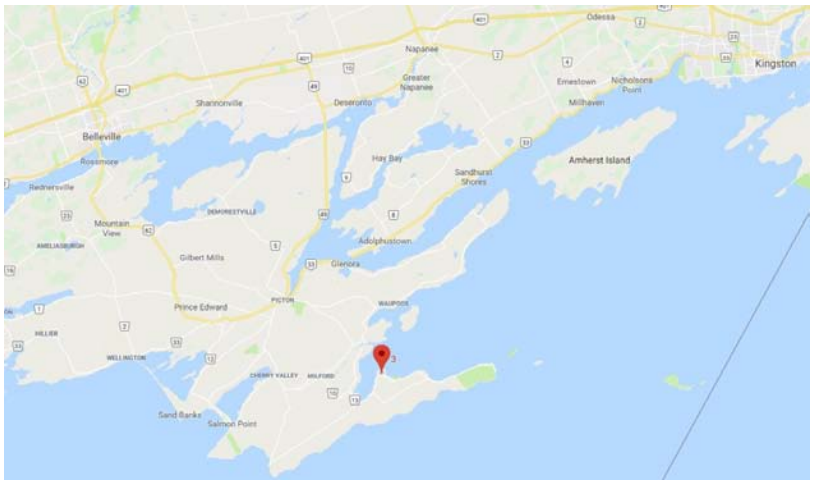
Regulus 2022 March

Newsletter of The Royal Astronomical Society of Canada - Kingston Centre
kingston.rasc.ca

Fall'N'Stars 2021

Breaking News
Fall'N'Stars 2022 is a go!
Starfest 2022 is a go!

Fall'n'Stars 2022, September 23, 24,25
RASC Belleville and Kingston Centres host:
Prince Edward County site at Johnson's RV Park on South Bay (see details further inside)



Starfest August 25 – 28
North York Astronomical Association host:
The River Place Campground outside of Mount Forest Ontario (see https://www.nyaa.ca/ for details)

MEETINGS

RASC-KC Wednesday Weekly Social videoconference. 7pm Eastern all weeks except the 2nd Wednesday of the month. For members and their guests. Email list subscribers receive the link weekly 1 or 2 days beforehand.
Next Socials:
Wed 2022 March 03 & 16

RASC-KC Regular Monthly Meeting - Wednesday 2022 March 09 at 19:00 EST
A virtual Zoom videoconference.
Guest Speaker: Marcus Leech (RASC Ottawa) "Hunting FRBs on a budget: The SIFT telescope"

Members will be emailed a zoom registration link, others may watch on our youtube channel.

In the March Issue

Editor: Kevin Kell

The President's Nook - Kim Hay

March has come in a bit snowy, so I am not sure this is the Lion entrance, so we will see w hat happens at month's end. Go outside and look at the Winter Circle, they are in the South/Southwest a beautiful sight.

Deep Sky and Galaxy observers are prepping for the Messier Marathon.

Time change on March 13 , 2022 propels us into the Daylight savings time. Less time for observing, but a step closer to warmer weather.

On February 19th, 2022 I had attended the RASC National Inclusivity & Diversity ZOOM meeting which was "To the Stars and Beyond: Celebrating Black History Month". It was a very interesting presentation with three presenters. Dr. Louise Edwards (On the St. Mary's University 48 cent stamp looking through the eyepiece). Dianea Phillips (Science Yourself! no G's About it!), and Dr. Kevin Hewitt Dept. of Physics & Atmospheric Science at Dalhouse University. They spoke on their research work in the fields of Astronomy, physics and education. One of the key aspects is start the children off at a young age to engage in STEM. Great programs throughout K-12 and University ages. If you wish to view this talk, it is on the RASCANADA YouTube Channel.

Plans are underway for the Frontenac Lennox and Addington Science Fair (March 28). Contact person is Bruce Elliot. Bruce is still looking for judges so he will be reaching out .We are planning along with Queen's University and RMC for Science Rendezvous which is being held in May so stary tuned for final plans. If all goes well we will be in person with telescopes for viewing.

Some members of the Centre attended two ZOOM sessions on Electronic Assisted Astronomy (EAA) the last full week of February. Lots of ideas. This is a tool that the Centre is investing time and $$ into for our outreach going further. If you are interested in being involved please contact kingston@rasc.ca Subject Line EAA.

March we will have Marcus Leech (RASC Ottawa Centre) who will be speaking on "Hunting FRB's on a budget, The SIFT telescope"

Until next time, clear skies and LOOK UP!

Skyward March 2022
- David H. Levy

Star Gazers
What crowd is this? What have we here? We must not pass it by;
A telescope upon its frame, and pointed to the sky…

- William Wordsworth, 1806

While I was working on my master's degree at Queen's University in Canada some 42 years ago, I came across this poem, loved it, and decided to include it in my thesis. Norman MacKenzie, my thesis advisor, a scholar and a genius, pencilled one comment at the bottom of this poem: "Wordsworth wrote some wretched verse." Norman did not have much of a sense of humour, but I am still laughing at his written comment.
In his poem, Wordsworth complains about how many people who look through a telescope are disappointed in what they see. At no point in time is that idea more cogent than now. If a telescope we look through cannot offer us a view as good as a space telescope, then that telescope is a failure.
By the end of the poem, the crowd abandons the telescope:

"One after one they take their turns, nor have I one espied
That doth not slackly go away, as if dissatisfied."

For me, the night sky is far more than our imagined perceptions of what we can see through a telescope. Some of us can look at an internet photograph all day long, but not I. The beauty of the sky lies in its reality. The planets I see are real worlds. The constellations I point out to young observers contain real stars. One evening I asked a group if they had seen the recent eclipse of the Moon. "Yes," answered one, "I saw it online." No, he didn't. Eclipses are real only if you see them in the sky, while they are happening.

It is a given that a back yard telescope will never show us Jupiter as detailed or as colorful as a telescope out in space will. What that telescope does show us is the genuine sky, a sky without artificial color enhancement, a sky as it really exists on top of our heads on every clear night. It shows us a sky untarnished by the trivial events of the day, and unspoiled by petty concerns that are bothering us. Our own telescope truly shows us the Moon as it was a third of a second ago, a star as it appeared thirty-four years ago, or a galaxy as it appeared twelve million years in the past. Our back yard telescope shows us what is there, and unlike the crowd from 1806 that left dissatisfied, the people of today can understand that the sky they see is real.

The Royal Astronomical Society of Canada
RASC is a national, non-profit, charitable organization devoted to the advancement of astronomy and related sciences. Founded in 1868, The Royal Astronomical Society of Canada is Canada's leading astronomy organization, bringing together over 5,000 enthusiastic amateurs, educators, and professionals. In addition to many national services, our 30 Centres offer local programs across Canada.

The Royal Astronomical Society of Canada – Kingston Centre aka Kingston's Astronomy Club

We are Kingston's Astronomy Club, a local centre of the Royal Astronomical Society of Canada, founded on June 2nd, 1961. We hold monthly meetings, on the 2nd Wednesday of each month (September-June), via zoom videoconferencing and inperson before the pandemic and hopefully again soon in mid-late 2022, from 7:00-9:00pm Eastern Time

* We do public outreach programs in the form of helping the Cubs and Guides, teachers, Science Fairs and many public Education and Public Outreach events.

* We help out our members with questions in astronomy and equipment use, and hold private observing sessions, and also with Queen's University Observatory Open House, on the second Saturday of each month, at Ellis Hall, Queen's University (closed during the pandemic).

