Saskatoon Skies

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

Volume 51, Number 04 April 2020

Royal Astronomical Society of Canada
Saskatoon Centre Incorporated
Box 31086, RPO Broadway
Saskatoon, SK S7H 5S8

WEBSITE: **http://www.usask.ca/rasc/**
E -MAIL: **sk_centre@rasc.ca**
FACEBOOK: **RASC Saskatoon Centre**
INSTAGRAM: **@RASCYXE**

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**.

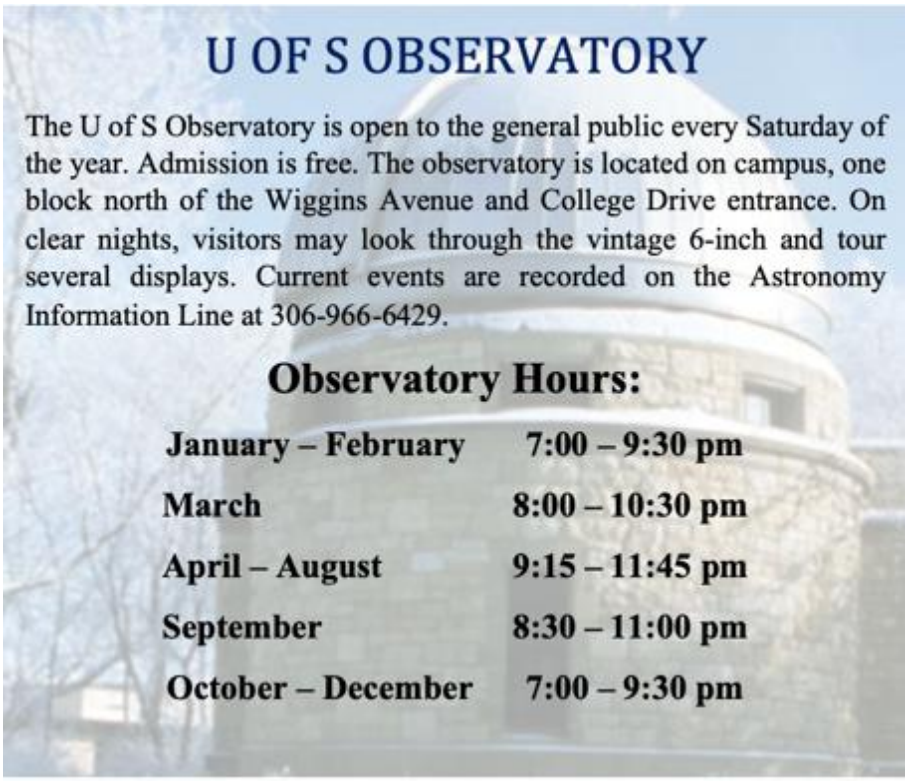
NEWSLETTER INFO

Newsletter Editors – Colin Chatfield, Grant Ursaki
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.

Venus and Pleiades conjunction taken by Tim Yaworski on April 3, 2020



U of S Observatory website -

https://artsandscience.usask.ca/physics/facilities/observatory.php

Saskatchewan Light Abatement Committee -

http://myotherlife.net/slpac/

www.darksky.org

RASC CALENDAR OF EVENTS

April RASC General Meeting

for all members and guests

Join us on April, 2020 at 7:00PM (Note the time change to an hour earlier)
Webinar (info below)

6:00pm - **RASC Executive Meeting** (Members may attend the executive meeting as observers if they wish)

For added security, Daryl created a survey outside of Zoom for Members to sign up for the Executive Council Meeting: https://www.surveymonkey.ca/r/9TXV2RM.

A Zoom registration link will only be shared with members who submit their email address through the survey. After that, the procedure to register and join the meeting is the same as for the webinar (explained below), except that video conferencing can be enabled for those joining via computer.

7:00pm - **Main Program**
Speakers include:
- **Jenna Hinds (RASC Outreach Coordinator)** - RASC Robotic Telescope. Jenna will be speaking to us about recent activity and upcoming opportunities with the RASC robotic telescope.

Here is a link to register for the April Centre Meeting webinar:
https://zoom.us/webinar/register/WN_N_URJedaR7K-AWIQF7LIHg

NOTE: this link is to register to attend the webinar, so we know who is planning to attend. After registering, an email invitation will be sent with a link to join via computer (audio/keyboard only; no video) 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.

