

## Astronomy News

### Night Sky 2020 - April

Sunrise	Sunset	Mercury Rises...	Venus Sets
1 <sup>st</sup> – 6:46am 10 <sup>th</sup> – 6:26am 20 <sup>th</sup> – 6:05am 30 <sup>th</sup> – 5:45am	1 <sup>st</sup> – 7:44pm 10 <sup>th</sup> – 7:59pm 20 <sup>th</sup> – 8:16pm 30 <sup>th</sup> – 8:32pm	..at the beginning of the month less than ½ hour before the Sun and is not visible this month.	1 <sup>st</sup> – 12:15am 10 <sup>th</sup> – 12:29am 20 <sup>th</sup> – 12:35am 30 <sup>th</sup> – 12:27am
Moon Rise	Moon Set	Moon Rise	Moon Set
----- 1 <sup>st</sup> – 11:12am 2 <sup>nd</sup> – 12:14pm 3 <sup>rd</sup> – 1:27pm 4 <sup>th</sup> – 2:48pm 5 <sup>th</sup> – 4:13pm (ENE) 6 <sup>th</sup> – 5:39pm 7 <sup>th</sup> – 7:06pm (E) 8 <sup>th</sup> – 8:34pm 9 <sup>th</sup> – 10:01pm (ESE) 10 <sup>th</sup> – 11:26pm 12 <sup>th</sup> – 12:45am 13 <sup>th</sup> – 1:56am 14 <sup>th</sup> – 2:56am 15 <sup>th</sup> – 3:42am 16 <sup>th</sup> – 4:19am 17 <sup>th</sup> – 4:47am 18 <sup>th</sup> – 5:09am (ESE) 19 <sup>th</sup> – 5:29am 20 <sup>th</sup> – 5:46am	1 <sup>st</sup> – 3:15am 2 <sup>nd</sup> – 4:09am 3 <sup>rd</sup> – 4:53am 4 <sup>th</sup> – 5:29am 5 <sup>th</sup> – 5:58am (WNW) 6 <sup>th</sup> – 6:23am 7 <sup>th</sup> – 6:46am (W) 8 <sup>th</sup> – 7:08am 9 <sup>th</sup> – 7:31am 10 <sup>th</sup> – 7:57am (WSW) 11 <sup>th</sup> – 8:27am 12 <sup>th</sup> – 9:05am 13 <sup>th</sup> – 9:52am 14 <sup>th</sup> – 10:48am 15 <sup>th</sup> – 11:50am 16 <sup>th</sup> – 12:57pm 17 <sup>th</sup> – 2:05pm 18 <sup>th</sup> – 3:12pm (WSW) 19 <sup>th</sup> – 4:19pm 20 <sup>th</sup> – 5:25pm	21 <sup>st</sup> – 6:02am (E) 22 <sup>nd</sup> – 6:18am 23 <sup>rd</sup> – 6:35am 24 <sup>th</sup> – 6:54am (ENE) 25 <sup>th</sup> – 7:16am 26 <sup>th</sup> – 7:44am 27 <sup>th</sup> – 8:20am 28 <sup>th</sup> – 9:06am 29 <sup>th</sup> – 10:03am 30 <sup>th</sup> – 11:10am  -----  All times in notes are set for Somerton unless stated	21 <sup>st</sup> – 6:31pm (W) 22 <sup>nd</sup> – 7:37pm 23 <sup>rd</sup> – 8:45pm (WNW) 24 <sup>th</sup> – 9:53pm 25 <sup>th</sup> – 11:01pm 27 <sup>th</sup> – 12:09am 28 <sup>th</sup> – 1:11am 29 <sup>th</sup> – 2:07am 30 <sup>th</sup> – 2:53am  -----  <b>Moon Phases</b> First Quarter – 1 <sup>st</sup> Full Moon – 8 <sup>th</sup> Last Quarter – 14 <sup>th</sup> New Moon – 23 <sup>rd</sup> First Quarter – 30 <sup>th</sup>
A useful site: <a href="http://www.heavens-above.com">www.heavens-above.com</a>	A S Zielonka		

Comet C/2019 Y4 Atlas (10 mag on March 9<sup>th</sup>) is in the constellation of Camelopardalis this month. It is at perihelion on May 31<sup>st</sup> when it will be just 0.253AU (23,529,000 million miles) from the Sun. Its closest to the Earth on the the May 22<sup>nd</sup>/23<sup>rd</sup> when it will be 0.781AU distance. Unfortunately there are no bright stars to locate it by. This is a comet that could brighten up to be a classic – though comets can be unpredictable. The last time it was near the Sun was 5,520 years ago. (For further information on this and other comets listed please see the 'Comet' section in the website above).

Comet C/2017 T2 Panstarrs (8.5 mag on March 9<sup>th</sup>) is mainly in Camelopardalis constellation this month. Unfortunately there are no bright stars to locate it by. It reaches perihelion on May 4<sup>th</sup> when its 1.615AU from the Sun.

