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:
http://www.usask.ca/rasc/newsletters.html

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MEMBERSHIP? JOIN TODAY!

Regular: $96.00 /year **Youth: $52.00 /year**

Family: $90.50 + $41/additional adult + $21.10/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)
- SkyNews Magazine (bimonthly)
- borrow the Centre's projector to give astronomy outreach presentations – contact Les Dickson at **astrochem@sasktel.net**
- rent the Centre's Telescopes **https://www.usask.ca/rasc/telescopes.html**
- use of the Centre library

SASKATOON CENTRE'S MAIN OFFICERS:

President – Daryl Janzen
Vice-President – Jim Goodridge
Secretary – Rina Rast
Treasurer – Norma Jensen
National Council Rep – Les Dickson

Canadian Tire money - Darrell Chatfield

If you cannot attend a meeting but would like to donate your Canadian Tire money please email Darrell at **novachat@sasktel.net**.

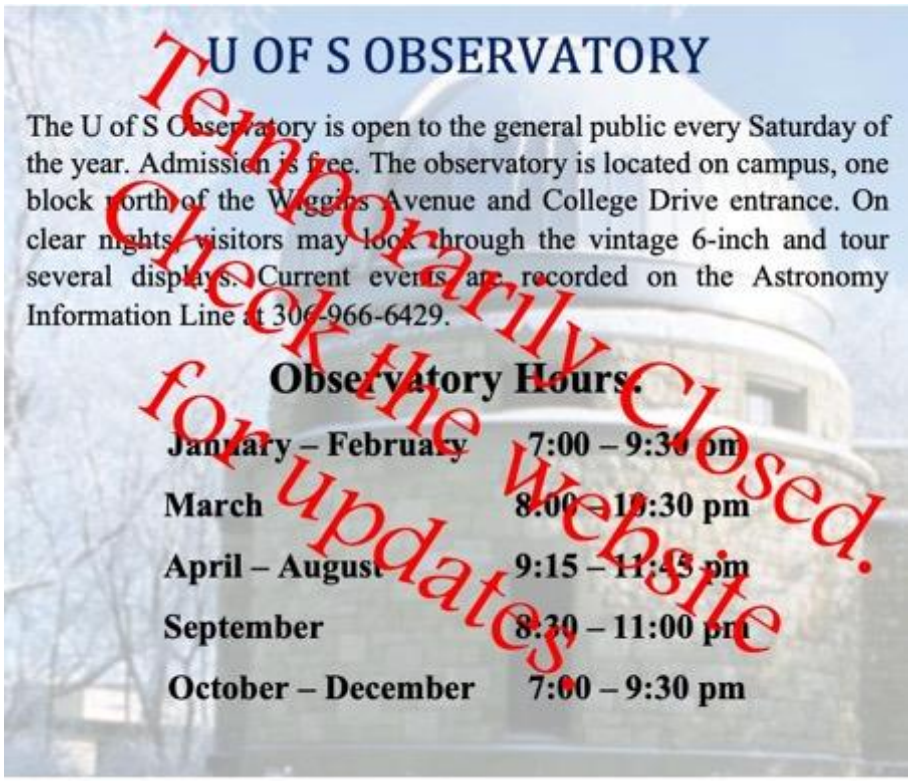
NEWSLETTER INFO

Newsletter Editor – Colin Chatfield
Copy & Collate – Les & Ellen Dickson
Labels & Temps – Mark de Jong
Web Posting – Gord Sarty

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@sasktel.net** 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@sasktel.net** for rates. Members can advertise non-commercial items for free.

Taken near Hudson Bay by Jeanine Holowatiuk at 14mm, ISO 2000, 5 seconds, f/2.8



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

Facebook - **https://www.facebook.com/usaskobservatory/**

Saskatchewan Light Abatement Committee -

http://myotherlife.net/slpac/

www.darksky.org

RASC CALENDAR OF EVENTS

July 18	**Observer's Group (weather permitting)**	Larry Scott
August 15	**Observer's Group (weather permitting)**	Larry Scott

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

Please note that no club meetings are scheduled during July and August. For the first meeting, slated for September 21st, it is yet to be determined if it will be virtual or in person. Please check the website for updates.

For a complete list of club events, please visit: **http://www.usask.ca/rasc/activities.html**

July 27-30 - Delta Aqauriid Meteor Shower - This meteor shower is active from July 12 to August 23, but the nominal peak is considered to be July 27 in the early morning hours. The radiant point nearly aligns with the star Skat (Delta Aquarii) in the southern sky. The hourly rate of meteors is approximately 10-20. For more info, check https://earthsky.org/astronomy-essentials/everything-you-need-to-know-delta-aquarid-meteor-shower.

August 12 - Perseid Meteor Shower (007 PER) - The peak should occur on August 12, 8:00 pm CST (Aug. 13, 02h UT.) The first quarter moon on August 7 allows the observers to record the early night of the shower until about Aug. 5, but the peak occurs with a very bright moon in the sky. In spite of this, predictions indicate a possible short outburst of ZHR of about 110 as night falls on August 12. For more information, see https://www.imo.net/files/meteor-shower/cal2020.pdf.

Comet NEOWISE is in the sky and visible in the pre-dawn hours near the constellation Auriga, moving between the Ursa Major and Leo Minor.