April 18	**Observer's Group (weather permitting)**	Larry Scott
April 20	**RASC General Meeting - 7:00pm (info below)**	Daryl Janzen

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

BOOK DRIVE

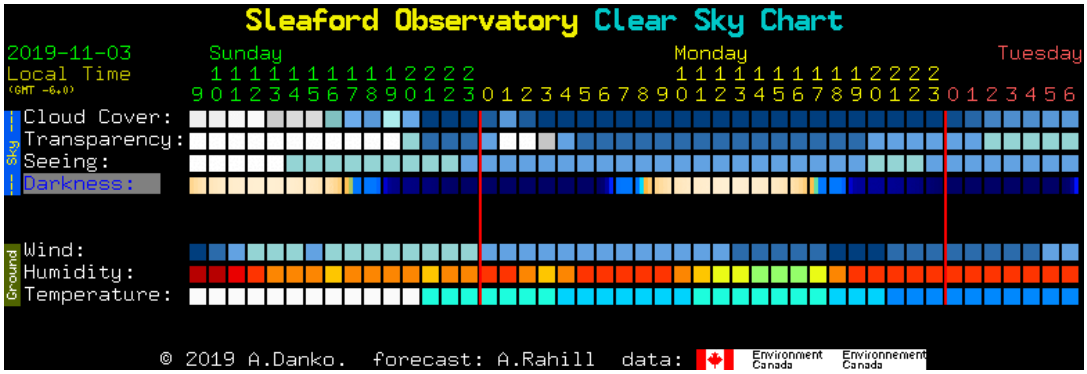
Astronomy-related book donations are being accepted to the RASC Saskatoon Centre Library at the U of S Observatory during its regular Saturday evening open house, April - August 9:15-11:45pm (please note that the observatory is currently closed indefinitely due to COVID-19).

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

Aurora taken by Dick Kirk in 2012

2400 second exposure of NGC 7000 taken by Dick Kirk

TOUCH THE SKY: THE STORY OF AVRO CANADA

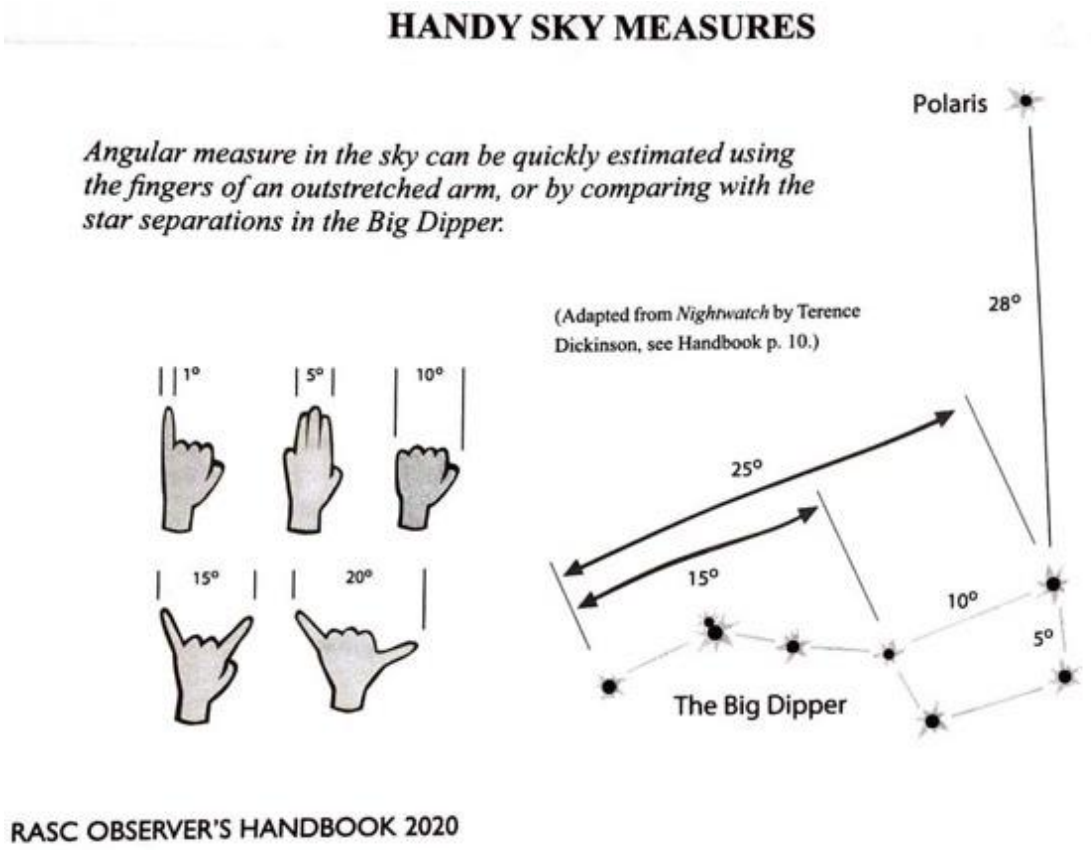
This exhibit is closed temporarily, but I'll leave the info in case it opens again.

