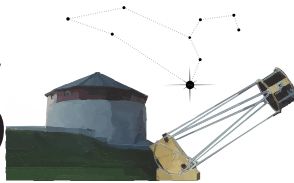


Regulus

March 2020
RASC Kingston Centre

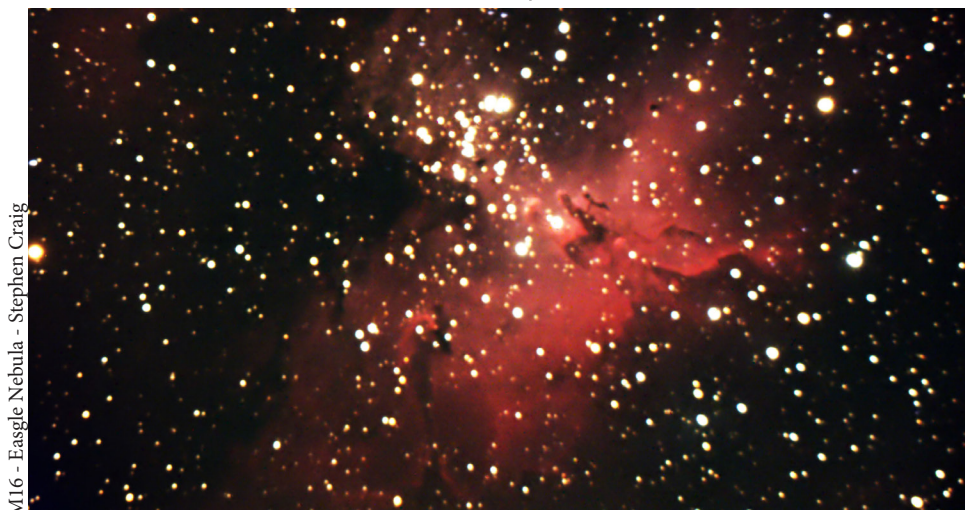


Upcoming Meetings

Join us at our next Kingston RASC Meeting online Zoom Meetings @ 7pm!

- **March 19th, 2020 (Cancelled)**
- **April 9th, 2020 (ZOOM)**
- **May 14th, 2020 (TBD)**

Email Kingston@RASC.com for an invite (note we are working on a email list for members to get notification invite for meetings).



M16 - Easgle Nebula - Stephen Craig

March is known as the “Messier Marathon” month as it the best month of the year to observe or image the most messier objects in the night sky in a single evening.

The marathon challenge is of course to attempt to find as many as one can in a single evening and/or photograph

tos or sketches.

Of course the classic race was done visually using push-to mounts, none of this new GO-TO capabilities. However in modern imaging runs GO-TO is often allowed due to the extra time it takes to actually image each messier object before heading off to the next target.

President's Tidbits

Kim Hay

We are all living and coping in a Strange New World these days. We have worries, doubts, anxiety on what will happen next in this new COVID 19 world. We will follow all the rules set down by our Governments (Federal, Provincial, Municipalities) to keep ourselves, our families, friends and neighbours safe. Social distancing is the new norm for now.

But that does not mean we need to give up on all activities. Go out and observe the night sky. See the Pleiades and Venus converge together. Go out and see the planets, Jupiter, Mars and Saturn in the early am. The summer constellations are rising promising a new season. Our sun is coming alive in its Cycle 25 as

new groups show up. A comet Atlas C/2019 Y4 is high in the sky in the constellation Camelopardalis.

Your Executive has been working behind the scenes with help from the RASC Society. We have tested a ZOOM online meeting on April 2nd, and it worked rather well. By now each member who has an email address listed in the membership list, should have received the invitation for our meeting on April 9, at 7:00 pm. For the time being we will continue to have online ZOOM meetings until it is deemed safe for all to be together again. An invite for each of the Centre meetings will be sent to each member. No doubt you may have heard of ZOOM security issues. We have implemented the



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security changes to make the meetings safe. In the updated Calendar of events, you will not that all gatherings and events have been Cancelled . South Bay Under the Stars is cancelled, but Fall N Stars 2020 is not cancelled, but we do not know what will happen so please go the Belleville website for updates, or if we get an update will advise.

