



April 2021 EDITION

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Editorial

Welcome to the April edition of Janus.

Thanks to another bumper collection of contributions, there's plenty to read should the weather over Easter prove to be incompatible with observing. In addition to the now customary contributions from Gary and Stephen, Ron Johnson has compiled a summary of his observing experiences for 2020. So, there should be something to interest everyone whatever their main focus.

In one of his pieces entitled "What Will Community Stargazing Look Like in the 'New World'?", Stephen speculates about what future group observing sessions might look like. Will they be possible? What might they look like? Would people want to participate?

As I write this, under the current roadmap for exiting from the Covid-19 crisis, gatherings of up to 6 people are now permitted outdoors. This implies that, provided social distancing rules are observed, such sessions might now be possible, although (non) sharing of equipment remains a potential stumbling block to things being as they were pre-Covid.

However, given that physical meetings will probably not be possible before September 2021 or, perhaps more realistically, January 2022, such limited opportunities to meet and talk with other members might be attractive to at least some members, as a way of returning to some semblance of normality.

Finally, don't forget the Society's social media sites, which are always worth a look, and provide a pro-active means for rapid dissemination of information.

John



The Solar System April

MERCURY: begins the month not observable, reaching its highest point in the sky during daytime and being 3° below the horizon at dawn. By the end of the month, having recently passed behind the Sun at superior solar conjunction, it remains not observable. Reaching its highest point in the sky during daytime it is no higher than 5° above the horizon at dusk.

VENUS: recently passed behind the Sun at superior solar conjunction. It begins the month not readily observable since it is very close to the Sun, at a separation of only 1° from it. By the end of the month, it remains not observable, reaching its highest point in the sky during daytime and is no higher than 2° above the horizon at dusk.

MARS: will soon pass behind the Sun at solar conjunction. It begins the month visible from around 19:27 UT as the dusk sky fades, 45° above the W horizon. It will then sink towards the horizon, setting at 00:41 UT. By the end of the month, it will become visible around 20:27 UT as the dusk sky fades, 30° above the W horizon. It will then sink towards the horizon, setting at 00:08 UT.

JUPITER: recently passed behind the Sun at solar conjunction and begins the month not observable. It will reach its highest point in the sky during daytime and is no higher than 7° above the horizon at dawn. By the end of the month, emerging from behind the Sun, it is visible in the dawn sky, rising at 02:30 UT – 2 hours and 5 minutes before the Sun – and reaching an altitude of 12° above the SE horizon before fading from view as dawn breaks around 04:11 UT.

SATURN: also recently passed behind the Sun at solar conjunction and begins the month not observable, reaching its highest point in the sky during daytime and is no higher than 7° above the horizon at dawn. By the end of the month, emerging from behind

the Sun, it is visible in the dawn sky, rising at 01:57 UT – 2 hours and 38 minutes before the Sun – and reaching an altitude of 12° above the SE horizon before fading from view as dawn breaks around 03:47 UT

URANUS: will soon pass behind the Sun at solar conjunction and begins the month not observable. It will reach its highest point in the sky during daytime and is no higher than 9° above the horizon at dusk. By the end of the month, it is not readily observable since it is very close to the Sun, at a separation of less than 1° from it.

NEPTUNE: recently passed behind the Sun at solar conjunction. It begins the month not readily observable since it is very close to the Sun, at a separation of only 20° from it. At the end of the month, it is not observable – it will reach its highest point in the sky during daytime and is 3° below the horizon at dawn.

MOON PHASES:

Full Moon	28 March
Last Quarter	4 April
New Moon	12 April
First Quarter	20 April
Full Moon	27 April

Notable Events:

Observation of some of these events may require a telescope, although some will be visible with the naked eye. More information at <https://in-the-sky.org>

- 1 Apr. M104 is well placed
- 4 Apr. M94 is well placed
- 6 Apr. Conjunction of Moon and Saturn
- 7 Apr. Conjunction of Moon and Jupiter
- 14 Apr. M51 is well placed
- 17 Apr. Conjunction of Moon and Mars
- 17 Apr. M3 is well placed
- 22 Apr. M101 is well placed
- 22 Apr. Lyrid meteor shower 2021

Collected Observations (and thoughts) – Gary Walker

Breaking News (literally!) - 2 March

My 60mm Solar telescope (Coronado), mounted on its tripod, was placed on my lawn, ready to use; when I turned my back, it fell flat on the grass!

On next observing the Sun, I could still see Ha features of prominences, filaments, and plages, but there was often a double rim effect on part of the solar limb, and it was harder to focus.

Of course, when my previous solar telescope went smack on the ground, there were no Ha features visible anymore, so I had to get a new telescope. Fortunately, I was able to get it on my insurance, but it is so frustrating when a simple fall can ruin the whole scope. I have a robust tripod, and it was only a bit above 2 feet in height, but despite that, and the fact that it was on the grass, it still managed to damage it.

The problem with solar Ha telescopes is that the etalon filter can easily get dislodged, even by a simple bump or fall, and I have seen in online fora on solar telescopes other instances of this occurring. My etalon cannot have been entirely dislodged as, if it had been, I wouldn't be able to see any Ha features at all - luckily, I still can. Of course, with any piece of machinery, or any other product, they always have the same "weak link" item in them that invariably fails after a time, ruining the entire product!

Meteorite sonic boom - 4 March

It was reported in the papers that a bright fireball was sighted and caught on cameras across the UK at about 10pm on Sunday 28th February. Simultaneously, a sonic boom was heard across Southern England. Unfortunately, I didn't hear it, but somebody on one of the social media platforms in the Banstead area had asked if anyone had heard that loud boom. If any meteorite fragments reached the ground, it was predicted that they would have fallen NE of Cheltenham. Observed meteorite falls are rare, and it's even rarer to be able to find them. The last fall was the Glatton meteorite in 1991.

