

# 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
- Journal of the RASC (electronic format)
- borrow the Centre's projector to give astronomy outreach presentations – contact Les Dickson at [astrochem@sasktel.net](mailto:astrochem@sasktel.net)
- rent the Centre's Telescopes <https://saskatoon.rasc.ca/telescopes.html>
- use of the Centre library
- SkyNews Magazine (bimonthly)

## SASKATOON CENTRE'S MAIN OFFICERS:

**President – \*vacant\***

**Vice-President – \*vacant\***

**Secretary – Rick Huziak**

**Treasurer – vacant**

**National Council Rep – Les Dickson**

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](mailto:novachat@sasktel.net).

## NEWSLETTER INFO

**Newsletter Editor** – Colin Chatfield

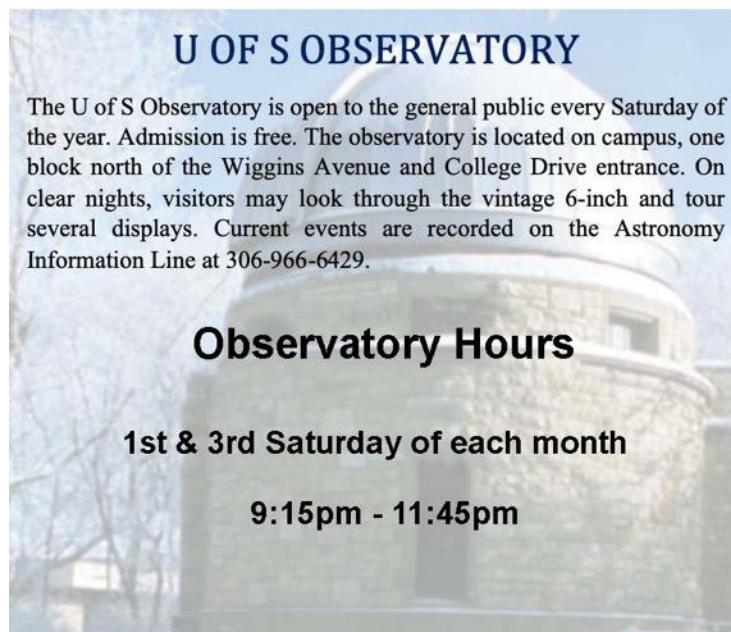
**Copy & Collate** – Les & Ellen Dickson

**Labels & Temps** – Mark de Jong

**Web Posting/Content Editor** – Gord Sarty/Tenho Tuomi

Saskatoon Skies is published monthly by the Saskatoon Centre of the RASC. Distribution is approximately 100 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](mailto: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](mailto: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

<b>Mar 11</b>	<b>Observer's Group - Sleaford Observatory</b>	Brent Gratias
<b>Mar 18</b>	<b>Messier Marathon - Sleaford Observatory</b>	Brent Gratias
<b>Mar 20</b>	<b>RASC Saskatoon Centre General Meeting</b>	

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>

## March RASC General Meeting for all members and guests

**Join us on March 20th, 2023 at 8:00PM (Executive meeting at 7:00pm)**  
Webinar (info below)

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

**Better than Clear Sky Chart and Astropheric: AstroWeather Tips, Tricks, and sucker holes - Alister Ling** (Edmonton Centre). Retired operational weather forecaster from Environment Canada, Alister shares his approach to making the call whether to head out for a stargazing session, or not. *Science!* All keen observers gaze upwards, often cursing the clouds, but Alister found them interesting in their own right, and beautiful, too. He became a meteorologist, earning an MSc from McGill in Montréal, and spent the majority of his weather forecasting career right here on the prairies, specializing in aviation impacts.

# MINUTES OF FEBRUARY MEETINGS

Rick Huziak

## Minutes of the Monthly Executive Meeting RASC Saskatoon Centre Monday, February 13, 2023 - 7:00pm Online (ZOOM)

**Attending:** Brent Burlingham, Les Dickson, Donna-Lee May. Rick Huziak, Darrell Chatfield, Jim Wood, Tenho Tuomi. Colin Chatfield, Yannis Pahtouroglou.

1. **Call to order** 7:04 pm – Brent Burlingham
2. **Approval of the January Executive meeting minutes** as circulated in the February newsletter. **Moved:** Donna-Lee May. **Seconded:** Les Dickson. **CARRIED.**
3. **Call for additional announcements/items** to add to agenda – Brent Burlingham – None.

