Newsletter December 2020

Next Meeting: **ZOOM Meeting 8pm Monday December 14rth**

Topic: AAS December Meeting - Dr. Peter Edwards - Bringing the Universe Down to Earth

Join Zoom Meeting
https://us02web.zoom.us/j/83367446208?pwd=M09oOGJWeXpjelVFN1FDdndtSlhNQT09

Meeting ID: 833 6744 6208 Passcode: Santa

Contents

President's Word

Don't Believe the Hype – Asteroids (NEOs)

All through the pandemic amid the usual stories of gloom and doom, wildfires, floods, politics and other earthbound stuff there appeared clickbait style articles in newspapers and websites about so-called 'killer asteroids' heading our way ganging up to destroy the inhabitants of the Earth.

You might think that those writing such articles believe the sensationalism, but many, deep down, actually don't, allowing their imagination to run riot in a sense of enjoyment, pandering to the fantastical idea of huge cities such as London, Beijing and New York being destroyed by a massive fireball, as featured in many Hollywood disaster movies.

But, let's be clear, Near Earth Object (NEO) impacts are a real thing as demonstrated by the 20m wide rock that survived travelling through the Earth's atmosphere, breaking up over Chelyabinsk in 2013 destroying property and injuring more than 1500 people. So there is good reason to follow and study these NEOs, at the very least, to give us some idea of when one might strike, and perhaps deflect it in some way.

Unfortunately, there are many people who suffer a great deal of misplaced anxiety due to the overestimated risk of an asteroid impact, but while there is a (small) risk, there are plenty more immediate and more likely risks affecting us that we can influence on a personal level (Wear a mask, social distancing, avoiding large gatherings, etc) .

"I heard that asteroid Apophis is going to hit the Earth on April 13, 2029. Is this true?"

There are many questions asked regarding NEOs with this type of question being by far the most common and most easily exploited by sensational journalism.

In truth, Apophis will make a close run, bypassing about 32,000 kilometres from Earth, the calculations have been made and while it will be close, the asteroid will miss us (0% chance of collision). That said, after the encounter with the Earth, Apophis will then be on a new orbit which could make it more likely for a collision on its next return in 2068. The odds are very low indeed, but not 0% this time. The good thing is that we have plenty of time to work out a contingency plan, studying the orbit and determining if the risk is significant, and taking action if required.

There are many studies on deflection of asteroids, including 'The DART mission' which will launch in the summer of 2021, testing the effects of a controlled impact on an asteroid.

If you are interested in looking up information on NEOs for yourself, click on the link below :

https://ssd.jpl.nasa.gov/?bodies

Follow links for the small body browser, typing in the object in the search bar.

Let me take this opportunity to thank you all for your support during these trying times, joining in on our virtual meetings on the Zoom platform, the next being scheduled for the 14th December 2020 at 8pm entitled "Bringing the Universe down to Earth - The Large Hadron Collider" by Dr. Peter Edwards.

I wish you all Clear Skies and Seasons Greetings !

Roger Harman

Member Articles

Alex's Space

ROUND AND ROUND

It is a well-known fact that living on Earth can be expensive, but let's not forget it does include an annual free trip around the Sun! This trip takes 365 ¼ days which is ample time to enjoy the fantastic views, however, anyone living on Pluto doing the same trip would have considerably more time to view their surroundings – 90520 Earth days to be exact – I kid thee not, it really would take Pluto 248 years to orbit the Sun, this means since Pluto was discovered in 1930 it has yet to make one complete orbit, whereas the Earth has made 90 orbits, but the master of momentum must be Mercury. He has completed 373 laps – along with several speeding tickets.

