



March 2021 EDITION

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Editorial

Welcome to the March edition of Janus.

I'm delighted to say that, thanks to a bumper collection of contributions, there's plenty to read. My thanks to Gary and Stephen especially. Hopefully there's something for all tastes, whether you like to read about people's observations or their recollections of events past.

Mars was the focus of much interest in February - not so much from an observing perspective as from an exploration perspective. No less than 3 missions arrived at Mars during the month. The United Emirates' Hope orbiter successfully entered Mars orbit on 9th February, China's Tianwen-1 orbiter and rover successfully entered orbit on 10th February, and NASA's Perseverance successfully landed in Jezero crater on 18th February.

The Tianwen-1 rover is still attached to the orbiter and will not land on Mars until May or June. NASA's Perseverance rover will collect samples that will be returned to Earth in 2031. Getting them back successfully will require a good deal of patience, not to mention the most ambitious Mars missions in history and sustained public support!

As Stephen reports later, we had another successful virtual meeting in February. The March, April and May meetings will certainly also be virtual, and I suspect it may well be September before there is any real prospect of a physical meeting.

Finally, don't forget the Society's social media sites, which are always worth a look.

John



The Solar System March

MERCURY: begins the month emerging into the morning sky as it approaches greatest elongation. It is not observable, reaching its highest point in the sky during daytime and being no higher than 1° above the horizon at dawn. By the end of the month, it will soon pass behind the Sun, but remains not observable – it will reach its highest point in the sky during daytime and is 2° below the horizon at dawn.

VENUS: begins the month not readily observable since it is very close to the Sun, at a separation of only 6° from it. By the end of the month, having recently passed behind the Sun at superior solar conjunction, it remains not readily observable since it is very close to the Sun, at a separation of only 1° from it.

MARS: is currently an early evening object, now receding into twilight. It begins the month becoming accessible around 18:22 UT as the dusk sky fades, 56° above the SW horizon. It will continue to be observable until around 01:07, when it sinks towards the horizon before setting. By the end of the month, it becomes visible around 19:19 as the dusk sky fades, 46° above the W horizon. It will then sink towards the horizon, before setting at 00:46.

JUPITER: recently passed behind the Sun at solar conjunction. At the beginning of the month, it is not observable, reaching its highest point in the sky during daytime and being no higher than 2° above the horizon at dawn. It remains unobservable at the end of the month, reaching its highest point in the sky during daytime and being no higher than 7° above the horizon at dawn.

SATURN: also recently passed behind the Sun at solar conjunction. At the beginning of the month, it is not observable, reaching its highest point in the sky during daytime and being no higher than 2° above the horizon at

dawn. By the end of the month, it remains not observable, reaching its highest point in the sky during daytime and being no higher than 7° above the horizon at dawn.

URANUS: will soon pass behind the sun at solar conjunction. It begins the month visible from around 18:56 UT as the dusk sky fades, 36° above the SW horizon, and will then sink towards the horizon, setting at 22:57. By the end of the month, it will not be visible as it will reach its highest point in the sky during daytime and be no higher than 11° above the horizon at dusk.

NEPTUNE: begins the month approaching solar conjunction and is not readily observable since it is very close to the Sun, at a separation of only 9° from it. By the end of the month, having recently passed behind the Sun at solar conjunction, it remains not readily observable since it is still very close to the Sun, at a separation of only 19° from it.

MOON PHASES:

Full Moon	27 February
Last Quarter	6 March
New Moon	13 March
First Quarter	21 March
Full Moon	28 March

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>

9 Mar: Conjunction of Moon and Saturn
10 Mar: Conjunction of Moon and Jupiter
19 Mar: Conjunction of Moon and Mars
26 Mar: Venus at greatest brightness

Collected Observations (and thoughts) – Gary Walker

Latest Observations - 10 Feb

On the first clear night for ages, (10th February) I went out on a bitterly cold night, with snow on the ground!

Every year The Countryside Charity, or CPRE, asks people to count how many naked eye stars can be seen within the constellation of Orion. The objective of this exercise is to assess how dark the UK skies

are, and how much light pollution there is! All stars, within Orion, including the "Belt" and "Sword", are included in the count, but not the 4 corner stars of Orion (i.e. Betelgeuse, Bellatrix, Rigel, etc).

