

Saskatoon Skies

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

Volume 56, Number 04

April 2025



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

| In This Issue: | |
|---|-------|
| Membership Information / Officers of the Centre | 2 |
| Newsletter Info / U of S Observatory Info | 3 |
| Calendar of Events & Meeting Info | 4 |
| Sask Summer Star Party 2025 - April Update | 5 |
| Books and Equipment For Sale / Printer Newsletter Info | 6 |
| Minutes of March Meetings | 7-10 |
| April Night Sky Events & Info / Reimbursement for Centre Expenses | 10-12 |
| Global Astronomy Month | 13 |
| Upcoming Events / Update on Telescopes | 14 |
| Clear Sky Chart / Weather Info / Light Abatement Info | 16 |
| Observing Certificates & Clubs | 17-18 |

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

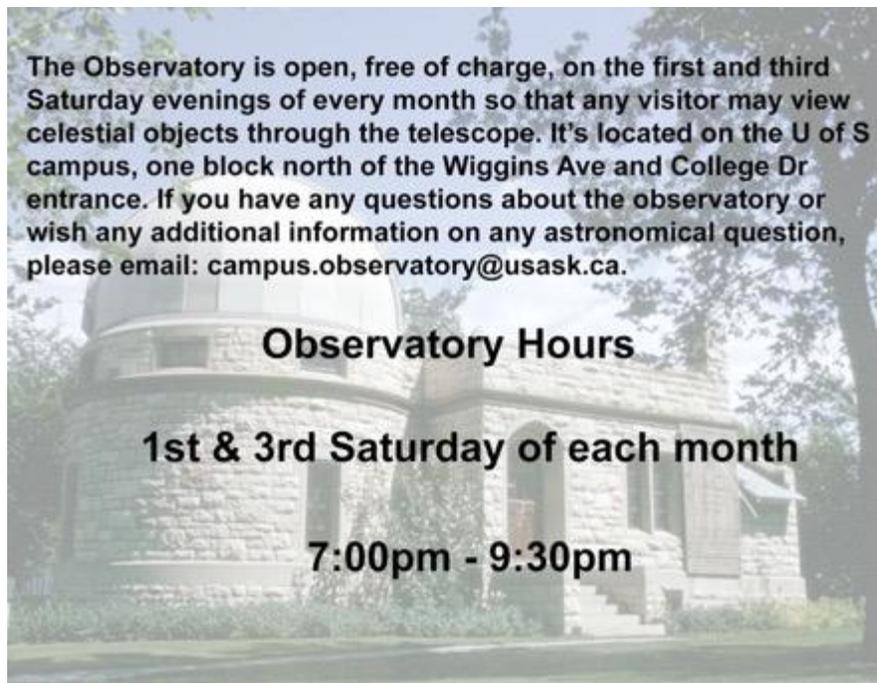
Copy & Collate - Les & Ellen Dickson

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

| | | |
|-----------------|--|------------------|
| April 14 | RASC Saskatoon Centre General Meeting | Brent Burlingham |
| April 26 | 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>

April RASC General Meeting

for all members and guests

Join us on April 14th, 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

“Beginner Planetary Imaging on a Budget” - Nick Larsen

SASK SUMMER STAR PARTY 2025 - APRIL UPDATE

Les Dickson - Chair of SSSP 2025

Members of the Saskatoon and Regina Centres are busy planning the 28th Saskatchewan Summer Star Party.

SSSP is held at the Cypress Hills Interprovincial Park Center Block, 30 km south of Maple Creek on Highway 21. It runs from noon of Wednesday, August 20th to noon on Sunday, August 24th.

Attendees have the option of camping in the Meadows or Dark-Sky campgrounds or staying in the Resort, which has hotel rooms, cabins and townhouses available. Camping spots are assigned on a first-come-first-serve basis and booked through Rick Huziak rather than through the Provincial Reserve-a-Site website.