ONCE UPON A TIME

Before the space revolution planets were hardly more than dots in the sky, which revealed nothing more than blurry details when viewed through the early telescopes. Now thanks to advances in telescope technology and clever research probes planets are shown to be 'real' words with mountains, valleys, volcanoes, ring systems and vast entourage of moons. Even the moons have their own characteristics such as Triton with its ice volcanoes, and Europa which may have warm seas containing some form of life. Astronauts too have increased our knowledge about our own world and its moon. This is helping to put them in context with the rest of the planets in our Solar System, but the planet most under scrutiny is Mars, which will almost certainly receive a visit from a human crew in our lifetime. And finally – every hour of every day somewhere in Britain a person is knocked down – and he's getting darned fed-up with it.

Alex Baille
December 2020

December/January Observing

General

The winter constellations come into full view during this period. Orion will dominate the southern sky with all its glory, along with Taurus, Auriga highly placed. These are followed by Cancer and Leo later in the evening. Also, if solar activity continues we even get to see some aurora!

Planets

Venus and Mercury: Venus is visible low in the morning sky but becomes progressively harder to see. Mercury returns to the evening sky and reaches its maximum elongation on the 24th of January.

Mars: continues to be well placed for observation in Pisces, but it will be further and further away. Its angular size will shrink from 13 arcseconds on the 10th of December to 8 arcseconds by the end of January.

Jupiter and Saturn: These planets are still visible in the western sky after sunset, however, as they are so low to the horizon they make telescopic observation difficult. On the evening of December 21st they will form a rare conjunction and will be less than ten arcminutes apart, let's hope it is clear. As we move into January they will become harder to see, Saturn will be in conjunction with the Sun on the 24th of January.

Uranus and Neptune: Uranus remains in Ares and is well placed for observing. Neptune is not too far away in Aquarius, but is low in the sky for observing from Scotland.

Meteor Showers

The Geminid meteor shower on the 13-14th of December is one of the reliable showers, and with a new moon they should be easy to see, assuming we have clear skies. Numbers can reach up to 100 ZHR (Zenithal Hourly Rate = number of meteors an observer should see if the radiant is at the zenith under excellent observing conditions - clear, dark and no moon).

The Ursids make peak on the 21-22nd December, but viewing will be hindered by a first quarter moon, and they are typically not that numerous (<10/hour)

The Quadrantid's peak on 3rd of January. This shower can be productive, up to 120 ZHR, but usually fewer are seen. It will be affected by a waning gibbous moon that rises at about 21:20.

Comets

Comet C/2020 M3 Atlas has been a minor surprise, though around 8th magnitude it is currently visible in Auriga, where it will remain until during this period. It will likely be getting progressively dimmer as time goes on.

