

Saskatoon Skies

The Newsletter of the Saskatoon Centre of the Royal Astronomical Society of Canada

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To view *Saskatoon Skies* digitally, see our website:
<https://saskatoon.rasc.ca/newsletters.html>

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MEMBERSHIP? JOIN TODAY!

Regular: \$111.00 /year

Youth: \$61.10 /year

Family: \$105.50 + \$42.90/additional adult + \$22.20/additional youth

The Saskatoon Centre operates on a one-year revolving membership. You will be a member for the next 12 months no matter when in the year you join. Members are encouraged to renew early to avoid disruption in publications. Renew through the National Office at <http://www.rasc.ca/join>.

Benefits of Membership in the Saskatoon Centre

- knowledgeable & friendly amateur astronomers
- use of the Sleaford Observatory
- use of the U of S Observatory (after training)
- Saskatoon Skies Newsletter
- Observer's Handbook
- borrow the Centre's projector to give astronomy outreach presentations - contact Les Dickson at astrochem@sasktel.net
- rent the Centre's Telescopes <https://saskatoon.rasc.ca/telescopes.html>
- use of the Centre library
- Journal of the RASC (electronic format)

SASKATOON CENTRE'S MAIN OFFICERS:

President - Brent Burlingham

Vice-President - John Takala

Secretary - Lorie Tedford

Treasurer - Les Dickson

National Council Rep - Joelle Sheard-Patrick

Canadian Tire money - Darrell Chatfield

If you cannot attend a meeting but would like to donate your old Canadian Tire money please to assist with club purchases, email Darrell at novachat@sasktel.net.

NEWSLETTER & U OF S OBSERVATORY INFO

Newsletter Editor - Colin Chatfield

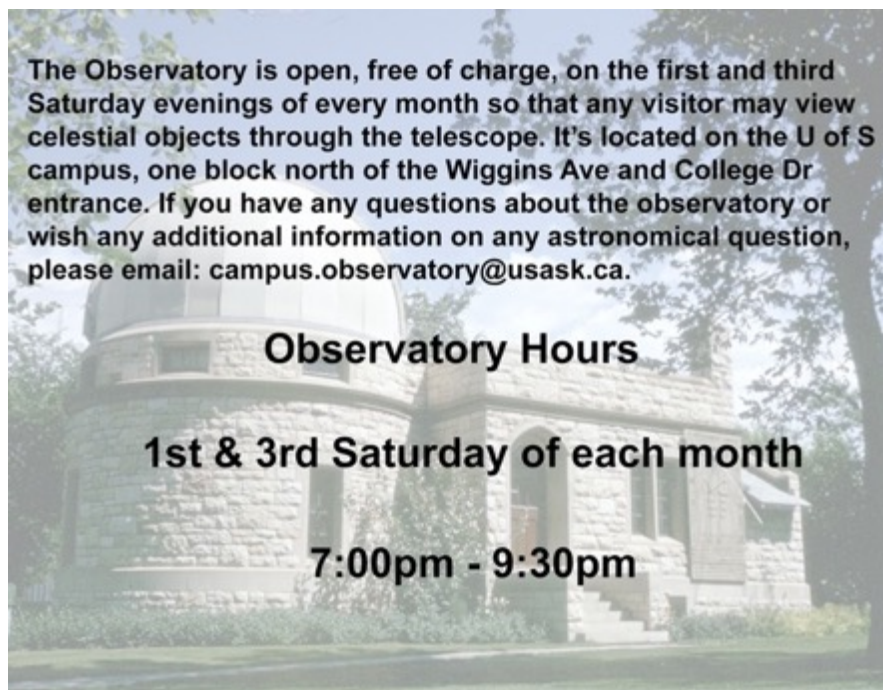
Copy & Collate - Les & Ellen Dickson

Labels & Temps - Mark de Jong

Web Posting/Content Editor - Tenho Tuomi/Andrew Kostiuk/Brent Burlingham

Saskatoon Skies is published monthly by the Saskatoon Centre of the RASC. Distribution is approximately 80 copies per issue. Saskatoon Skies welcomes unsolicited articles, sketches, photographs, cartoons, and other astronomy or space science material. Submissions should be sent by e-mail to the editor at colcha@gmail.com in MS Word or text format. Images (new or old): any format, less than 30MB, sent by e-mail as attached files. Send any articles of interest to the night sky or astronomy. **Deadline for submission of all articles for an upcoming issue is the first Friday of each month!**

Saskatoon Skies is also posted on our Saskatoon Centre homepage as a .pdf file and can be downloaded free-of-charge. Members may choose to receive the newsletter by regular mail or via the Internet. Articles may be reprinted from Saskatoon Skies without expressed permission (unless otherwise indicated), provided that proper source credit is given. Saskatoon Skies accepts commercial advertising. Please email the editor at colcha@gmail.com for rates. Members can advertise non-commercial items for free.