* We support the local FLA Science Fair with a prize in astronomy.
* We are here to answer your questions on astronomy.

Board of Directors 2022
President: Kim Hay
Treasurer: Susan Gagnon
Secretary: Elena Zanetti
Vice President: Laurie Graham
Editor: Kevin Kell
Librarian: Kim Hay
NCRep: John Hurley
Honourary President: David Levy

We are provincially incorporated as a not-for-profit corporation (September 2005) and are a registered Charity with Revenue Canada (September 2006), **CRA Registration #**827905720RR0001

Benefits of Membership to the RASC-Kingston Centre

RASC Central based benefits:
* annual print edition of the Observers Handbook
* bi-monthly digital edition of the RASC Journal
* monthly digital edition Bulletin of the RASC
* 6 issues of Skynews Magazine (paper)

Centre provided benefits:
* monthly Centre Newsletter – Regulus
* weekly social videoconference chat (members and guests only)
* monthly videoconference Meetings (open to the public)
* equipment loan program

JOIN US: https://kingston.rasc.ca/join

Upcoming Meetings

Wednesday, March 9, 2022 – 19:00 Regular Monthly Meeting-ZOOM videoconference
Guest Speaker: Marcus Leech (RASC Ottawa)
"Hunting FRBs on a budget: The SIFT telescope"

Wednesday, April 13, 2022 – 19:00 Regular Monthly Meeting-ZOOM videoconference
Guest Speaker: Peter Pekurar (RASC Sudbury)
Topic: TBA

Wednesday, May 11, 2022 – 19:00 Regular Monthly Meeting-ZOOM videoconference
Guest Speaker: Richard Schmude (RASC Kingston) Topic: TBA

Wednesday, June 08, 2022 – 19:00 Regular Monthly Meeting-ZOOM videoconference
Guest Speaker: TBA

July, August – summer hiatus – no regular monthly meetings

The Sky This Month 2022 March - Rick Wagner

02 Mar - Mercury (mag -0.1) 0.7º S of Saturn (mag 0.8) very low in the southeastern sky before sunrise - you may need binoculars to help pull them out of the bright twilight. Mars and much brighter Venus are 22º to their upper right, separated by about 5º.
02 Mar - New Moon 12:35EST
05 Mar - Jupiter in conjunction with Sun
06 Mar - Algol at minimum about 10PM
08 Mar – the waxing crescent Moon sits between the Pleiades and Hyades star clusters.
09 Mar - Algol at minimum about 18:30EST
10 Mar - First Quarter Moon
13 Mar - Daylight Saving Time begins 02:00EST
18 Mar - Full Moon 02:18EST
20 Mar - Venus at greatest elongation east - furthest distance east of the Sun in the southeastern dawn sky
20 Mar - Vernal Equinox 11:33EDT - spring begins in the northern hemisphere and we get roughly equal hours of day and night
22 Mar - for the next 10 days the zodiacal light will be visible in the west towards the end of evening twilight as a faint and hazy triangular pillar of light extending up and to the left from the western horizon
25 Mar - Last Quarter Moon
26 Mar - Earth Hour - 20:30-21:30EDT - turn off all your electrical items and go out and enjoy the sky!
28 Mar - Moon, Venus, Saturn, and Mars form a compact group in the southeast before sunrise
29 Mar - Venus 2º north of Saturn in the southeastern dawn sky
29 Mar - Algol at minimum about 21:00EDT

Librarian Report- Kim Hay

We received the following Donations from the estate of past member and Regulus Editor Joe Benderavage.

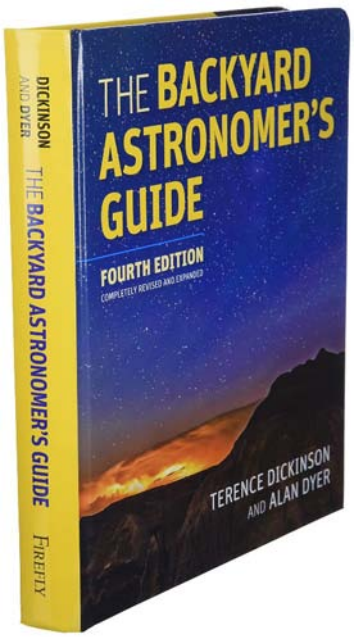
The Cosmic Perspective Third Edition
The Sun's Heartbeat And other stories from the life of the star that powers our planet
Cosmic Adventure Other secrets Beyond the Night Sky
Comets Creators and Destroyers
Five Billion years of Solitude The search for Life among the stars
The Hubble Atlas of Galaxies
Atlas of the Universe
Illustrated Star Maps - Wil Tirion
Hubble's Universe Greatest Discoveries and Latest Images
The Flammarion Book of Astronomy
First Man The life of Neil. A. Armstrong - The Authorized Biography
The Worlds of Galileo The inside story of the NASA's mission to Jupiter

Also member Dieter Brueckner donated to the Library the following list

The First Small Step Peterson's Book of Man in Space Vol.1
A New Environment Peterson's Book of Man in Space Vol.2
The Power & The Glory Peterson's Book of Man in Space Vol.3
A Giant Leap for Mankind Peterson's Book of Man in Space Vol.4
Beyond the Threshold Peterson's Book of Man in Space Vol.5
Pioneering The Space Frontier Report of the National Commission on Space Shuttle

I want to thank Lesley Donald and Dieter Brueckner for thinking of the RASC Kingston Centre for their kind donations, and hope our members will wish to take out a book for use. The only book on the list that will not be on loan is the The Flammarion Book of Astronomy. The Library list has been updated on the RASC Kingston Centre website.

The Astronomer's Bookshelf – Andrew Godefroy



Terence Dickinson and Alan Dyer. *The Backyard Astronomer's Guide.* 4th Ed. Richmond Hill: Firefly Books, 2021. Illus. 416pp. ISBN 978-0-2281-0327-1. CDN$49.95.

Reviewed by Andrew B. Godefroy

Effectively a novice returning to amateur astronomy after a lengthy hiatus, I am actively on the lookout for up-to-date references for my library. For many years a staple on my shelf was Terence Dickinson's *Nightwatch: A Practical Guide to Viewing the Universe* (also in its fourth edition). While it was a great introduction to the hobby, having consumed it a several times over I was eventually looking for something more detailed that would continue to enlighten without drowning me in too much complexity too quickly.

Dickinson's companion work co-authored with Alan Dyer, *The Backyard Astronomer's Guide,* provides that logical next step for beginners and intermediates familiar with *Nightwatch*. First published in 1991 and now in its own fourth edition, this venerable companion to *Nightwatch* continues to offer much for both the novice and experienced observers alike.

Divided into four main sections – Getting Started, Choosing and Using a Telescope, The Telescopic Universe, and Capturing the Cosmos – the authors have restructured this latest edition into an easy to navigate layout taking one from naked eye observing to using binoculars, then on to telescopes and then finally astrophotography. The underlying message here is to not try and do too much too quickly. Rather, the goal is to ease oneself into the hobby, and by doing so, get the most out of it. Many enthusiasts will jump into amateur astronomy with the ambition of capturing stunning photos of nebulae and galaxies straight away, and just as many tend to quickly leave the hobby once they realize how much knowledge and hard work is involved to first learn the night sky before going on to capture those images. Recognizing this pitfall Dickinson and Dyer have expertly crafted a book that is purposely designed to gently draw one into all the wonders of amateur astronomy, not just imaging, managing expectations while at the same time keeping one engaged with all the amazing things the universe has to offer those who look up and out.