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

APRIL 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 APRIL

		Mercury	Venus	Mars	Jupiter	Saturn	Uranus	Neptune	Sun
RA	1	23h 08m	3h 36m	20h 12m	19h 44m	20h 10m	2h 11m	23h 21m	0h 42m
	11	0h 02m	4h 13m	20h 41m	19h 49m	20h 13m	2h 13m	23h 22m	1h 19m
	21	1h 04m	4h 45m	21h 09m	19h 52m	20h 14m	2h 15m	23h 24m	1h 56m
Dec	1	−7° 53′	+23° 02′	−20° 59′	−21° 21′	−20° 07′	+12° 43′	−5° 18′	+4° 32′
	11	−2° 33′	+25° 28′	−19° 32′	−21° 10′	−20° 01′	+12° 55′	−5° 10′	+8° 18′
	21	+4° 36′	+27° 03′	−17° 50′	−21° 02′	−19° 57′	+13° 06′	−5° 03′	+11° 51′
Dist	1	1.02	0.65	1.46	5.32	10.30	20.72	30.85	0.999
	11	1.15	0.58	1.38	5.16	10.14	20.78	30.78	1.002
	21	1.26	0.50	1.30	5.00	9.98	20.81	30.68	1.005
Mag	1	0.0	−4.5	0.8	−2.1	0.7	5.9	8.0	
	11	−0.2	−4.6	0.7	−2.2	0.6	5.9	8.0	
	21	−0.7	−4.7	0.5	−2.3	0.6	5.9	7.9	
Size	1	6.6″	25.5″	6.4″	37.0″	16.1″	3.4″	2.2″	32′ 01″
	11	5.8″	28.9″	6.8″	38.2″	16.4″	3.4″	2.2″	31′ 55″
	21	5.3″	33.3″	7.2″	39.4″	16.7″	3.4″	2.2″	31′ 50″

Moon: On April 0 at 0h UT*, Sun's selenographic longitude is 350.61° and increases 12.2° each day thereafter.
Greatest N declination on the 1st (+23.6°) and 29th (+23.9°)
Greatest S declination on the 14th (−23.8°)
Libration in longitude: E limb most exposed on the 14th (+7.5°)
W limb most exposed on the 2nd (−8.0°) and 30th (−7.2°)
Libration in latitude: N limb most exposed on the 20th (+6.6°)
S limb most exposed on the 7th (−6.5°)
Large tides in the days following full Moon (Apr. 8)

Mercury: In the morning sky throughout the month, brightening as its phase angle increases, even as it is receding from Earth. By the 20th, it is still at 15° elongation from the Sun at mag. −0.7, but continues to dive toward the Sun at about 1° per day thereafter. Best seen from the Southern Hemisphere.

Venus: Continues to dominate the western to northwestern sky in the hours after sunset. Passes right through the Pleiades on the evening of the 3rd in North America. The waxing crescent Moon passes 6° to its south on 25–26. Venus achieves its greatest illuminated extent (GIE)—the optimum combination of the approaching planet's angular size (38″) and phase angle (27% illuminated)—on the evening of the 27th, when it will gleam at mag. −4.7. Its crescent phase will be visible in any telescope or spotting scope, good binoculars, or even to the unaided eye for those with exceptional visual acuity.

Mars: Now pulling away from Saturn and Jupiter in the morning sky, it spends the month speeding eastward through the stars of Capricornus. The waning crescent Moon passes to its south on the 15–16.

Jupiter: Prominent in the overnight and pre-dawn hours among the stars of Sagittarius, and by month end is visible for half the night. Its faster prograde motion continues to narrow the gap to Saturn, and by month end the two gas giants are a mere 5° apart, comfortably within the field of view of standard 7× binoculars. The third quarter Moon will pass 2° to the south of both objects, best seen on the 15th.

Saturn: Continues its eastward motion among the stars of Capricornus throughout the month, as Mars pulls away from it to the east and Jupiter closes the gap from the west. The waning crescent Moon cruises through the area on the 14–16, best seen on the morning of the 15th when it passes 2° below Saturn. By month end, Saturn is visible for half the night.

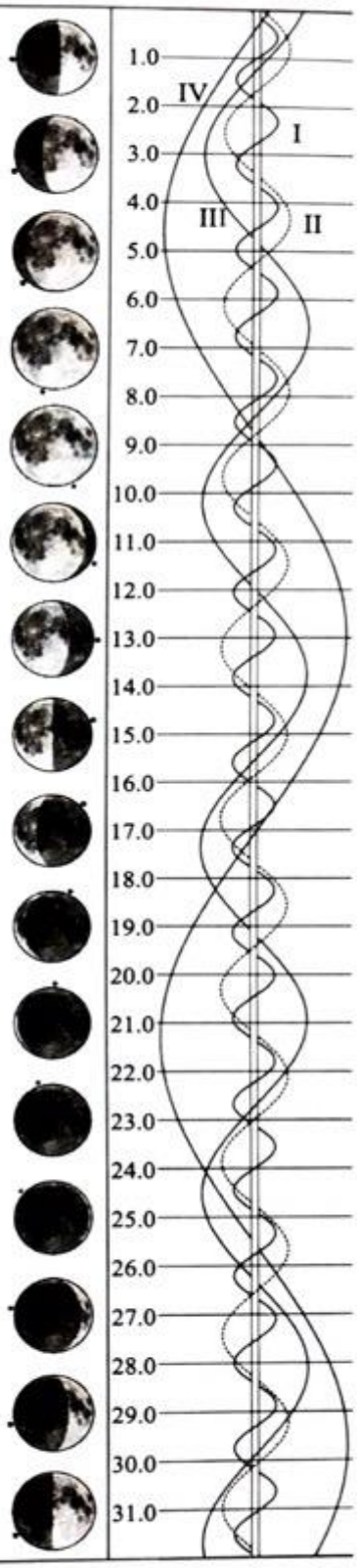
Uranus: Becoming too close to the Sun to be easily seen as it heads toward its solar conjunction on the 26th.