Hours subject to change, so check below for more info -

Website - <https://artsandscience.usask.ca/physics/facilities/observatory.php>

Facebook - <https://www.facebook.com/usaskobservatory/>

RASC CALENDAR OF EVENTS & MEETING INFO

Feb 10	RASC Saskatoon Centre General Meeting	Brent Burlingham
Feb 22	Observer's Group - Sleaford Observatory	Nick Larsen

Observer's group viewing starts at dusk at the Sleaford Observatory dark site. Get there early and set up for a great night of observing! Members and their guests only.

For a complete list of club events, please visit: <https://saskatoon.rasc.ca/activities.html>

February RASC General Meeting

for all members and guests

Join us on February 10th, 2024, at 8:00PM (Executive meeting at 7:00pm)
Webinar (info below)

***Please note:** the meeting will be at the U of S Observatory at 108 Wiggins Ave (on the U of S Campus)*

7:00pm - **RASC Executive Meeting** (Members may attend the executive meeting as observers if they wish)

A Zoom registration link and phone-in numbers will be emailed to Members. After that, the procedure to register and join the meeting is the same as for the webinar (explained below).

NOTE: links to register to attend the webinar will be emailed out as well so we know who is planning to attend. After registering, an email invitation will be sent with a link to join via computer or a number to phone in. When joining via computer, participants will have to first download and install the Zoom app, if they have not done so already.

8:15pm - **Main Program -**

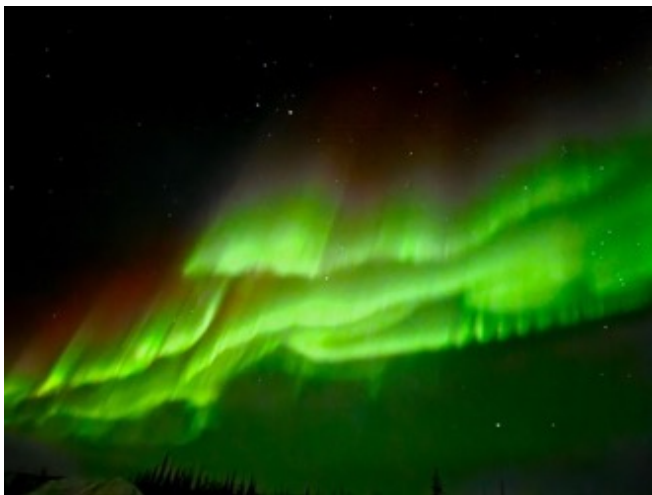
“What's Up This Month?” - Colin Chatfield

“Solar Maximum and related Aurora Expectations” - Ron Waldron

FEBRUARY SPEAKER INFO

Ron Waldron, longtime member of the Saskatoon Centre, will present a 40-minute talk on the present Solar Maximum and related aurora expectations. Ron has been giving aurora lectures and tours for the Churchill Northern Studies Centre in Manitoba, and for Road Scholar aboard Hurtigruten ships along the western coast of Norway for the past 7 years so he will highlight his photos from these prime locations as well.

Night One for my Road Scholars at the Churchill Northern Studies Centre in Churchill, Mb. I'm 20 min into my introductory lecture and this happens. Ninety minutes of auroral splendor.



Want to learn more? Come to the February meeting and I will share my experiences showcasing the northern lights both in Churchill and in Norway!



Nick Larsen teaching the imaging workshop.

Joelle and Cam taking in the imaging workshop.



BOOKS AND EQUIPMENT FOR SALE

All books are in either new, or like new condition. Retail price in brackets. Please email at novachat@sasktel.net or text/call 306-222-0515 if you want a particular book or to make arrangements. All books being sold by Darrell Chatfield.

“Deep-Sky Observers Handbook”	Volume 1-5	Enslow-Lutterworth	\$40.00
“International Encyclopedia of Astronomy”	1987	Patrick Moore	Color \$10.00
“Backyard Astronomers Guide”	T. Dickinson & Alan Dyer	2008	Color \$25.00
“Atlas of Deep Sky Splendors”	1978	H. Verhenberg	B & W \$22.00
“Amateur Astronomers Catalog of 500 Deep Sky Objects”	Vol 1	1980	B & W \$15.00
R. Morales			\$15.00
“Observing the Constellations”	1989	J. Sanford	Color charts \$10.00

Please email me if you want to see any items - novachat@sasktel.net. Darrell Chatfield

- **2 - 1.25” rack and pinion focusers** for refractor type telescopes. Brand new. Never used. Inset diameter is 57mm. Heavy duty type with metal knurled knobs. All have boxes. \$20.00 each.

- **Original Celestron orange tube C5” scope** with tangent arm. Fork arms. SCOPE ONLY. No tripod or wedge. 5 x 30 finder, 1.25” visual back, diagonal, eyepiece, lens cap, metal case. Was used as a spotter scope. Not a mark on the tube. Clean looking. \$250.00

1	1.25” eyepiece extender - 3” long	\$20.00
1	1.25” Celestron off axis guider c/w 12.5mm ep.	Can be illuminated. New. \$45.00
1	Celestron 1.25” reticle.	Can be illuminated \$20.00
1	3.5” long 1.25” tele-extender	\$20.00
3	1.25” visual backs	new \$10.00 each
1	1.25” to 0.965’ visual back	\$10.00
1	Camera to visual back adapter	Lightly used \$10.00
1	Threaded visual back to 16mm male threads camera adapter	\$10.00

PRINTED NEWSLETTERS

Please note that starting with the recent December 2024 newsletter, the printed newsletters will not be mailed any longer.