We may not be able to see each other physically, but we can be together virtually. It will be nice to see members who live far away, join the meetings. Come and share our Astronomy time together.

Minutes of The RASC-KC Regular Meeting of Thursday 2020 February 13th

Pre-meeting - Dinner with 16 members and guests at the Sports Tap and Grill on Brock St.

The Regular Meeting was in Mac-Corry Hall Room D216 on Queen's University Campus in Kingston Ontario, and ran from 7-9:30pm.

22 people were in attendance including: Kim Hay President, Susan Gagnon Treasurer, Laurie Graham Vice President, Graeme Hay Editor and Kevin Kell Secretary.

Kim Hay at 19:01 EST and welcomed everyone. Introductions of the members of the Board

took place.

The upcoming Centre events of 2020 calendar was discussed with members being encouraged to attend various events.

Astronomy on Tap Thursday Feb 27th at the Kingston Brewing Company 6:30; March meeting change of date to Thursday March 19th to accommodate our out of province guest speakers; April RASC-KC Regular Meeting will be held in the Ellis Hall Observatory Warm Room with tours of the telescope and observing on the deck; Science Rendezvous on Saturday May 9th and more.

Peggy Hurley (Past President) gave a presentation for our

new meeting segment of 15minute presentations by members. Her topic was Stonehenge. The presentation ran 15 minutes and questions another 15 minutes. Susan Gagnon is scheduled for June Rick Wagner then presented Whats Up in the Sky, events coming up in the next month.

The 15 minute Break was followed by Door Prizes. We had 8 this month. No handouts were available this month.

Observing reports from members started with verbal report from all of those in the audience, followed by image presentations.

Most verbal reports were non reports.. No astronomy activity due to cloud cloud cloud.

Imaging presentations came next with:

Graeme Hay Before and after reprocessing images.

Kevin Kell starlightcascade.ca Show and Tell Hardware segment on a green laser pointer and reviewed the current restrictions on their use.

Bruce Elliott – planetary displays & conjunctions

Steve Craig – galaxies and comets

Rick Wagner – occultation, nebula

Hank Bartlett – Solar Ha and White light

Peter Hutchison– Southern Jamaican skies

Laurie Graham

and then the moon through our telescope and the Orion Nebula with Susan. Subsequent groups saw the Orion Nebula through our telescope and the moon with Susan. Unfortunately, the moon was full so the viewing was not ideal, but people were quite happy with what they saw, nonetheless.

Not sure on numbers but that auditorium was way way way more full than it was the previous month.



Stonehenge - Graeme Kevin Hay

KAON Reports:

The talk last night was given by Queen's Alan Goodman, titled "The Bizarre Life of Dead Stars", was very entertaining and focused on neutron stars. He threw in a whole bunch of fun facts about density, magnetic field strength and the many nuclear bomb equivalents that a simple golf ball would release if dropped onto a neutron star. He also described the formation of uranium and other heavy elements when neutron stars merge in a gravitational-wave pro-

ducing kilonova explosion. A very cool talk.

Yes, it was a cold night. One advantage for us was that people were more focused on getting to the telescope and having a look so they could get back to the warmth, so everyone cycled through the two stations rather quickly, making it easy to ensure that everyone got a chance to look before they had to go to the next station.

The first group saw Venus

Note From the Editor:

Graeme Hay

Regulus Needs You!

Hi Everyone, thought I would drop a line and introduce myself as I've taken over editing the Regulus here at the RASC Kingston Centre.

I'm relatively new to Kingston Centre having been previously attached to Ottawa Center for many years and a two year hiatus while I was in Toronto (how people in Toronto do astronomy is beyond me).

I've been into astronomy in general for about fifteen years and jumped into the crazy world of astrophotography about a decade ago, so expect to see a bunch of astrophotography content from me from time to time.

In addition I really enjoy outreach having attended several events when I was a member in Ottawa from star parties to astronomy day and various events inbetween. This year I'm making more effort to look up into the night sky and try to share my experiences with everyone via my personal website, youtube videos and articles here on this newsletter.