### OLD BUSINESS:

4. **Loaner Scope Report** – Ike Thiessen. – Deferred – Ike not in attendance.
5. **Treasurer's Report** - Donna-Lee May.
  - National Report on Centre 2021 – 22 Financial Report (to Sept. 30) presented. The report is due to National by Feb. 15. The SSSP and General Ledger accounts are separated. Club expenses run us at a deficit yearly.
  - Revenue/expense statement summary presented (to 30 Sept.) showing a more detailed statement that shows an annual average deficit of \$825/year. The club needs to look at a better funding model to remove the deficit. The club cannot rely on SSSP revenue (that SSSP needs) to operate.
  - Les Dickson suggests we can reduce expenses such as reducing mailed newsletters.
  - Donna-Lee & Rick Huziak suggest we grow membership in the club. Event Loss Insurance questioned by Yannis Pahatouroglou – it is too expensive, but the club requires this to be able to do outreach. Donna-Lee will look in how much liability insurance we split between the Star Party and the Centre.
  - Due to liability, RASC events require preapproval in the form of event insurance certificates arranged by the Treasurer.
6. **In-person General Meeting:** Room 175 Physics.
  - We will attempt a return to in-person meetings in March. Those who don't want to attend can still join by Zoom. **Moved** by Rick Huziak: That the Centre return to an in-person meeting beginning in March. **Seconded:** Les Dickson. **CARRIED.** (One opposed.)
  - masks and sanitizer will be available.
  - instructions will be sent to members on how to continue the remote log in.

**7. Sleaford Report** – Darrell Chatfield

- spare keys for snowblower & riding mower update. – not yet available. (One key of each will go to our master filing cabinet with the Treasurer).
- Training for maintenance & use of the snowblower, with a short manual. – Darrell is working on it.

**8. Medicine cabinet** for Sleaford (from Jan. General minutes) - Donna-Lee May / Yannis P. / Darrell C.

- there is a small first aid kit on the wall. Darrell will check the contents and report.

**9. Nominating Committee** update:

- Looking for a permanent president, activities coordinator, speaker coordinator.

**10. The Sleaford Joint Management Committee** – Darrell Chatfield

- Security cameras – Daryl Janzen is looking into cameras.
- Who is the second U of S rep? – U of S has not stated yet.
- We need a friendly amendment to the Sleaford Agreement to change the RASC address. – Yannis Pahatouroglou will look into this.

**11. Membership Survey** – Brent Burlingham – Brent will send out soon.

**12. National Council Report** (Dec. 4 meeting) – Les Dickson

- National financial position (loss) discussed – National is showing a huge deficit. Looking at ways to reduce costs, such as selling SkyNews and producing only a digital handbook. Membership fees to increase. Robotic telescope may be sold.

**13. SSSP Update** – Les Dickson – on track – opening early April. Looking for speakers.

**NEW BUSINESS:**

**14. None**

**15. Motion to adjourn. Moved:** Les Dickson. 8:06 PM. **CARRIED.**

**Minutes of the Monthly General Meeting RASC Saskatoon Centre  
Monday, February 13, 2023 - 8:00pm Online (ZOOM)**

**14 members on-line at beginning of meeting.**

**1. Sharing / Networking Time** 8:00 PM – all members

**2. Call to order** – 8:16 PM – Brent Burlingham (VP)

- 3. Call for additional items or changes to the agenda** – Brent Burlingham. – None added.
- 4. Call out to new members/guests:** Welcome Chris Standing.
- 5. Adoption of the January General Meeting minutes** as circulated in the February newsletter. **Moved:** Les Dickson. **Seconded:** Ellen Dickson. **CARRIED.**
- 6. Executive Meeting summary** – Brent Burlingham
  - See Executive Meeting.
  - Donna-Lee May presented the National Financial Report & Saskatoon Annual Report (as was done at the Executive meeting – see Executive minutes.)
  - **The following positions remain unfilled:**  
**President** – (2-year term) – vacant  
**Activities Coordinator** – vacant  
**Speaker Coordinator** – vacant
- 7. March meeting** will return to an in-person.
  - Probably have speakers for the rest of year, but still need speaker ideas & volunteers.