MINUTES OF JANUARY MEETINGS

Lorie Tedford

Minutes of the Monthly Executive Meeting of the RASC Saskatoon Centre Monday, Jan 20th, 2025 - 7:00 pm Hybrid: Online & In-person: U of S Observatory

Attending: Brent Burlingham, Lorie Tedford, Les Dickson, Joelle Sheard-Patrick, Colin Chatfield, Darrell Chatfield, George Charpentier, John Takala, Yannis Pahatouroglou, Mark de Jong, Nick Larsen

- 1. Call to order** 7:00 pm – Brent Burlingham (President and Chair)
- 2. Approval of the Executive meeting minutes for November 2024** as printed in the December newsletter. Moved by Nick Larsen, seconded by Darrell Chatfield; carried.
- 3. Call for additional announcements/items to add to the agenda.**
- 4. Announcements from the Chair** – None to present.
- 5. Old Business - Reports from the Executive Council**
 - 5.1 President's Report** – Brent Burlingham
 - Thanks to Lorie Tedford and Great Western Brewery for hosting the Christmas gathering.
 - 5.2 Acting Treasurer** – Les Dickson
 - Discussed the reports for the ISC and RASC National.
 - 5.3 National Council Rep** – Joelle Sheard-Patrick
 - National is putting in an order for outreach material, Joelle will let them know to order some materials for the centre.
 - 5.4 Activities Coordinator** – Joelle Sheard-Patrick
 - The RASC has been asked to do a presentation for the Girl guides to help earn their science badge. Joelle is going to follow up for details and then get a group to set up some scopes or make a presentation.
 - Meewasin Planet viewing event with Tim Yaworski on February 7th from 7-9 pm at Beaver Creek, February 8th is the backup if warranted. Members volunteered to bring out scopes.
 - Meewasin Lunar Eclipse event with Tim Yaworski on March 13th at 10 pm at Beaver Creek.

5.5 Sleaford Update – Darrell Chatfield

- The RM did a snow removal of the site.
- Darrell is going to get in touch with Larry about use of the snowblower.

6. Old Business

6.1 Ike Theissen – Memorial

- Discussed purchasing a 5x7 colour plaque dedicated to Ike. Motion made by Darrell Chatfield to buy a 5x7 plaque for \$50-\$75, seconded by Joelle Sheard-Patrick; carried.

6.2 Club Assets Update

- An inventory of the club assets needs to be compiled for our insurance.
- Need to have an assessment of the value of the items, determine if they are of use or if they need to be included.
- Darrell, Jeff and Nick will make a master list of all items.

6.3 Post Processing Workshop Sessions at the U. of S. Observatory

- Proposal and inquiry about potentially hosting a workshop of imaging workflow and post processing.
- Waiting for the University to respond, Yannis will reach out to get a response.
- An email will be sent out to the members to see who is interested and with details.

7. New Business

7.1 Delegation of National request for financial, Centre and eclipse activity reports by March 7th.

- Lorie to compile the Centre activity report.
- Brent to send a paragraph about the eclipse.
- Les will compile the financial report.

7.2 Creation of a Fundraising Coordinator Position - Motion made by John to create a position for fundraising and to elect Verity Moore-Wright to the position, seconded by Joelle Sheard-Patrick; carried.

7.3 SSSP Finance Update – Les Dickson

- Moved by Les Dickson, seconded by Mark de Jong, that \$875 be paid to RASC Regina Centre as its share and that \$2,625 be paid to the RASC Saskatoon Centre General Account as its share of the SSSP 2023 profit disbursement of \$3,500.

7.4 Additional Materials for the Newsletter

- Discussed adding various components to the newsletter.
- If any members have photos, in progress or completed projects they want to share, equipment they want to talk about to send it to Colin.

- Discussed the idea of featuring different club members. If anyone is interested, send a small paragraph to Colin with either photos of yourself or photos you would like to share.

7.5 Newsletter Printing for the Library

- Discussed discontinuing printing colour copies for the libraries as Les uses his own printer and the cost of ink is too expensive for the club.
- Going to reach out to the library to see if a digital copy can be supplied and printed at their own discretion.

8. Motion to adjourn by Brent Burlingham; carried. 8:10pm

Minutes of the Monthly General Meeting of the RASC Saskatoon Centre Monday, Jan 20th, 2025 - 8:15 pm Hybrid: Online & In-person: U of S Observatory

Minutes taken and prepared by Lorie Tedford.