Neptune: Gradually emerging in morning twilight for telescopic observers.

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

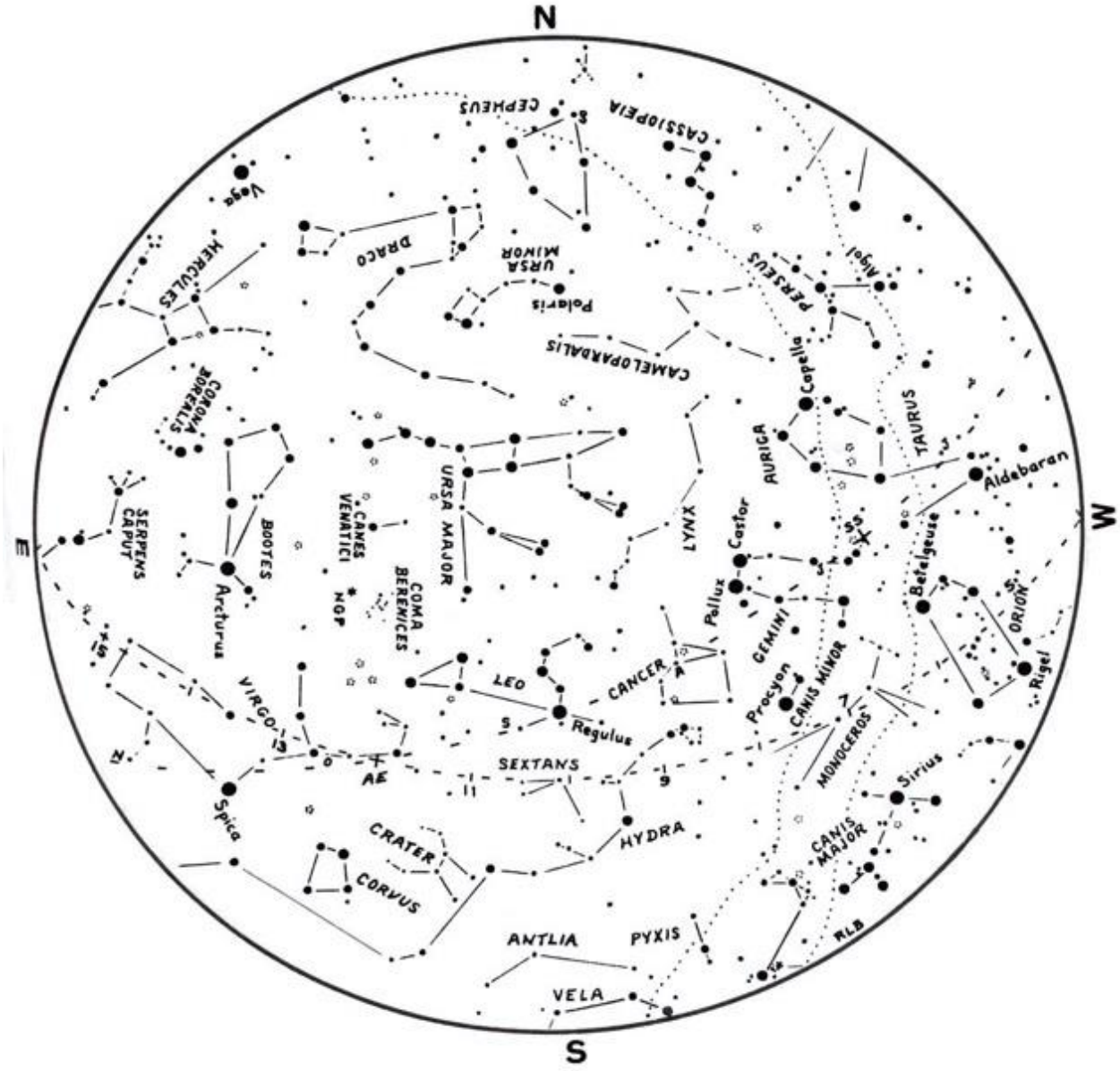
APRIL EVENTS

Time (UT) d	h	m		
Wed. 1	10	21	**First quarter**	
Thu. 2	20		Juno at opposition	
Fri. 3	7		**Moon 1.3° N of Beehive (M44)**	
	14	35	Algol at minimum	
	15		Mercury 1.4° S of Neptune	
	20		**Venus 0.3° S of Pleiades (M45)**	
Sat. 4				
Sun. 5				
Mon. 6	11	24	Algol at minimum	
Tue. 7	18		Moon at perigee (356907 km) **Large tides**	
Wed. 8	2	35	**Full Moon**	
Thu. 9	8	13	Algol at minimum	
Fri. 10			Venus at greatest heliocentric lat. N	
Sat. 11				
Sun. 12	5	02	Algol at minimum	
Mon. 13				
Tue. 14	22		Pluto 1.2° N of Moon, occultation†	
	22	56	**Last quarter**	
	23		**Jupiter 2° N of Moon**	
Wed. 15	1	51	Algol at minimum	
	9		**Saturn 2° N of Moon**	
Thu. 16			Mercury at greatest heliocentric lat. S	
	5		**Mars 2° N of Moon**	
Fri. 17	22	40	Algol at minimum	
Sat. 18				
Sun. 19				
Mon. 20	19		Moon at apogee (406462 km)	
	19	29	Algol at minimum	
Tue. 21	17		Mercury 3° N of Moon	
Wed. 22	18		Lyrid meteors peak	
Thu. 23	2	26	**New Moon** (lunation 1204)	
	16	18	Algol at minimum	
Fri. 24				
Sat. 25				
Sun. 26	9		Uranus in conjunction with the Sun	
	11		**Vesta 0.1° S of Moon, occultation‡**	
	13	07	Algol at minimum	
	15		Venus 6° N of Moon	
Mon. 27	22		**Moon 0.7° S of M35**	
Tue. 28	1		**Venus greatest illuminated extent**	
Wed. 29	9	56	Algol at minimum	
Thu. 30	14		**Moon 1.6° N of Beehive (M44)**	
	20	38	**First quarter**	



†Part of the Antarctic Peninsula

‡C & NE Africa, most of Middle East, S Kazakhstan, N & C India, China, most of SE Asia, Philippines, S Japan



THE UNORTHODOX ASTRONOMER

Mike Dolan

Willie Nelson sang “The night life ain’t no good life but it’s my life” and so it was said to me about astronomy. “The outside is the right side for star gazing. You’re missing best part of what you should be seeing putting a sliding glass door between you and the universe.” I had to agree but as a guy born and raised in Hawaii it just didn’t seem prudent to stand around in -25c temperatures wearing clothes that weigh more than I do, looking at stars.

Not when I could be sitting comfortably indoors enjoying a hot beverage observing pretty much the same vista.