## **NEW BUSINESS:**

- 8. None.**
- 9. Program:**
  - **What's Up This Month** – Colin Chatfield
  - **Main Speaker – none**
  - *Tenho Tuomi showed a great image of Comet ZTF.*
- 10. Call to adjourn** – 8:53 PM. **Moved:** Darrell Chatfield. **CARRIED.**

## **SPEAKERS FOR MEETINGS**

Rick Huziak

We are always looking for both short-subject and main-subject speakers for our General meeting. If you can't volunteer to speak, then please make suggestions for speakers or topics you'd like to see covered. Speakers may be in-person (as we may be returning to in-person meetings soon) or on-line. Topics can be 5- to 15-minutes in length for short topics and 30- to 45-minutes for main feature talks. We continue to look for a new Speaker Coordinator. In the meantime, send suggestions to Rick Huziak [rickhuziak@shaw.ca](mailto:rickhuziak@shaw.ca) or better yet, volunteer as a speaker!

# MAYAN ASTRONOMICAL SITES

Tammy Vallee

Astronomy and ancient civilizations were big interest of mine when I was young. I looked for information about the Mayan, Inca, and Aztec people who were in the Americas. After seeing these places in books and on TV it became one of my life goals to experience these places firsthand. In Belize there are many sites to choose from and more if you cross the Guatemala border. We are lucky today that archaeologists are working to push back the jungle to reveal what was once thriving communities and cities.