The CPRE relates the number of visible stars to the state of your local sky in the following way:

- 0-5 stars - very severe light pollution
- 6-10 stars - severe light pollution
- 11-20 stars - some light pollution
- 21-25 stars - fairly dark skies
- 26-30 stars - dark skies
- 30+ stars - truly dark skies

Well, in my count, I saw a total of 15 stars (including the Orion Nebula, M42). That means that my sky has "some light pollution".

Last year, I saw between 16 and 21 stars, so my sky may border on suffering some light pollution and having fairly dark skies!

In the Autumn, a similar count of naked eye stars can be counted within the Square of Pegasus. My limiting magnitude is about 5.5.

I saw that Mars was still bright, but only a bit brighter than Aldebaran. It was now very small in size, even at 333X. It was now only 7.3' arcseconds in size, which is very small (only about twice the size of Uranus!).

I saw that Betelgeuse was significantly brighter than Bellatrix, (last year it was actually fainter, during its weird fading), and about the same magnitude as Rigel.

I tried again for the "Pup", or Sirius B but, once again, I could not see it! The bright glare of Sirius just obliterates it, although, if it was widely separated from Sirius, it would be (ironically) easy to see, as it is only magnitude 8! But because of its extreme proximity to Sirius, it is a notoriously difficult object to see.

How Dark is my Night Sky? - 11 Feb

My night sky must classify on the Bortle Scale at No 6, as a "bright suburban sky" or, at best, a "suburban sky" (No 5).

The Milky Way, in the Summer months is faintly visible, overhead. However, if you are lucky enough to experience No 1, on this Scale, you could see stars down to

magnitude 8 (officially, the faintest star visible to the naked eye is usually classified as magnitude 6). I would expect people in a No 1 area to actually be able to see Neptune with the naked eye, as it is magnitude 7.7! Anywhere else, it needs binoculars, to be seen.

At the other end of the scale, in the lowest Bortle Class (No9 - an inner-city sky), you could only see stars down to Magnitude 4.

Maurice Gavin - 12 Feb

I saw in the February issue of "Astronomy Now" magazine on page 75, in an article on Zeta Cancri, a triple star in the constellation of Cancer, there are two sketches of this system, one of them, by the "late, great, Maurice Gavin". It also said that he was "a pioneering imager and observer"!

My First EAS Zoom Meeting - 12 Feb

12th February was a milestone for me - I "attended" my first ever Zoom meeting with this Society!

After a few mistakes, I managed to join the "meeting", and I could see some of the participants (4 on my screen at any one time).

Anita King "chaired" the session as usual. The Speaker was Mike Leggitt, who spoke about the search for extra-terrestrial life in the Universe.

After his lecture, there were a few questions but, unfortunately, we didn't have the usual tea break. Somebody needs to invent a virtual tea break!

Ron Johnson then presented his annual analysis of the weather in 2020. Not surprisingly, the months of March, April, and May had a high number of clear nights, which reflected the freakishly long and clear, sunny period, that started just after the start of Lockdown No 1.

The "meeting" lasted for 2 hours - about the same as a normal meeting - and, in all, 30 people were "present". It was pleasing to note that there were no real computer glitches.

Of course, the Society has been doing Zoom meetings since last October, but I didn't know how to get onto them, then! Since that time, they have become "The New Normal".

Latest Observations - 16 Feb

On 16th February, I checked up on two variable stars. Mira was now about magnitude 8 (thus, near its minimum), and R Lepus, was probably about the same magnitude. However, R Lepus appeared orange in colour and not the beautiful pink/red colour that I have seen it, when it is at minimum.

When I was looking for a faint deep sky object, I saw an area of fuzz in the field of view, but I quickly realised that it wasn't real - it was just the reflection of light from a bright crescent Moon! I have been caught out by this before, when something like a house light, creates an area of fuzz in the field of view, thus masquerading as a galaxy, or comet, so care is needed to determine whether an area of fuzz, is genuine.

Mars was slightly brighter than Aldeberan, and about the same magnitude as Betelgeuse. At this time, the two orange stars of Betelgeuse and Aldeberan, were lined up with Mars, to the West of them, in a virtually straight line. Mars was now really too far away for serious observations, at less than 7' arcseconds in size, and now 4 months past opposition.

Mars Perseverance Lander - 19 Feb

On 18th February, I "watched" the approach to, and landing on, Mars by the Perseverance Lander. The event was streamed on Nasa TV, and I watched it on my iPhone. The first picture of the lander on the surface of Mars appeared within a few minutes.