I started with an EQ-114 and an Equatorial Mount. The closest thing that I knew about astronomy, stars, and telescopes was what I learned in Boy Scouts – "Look for Polaris" the Scoutmaster preached. Well after a few tries on the Deck with this telescope and tripod mount contraption I finally, by some fluke, located Saturn. I'm fairly certain most of the neighborhood heard the "WHOOOOOP" of excitement that signalled I had actually found something worth seeing, a planet. After all, the moon was getting boring. It was close to December and as the temperature steadily dropped I sat having morning coffee gazing out the glass doors and thought to myself I don't have to go outside, I can see most of the southern sky right from here. Why not – I had an unobstructed view from Southeast to Southwest right through the plate glass sliding doors in the dining room. Hey, I can see Orion, Sirius and M41. Yup that's all I needed. Then one morning I discovered Venus. Wow...another planet. This astronomy stuff is really getting cool; I can see planets and "stuff". But wait – where is all the detail...I look in the magazines and see these pictures of Venus or Jupiter – Why can't I see any detail? Is that it? Just a shiny disk? I soon found out that in order to see the "stuff" they show in the magazines you gotta have a scope of substantial size. We're talking Hubble – they didn't tell me that at Best Buy where I bought the scope. Undaunted and more determined now to see the bands of Jupiter and other celestial sites I pressed on.

OK...let's look online! Google search comes up with some telescope shops – Hey this one in Alberta – that's close. I call the guy on the phone, we chat, he has one for sale – free shipping and before you know it I have an 8 inch reflector with an AVX mount on the way. What???? Well fortunately there's YouTube, and so I looked for videos about what I bought and there it was..."The Beast". I felt like Tim "The Tool Man" Taylor – uhuhuuhuhu! "The Beast". It finally arrived and I set it up, I played with it in the dining room, "Look dear, it moves by itself when I press this button". It was impressive! To be honest, I had no idea what I was doing or what "the beast" was doing, or anything. I continued my viewing through the plate glass doors just by slewing, I did not understand what "alignment was until warmer weather arrived and finally decided to try it outside for real. With a fully charged Notebook, YouTube videos queued and ready, Starry Night software loaded, and "The Beast" aimed at Polaris, as per the instructions, I was ready to go. If Galileo could do it then so could I, "How hard can it be I've got technology on my side. Bring on the solar system" was my mantra. Well technology is fine and dandy if you know what stars to use on an All Star Polar Alignment. It looked so simple in the videos "pick Arcturus" the guy said, then center it in the eye piece.