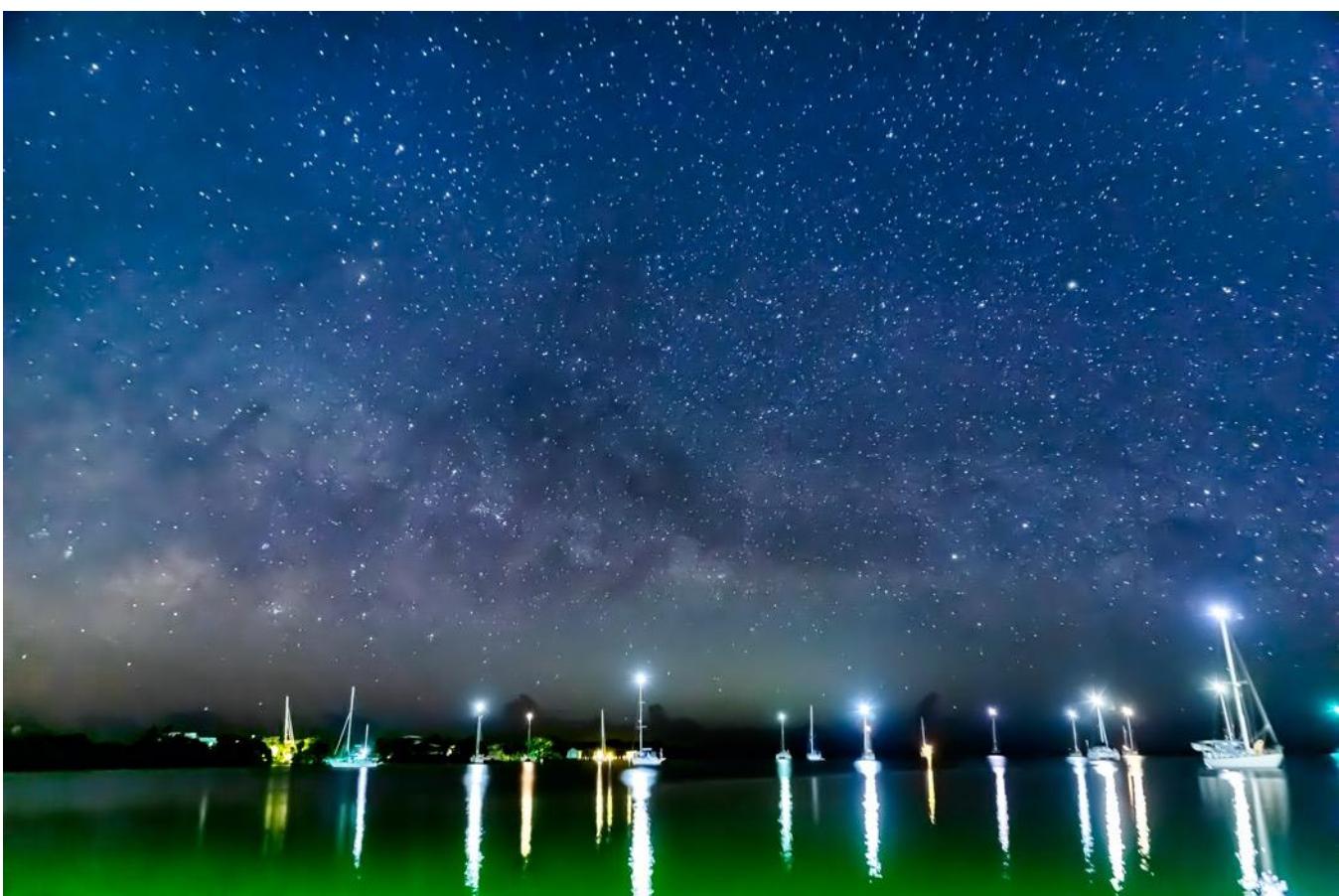
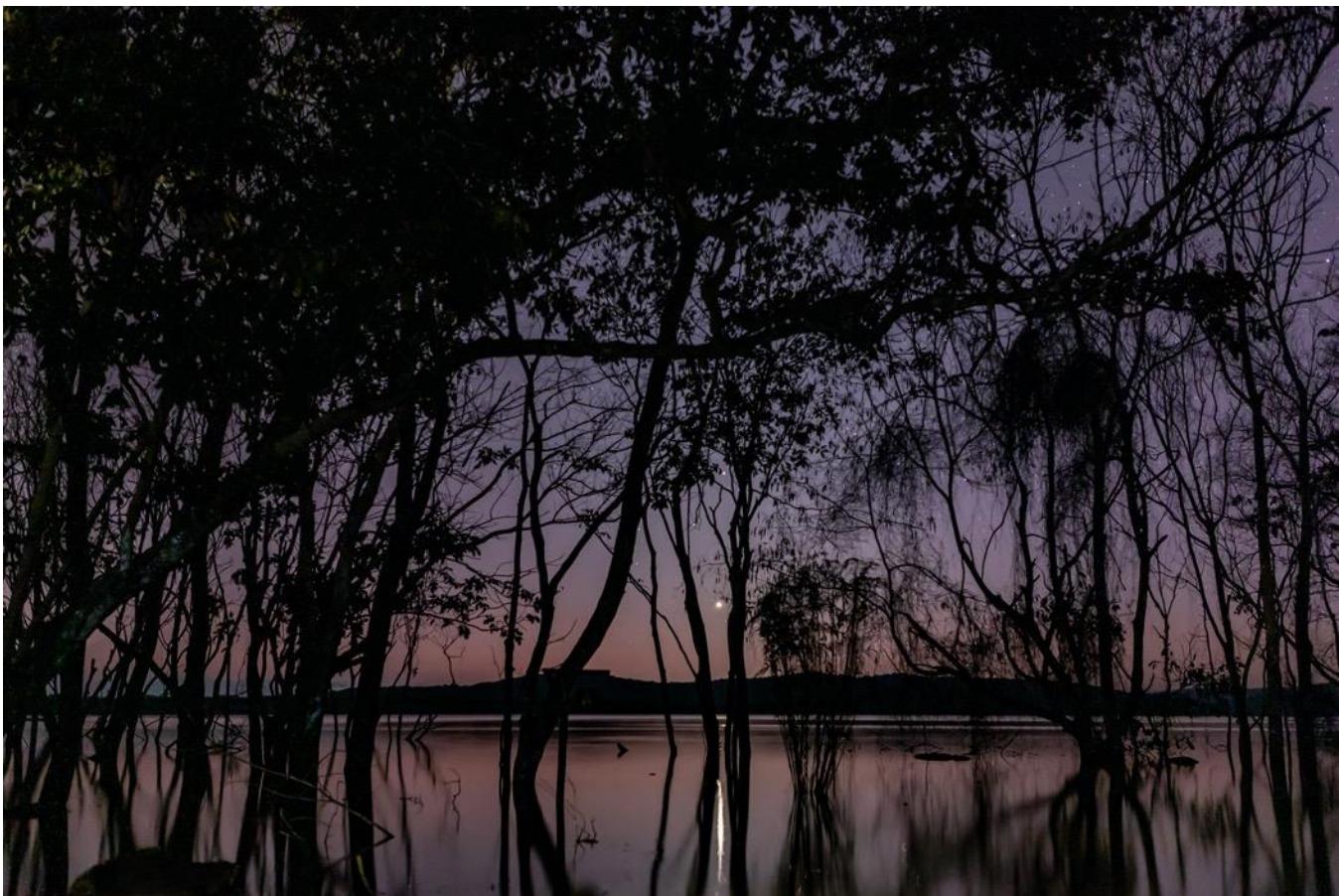
This year's warm holiday found us in Belize and my chance to finally get to see an ancient Mayan site. Well, five to be exact. We visited Caracol, Xunantunich, Lubaantun, Nim Li Punit and Yaxhá in Guatemala. It would be amazing to see these in the dark but all the enquiries I made before coming to Belize were refused. Once there it became clear why these places were not open after dark. The roads are treacherous, the sites are guarded by the military to prevent looting, and there is little to no electricity through the area. Several of these were in the jungle so wildlife is another concern. All that said if anyone had given me the green light ahead of going, I would have taken the chance.