Latest observations - 7 March

On 7th March, I saw that Betelgeuse, Aldebaran, and Mars, were all of approximately the same magnitude. Of course, Mars has faded significantly, since its opposition 5 months ago, and it was now only

just above 6' arcseconds in size. I couldn't see any dark markings on it even with 333X magnification.

Mars was now about magnitude 1. The two Red Giants were about the same although, as they are both known to be slightly variable, it is difficult to use them as a standard reference!

At this time, Betelgeuse, Aldebaran, and Mars, formed a straight line of 3 obviously orange stars.

Meteorite - 9 March

On 9th March, there was an item on the BBC News, about the discovery of some fragments of the meteorite that was seen as a fireball across England on 28th February. Because it was captured by many cameras, such as security cameras, it was possible to work out its trajectory and, hence, where it was likely to land. It had been predicted that it would land NE of Cheltenham, in Gloucestershire, and this indeed proved to be the case, as fragments had landed at Winchcombe, which is NE of Cheltenham! They landed on a house driveway and, fortunately, were soon collected and sent to the Natural History Museum.

This meteorite was a Carbonaceous Chondrite, of which only 51 are known worldwide, and it is the first (known) example found in the UK. Such meteorites are of particular interest as they are of very primitive composition and contain elements from the formation of the Solar system.

Inevitably, the BBC item, was the last item on the main news, but at least it was quite a decent, reasonably long item.

Zoom meeting - 12 March

After a lot of hassle trying, I finally managed to get onto the March Zoom meeting at about 8.15pm. Earlier, I could see it but, at first, I had no sound!

The talk by Professor Ian Morison, the Society's Patron, was on astro-imaging, and he showed us some wonderful deep sky images which he had taken.

Everyone in the Society will know that due to the COVID 19 Pandemic shutting everything down, it is now one year since our last physical meeting on 13th March 2020. Even though I could not foresee the lockdown, which came into place only 10 days later, I had been wondering if the March meeting last year would take place, or if it would be called off. Only 5 days after that meeting, on 18th March, the announcement went out that, due to the pandemic, the next few meetings were cancelled, so we got the March meeting in, just in time! After that, the only "meetings" were via the new phenomenon of Zoom, and these were to become one of the defining features of the pandemic.

Celebrating the 10th anniversary of the "SuperMoon" - 12 March

March 2021 was the 10th anniversary of the so called "SuperMoon". It officially started on 19th March 2011, when the term "SuperMoon", and photos of dinner-plate size full moons, first hit the newspapers and other media.

However, the term, "SuperMoon" had actually been invented over 32 years earlier, way back in 1979, by an astrologer called Richard Nolle. At the time, it did not catch on in the media, although, on 22nd December 1999, the newspapers had articles on a Full Moon, which was said to be 14% closer to the Earth than usual. But it was still not actually referred to as a SuperMoon.

Some newspapers claimed that this moon was the closest to Earth for 133 years, whilst others said it was 70 years! Presumably, this Moon caught the attention of the media because it was just before the end of the Millennium, but another 11 years passed before SuperMoons suddenly exploded in the media, in March 2011.

Some people even blamed this SuperMoon for the disastrous Japanese earthquake and tsunami which occurred on 11th March 2011. Even now, about 9 or 10 years since their "discovery", they still manage to make the news!

However, "SuperMoons" are not astronomically significant. Astronomers know

these moons as "Perigee" moons. This is because the Moon moves around the Earth in an ellipse, which results in some full moons being closer to the Earth, than others. Whilst these perigee moons are slightly closer to the Earth than usual, the difference in size is so slight that the naked eye cannot discern it. The problem is compounded by the fact that you cannot compare a "normal" full moon with a so-called "SuperMoon", without resorting to time travel! The only way that they can be compared is by imaging a "normal" full moon and a "SuperMoon" with the same magnification, only then, can it be seen that the "SuperMoon" is slightly larger.

People are also confused by the fact that when they see a full moon rising over the horizon, what they are really seeing is another phenomenon instead, called the "Moon Illusion", where a Full Moon, near the horizon, always appears to be much bigger than a full moon high up in the sky.

This, however, is merely an illusion, the origin of which is still not fully understood, but is presumed to be because the human eye and brain combination on seeing the moon near the horizon is tricked into seeing that it is larger. This phenomenon has been observed for thousands of years by astronomers - Aristotle, for one!

The media also does not help matters by, inevitably, in the "SuperMoon" "season" (of which one, is due from April, onwards), showing lots of dinner-plate sized images of the Full Moon! - but these only occur due to the telephoto lenses used by photographers, and the "SuperMoon" is vastly overrated, by the media. More worryingly, some astronomical magazines have also picked up on this term. They should know better!

Fireball - 22 March

On the early evening of 22nd March, around 7:20pm, I saw a fireball shoot across the sky. High in the Southern sky, moving from East to West, it was a bright yellow in colour and had a few bits falling off it. It lasted for several seconds and then vanished abruptly from sight, high in the West.

It passed close to Mars and Aldebaran. It was still twilight, and with a First Quarter Moon high in the SE. Due to the twilight conditions, I wasn't sure of its magnitude, but it must have been brilliant. Will this be the next British meteorite?!!!