I was pleasantly surprised at how much coverage the media gave it. On the next day, most of the national newspapers had the first surface image of Mars on their front pages! It was almost like when the first Moon landing of Apollo 11 took place, and all the papers had the blurry image of the Lander on the Moon, on their front pages.

A similar phenomenon took place on the day after the 11th August 1999 Total Solar Eclipse where all the newspapers had an image of

the totally eclipsed sun on their front pages, which gave a weird effect in newsagents, of so many "eyes".

Also, when the first ever image of a Black Hole in M87 was produced, it also made the front pages of many of the national newspapers. It is always a pleasant surprise when this happens, as usually any scientific events end up buried deep in the newspapers, or else come up as the "and finally" item that always comes at the end of the News! And then, it is often "a blink, and you'll miss it" piece!

The Solar Eclipse of 25 February 1971 - 50 years on

I am writing this post exactly 50 years after seeing my first Solar Eclipse, which took place on 25th February 1971, on a Thursday!

Despite still being winter, it was sunny, with only a few clouds. I was only 9 years old at the time, and half-way through my second year at Banstead Junior School. As it was a school day, I was seeing this eclipse at first break. To try and avoid sun damage, I glanced at the Sun out of the corner of my eye and could see it as a crescent. In my distant memory, I think that the sky was slightly darkened, such that it appeared like it was early morning. The sun was a magnitude 0.66% eclipsed, so it was, indeed, fairly large for a partial solar eclipse.

By this time, I had been interested in Astronomy for a year or two - at least since the start of the Apollo Moon Landings! Indeed, by this date, Apollo 14 had just been to the Moon, from late January to early February, and Apollo 15 was to go, in July 1971.

After seeing this eclipse, I had to wait over 5 years to see another on 29th April 1976, despite the fact that from 1971-76 there were a total of no less than 5 partial eclipses visible from the UK! This was usually (and inevitably) due to poor weather!

It is unusual to get so many eclipses in such a short period of time - in the early '70's there was an eclipse, on average, every year and a half. Usually, eclipses are about two and a half to three years apart, but it can be much longer - there was a 10-year gap between 1984 and 1994. More recently, eclipses have

remained few and far between, with the last decent one in 2015, and a tiny one in 2017, and both of them were obscured! Happily, there is one this year on 10th June, so let's hope that the weather is better this time. But, after this one, there is another 4-year gap until the next one in 2025!

Astronomy on the BBC News again! - 26 February

On the 6pm BBC News on 26th February, the last item on the London News was about the Full Moon, and they were making much of it being called the Snow Moon.

They were also saying about a close conjunction of Jupiter, Saturn, and Mercury, low in the dawn sky, on the following morning, although I don't think that that would be easy to see! The reporter was outside Greenwich Observatory - a good place for visuals. As it was, for once, a clear and cloudless evening, it meant that the Full Moon could be shown live on TV. I saw it myself, and it did make a beautiful sight, even though it was creating awful light pollution!

I looked at the limb of the Moon and could see the edges of the Mare Orientale feature. It appeared as a series of several dark parallel bands. If only this feature was properly on our side of the moon, it would appear spectacular, with its concentric system of rings, like a bullseye, but as it is really on the far side, we can only see it as an extremely foreshortened feature, occasionally, due to the libration of the moon. Due to this phenomenon, one has the bizarre fact that instead of 50% of the moon being visible, we can actually see 59% of the moon (although not all at the same time, but rather over a period of time).

A few sunspots were visible this week on the Sun, and a number of good and complex prominences.

Mars was now at about the same magnitude as Aldebaran. I couldn't definitely see any features on Mars, even at 333X, as it is now so small at only 6.5' arcseconds in angular size.. The feature of Syrtis Major - the most prominent feature on Mars - was centred facing Earth but, even with that there, I still couldn't see it.

My first telescope

It was also just over 50 years ago, on Christmas Day 1970, that my Mum and Dad gave me my first ever telescope. It was a 40 X 40 telescope, which meant that it was a 40mm refractor, magnifying 40X. It was just like the one that Stephen wrote about in Janus, a few years ago.

Of course, it was only really good for observing the Moon. In those days, I still had great difficulty in recognising the constellations and planets! Unlike today, there were no monthly astronomical magazines freely available to tell you exactly what to see in the sky.