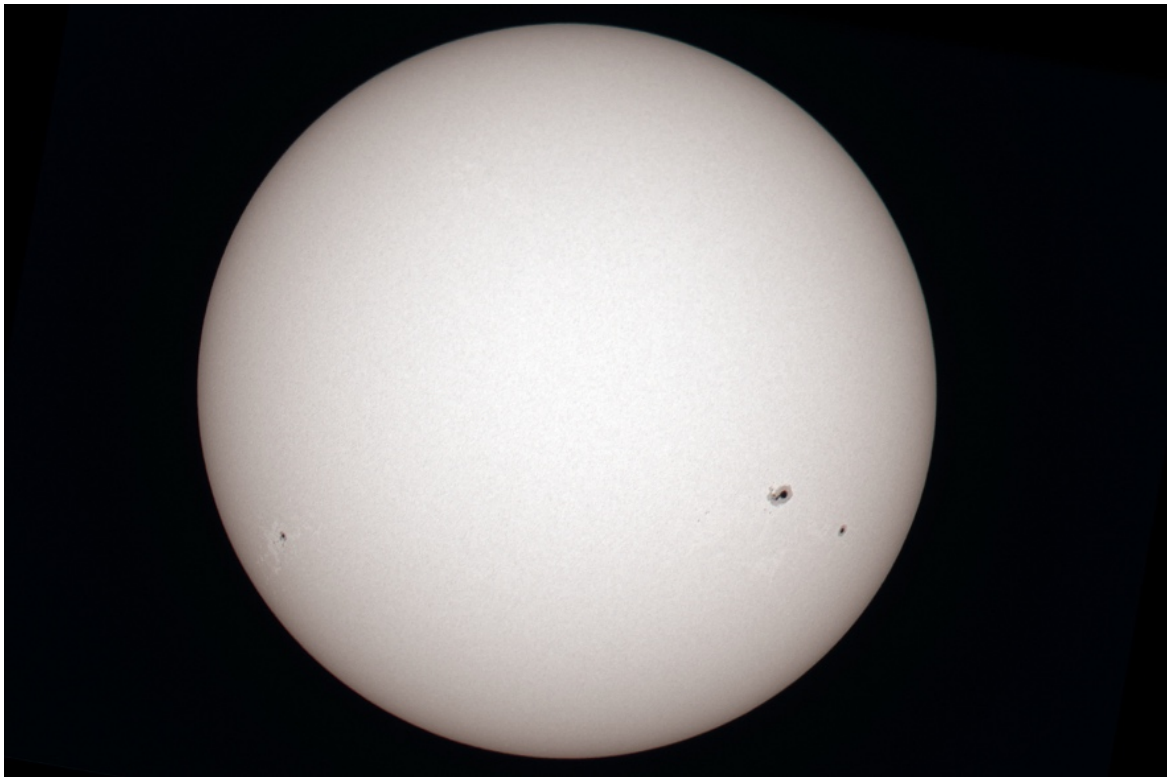
ISS

The ISS will be visible in the mornings from the 19th of December to the 6th of January, and will return in the evenings from the 20th of January onwards. Consult https://www.heavens-above.com for specific times and locations.

Member Images

Marc Charron

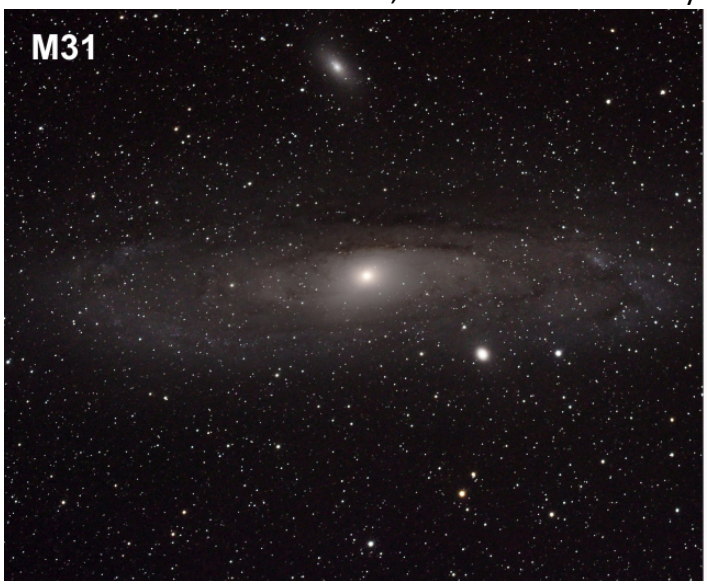
As I mentioned in the last newsletter the solar activity is on the uptick for cycle 25. In early December a naked eye sunspot was visible (AR2786). This image taken in the 2nd.