Yeah right, it's there when I look with my eyes but in the finder scope? Oh-oh! There's forty other stars out there, and they're all upside down which one is Arcturus? Ok forget

the all-star alignment let's do a solar system alignment. Pick the moon. Well after 15 minutes of moving up, down, left, right I finally get the moon in the finder scope. Look in the eyepiece – not even close. I needed help - nothing lined up and every time I tried it got worse. Was my mount broken? Was I sold a piece of junk? I was getting frustrated, worse yet I was mad. I tried and tried but continued to fail, no one seemed to understand my plight. Finally, I sent out an SOS via email to a few of the members and that's when I met Ron Waldron.

He replied "I've got the same mount and it's going to be clear tonight I can come over to your house and we'll get that working". It was an excellent late July evening and I could tell Ron was impressed with the view from my deck. We sipped a cup of coffee and then quickly focused on my scope and mount. I went through the step by step setup with him, I aligned the mount to Polaris and Ron confirmed. We then found Arcturus – 1 star picked. I don't recall the second star it may have been Mirach or Alpheratz – second star picked. Ron confirmed my steps and we slewed back to Arcturus to confirm the alignment and it was gone - no Arcturus. The telescope was so far off it didn't even show up in the finder. Just by eyesight alignment it was obvious that the telescope had slewed to what appeared to be another solar system in another time zone. I felt like Star Wars – "A long time ago in galaxy far, far away". Ron looked a bit perplexed, "This can't be" he said "we missed something". He suggested we do a complete restart. Factory reset, choose all the settings, polar alignment, pick the stars, confirm the alignment. Again we got the same results. At that point Einstein's famous quote came to mind, "The definition of insanity is doing the same thing over and over again and expecting a different result." Now Ron understood my frustration. "I'll give Ken from All-Star Telescope a call, I know him quite well" Ron said in a reassuring tone. "I'll explain the situation and get back in touch with you." With that we called it a night and shut everything down. Ron called back a few days later and suggested that he take the mount to the upcoming star party to have Ken look at it there. I suggested that maybe I should go with it which prompted a very welcoming invite from Ron. The day came and we staked out a spot in the meadow and waited for night. I forgot my glasses someplace in the trailer and had to do the initial setup partially blind. I picked -6UT as the time zone instead of Central which I normally used as per the instructions that came with the mount. I did my normal polar alignment on the mount – then a two star alignment – confirmed it and Glory be!! – bang on. Put a 31mm eyepiece in the focuser and slewed to M31 as Ron suggested – "Do you see it?" he asked. "I think so." I said. "It should fill up the eyepiece" a voice from behind said. Ron asked to take a look and after a minute or two he stepped back and smiled at me and said "You got it". Alignment problem solved!! Who knew that in Saskatchewan the mount software didn't handle Daylight Savings Time very well but did calculate Universal Time with precision. Now that the alignment problem was solved I proceeded to have the best time at my very first Star Party.

It was some time later that Ron and I met up again on my deck. This time I was achieving expert alignments and able to find some of the nicer Messier objects in the skies. We setup and enjoyed a great evening of observing in unseasonably warm conditions. After an evening of observing we dismantled our equipment and I moved indoors to enjoy a cup of hot coffee and a slice of apple pie. Ron still disagreed with looking through a plate glass window but had to accept my unorthodox methods – if it works!! We continued our conversation over pie and coffee when it was finally time to call it quits. The next morning my wife "How did it go last night?" and I replied "Great!" and then she asked," How did the apple pie taste?" I told her it was ok but the crust was a bit doughy. That's when she gently explained that I was supposed to bake the apple pie first before serving. I don't know…it still tasted good and Ron didn't seem to mind – Oh well!!

I emailed Ron in mid-March to see how he was doing. I relayed that my wife had knee replacement surgery and was recovering nicely except for the occasional 2:30am wakeups "honey...my knee kind of hurts – can you get the ice pack and some more fresh water for me? Oh maybe turn on the coffee?" I take care of my nursing chores and since I'm awake and it's a clear morning I turn on the telescope. I do my top secret indoor precision alignment and start looking. That morning I caught an unusually fine alignment and was able to catch some of the southern skies delights.