At a later date, I had my first view of Saturn through it and, although it appeared tiny, I could clearly see the rings (which were wide open at this time). I can't remember what else I looked at through it, apart from views over fields and neighbour's houses! However, I was thrilled when I unwrapped it under the Christmas tree as, up until then, I had thought that all telescopes had to be big. Also, of course, in those days, for a child, it was virtually impossible to get a big telescope. The price of a good telescope was, well.... astronomical! A 3" refractor, or a 6" reflector cost close to £50, which was well beyond me, or my parents. The only telescopes that were affordable were what are now known as "department store" scopes. I used to drool over these, what then seemed to be, giant scopes.

My parents bought me a 60mm refractor from "Dixons" in Sutton, in February 1975, for about £29.00! With this telescope, and my increasing level of astronomical knowledge, I was able to see more on the Moon, Jupiter, Saturn, Mars, and Venus, as well as some star clusters. Only in much later years was I able to get my 8"SCT.

I still have my 40 X 40 telescope but, sad to say, it is not in an ideal state for observing, due to an ill-founded attempt by me to disassemble the eyepiece and interior lenses in order to try and clean some annoying dust off them. The table-top tripod legs have mostly broken off too, due to childish wear and tear!

Astronomy 50 years ago

Astronomy was much simpler 50 years ago! At that time, we were still in the Apollo era, and observations of the Planets were still largely confined to those from Earth-based telescopes. Even the largest telescopes such as the Mount Palomar 200" scope could only produce photographs that showed the basic features of Mars, Jupiter, and Saturn. To modern eyes, especially when comparing them with even amateur images of the present day from 6-14" scopes, they appear quite crude and basic. This is because our atmosphere blurred the images, and "adaptive optics" or image stacking did not yet exist.

Indeed, the Solar System itself was much simpler than today, with only 9 planets. In those days, Pluto was deemed a planet and the Kuiper Belt, in which it resides, had not been discovered. Also, at that time, Jupiter had 12 moons, Saturn had 10, Uranus had 5, and Neptune had 2. Nowadays, the "body count" of moons, especially of Jupiter and Saturn, just keeps on rising. Even Pluto, which was just a dot in those days, is now known to have 5 moons, itself!

Admittedly, fly-bys of Venus and Mars had taken place by this time, but the Mariner probes had only shown us the least interesting parts of Mars, covered with craters. The probes to the outer solar system had not yet even been launched, so Jupiter was only passed by Pioneers 10 and 11 in 1973 and 1974, respectively.

From the late 1970's onwards, space probes have proved to be the best part of Astronomy. Now, every planet has been visited and some, such as Mars, Venus, and Titan, the largest moon of Saturn, have even been landed upon.

Possible life-supporting areas in our solar system have been theorised, in very unlikely places, such as Europa, Enceladus, with a strong possibility of subterranean oceans there, and even, perhaps, on Pluto, too. Of course, these outer moons were long thought to be dead and frozen, where nothing ever happens but now, geological processes have been seen occurring there and, often, recent processes at that!

In 1971, planets around stars had, of course, been theorised, but none had been seen. Now, over 2000 "exoplanets" have been confirmed, and some have even been imaged. Astronomers also have a good idea of the conditions on other planets, and have even reconstructed other solar systems, with the Trappist and Kepler telescopes.

The nature of Quasars was unknown 50 years ago, and no black holes had, definitely,

been discovered. Now, we can observe them and even image them, as in the case of the one in the galaxy of M87!

Thus, in the 50 years that separate us from 1971, the expansion of astronomical observations and knowledge has exceeded any possible expectations!

February Meeting Report - Stephen



At our February Zoom meeting, we were fortunate to have Dr Mike Leggett FRAS FBIS who delivered a captivating talk on *The Search of Extra-terrestrial Intelligence (SETI)*. Dr Leggett provided us with a definition of extra-terrestrial intelligence and the history of the search for it, including the likelihood, chemical and biological requirements for extra-terrestrial life to evolve, and an overview of some of the search projects and their results. He asked us to consider the implications of discovering intelligent extra-terrestrials, or them discovering us, and the ethics of making contact. Overwhelmingly, it would seem that SETI is no longer considered a "fringe" discipline but has rather become a credible and central aspect of modern space exploration.

Unfortunately, my laptop crashed at about 21:30, and I wasn't able to recover it, so I missed the rest of the meeting, but the speaker was still in full swing at that time, making his probably one of the longest talks that we have had at an EAS meeting in quite some time.

I understand that Ron Johnson also gave a presentation on the weather on 2020, and Ron Canham gave his usual sky update, and we are of course very grateful to both for these.