This latest edition still includes much of the great reference material of the previous versions, while also adding significantly revised and new material as appropriate. All the technical sections have been updated to reflect the most recent developments in hardware and software, adding approximately 48 pages to the length of the book. Binocular-based astronomy has received a substantial upgrade in this edition, as have the sections on computerized mounts and astrophotography. The sections on observing have also gotten a major makeover, with more information on eyepieces and filters, deep sky observing with binoculars, as well as the addition of a new chapter on observing the best features of the moon. Finally, most of the book's illustrations have been updated – 2020's amazing visitor Comet NEOWISE graces the new cover – and all of the event tables have been updated through to the next decade and beyond.

Having bought a copy of the previous edition of this book (published in 2008) just a few years ago, I was very pleased with this timely and extensive update to what has become an often consulted work for me as I continue to learn about this wonderful hobby. Dickinson & Dyer's *The Backyard Astronomer's Guide* is a welcome addition to any amateur astronomer's bookshelf, and is certainly recommended for both beginners and intermediate amateur astronomers alike.

Fall'n'Stars 2022, September 23, 24.....by Susan (you had me at flush toilets) Gagnon

It is that time when we get planning for our annual dark(er) sky camping weekend which we share with the Belleville Centre. We are happy to say that the Prince Edward County site at Johnson's RV Park on South Bay has been reserved for another year. There are flush toilets, showers, a nice open field for set up and a good horizon. There is potential for local and guest speakers but that will be worked out this summer. There will be a swap table Saturday, and the usual door prize draws after Saturday dinner. Campers must be self sufficient in drinking water and all meals other than the pizza should you sign up. The pizza has been very good.

Taking into account the anticipated price increases in camping reservations and this is what the weekend will cost. Check in Friday 23rd noon, check out Sunday 25th noon.

Admission	Friday	$10.00
	Saturday	$10.00
	Both days	$15.00
Camping per night	Tent	$30.00
	*Bunk House	$70.00
	*Serviced RV site	$70.00
	Camping bodies over 2 per site @	$12.00
Dinner Saturday	Pizza	$20.00

- Only one bunk house and one serviced RV site are available, so you need to check with the registrar to see what is available.

Updated Registration forms with registrar contact will soon be available at rascbelleville.ca/fallnstars/

We look forward to getting together with our Belleville partners and each other.

Notes from Members

All Things Astro – Kevin Kell

We are trying out a new feature... a shared google calendar that has all things astro in one place:
https://calendar.google.com/calendar/u/0?cid=YXN0cm9raW5nc3RvbjE5NjFAZ21haWwuY29t
We hope to have all local meetings, astronomical whats up events, and relevant online webinars, etc on the calendar. Since this is a public access calendar, we cannot include private zoom links for events, but we can point people to registration links, etc.

Regulus Submissions – Kevin Kell

Some years ago we discontinued the publishing of paper copies and mailing to all members, as a cost saving issue. Today we mail only to those members who have specifically requested paper copies. We also encourage those members to think about making donations to help cover the costs.
At the moment the publication of the colour print is being donated. The cost of the postage is borne by the Centre. We felt this (discontinuing default mailing to all but accepting individual requests) was a good compromise at the time.

Over the last year we have blown past the 10 page (5 pieces of paper double sided) limit in almost every issue. This is only of import due to Canada Post weight limits and we try to keep it below the next price threshold. In the last few months we have also blown past the 2nd price threshold.
Today rates are $0.92 (upto 30g), $1.30 (30-50g) $1.94(50-100g)
So we will be self-imposing a limit of 18 pages (9 pieces of paper double sided) starting in April.

Regulus - Author's Guide – Kevin Kell

Adapted from the SARA Journal.
Regulus is published up to 12 times per year as a Portable Document Format (PDF) file.
Regulus is a copyrighted work; however, authors retain ownership of and copyright to their works published in Regulus. We are always looking for basic astronomy articles, astronomy tutorials, theoretical articles, application and construction articles, news pertinent to astronomy, profiles and interviews with amateur and professional astronomers, book reviews, puzzles (including word challenges, riddles, and crossword puzzles), anecdotes, expository on "bad astronomy," articles on astronomy observations, suggestions for reprint of articles from past issues and other publications, and announcements of astronomy star parties, meetings, and outreach activities. We would like to publish photographs of your telescope, including accessories, and software screen shots.
We are glad to assist authors with their articles and papers and will not hesitate to work with you, however, we cannot write your article for you. We reserve the right to make editorial changes in grammar, format, and layout.

It is the Editors' prerogative to accept or reject submissions for Regulus. If your article is rejected, it
is because we have judged its quality or contents unsuitable for our publication and we will tell you our reasons for rejection.
Submissions should be made as a Microsoft Word document (.doc) file, an Open Document Text (.odt) file, or a flat text (.txt) file.

Send submissions or inquiries to kingston@rasc.ca or directly to the current editor: kevin@starlightcascade.ca
If your image files are too large for an email, please contact us to make arrangements for upload.

Save the Date!!! Fall'N'Stars 2022

Friday-Saturday-Sunday 2022 September 23-24-25
https://rascbelleville.ca/fallnstars/
This is SouthEastern Ontarios' Star Party organized by the RASC Belleville and Kingston Centres, annually since 2000!
Registration forms and detailed information will be published in the next month or two.

The RASC Central Office has moved!

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203-489 COLLEGE ST
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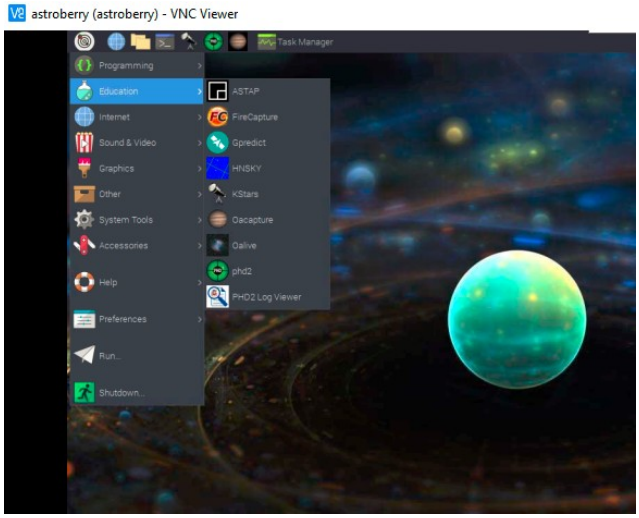
Phone: 416-924-7973



Astroberry – Kevin Kell

Ready to use system for Raspberry Pi for controlling all your astronomy equipment. Just connect your devices and experience the Universe! The astroberry 4.04 install image was downloaded from https://www.astroberry.io/ (about 4GB, 8GB uncompressed) and successfully installed on a 32GB microsd card.

That went into the Raspberry Pi Zero 2W and ran! The specs and various youtube videos never mentioned this model and always recommended the 8GB model of Pi4, or 4GB and not really the 2GB version.

The Pi zero has only 512MB … but it still works! It is also about as responsive as your regular windows install.. more good news. It comes with a lot of astro software..

KStars – great planetarium program with easy to install additional libraries.. like: NGC/IC catalogues; OpenNGC Catalogue, Abell Planetary Catalogue, Sharpless HII Region catalog, Hickson Compact Groups catalogue, Lynd's catalogue of Dark Nebulae, Tycho2 Star Catalog (mag 8-12.5), USNO Nomad catalog (mag 12.5-16.5).

PHD2, firecapture, cameracapture and many many more.

It can be its own wifi hotspot, but for now it is connected to the house wifi for updates and remote desktop access… using realvnc for grpahical desktop remote. works well.

