

## Astronomy News Night Sky 2019 - July

| Sunrise  | Sunset                          | Mercury Sets                          | Venus Rises                     |
|--|---------------------------------|---------------------------------------|---------------------------------|
| 1 <sup>st</sup> – 5:00am   | 1 <sup>st</sup> – 9:29pm        | 1 <sup>st</sup> – 10:29pm             | 1 <sup>st</sup> – 4:13am        |
| 10 <sup>th</sup> – 5:08am  | 10 <sup>th</sup> – 9:24pm       | 4 <sup>th</sup> – 10:15pm             | 10 <sup>th</sup> – 4:24am       |
| 20 <sup>th</sup> – 5:19am  | 20 <sup>th</sup> – 9:15pm       | 7 <sup>th</sup> – 9:59pm              | 20 <sup>th</sup> – 4:44am       |
| 30 <sup>th</sup> – 5:33am  | 30 <sup>th</sup> – 9:01pm       |                                       | 30 <sup>th</sup> – 5:10am       |
| Moon Rise  | Moon Set                        | Moon Rise                             | Moon Set                        |
| 1 <sup>st</sup> – 3:53am   | 1 <sup>st</sup> – 8:12pm        | 19 <sup>th</sup> – 10:52pm (ESE)      | 20 <sup>th</sup> – 8:45am (WSW) |
| 2 <sup>nd</sup> – 4:39am   | 2 <sup>nd</sup> – 9:18pm        | 20 <sup>th</sup> – 11:14pm            | 21 <sup>st</sup> – 9:51am       |
| 3 <sup>rd</sup> – 5:37am   | 3 <sup>rd</sup> – 10:15pm       | 21 <sup>st</sup> – 11:34pm            | 22 <sup>nd</sup> – 10:56am      |
| 4 <sup>th</sup> – 6:47am   | 4 <sup>th</sup> – 11:01pm       | 22 <sup>nd</sup> – 11:52pm (E)        | 23 <sup>rd</sup> – 12:01pm (W)  |
| 5 <sup>th</sup> – 8:05am   | 5 <sup>th</sup> – 11:37pm (WNW) | 24 <sup>th</sup> – 12:10am            | 24 <sup>th</sup> – 1:08pm       |
| 6 <sup>th</sup> – 9:27am (ENE)   | 7 <sup>th</sup> – 12:06am       | 25 <sup>th</sup> – 12:29am (ENE)      | 25 <sup>th</sup> – 2:16pm (WNW) |
| 7 <sup>th</sup> – 10:49am  | 8 <sup>th</sup> – 12:31am       | 26 <sup>th</sup> – 12:51am            | 26 <sup>th</sup> – 3:26pm       |
| 8 <sup>th</sup> – 12:09pm  | 9 <sup>th</sup> – 12:54am (W)   | 27 <sup>th</sup> – 1:16am             | 27 <sup>th</sup> – 4:37pm       |
| 9 <sup>th</sup> – 1:28pm (E)   | 10 <sup>th</sup> – 1:15am       | 28 <sup>th</sup> – 1:47am             | 28 <sup>th</sup> – 5:50pm       |
| 10 <sup>th</sup> – 2:45pm  | 11 <sup>th</sup> – 1:38am       | 29 <sup>th</sup> – 2:26am             | 29 <sup>th</sup> – 6:59pm       |
| 11 <sup>th</sup> – 4:00pm (ESE)  | 12 <sup>th</sup> – 2:03am (WSW) | 30 <sup>th</sup> – 3:18am             | 30 <sup>th</sup> – 8:00pm       |
| 12 <sup>th</sup> – 5:14pm  | 13 <sup>th</sup> – 2:32am       | 31 <sup>st</sup> – 4:23am             | 31 <sup>st</sup> – 8:51pm       |
| 13 <sup>th</sup> – 6:24pm  | 14 <sup>th</sup> – 3:06am       | -----                                 | -----                           |
| 14 <sup>th</sup> – 7:29pm  | 15 <sup>th</sup> – 3:48am       |                                       |                                 |
| 15 <sup>th</sup> – 8:27pm  | 16 <sup>th</sup> – 4:37am       | <b>New Moon – 2<sup>nd</sup></b>      | <b>All times in notes</b>       |
| 16 <sup>th</sup> – 9:15pm  | 17 <sup>th</sup> – 5:34am       | <b>First Quarter – 9<sup>th</sup></b> | <b>are set for</b>              |
| 17 <sup>th</sup> – 9:54pm  | 18 <sup>th</sup> – 6:35am       | <b>Full Moon – 16<sup>th</sup></b>    | <b>Somerton,</b>                |
| 18 <sup>th</sup> – 10:26pm   | 19 <sup>th</sup> – 7:40am       | <b>Last Quarter – 25<sup>th</sup></b> | <b>unless stated.</b>           |
| A useful<br>site: <a href="http://www.heavens-above.com">www.heavens-above.com</a> | A S Zielonka                    |                                       |                                 |

The best time to view Comet C/2018R3 Lemmon will be around midnight in the first two weeks of July. Around this time it will approximately be 15 degrees above the north horizon. It was at perihelion on June 7<sup>th</sup>. It was at 10.5 magnitude on the 11<sup>th</sup> June. (for further information please see the 'Comet' section in the website above)

There is a launch sometime this month of a Falcon 9 rocket from Cape Canaveral, Florida. An uncrewed SpaceX Dragon cargo spacecraft will deliver supplies and equipment to the International Space Station (ISS).