Important Dates:

- April 12 8:00 am – Camping bookings open
- April 15 – Early Registration opens
- April 15 – The Provincial Reserve-a-Site opens
- June 16 – Release of unreserved Resort accommodations
- July 12 – End of Early Registration
- August 20 – SSSP 2025!

Guest Presenters (so far):

- Dr. Chris Herd, Professor in the Faculty of Science – Earth & Atmospheric Science Administration, University of Alberta
- The RADSAT-SK2 Project Team, College of Engineering, University of Saskatchewan
- Kimberly Sibbald, Alberta
- Nick Larsen, Saskatoon Centre
- Ron Waldron, Saskatoon Centre

Thank you, Nick and Ron, for stepping up to help this year!

We encourage our members to come to SSSP to enjoy the daytime activities and the dark skies, but also to **help us make it a success.**

For more information, see the website at <https://sssp.saskatoon.rasc.ca>.

Contact us at sssp.sk@sasktel.net or call Rick Huziak for camping and registration information at 306-280-1899 (cell) or Les Dickson at 306-270-9184 (cell).

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 |
| 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 December 2024 newsletter, the printed newsletters will not be mailed any longer.

MINUTES OF MARCH MEETINGS

Lorie Tedford

Minutes of the Monthly Executive Meeting of the RASC Saskatoon Centre Monday, Mar 17, 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, Jeff Swick, Verity Moore-Wright, Nick Larsen.

- 1. Call to order** 7:00 pm – Brent Burlingham (President and Chair)
- 2. Approval of the Executive meeting minutes for February 2025** as printed in the March newsletter. Moved by Nick Larsen, seconded by Joelle Sheard-Patrick; 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 Nick Larsen for the image processing workshops.
 - 5.2 Acting Treasurer** – Les Dickson.
 - There was a \$125 donation from Tim to the club as part of the Beaver Creek event. Thank you Tim.
 - The report to National has been sent, currently compiling the report for the ICS.
 - 5.3 National Council Rep** – Joelle Sheard-Patrick
 - None to present.
 - 5.4 Activities Coordinator** – Joelle Sheard-Patrick
 - The RASC attended a session with the Girl Guides to help earn their science badge. Joelle put together activities as well as Jeff and Brent brought telescopes for the kids to look at as it was a cloudy night.
 - Meewasin Planet viewing event with Tim Yaworski February 7th from 7-9 pm at Beaver Creek, February 8th is the backup if warranted. Members volunteered to bring out scopes. The event is sold out.
 - Messier Marathon planned for March 29th at Sleaford for members.
 - Discussed Tim's event on April 21st for Dark sky week and potentially hosting our own event.

5.5 Sleaford Update – Darrell Chatfield

- None to present.

5.6 Fundraising Update – Verity Moore-Wright.

- Reached out to different clubs for fundraising/outreach advice.
- Going to be working with Joelle to plan the outreach events.
- Discussed the possibility of having a banner with a QR code for when we are at events for donations, information etc.

6. Old Business

6.1 Ike Thiessen – Memorial

- Plaque is mounted in the U. of S. Observatory Library.

6.2 Club Assets Update

- The telescopes have been organized and matched with the corresponding mounts.
- A few scopes have been tagged to potentially sell or raffle off.

7. New Business

7.1 Saturday Workshops at the Observatory

- Discussed the potential for Nick to host an introductory image processing workshop as well as Tim has suggested a workshop for a beginner telescope usage. An email to gauge interest will be sent.

7.2 Charity Status of the club

- There are some clubs registered as charities and discussed the pros and cons of doing so.
- The charity status of the club will remain as status quo with the treasurer term ending this year.

7.3 Lack of U. of S. participation in the Sleaford Joint Agreement

- Discussed not having a representative for the Sleaford site to address upkeep, issues, assets etc.
- Yannis was going to get in touch with the University.