- 1. Sharing/Networking Time** - 8:00-8:15 pm – all members.
- 2. Call to Order** – 8:30 pm – Brent Burlingham (President and Chair)
- 3. Call for additional announcements/items to add to the agenda.**
- 4. Call out to new members/guests:** Bud Kays and Brian Kostka.
- 5. Adoption of the November General meeting minutes** as printed in the December newsletter. Moved by Les Dickson, seconded by Lisa Caldwell, carried.
- 6. Executive Meeting Summary** – Brent Burlingham
 - The Meewasin Planet Viewing event with Tim Yaworski is on February 7th from 7-9 pm at Beaver Creek. Back up day is February 8th.
 - The Girl guides have requested a presentation from the RASC to help earn their science badge, details to come.
 - National has requested financial, centre and eclipse activity reports by March 7th.
 - A memorial plaque is being ordered for Ike Thiessen.
 - The club will be discontinuing printing the newsletter and requesting if a digital copy will suffice for the library as printing colour copies is a great cost.
 - A proposal of an imaging workflow and post processing workshop presented by Nick Larsen on Saturday afternoons at the U. of S Observatory. Need to wait for a response from the University for approval. If you are interested, please reach out to Brent.

- Additional material and photos are needed for the newsletter. Please send any material you want to share with the club to Colin.
- A Fundraising position was created, and Verity Moore Wright was elected to fill the position.
- Discussed the SSSP financial update and motion carried to disperse SSSP profits to the Centres.
- Darrell, Nick and Jeff are compiling an inventory list of all the equipment in possession of the club to determine the value and whether it needs to be included in our insurance as the insurance policy is needing to be updated.

7. Program

7.1. “The Upcoming Sky” presented by Colin Chatfield.

7.2. “An Introduction to Astrophotography” – Nick Larsen will provide an overview of equipment and techniques he uses to create images of deep space objects.

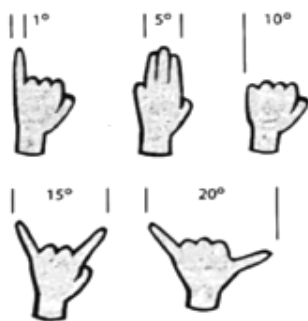
8. Call to adjourn – Moved by Les Dickson; carried.

FEBRUARY NIGHT SKY EVENTS AND INFO

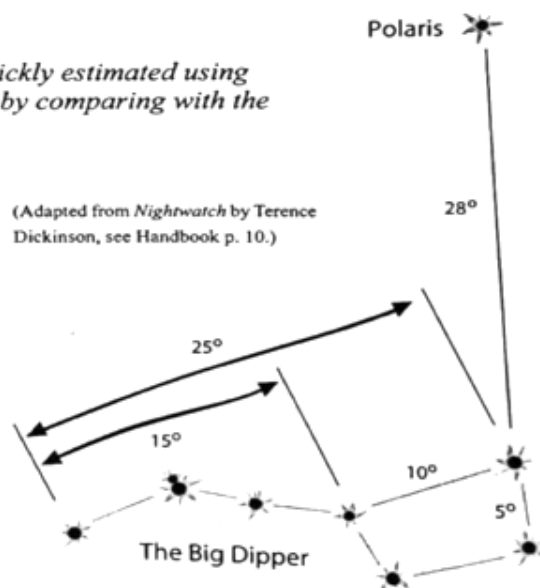
Images on the next few pages used, with permission, from the 2024/25 Observer’s Handbook. It can be obtained by joining the RASC here <http://rasc.ca/join> or ordered from <https://secure.rasc.ca/store>.

HANDY SKY MEASURES

Angular measure in the sky can be quickly estimated using the fingers of an outstretched arm, or by comparing with the star separations in the Big Dipper.



