Saskatoon Skies

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

Vol. 48, No. 11 November 2017

A great shot from Tim Yaworski of Tim May and his 22 inch telescope at the Open House on October 21st.

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To view *Saskatoon Skies* digitally, see our website:
http://www.usask.ca/rasc/newsletters.html

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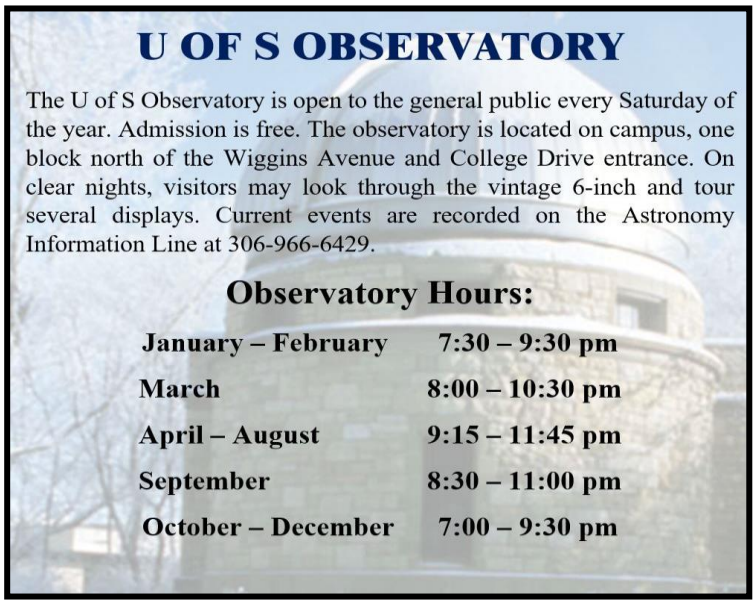
MEMBERSHIP? JOIN TODAY!

Regular: $85.00 /year **Youth: $45.00 /year** **Family: $80/year**

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-us

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 Data 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
- discounts to Sky &Telescope Magazine*
- use of the Centre library



SASKATOON CENTRE'S
MAIN OFFICERS:

President – Tim May
Vice-President – Alan Duffy
Secretary – Marcel Müller-Goldkuhle
Treasurer – Norma Jensen
National Council Rep – Rob Shepard

Bottle Drive &
Canadian Tire $
By Les Dickson

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

LIGHT POLLUTION ABATEMENT WEBSITE AT: www.ras.sk.ca/lpc/lpc.htm

Newsletter Editor – Kris Ohnander
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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 krisohn@gmail.com in msword or text format. Images: any format, less than 30MB, sent by e-mail as attached files. **Deadline for submission of all articles for an upcoming issue is the first Friday of the month!**

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RASC CALENDAR OF EVENTS

November 18	**Observers Group at Sleaford**	Larry Scott
November 20	**RASC General Meeting – Elections!**	Tim May
November 27	**Youth Astronomy Club Meeting**	Ron Waldron
November 28	**Café Scientific Science Lecture Series – The Fight for Dark Skies in SK**	Rick Huziak
December 11	**RASC General Meeting Christmas Social**	Tim May
December 13/14	**Geminid Meteor Shower**	Larry Scott
January 13	**Observers Group at Sleaford**	Larry Scott

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

November RASC General Meeting

for all members and guests, Room 175 Physics Bldg
University of Saskatchewan, on

Monday, November 20th, 2017 at 8:00PM

Election Month – Please attend, volunteer, and vote!

Presented by Ashley Stock:

Detecting Supernova Neutrinos at SNOLAB

Core collapse supernovae are the spectacular explosions which occur at the end of life for some massive stars. During the supernova, 99% of the gravitational energy of the star is emitted as neutrinos, several hours before the majority of the remaining energy is emitted as light. The neutrino signal gives important information about the explosion mechanism, as they are emitted from deeper within the supernovae than optical light, with each flavour of neutrino giving information about a different depth. Since the neutrinos are emitted before light, detecting supernova neutrinos can give an early warning allowing astronomers to measure the peak optical brightness of the supernova. Currently seven neutrino experiments are involved in the SuperNova Early Warning System (SNEWS) so that when the next core-collapse supernova in the Milky Way occurs, the neutrino signal can be measured and the astronomical community can be alerted.

Presented by Tenho Tuomi:
My 42 hour eclipse trip.

My 42 hour eclipse trip to Casper, Wyoming to see and photograph the total eclipse of the sun.