It's been stable for a day now, so time to add a USB hub (it has only 1 usb 2.0 port) and then see about hooking it up to the celestron nexstar 6se mount for pointing and tracking.

Waning Moon and Venus at pre-dawn... - Bruce Elliott

Date: June 19, 2020.
I was photographing Jupiter and Saturn over Lake Ontario from the patio of the Isabel Bader Centre at pre-dawn. It was in the middle of the pandemic lockdown so the lights from the Centre were dimmed, and the clouds on the horizon had just cleared. I looked towards the east and saw the sliver of a waning Moon trailing closely behind Venus! The silhouette of the hospital was in the background. A wonderful sight to behold!
Technical: Canon 60D camera with 135mm Rokinon lens. ISO 1600, f/2.8, 1/250s.

Notes from The Net

SARA – by Kevin Kell

https://radio-astronomy.org
is the home of SARA: The Society of Amateur Radio Astronomers

They publish a newsletter every two months that runs up to 100 pages of radio astronomy related articles.
One section lists recommended youtube and other sourced videos. Here are some of them that might be of interest to RASC-KC members.

Fast Radio Bursts - Liam Connor - 12/10/2021 – https://www.youtube.com/watch?v=HRt-VMHNf1A

Spaceweather.com ~ 20 Years Ago, A Severe Geomagnetic Storm:
https://spaceweather.com/archive.php?view=1&day=21&month=10&year=2021

Ig® Nobel Prize Winners ~ For achievements that first make people LAUGH then make them THINK: https://www.improbable.com/2021-ceremony/winners/

The Next Generation Very Large Array Would be 263 Radio Telescopes Spread Across North America:
https://www.universetoday.com/153323/the-next-generation-very-large-array-would-be-263-radio-telescopes-spread-across-north-america/

NRAO ~ Making of the 140ft Radio Telescope (at Green Bank):
https://www.youtube.com/watch?v=9idOe_ITRys

Pablo Lewin WA6RSV Building your first fully functioning Hydrogen Line Radio Telescope: https://www.youtube.com/watch?v=hiZZsTXNufo

Meteor News ~ A global network for radio meteor observers:
https://www.meteornews.net/2021/12/04/a-global-network-for-radio-meteor-observers/

Everything RF ~ Top 10 Questions Engineers Ask About Software Defined Radios:
https://www.everythingrf.com/community/top-10-questions-engineers-ask-about-software-defined-radios

RASC Skyletters - Walter MacDonald

A project I decided to tackle this winter is to extend the compilation of a Centre observing log,
as used to appear in Regulus. A 2.5 year backlog was a bit daunting. One roadblock was that I simply haven't saved every email I've ever received. However, I discovered that gmail *has* saved everything (isn't that just like them,
and yet I'm still nowhere near my storage limit!).

But then I discovered there was about a 6-month
gap where I was not subscribed to the KC Chat list when they switched to Google (I think that was during the 2019 federal election). That was solved when I discovered the Chat list archive is accessible when you log in to Google! (Though I think you have to be a list subscriber to do this.)"
A collection of 5 publications chronicling the history of the Kingston and Area Astronomy email chat.
6 More issues have been produced since the last report.
You can find them on the RASC Kingston Centre website under "library, periodicals, skyletters"

RASC KC January 12 2022 Regular Meeting Minutes - Elena Zanetti

The meeting started at 7 p.m. on Zoom with live recording along with streaming on YouTube.
Kim Hay welcomed all to the first regular meeting of 2022 and introduced the executive: Kim Hay – President, Laurie Graham - Vice President, Susan Gagnon - Treasurer, Richard Wagnar – past president, John Hurley – National Council Rep, Kevin Kell – editor of Regulus, Elena Zanetti – Secretary.
Announcements: We congratulate Richard Wagnar on digitally receiving the RASC Solar System certificate.
Our guest speaker, Andrew Godefroy, member of RASC KC since 2019, teaches at RMC and is a historical space buff. Andrew talked to us on "Upper Atmospheric Research and the Origins of the Canadian Space Program". Approaching the 60th anniversary of the origins of the formal Canadian Space program, Andrew takes us from before the war to the 60's, demonstrating the shift from scientific investigation to engineering application of space technologies. Books written by Andrew include Defence and Discovery (2011) UBC Press and The Canadian Space Program (2017) Springer Praxis Books.
David Levy read poetry from comet hunter, Leslie Peltier (1900-1980).
Hank Bartlett began by by sharing a picture of the equipment he uses in solar observing: Coronado Solarmax 70 DS, Eplore Scientific ED-80, Canon T7i DSLR camera and a MiniTower II mount. Sun spot counts have exceeded predictions for 15 straight months. Reporting on Dec. 9/21 – Jan. 12/22 with 15 observing sessions, many of which were poor seeing and/or transparency. Active regions = 25 consisting of AR12904 – AR12928. Solar Flares – X = 0, M = 9, C = 181. White light and H-alpha images were shown and Kim Hay contributed images in white light.
Rick Wagnar presented:
Observing Highlights for 2022
Mar 28 Mars – Venus – Saturn – Moon in dawn sky
Apr 5 Saturn – Mars in dawn sky
Apr 27 Venus – Jupiter – thin crescent Moon
Apr 30 Venus – Jupiter in dawn sky
May 15 Lunar Eclipse after dusk to midnight. During eclips moon will occult a 6.25 mag star
May 29 Jupiter – Mars
Jun 18-26 All major planets in dawn sky
Sept 26 Jupiter opposition – closest approach in over 70 years
Oct 24 Mercury occultation – daytime event
Nov 8 Lunar Eclipse in morning sky
Dec 8 Mars Occultation/Opposition
Local events
Queen's Physics and Astronomy: TBA – check website
QUO – Fast Radio Burst Podcasts
-A planet is born – Arnaud Michel
-Dangerous Universe #4 – Cosmic Calamity
-http://observatory.phy.queensu.ca

BAA Events
Jan 22 BAA mtg livestreamed to YouTube (09:00)
AAVSO Webinars
Jan 22 Jill Tarter – "Star Tickling and the AAVSO" – members only
Feb 5 How To Hour – topic TBA

Sky Events
Jan 17 Full Moon 18:48 EST
20 Algol at minimum 00:30 EST
22 Algol at minimum 21:30 EST
23 Mercury at Inferior conjunction and moves to morning sky
25 Last quarter Moon
25 Algol at minimum 18:15 EST
29-30 Moon – Venus – Mars in dawn sky
Feb 1 New Moon 00:46 EST
Extremely thin 17 hours old Moon visible just after sunset
4 Saturn in conjunction with the Sun – new apparition begins
7 Moon about 2 degrees south of Uranus

