BLACKROCK CASTLE OBSERVATORY
The Space For Science

SKYMATTERS

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100 years of the International Astronomical Union

April 2019

Things to watch out for

April 5

The New Moon falls on this date in April. The Moon will located on the same side of the Earth as the Sun and will not be visible in the night sky. This is the best time of the month to observe faint objects such as galaxies and star clusters because there is no moonlight to interfere.

April 11

The planet Mercury will be at Greatest Western Elongation on this date. This is the best time to view Mercury since it will be at its highest point above the horizon in the morning sky. Look for the planet low in the eastern sky just before sunrise.

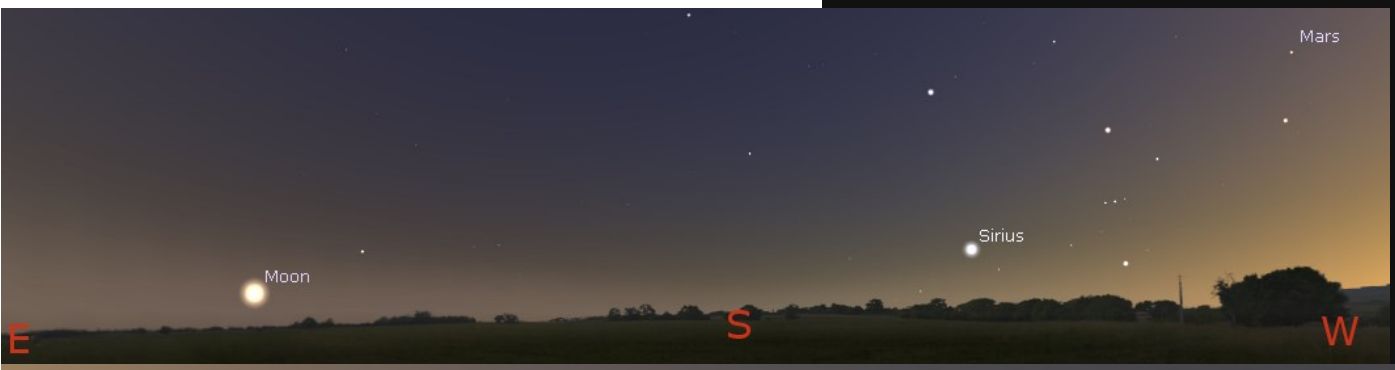
April 19

The Full Moon falls on this date in April. The Moon will be located on the opposite side of the Earth to the Sun and its face will be will be fully illuminated. The extra light from the Moon can obscure some faint objects. Notably, this is the first full moon after the 21st of March. See further on why this is important.