Comet C/2018 W2 Africano this month is in the constellation of Camelopardalis which is to the left of the "W" of Cassiopeia. It is currently too faint to be seen with low powered telescopes. On the 1<sup>st</sup> its 2.299AU from us and on the 31<sup>st</sup> its 1.749AU. It reaches perihelion on the September 5<sup>th</sup>. (For further information please see the 'Comet' section in the website above)

From the 1<sup>st</sup> - 6<sup>th</sup> at 10:00pm low in the WNW Mercury is 3¾ degrees from the left to the lower left of Mars. On the 4<sup>th</sup> at 10:00pm the thin crescent Moon is in the WNW. Mercury is 7 degrees to the lower right of the Moon and 2 degrees above the horizon at 295 degrees azimuth. Mars is 4 degrees above right of Mercury and 4 degrees above the horizon at 299 degrees azimuth. The Beehive Cluster (M45) in Cancer is 3 degrees to the lower right of the Moon towards Mars. There is also an occultation of the planet Mars by the Moon on the 4<sup>th</sup>. This will only be visible from southern Asia.

On the 1<sup>st</sup> at 4:30am and low in the north east, a very thin crescent Moon will be 4 degrees above the horizon at 64 degrees azimuth with Venus 10 degrees to the left of the Moon and just 2 degrees above the horizon.

On the 2<sup>nd</sup>\* a full-stress test of the Orion spacecraft's Launch Abort System will launch from Cape Canaveral Air Force Station in Florida. This is a critical milestone for human missions to the Moon as this test will show that it can carry a crew to safety in case of an emergency during launch.

There is a Total Eclipse of the Sun on the 2<sup>nd</sup>. Totality occurs over Chile and Argentina and the partial phases cover almost all of South America and the South Pacific.

At 10:00pm on the 3<sup>rd</sup> low in the WNW a very thin crescent Moon will be 1 degree above the horizon 303 degrees azimuth. Mars is 5½ degrees to the upper left of the Moon and 4 degrees above the horizon. Mercury is 4 degrees to the lower left of Mars and 3 degrees above the horizon at 295 degrees azimuth.

At 10:00pm on the 4<sup>th</sup> Regulus (1.3 mag) is 5 degrees to the left of the crescent Moon. The star Eta Leonis is 3½ degrees above left of the Moon.

On the 8<sup>th</sup> at midnight in the west, the star Porrima (2.7 mag) in Virgo is just 1½ degrees to the lower left of the Moon.

Mercury reaches aphelion (its most distant from the Sun in its orbit) on the 7<sup>th</sup>.

Saturn is at opposition on the 9<sup>th</sup>.

At midnight on the 9<sup>th</sup> the star Zeta Virginis (3.3 mag) in Virgo is 4½ degrees to the upper right of the Moon.

On the 11<sup>th</sup> at midnight the star Zubeneschamali (2.6 mag) in Libra is 5 degrees above right of the Moon.

At midnight on the 12<sup>th</sup> the star Nu Scorpii (4th mag) in Scorpius is just 1 degree to the lower left of the Moon. Jupiter is also 12 degrees to the left of the Moon.

On the 13<sup>th</sup> at 10:00pm Jupiter is 1½ degrees to the lower right of the Moon. At midnight they are 2 degrees apart.

Pluto is at opposition on the 14<sup>th</sup>.

At midnight on the 14<sup>th</sup> the star Mu Sagittarii (3.8 mag) is 3½ degrees to the upper right of the Moon. Two hours later the Moon will be midway between Saturn (to the left) and Jupiter on the right. Both 16 degrees apart.

On the 15<sup>th</sup> at midnight Saturn is 4½ degrees to the left of the Moon. The star Nunki (2nd mag) in Sagittarius is 3 degrees directly below the Moon. The star Pi Sagittarii in Sagittarius is just 1¼ degrees above Saturn in the SSE.

There is a Partial Lunar Eclipse on the 16<sup>th</sup> which is visible from the UK. The Penumbral phase starts at 7:43:53pm then the Partial Phase starts at 9:01:43pm. Mid eclipse is at 10:30:43pm. Partial phase ends at 11:59:39pm then the Penumbral Phase ends at 1:17:36am. The Moon rises at 9:15pm in the ESE already in the partial phase.