For myself I found the most fascinating part of these tours be when we explored their astronomical sites. The guides explaining how the pyramid or temple structures were designed to view the movement of all the universal bodies from stars to planets. How each point was carefully constructed and the astronomical knowledge they had was indeed vast. Caracol's observatory was aligned to follow the path of Venus through the year. These sites were 1000 to 2000 years old and sites older than that exist. The astronomers were people of importance, and it was a job that was usually passed down through the family. It was hard to remember everything that the guide had say when you are in awe of what surrounds you.

I wished I could have come back after dark to take photos, but it is not allowed at most sites. Yaxhá, Guatemala allows for sunrise and sunset visitors. It wasn't until I was happily taking pictures down at the lake that my guide understood what kind of photos I took. My guide said arrangement could have been made to be in the site after dark. It was our last night in that region, so it is back on the to-do list if I make it back. Until then I am content with the images I could bring back and will cherish the experiences I did have.

The first photo is sunset with Venus picture was taken at Yaxha, Guatemala, Jan 17, 2023, Canon 6D Mark2 24mm F2.8, ISO 1600, 13 seconds.

The next is the Milky Way over the Caribbean Sea at Placencia, Belize, Jan 23, 2023, Canon 6D Mark2 24mm F2.8, ISO 12800, 13 seconds.



# MINUTES OF BOARD OF DIRECTORS MEETING

Les Dickson

## Minutes of the Board of Directors Meeting RASC Saskatoon Centre Sunday, March 5, 2023 - 7:30 pm Online (ZOOM)

**Attending:** Norma Jensen, Tenho Tuomi, Jim Wood and Les Dickson (Chair and Host)

Meeting called to order at 7:50 pm. Minutes taken by Les Dickson

### Goals of the meeting:

- Ensure the Centre has a functioning Executive (as least President, Secretary, and Treasurer) to get us through to the Fall elections.
  - Develop a plan to put in place updated by-laws so that the Executive has rules to follow.
  - Develop a plan to correct the long-term lack of leadership that has plagued this Centre to ensure its survival.
  - Be able to present to our membership at the March meeting our plans to move forward.
1. Donna-Lee May, our Treasurer, indicated that she was resigning her position as of February 28, 2023.
  2. With the Treasurer's resignation, only one signing authority on the Centre's financial account with Infinity Credit Union remains, Les Dickson. Two signatures are required for cheques on this account. The Board needs to formally remove Donna-Lee as signing authority and add new signing authorities. A notice of motion to be presented at the March 20 meeting of the Executive:

Motion to remove Donna-Lee May as a signing authority on the Centre's account and add Norma Jensen and Jim Wood as signing authorities.

Should this motion pass, the present and new signing authorities will meet with Credit Union officials as soon as practicable.

3. Brent Burlingham resigned his position as Vice President on February 17, 2023. With Donna-Lee May's resignation, the Centre has only a Secretary, Richard Huziak and the Representative to National Council, Les Dickson. The Centre does not have a President, Vice-President nor Treasurer. At minimum, the Centre needs a President, Secretary and Treasurer to maintain good governance. It is the intention of the Board

of Directors to fill these positions at the March 20 meeting of the Executive. These positions will come open for elections to be held at the Annual Meeting of the Centre in the Fall.