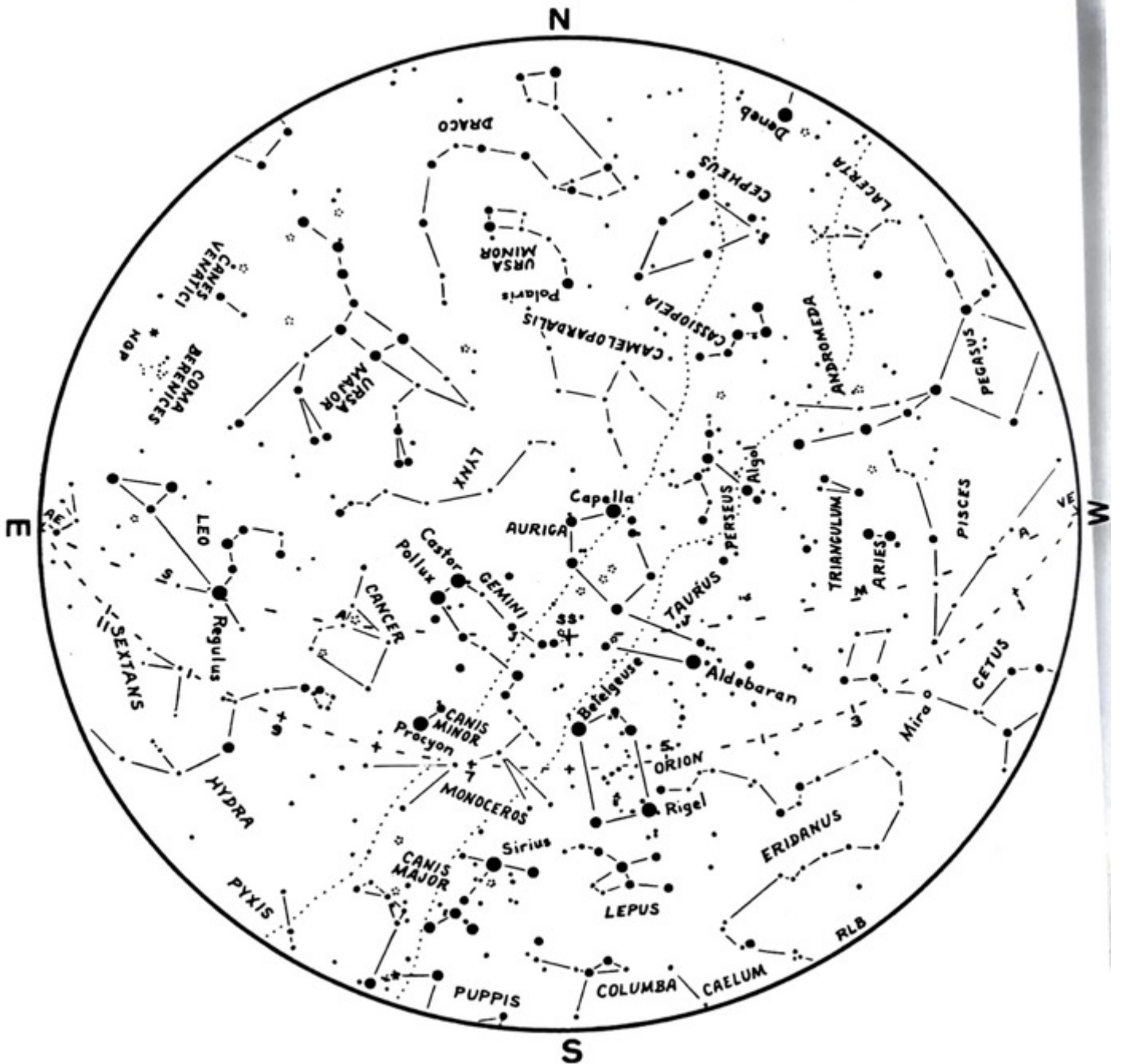
(Adapted from *Nighthwatch* by Terence Dickinson, see Handbook p. 10.)



RASC OBSERVER'S HANDBOOK 2024 – STANDARD EDITION

Time (UT)		FEBRUARY EVENTS	Jupiter's Satellites	
d	h m		West	East
Sat.	1 5	Saturn 1.1° S of Moon, occultation¹		
	20	Venus 2° N of Moon		
	22 06	Moon at ascending node		
	23	Neptune 1.4° S of Moon, occultation²		
Sun.	2 3	Moon at perigee (367 457 km)		
	20 51	Algol at minimum		
Mon.	3			
Tue.	4 13	Jupiter stationary		
Wed.	5 8 02	first quarter		
	17 40	Algol at minimum		
Thu.	6 7	Moon 0.5° N of Pleiades (M45)		
Fri.	7 4	Jupiter 5° S of Moon		
Sat.	8 14 29	Algol at minimum		
Sun.	9	Mercury at greatest heliocentric lat. S		
	12	Mercury in superior conjunction		
	20	Mars 0.8° S of Moon, occultation³		
Mon.	10			
Tue.	11 11 18	Algol at minimum		
Wed.	12 13 53	full Moon		
Thu.	13			
Fri.	14	Zodiacal light vis. in N lat. in W after evening twilight for next two weeks		
	8 07	Algol at minimum		
	22	Ceres in conjunction with the Sun		
	22	Venus greatest illuminated extent		
Sat.	15 6 53	Moon at descending node		
Sun.	16			
Mon.	17 4 56	Algol at minimum		
	13	Spica 0.3° N of Moon, occultation⁴		
Tue.	18 1	Moon at apogee (404 882 km)		
Wed.	19			
Thu.	20	Venus at perihelion		
	1 45	Algol at minimum		
	17 32	last quarter		
Fri.	21 9	Antares 0.4° N of Moon, occultation⁵		
Sat.	22 22 34	Algol at minimum		
Sun.	23			
Mon.	24 10	Mars stationary		
Tue.	25 10	Pluto 1.0° N of Moon, occultation ⁶		
	19 23	Algol at minimum		
	21	Mercury 1.7° N of Saturn		
	21 02	Double Shadows on Jupiter		
Wed.	26			
Thu.	27	Mercury at ascending node		
Fri.	28 0 45	new Moon (lunation 1264)		
	3	Venus stationary		
	16 12	Algol at minimum		

¹N parts of SE Asia, China, Japan, E Russia. ²Extreme W tip of Alaska, extreme E tip of Russia.



REIMBURSEMENT FOR CENTRE EXPENSES

The Centre has a reimbursement procedure on submission of expense claims. A writeable pdf claim form can be found on the Centre webpage under the Executive tab. The expense form **must** be submitted *along with original receipts* to the Treasurer within 30 days of the transaction. All expenditures must be preapproved by the Executive or be within allocated budgets.