I saw that Mars was now slightly fainter than Aldebaran (the two objects were easy to compare, as they were only a few degrees apart!) I looked at Mars via my telescope, but it was now really too small (5. 6' arcseconds in size) for observations of surface features. However, I thought I did glimpse a hint of a dark feature at high powers! Mars was now obviously gibbous in phase as nearly 6 months had passed since Opposition.

The fireball I saw had the usual "teardrop" shape. Fireballs like this come randomly and cannot be predicted unless they are part of a meteor shower. It is just a matter of luck, whether you get to see them, or not! Ironically, security cameras and cctv often pick them up, as well as camera systems specifically set up to image fireballs.

With the latest British meteorite to land, on 28th February, as if this fireball was not enough, another fireball shot over the West County and is thought to have crashed into the Bristol Channel! This was earlier on 20th March, at about 3pm, and was obvious, even though it was still daytime! It was also visible as far away as France, and produced a sonic boom [Editor's note: See report from Sky News at:

<https://news.sky.com/story/rare-daytime-fireball-meteor-that-caused-sonic-boom-may-have-crashed-into-bristol-channel-12253422>]

Planets were rather thin on the ground, (or rather, I should say, in the sky!) at this time. With Jupiter and Saturn very low down in the dawn sky, and Venus reaching Superior Conjunction behind the Sun, only Mars was easily visible in the evening sky, still quite bright, but too far away to observe surface features!

I noticed on this date of 22nd March that Mars was now slightly fainter than Aldebaran, which it was still close to.

March Meeting Report - Stephen



In March we were very pleased to welcome back our patron Prof. Ian Morison, who joined us via Zoom to deliver a talk on astrophotography. The meeting was well attended, with over 30 members logging in.

Ian took us through the multitude of different DSLR and mirror-less cameras available, as well as the different types of mount and camera modifications that are needed. Starting with simple single exposures from a static mount, then leading us step-by-step to multiple stacked exposures made using a tracking mount to bring out the fine detail, Ian left us in awe of the quality of his astrophotographs, and whetted our appetites for getting out there and having a go ourselves. He also left as in awe of the considerable arsenal of telescopes, cameras, lenses and mounts that he has amassed in the course of his endeavours!

Ron Canham again presented his monthly Sky Update, to bring us up to speed with what is currently on show in the sky, and for this we thank him once again.

Unfortunately, my laptop once again conked-out at around 9.30, before the meeting was over, and I have now discovered that it is the battery that is the problem, so I need to remember to plug in the charger at the beginning of meetings. Zoom does seem to drain the battery very quickly.

Once again, the Saturday morning after the meeting, our WhatsApp group was buzzing with activity. Our monthly meetings do seem to energise our members and fire them with enthusiasm, and we all very much look forward to the day when we can once again resume physical meetings.

Browsing Through a 2020 Observing/Imaging Log - Ron Johnson

During the recent cloudy nights, I took the opportunity to review my observing/imaging log for last year. I have picked out some of the highlights. During the year we had 49 clear nights and 94 clear / cloudy nights, making a total of 143 useable nights.

I managed 87 sessions from the observatory, (279mm f10 SCT, planets and deep sky) and 93 solar imaging sessions, (102mm refractor with full aperture solar filter set up for each session).

Seeing and transparency during 2020

The seeing conditions (seeing and transparency) have a great bearing on the quality of images that can be obtained. For seeing, I use the Antoniadi scale:

- I. Perfect seeing, without a quiver.
- II. Slight quivering of the image with moments of calm lasting several seconds.
- III. Moderate seeing with larger air tremors that blur the image.
- IV. Poor seeing, constant troublesome undulations of the image.
- V. Very bad seeing, hardly stable enough to allow a rough sketch to be made.

For transparency I use the following:

Excellent; Good; Moderate or Poor.

Summary of seeing and transparency:

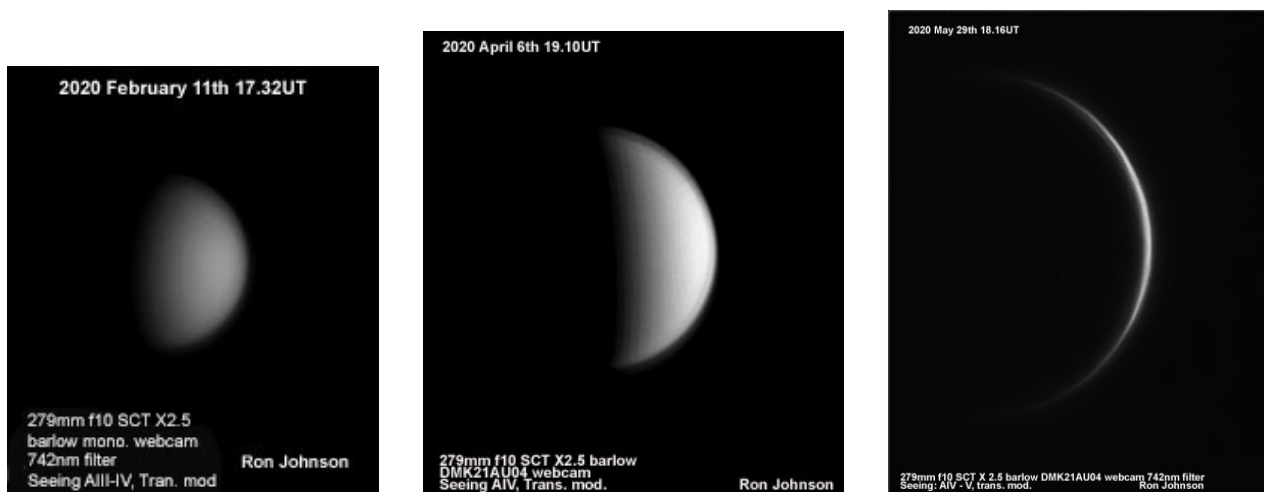
Seeing: AI. 0% AII. 11.3% AIII. 60.0% AIV. 26.9 AV. 1.8%

Transparency: Excellent 0% Good 24.1% Moderate 42.8% Poor 33.1%

The above figures are heavily influenced by the many sessions imaging Mercury and Venus which were quite low in the sky. This can have a dramatic effect on the seeing and transparency. The best seeing and transparent conditions were achieved when imaging the Sun during the morning.

