6°S of Moon
	12 Thu	08:25	LQ
	13 Fri	16:29	Beehive 3.0°N of Moon
	15 Sun	**06:54**	**Regulus 0.2°S of Moon** (occultation from 5:48 pm EDT to 6:30 pm)
	17 Tue	**06:04**	**Mars 1.8°S of Moon**
	17 Tue	**20:21**	**Venus 2.0°S of Moon**
	19 Thu	13:00	Uranus at Opposition
	19 Thu	14:12	NM

	21	**Sat**	**07:00**	**Orionid Meteor Shower** (20/h) Moon only 3% illuminated
	24	Tue	07:54	Saturn 3.3°S of Moon
	24	Tue	22:25	Moon at Apogee: 405 151 km
	26	Thu	14:00	Jupiter in Conjunction with Sun (not visible)
	27	Fri	18:22	FQ
Nov	02	Thu	09:58	Venus 3.3°N of Spica
	04	Sat	01:23	FM
	05	**Sun**	**02:00**	**Eastern Standard Time begins** (clocks back 1 hr; times in EST to Dec 31)
	05	Sun	06:00	S Taurid Meteor Shower (10 per hour, moon 98%)
	05	Sun	19:09	Moon at Perigee: 361 438 km
	05	**Sun**	**21:19**	**Aldebaran 0.8°S of Moon** (occultation visible 8:05 pm to 9 pm EDT)
	09	Thu	20:58	Beehive 2.7°N of Moon
	10	Fri	15:37	LQ
	11	Sat	11:07	Regulus 0.4°S of Moon (no occultation visible locally)
	12	Sun	06:00	N Taurid Meteor Shower (15 per hour, moon 32%)
	12	Sun	12:50	Mercury 2.2°N of Antares
	14	Tue	19:40	Mars 3.2°S of Moon
	17	Fri	12:00	Leonid Meteor Shower (20/hour, moon 1% -a GOOD year for Leonids!)
	18	Sat	06:42	NM
	20	Mon	19:34	Saturn 3.0°S of Moon
	21	Tue	13:52	Moon at Apogee: 406 132 km
	23	Thu	19:00	Mercury at Greatest Elongation: 22.0°E
	26	Sun	12:03	FQ
	29	Wed	09:30	Mars 2.9°N of Spica
Dec	03	Sun	08:00	Aldebaran 0.8°S of Moon (occultation below local horizon but see Dec 30)
	03	Sun	10:47	FM
	04	Mon	03:42	Moon at Perigee: 357 496 km
	06	Wed	19:00	Mercury 1.3° of Saturn
	07	Thu	04:30	Beehive 2.5°N of Moon
	08	Fri	17:25	Regulus 0.7°S of Moon
	10	Sun	02:51	LQ
	12	Tue	21:00	Mercury at Inferior Conjunction (not visible)
	13	Wed	11:27	Mars 4.2°S of Moon
	14	**Thu**	**01:00**	**Geminid Meteor Shower (120/h) Moon only 14% illuminated**
	14	Thu	09:26	Jupiter 4.2°S of Moon
	18	Mon	01:31	NM
	18	Mon	20:27	Moon at Apogee: 406 605 km
	21	Thu	11:29	Winter Solstice
	21	Thu	15:00	Saturn in Conjunction with Sun (not visible)
	22	Fri	10:00	Ursid Meteor Shower (10 per hour, Moon 13%)
	26	Tue	04:20	FQ
	30	**Sat**	**19:25**	**Aldebaran 0.7°S of Moon (disapp. 6:20 pm, reapp. 7:19 pm, moon 93%)**

Glossary:

Aphelion/Perihelion: Earth's orbit is elliptical so the planet is farthest from the Sun at aphelion (July 3) and closest at perihelion (Jan 4) in 2017.

Apogee/Perigee: Since orbits around the Sun or Earth are usually ellipses, the farthest and nearest distances use "apo" (far) and "peri" (near) to describe the maximum and minimum values. For Earth

and its satellites, apogee is the farthest point and perigee is the nearest. The same prefixes are applied to orbits around the Moon -"luna" (apolune and perilune) Sun -"helios" (aphelion/perihelion), etc.

Appulse: A close approach of two astronomical objects. i.e. minimum separation expressed in minutes and seconds of arc.

Conjunction: The point in time when two stellar objects have the same Right Ascension. This is usually close to the minimum separation of the two objects but see also appulse above. When a planet is at **Inferior Conjunction** with the Sun it is between Earth and Sun and in **Superior Conjunction** it is on the opposite side of the sun. At neither time are they easy to see since they are near the Sun.

Dichotomy: The point when a planet or moon is exactly 50% illuminated by sunlight. For Earth's Moon, synonymous with FQ and LQ phase.

Elongation (E or W): The time of farthest apparent separation in the sky between two celestial objects, one usually the Sun.

Graze (or grazing occultation): When the Moon moving in its orbit passes a star so that it appears to skim along the top or bottom edge of the Moon. The Moon's profile may cause the star to blink on and off a number of times as it passes behind mountains on the Moon's edge. See also occultation.

Meteor Shower: An occasion when a larger than average number (more than 7 or 8 per hour) appear to radiant from a specific point in a constellation. The constellation determines the name of the shower, for ex. the Perseids radiate from Perseus. **Meteor**s are commonly called **shooting stars**, but they are usually tiny bits of space debris that are entering our atmosphere and not stellar in any way. Larger fragments that survive the journey to land on Earth are called **meteorites**.

Occultation (or total occultation): When the Moon passes in front of a bright star or planet so that it occults the object. A star will wink out virtually instantly while planets may take several minutes. Total occultations on the leading edge of the Moon are followed some time later by a reappearance on the opposite limb of the Moon.

Perigee: The closest distance between the Moon (or other Earth satellite) and the Earth since the Moon's orbit around Earth is an ellipse. See also apogee.

Radiant: The point in space from which meteors appear to radiate. This is purely a perspective effect like snowflakes appearing to come from a point ahead as you drive into falling snow or the appearance of road appearing to narrow in the distance.

Sporadic: A meteor that is not part of a shower, i.e., a random shooting star. Usually 7 or 8 per hour.

Transit: The passage of an object like a planet across the disk of another celestial object. Most common are transits of Mercury and Venus across the Sun. The ISS can be seen to transit the Moon or Sun and more rarely other planets like Jupiter or Saturn. Transits of planets across planets can happen but are extremely rare.
can be seen as the Earth is constantly colliding with space debris.