7.4 SSSP Camping and Registration

- Dates for camping registration and registration for the upcoming SSSP will be announced soon.

8. Motion to adjourn by Nick Larsen, seconded by Joelle Sheard-Patrick; carried. 8:06pm.

**Minutes of the Monthly General Meeting of the RASC Saskatoon Centre
Monday, Mar 17, 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** – 8:25 pm – Brent Burlingham (President and Chair)
- 3. Call for additional announcements/items to add to the agenda.**
- 4. Call out to new members/guests:** 2 new guests.
- 5. Adoption of the January General meeting minutes** as printed in the February newsletter. Moved by Lisa Caldwell, seconded by Les Dickson, 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 event is currently sold out. There was confusion from the public over the price of the tickets for this event. It was a special fundraising event for Meewasin as they do not have funding, but the advertising did not reflect this.
 - The Girl Guides have requested a presentation from the RASC to help earn their science badge, details to come.
 - There was also a booth set up at the Blades game for their Space night hockey game.
 - National has requested financial, centre and eclipse activity reports by March 7th. Final drafts will be sent to the Executive for review before submission. Thank you to Lorie and Les for compiling the reports.
 - National has a few activities coming up (see Executive minutes for dates), they are also providing more outreach materials for students and laser certification training.
 - A memorial plaque is being ordered for Ike Thiessen as well as an additional plaque for the founding fathers of the centre. Thank you to Darrell for organizing the plaques.
 - Nick Larsen is running an Imaging Process Worksop on Saturday afternoons from February 1st to March 1st 1-5 pm at the U. of S Observatory. If you are interested in participating reach out to Nick for details. Thank you to Yannis for arranging the use of the Observatory and thank you to Nick for instructing.
 - Darrell, Nick and Jeff are continuing to compile 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 Comparison of DSLR, CCD, CMOS Cameras for Photometry presented by Mark de Jong.

8. Call to adjourn – Moved by Yannis Pahatouroglou; carried.



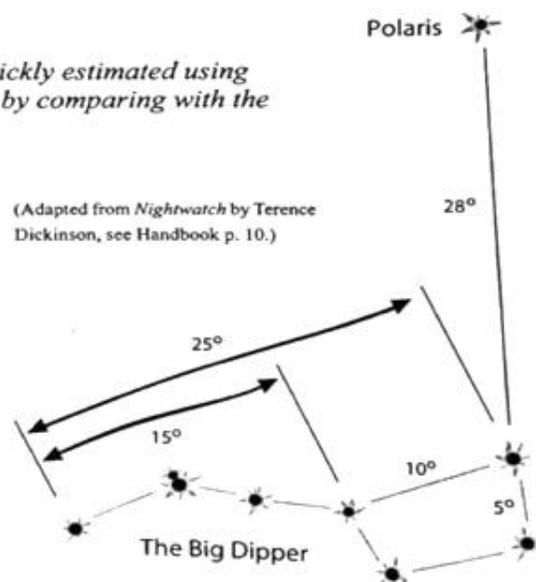
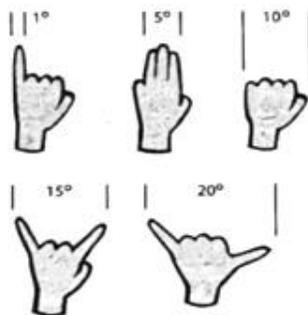
4% crescent Moon a few nights ago in Saskatoon. Taken by Colin Chatfield