Venus

The year started off with Venus just past superior conjunction. My first sighting of the planet with the naked eye was actually on 3rd December 2019. Due to the good weather during the first half of the year it was possible to follow Venus right round to inferior conjunction at the beginning of June.

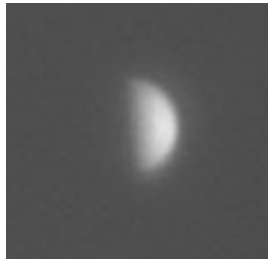


As Venus moves from superior to inferior conjunction it gets closer to the Earth and therefore its apparent diameter increases, as indicated above. Images obtained via 279mm SCT, X2.5 barlow (f25), DMK21AU.04 monochrome webcam.

Mercury

Mercury was well placed in the evening sky for about two weeks from mid-May. During this time I managed several imaging sessions and managed to obtain my first images of Mercury that not only showed the disk but some faint surface detail as well.

2020 May 29th 18.51UT



Comet C/2020F3 Neowise

In July Comet C/2020F3 Neowise came into the early morning sky, low in the north east. I first managed to image the comet on 11th July, then again on the 12th. At this time the comet was about first magnitude. Later on in July the comet was visible much earlier as the sky got dark. It displayed a bright coma and a significant tail.

2020 July 12th 02.06UT



2020 July 21st 21.49UT

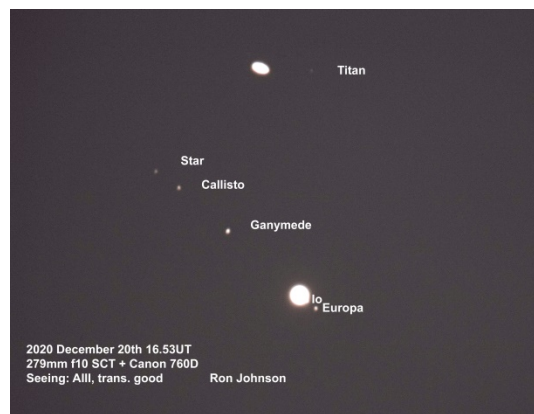


Mars

Mars came to opposition in October and was well placed for observation and imaging. I made several efforts to obtain good images of the planet but my results were mediocre. I have always found Mars the most difficult of the planets to image.

Conjunction of Jupiter & Saturn

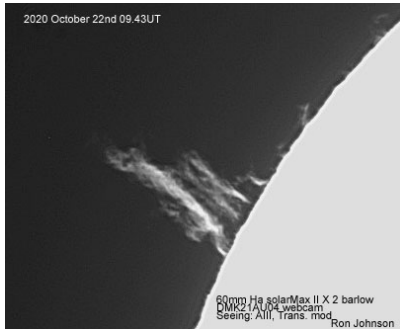
The closest approach was on 21st December. Around this date both planets could be observed in the same telescopic field. The sky cleared on 20th December so it was possible to image the conjunction. Unfortunately the evening of the 21st was completely clouded out.



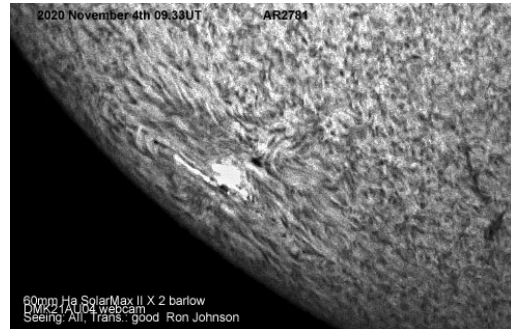
The Sun

During 2020 the Sun showed some activity towards the end of the year after a long and deep minimum. Several large sunspots were imaged together with some good prominences.

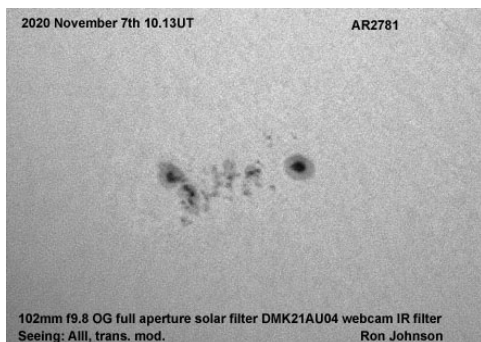
*2020 October 22nd 09.43UT
Solar Prominence approx. 180,000 mile high*



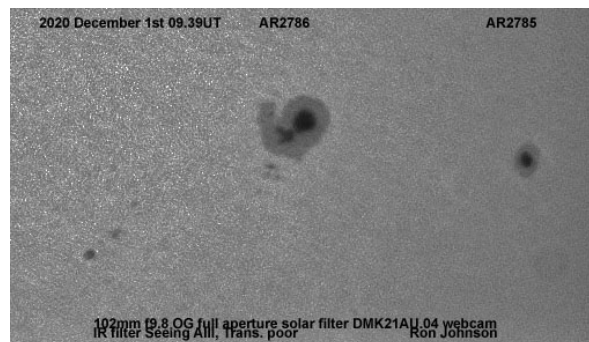
*2020 November 4th 09.34UT
Active Region 2784 in Ha*



*2020 November 7th 10.13UT
Active Region 2781 in white light*



*2020 December 1st 09.39UT
Active Region 2786 in white light*



Several imaging sessions were held recording deep sky objects. 297mm f10 SCT + Canon 760D was used to obtain the images.