SPEAKERS FOR MEETINGS

Rick Huziak

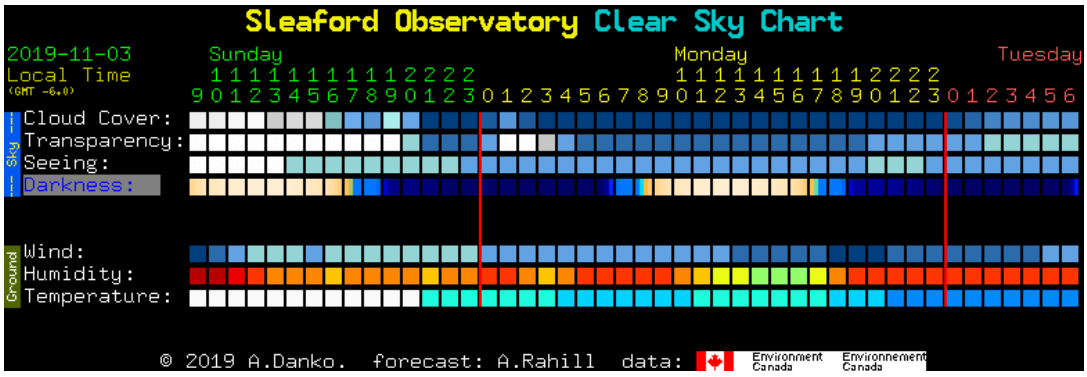
Getting speakers for each general meeting is harder than pulling teeth - plain and simple. Going forward, we have only three speakers lined up until the end of the season. Daryl Janzen will talk about U of S telescopes, and then possibly later in the spring, Gord Sarty will talk about his Space MRI. But with three other main talks and three minor talks to fill the agenda with, it is highly likely that you will be listening to talks about my favourite variable stars or the latest light pollution crisis … again. So, please volunteer to give a talk about your favourite astronomy topic or experience. It doesn't have to be long and everyone has some sort of interest in the sky. As a matter of fact, there is an entire universe out there to talk about! So, be it 5 minutes or 55 minutes. I'd love to hear from you.

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

……WE GOT THE P-O-WER!

Darrell Chatfield

Hello everyone! I am writing this article to let you know that all the power at Sleaford has been moved over from the schoolhouse to the new shed.

This came about rather abruptly, since we thought we had a few weeks to mull over the power grid plan, etc., after initially talking with Sask. Power back in early June. But, alas, we got an email on June 11 saying that Sask. Power was going out to Sleaford THAT DAY to remove the existing power pole from our site.

Well, we hadn't planned on that time frame. So I quickly called my electrician, and Daryl Janzen to set up a plan for when this could be started, and fortunately were all able to go out Friday morning, June 12.

Daryl had started to dig the trench to get at the original power lines before I arrived. Bob, the electrician, had started to change out the shed breaker panel to be replaced by a new, larger panel for the whole site. As Daryl dug the main trench, I proceeded to dig a small trench to the new power pedestal put up by Sask. Power earlier in June.

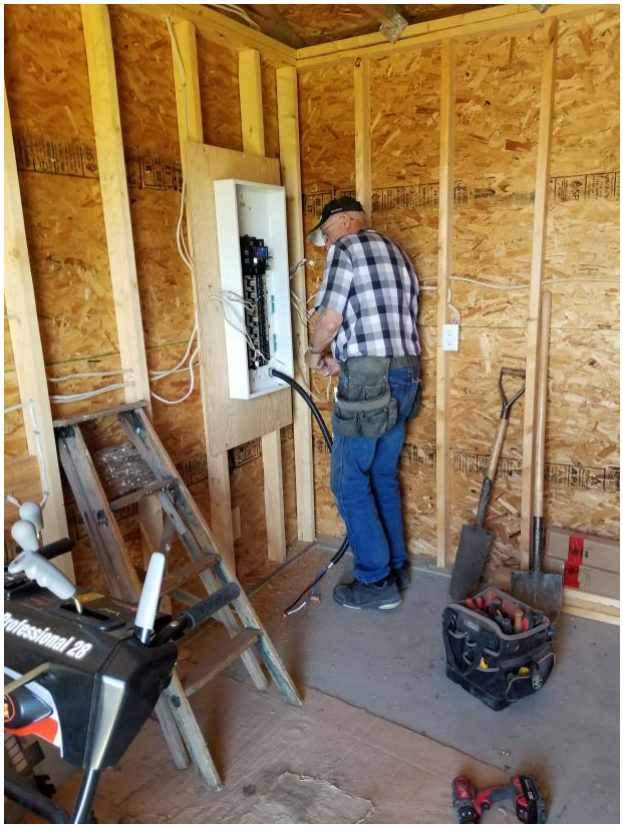
So after a long day of working, all the power lines were exposed, and ready to be routed into the shed as planned.

A few days later, I met the electrician out at Sleaford to assist him in installing the new wiring and the new breaker panel in the shed. This went along very well.

At his own expense, Bob took his trenching machine out on June 30 and filled in the trench we had dug by hand, saving us a few hours of hard labour! Please keep in mind Bob was my electrician I had worked with for 40 years on construction jobs, and he was the guy who dug the original Sleaford wiring trench for FREE back in 1997! We are so thankful to him for all his kindness.

We can now enjoy the new wiring location without having to worry about the future of the old schoolhouse.


DANGER



"Most people go to Sleaford to look up. Today (July 6), I went to Sleaford in my Cessna 155 to look down. It's a well-treed lot. You can see the Allan potash mine on the southern horizon." Gord Sarty

MINUTES OF JUNE MEETING

Rina Rast

Minutes of the Executive Meeting, June 15, 2020

Attendees: Tim Yaworski, Rina Rast, Brennan Rodgers, Les Dickson, Daryl Janzen, Patricia Gakis, Darrel Chatfield, Dick Kirk, Rick Huziak, Donna-Lee May, Ron Waldron, Grant Ursaki, Mark DeJong, Tammy Vallee, Jacob Manonyane, George Charpentier

Meeting called to order by Daryl Janzen 7:05 PM.

Motion to adopt agenda by Les Dickson, seconded by Donna-Lee May, passed as all in favour.

Reports:

Plan for Fall 2020:

Discussion regarding plan for meetings (face-to-face vs. Zoom) for the fall, and the logistics of reviewing financial statements for the potential robotic telescope project. Decision to continue using Zoom for the monthly meetings for the time being.
Plan put in place to have an executive meeting on August 10th to discuss the financial and robotic telescope committees' findings.
Dates for meetings throughout the upcoming year will be determined at the August executive meeting.

Sleaford 2020

Sleaford Open House has officially been cancelled for 2020.

Power Upgrade at Sleaford

The power upgrade at Sleaford (electricity was run to the shed via a trench) was done in early June.