Note: There will be an Executive Meeting at 7:00PM

Minutes of the October Meetings - *Marcel Müller-Goldkuhle*

Minutes of the Executive Meeting, Oct 16, 2017

Attendees: Tim May, Alan Duffy, Les Dickson, Ellen Dickson, Rick Huziak, Errol Frazer-Harrison, Larry Scott, Norma Jensen, Tenho Toumi, Mark De Jong, Marcel Mueller-Goldkuhle

Meeting called to order by Tim May at 7:10 PM
Approval of Sep 18 Executive Meeting Minutes: Moved by Les, seconded by Errol, approved.

Reports:

Observers Group:	Weather was cloudy for last Obs. Group Meeting on Sep 23.
	Crank Shaft is broken on the older one of the two snow blowers, engine replacement would cost about 500 $. Motion by Larry to sell the parts on Kijiji, seconded by Marcel, approved with all in favor.
Sleaford:	Minor repairs have to be done.
SSSP:	Last SSSP 2017 Meeting was held on Oct 12.
	Costs were covered, it is in discussion to have registration fees increase for the 2018 SSSP. Volunteer positions are supposed to be filled earlier next year. Les is willing to chair the SSSP committee for 2018.
Youth Club:	Next meeting on Oct 21 (Sleaford Open House), if weather is cloudy the meeting is held at University.
Telescope Coord.:	Currently 2 telescopes are rented out.
Treasurer:	Books are closed, statement will be presented in the Nov meeting.
Membership:	The club has currently 90 members.
Events:	Sleaford Open House is planned for October 21. Dark Skies at the Creek Beaver Creek is planned for October 28.
National:	No update.
Newsletter:	No update.

Old Business:

Yahoo Forum:	No update.
Advertising:	No update.
Memorabilia:	No update.
Background Checks:	No update.

New Business:

Elections: It was discussed, if terms for President/Vice President can be shorter than 2 years, as this might make it easier to fill open positions. More clarification is needed if a 2-year duration is mandatory by regulation.
The following people volunteered for the Nov elections:
Larry Scott (Observers Group Coordinator)
Norma Jensen (Treasurer)
Mark De Jong (Membership Coordinator)
Errol Frazer-Harrison (Telescope Coordinator)
Marcel Mueller-Goldkuhle (Secretary)
Open Positions are Vice President, Event Coordinator, Coffee Supply Coordinator.

Donation: The Club was contacted about a donation of a 10" Newton Telescope and a 3m-Dome, current location is Swift Current. Use at Sleaford is not seen as a reasonable option. To be clarified, if the Regina Club has been contacted as well.

Meeting adjourned at 7:55 PM

Minutes of the General Meeting, Oct 16, 2017

Meeting called to order by Tim May at 8:15 PM.

Update was given about the topics of the Executive Meeting.

Elections will be done in the Nov meeting, open positions are Vice President, Event Coordinator, and Coffee Supply Coordinator.

The offered donation of a telescope and dome was discussed.

SSSP Photos were presented from various people.

The discovery of Gravitational Waves from a Neutron-Star Crash was discussed.

Meeting adjourned at 9:25 PM

Shooting the Milky Way – *Colin Chatfield*

I wanted to share a little about Milky Way photography. Even though the best part (the Sagittarius arm) isn't as visible now until spring, it is still possible to photograph our galaxy. The optimal times to photograph the Milky Way are April/May and August/ September. At the moment, it "rises" after dark and can be found in the south/southwest sky. There's several ways to find its location using technology. One is by using the Stellarium website http://www.stellarium.org. They also make an app, which is an excellent, for iPhone and Android. It will show the location of the Milky Way and can be viewed at different times, or the current time. Another app is for Android only and is called Heaven's Above. There are other ones as well a person can use.

As for shooting the Milky Way, I typically use the following settings: ISO 6400, f/2.8, 20 second exposure with an 11mm lens. Taking pictures at that high of an ISO will create a fair amount of noise, depending on the sensor. Some sensors can handle high ISO better than others. Typically, a full frame sensor found in cameras such as the Canon 5D MKII, 6D, Nikon 810, is better than a crop (APS-C) sensor, found in camera such as Canon 70D, T6i, 7D MKII, Nikon 3200, etc. Noise reduction software can help during editing though. A good example of a noise reduction program is Noiseware Pro. Photoshop and Lightroom have luminosity sliders than can help with noise, as well as a technique called luminosity stacking. Tutorials of that technique can be found on YouTube. Another option is to turn on long exposure noise reduction in the camera. The downside to this is that it doubles the exposure time by taking a dark frame picture after each normal picture. This isn't an option for time lapse photography though.