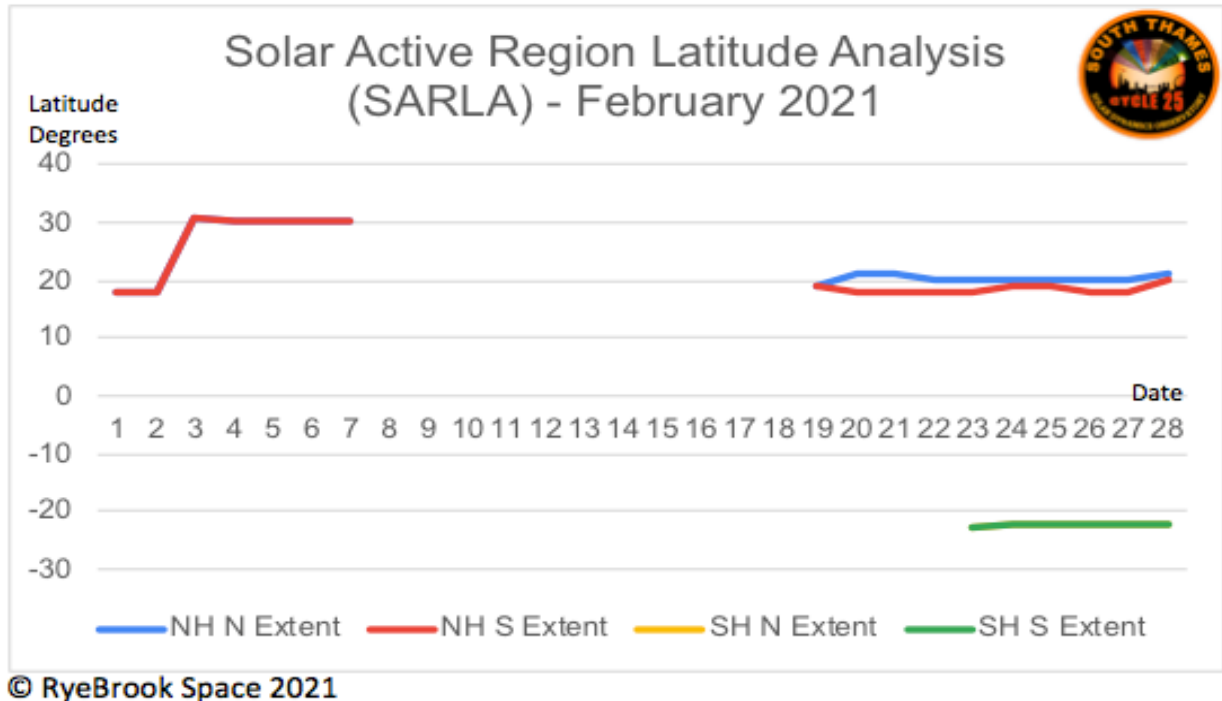
2020 May 19th NGC4565



2020 March 22nd 19.35UT M42



February Solar Activity Report - Stephen

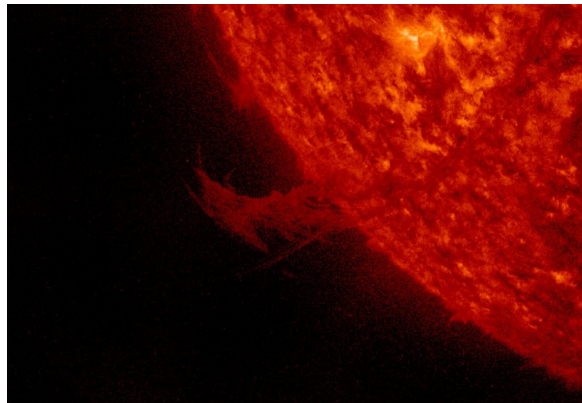
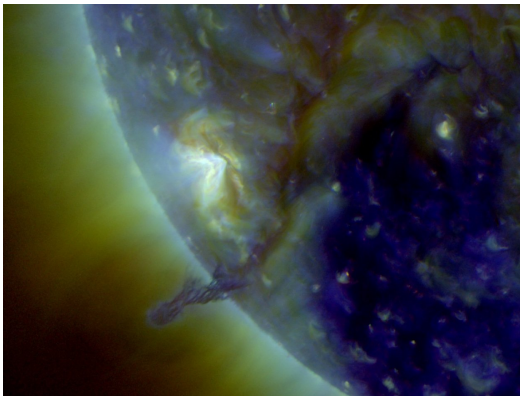


The chart of solar active region distribution by latitude for February reveals a clear North/South Hemisphere asymmetry, with a bias to the North. This is a reversal of the pattern that we have seen in the end-stages of Cycle 24, and early Cycle 25. It is noted that there is an 11-day absence of active regions in both hemispheres, but this is somewhat misleading, as the chart does not reflect active regions without sunspots. Active regions remain grossly at the higher latitudes throughout the month, which is entirely in keeping with the early stages of the activity cycle.