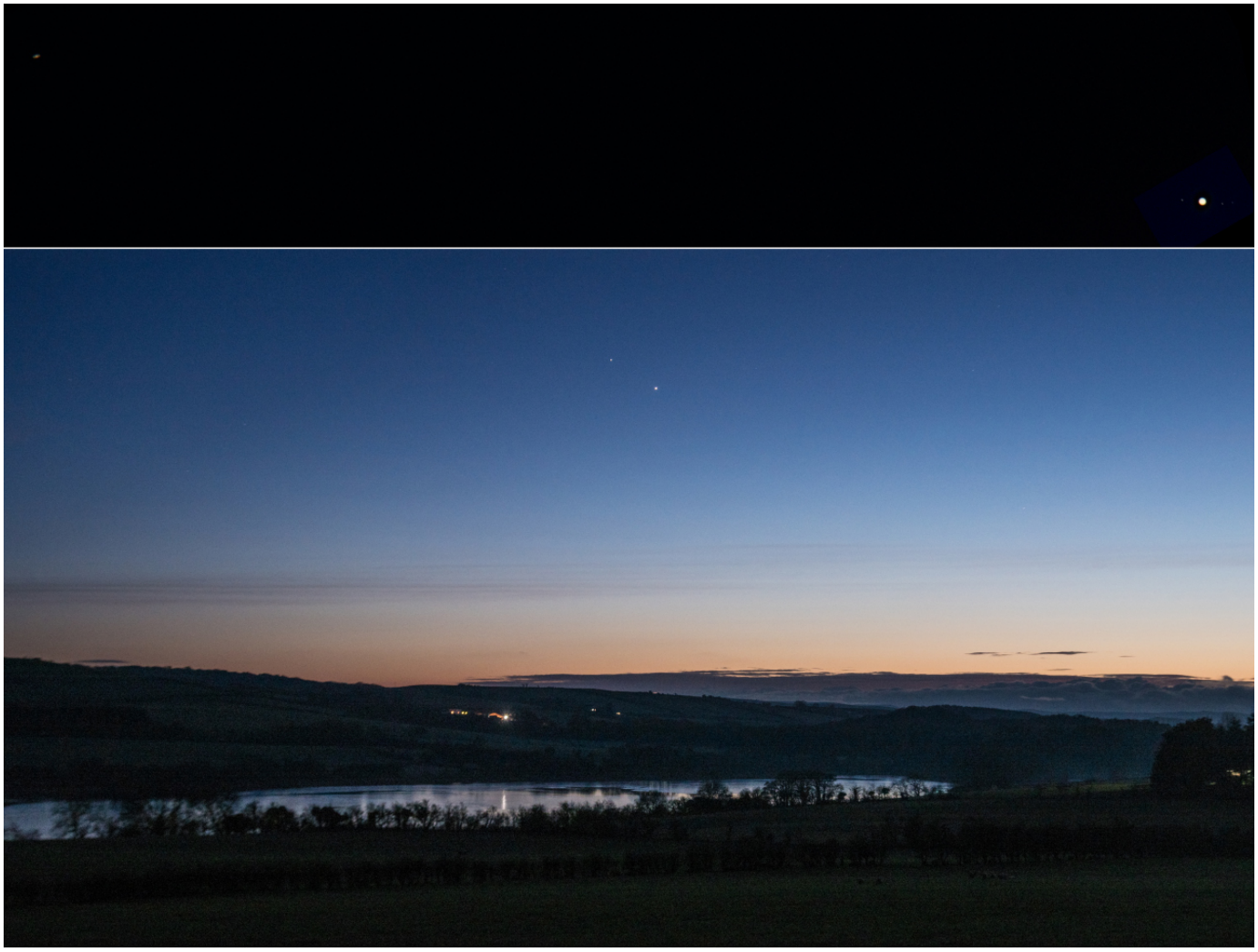
Comet C/2020 M3 Atlas taken in the morning on the 26th of November,
it was estimated to be about a little brighter than magnitude 8 at the time.

Comparison between M31 and M33

Each are about 2.5 and 2.7 million light years away respectively. These two images were taken with a 70mm f6 triplet using a 0.8x reducer and a Nikon D750 and are exactly the same scale. M31 has about a trillion stars, whereas M33 has only about 40 billion so is much smaller.



Finally Jupiter and Saturn are closing for a conjunction on the 21st, this was taken on the 7th of December Top shows the view through a telescope with the bottom a sky view. They are just over 1 ½ degrees apart.



Beaver Moon seen on the night of the 30th of November. According to legend it was so named by the Native Americans who observed that beavers had completed their lodges at this time to be ready for winter.