An occultation of Saturn by the Moon occurs on the 16<sup>th</sup>. This will only be visible from central South America and the equatorial regions of the Pacific Ocean. At midnight on the 16<sup>th</sup> Saturn is 8¼ degrees to the right of the Moon.

An occultation of Pluto by the Moon also occurs on the 16<sup>th</sup>. This occurs over the north western half of Australia, Indonesia and the equatorial region of the Indian Ocean.

On the 19<sup>th</sup> at 4:00am the star Nashira (3.6 mag) in Capricornus is 2 degrees above the Moon.

There is a scheduled launch on the 20<sup>th</sup>\* at 7:28am from Baikonur Cosmodrome, Kazakhstan. A Russian Soyuz FG rocket will take the Expedition 60 crew into orbit for a same-day rendezvous with the ISS. The crew members are: Aleksandr Skvortsov (Russian), Luca Parmitano (Italian) and Andrew Morgan (American). They will spend 6 months in orbit. (See News Extra below)

Mercury is at inferior conjunction on the 21<sup>st</sup>.

At 4:30am on the 21<sup>st</sup> Neptune is 5¾ degrees to the upper left of the Moon.

On the 22<sup>nd</sup> Neptune is 7½ degrees to the upper right of the Moon. The star Iota Ceti (3.5 mag) is 6 degrees to the lower left of the Moon.

At 4:30am on the 25<sup>th</sup> Uranus is 6¼ degrees to the upper left of the Moon.

On the 26<sup>th</sup> at 4:30am the star Mu Ceti (4.2 mag) in Cetus is 4 degrees to the right of the Moon.

At 4:30am on the 27<sup>th</sup> the star Lamda Tauri (3.4 mag) in Taurus is 4 degrees below the crescent Moon.

From the 23<sup>rd</sup> - 27<sup>th</sup> the asteroid 2 Pallas (9.7 mag) passes to within a quarter of a degree from the star Muphrid (2.6 mag) in Bootes. At 10:30pm during these dates it is in the WSW. (For further information please see the 'Asteroids' section in the website above)

On the 28<sup>th</sup> at 4:30am Aldebaran (0.8 mag) in Taurus is 3 degrees to the right of the crescent Moon.

At 4:30am on the 29<sup>th</sup> the star Zeta Tauri (2.9 mag) in Taurus is just 1¼ degrees above the crescent Moon.

The South, Delta Aquarids meteor shower reach their peak on the 30<sup>th</sup> during the early evening.

The Alpha Capricornids meteor shower reach their peak also on the 30<sup>th</sup> during the early evening.

On the 30<sup>th</sup> at 4:30am the star Mebsuta (3.0 mag) in Gemini is 3½ degrees to the upper left of the Moon.

At 4:50am on the 31<sup>st</sup> a very thin crescent Moon will be seen low in the ENE. It will be 2½ degrees above the horizon and 59 degrees azimuth. Mercury is 4 degrees below right of the Moon and barely ½ a degree above the horizon at 62 degrees azimuth.

On the 31<sup>st</sup> at 4:00am in the south, Neptune is 1¼ degrees to the upper left of the star Phi Aquarii (4.2 mag) in Aquarius.

\* = Dates and times are subject to change.

News: It was announced on June 7<sup>th</sup> that NASA is opening the International Space Station for commercial business so US industry innovation and ingenuity can accelerate a thriving commercial economy in low-Earth orbit.

It was announced on June 11<sup>th</sup> that robotically surveying lunar craters in record time and mining resources in space could help NASA establish a sustained human presence at the Moon – part of the agency's broader Moon to Mars exploration approach.

News Extra:

**Aleksandr Aleksandrovich Skvortsov** (b.1966) is married to Elena Georgievna and have one daughter Anna Aleksandrovna. This will be his 3<sup>rd</sup> visit to the International Space Station. He is also a qualified underwater diving and Powered Paragliding (Paraborne) instructor.

**Luca Parmitano** (b.1976) is married to Kathy Dillow and has two daughters. This is his 2<sup>nd</sup> visit to the ISS. He is the youngest astronaut to undertake a long-duration mission, at 36 years and 8 months old on the launch day of his first mission.

**Andrew Richard “Drew” Morgan** (b.1976) is married to Stacey and have 4 children. He has experience as an emergency physician and flight surgeon for the Army special operations community. He is a colonel in the US Army from New Castle, Pennsylvania. This will be his first visit to the ISS.

Facts: NASA astronaut Scott Kelly passed Michael Lopez-Alegria for the longest single spaceflight on October 29<sup>th</sup> 2015. He landed March 1<sup>st</sup> 2016 after completing a single mission aboard the International Space Station of 340 days.

It's 50 years this month since Neil Armstrong and Buzz Aldrin first set foot on the Moon.