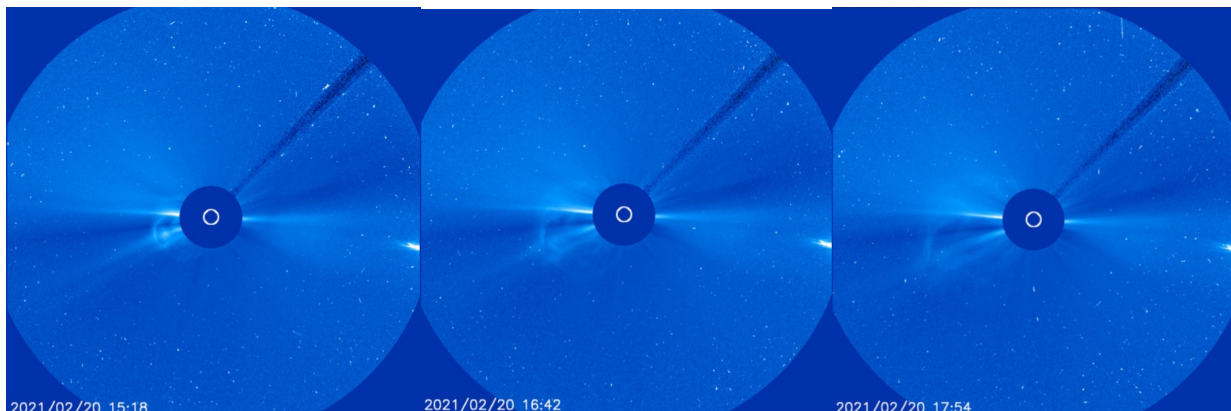
From daily observations of SDO white-light images, it is noted that Cycle 25 has, so far, produced a number of somewhat atypical sunspot groups that have been challenging to classify.

During February, there were a number of Kp4 and Kp5 geomagnetic events, mostly driven by high solar wind streams originating in coronal holes.

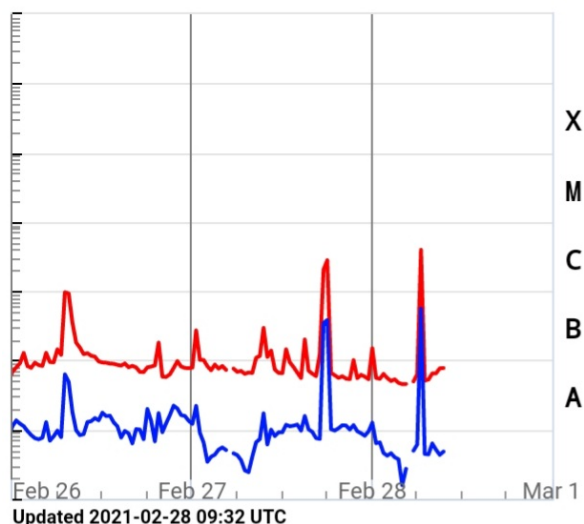
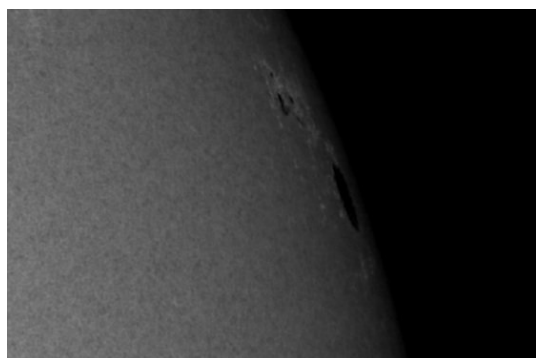
Around the 9th & 10th of February, a large magnetic filament was observed at the Sun's SE limb, and is seen below in combined 211, 193 and 171 Angstrom (left) and 304 Angstrom (right) images from the SDO space telescope.



Another magnetic filament in the SEQ erupted on 20th February, hurling a Coronal Mass Ejection (CME) into space, which was Earth-directed, but only struck us a glancing blow on 24th February, not causing a geomagnetic event.



On 27th and 28th February, departing Active Region 2804 fired-off two powerful C-class solar flares as it rotated over the Sun's NW limb, the most powerful of which was C3.9 on the morning of 28th February.



Above: AR2804 rotates over the NW limb. Right: The 2 C-class solar flare events produced by AR2804

In summary then: February was a mixed month, but with encouragingly increasing solar activity. Hydrogen-alpha observations have become more interesting now, with plagues and filaments visible for most of the month. It is noted that the occurrence of larger filaments seems to have increased.

Daily Solar Dynamics Observations and Space Weather alerts can be found on Twitter: @RyeBrookSpace and Online: ryebrookspace.co.uk

What Will Community Stargazing Look Like in the "New World"? - Stephen



The "New World" is a term that I find myself increasingly using to describe a time when the immediate crisis of COVID is over, and everyone tries to piece back together their lives and livelihoods. It seems more appropriate than "Post-COVID" or "Post-Lockdown" because I think that both COVID and some degree of restriction will be with us for the foreseeable future. But clearly there needs to be a tipping-point where we have controlled the disease adequately, and "normal" life and business activities need to resume. Though I don't believe that anything will be quite "normal" ever again, COVID is likely at some point to become an "accepted risk".

Face-coverings and social-distancing are, I feel, quite likely to remain with us, not just because of COVID, but also because of what might come along next, and because people have become very aware now of the spread of infection and how we can prevent it. If only everyone had been so aware back when Norovirus was at its most virulent!

So, all of this begs the question - if restrictions on groups of people meeting together are lifted (or more likely "eased"), and it starts to look as though it might be viable for us to return to group observing sessions, what can we expect these to be like?