So I hope I count on your support (and plenty of observation

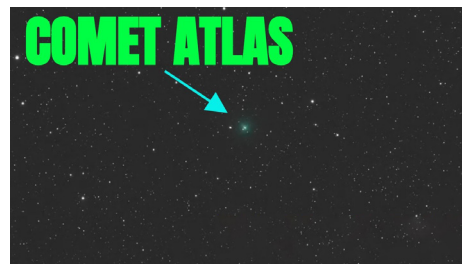


and image submissions) to make the Regulus a must read publication and useful source of astronomy information and club record.

To a year of clear nights!

- Graeme

Astro Vlog: Graeme Hay



<https://youtu.be/C60stwFFECc>

Submit your Astronomy Content

(Astro Articles, Photos, Sketches, Observation Reports, Etc.)

Email Kingston@RASC.ca

“Regulus” mentioned in the Subject line!



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President:	Kim Hay
Vice President:	Laurie Graham
Secretary:	Kevin Kell
Treasure:	Susan Gagnon
Librarian:	Kim Hay
National Council Rep:	<i>vacant</i>

Committee Chairs/Coordinators

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Equipment:	Kevin Kell
Fall'n Stars	<i>vacant</i>
KAON:	<i>vacant</i>
Social Convenor:	Kim Hay
Tardis Project:	Kevin Kell
Webmaster:	Walter MacDonald
Regulus Editor:	Graeme Hay



RASC Kingston Centre

c/o 76 Colebrook Road,
RR#1, Yarker, ON K0K 3N0

E-mail:

kingston@rasc.ca

Website:

kingston.rasc.ca

In this our 58th year (since 1961), the RASC-KC is holding its own as a Centre. Membership numbers have been relatively stable, or down a little, for the last 10 years and our financial status is good. In the past we reduced our Centre surcharge to make up for national fee increases, until 2011 when we eliminated the Centre surcharge entirely. Since then we have been working with a fixed \$23/member fees and have run small surpluses in 8 of the 9 years.

Our search for observatory land is now well over a decade old and has not had any success.

Without a central meeting place for observing groups, work parties, or outdoor social events, the Centre is in a holding pattern with much of its library, equipment, and outreach material in storage.

The Executive is still in the older governance model (members directly elect Officers), awaiting the proclamation of provincial legislation to start the move to the new Board of Directors model (members elect Board of Directors, Board appoints Officers). We have been provincially incorporated as a not-for-profit since 2005 September and as a federally registered charitable organization since 2006 September. We have been running short of a full slate of Executive for some years now, with many Executives doubling up on duties and jobs that required work.

Our website has moved from a member volunteer host to a commercial 3rd party hosting service and is working well. Our astronomy chat email list has moved off the RASC host after a recent failure. We wish to thank Dave Lane

for his support over at least the last 19 years (our oldest existing email record shows 2000 April 17th but is almost certainly underestimated).

We hold regular meetings monthly from 7-9pm on the 2nd Thursday of the month, from September to June, taking a break for July and August each year. From January to June we met in Macintosh Corry Hall Room D214, Queen's University in Kingston and in the fall, Macintosh Corry Hall Room D216.

We continue to partner with Queen's University Department of Physics, Engineering Physics and Astronomy on monthly Kingston Astronomy Outreach Network (KAON) open houses at the Ellis Hall Observatory on the 2nd Saturday of the month. Volunteers bring and operate telescopes on the observing deck outside the warm room. Guests range from 60-225 each month, averaging 115.

Our regular meetings hold to a standard agenda:

An informal dinner at a local restaurant before the meeting.

At the meeting: Welcome, introductions of Officers in the room, upcoming astronomy related talks, seminars, etc, and astronomical events.

Normally there follows a short 30-45 minute presentation by an invited guest or volunteer member, follow by a break. After the break we have a door prize draw and move into short (5 minute) observing reports/presentations from members.