Financial Review Committee

Donna-Lee May will be heading up the committee looking into the finances of the club. Norma Jensen, Rick Huziak, Jim Gorkoff, Les Dickson will be also on the committee.

Results of robotic telescope survey

38 responses to the survey (out of 71 RASC members), the majority of the feedback was positive (in favour of building the telescope if it is financially feasible)

Motion to adjourn by Les Dickson, seconded by Donna-Lee May, passed as all are in favour.

Minutes of the General Meeting, June 15, 2020

Meeting called to order at 8:05 PM.

Update on power upgrade at Sleaford and other items discussed in the executive meeting.

Presentation by Tim Yaworski: Astronomy Outreach During Covid-19.

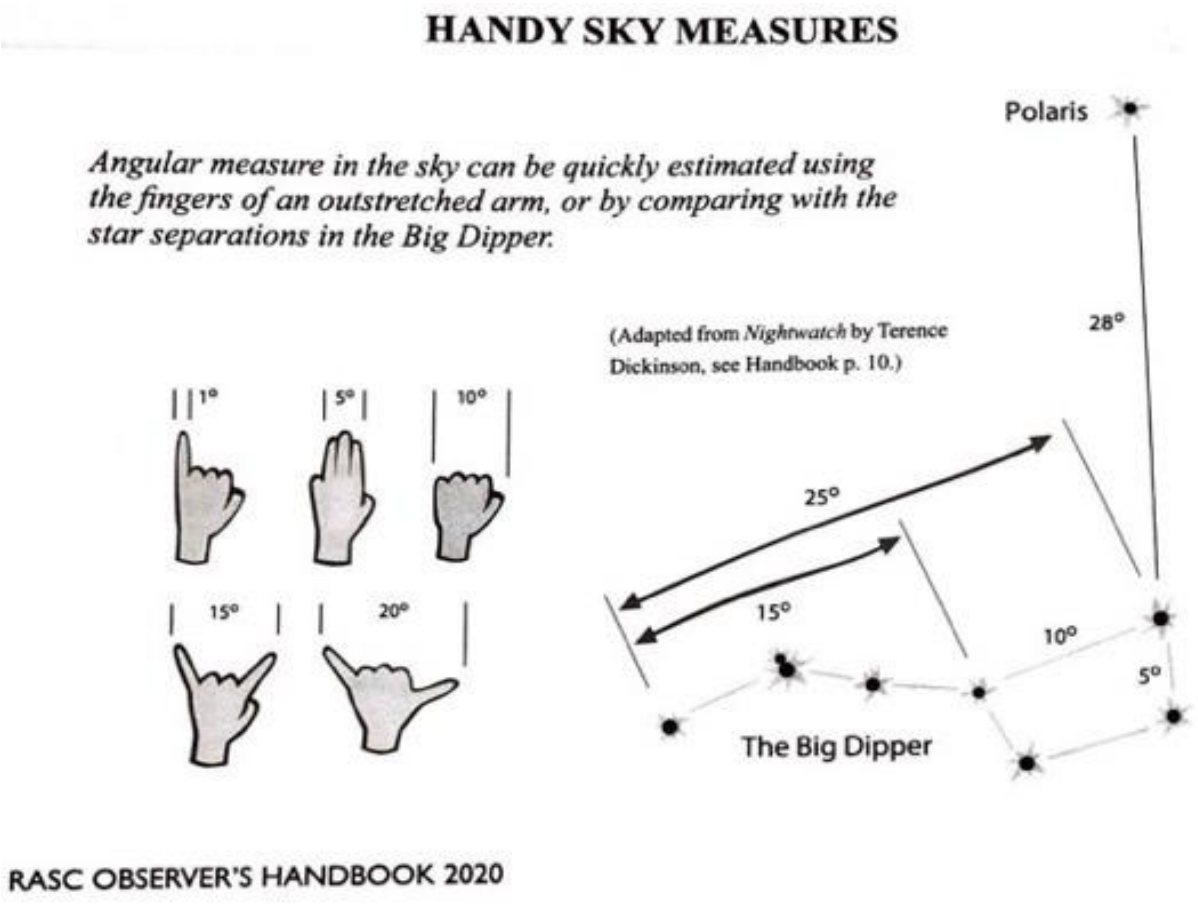
Colin Chatfield is organizing a late July issue of the newsletter; essays, photos and more are welcome.

Review of the formation of the robotic telescope and financial review committees, as discussed in the Executive Meeting. Members who are interested are encouraged to join.

Call to adjourn at 9:02 PM.

JULY & AUGUST NIGHT SKY EVENTS AND INFO

Images on the next few pages taken with permission from the 2020 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/Store/StoreMain.aspx?Category=CURRPUB



THE SKY FOR JULY

		Mercury	Venus	Mars	Jupiter	Saturn	Uranus	Neptune	Sun
RA	1	6h 40m	4h 18m	0h 10m	19h 43m	20h 08m	2h 29m	23h 27m	6h 41m
	11	6h 22m	4h 33m	0h 32m	19h 37m	20h 05m	2h 31m	23h 27m	7h 22m
	21	6h 37m	4h 58m	0h 52m	19h 32m	20h 02m	2h 32m	23h 27m	8h 02m
Dec	1	+18° 40′	+17° 13′	–2° 17′	–21° 39′	–20° 24′	+14° 15′	–4° 42′	+23° 06′
	11	+18° 47′	+17° 23′	–0° 13′	–21° 53′	–20° 33′	+14° 21′	–4° 44′	+22° 06′
	21	+20° 27′	+18° 13′	+1° 41′	–22° 06′	–20° 43′	+14° 25′	–4° 47′	+20° 28′
Dist	1	0.56	0.39	0.82	4.17	9.05	20.29	29.59	1.017
	11	0.64	0.45	0.76	4.14	9.01	20.14	29.43	1.017
	21	0.83	0.53	0.70	4.14	8.99	19.97	29.29	1.016
Mag	1		–4.7	–0.5	–2.7	0.2	5.8	7.9	
	11	2.6	–4.7	–0.7	–2.7	0.2	5.8	7.9	
	21	0.4	–4.6	–0.9	–2.7	0.1	5.8	7.8	
Size	1	12.0″	43.1″	11.4″	47.3″	18.4″	3.5″	2.3″	31′ 28″
	11	10.4″	36.7″	12.3″	47.6″	18.5″	3.5″	2.3″	31′ 28″
	21	8.1″	31.6″	13.3″	47.6″	18.5″	3.5″	2.3″	31′ 29″