Extra-Terrestrials – A Paradigm Shift in Attitudes - Stephen



During my 44 years of being an amateur astronomer, I have watched with interest, how dramatically the scientific attitude toward extra-terrestrials has changed. When I first started out, any discussion of ET in astronomy circles was met with snorts of derision. We weren't even sure that there were any other stars with orbiting planets. The feeling was very much that there were no aliens, and probably ours was the only planet in the Universe that supported intelligent life.

Aliens and contact with them was entirely the stuff of science fiction, and UFOs were simply that – objects in the sky that to date were unidentified – *not* extra-terrestrial space craft!

Then we began to discover evidence of exo-planets. But still the thinking was that these were probably rare, and that the chances of finding an Earth analogue that existed within the habitable zone of its parent star were remote.

However, as time went on, and technologies improved, we began to find an embarrassing number of exo-planets, a few of which seemed to be candidates for supporting life. In fact, we discovered that exo-planets were so common in the Milky Way galaxy, that it was actually highly *unlikely* that the Universe was devoid of extra-terrestrial life.

Not long before this, a number of science fiction films began to emerge, starting with *Close Encounters of the Third Kind* and *ET*, and it almost felt as though we were being conditioned to start thinking about the possibility of extra-terrestrial intelligence as being real. Discovery of an extra-terrestrial civilisation would likely have a profound impact of Humanity, and so there might be a need to drip-feed the idea, in order to soften the blow.

With the release of *Independence Day*, it seemed that we were being prepared for the very real possibility that these extra-terrestrials might be hostile, and that if they visited Earth with their advanced technology, we would have absolutely no means of defending ourselves. *Alien* and *Predator* further enforced this message. I think that up to that point, those who believed in the existence of aliens just assumed that an advanced species would be ancient and benevolent beings, who would come and teach us the secrets of their technology and knowledge, but with the roughly 50% possibility that they might actually be hostile, the idea of contact perhaps became less desirable.

The trouble is, that Earth has been pumping radio signals into the sky for about 60 years. That means that so far, those signals have travelled about 60 light years into space. There's nothing we can do to silence them now – even if we stopped all broadcasts tomorrow – eventually the last 60

years' worth of signals will reach an inhabited world. Think for a moment about the content of some of those signals, and the impression they might leave on an alien recipient...

Stephen Hawking once remarked that if there are indeed aliens, we had better hope that we find them before they find us!

Anyway – I digress. So, once we started to find literally hundreds of exo-planets there was the first paradigm shift in “official” attitudes. Suddenly, we were confronted with loads of potential candidate planets that lay within the habitable zones of their parent stars, and so the search began in earnest for chemical signatures that might indicate their suitability for supporting life – Water and Oxygen. Indeed, we were also now scouring our own solar system for these things, despite the decades in which scientists stated adamantly that Earth was the only planet in our solar system capable of supporting life. But still the expectation was not much more than microbial life, both within and outside our solar system.

Nonetheless, scientists were now seriously looking for signs to indicate the possibility of extra-terrestrial life. This was a landmark moment because, let us remind ourselves that; we were now considering the possibility of extra-terrestrial *life*, rather than just conditions that might support it - which had been vehemently denied for decades previously.

By late 2020 we were aware of 45 exo-planets with Earth-like atmospheres, and liquid water, and we were finding evidence of water ice on the Moon. On Mars we were looking for fossil evidence of ancient life, and there was talk of the possibility of life actually still being present in certain locations on the planet. We were also looking at Jupiter and Saturn's satellites as possible candidates for supporting life.

Now that we had discovered that Earth is probably not unique in its ability to support life, a second paradigm shift occurred. No longer were we just looking for inhabitable planets – we knew they existed – now we were actively looking for evidence of alien activity and even industry. A search had now begun for infra-red and other signatures that could indicate the presence of advanced alien technologies and industrial activity!

Just think about that for a moment – in the space of 40-odd years, we have gone from “there are no aliens” to “we’re looking for signs of alien industrial activity”!

But the big question for me, is would we recognise intelligent life if we saw it? We have consistently based our search on what we *know* and are familiar with. There are biological justifications for the assumption that intelligent aliens would likely be basically humanoid, but this is by no means a certainty. Similarly, if they sent us a signal of some kind, would we even recognise that? We can run evolutionary models to determine what alien life-forms might be like, but these are all based on the physics and chemistry that we *know*, and let's face it; in recent years the Universe has surprised us with its ability to behave in ways that physics thought were impossible!