APRIL 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

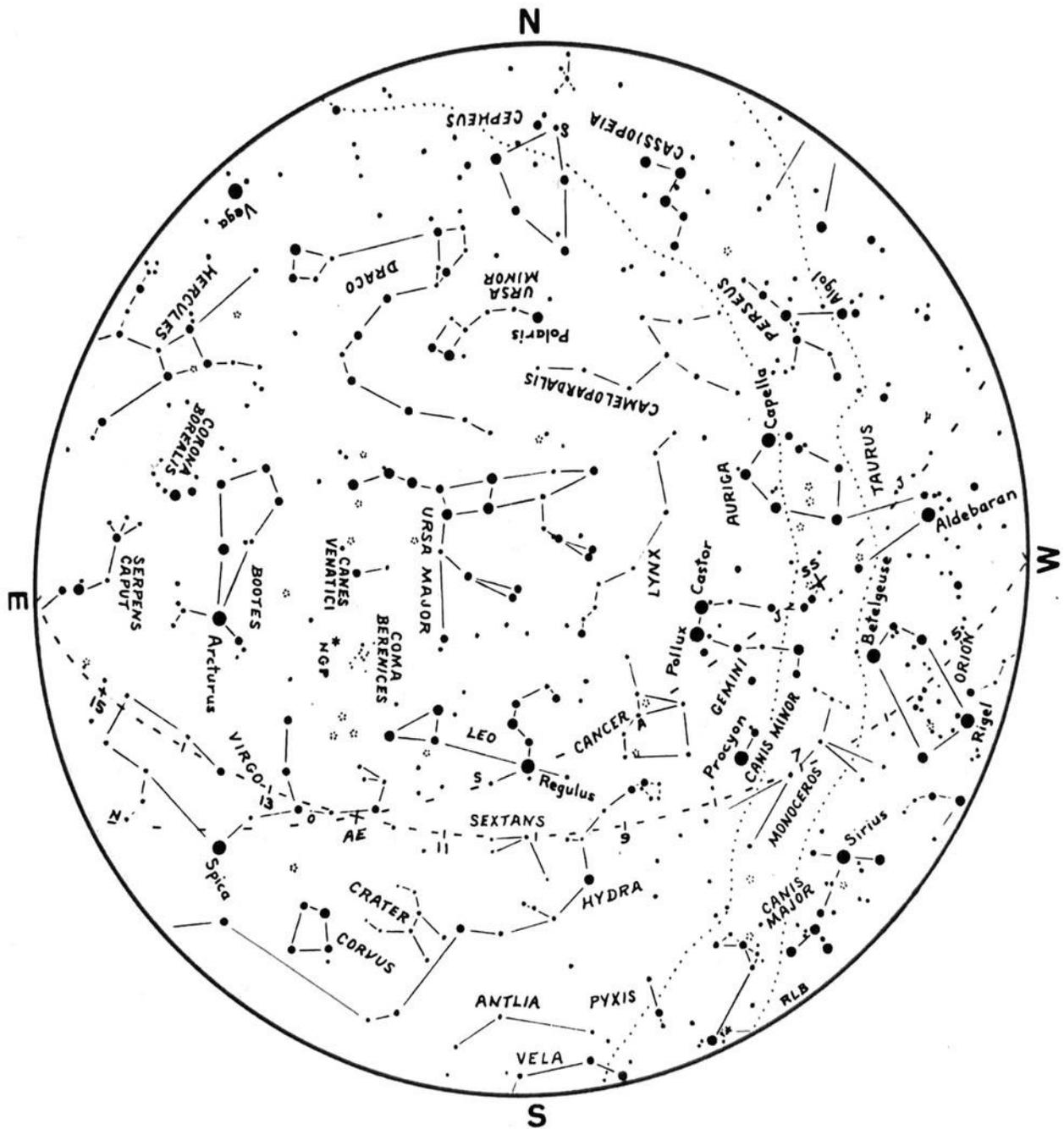
Angular measure in the sky can be quickly estimated using the fingers of an outstretched arm, or by comparing with the star separations in the Big Dipper.