I shoot at a wide-open aperture of f/2.8. The faster the better in my opinion. Using a wide-angle lens, the sky and the foreground will appear to be closely in focus as the foreground would typically be far enough away anyway. I always focus for the sky regardless of the foreground object, as it is the area of main interest. Using a fast aperture will allow for shorter shutter speeds.

Exposure time (shutter speed), I typically limit to 20 seconds to reduce star trails from appearing. 30 seconds can be used to take in as much light as possible, but slight star trails could be present. I don't currently use a tracking unit, but hope to figure mine out soon and use that for longer exposure times. So, to figure out the exposure times one can use before star trails appear, use the 500 rule found here https://petapixel.com/2015/01/06/avoid-star-trails-following-500-rule/.

500 Divided by the Focal Length of Your Lens = The Longest Exposure (in Seconds) Before Stars Start to "Trail"

For example; let's say you're taking a shot with a 24mm lens on a full frame camera. 500 / 24 = 21 seconds, which you can round to 20 seconds. The exception is when using a crop sensor camera. The above formula needs to be adjusted slightly such as: 500 / 35 = 14, times that by the crop factor of 1.5 for Nikon (equals 10 seconds) and 1.6 for Canon (rounded to 9 seconds). This formula works for all night sky photography.

As for lenses to use for the Milky Way, there's a number of options. One is the Tokina 11-20mm f/2.8, which replaced the Tokina 11-16mm f/2.8; the Tokina 10-17mm f/3.5 fisheye; the Rokinon 14mm f/2.8; the Rokinon 8mm f/3.5; Canon 8mm f/4 (although this is slow for night shooting); as well as Samyang models.

The best way to achieve superb Milky Way photos is to use longer shutter speeds and a tracking mount, such as those made by iOptron and SkyTracker. The RASC dark site at Sleaford also has a tracking mount that works well. To use shutter speeds longer than 30 seconds, one needs to put your camera in "bulb" mode, denoted as a "B" on the camera dial if so equipped. Some cameras don't have that option and the way to utilize that mode is to put the camera in manual mode adjust the shutter speed to 30 seconds (30"), then turn the dial one more turn until Bulb appears on the screen. Times such as one, two, and five minutes are good to get lots of detail when tracking the Milky Way. There will be some editing involved after to further enhance it too. The key will be to practice, practice, and practice.

Observers Group – *Larry Scott*

If not for the Sleaford Open House I wouldn't have had any observing last month. Here's to better skies in November. Next Observer's Group is scheduled for November 18th with moonless evenings from about the 9th to the 23rd.

Open House report:

There is no doubt that our events are successful due to our volunteers and I would like to start by thanking everyone involved with the Sleaford Open House on October 21st. An informal count estimated approximately 18 members showed up on a day that initially looked like a rain out. Some members travelled 3 hours to attend! The weather made the turn out that much more exceptional and again, a heartfelt thank you to all. Special thanks to George Charpentier for once again creating the posters to advertise our event, Rick Huziak and Les Dickson for keeping things running, the U. of S. students who ran the roll-off (sorry I didn't meet you), and Muriel and Barry Miller for getting some of our visitors back to civilization.

The day was dismal with rain and a cold west wind when I arrived at Sleaford at 16:00. Despite this we had nearly a dozen show up for the potluck supper held in our snazzy new shed and as we ate and visited the rain stopped and it began to clear. By the time our guests arrived at 19:40the skies were clear and the Milky Way was popping out. An early bout of aurora settled and we had decent skies for the rest of the night. The smallish but enthusiastic turnout was variously estimated in the 60-100 range.

After our guests had gone several members stayed late for personal observing and I finally packed started packing up around 2:30. My observing highlight was finally tracking down comet C/2017 O1 (ASASSN) after looking at the wrong star pattern for more than half an hour. When I surfaced the next day it was to cloud and rain again. A fortuitous twelve hours of clear skies saved the day (night?) for us!

Observing Clubs and Certificates

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

Ron Waldron		108
Wade Selvig		75
Marcel Müller-Goldkuhle	New!	54
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

EXPLORE the UNIVERSE
Certified at 55 to 110 Objects:
T. Tuomi,

Wayne Schlapkohl	55
Jim Goodridge	35

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

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

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 on the National website.
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**