Moon: On July 0 at 0h UT*, Sun's selenographic longitude is 21.69° and increases 12.2° each day thereafter.
Greatest N declination on the 19th (+23.9°)
Greatest S declination on the 5th (—24.1°)
Libration in longitude: E limb most exposed on the 6th (+5.0°)
W limb most exposed on the 19th (–5.4°)
Libration in latitude: N limb most exposed on the 11th (+6.8°)
S limb most exposed on the 25th (–6.7°)

Penumbral lunar eclipse on Jul. 5, visible from Antarctica, Africa, western Europe, South America, North America, the Atlantic Ocean, and the eastern Pacific Ocean.

Mercury: Achieves inferior conjunction on the 1st and gradually emerges in the morning sky thereafter. It achieves greatest elongation west (GEW) of 20° on the 22nd, when it shines at mag. +0.3. It brightens significantly to mag. –0.8 before month end when it remains well placed some 17° from the Sun.

Venus: Just a month after inferior conjunction, Venus is prominent in the morning sky, rising over two hours ahead of the Sun. It reaches its greatest illuminated extent (GIE) on the 10th, shining at mag. –4.7 throughout this period. Venus spends the first half of the month crawling through the Hyades star cluster, making its closest approach to Aldebaran on the 12th, when the two will be separated by just 1.0°. The waning crescent Moon joins the scene on the mornings of the 16–17, passing 3° N of Venus.

Mars: Continues to brighten significantly from mag. –0.5 to –1.0 during July, as it continues to climb the ecliptic among the stars of southern Pisces and northwestern Cetus. The waning gibbous Moon passes 2° to the south on the 11–12. By month end, the Red Planet is rising around midnight local daylight time and can be seen for well over half the night. Meridian transit times at Greenwich on the 1st, 11th, 21st—05:33, 05:15, 04:56 UT*.

Jupiter: Achieves opposition on the 14th, when it is 35 light-minutes (4.14 au) from Earth, mag. –2.8 with a 47.6″ disk and 22° south of the celestial equator. At this time, its four large (Galilean) satellites are also at their brightest with their widest apparent separation. Jupiter will be visible throughout the night all month. The full Moon passes 2° to the south on the 5th. The separation between Jupiter and nearby Saturn will grow from 6° to nearly 8° during July, due to the larger retrograde motion of the nearer planet. Meridian transit times at Greenwich on the 1st, 11th, 21st—01:06, 00:21, 23:31 UT*.

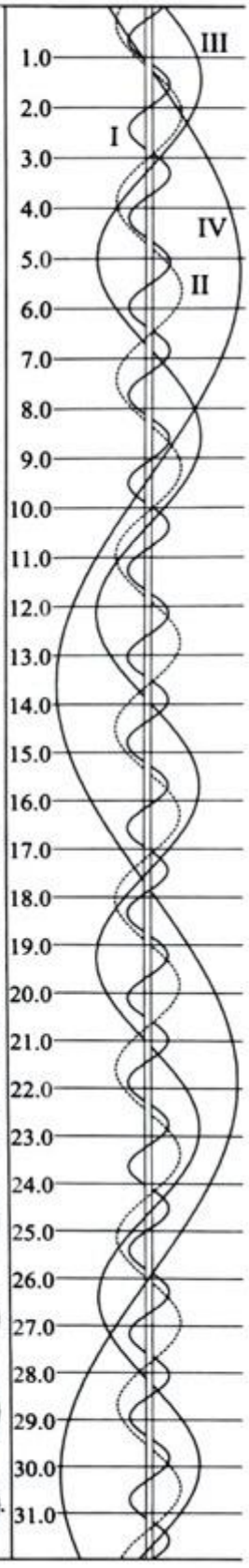
Saturn: Achieves opposition on the 20th, when it is 75 light-minutes (8.995 au) from Earth, mag +0.1, the northern side of the ring plane exposed at a 21.9° tilt. The rings span nearly 42″, the disk of the planet 18.5″ and 21° south of the celestial equator. Saturn will be visible all night in retrograde motion against the stars of eastern Sagittarius after reentering that constellation early in July. Compare its more subtle retrograde motion with that of closer Jupiter, with the result that the angle between two giant planets is gradually increasing during this time. The full Moon passes 3° to the S on the night of the 5–6. Meridian transit times at Greenwich on the 1st, 11th, 21st—01:31, 00:49, 00:06 UT*.

Uranus: Visible in morning twilight among the stars of Aries.

Neptune: Visible in the overnight and morning hours among the stars of Aquarius. Meridian transit times at Greenwich on the 1st, 11th, 21st—04:49, 04:10, 03:30 UT*.

*See p. 94, the bold-faced sentences of the first paragraph.