4. The Centre's registration with the province's Corporate Registry is not current, even though the forms and payment were submitted last year. Once the Executive positions are filled at the March 20 meeting, Jim Wood will submit the required information with the Corporate Registry.
5. The Bylaws of the Centre are out-of-date and need updating to conform with both provincial regulations regarding membership-based not-for-profit corporations and the RASC. A new committee will be struck to update the bylaws with the intention of presenting these by-laws for adoption by the members at the Annual Meeting of the Centre in the Fall.
6. The Board has decided not to hold the meetings of March 20 in the hybrid face-to-face/Zoom format as originally planned. The meeting will be Zoom only. The Agenda and Zoom meetings invitations will be made available to the members in the newsletter and by e-mail prior to the meeting.

Meeting adjourned at 9:00 pm.



*Lunar eclipse by Justin Lukan*



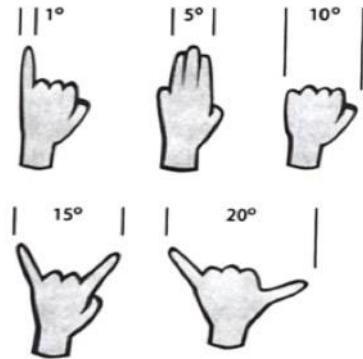
M42 Orion Nebula taken Tammy Vallee through the telescope of Tenho Tuomi

## MARCH NIGHT SKY EVENTS AND INFO

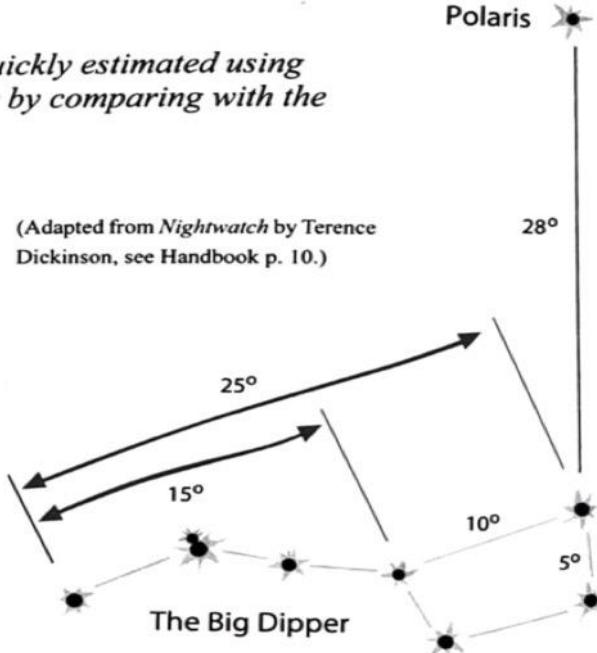
Images on the next few pages taken, with permission, from the 2023 Observer's Handbook. It can be obtained by joining the RASC here <http://rasc.ca/join> or ordered from <https://secure.rasc.ca/Portal/Shop/RASC/StoreMain.aspx?Category=CURRPUB>