Excerpt of email to Ron:
Eyepieces used 24mm and 17mm no filter
3:00am: A very pretty Gibbous Moon – maybe 75%
3:30am: maybe M10 - don't know it was just a smudge!! I know I'm in the right vicinity just don't have dark enough sky for seeing. I tried a 10mm but all I saw was space...
4:40am: M16 – M17 – M23 – M21
5:45am: M20 - M8 - M22 – M25
6:10am: Mars – Jupiter
6:40am: Saturn
Of course I have a sliding glass door I'm looking through (-minus 20%), Mr. Moon is shining at about +12.5 (-20%), City light pollution (-10%) - So I'm probably seeing maybe at best half of what I could be seeing if I we outside in dark sky but all in all I am getting pretty good looks – it's fun.
Anyway, just thought I would touch base – see how you is – and I am just waiting for a bit warmer (something above 0) to setup outside and start looking for real – hoping to team up with you on a look see some-day soon.
Regards
Mike

Ron’s edited reply:
After some salutations and catch up he ended his email with what I consider one of the highest compliments:
“Great to hear your tracking/alignment success. Have to admit though you are one slightly unorthodox amateur astronomer and that's what I like about you.”
“Slightly unorthodox?” You darn right I’m slightly unorthodox amongst other adjectives – some not suitable for this essay. I moved from Hawaii to Saskatoon. What can be more unorthodox than that!! I accept that moniker with honor, pride. I wear it on my sleeve with a smile. So now you know why this essay is titled “The Unorthodox Methodology of an Amateur Astronomer”. As long as the sky is clear and the temperature remains below -10c I will continue to operate my ”unorthodox indoor observatory.”

Until we can meet again wishing clear skies to all and don’t forget to bake the apple pie first before serving.

Venus and Pleiades conjunction taken by Tara Magee on April 3rd, 2020

INSTRUCTING AT THE CNSC

Ron Waldron (photos by Ron)

The Churchill Northern Studies Centre is a great place to instruct visitors and guests about the wonder and magic of the northern lights. The facility itself is state of the art and is located well away from strong light sources 50 km away from the town of Churchill. The view of the lights is unprecedented owing to Churchill's latitude (+58) which places visitors directly under the auroral oval. As an instructor, I never have to worry about the lights as they appear on average 300 of the 365 days in a year. Clouds are the only other concern but the CNSC's aurora season is chosen during the colder days of the year when skies tend to be clearest, so the chances of clear skies are higher than at other times of the year.

The guests we receive come with seeing the northern lights as their bucket list item. They are well travelled, well read, and lifelong learners. In a nutshell, they tend to be very interesting people. The class size is never larger than 23, a low and very manageable number that I achieved only once in my 36-year teaching career.

We offer evening interactive lectures on the aurora and astronomy four of the five days that the guests are here as they wait for the aurora which most often occurs after 9 PM. The lectures include the cause and history of the aurora, the importance of dark adapting your eyes, and how to effectively photograph the lights. If the aurora appears prior to the end of a night's lecture, that evening's lecture is postponed, and everyone goes outside to view and photograph the lights.

The design of the building is such that there are several ways the guests can go. If they only wish to view the lights, there is a heated dome that can accommodate up to seven people giving a 360-degree view of the night sky. Those interested in photography are encouraged to go outside on the grounds around the outside of the building or on the L-Shaped deck which is constructed to face the north and east where the aurora usually begins.

The appearance of the aurora is constantly monitored via a rooftop webcam and various online sites that attempt to predict both the appearance and the strength of the aurora. The most notable is spaceweather.com as it provides live data and is constantly updated. Guests learn to become proficient at predicting the aurora themselves as they are introduced to a variety of apps to use on their mobile phones.

Finally, the staff at the Centre are equally passionate about the work that they are doing and are always eager to meet the guests and give them the experiences of living and learning in Canada's north. They are more than willing to assist and work with me as

together we try to give all the guests lasting memories and quite often the experience of a lifetime.

In closing, any time I can teach to my passion, it is never a chore but rather a privilege. I look forward to this privilege every spring at the Churchill Northern Studies Centre in northern Manitoba, Canada.

SASKATCHEWAN SUMMER STAR PARTY 2020

Planning Update - Les Dickson

Like most events this coming summer, the COVID-19 pandemic has affected planning for SSSP 2020. We have been trying to plan the event on a "business as usual" basis, waiting to see how the pandemic will affect the opening of the camping season and operations in Cypress Hills Interprovincial Park and the Resort. We are prepared to scale down the "group gathering" part of the program or to cancel it altogether if we are given no other alternative.

We had planned to open camping reservations and early registration around April 22nd. However, the Saskatchewan government has decided that camp site reservations (through Reserve-a-Site) for CHIPP and all Saskatchewan parks have been suspended until further notice and Parks will announce a reopening once the COVID-19 crisis is resolved. As such, SSSP will not be opening camping reservations nor registration until further notice. We will reevaluate the situation once the Parks announces a reopening date and any restrictions on activities. We will post updates on our website (sssp.saskatoon.rasc.ca) and our Registrar Rick Huziak will inform past attendees by email when and if we reopen. If you are not on our mailing list, send your email contact to sssp.sk@sasktel.net to get onto our announcement list.

We are pleased announce more confirmed speakers for SSSP 2020. In addition to Dr. Fran Bagenal and Dr. Daryl Janzen, Sherry Campbell of the Edmonton Centre will give an evening clinic on *Sketching at the Eyepiece*, and Gerry Smerchanski of the Winnipeg Centre will give his popular *Binocular Sky Tour*.