Please contact the Treasurer with any inquiries.

PRESIDENT'S MESSAGE

Brent Burlingham

I wanted to make some comments on what we've accomplished in the last year with our club. I think it's important to mark the progress we've made, and to anticipate our way forward.

I am so very proud of how we've come together to heal some past inequities and misunderstandings. The RASC Saskatoon Centre was very close to ending a long tenure as a source of astronomical knowledge and passion, almost dissolving in a tragic lack of communication and an inability to heal and undertake the core mission of sharing our common love and passion for astronomy.

The isolation and difficulties of the pandemic were partially to blame, but we have persevered and are once again reaching out to the public and introducing them to the wonders of the universe around them every day and night.

The apathy the club was experiencing in the membership has been replaced with the enthusiasm and dedication of both new and old members who are once again pursuing the core mission of the club – sharing knowledge and enthusiasm and, most importantly, having fun doing so.

The alarming drop in membership after decades of very steady numbers has reversed, and we have seen an increase in the last year. The popularity of astronomical imaging has injected new membership and enthusiasm into the club.

Our first sessions of Saturday Workshops at the historic U. of S. Observatory have begun, providing free sessions on image processing. We hope to offer subsequent workshops on a regular basis – the first of which will probably be a beginner's guide to what to do with that new telescope.

I am extremely proud of our progress and look forward to having more fun learning and sharing our knowledge with each other and the public in the coming years.

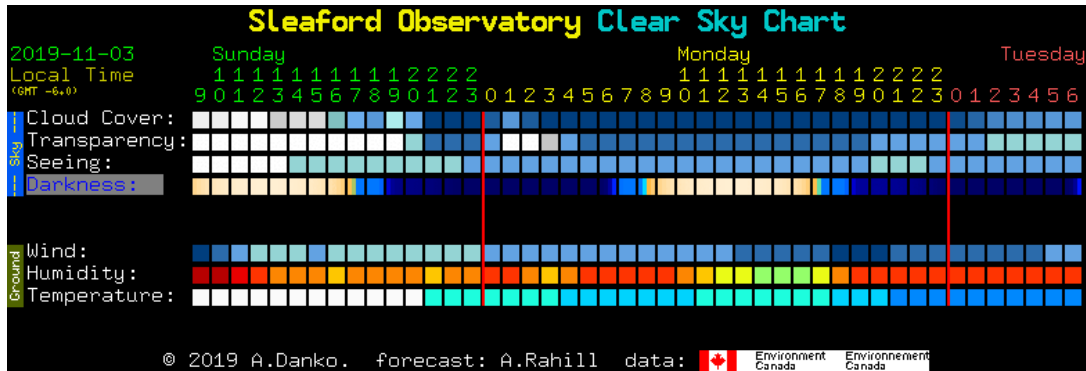
Clear Skies!

CLEAR SKY AND WEATHER INFO

To find clear skies, visit the Clear Dark Sky website -

<https://www.cleardarksky.com/csk/>

Once there, one can enter your location to find clear skies. The chart will appear as follows:



Environment Canada provides weather information for astronomy -

www.weather.gc.ca/astro



Saskatchewan Light Pollution Abatement Committee -

<http://myotherlife.net/slpac/>



www.darksky.org

RENTAL TELESCOPES

Jeff Swick

As some of you know, our centre has several scopes available to rent. We have two 8 inch and one 10-inch dobsonian scopes. They will also come with either a telerad or a finderscope or both depending on what is available at the time as well as a couple of eye pieces. One of the scopes however needs two tension handles but is functional.

Dobsonian scopes are loved for both their simplicity and in this case, great optics. Whereas it can take me about a half hour to get my entire rig set up, the other night was cold and clear, and I had one of the dobs in the garage and had it set up and ready to observe in under a minute. Jupiter with its belts and moons was spectacular with my 6mm Televue Delos eyepiece. Ease of use certainly fit the bill that night as I had just got home and wanted a quick look. No wonder so many astronomers recommend these scopes to first time astronomers.

The cost is very affordable at twenty dollars per month. It is a requirement that you must be a club member in good standing. If you are thinking of making the jump into telescopes, this is certainly an affordable way to try it out without spending a couple of hundred dollars.

There are more details on our centre's web page at <https://saskatoon.rasc.ca/>. You can reach our centre by emailing us as sk_centre@rasc.ca.



RASC SASKATOON MEMBER BIO

Joelle Sheard-Patrick

I would consider myself a life-long stargazer. I am truly happiest when I am just lying on my back and looking up at dark skies scanning through the summer constellations. As a child and pre-teen, I knew many of the constellations and the mythology behind them. I am actively trying to relearn what I have forgotten over the years. I am slowly getting better at Star hopping and finding deep space objects now that I know where to look.

During covid lock downs I took advantage of the wonderful observing zoom sessions offered by RASC National such as Insider's Guide to the Galaxy, the Moon at Noon and Messier Minutes. Excited, I bought a pair of Celestron 10x50 astronomy binoculars and my very first telescope - a small and lightweight short tube Orion 80 mm and a very basic alt-az mount, that I have since upgraded to a Skywatcher AZ-Gti go-to mount.