8 First quarter Moon
8 Moon near (1) Ceres in the evening sky

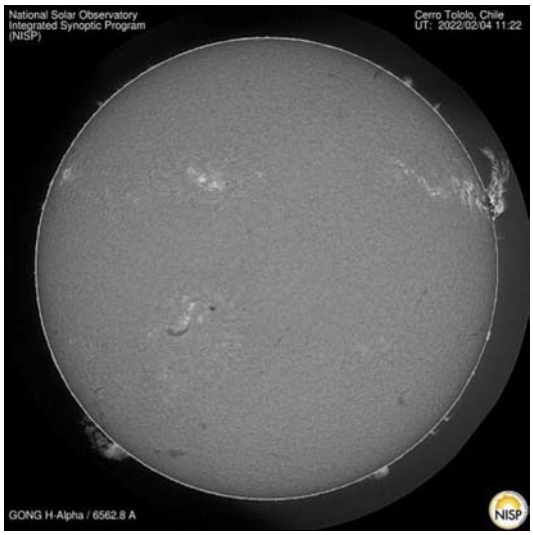
Asteroids
Jan 13 (7) Iris at opposition (mag 7.6)
Feb 5 (20) Massalia at opposition (mag 8.5)
Bruce Elliott reported for the Outreach Committee. Science Rendezvous is hoping to have some in-person events at different locations around the city and still under discussion with the pandemic in mind. Our centre is discussing offering a solar observing session with best options for public viewing. Also offering 2 online events: Navigating the Night Sky by Star-Hopping and the video, Origins of the Universe, produced by members of our centre. The FLASF (Frontenac Lennox & Addington Science Fair) will be online this year – Mar 28 – Apr 1. Please contact Bruce if you are interested in participating. Bruce will be attending an upcoming meeting of the RASC eclipse committee.
Kim Hay closed the meeting with announcements. Next meeting will be on Feb. 9 at 7 p.m. with Dr. Jennifer West as our guest speaker, "Inside the Galactic Tunnel in the Sky". March 9, we have Marcus Leech speaking on "Hunting FRB's on a Budget – the Swift Telescope". Every Wednesday, we have our social on Zoom. Send a note to kingston@rasc.ca to join. Online we are at kingston.rasc.ca – Facebook: @rasckingston – Twitter: @AstroKingston – YouTube: RASC Kingston, containing our past meetings. RASC handbooks are still being mailed out.
Kim thanked all and our meeting adjourned at 8:54 p.m.

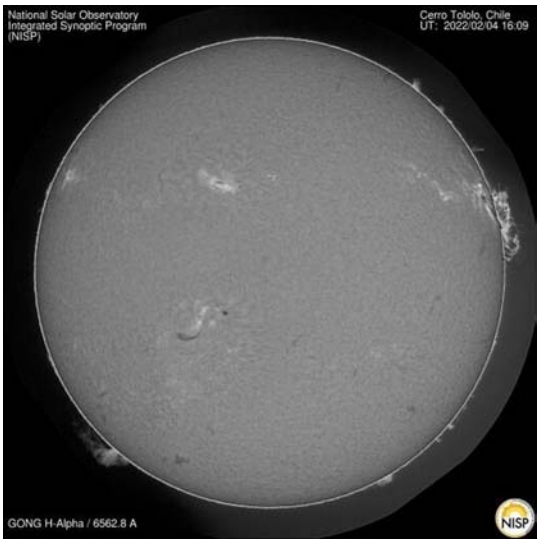
RASC-KC Solar Cycle 25
Monthly Review – Hank Bartlett

Highlights of solar activity and images during the past month
by RASC-KC solar observers for February 2022

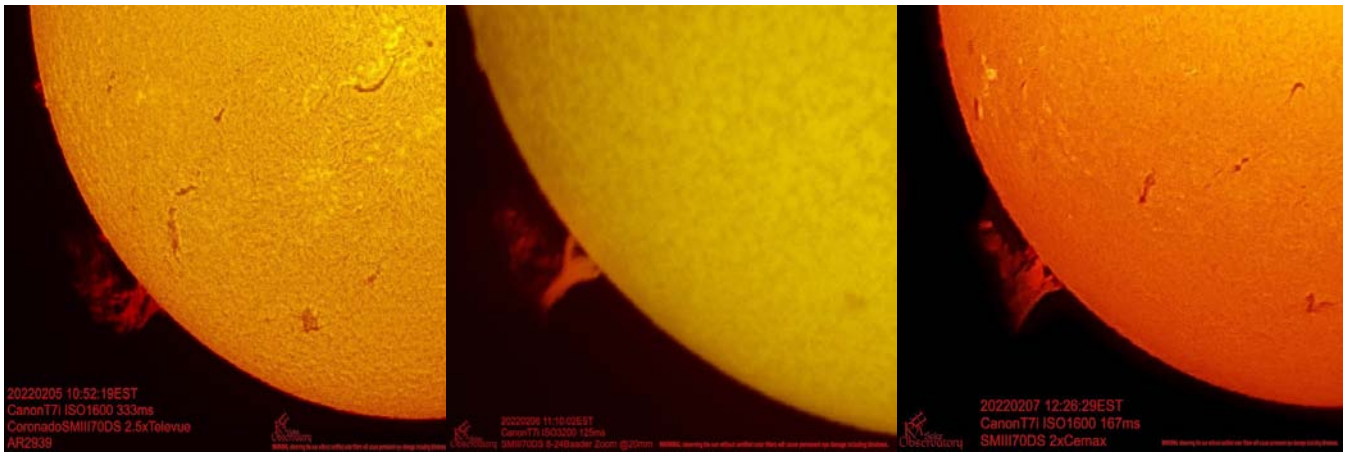
Hello all, welcome to the Feb 2022 solar review. In my postings online I have whined considerably about the seeing conditions this winter and thankfully I am neither alone or crazy. Other imagers have confirmed that they too have had great difficulty achieving focus, especially in the northern latitudes. Focusing in bad seeing is usually just a watch, adjust, wait, watch, adjust... kind of thing and only takes a few extra seconds. This season of late it has been watch, adjust, watch, adjust, watch, ah screw it, guess. The usual quiet few seconds are not showing therefore long exposures in H-alpha are fuzzy with dslr especially and for white light exposures only 2ms or less are catching clarity. This is certainly less than desirable but the sun is climbing north and the interference will hopefully soon diminish. Currently while typing this we are ending the 3rd week and the problem has been exacerbated now also by days of high winds and snow squalls.

The first week of Feb averaged almost 9 C class flares per day and luckily four of those days were clear here but seeing was as mentioned above. On Feb. 4th these two prominence eruptions were the watch of the day if you had clear sky. These date stamped GONG H-alpha images are a preview but go to... https://gong2.nso.edu/products/tableView/table.php?configFile=configs/hAlpha.cfg ... select Cerro Tololo, click the play button, set both dates to 2022-02-04, click LOAD, then click PLAY to see what an awesome imaging session this day would have been if it had been clear wherever you were, well, if you had daylight.





Feb 4th through 7th also had this more stable prominence in the solar SE until it blew away/collapsed on the 8th. This collapse was caught by the Learmonth Gong imaging and can be viewed using the same instructions above but different date and select Learmonth.



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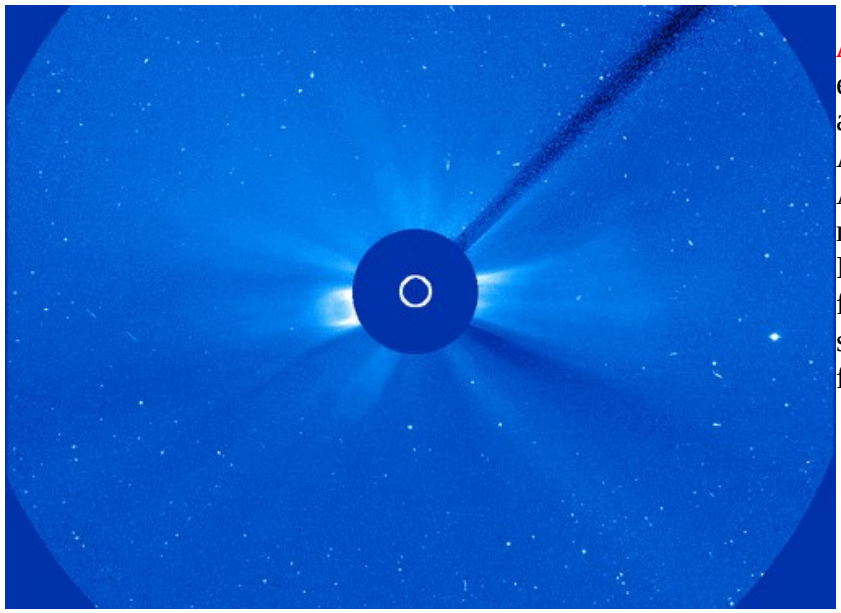
Visit spaceweather.com on Feb 13 for full story...