2019 Meeting Summaries:

January 10th, 2019: Susan Gagnon

spoke to our first fundraising raffle; Bruce Elliott asked for a volunteer co-judge for the Kingston Frontenac Lennox Addington Science Fair; Kevin Kell talked about SCGO's 365 Days of Astronomy resolution; Greg Latiak spoke on observatory renovations and PixInsight software. Bruce Elliott presented some image comparisons of last year vs this year. Kevin Kell presented images and a short video of a road trip to the Camden Lake Wildlife Management Area, a potential observing site, and his latest planetary imaging of Mars. Stephen Craig follow with some of his latest deepsky images. Rick Wagner presented a formal favourite variable star and the story behind it.

February 14th, 2019: Rick Wagner presented some images from last months Total Lunar Eclipse; Susan Gagnon discussed the Centre's first Raffle Fundraiser with tickets selling for \$2 each or 3 for \$5. We have \$600 in a prize package which will be drawn at the June KAON on Saturday 2019 June 8th; Brian Hunter talked about some of his equipment for travelling to Chile with, a Star Adventurer tracking camera mount; Kim Hay and Kevin Kell talked about the 15cm Bushnell Voyager Dobsonian telescope donation from Janet Gibbs and our intent to try and use it on the observing deck at KAON; Hank Bartlett presented some solar imagery as well as images of some of his astronomical equipment that he is selling (a C9.25 on a Losmandy mount amongst other telescopes), in order to purchase more astronomical equipment; Steve Craig showed some of his latest images with his C11, plagued by

bad seeing this time of year; Rick Wagner discussed some of his photometry results using Maxim DL to generate a data file and Libreoffice spreadsheet to create graphs; Kim Hay, chair of the 2019 Fall'N'Stars Star Party, reminded us of the dates Friday-Sunday 2019 Sept 27-29 at the regular location, Camp Sagonoska inside the Vanderwater Conservation area near Thomasburg, north of Belleville. We were also invited to an observing camping weekend by the RASC Belleville Centre, in a private campground in the SE of Prince Edward County for a weekend this summer.

March 14th, 2019: Guest speaker: Dr Kristine Spekkens (from The Royal Military College & Queen's University) spoke on "Galaxies, Cosmology and the SKA". She told us of the background of galactic studies, rotational speeds, missing dark matter, methods of detection, and the upcoming Square Kilometer Array. It was a fast paced talk that touched on and explained all aspects of the observational problem of galaxy rotation not matching models.

Kim Hay and Kevin Kell made a short presentation on the SMUBGOBS robotic twitter telescope in Halifax. A handout with the basic operational steps was given out; Rick Wagner presented about the RASC 16" remote telescope project. It is still in the commissioning phase and the final use and time model have not yet been set; Rick Wagner presented how small Bahtinov focusing masks worked; Steve Craig showed his latest images of messier and NGC objects over the last month; Malcolm Park showed a time lapse work from earlier in the

week, an overnight DSLR time lapse overlooking Lake Ontario, along with the equipment that he used to make it. This included a Nikon D810A, modified for astro DSLR, a 14mm wide angle lens, a dew heating strap around the lens, a camera cover, a power supply for the camera, an Emotimo TB programmable tracking mount and a Tupperware tub for all of the cables and power; Bruce Elliott showed us five images of DSLR and tripod from the last couple of months including the total lunar eclipse from 2019 January; Rick Wagner showed a variety of deep sky images from his observatory and telescopes, including Hubbles' variable #1 in M31

April 11th, 2019: Rick Wagner displayed many images taken recently, mostly about asteroids; Steve Craig then displayed some of the images he has taken with his C11 and a Mallincam Universe camera, Moonlite focuser and experiences using PixInsite software sharpening features on images of Messiers objects and the moon. He also has started using the Microsoft Image Composite Editor to stitch together lunar images; Hank Bartlett showed some of his latest solar imagery along with a travelogue of a recent trip to Costa Rica; Rick Wagner presented the 1st RASC Halifax video of the RASC Observing Certificates – Beginners and encouraged all to start thinking about observing certificates; Bruce Elliott reported on the Frontenac Lennox and Addington Science Fair (FLASF) results Two projects were the recipients of own Leo Enright Award of \$100 and a Beginners Observing Guide; Rick Wagner showed more images of recent imaging; Malcolm Park, just

two days back home, showed some images from his adventures near San Pedro da Atacama in Chile; The RASC General Assembly/AAVSO Annual Meeting will be on Thursday-Sunday 2019 June 13-16. As most of the RASC Board will be attending, the Regular Meeting of the RASC in June will be moved from Thursday June 13th to Thursday June 27th.