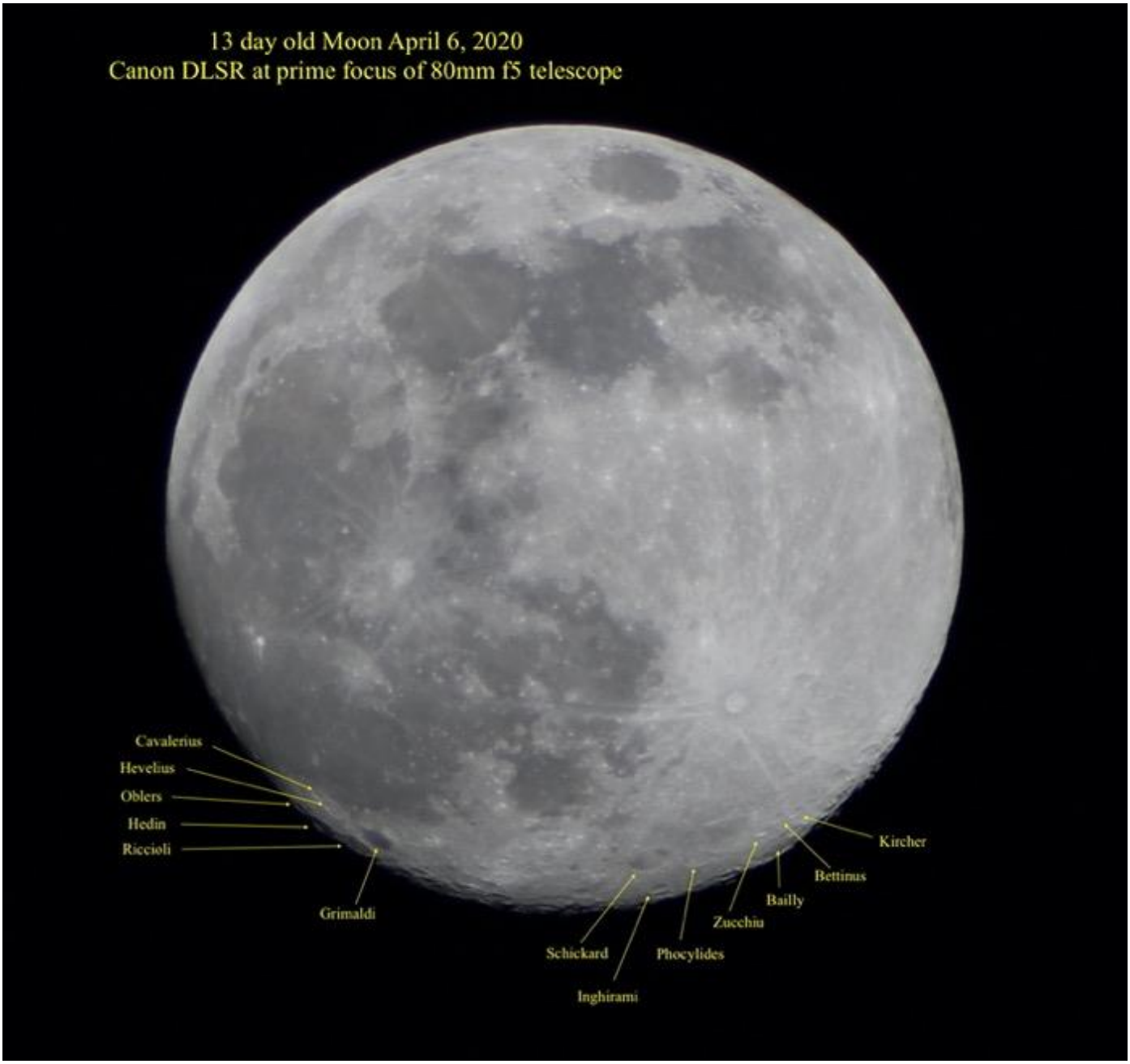
We all hope the situation abates to the point that we can have some sort of SSSP this year. Have a healthy Spring.

For more information:

- SSSP website: https://sssp.saskatoon.rasc.ca/
- E-mail: sssp.sk@sasktel.net
- Les Dickson: astrochem@sasktel.net or 306-270-9184 (cell)
- Rick Huziak: 306-665-3392
- Resort in Cypress Hills Park: http://www.resortatcypresshills.ca
- Cypress Hills Interprovincial Park: http://www.cypresshills.com/

Pink Super Moon taken by Tim Yaworski on April 7th, 2020

Moon pictures Gord Sarty took recently



"I got a Moon atlas for Christmas and now I'm identifying crater by name and learning how to take pictures of the Moon."

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

"Turn Left at Orion" 2000 Dan Davis B & W (29.99) $15.00

"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

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 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.

M42 taken by Rina Rast and Brennan Rodgers

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**