MULTIPLE SOLAR FLARES AND CMEs (UPDATED): The sun experienced an episode of near-global activity yesterday (Feb 12). Sunspots AR2939, AR2940, AR2941 and AR2944 *all* produced solar flares ranging in magnitude from C6 to M1. In addition, a spotless magnetic filament exploded in the sun's southern hemisphere. Multiple CMEs flew into space:
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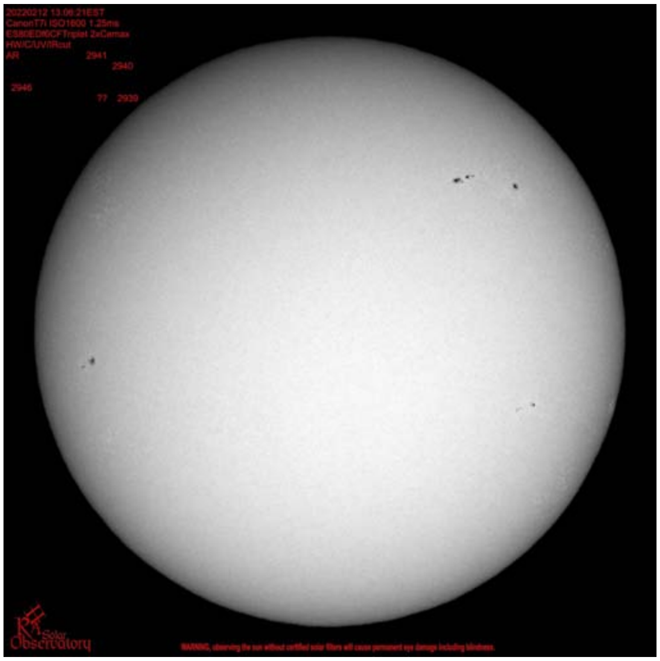
Remarkably, none of these CMEs are expected to hit Earth. All of them appear to be just outside the strike zone. Maybe next time...

Feb 12 RHA Solar Observatory images…



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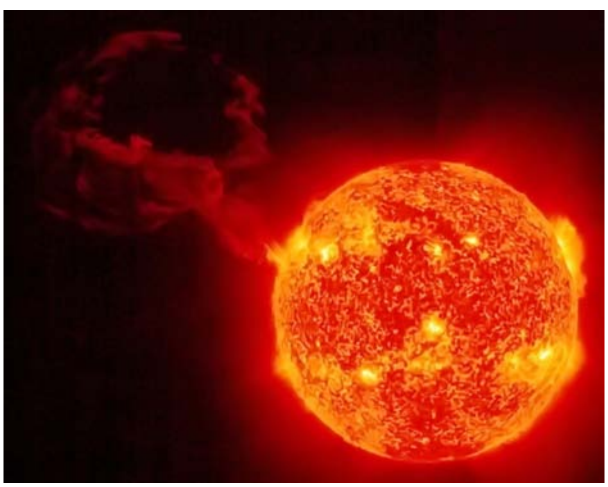
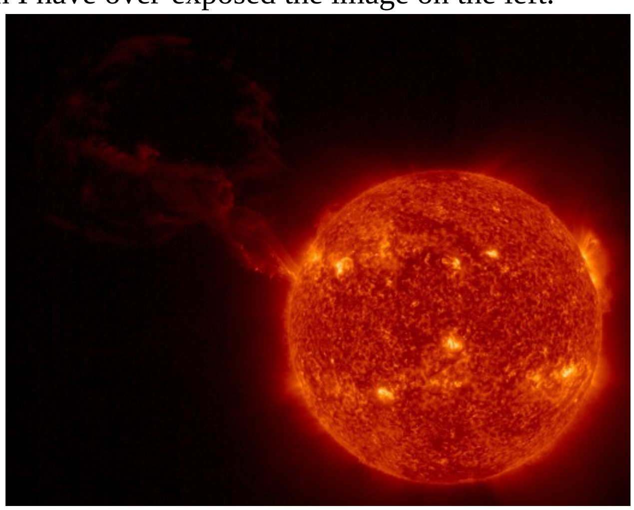
This Feb 15th eruption leads this solar observer (RHA Solar Observatory) to ponder how much solar matter was thrust into space and the power behind it.

For clarity of the size of the eruption I have over-exposed the image on the left.





This image from the European Space Agency shows a suggested far side X flare casting a prominence outburst over 1.5 million kilometres into space. Every solar imager on earth would have liked to capture even a glimpse of this. Had this happened on the earth side of the Sun (and earth directed) I suspect there would have not only been substantial consequences but also near equatorial aurora over the entire earth. We were therefore lucky but also unfortunate.

Cloudy weather and timing prevented the RHA Solar Observatory from imaging the above eruption but there was this nice double prominence on the solar NE limb on the 18th.
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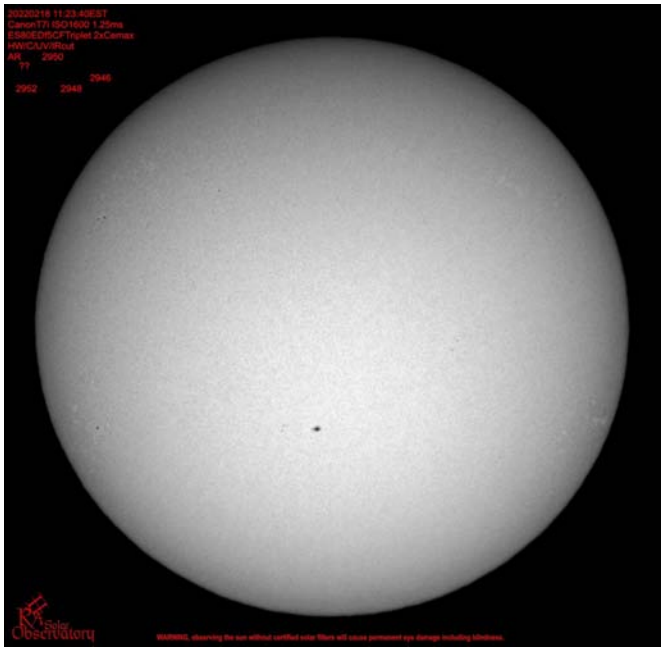


Once again we were fooled by the prediction that a large sunspot group was coming over the eastern solar limb and it was a flop. The Feb 15 X blast was believed to be a still highly active AR2936 returning, instead it was only a nice sized former AR2936/38 pairing (now known as AR2954/55) and only alpha rated. This grouping has only produced 2 significant C class flares so far as of the 25th since its Feb 21st return. Therefore the x-ray baseline is once again nearing the 10^{-7} with the occasional hiccup.