For anyone new and looking to get into astronomy, I strongly recommend viewing these pre-recorded video sessions on the RASC National YouTube. The sessions provide a week-by-week guide of what is in the sky and offer basic Stellarium training. I learned so much and was left with the desire to join my local RASC club. At least a few good things came out of covid!

This is my 3rd year as a member of RASC Saskatoon. I have volunteered for the role of Activities Coordinator and National Council Representative, and I have joined the Summer Star Party Committee. I look forward to outreach opportunities and learning new things from the many talented and knowledgeable members and new friends I have made. If you have been thinking about Astronomy just jump right in headfirst! There are so many exciting and cool things to look at and there are people happy to help you along the way.

I am a visual observer and know very little about astrophotography. I am currently working on (and very close to being finished) my first RASC visual observing program "*Explore the Universe*". I hope to complete and submit my logbook this spring for my first certificate and pin. I am little way through the "*Observe the Moon with a Small Telescope*" program. Hopefully the next few years will bring the confidence to start the Messier Catalogue program, though right now that seems like it is a long way off. I am excited about that one!

Last Spring I got a case of "aperture fever" and ordered my Celestron NexStar 8SE. I am still finding it daunting when it comes to aligning it and so I consider this a work in progress. In the hope that it will make my life and observing session set ups quicker and easier, and my aligning problems disappear, I am now saving my pennies for Star Sense Auto Align. I still find my 80 mm refractor much easier to use!

I recently took trip to the Gulf of Papagayo, Guanacaste, Cost Rica this January. I was relieved to see very few streetlights and despite the high humidity, dark clear skies. It was amazing to see Orion so high in the sky (and depending on my view, lying sideways) and seeing Cassiopeia “upside down”. Armed with my Little book of Constellations, and my printed Skymaps.com January equatorial edition planisphere I saw the Southern Cross, Alpha and Beta Centauri, Argo (Puppis, Vela and Carina) Monoceros, Centaurus, Lepus, Columba and Canopus for the first time and searched for DSO targets nearby.

I had the best time finishing my Explore the Universe Winter Targets in warmth and dark clear skies! I found a few secluded dark spots around the resort and felt quite safe being out in the early morning hours on my own. Most nights I wound up in my “happy place” - lying in the middle of a tennis court looking up in the early morning hours in 23 degrees Celsius weather, listening to howler monkeys and other exotic sounds with the curious coatis trying to sneak up for a peek and check out what I was up to! I was the last one up most mornings and often missed out on breakfast, but it was worth it.

Sadly, I wasn’t able to image the Magellanic Clouds or Tucana, and the Carina Nebula was too low on the horizon, but I did get some decent imaging of the Rosette and Coal Sack Nebulae with my See-Star s50. (Note to anyone flying internationally with their See Star as carry-on luggage - it was very easy to store under the seat in front of you or in an overhead bin and I had zero issues at Security screening checkpoints).

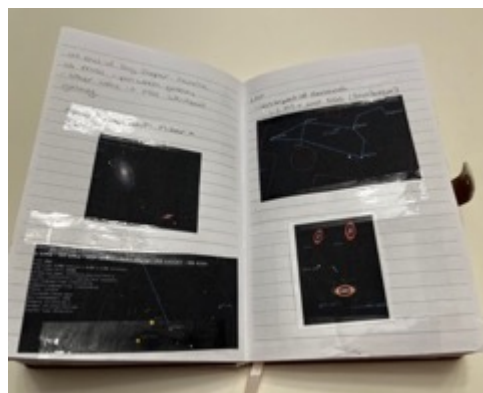


Well, that’s my story in a nutshell. I am by no means a master of the skies, but I am learning a lot and having fun!

My geeky notebook from RASC National’s “Insider’s Guide to the Galaxy” Zoom sessions full of notes and printed Stellarium screen shots during Covid lock down. I got hooked and watched every session!



A not-so-great cell phone pic of the Southern Cross (Crux) and Alpha and Beta Centauri (Hadar and Rigel Centaurus) low on the horizon.



SLEAFORD OBSERVATORY REPORT

Darrell Chatfield – Sleaford Site Coordinator

Hello everyone. Here is a small report on Sleaford, which is mainly a reiteration of my verbal report at our last club meeting.

Nov 23, 2024 - the R.M. of Colonsay foreman had called me to say that he had blown out the site this day around 2pm. It sounded like he removed a fair swath of snow.

Jan 25, 2025 - Larry Scott had gone out to our site with the idea of snow blowing as needed. Well, firstly, he could not get the blower to start after an hour of trying. So, he and I will go out (in warmer weather) and work on that aspect.

Secondly, even if the blower did run, Larry would not have been able to clear the amount of snow that was present! So, I guess it worked out, so to speak. I had a conversation with the R.M. last week about clearing out the snow load before the February observing session, slated for Feb. 22.