May 9th, 2019: Brian Hunter showed a few images from his recent trip to the Atacama Desert in Chile. Some images of geosynchronous satellites followed. That was followed by a short demonstration of the camera control software BackYardEOS and the free open source software "Nighttime imaging N Astronomy" available; Brian donated three 5/4" plossl eyepieces for use with the 6" dobsonian telescope "Gibbs" now in operation at the Queen's Ellis Hall Observatory for public outreach; Donations were collected by Kim Hay for the purchase of trees at the Lemoine Point Conservation Area this coming October, in memory of Past-President Ruth Hicks; she noted that Terry Hicks, Ruth's husband, is still very much alive, contrary to reporting in the RASC Annual Report. Rick Wagner then presented a short backgrounder on the EventHorizonTelescope black hole image; Stephen Craig then showed images captured this month of galaxies from his observatory near Battersea; Hank Bartlett showed some solar white light and hydrogen alpha images from his observatory near Newburgh; Malcolm Park showed a few images from an operational remote scope in the area of San Pedro de Atacama. Typical exposures were up to 10 hours in each of five or six

filters, over the course of a month. To say that they (Eta Carina and NGC6188) were spectacular is an understatement. A room discussion then took place on poor reproduction quality of the video projectors both in resolution and colour accuracy. We made need to start searching for a rental room that comes with a large screen 4K resolution display instead of a projector; Rick Wagner closed with many images he has recently taken, with animated combinations of images taken 30 years ago from other sources, showing for instance, proper motion of local stars, and the growth of the Crab Nebula M1.

June 27th, 2019: Rick Wagner also presented short descriptions of events than had occurred over the past month including: South Bay Under the Stars with RASC Belleville, and his experiences at the General Assembly. Kim Hay talked about some of the presentations and workshops that she attended, as did Susan Gagnon and Kevin Kell. Rick Wagner was congratulated on his RASC Service Award, actual (award) hardware to be delivered in the near future. Following that was an outreach demo on the Scale of the Solar System by Kevin. Opening with the Hitchhikers Guide to the Galaxy “Space is Big” youtube video, it was a 5 minute demo of marking on paper the distance scale of the solar system, including Pluto and the Main Belt; After the solar system demo, Kevin demonstrated the new SMUBGOBS android app that allows for voice requests, demonstrating commands of “take a picture” then “M13” and that request is in the telescope queue for later that night; Kim remind-

er people of Fall’N’Stars and that application forms were available at the table. Many members presented their imagery of the International Space Station transit of the Sun on Sunday June 23rd, including: Mark Kaye, and Graeme Hay. Observing reports from Members followed with Graeme Hay, Stephen Craig and Rick Wagner. The Apollo 11 50th anniversary outreach session for Tuesday July 16th has been moved back to the KAON session at Queen’s Ellis Hall Observatory for Saturday July 13th at 9pm; Science Literacy Week is coming up in the fall and Rick Wagner will be presenting a few outreach sessions at his local library near Elgin. Susan Gagnon announced the results



of the Raffle. The winner was Brian McCullough from Ottawa and Rick will be transporting the prize pool to him in the near future.

September 8th, 2019: This was a special meeting from 3-5pm held in Stirling Hall Theatre A at Queen’s University, with the RASC Belleville Centre, featuring Kingston’s Honorary President David Levy speaking on the event of his autobiography “A Night Watchman’s Journey- The Road Not Taken” publication. We had purchased a box of 24 books from the RASC and had them on hand to sell to members at our cost of \$35. We had over 40 people in attendance, with the majority being RASC members. Kevin Kell opened the meeting with introductions of those Kingston and Belleville Board member he saw in the audience. Kevin then introduced Dave Cotterall, RASC Belleville President, to introduce the speaker David Levy. David then proceeded with his talk for the next hour and took questions at the end. Kevin presented David with a thank you letter and card. Ten people purchased books and had David signed them.