For a start, we are still likely to need to restrict numbers. We never really have an issue with too many people turning up to stand in the cold, looking at the sky, but after an extended period of lockdown this might change. There is nothing quite as powerful as forbidding people to do something, for making them want to do it all the more. So, there will likely need to be a booking system that will be closed once fully booked.

So far, then so good. Obviously, we need to ensure that we set up our telescopes at socially-distanced points at the site, and perhaps there should not be any sharing of equipment – or should there? I shall return to this point in a moment. Perhaps no more, will wandering over to look through a fellow member's telescope be allowed – or will it? Perhaps no longer will we be able to help carry larger pieces of equipment – or will we?

As I'm writing this, I'm starting to ask myself some pretty fundamental questions. If we're just going to become a collection of individuals standing in a field with our own telescopes, not interacting and staying socially distanced, then what actually is the point?

It raises some more general questions about the benefits of group observing sessions, and it's worth reminding ourselves, I think, why we do these sessions under *normal* conditions.

First and foremost - there is safety in numbers - and one of the things that group observing does is to make it safer for us to take our telescopes to a dark field late at night. This is something that I would be very reluctant to do alone these days.

The next obvious benefit is that it allows beginners to come along and learn practical astronomy from those with more experience. It also allows people who are thinking about buying a new telescope, to try out some different instruments, and those with small telescopes who can't afford anything better to at least look at a few objects through a bigger telescope. With social distancing and non-sharing of equipment, we immediately lose some of those benefits.

For experienced observers there is the very important social aspect of community observing, and the benefit of being able to meet up to chat about astronomy, compare notes and generally share the experience of observing. These are somewhat less-tangible benefits, but astronomy can be a lonely business for the most part, especially if one's family do not share the passion. We have all at some point experienced a moment when we have wanted to say "Oh, my goodness! Look at that!" whilst observing, but there has been no one there to say it to!

With socially distanced observing sessions it is unclear how much benefit there will be in these respects, and certainly the tradition of meeting at the Stepping Stones pub before observing at Ranmore will remain a distant memory for a while yet (maybe).

But let me return to the issues of sharing equipment and looking through other people's telescopes. You'll notice I have said "perhaps", "or will it/should it/will we?" and "maybe" an awful lot in the previous paragraphs. Well, this is because we are dealing with an unprecedented situation for which there are no known answers, so I ask this question – if it is deemed safe to use a PIN pad in a shop, or press the button at the pedestrian crossing, or push a supermarket trolley – why can't we share equipment and look through each other's telescopes? The key is hand hygiene and sanitising. If hand-sanitiser is used before and after touching other people's equipment, and equipment is wiped-down with anti-microbial wipes, and if only one person approaches the telescope at a time, wearing a face-covering while others remain socially distanced, then there should be no reason why these important sharing activities cannot continue.

According to the Government's Roadmap out of Lockdown, potentially after 17 May, restrictions could be eased, and there may be scope for "*allowing people to decide on the appropriate level of risk for their circumstances*"*, and crucially; "*legal restrictions on meeting others outdoors will [could] be lifted – although gatherings of over 30 people will remain illegal*"**

Although we must continue to understand that the gateways of the Roadmap are liable to change if infection rates begin to rise again, I think that we might consider a return to community observing sessions from 17 May, within a COVID Secure setting, and The Committee will be working hard to make this a possibility.

* [www.gov.uk](https://www.gov.uk/government/roadmaps/out-of-lockdown) COVID-19 Response

Pandemic Leaves Astronomers Unable to Buy Telescopes - Stephen



If you are new to astronomy, perhaps riding the wave of much increased interest following the COVID lockdowns, you are probably anxious to buy your first telescope. By now though, you have probably realised that every retailer is showing "out of stock"

SkyWatcher and *Celestron* telescopes are made in China and enter the country via their UK importers. In the case of *SkyWatcher* in particular, that is *Optical Vision Ltd* in Bury St Edmunds. Usually, retailers don't hold a stock of

SkyWatcher products, but instead, when you order from any of the UK retailers, your order will be fulfilled and shipped by OVL direct.

Hence, when the supply chain breaks, there is no stock reserve, and all the retailers have nothing to sell.

First Light Optics in Exeter have released the following statement:

*"Demand for astronomy equipment is **very** high. Higher even than Christmas! China has reopened, but their manufacturers are struggling with high demand, materials shortages and reduced shipping channels. A perfect storm!"*

Keeping our website stock availability indicators up-to-date and our customers informed during these extraordinary times is difficult. Often a manufacturer or distributor is unable to provide an ETA. The situation can also change overnight if a shipment is cancelled, delayed or contains less stock than anticipated.

In an attempt to stay on top of the situation we are working overtime and have employed more people in our warehouse, helpdesk and workshop.

We predict China will need 6-12 months to catch up so please be patient and know we are doing our best to make stock available.

On a positive note, interest in astronomy is at an all-time high and FLO has never been in such good health with more stock and more staff than any other UK astronomy retailer."

So, it is a frustrating time, both for those waiting to buy their first telescope, and those looking to upgrade or buy accessories alike. With a 6-12 month recovery period, and a queue of impatient customers, it looks unlikely that suppliers will be able to meet demand for at least a year, or maybe longer.

Speculation about the effect this may have on the second-hand market is rife. As I see it, there are two likely impacts: a possible flood of equipment for sale by those caught up in Lockdown astronomy fever, who bought their telescopes early on before the supply chain broke, and who have since lost interest or don't have time now that they have to resume their normal working lives; and/or possibly a reduction of the normal churn rate caused by people upgrading. Most frequently the reason for selling second-hand telescopes is to upgrade, but if there are no supplies of new telescopes, people will be reluctant to sell what they have.