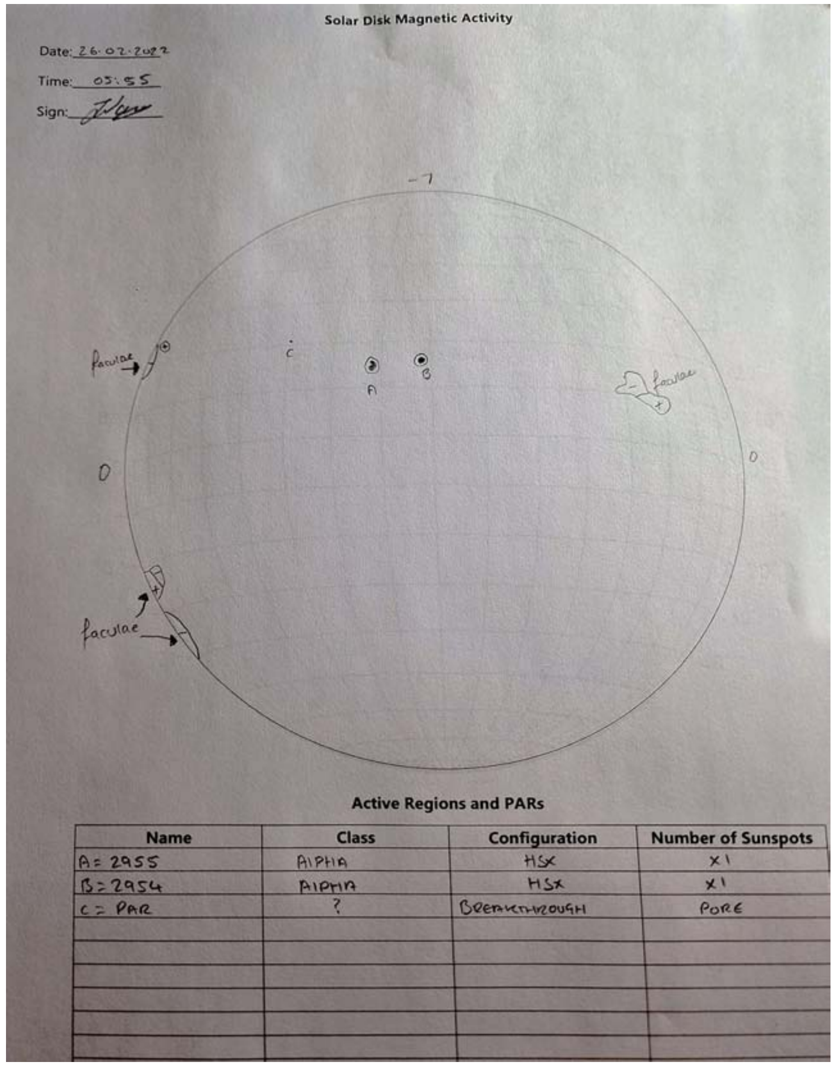
Returning sun spot groups such as the above are becoming more common as the solar maximum builds. I can understand why these returns were counted as fresh spots in the beginning of solar observing, however with today's level of science and technology one would think they would retain their original number if only from an historical point of view. If one was able to remove the amount of returns (some have been 3 or 4 times) it would definitely alter the count during maximums and over all throughout history. It seems to me that with science and individuals being so particular about data the system would be altered for "known" returns. All of that said I am but an observer/imager and I admit to not being knowledgeable in the true science of the Sun. If anyone has further fact on this maybe they will prepare an article for Regulus to inform us.

With regard to the above a member of the Facebook group SolarActivity has recently started posting daily sketches and predictions that I am finding both interesting and helpful in my daily imaging. Below is a copy and paste with Jon's permission of course. I know some of our members do sketching but I have never seen it done in this particular style.

Jon Adams...
What's that coming over the hill, is it a monster, is it a monster ??

Not quite, however I'm expecting a monstrous sunspot from the southern regions. Its nice to see that 2940 made it back to us in the Northern hemisphere. I had a quick reminiscence from when I first marked down its faculae on the 30.01.2022 and flicking back through my files to see how it evolved throughout its time on the disk. I expect to see great things from the old 2944 & 2939 but I guess we'll have to wait and see in the next few days.

Keep an eye out ladies and gentlemen



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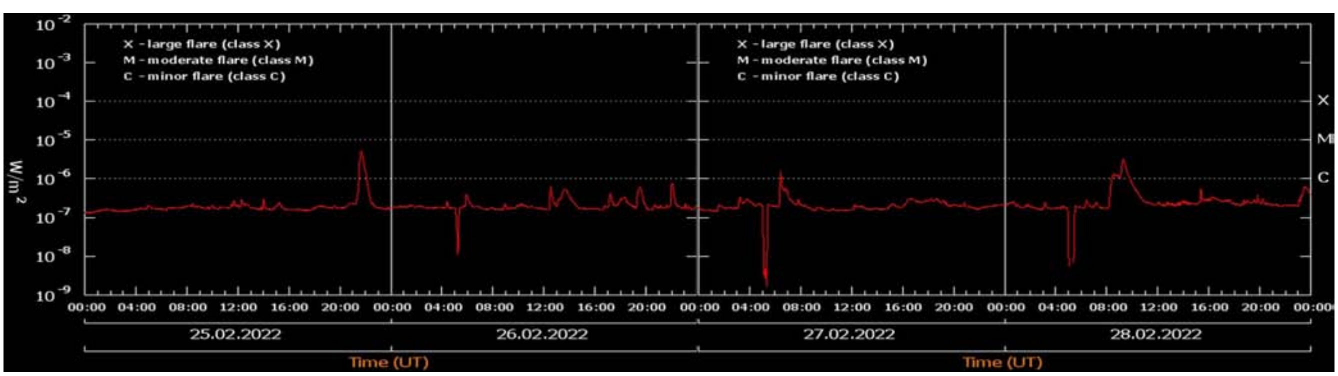
As the month of February ends we are all looking forward to March bringing warmer weather and a higher ecliptic for imaging. Along with this welcome change in weather March also brings data dropouts that occur during GOES-16 satellite eclipses when the moon or Earth come between the satellite and our sun. These dropouts occur especially during the spring and fall over a period of about 45 to 60 days ranging from minutes to just over an hour for each event. All of course is fine unless a Carrington level event happens during that lapse in data. The graph below shows the time gap widening.



Here we are last day of the month and last image of the same. A very nice hedgerow in the SW and a few other proms made it a worthwhile last session regardless of the seeing.
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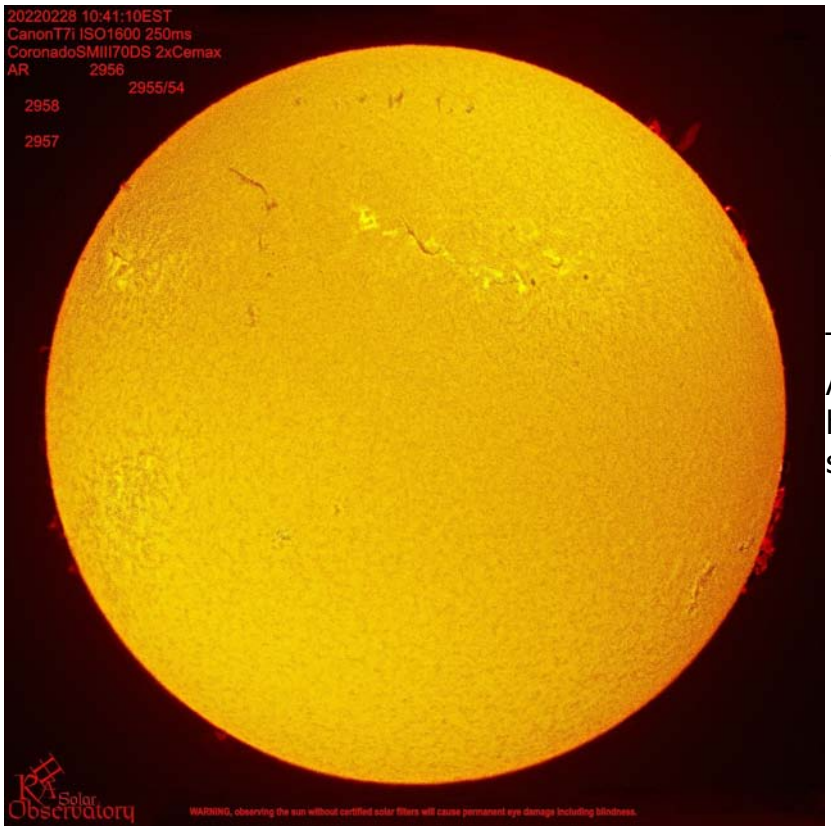

Summing up the month of February, the first two weeks were popping with C flares and a few M but the final two weeks nose dived into near nothingness.