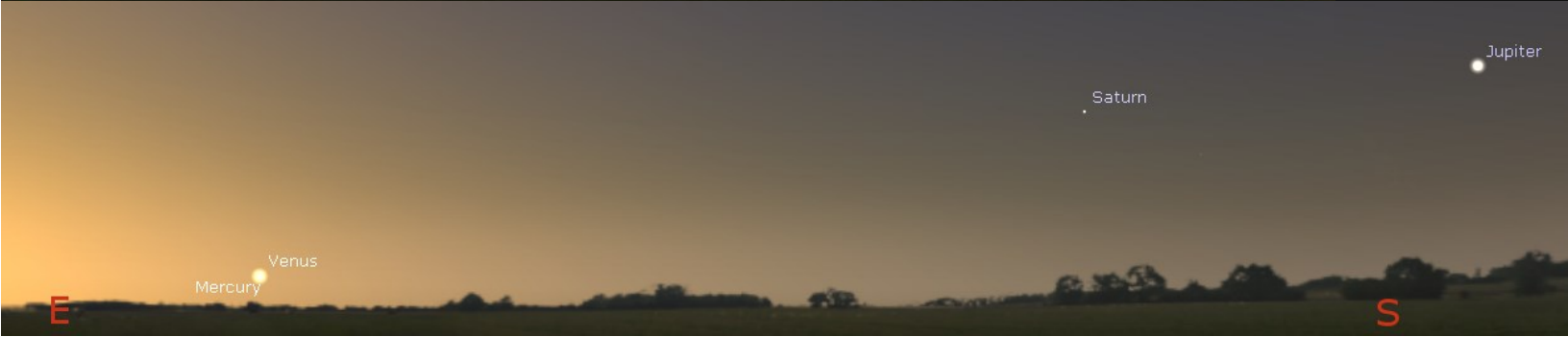
April 22/23

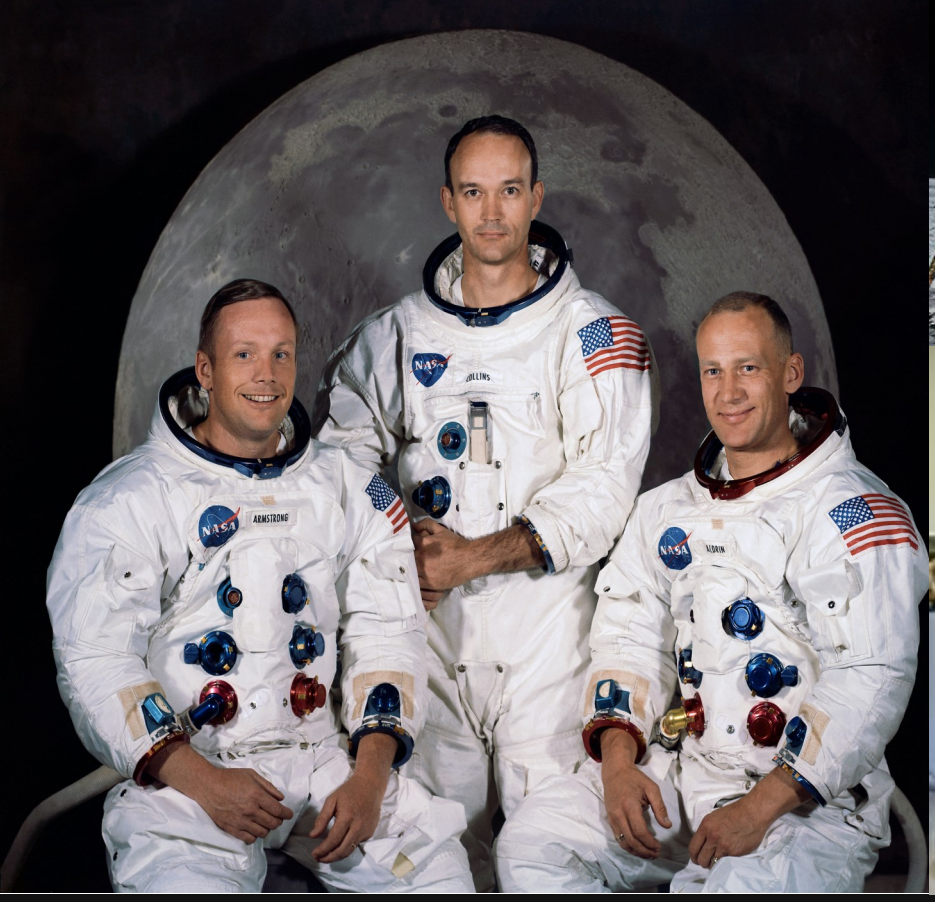
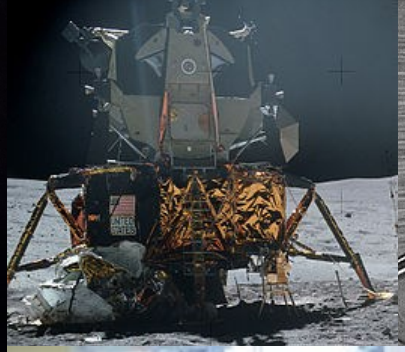
The Lyrid Meteor Shower runs annually from April 16-25. It will reach its peak between these dates. The Lyrids is an average shower, usually producing about 20 meteors per hour at its peak. It is produced by dust particles left behind by comet C/1861 G1 Thatcher. These meteors can sometimes produce bright dust trails that last for several seconds. The waning gibbous moon will block out many of the fainter meteors this year, but if you are patient you should still be able to catch a few of the brightest ones. Best viewing will be from a dark location after midnight on the 22nd. Meteors will radiate from the constellation Lyra, but can appear anywhere in the sky.