And so, we are forced into a similar situation to how it was back in the 1970s and 1980s, when there just weren't many telescopes on the market, and we find ourselves making-do, and mending what we have. Perhaps some people will realise that what they have is actually good *enough*, so they will stick with it in future. I for one though, am glad that I have exactly what I need, though it took me many years to reach that goal.

An interesting development though – I have recently discovered that *The Widescreen Centre* - <https://www.widescreen-centre.co.uk/> somehow has a stock of some *SkyWatcher* products, and in fact I was able to order a mount-head that I needed urgently. They do not have live stock levels on their website, so it is best to email them to check that they have what you're after before you order it. Whilst they are a little more expensive than other retailers, they deliver *very* quickly, and I had my order the next day!

Equipment Review: SkyWatcher® AZ5 Mount - Stephen



Notwithstanding the impossible odds of buying *SkyWatcher*® products anywhere at the moment, I was lucky enough to find this mount in stock at *The Widescreen Centre*, and thought I'd better snap it up quickly before anyone else did. It duly arrived the next day!

I had opted to buy the mount head only – this mount is also supplied with *SkyWatcher's* *AZ Pronto* tripod, one of which I already have, and use with the smaller lightweight *AZ Pronto* mount head. But I have to say that this tripod was going to be far too flimsy for the telescope that I was planning to mount. So, I have fitted the AZ5 head to the more robust tripod from my old EQ3. Be warned, though – these mount heads are

fitted with a 3/8" mounting bolt, which is not compatible with most Equatorial mount bolts, so I had

to do a bit of deft retro-engineering to marry the two together. The complete package of mount and tripod will set you back a whopping £249, while the mount head on its own costs just £175. This sounds expensive, but in recent years quality Alt-Az (Altitude-azimuth) mounts had become difficult to find, with most manufacturers opting to supply telescopes on Equatorial (EQ) mounts instead. I can't help thinking that this is a value-added component, because with an EQ mount it *looks* as though you are getting a lot more for your money. But there is also the fact that an EQ mount can be retrofitted with motor drives, which appeals to the astro-imaging sector of the market.

However – as good as EQ mounts are, they are also heavy and awkward to use, and not at all suitable for grab-and-go use in the field. Manufacturers like *SkyWatcher* though, now seem to be responding to the growing demand for such grab-and-go mounts, and in their *AZ Pronto* and *AZ5* series, have produced two very good quality mounts.

The *AZ5* has a payload capacity of 5Kg, compared to the *AZ Pronto*, which can only handle 2Kg. The telescope that I was planning to mount was my *SkyWatcher* 100/900mm ED Apo Refractor. I'm not sure how much this weighs when you factor in the big heavy 2" diagonal and zoom eyepiece, but I think it is probably getting toward the payload limit of the *AZ5*. I have to say though, that I have had it mounted on the smaller *AZ Pronto*, and found it to be quite useable - I just worry about the mount bolts failing under the weight.

The *AZ5* comes with an adjustable fork arm, so that it can be set up slanting backwards, as in the photo above, or in a more upright position for heavier telescopes. In the laid-back configuration it allows the telescope to point at Zenith, whereas in the more upright position it somewhat restricts the maximum elevation, but not by much. I'm not a fan of trying to observe objects near the Zenith, so I set mine in the more upright position (see photo below).

The *AZ5* is fitted with slow motion controls for both altitude and azimuth axes, and the azimuth slow motion has a full 360° range. I found the controls a little clunky and very sensitive, unlike those on the *AZ Pronto*, which are silky smooth in operation. Also, they are just knobs, rather than cable controls as on the *AZ Pronto*, so you sometimes need long arms to reach them. Slow motion controls are vital for successful use of an alt-az mount in astronomy, and several others on the market do not have them, which just makes for a thoroughly frustrating observing experience.





On mounting the big telescope then, the mount felt firm and stable. This is a long and heavy telescope, with a heavy objective glass at one end and 2" diagonal and zoom eyepiece at the other, so most of the weight is distributed at the extremities of the tube. It was noted that the altitude clutch of the AZ5 is rather weak, so balancing the telescope is vital. If left unbalanced, the heavy end will overpower the clutch and tip like a seesaw. Once the tube is balanced correctly though, the altitude clutch is adequate.

It was also noted that, on knocking the telescope tube, it wobbled somewhat. However, this quickly dampened itself out, and on first use in live observing it was found that this was not at all an issue. It was quite possible to use the focus control without any discernable wobble. Successful observations were made of M42 (Ori), M45 (Tau) and the Perseus Double Cluster. The mount performed well, and the slow-motion tracking controls were found to be quite adequate despite my initial reservations.

Overall, the mount is adequate in all respects, though I wouldn't want to chance mounting a heavier telescope on it.

The purpose of this whole exercise was to ready this telescope for use in the field when we return to community observing, and I am confident that it will prove to be quite manageable, being easily transportable, light enough to carry out into the field, and quick to set up and take down. I am very much looking forward to being able to use it from Ranmore and Warren Farm, under darker skies than at home, and to sharing with fellow members, the stunning views that this telescope delivers.

Up Next:

NEXT MEETING: 8pm Friday 9 April 2021 - Virtual meeting via Zoom

Owen Brazell will talk about Observing Galaxy Clusters.

Ron Canham will also deliver his Sky at Night presentation for the month to come.

NEXT USER GROUP:

Suspended until further notice.

NEXT DENBIES OBSERVING SESSION:

Suspended until further notice.

AD HOC OBSERVING AT WARREN FARM:

Suspended until further notice.