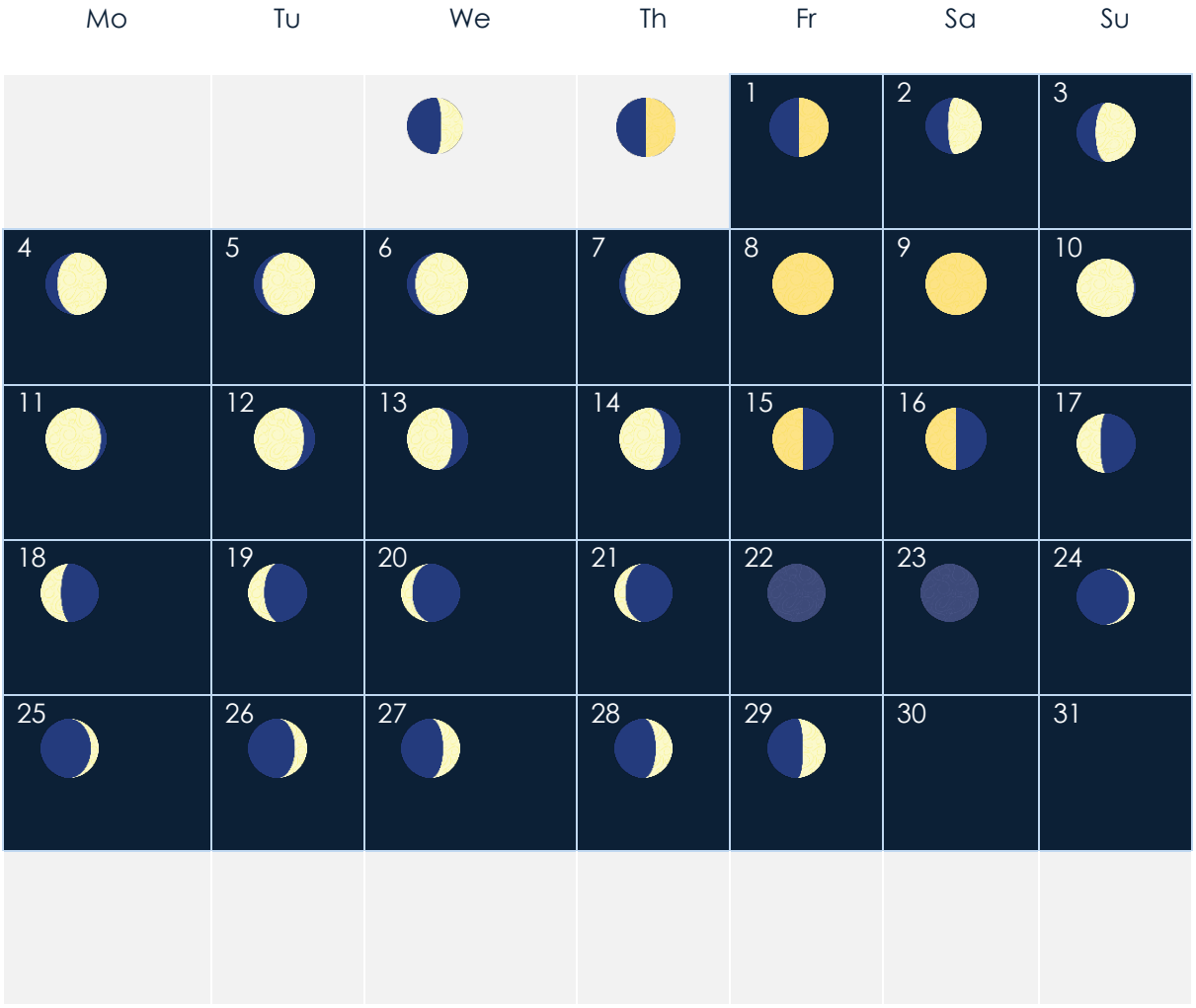
Close up Marc Charron (30 Nov)

Lunar Halo by Nick Martin (01 Dec)

Moon in morning daylight an hour after sunrise on December the 7th.

Moon Phases

JANUARY 2020



January Sky Chart