Time (UT) d	h	m	JULY EVENTS
Wed. 1	3		Mercury in inferior conjunction
	11	54	Algol at minimum
Thu. 2			
Fri. 3			
Sat. 4	8	43	Algol at minimum
	12		Earth at aphelion (152 095 295 km)
Sun. 5	4	44	**Full Moon**
			Penumbral Lunar Eclipse (p. 130)
	6		Vesta in conjunction with the Sun
	22		**Jupiter 1.9° N of Moon**
Mon. 6	9		**Saturn 2° N of Moon**
Tue. 7	5	32	Algol at minimum
Wed. 8			Mars at greatest heliocentric lat. S
Thu. 9			
Fri. 10	2	21	Algol at minimum
	8		**Venus greatest illuminated extent**
Sat. 11			Venus at aphelion
	20		**Mars 2.0° N of Moon**
Sun. 12	7		Mercury stationary
	7		**Venus 1.0° N of Aldebaran**
	19		Moon at apogee (404 199 km)
	23	29	**Last quarter**
	23	10	Algol at minimum
Mon. 13			Mercury at greatest heliocentric lat. S
	2		Ceres stationary
	2		Pallas at opposition
Tue. 14	8		**Jupiter at opposition**
	12		Uranus 4° N of Moon
Wed. 15	19		Pluto at opposition
	19	59	Algol at minimum
Thu. 16			
Fri. 17	7		**Venus 3° S of Moon**
Sat. 18	16	48	Algol at minimum
Sun. 19	4		Mercury 4° S of Moon
Mon. 20	17	33	**New Moon** (lunation 1207)
	22		**Saturn at opposition**
Tue. 21	13	37	Algol at minimum
Wed. 22	15		**Mercury greatest elongation W (20°)**
Thu. 23			
Fri. 24	10	26	Algol at minimum
Sat. 25	5		Moon at perigee (368 361 km)
Sun. 26			
Mon. 27	7	15	Algol at minimum
	10		S. δ-Aquariid meteors peak
	12	32	**First quarter**
Tue. 28			
Wed. 29			
Thu. 30	4	04	Algol at minimum
Fri. 31			



THE SKY FOR AUGUST

		Mercury	Venus	Mars	Jupiter	Saturn	Uranus	Neptune	Sun
RA	1	7h 36m	5h 34m	1h 12m	19h 26m	19h 59m	2h 32m	23h 26m	8h 45m
	11	8h 57m	6h 12m	1h 27m	19h 22m	19h 56m	2h 33m	23h 25m	9h 24m
	21	10h 17m	6h 54m	1h 39m	19h 18m	19h 53m	2h 33m	23h 24m	10h 01m
Dec	1	+21° 29′	+19° 16′	+3° 29′	–22° 20′	–20° 54′	+14° 29′	–4° 52′	+18° 01′
	11	+18° 47′	+19° 58′	+4° 49′	–22° 30′	–21° 02′	+14° 30′	–4° 57′	+15° 17′
	21	+12° 31′	+20° 06′	+5° 50′	–22° 38′	–21° 10′	+14° 30′	–5° 03′	+12° 07′
Dist	1	1.10	0.61	0.64	4.18	9.01	19.79	29.16	1.015
	11	1.29	0.69	0.59	4.24	9.06	19.62	29.06	1.014
	21	1.37	0.77	0.54	4.33	9.13	19.46	28.99	1.012
Mag	1	–0.9	–4.5	–1.1	–2.7	0.1	5.8	7.8	
	11	–1.6	–4.5	–1.3	–2.7	0.2	5.8	7.8	
	21	–1.6	–4.4	–1.5	–2.6	0.3	5.7	7.8	
Size	1	6.1″	27.2″	14.6″	47.2″	18.5″	3.5″	2.3″	31′ 31″
	11	5.2″	24.1″	15.8″	46.5″	18.4″	3.6″	2.3″	31′ 34″
	21	4.9″	21.7″	17.2″	45.5″	18.2″	3.6″	2.3″	31′ 37″

Moon: On August 0 at 0h UT*, Sun's selenographic longitude is 40.54° and increases 12.2° each day thereafter.
Greatest N declination on the 16th (+24.1°)
Greatest S declination on the 1st (–24.0°) and 29th (–24.1°)
Libration in longitude: E limb most exposed on the 2nd (+4.9°) and 28th (+5.9°)
W limb most exposed on the 16th (–6.3°)
Libration in latitude: N limb most exposed on the 7th (+6.7°)
S limb most exposed on the 21st (–6.6°)

Mercury: Shines brightly in morning twilight early in the month but soon becomes too close to the Sun to be easily seen. Reaches superior conjunction on the 17th, after which it slowly progresses into the evening sky, becoming visible late in the month.

Venus: Brilliant in morning twilight, Venus reaches greatest elongation west (GEW), 46° from the Sun, on the 13th. The waning crescent Moon passes 4° to its north on the 15th. Venus passes through the stars of Gemini in the second half of the month.

Mars: Becoming extremely prominent in the late evening and overnight sky as Earth continues to overtake it, Mars will nearly double in brightness from mag. -1.1 on the 1st to mag. –1.8 on the 31st, while its disk grows from 15 to 19″ during the month. Mars achieves perihelion on the 3rd, and will be well placed relatively closer to Earth in the weeks leading up to its October opposition than in the weeks after. The waning gibbous Moon makes a close pass on the 9th, when the two objects will make an impressive pair with high colour contrast in the pre-dawn hours in the Western hemisphere. Meridian transit times at Greenwich on the 1st, 11th, 21st—04:32, 04:08, 03:41 UT*.

Jupiter: Now past opposition, Jupiter is already well above the horizon as evening twilight deepens, where it dominates the evening sky at about mag. –2.7. It remains about 8° west of Saturn throughout the month. The waxing gibbous Moon passes 2° to the south of both on the 1–2 and again on the 28–29. Meridian transit times at Greenwich on the 1st, 11th, 21st—22:43, 21:59, 21:16 UT*.

Saturn: Now past opposition, the ringed planet is already well above the horizon as evening twilight deepens, easily found about 8° east of Jupiter, which outshines Saturn by a factor of 10. The waxing gibbous Moon passes 2° to its S on both the 2nd and 29th. Meridian transit times at Greenwich on the 1st, 11th, 21st—23:16, 22:33, 21:52 UT*.