We also think of *ourselves* as “intelligent”, and from this we make assumptions that an alien civilisation would notice, or even be interested in our existence. For all we know, we are a very primitive species, perhaps widely known about, but designated a “developing world”, and therefore surrounded by an exclusion zone, with fleets of diverse extra-terrestrial space traffic giving us a wide berth so as not to impact on our development. But also, we might be relatively so primitive as to be all but invisible to a more advanced civilisation. The joke may be on us – we may be a planet of primitive primates, obviously surrounded by a galaxy that is teeming with advanced intelligent life-forms.

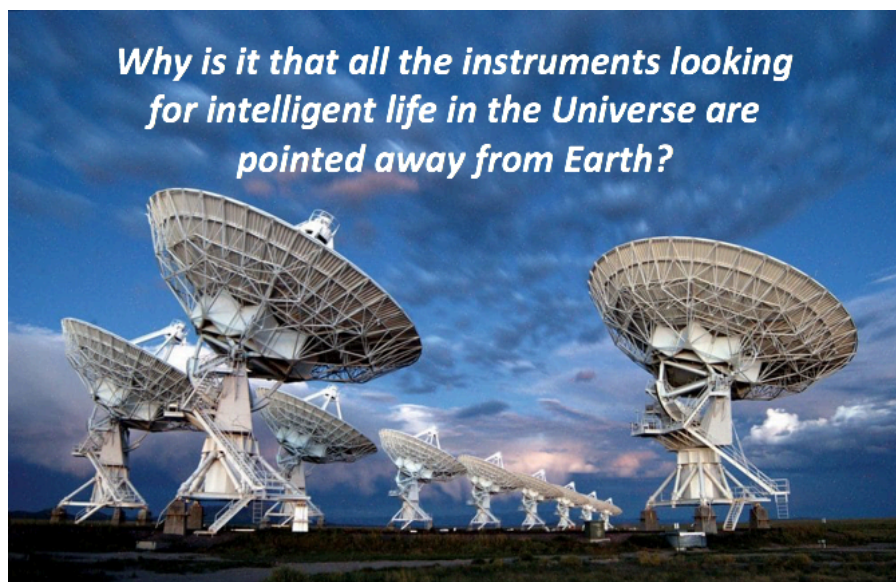
But the official and scientific premise has consistently been that we are absolutely *not* being visited by aliens. Here however, a third paradigm shift has happened. In 2017 a very odd object passed through our solar system. *Oumuamua* (official designation 1I/2017 U1 - the "I" is for "interstellar") was identified in 2017 as an interstellar asteroid, not in orbit around the Sun like a regular asteroid, but instead just "passing through".

Everything about Oumuamua was wrong. Its shape was unusual, being a very elongated cigar shape, its course brought it relatively close to the Sun, but it exhibited no coma or out-gassing, and it also demonstrated non-gravitational acceleration. These factors, though potentially explainable, have led some to believe that the object might actually have been an alien probe. From Earth we were only able to see it as a dot of light in the sky through telescopes, so we couldn't make a definitive visual identification of exactly what it was.

Avi Loeb, chair of Harvard's Department of Astronomy made the news when he claimed in his book *Extraterrestrial: The First Sign of Intelligent Life Beyond Earth*, that Oumuamua could have been an extra-terrestrial probe, and that its discovery should open our minds to "*search for evidence rather than assume that everything we see in the sky must be rocks*". Although this sparked a fierce response from the scientific community, along with undeniable scientific explanations for the object's unusual behaviour, it represents the third paradigm shift – a respected scientist acknowledging the possibility that we may be visited by extra-terrestrials.