Larry noticed upon entry to the warmup shelter, that there was no power to the inside lights, heater, etc., even with the main breaker ON. So, Larry checked panels and found that 2 breakers below the main panel were OFF. When this is done, this not only turns off lights, etc., but also turns off power to our composting toilet. That's not good!

Please note that this is the 2nd time those bottom breakers have been found in the OFF position. Whomever is using the shelter, you must **turn on/off the MAIN BREAKER ONLY**. It's the top large breaker in the bigger panel we have all seen on the East wall. I will mark it somehow when the weather is warmer so there is no confusion about this again. Otherwise, there will be an exploding dye pod in the smaller panel below the main panel as a deterrent to tampering (haha)!! Thank you.





Steel wool is packed into a metal kitchen whisk on the end of a rope, then ignited with a 9-volt battery. As Tim swung it around the class shot four second exposures to capture the “firework”.

Tim Yaworski led an Astrophotography workshop at the Hawood Inn in Waskesiu on the Jan 31 weekend. The daytime workshop was supposed to be followed by an evening photowalk under the stars to try out their new skills. Unfortunately clouds prevailed so the focus shifted to a steel wool photography session in front of the hotel.



OBSERVING CERTIFICATES AND CLUBS

RASC OBSERVING PROGRAMS AND CERTIFICATES

The RASC offers four observing certificates for **members** who observe all objects in each of the following observing lists in this chapter:

THE MESSIER CATALOGUE (p. 312)

THE FINEST NGC OBJECTS (p. 316),

THE DEEP-SKY CHALLENGE OBJECTS (p. 320),

DEEP-SKY GEMS (p. 322).

See rasc.ca/certificate-programs for details and contact the RASC Observing Committee Chair at rasc.ca/contact/observing for further information.



The RASC also offers the **Explore the Universe Certificate** for novice observers (who do not have to be RASC members), the **Explore the Moon Certificate** for beginning members, and the **Isabel Williamson Lunar Observing Certificate** and the **Double Stars Observing Certificate** for intermediate to advanced members. In addition, **Astroimaging certificates** are available for those members with a photographic bent. See rasc.ca/astro-imaging-certificate

RASC OBSERVER'S HANDBOOK 2023 – STANDARD EDITION

Join the Club! Observe all 110 Messier, 110 Finest NGC, 400 Herschel I or II, 140 Lunar, 154 Sky Gems or 35 Binocular objects, or Explore the Universe and earn great OBSERVING CERTIFICATES!

MESSIER CLUB

Certified at 110 Objects:

*R. Huziak, G. Sarty,
S. Alexander, S. Ferguson,
D. Chatfield, T. Tuomi, L.
Scott, G. Charpentier, B.
Johnson, L. Dickson,
B. Burlingham, Norma Jensen,
Donna-Lee May*

Ron Waldron	108
Brent Gratias	104
Marcel Müller-Goldkuhle	94
Wade Selvig	75
Wayne Schlapkohl	43
Ellen Dickson	34
Graham Hartridge	9

CHATFIELD BINOCULAR CERTIFICATE

Certified at 35 to 40 Objects:
T. Tuomi, R. Huziak

Jim Goodridge	12
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FINEST NGC CLUB

Certified at 110 Objects:

*R. Huziak, G. Sarty,
D. Chatfield, T. Tuomi*

Larry Scott	110
Scott Alexander	97
Norma Jensen	83
Sandy Ferguson	23
George Charpentier	13
Brent Burlingham	97

EXPLORE THE UNIVERSE

Certified at 55 to 110

Objects: *T. Tuomi, B. Gratias*

Wayne Schlapkohl	55
Jim Goodridge	35

ISABEL WILLIAMSON LUNAR OBSERVING CERTIFICATE

Certified at 140 Objects:

T. Tuomi, N. Jensen

EXPLORE THE MOON CERTIFICATE

T. Yaworski

Brent Gratias	37
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HERSCHEL 400 CLUB

Certified at 400 Objects:

*R. Huziak, D. Chatfield,
T. Tuomi*

Gordon Sarty	251
Scott Alexander	117
Larry Scott	45
Sandy Ferguson	18

HERSCHEL 400-II CLUB

Darrell Chatfield	400
Tenho Tuomi	378
Rick Huziak	246

LEVY DEEP-SKY GEMS

Certified at 154 Objects:

Tenho Tuomi	150
Darrell Chatfield	70

Messier, Finest NGC, and David Levy's Deep-Sky lists in the *Observer's Handbook*.

The Explore the Universe list is available here <http://www.rasc.ca/explore-universe>
Messier and Finest NGC lists, charts and logbooks: <https://www.rasc.ca/certificate-programs>

Herschel 400 List: <http://www.astroloague.org/al/obsclubs/herschel/hers400.html>

Chatfield Binocular List is at: [https://saskatoon.rasc.ca/Chatfield Binocular List.pdf](https://saskatoon.rasc.ca/Chatfield_Binocular_List.pdf)

“Isabel Williamson Lunar Observing Program Guide” program details can be found at:

<https://www.rasc.ca/isabel-williamson-lunar-observing-program>