RASC OBSERVER'S HANDBOOK 2024 – STANDARD EDITION

| Time (UT) | | | APRIL EVENTS | Jupiter's Satellites | |
|-----------|----|-------|--|----------------------|------|
| d | h | m | | West | East |
| Tue. | 1 | 5 11 | Algol at minimum | | |
| | | 21 | Moon 0.6° N of Pleiades (M45) | | |
| Wed. | 2 | | | | |
| Thu. | 3 | 0 | Jupiter 6° S of Moon | | |
| Fri. | 4 | 2 00 | Algol at minimum | | |
| Sat. | 5 | 2 15 | first quarter | | |
| | | 19 | Mars 2° S of Moon | | |
| Sun. | 6 | 6 | Mercury stationary | | |
| | | 22 49 | Algol at minimum | | |
| Mon. | 7 | | Mercury at descending node | | |
| Tue. | | | | | |
| Wed. | 9 | 19 38 | Algol at minimum | | |
| Thu. | 10 | 15 | Venus stationary | | |
| | | 19 56 | Moon at descending node | | |
| Fri. | 11 | | | | |
| Sat. | 12 | 16 27 | Algol at minimum | | |
| Sun. | 13 | 0 22 | full Moon (smallest in 2025) | | |
| | | 2 | Spica 0.3° N of Moon, occultation ¹ | | |
| | | 23 | Moon at apogee (406 295 km) | | |
| Mon. | 14 | | | | |
| Tue. | 15 | 13 16 | Algol at minimum | | |
| Wed. | 16 | 23 | Antares 0.4° N of Moon, occultation² | | |
| Thu. | 17 | | Mars at aphelion | | |
| Fri. | 18 | | Mercury at aphelion | | |
| | | 10 05 | Algol at minimum | | |
| Sat. | 19 | | | | |
| Sun. | 20 | | | | |
| Mon. | 21 | 1 35 | last quarter | | |
| | | 6 | Pluto 0.7° N of Moon, occultation ³ | | |
| | | 6 54 | Algol at minimum | | |
| | | 19 | Mercury greatest elongation W (27°) | | |
| Tue. | 22 | 13 | Lyrid meteors peak | | |
| Wed. | 23 | | | | |
| Thu. | 24 | 3 43 | Algol at minimum | | |
| Fri. | 25 | 1 | Venus 2° N of Moon | | |
| | | 2 23 | Moon at ascending node | | |
| | | 4 | Saturn 2° S of Moon | | |
| Sat. | 26 | 1 | Mercury 4° S of Moon | | |
| Sun. | 27 | 0 32 | Algol at minimum | | |
| | | 16 | Moon at perigee (357 118 km) Large tides | | |
| | | 17 | Venus greatest illuminated extent | | |
| | | 19 31 | new Moon (lunation 1266) | | |
| Mon. | 28 | | | | |
| Tue. | 29 | 2 | Venus 4° N of Saturn | | |
| | | 7 | Moon 0.5° N of Pleiades (M45) | | |
| | | 21 21 | Algol at minimum | | |
| Wed. | 30 | 18 | Jupiter 5° S of Moon | | |

¹Central America most of S. America, S. Georgia and the S. Sandwich Is. ²S. tip of Africa



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.



April is global Astronomy month! There are several opportunities to get out and participate!

Global Astronomy Month in 2025, a flagship program of Astronomers Without Borders, takes place throughout the entire month of April.

<https://my.astronomerswithoutborders.org/home>

International Dark Sky Week is held during the week of the new moon in April, when people worldwide may turn off their lights to observe the beauty of the night sky without light pollution. This year it runs April 21-April 28, 2025.