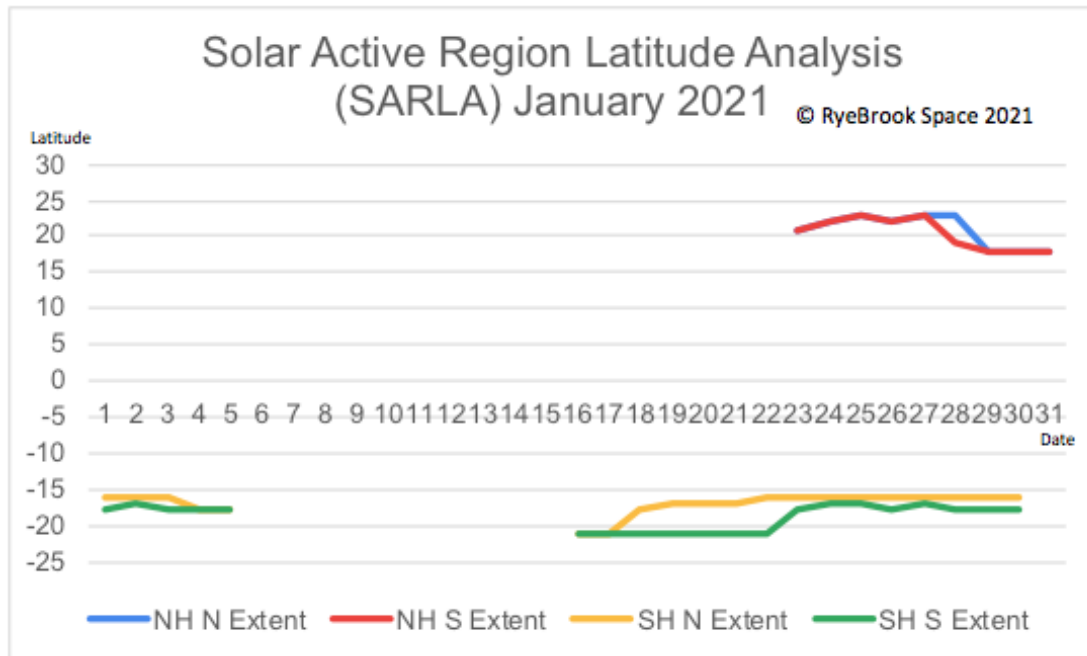
Whatever you think about Oumuamua, or extra-terrestrials, UFOs or the potential for intelligent life to exist out there; what cannot be denied is the overwhelming change in Human attitudes to these things. Anecdotally, nearly everyone that I speak to outside the astronomy community now, seems to just accept that of course there must be extra-terrestrials out there, whatever science says. It stands to reason - they will tell you – with the sheer number of stars and planets out there; of course, there is intelligent life. Just look at the Hubble Deep Field Image, and realise how many *galaxies* there are, each containing hundreds of millions of stars...

The fact is that the scientific community and its endeavours, now hold the search for *intelligent* extra-terrestrial life as a central aspect of space exploration. Previously astronomers looked up into the starry sky and saw only physics. Now they are increasingly being forced to look up and see the potential for biology and our place within the wider Universe. As well as pondering the physics, chemistry and biology that could answer the question of whether intelligent extra-terrestrials exist, perhaps we need to look closer to home, and ask ourselves some deeper questions, such as *are we as a species, yet ready to meet them?*

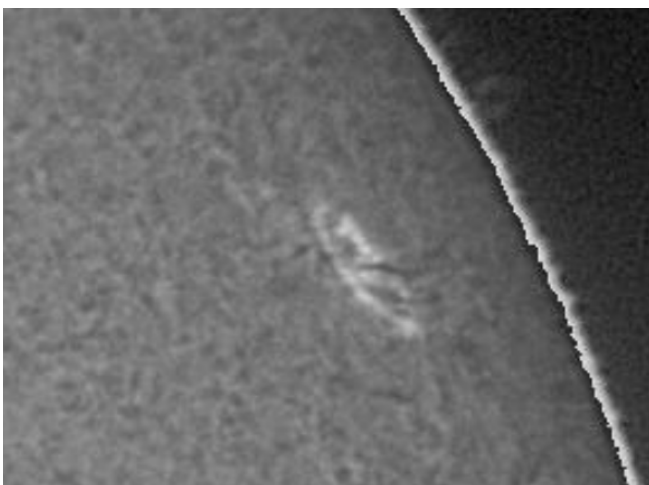


January 2021 Solar Activity Report - Stephen

In my last report I said that solar activity was ramping-up much quicker than expected for this stage of the new activity cycle (Cycle 25). Well, this month - as I suspected might happen - I have to eat my own words, because activity levels have dropped to a far more typical level for the early cycle stage.