September 12th, 2019: Kim Hay (Chair, Fall’N’Stars 2019) spoke on FNS and the change of venue from Vanderwater Conservation Area near Thomasburg to the Johnson RV Park southeast of Picton. Member Richard Schmude (Georgia) sent a report to Rick Wagner, who read it out; Susan Gagnon spoke on her move to motivate... more observing or her observatory would come down. So far it is working with a renewed interest in variable star observing; Hank Bartlett show some images of recent solar minimum followed by successful attempts at imaging daytime stars. He now has imaged over 20 different stars in the daytime; Brian Hunter

Up coming Astronomy Events: 2020

April 9, Regular meeting - ZOOM meeting 7:00 pm members have been contacted by email to join.

April 11- KAON -Cancelled

April 25: NFT Dark Sky Preserve- The Realm of Galaxies - Cancelled

May 2nd Astronomy Day- Cancelled

May 9th Science Rendezvous - Leon's Centre <http://www.sciencerendezvous.ca/>- Cancelled

May 9th KAON- Cancelled

May 14 Regular meeting - 15 min presentation Malcolm Park Guest Speaker Philip Groff RASC ED- ZOOM Meeting - Members will be contacted by email to join.

May 16 & 17th - NFT Dark Sky Preserve-The Inner Planets

May 16- L&A Dark Sky Viewing Area- Astrophotographers Assemble-
<https://www.facebook.com/DarkSkyViewing/> - Cancelled

May 22-24th South Bay Under the Stars PEC- Johnson's RV Park- Local Star Party see
<http://rascbelleville.ca/announcements.php> Cancelled

May 22-23 L&A Dark Sky Viewing Area -Before the Bugs Stargazing Tour
<https://www.facebook.com/DarkSkyViewing/> Cancelled

June 11 meeting-ZOOM Meeting - Members will be contacted by email to join.

June 13 KAON - Cancelled

June 13 L&A Dark Sky Viewing Area-- Astrophotographers Assemble
<https://www.facebook.com/DarkSkyViewing/>- Cancelled

June 20- NFT Dark Sky Preserve - Sun Party 1:00-3:00 pm - Seasons (rain date June 21st)-
Cancelled

July - No Meeting-

July 11 KAON- Cancelled

July 25- NFT Dark Sky Preserve-Our Moon (waxing crescent at perigee)- Cancelled

August - No meeting

August 8 KAON- Cancelled

August 11-12- NFT Dark Sky Preserve- The Persied Meteor Shower- Cancelled

August 11 L&A Dark Sky Viewing Area- Perseid Meteor Shower
<https://www.facebook.com/DarkSkyViewing/> - Cancelled

August 22- NFT Dark Sky Preserve- Three Circumpolar Constellations- Two Bears and a Dragon-
Cancelled

September 10 Regular meeting- ZOOM - Members will be contacted by email to join.

September 12 KAON -Cancelled

September 12- NFT Dark Sky Preserve- The Outer Planets (5 visible in the evening sky)-
Cancelled

September 18-20th Fall N Stars- Johnson RV Park- Belleville hosting- Check website
<http://rascbelleville.ca/announcements.php> Unknown if this is going ahead at this time.

October 8 meeting - Speaker Andrew Godefroy Title - "Reaching Out: A History of Canadian
Space Robotics and the Canadarm Legacy".- ZOOM Meeting Members will be contacted by email to
join.

October 10 KAON- Cancelled

October 10 & 11- NFT Dark Sky Preserve- The Watery Constellations - or The Outer Planets(if
clouded out in Sept.)- Cancelled

October 17 Telescope Workshop- Location TBD - Volunteer's required - Cancelled

November 12 AGM- ZOOM meeting Members will be contacted by email to join.

November 14 KAON - Cancelled

December 10 Christmas dinner - Mandarin Restaurant Frontenac Mall Unknown at this time if the
Christmas dinner will proceed. If not we will have a ZOOM meeting Members will be contacted by
email to join.