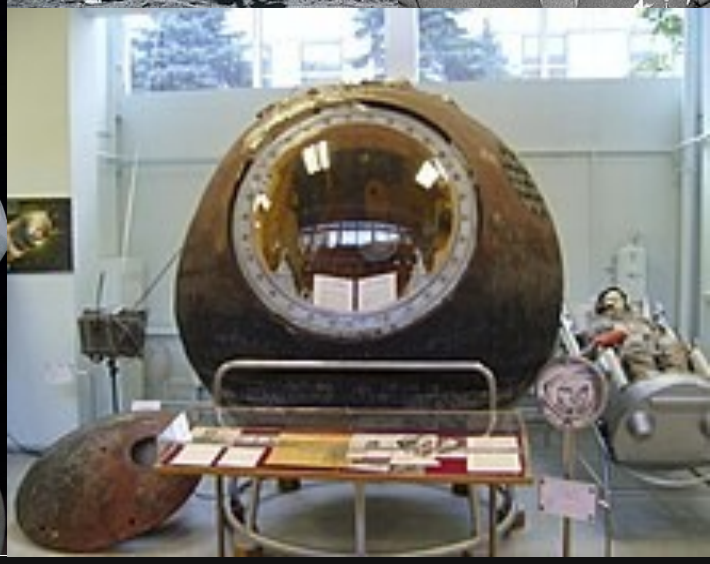
Directly below we have sunset on the 19th of April at 9.15pm. Mars will be above the western horizon all month. Also we can see the brightest star Sirius and the constellation of Orion (between Sirius and Mars). The Moon is shown low to the south-east as it will be full on the 19th.



Bottom: Here we see the sunrise on the 11th of April at 6.20am. Venus is getting more difficult to see and Mercury is really only visible in the morning for the first two weeks of the month. Saturn and Jupiter will remain high in the sky although both of them will become evening objects as we move into summer.





Clockwise from top left: The Apollo 11 crew of Buzz Aldrin, Micheal Collins and Neil Armstrong. The Apollo 11 Lunar Lander, also known as the Eagle. Yuri Gagarin, the first man in space. The Sputnik capsule that brought Yuri to Space is shown with a life size model of Yuri for scale.

Anniversary of Space Firsts

This year, we have the chance to celebrate many milestones in space exploration and astronomy. This year is the 100th anniversary of the formation of the International Astronomical Union, the body which manages the names of stars and our official constellations, among other things. This year also marks 50 years since humanity's first landing on another object in space, the Apollo 11 Moon landing. These are nice easy anniversaries, but of course every event has an anniversary every year. Last year was the 99th anniversary of the IAU and next year will be the 51st anniversary of the Apollo 11 mission. We don't often celebrate the awkwardly numbered anniversaries, but July 20 every year is the anniversary of Apollo 11. The 12th of April every year is the anniversary of the first person in space, the cosmonaut Yuri Gagarin, and is known as Yuri's Night.

Yuri's Night runs every year, it is a reminder that we have sent people to space and it gives us a night to think about space exploration for the future. This year happens to be the 58th anniversary, Yuri went to space back in 1961, not exactly a memorable anniversary. However, in April this year people all around the world will be gathering together, not specifically to celebrate the man who went to space, but to celebrate our species making it to space. We will even be having events at Blackrock Castle Observatory.