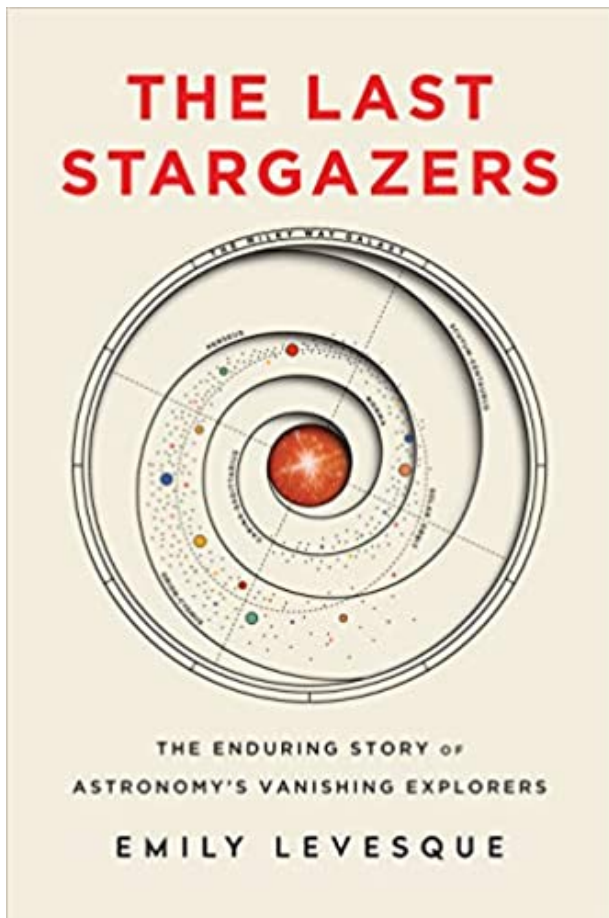
Looking at the distribution of active regions by latitude then, we first notice a period of 9 days when there were no active regions at all, and that there were a total of 22 days when activity was absent from the northern hemisphere. Once again, a North/South hemisphere asymmetry is seen, which was also a characteristic of the solar cycle change-over from Cycle 24 to Cycle 25. It does appear from the chart that there is a slight migration of activity toward somewhat lower latitudes around the end of the month, but at this stage of the new cycle that is unlikely to be an overall trend. It is also noted that the latitudinal band in which activity is occurring in both hemispheres is generally quite narrow.



I think the most stunning image for me this month was this 25 January GONG Chile Hydrogen-alpha telescope image of AR2799, which is seen as an elliptical ring of markedly increased signal intensity near the NW limb. This is in keeping with active region plages and is noticeably foreshortened, so therefore likely to be more circular. Extending upward from the interior of the ring of plages, two dark strands of opacity are seen, that likely represent magnetic canopy features.

Daily observations continue, using online realtime images from NASA's *Solar Dynamics Observatory*, and the *GONG H-alpha Network*. If you want to learn more about making online solar observations, do please get in touch with me at: ewellastro.engagement@gmail.com

Book Review – The Last Stargazers by Emily Levesque



Author [Emily Levesque](#)
Publisher Sourcebooks, Inc., 2020
ISBN 1492681083, 9781492681083
Length 336 pages

This book is an absolute must for anyone who is curious about what it is like to be a professional astronomer – or more accurately – what it *used* to be like. The author charts her experiences in becoming a professional astronomer, observing at some of the World's biggest telescopes in a fascinating, candid and sometimes downright hilarious narrative of the life of the professional observational astronomer. But she also goes on to explain how things are changing – how astronomers no longer work from observatories at remote locations, and rarely – if ever – go anywhere near telescopes. She describes how modern technology has led to fully automated robotic telescopes, and how the modern professional astronomer does most of their work from their office, or just as often from their own kitchen table. She describes how nightshifts in the observatory are no longer, and how these robotic telescopes now autonomously gather data during the night, while the astronomer sleeps soundly in their own bed, before waking in the

morning to find the data waiting for them in their email in-box.

More than anything for me, this book brought into stark contrast, the difference between what we do as amateurs, and what professional astronomers now do, and there really is no comparison, even for amateurs who do serious research. Professional astronomers trawl data, and extract science from those data, that they use to answer specific scientific questions about the Universe. We amateurs on the other hand, are out there at night, actually *using* telescopes, and making observations, whether we do anything with those observations or not. Sitting at a computer trawling data or standing out in the cold darkness actually *seeing* the wonders of the Universe first-hand, through a telescope – I know which I would rather do. This book is a delight to read, but it highlights the now total disconnect between professional and amateur astronomy.

All of this leads me to question whether we should even be calling ourselves astronomers anymore. By calling ourselves “amateur astronomers”, we are literally implying that we do the same things as professional astronomers, but without pay; and that simply is not the case anymore. We are, in the cold light of day, simply *Stargazers*, and I for one, am happy to embrace that.

Up Next:

**NEXT MEETING: 8pm Friday 12 March
2021 - Virtual meeting via Zoom**

*Professor Ian Morison will talk about
Astroimaging with a DSLR or mirrorless
camera.*

*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.