December 12th KAON- Cancelled

Outdoor observing events are weather dependant, always check for a Go / No-Go call the day of the event.

then showed images from his 2019 July 2nd solar eclipse trip to Chile and ensuing travelogue to Rapa Nui (aka Easter Island); Leslie Roberts then showed many deep sky images, processed using Registar and Images+; Stephen Craig talked about and showed images from Starfest 2019, and his exceptional observing runs over the summer of deep sky objects; Malcolm Park then treated us to some images from the remote observatory in Chile; Rick Wagner then talked about the City of Kingston City Hall outreach event that 8 members participated in and the resulting honorarium from the city. That happened on Friday evening 2019 July 12th. The Elbow Lake Queens University biological station event with 5 members had a small turnout of about 40 people amidst mostly cloudy skies on Friday evening 2019 August 8th.

Fall'N'Stars 2019 Star Party - cohosted with the RASC Belleville Centre. Friday - Sunday 2019 September 27-29. This was the 20th Annual Star Party, chaired by Kim Hay. We were forced to relocate the star party at nearly the last minute as our location inside an Ontario Conservation Area, had locked their gates and charged for parking 1km away from the site where we have been for 18 years, rendering it inaccessible. We still had an above average turnout, some observing skies, some rain, some cloud. RASC Belleville leads next year.

October 10th, 2019: Rick introduced our guest speaker, Mike Adler from the Jackson Hole area of Wyoming. He is a highly skilled astrophotographer who does a lot of public speaking and displays his pictures in many venues around Wyoming. Jupiter Re-Discovered,

the Juno mission to Jupiter; After answering a lot of questions, Mike was presented with an RASC-KC coaster set and a small honorarium; Members picked up pre-ordered RASC 2020 calendars for \$20; Rick Wagner then reviewed the details of the upcoming Transit of Mercury across the Sun on Monday 2019 November 11th. Start 12:35 UTC Mid 15:20 UTC End 18:04 UTC Total transit time = 18:04-12:35 = 5 hours 29 minutes. Daylight Saving Time switches on Sunday 2019 November 03! For us the transit starts at 07:35 EST and ends at 13:03 EST.