Of course, you could celebrate an "Apollo Night" on the 20 of July every year, but for some reason it hasn't caught on, probably due to Yuri's Night already existing. You could also celebrate an IAU day every 28th of July, the IAU's anniversary every year. So far, we have one regular celebration of our species reaching the night sky, Yuri's Night. This year we have a couple of extra celebrations, but if this year has brought out a love of astronomy in you, you won't be completely devoid of celebrations next year.

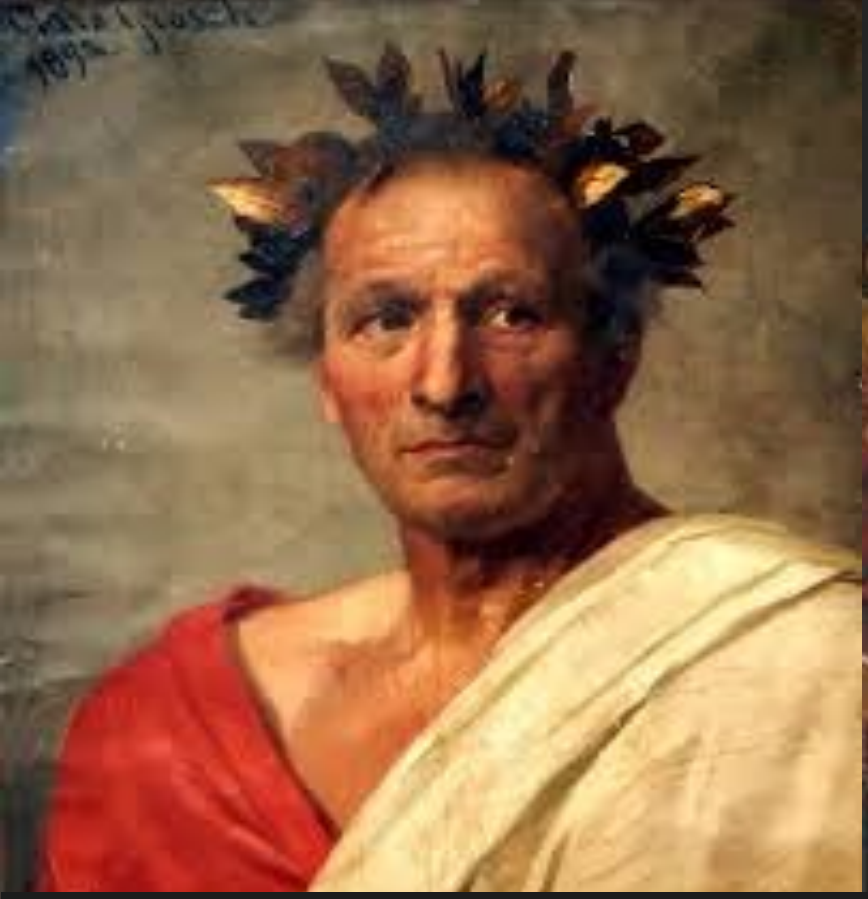
Furthermore, there are many other firsts in astronomy, but we might not make a big deal about them until they reach an easy anniversary. Yuri was the first person in space, but what about the first woman? Or, for the animal lovers out there, the anniversary of Laika, the first dog in space. Below are a couple of anniversaries, what they are, when they are and which anniversary they are on. You may find one that suits you to celebrate.