X flares = 0
M flares = 3
C Flares = 102
Sunspot Groups = 25

The Rogues' Hollow Astronomical Solar Observatory had 13 observing/ imaging sessions.

Steve Craig's Galaxy of the Day for February 2022

LSteve Craig Galaxy of the Day for February 2022

last was 5981 day 304

Day 305 NGC5987 is a spiral galaxy about 135 million light years away in Draco. It was discovered on May 25, 1788 by William Herschel.

Day 306 NGC5996 is a disturbed spiral galaxy about 152 million light years away in Serpens Caput. It is interacting with NGC5994, the little spot just up in this image. It is catalogued as #72 in the Arp Atlas of Peculiar Galaxies. It was discovered on March 21, 1784 by William Herschel.

Day 307 NGC6015 is a spiral galaxy about 40 million light years away in Draco. It was discovered on June 2, 1788 by William Herschel.

Day 308 NGC6027 is a part of a galaxy cluster known as Seyfert's Sextet. They lie about 190 million light years away in Serpens Cauda. They were discovered on March 20, 1882 by Edouard Stephan,

Day 309 Abell 2151 is a large cluster of galaxies on average 500 million light years away in Hercules. It contains about 200 galaxies, the brightest of which I have labelled in the second image. The cluster is part of the larger Hercules Supercluster which is itself part of the much larger Great Wall super-structure.

Day 310 NGC6052 is a pair of colliding galaxies about 399 million light years away in Hercules. They were discovered on June 11, 1784 by William Herschel.

Day 311 NGC6070 is a spiral galaxy about 100 million light years away in Serpens Caput. It was discovered on September 18, 1786 by William Herschel.

Day 312 NGC6140 is an oddly shaped barred spiral galaxy about 48 million light years away in Draco. It was discovered on June 3, 1788 by William Herschel.

Day 313 NGC6207 is a spiral galaxy about 30 Million light years away in Hercules. It was discovered on May 16, 1787 by William Herschel.

Day 314 NGC6217 is a barred spiral galaxy about 67 million light years away in Ursa Major. It was

discovered on December 12, 1797 by William Herschel.

Day 315 NGC6236 (upper right) is a spiral galaxy about 77 million light years away in Draco. NGC6232 (lower left) is a barred spiral galaxy about 200 million light years away. NGC6236 was discovered on June 28, 1884 by Lewis Swift.

Day 316 NGC6248 is a barred spiral galaxy about 52 million light years away in Draco. It as discovered on August 11, 1885 by Lewis Swift

Day 317 NGC6255 is a barred spiral galaxy about 63 million light years away in Hercules. It was discovered on May 16, 1787 by William Herschel.

Day 318 NGC6285 (upper) and NGC6286 (lower) are a pair of interacting galaxies about 262 million light years away in Draco. They are catalogued as #286 in the Arp Atlas of Peculiar Galaxies. They were discovered on August 13, 1885 by Lewis Swift.

Day 319 NGC6361 is an edge on spiral galaxy about 176 million light years away in Draco. It was discovered on August 18, 1886 by Lewis Swift.

Day 320 NGC6365 is a pair of interacting galaxies about 370 million light years away in Draco. They are catalogued as #30 in the Arp Atlas of Peculiar Galaxies. They were discovered on August 15, 1884 by Lewis Swift.

Day 321 NGC3638 is a spiral galaxy about 127 million light years away in Ophiuchus. It was discovered on July 9, 1863 by Albert Marth.

Day 322 NGC6384 is a barred spiral galaxy about 77 million light years away in Ophiuchus. It was discovered on June 10, 1863 by Albert Marth.

Day 323 NGC6412 is a beautiful little spiral galaxy about 76 million light years away in Draco. It was discovered on December 12, 1797 by William Herschel.

Day 324 NGC6503 is a spiral galaxy about 17 million light years away in Draco. It was discovered on December 12, 1797 by William Herschel.

Day 325 NGC6548 (lower) is a lenticular galaxy about 300 million light years away in Hercules. NGC6550 (upper) is a spiral galaxy about 100 million light years away. They were discovered on September 20, 1786 by William Herschel.

Day 326 NGC6643 is a flocculent spiral galaxy about 68 million light years away in Draco. It was discovered on September 1, 1859 by H. P. Tuttle.

Day 327 NGC6674 is a barred spiral galaxy about 176 million light years away in Hercules. It was discovered on June 6, 1864 by Albert Marth.

Day 328 NGC6689 is a spiral galaxy about 42 million light years away in Draco. It was discovered on August 22, 1863 by Heinrich d'Arrest.

Day 329 NGC6814 is a spiral galaxy about 75 million light years away in Aquila. It was discovered on August 2, 1788 by William Herschel.

Day 330 NGC6946 is a spiral galaxy about 23 million light years away on the border between Cepheus and Cygnus. It is known as the Fireworks Galaxy because of the large number of supernovae that have been recorded there. This image was taken one day after supernova SN2017eaw was discovered. NGC6946 was discovered on September 9, 1787 by William Herschel.

Day 331 NGC6951 is a barred spiral galaxy about 75 million light years away in Cepheus. It was discovered on September 14, 1885 by Jerome Coggia.

Day 332 NGC7013 is a spiral galaxy about 39 million light years away in Cygnus. It was discovered on July 17, 1787 by William Herschel.

Day 333 NGC7241 is a spiral galaxy about 94 million light years away in Pegasus. It was discovered on September 3, 1872 by Edouard Stephan.

Day 334 NGC7253 is a pair of interacting spiral galaxies about 238 million light years away in Pegasus. They are catalogued as #278 in the Arp Atlas of Peculiar Galaxies. They were discovered on September 9, 1863 by Albert Marth.

Day 335 NGC7320 This is Stephan's Quintet, a galaxy cluster about 300 million light years away in Pegasus. The largest galaxy on the lower right of the cluster is NGC7320 which is actually a foreground galaxy only 40 million light years away. They were discovered in 1877 by Edouard Stephan.

Stephen Craig's Galaxy Image of the Day


NGC5987


NGC5996


NGC6015


NGC6027


NGC6040


NGC6040B


NGC6052


NGC6070


NGC6140


NGC6207


NGC6217


NGC6236


NGC6248


NGC6255


NGC6285


NGC6361


NGC6365


NGC6368


NGC6384


NGC6412


NGC6503


NGC6548


NGC6643


NGC6674


NGC6689


NGC6814


NGC6946


NGC6951


NGC7013


NGC7241


NGC7253


NGC7320