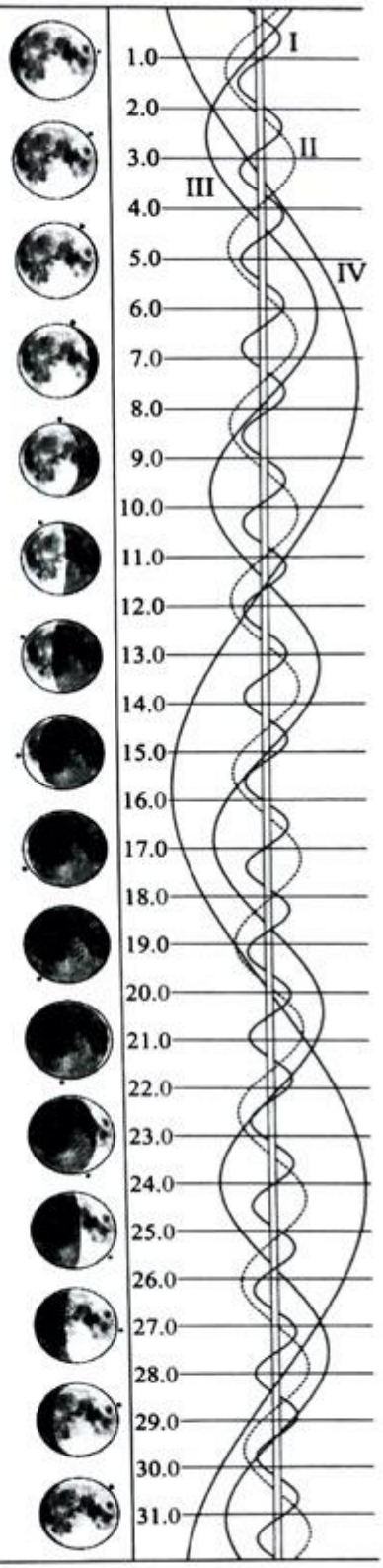
Uranus: Reaches its first stationary point on the 15th when it reaches its highest declination (nearly +15°) since the early 1960s. Begins its modest retrograde loop back down the ecliptic thereafter. Meridian transit times at Greenwich on the 1st, 11th, 21st—05:52, 05:13, 04:34 UT*.

Neptune: Rises in mid-evening, in retrograde motion in Aquarius as it approaches its Sep. 11 opposition. Meridian transit times at Greenwich on the 1st, 11th, 21st—02:46, 02:06, 01:26 UT*.

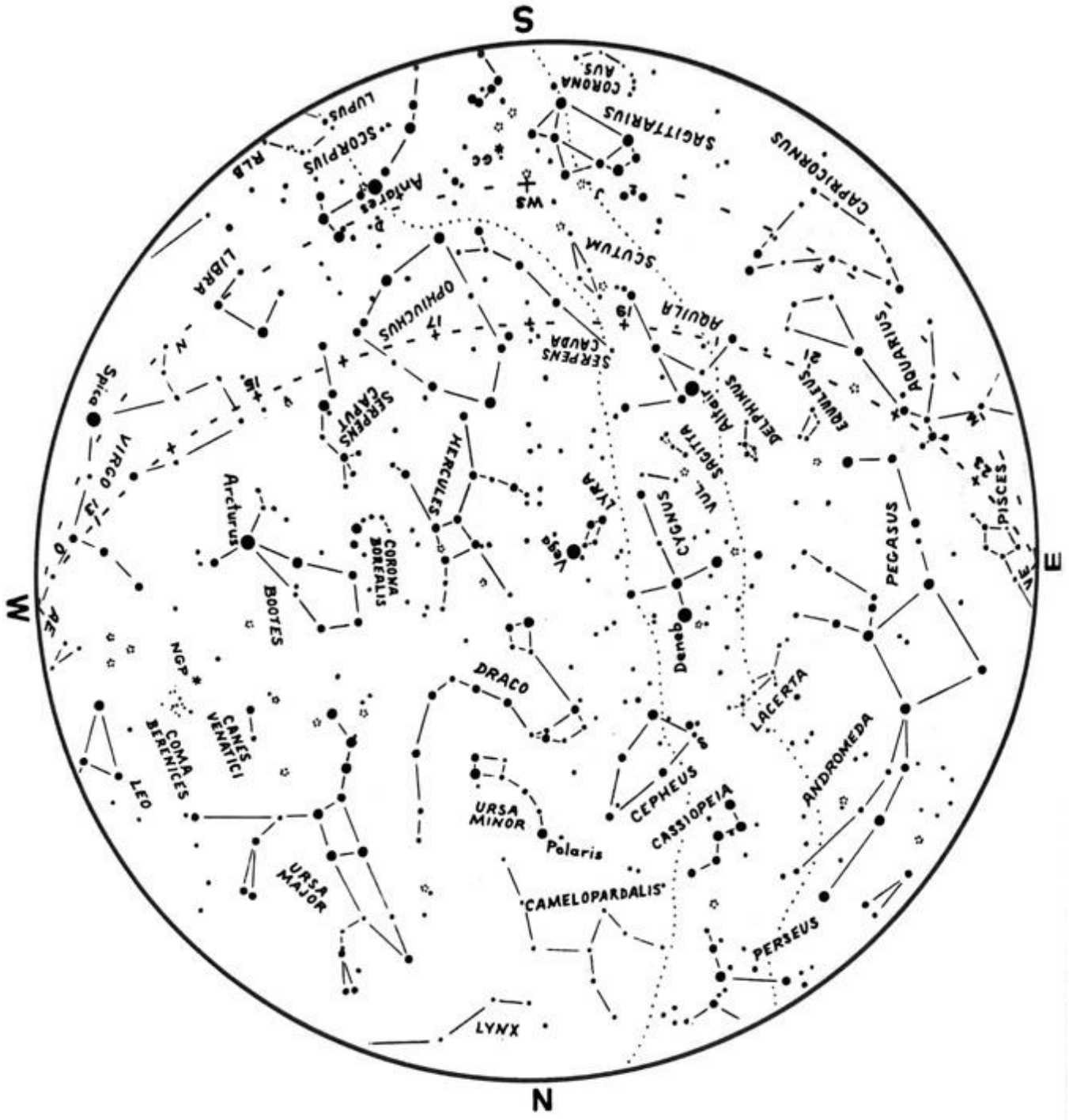
*See p. 94, the bold-faced sentences of the first paragraph.