### HANDY SKY MEASURES

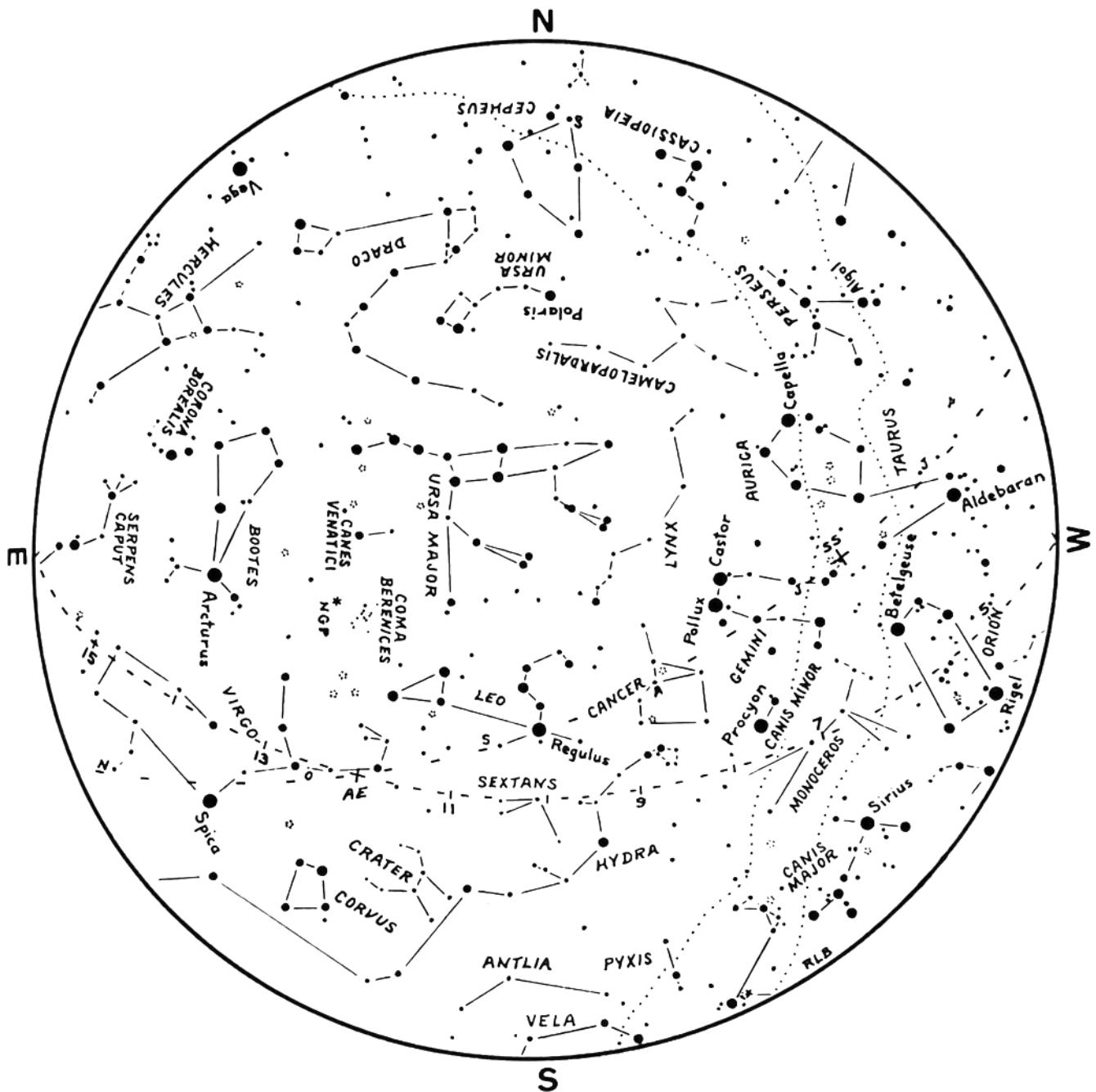
*Angular measure in the sky can be quickly estimated using the fingers of an outstretched arm, or by comparing with the star separations in the Big Dipper.*



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



Time (UT)			MARCH EVENTS	Jupiter's Satellites
	d	h m		West East
Wed.	1			
Thu.	2	11	<b>Venus 0.5° N of Jupiter</b> —	
Fri.	3	3	<b>Pollux 1.7° N of Moon</b> —	
		8 45	Algol at minimum	
		18	<b>Moon at apogee (405 888 km)</b> —	
Sat.	4			
Sun.	5			
Mon.	6	5 34	Algol at minimum	
Tue.	7	12 40	<b>full Moon</b> —	
Wed.	8		Mercury at greatest heliocentric lat. S	
Thu.	9		<b>Zodiacal light vis. in N lat. in W after evening twilight for next two weeks</b>	
		2 23	Algol at minimum	
Fri.	10			
Sat.	11	8 53	Moon at descending node	
		23 12	Algol at minimum	
Sun.	12		<b>DAYLIGHT SAVING TIME BEGINS</b>	
Mon.	13			
Tue.	14	1	Venus at ascending node	
		20 01	<b>Antares 1.6° S of Moon</b> —	
Wed.	15	2 08	Algol at minimum	
Thu.	16	0	<b>last quarter</b> —	
Fri.	17	11	Neptune in conjunction with the Sun ↗	
		16 50	Mercury in superior conjunction —	
Sat.	18		Algol at minimum	
Sun.	19	15	Saturn 4° N of Moon	
		15	<b>Moon at perigee (362 696 km)</b> —	
Mon.	20	13 39	Algol at minimum	
		21 24	<b>Equinox</b>	
Tue.	21	8	Ceres at opposition	
		17 23	<b>new Moon (lunation 1240)</b>	
Wed.	22	20	<b>Jupiter 0.5° N of Moon, occultation†</b>	
Thu.	23	10 28	Algol at minimum	
Fri.	24	2 08	Moon at ascending node	
		10	<b>Venus 0.1° N of Moon, occultation‡</b>	
Sat.	25	1	<b>Uranus 1.5° S of Moon</b>	
Sun.	26	0	<b>Moon 1.9° S of Pleiades (M45)</b>	
		7 17	Algol at minimum	
Mon.	27		Mercury at ascending node	
Tue.	28	13	<b>Mars 2° S of Moon</b>	
Wed.	29	2 32	<b>first quarter</b>	
		4 05	Algol at minimum	
Thu.	30	5	<b>Mars 1.2° N of M35</b>	
		10	<b>Pollux 1.6° N of Moon</b>	
Fri.	31	6	Mercury at perihelion	
		11	<b>Venus 1.3° N of Uranus</b>	
			<b>Moon at apogee (404 919 km)</b>	