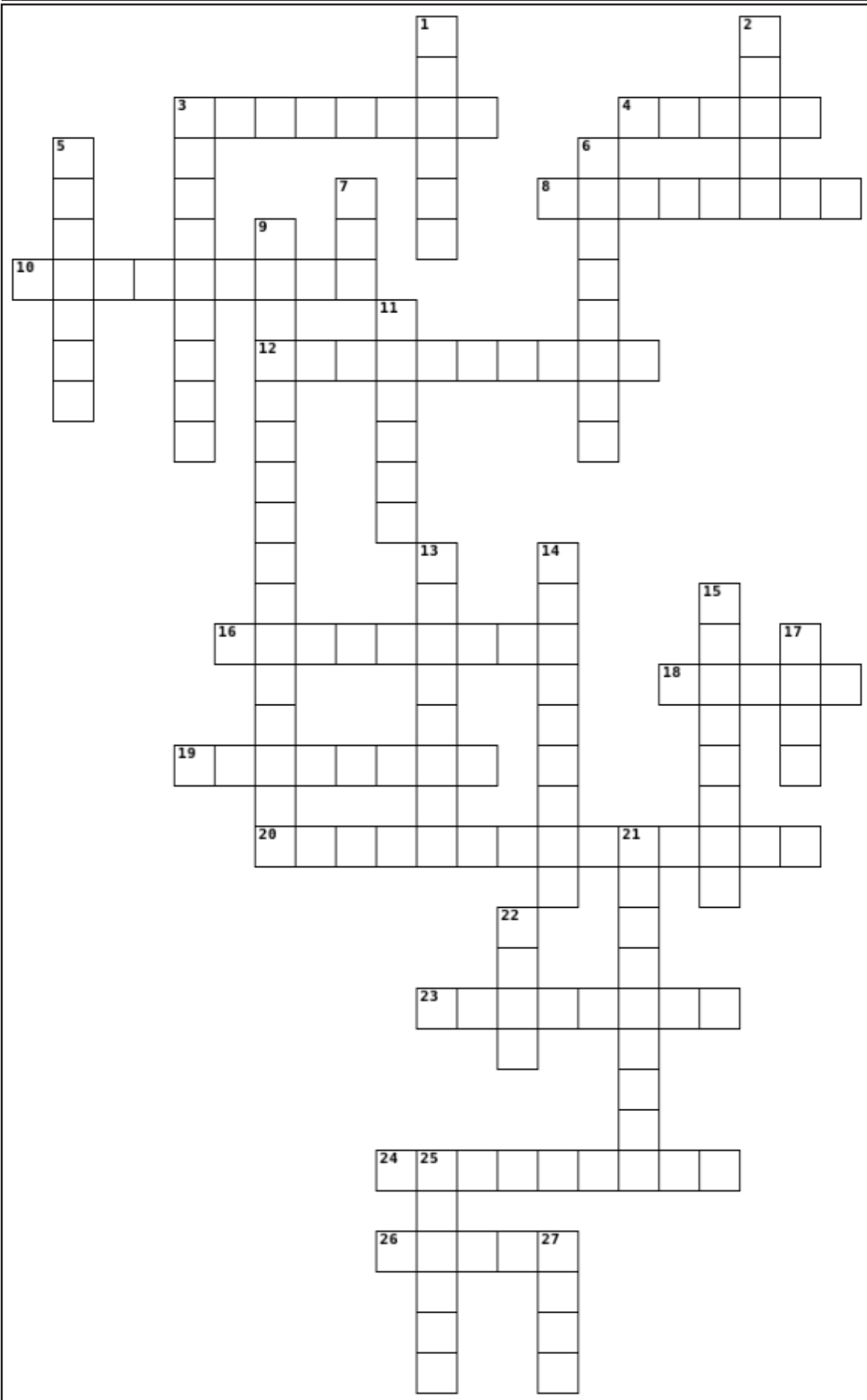
Observing reports from members followed with Stephen Craig showed images from Fall'N'Stars, a panorama generated using Microsoft's Image Composite Editor (ICE); Bob Olsen showed his homemade newtonian telescope on an equatorial mount with 30kg of homemade counterweights, along with some nebula; Bruce Elliott showed some recent outreach images along with some southern summer Constellations; Malcolm Park showed two images of his recent work imaging M31 - Androm-

eda. Not a completed work, he will return when he is happier with the processing; Brian Hunter expanded on our discussions about SpaceX Starlink satellite constellation, with some existing videography and how bad it may get; • Kevin Kell showed some images from Fall'N'Stars which included images from Stephen Craig, Hank Bartlett, Kim Hay and himself, and also talked about the tree planting for past president Ruth Hicks at the Lemoine Point Conservation (just past the nursery) area on Saturday 2019 October 5th.

November 14th, 2019 was the Centre's Annual General Meeting and Elections. The positions of President, Vice President, National Council Rep and Editor were unfilled. Susan Gagnon was acclaimed for Treasurer. After which the guest speaker Patrice Scattolin from Montreal spoke about his Winter Star Party experiences.

December 12th 2019 the Centre does not hold a Regular Meeting but rather gathers for a Holiday Dinner at a local restaurant with a tableful of door prizes!





- Across
- 3. M104
 - 4. M17
 - 8. M101
 - 10. M51
 - 12. M33
 - 16. M31
 - 18. M42
 - 19. M46
 - 20. M76
 - 23. M64
 - 24. M7
 - 26. M82

- Down
- 1. M87
 - 2. M16
 - 3. M63
 - 5. M44
 - 6. M11
 - 7. M97
 - 9. M83
 - 11. M8
 - 13. M27
 - 14. M24
 - 15. M13
 - 17. M81
 - 21. M6
 - 22. M1
 - 25. M20
 - 27. M57

Images from the Email List



March 18th, 2020 Moon, Saturn, Jupiter and Mars Conjunction - Photo by Bruce Elliott



Comet 2019 Y4 Atlas
2020-03-27 15 Min 1x1

Comet C/2019 Y4 Atlas - Photo By Stephen Craig