AUGUST EVENTS

Time (UT) d	h	m	
Sat. 1			Mercury at ascending node
Sun. 2			Venus at greatest heliocentric lat. S
	0		**Jupiter 1.5° N of Moon**
	0	53	Algol at minimum
	6		Pluto 1.1° N of Moon, occultation†
	13		**Saturn 2° N of Moon**
Mon. 3			Mars at perihelion
	15	59	**Full Moon**
Tue. 4	21	42	Algol at minimum
Wed. 5			
Thu. 6			Mercury at perihelion
Fri. 7	18	31	Algol at minimum
Sat. 8			
Sun. 9	8		**Mars 0.8° N of Moon, occultation‡**
	14		Moon at apogee (404 659 km)
Mon. 10	15	20	Algol at minimum
	21		Uranus 4° N of Moon
Tue. 11	16	45	**Last quarter**
Wed. 12	13		**Perseid meteors peak**
Thu. 13	0		**Venus greatest elongation W (46°)**
	12	09	Algol at minimum
Fri. 14			
Sat. 15	4	08	**Double shadow transit on Jupiter**
	13		**Venus 4° S of Moon**
	17		Uranus stationary
Sun. 16			Mercury at greatest heliocentric lat. N
	8	58	Algol at minimum
Mon. 17	15		Mercury in superior conjunction
	18		**Moon 1.7° N of Beehive (M44)**
Tue. 18			
Wed. 19	2	42	**New Moon** (lunation 1208)
	5	47	Algol at minimum
Thu. 20			
Fri. 21	11		Moon at perigee (363 513 km)
Sat. 22	2	36	Algol at minimum
	6	32	**Double shadow transit on Jupiter**
Sun. 23			
Mon. 24	23	25	Algol at minimum
Tue. 25	17	58	**First quarter**
Wed. 26			
Thu. 27	20	14	Algol at minimum
Fri. 28	12		**Ceres at opposition**
Sat. 29	2		**Jupiter 1.4° N of Moon**
	11		Pluto 1.2° N of Moon, occultation††
	17		**Saturn 2° N of Moon**
Sun. 30	17	03	Algol at minimum
Mon. 31			



†Most of E Antarctica
‡Most of W Antarctica, SE South America, Ascension Is.
††Queen Maud Land, most of W Antarctica


S
W
E
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CORONA AUS
SAGITTARIUS
CAPRICORNUS
SCORPIUS
LUPUS
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SCUTUM
LIBRA
OPHIUCHUS
AQUILA
SERPENS CAUDA
SERPENS CAPUT
Altair
DELPHINUS
EQUULEUS
AQUARIUS
Spica
VIRGO
HERCULES
SAGITTA
VUL
LYRA
Arcturus
CORONA BOREALIS
Vega
CYGNUS
PEGASUS
PISCES
BOOTES
NGP
Deneb
DRACO
LACERTA
COMA BERENICES
CANES VENATICI
LEO
URSA MINOR
Polaris
CEPHEUS
CASSIOPEIA
ANDROMEDA
URSA MAJOR
CAMELOPARDALIS
PERSEUS
LYNX

From Mike Dolan's deck through his 8" Newtonian prime

Daytime Moon taken by Mike Dolan

BOOK DRIVE

Astronomy-related book donations are being accepted to the RASC Saskatoon Centre Library at the U of S Observatory during its regular Saturday evening open house, April - August 9:15-11:45pm (please note that the observatory is currently closed indefinitely due to COVID-19).

COMET UPDATE

Tenho Tuomi (Photos by Tenho)

I am following comet C/2017 T2 (PANSTARRS) as it is passing more galaxies. The comet is fading but still the brightest comet in the sky.

C2017T2-M106_18.jpg. Comet C/2017 T2 (PANSTARRS) passing galaxy M106 and other galaxies, taken June 24 with Canon T5i and Sky-Watcher Equinox-80 ED APO.

C2017T2-M109_55a.jpg. Comet C/2017 T2 (PANSTARRS) passing galaxy M109, almost lost in the glare of the star Phecda. Taken June 16 with CanonT5i and Orion SkyQuest XT12.

TOUCH THE SKY: THE STORY OF AVRO CANADA

This exhibit is closed temporarily, but I'll leave the info in case it opens again.

A pioneer in aircraft manufacturing, Avro Canada Ltd. was most recognized for its Avro Arrow aircraft—a model intended to serve the Royal Canadian Air Forces. Highly debated in government for its cost and national defence implications, Prime Minister Diefenbaker abruptly cancelled the production of the Avro Arrow in 1959. Curated by the Diefenbaker Canada Centre, this exhibit tells the story of Avro Canada's creation and its impact in the world of aeronautics and technology.

https://diefenbaker.usask.ca/exhibits/Current-exhibits.php#TouchtheSkyTheStoryofAvroCanada

Congrats go to Jeanine Holowatiuk on winning the SkyNews Magazine photo of the week with this picture of the noctilucent clouds taken at Greenwater Provincial Park in June 2020. ISO 400, 50mm, f/3.2, 1 second exposure

BOOKS FOR SALE

All books are in either new, or like new condition. Retail price in brackets. Please email or text me if you want a particular book and I will bring it to the next meeting or arrange to meet you. All books being sold by Darrell Chatfield. Contact him at **novachat@sasktel.net** or 306-222-0515.