<https://idsw.darksky.org>

Come on out and participate:

Meewasin Valley Authority Dark Skies Event - join Tim Yaworski @LivingskgGuy, dark sky enthusiasts, local RASC astronomers, and Meewasin guides as we visit different sites around the Valley, including Beaver Creek Conservation Area, the Northeast Swale, and Cranberry Flats for special Dark Skies events! The next Dark Skies event will be the Lyrids Meteor Shower where we will also see Mars, Jupiter, and the spring constellations on **Tuesday, April 22, 2025, from 9:00 p.m. to 11:00 p.m.** at Beaver Creek. For tickets please visit: <https://meewasin.com/darkskies/>

Join the friends of the Saskatoon chapter of The Royal Astronomical Society of Canada down at the Amphitheatre at River Landing (just down from the Victoria Bridge) to celebrate International Dark Sky week: **April 25, 2025. Starting at 7:00 p.m.** Sunset is at 8:23 pm. We will have several different types of telescopes set up (refractors, SCTs, Dobs, "Smart scopes", etc.) Bring your family for advice from local astronomers, hands-on-guidance and star gazing. (Weather permitting) Feel free to bring your telescope and set up and observe with the rest of us! This is a free event open to all ages.



UPCOMING EVENTS

- April 22nd, 9:00p.m. to 11:00p.m. at Beaver Creek - Meewasin Valley Authority Dark Skies Event

- Lyrids Meteor Shower, Mars, Jupiter, and the spring constellations

For tickets please visit: <https://meewasin.com/darkskies/>

- April 25th, 7:00p.m. at the Amphitheatre at River Landing (just down from the Victoria Bridge)

- Celebrate International Dark Sky week

Bring your family for advice from local astronomers, hands-on-guidance and star gazing.

UPDATE ON TELESCOPES

Darrell Chatfield

I just wanted to update you on the progress we have been making regarding the inventory of the scopes, etc in the observatory library.

On Saturday,, Nick, Joelle, and myself went to the library to sort out what we wanted to sell and/or give away . After we set up the for sale items, Nick took the appropriate pictures to be put on the Canada Wide buy and sell website. Joelle took notes as to the necessary information for the ads.

On Sunday, Nick posted 5 ads and had lots of interest. So basically as of today (Monday), there are 3 pending telescope sales!

On Monday night, Nick and I packed up the 3 scopes to be weighed for shipping costs, and then hopefully shipment.

We have a very good start on sales, which will bring in good money to the club.

My thanks to Nick and Joelle for all their help !



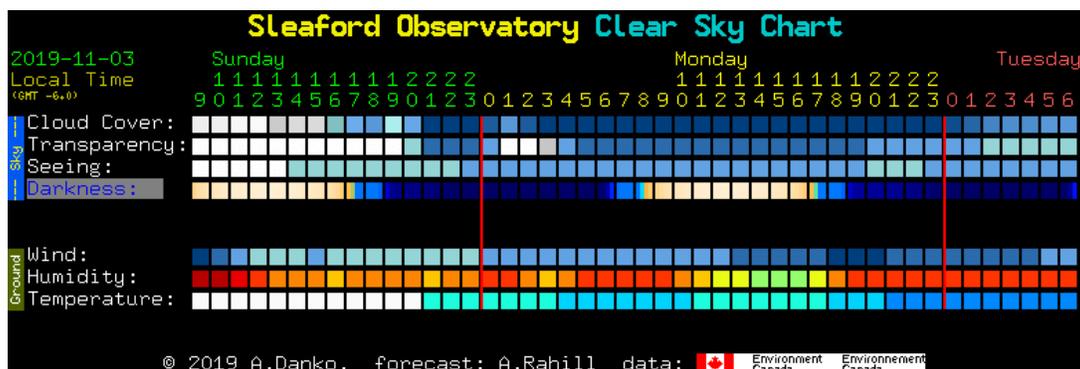
A lunar close-up of the Apollo 15 landing site. Taken by Nick Larsen with a 6" Celestron SCT and ZWO 178mc camera from his driveway.

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



“Me versus the European Space Agency”

The large photo is of Messier 16 as shot from my back yard. The photo has been stacked but not yet processed. Just a quick process on an iPhone (gulp.)The overlay is the same object as shot by the European Space Agency for comparison. Taken at Sleaford by Jeff Swick.

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

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 |
|---------------|----|

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 |
|---------------|----|

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

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

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