Comet 88P Howell (16 mag on March 9<sup>th</sup>) is within the constellation of Virgo this month. On the 9<sup>th</sup>/10<sup>th</sup> May the comet will be at its closest to Earth at 1.080AU. Around May 20<sup>th</sup> it will be within half a degree of the star Porrima (2.7mag) in Virgo.

There is a close conjunction between Mars and Saturn on the 1<sup>st</sup>. At 5:30am Saturn is 1 degree above Mars and due south east (135 degrees azimuth) and 7 degrees above the horizon. Jupiter is 6½ degrees right of Saturn.

At midnight on the 1<sup>st</sup> the star Wasat (3.5mag) in Gemini is just 1 degree below left of the Moon.

During the evenings of the 2<sup>nd</sup> - 4<sup>th</sup> of April the planet Venus will be amongst the stars of the Pleiades star cluster.

On the 2<sup>nd</sup> at midnight the Beehive Star cluster is 5 degrees to the left of the Moon and 2 degrees above.

At 9:00pm on the 4<sup>th</sup> the star Eta Leonis (3.4 mag) in Leo is 2 degrees above the Moon with Regulus (1<sup>st</sup> mag) 3 degrees below right. An occultation of this star by the Moon occurs over southern Africa.

On the 5<sup>th</sup> at 9:00pm the star Chertan (3.3 mag) in Leo is 5½ degrees above left of the Moon.

At 8:00pm on the 7<sup>th</sup> the star Porrima (2.7 mag) in Virgo is 5 degrees above right of the Moon... then the following morning at 5:00pm the star Spica (1<sup>st</sup> mag) is 7½ degrees to the lower left of the Moon.

Comet C/2020 A2 Iwamoto (11 mag on March 9<sup>th</sup>) is in the constellation of Auriga this month. On the 8<sup>th</sup> at 10:00pm Iwamoto will be between the stars Menkalina (1.9 mag) and Capella (0 mag), and just 3 degrees from Menkalina. It was at perihelion on the January 8<sup>th</sup>.

There is a scheduled launch on the 9<sup>th</sup>\* at 9:04am\* of a Soyuz spacecraft to the International Space Station (ISS). Expedition 63 crew members, **Chris Cassidy** (NASA) and Russian space agency Roscosmos cosmonauts **Anatoly Ivanishin** and **Ivan Vagner** will spend six months in space. (See ISS News below)

Comet C/2019 Y1 Atlas (10 mag on March 9<sup>th</sup>) is in the constellation of Cassiopeia this month. On the 9<sup>th</sup> at midnight looking north the comet will be between the stars Schedar (2.2 mag) and Caph (2.2 mag) with the comet just 1½ degrees from Schedar. Please note that there are many stars in the close up of this area.

In October 2018 the BepiColombo mission to Mercury was launched. On the 10<sup>th</sup>, a year and a half after the launch it needs its first gravity assist (flyby) from the Earth to get there. At 9:10pm on this day it will be around 11,000 km from Earth. Its second gravity assist (flyby) is when it gets to Venus this October.

The Asteroid Vesta (8.4 mag) is approximately midway between Venus and the star Aldebaran during this month. From the 10<sup>th</sup> - 15<sup>th</sup> it passes close to the star Ain (3.5 mag) in Taurus. On the 14<sup>th</sup> at 9:00pm its less than 1 degree from the star Ain. (For further information please see the 'Asteroid' section in the website above).

At 1:00am on the night of the 10<sup>th</sup> the star Acrab (2.5 mag) in Scorpius is 1 degree below the Moon.

On the 12<sup>th</sup> at 5:00am the star Theta Ophiuchi (3.2mag) in Ophiuchus is 3½ degrees to the lower left of the Moon.

At 5:00am on the 13<sup>th</sup> the star Kaus Borealis (2.8 mag) in Sagittarius is 3¾ degrees to the left of the Moon and 2 degrees below.

On the 14<sup>th</sup> at 5:00am Jupiter is 10½ degrees to the left of the Moon. The star Nunki (2<sup>nd</sup> mag) in Sagittarius is 3½ degrees to the right of the Moon.

At 5:00am on the 15<sup>th</sup> low in the south east Jupiter will be 4 degrees upper right of the crescent Moon. Saturn is 4½ degrees to the upper left of the Moon. All three forming a nice triangular shape with the gap between Saturn and Jupiter now only 5½ degrees.

On the 16<sup>th</sup> at 5:00am Mars is 3 degrees above left of the crescent Moon which is just 4¼ degrees above the horizon at 132.5 azimuth. Saturn is 10 degrees above right of the Moon.

At 5:00am on the 17<sup>th</sup> the crescent Moon is 1 degree above the horizon at 121.5 azimuth. Mars is 11½ degrees upper right of the Moon.

There is a scheduled landing on the 17<sup>th</sup>\* of the Expedition 62 crew. NASA astronauts Andrew Morgan and Jessica Meir and cosmonaut Oleg Skripochka of Roscosmos return to Earth from the ISS aboard their Soyuz spacecraft, landing in Kazakhstan.

On the 18<sup>th</sup> at 6:30am the crescent Moon is 2¼ degrees above the horizon at 117 degrees azimuth. Because the Moon on this day is 5½ degrees below the ecliptic plane (which the Sun is on) the Moon will not be visible pre-dawn now till the evening of the 24<sup>th</sup>, unless its a clear blue sky at the time of sunrise.