"Deep-Sky Observers Handbook" Volume 1-5 Enslow-Lutterworth $40.00

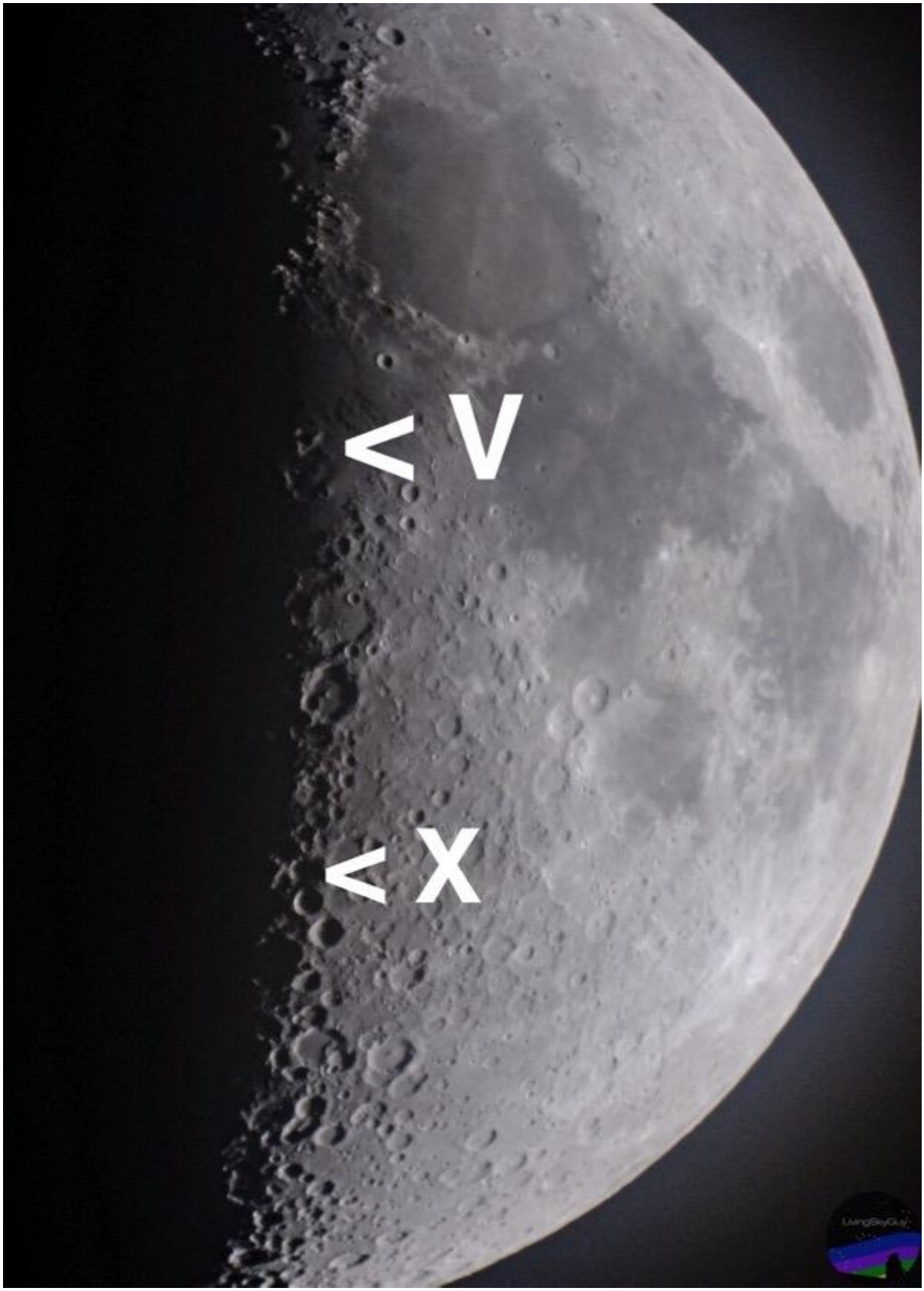
"International Encyclopedia of Astronomy" 1987 Patrick Moore Color $10.00

"Backyard Astronomers Guide" T. Dickinson & Alan Dyer 2008 Color $25.00

"Atlas of Deep Sky Splendors" 1978 H. Verhenberg (50.00) 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



Tim Yaworski shot Lunar X and V on the night of April 29, 2020. The image was captured with an iPhone XR using eyepiece projection through a Celestron 925 EdgeHD

The penumbral lunar eclipse on July 4, 2020 was plagued by a cloudy horizon in the Saskatoon area. This image by Tim Yaworski was taken with a Fujifilm XT-10 camera mounted at prime focus of a William Optics 61mm refractor. This was one of the clearest moments of the eclipse.

Noctilucent Clouds over downtown Saskatoon. Taken July 3, 2020 by Colin Chatfield

Noctilucent Clouds taken by Tara Magee July 1, 2020

Moon behind the clouds taken by Tara Magee July 3, 2020

Milky Way with Jupiter, Saturn, and a meteor taken June 23, 2020 by Tara Magee

SASKATCHEWAN SUMMER STAR PARTY 2020

Planning Update - Les Dickson

Due to the pandemic, we felt it was prudent to cancel SSSP 2020. The decision was based on two major issues:

1) the threat to the health of attendees and the possibility of spreading infection to a large number of people, and

2) the restrictions on the size of public gatherings and social distancing meant that all of the day-time programming would have to be cancelled. We will be planning to hold the next SSSP from August 4th to 9th, 2021.

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. 314)
THE FINEST NGC OBJECTS (p. 318),
THE DEEP-SKY CHALLENGE OBJECTS (p. 322),
DEEP-SKY GEMS (p. 324).

See www.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** for intermediate to advanced members. In addition, **Astroimaging certificates** are available for those members with a photographic bent. See www.rasc.ca/astro-imaging-certificate

RASC OBSERVER'S HANDBOOK 2020

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
Marcel Müller-Goldkuhle	94
Wade Selvig	75
Wayne Schlapkohl	43
Ellen Dickson	34
Graham Hartridge	9

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,*

Wayne Schlapkohl	55
Jim Goodridge	35

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

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

Jim Goodridge	12

Isabel Williamson Lunar Observing Certificate
Certified at 140 Objects:
T. Tuomi, N. Jensen

LEVY DEEP-SKY GEMS
Certified at 154 Objects:

Tenho Tuomi	150
Darrell Chatfield	70

The Messier, Finest NGC and David Levy's Deep-Sky Gems lists can be found in the *Observer's Handbook*.
The Explore the Universe list is available here **http://www.rasc.ca/explore-universe**
On-line Messier and Finest NGC lists, charts and logbooks:
http://www.rasc.ca/observing
On-line Herschel 400 List:
http://www.astroloeague.org/al/obsclubs/herschel/hers400.html
Binocular List is at: **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.shtm**