## 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.

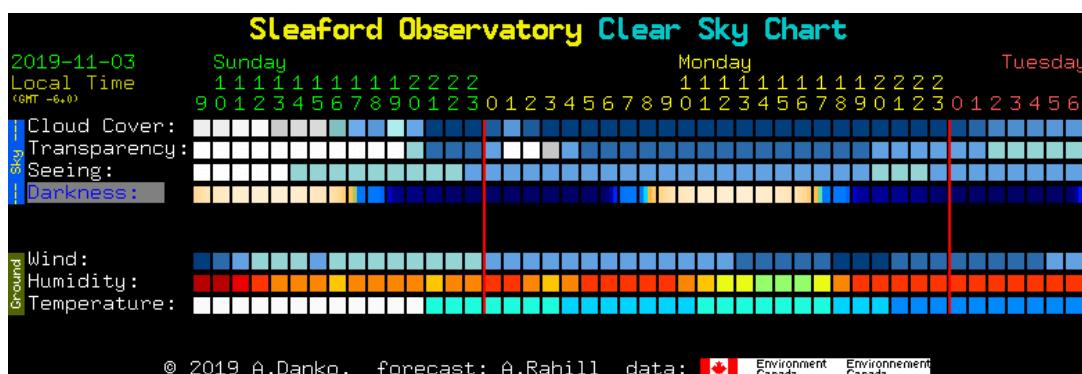
Please contact the Treasurer with any inquiries.

# 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](http://www.weather.gc.ca/astro)



Saskatchewan Light Pollution Abatement Committee -

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



[www.darksky.org](http://www.darksky.org)

## BOOKS FOR SALE

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

<b>“Deep-Sky Observers Handbook”</b>	Volume 1-5	Enslow-Lutterworth	\$40.00
<b>“International Encyclopedia of Astronomy”</b>	1987	Patrick Moore	Color \$10.00
<b>“Backyard Astronomers Guide”</b>	T. Dickinson & Alan Dyer	2008	Color \$25.00
<b>“Atlas of Deep Sky Splendors”</b>	1978	H. Verhenberg	(50.00) B & W \$22.00
<b>“Amateur Astronomers Catalog of 500 Deep Sky Objects”</b>	Vol 1	1980	B & W R. Morales \$15.00
<b>“Observing the Constellations”</b>	1989	J. Sanford	Color charts \$10.00

CONTENT HAS BEEN EDITED

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# Content has been edited



*Conjunction of Venus and Jupiter, taken March 1 with Canon T5i camera through F/5 12" telescope, 1/3 second at ISO 1600 by Tenho Tuomi*



*Picture of comet C/2022 E3 (ZTF) passing Mars, taken February 10 with Canon T5i camera through F/5 80mm telescope, 30 seconds at ISO 6400. Taken by Tenho Tuomi*

## 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](http://rasc.ca/certificate-programs) for details and contact the RASC Observing Committee Chair at [rasc.ca/contact/observing](http://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](http://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	96
Marcel Müller-Goldkuhle	94
Wade Selvig	75
Wayne Schlakohl	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

#### **EXPLORE THE UNIVERSE**

##### **Certified at 55 to 110**

**Objects:** *T. Tuomi, B. Gratias*

Wayne Schlakohl	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: <http://www.rasc.ca/observing>

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

Binocular List is at: [https://www.usask.ca/rasc/Chatfield\\_Binocular\\_List.pdf](https://www.usask.ca/rasc/Chatfield_Binocular_List.pdf)

"Isabel Williamson Lunar Observing Program Guide":

<http://www.rasc.ca/sites/default/files/IWLOP2015.pdf>

Program details can be found at: <http://www.rasc.ca/williamson/index.shtml>