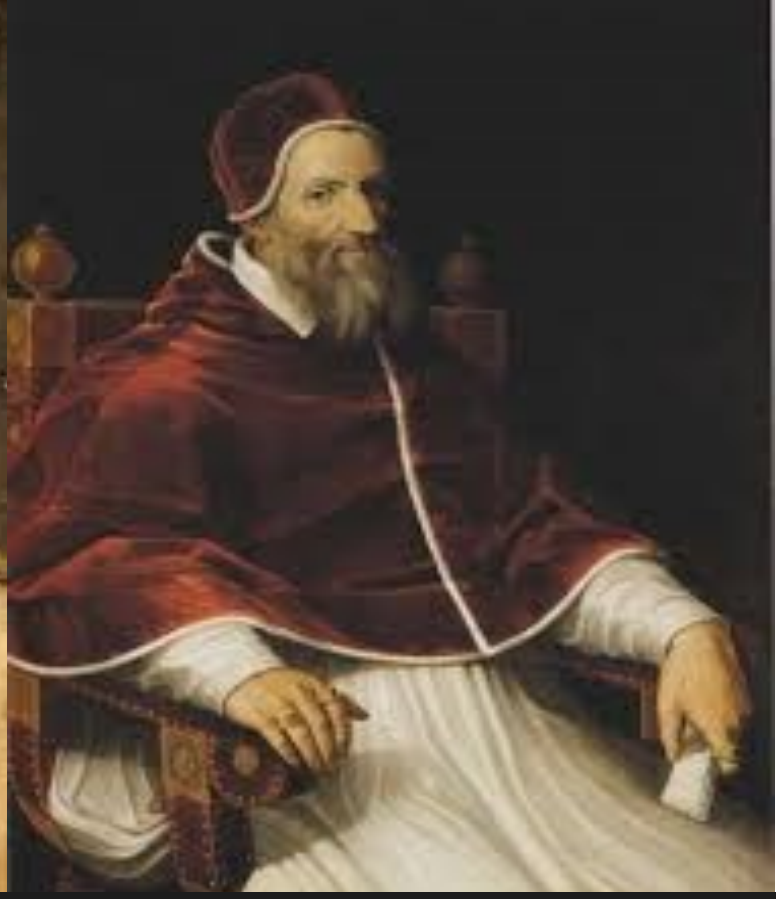
The first woman in space: Valentina Tereshkova on July 6 1963, this year is the 56th anniversary

The first animal put into Earth orbit: Laika the dog orbited the earth on the 3rd of November 1957, this year is the 62nd anniversary

The first animals to go and return: Belka and Strelka, both dogs, went to space on the 19th of August 1960, this year is the 59th anniversary

The first Lunar Orbit : the Apollo 8 mission orbited the Moon on December 25 1968, having launched on the 21st. This year is the 51st anniversary of Frank Borman, James Lovell and William Anders orbit ting the Moon.





Above right is a painting of Julius Caesar. As the General overseeing the Roman States, Julius had the new Roman Calendar named after him, hence Julian. Above left is Pope Gregory XIII (the 13th). Pope Gregory was Pope while a new calendar was being instigated and gives his name to it, hence Gregorian. Each of those calendars replaced a less precise older system, the Classical Roman calendar was replaced by the Julian, which was then replaced by the Gregorian. We may end up with even newer, more precise calendars in the future.

The Lunar Calendar and Easter

In the Gregorian calendar, used commonly around the world, most months have 30 or 31 days. However, in the past, a month was a “MOONth”, the time it took the Moon to go from new to new. That period is 29.5 days. This is why the full moon occurs on different dates from year to year and different days from month to month. Trying to split our 365.25 day year into even sections is hard as it is, trying to get those sections to match with the lunar cycle is incredibly difficult. Today, our calendar is primarily solar, the motion of the Moon doesn’t decide the beginning or end of the month. However, it does still decide the date of some festivals.

The differences between calendars is very clear in the case of Easter, which is a different date each year. The position of Easter is today calculated relative to the 21st of March and the Full Moon. Easter Sunday is the Sunday after the first Full Moon after the 21st of March. But why? The reason for this awkward date for Easter comes back to the origin of Easter. In the Christian religious texts, no date for Easter was given, when to celebrate needed to be worked out. The day mentioned in the Bible is the Jewish holiday of the Passover. The events of Easter were said to take place after this Jewish holiday. For this reason, it was very easy for early Christians to work out Easter. First they would ask their Jewish neighbours when Passover was to occur. Then Easter would be the Sunday after that. Nice and easy, or so it seemed.