The Eta Aquarids meteor shower reaches its peak on the 5<sup>th</sup>/6<sup>th</sup> May though they can be seen between 18<sup>th</sup> April - 27<sup>th</sup> May.

From the 19<sup>th</sup> April - 4<sup>th</sup> May low in the south east Mars passes by a trail of stars in Capricornus. At 5:30am each day Mars position as follows: On the 19<sup>th</sup> Theta Capricorni (4 mag) is 1 degree above left of Mars, on the 25<sup>th</sup> Iota Capricorni (4.2mag) is less than a ¼ of a degree to the upper left, on the 1<sup>st</sup> Nashira (3.6 mag) is 1 degree above and on the 4<sup>th</sup> May Delta Capricorni (2.8 mag) is 1 degree below right.

At 7:00am on the 19<sup>th</sup> the crescent Moon is 12 degrees above the horizon at 123.5 degrees azimuth (if its a clear sky).

On the 20<sup>th</sup> at 7:00am a thin crescent Moon may be seen at 10 degrees above the horizon and at 113 degrees azimuth (if its a clear sky).

The Lyrids meteor shower reaches its peak on the 21<sup>st</sup>/22<sup>nd</sup> though they can be seen between the 13<sup>th</sup> - 29<sup>th</sup>.

At 9:00pm on the 24<sup>th</sup> a very thin crescent Moon is 7 degrees above the horizon at 286 degrees azimuth. The Pleiades star cluster is 10 degrees above the Moon and 2½ degrees to the right.

On the 25<sup>th</sup> at 10:30pm the crescent Moon is 3¼ degrees above the WNW horizon. Venus is 12½ degrees above the Moon. Aldebaran (1<sup>st</sup> mag) in Taurus is 4½ degrees to the left of the Moon. This month is ideal for viewing the phases Venus as you would with the Moon.

Saturn is at superior conjunction (with the Sun) on the 26<sup>th</sup>.

At 10:30pm on the 26<sup>th</sup> Venus is 6½ degrees to the upper right of the crescent Moon. The star Zeta Tauri (2.9 mag) in Taurus is 6 degrees upper left of the Moon.

On the 27<sup>th</sup> at 9:30pm the star 28734 (from the Hipparcus Catalogue) (4.1 mag) in Gemini is about a quarter of a degree to the upper right of the Moon.

At midnight on the 28<sup>th</sup> the star Mekbuda (4 mag) in Gemini is 2¾ degrees to the lower left of the Moon.

Around 10:00pm on the 29<sup>th</sup> the stars Castor (1.5 mag) and Pollux (1.1 mag) in Gemini point the way to the Moon.

At 5:00am on the 30<sup>th</sup> low in the SSE Saturn and Jupiter are just 5 degrees apart

On the 30<sup>th</sup> at 10:00pm the Beehive Star Cluster is 4 degrees to the lower right of the Moon.

At 11:00pm on the 30<sup>th</sup> the star Elnath (1.5 mag) in Taurus is 3½ degrees above left of Venus low in the WNW.

\* = Dates and times are subject to change.

News: **Solar Orbiter**: The science payload is composed of 10 instruments.

1) SWA - Solar Wind Plasma Analyser (UK) consists of a suite of sensors that will measure the ion and electron bulk properties (including density, velocity and temperature) of the solar wind, thereby characterizing the solar wind between 0.28 and 1.4 AU from the Sun. In addition to determining the bulk properties of the wind, SWA will provide measurements of the solar wind ion composition for key elements (e.g. the C, N, O group and Fe, Si or Mg).

ISS News: **Christopher J Cassidy** (b.1970) was selected as an astronaut by NASA in 2004 and is a veteran of two space flights. He is a U.S.Navy SEAL, and has been deployed twice to the Mediterranean and twice to Afganistan. He has been the recipient of Bronze Star with combat 'V' and Presidential Unit Citation for leading a nine-day operation at the Zharwar Kili Cave on the Afghanistan/Pakistan border. This is third time in space.

**Anatoly Ivanishin** (b.1969) is married to Svetlana Ivanishina. They have one son, Vladislav (b.1993). Anatoly has served in combatant units of the Russian Air Force. Since 1992, he served as a senior fighter pilot in the 159th Fighter Aviation Regiment based in Petrozavodsk, Karelia, part of the 6th Air Army. During the Service he flew Su-27 jet fighter aircraft. He has logged 507 hours of flying time and has successfully made 180 parachute jumps. This is also Anatoly's third time in space.

**Ivan Viktorovitch Vagner** (b.1985) is a Russian Engineer and Cosmonaut who was selected in October 2010. He graduated from the Baltic State Technical University in 2008, before working as an engineer for RKK Energia. This will be Ivan's first flight into space.

Facts: Crew Members of Expedition 44, the 44th trip to the ISS, back in 2015 successfully grew lettuce onboard the Soyuz TMA-15M spacecraft. New research shows the produce was just as nutritious as Earth-grown lettuce, despite the challenging growing conditions in deep space.