Different Jewish communities celebrated Passover on different days, and eventually communities sprung up that had no Jewish members . A decision was made to make the date of Easter independent from Passover and to make it the same around the world. So far, one of those goals has been achieved. To make the holiday of Easter independent of Passover, a substitute was found, the first full Moon after vernal equinox in March. Once the equinox and a full Moon had occurred, Easter would be on the immediately following Sunday. Again, nice and easy or so it seemed.

The Vernal equinox can be the 20th, 21st or 22nd of March, so the ecclesiastical equinox is always the 21st. It isn’t the real equinox every year, but it made calculating the date of Easter slightly easier. Except that the calendar used at the time had further issues of its own. The Julian Calendar as it is known, was widely used, however its system of leap days didn’t truly match the Earth’s orbit around the Sun. This is why most countries moved to the Gregorian calendar. The Julian calendar is still used today. However its use is almost exclusively in ascertaining the date of Easter for certain churches. Because of the change in calendar, some Christian denominations stuck with using a Julian calculation for Easter, while others moved on to the Gregorian calendar instead.

Soon after this, some sects of Christianity decided that if an explicit date wasn’t given for a festival, then maybe they shouldn’t celebrate it at all. So the church did succeed in separating Easter from Passover, but some denominations, such as Russian Orthodox, celebrate Easter based on the Julian calendar, and some, such as the Quakers, don’t celebrate it at all. With all of the changes and conflicting calendars, it’s no surprise that the date of Easter is a bit more complicated than other festivals.

Tips for Finding Constellations

There are 88 official constellations covering every part of the sky. Finding a given one of them isn't too hard, but can take a little practice.

First, find out what is in your sky. Some constellations are only visible in the Northern or Southern Hemisphere. Other constellations are only visible at certain times of the year. Software such as Stellarium and websites such as skymaps.com can help you find what is visible for you.

Second, just pick one constellation to start with. This will help you figure out what time of the night is best for you and will help you get familiar with the shape. It's a good idea to start with a constellation containing bright stars to make sure they are visible where ever you are.

Thirdly, head out side and start matching the shape of your constellation to the shapes in the sky. If you have a map that shows where the constellation you are looking for is in the sky, that can help you narrow down the area that you are searching.

Once you've found the constellation, try to see if you can imagine the same shape that the Ancient Greeks saw. Some constellations look a little strange as stars compared to the picture they are meant to create.

Website of the month

http://www.skymaps.com/

Providing free, printable or downloadable, maps of the sky from given places on given dates is only a small part of what you can get from this website. They provide a lot of free information and resources as well as selling books and further resources about sky-watching and star-gazing.

Quote of the month

"Here's the problem with Easter. The Catholic Church needs to pick a date because it keeps moving. And I think the reason they always have Easter moving to different dates is to catch us." — Denis Leary, Irish-American, Actor and Producer.

Some Upcoming Events at CIT Blackrock Castle Observatory

There are Many events coming up here at BCO, for further information on any of them, see our website or contact us using the details below:

Earth Hour: The 30th of March, 8:30 PM till 9:30 PM

Dark Skies Week: Begins on the 31st of March until The 7th of April

Dark Skies Schools: Contact us to bring your class to our Light Pollution Workshops.

Lifelong Learning: From April 7th to 14th we will have some drop in Afternoon Workshops

Places are limited, please check our website for specific dates.

PUBLIC OPENING Hours: 10am—5pm (Mon-Sun)

Phone: +353-21-4326120 / Email: info@bco.ie

Blackrock Castle Observatory is operated by Cork Institute of Technology and is a partnership with Cork City Council.

All Screenshots courtesy of Stellarium
Collated by Caoimhín de Bhailís and the Blackrock Castle Observatory team