

Saskatoon Skies

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

Vol. 47, No. 12

December 2016



A fantastic photo of the November 'Supermoon' rising over Tenho Tuomi's farmyard.
Taken by Tenho, 300mm lens, 1/125sec, f/5.6, ISO1600.



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see our website:
<http://www.usask.ca/rasc/newslette rs.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. If you do not want to join at this time, ask to get onto our FREE 3-month Temporary Membership list. You will receive regular mailings of our Saskatoon Skies newsletter and will be invited to participate in Centre activities. 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)
- use of the Centre library
- 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*
- Free, no-cost, no-obligation, 3-month temporary membership if you don't want to join right now!

U OF S OBSERVATORY

The U of S Observatory is open to the general public every Saturday of the year. Admission is free. The observatory is located on campus, one block north of the Wiggins Avenue and College Drive entrance. On clear nights, visitors may look through the vintage 6-inch and tour several displays. Current events are recorded on the Astronomy Information Line at 966-6429.

Observatory Hours:

| | |
|------------------|----------------|
| January-February | 7:30-9:30 pm |
| March | 8:30-10:30 pm |
| April | 9:30-11:30 pm |
| May-July | 10:00-11:30 pm |
| August | 9:30-11:30 pm |
| September | 8:30-10:30 pm |

| | |
|------------------|--------------|
| October-December | 7:30-9:30 pm |
|------------------|--------------|

*Note: The hours above are out of date and pending newsletter update.
For current hours please visit:*

<http://artsandscience.usask.ca/physics/observatory/hours.php>

SASKATOON CENTRE'S MAIN OFFICERS:

President – Tim May

Vice-President – Alan Duffy

Secretary – Marcel Müller-Goldkuhle

Treasurer – Norma Jensen, 306-244-7360

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

Newsletter Editor – Kris Ohnander

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 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!**

A separate by-mail subscription to Saskatoon Skies is available for \$15.00 per year. 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 krisohn@gmail.com for rates. Members can advertise non-commercial items free of charge.

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

RASC CALENDAR OF EVENTS

| | | |
|-------------|-----------------------------|-------------|
| December 12 | December Potluck | Tim May |
| January 16 | RASC General Meeting | Tim May |
| January 21 | Observers Group at Sleaford | Larry Scott |
| February 25 | Observers Group at Sleaford | Larry Scott |
| February 27 | RASC General Meeting | Tim May |

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

January RASC General Meeting

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

Monday, January 16th, 2016 at 8:00PM

Presented by Alan Duffy:

Radio Astronomy using Software-defined Radio (SDR)

Software-defined radio (SDR) is a way of receiving and transmitting radio signals where a general-purpose processor (i.e. computer) is used instead of dedicated hardware (i.e. traditional radio).

Significant amounts of signal processing are handled by software which leads to inexpensive receivers as small as a USB stick. Adding an appropriate antenna or repurposing an unused satellite dish one can listen to radio noise from the sun, tune into natural VLF radio phenomena spawned by aurora or lightning storms. It is also possible to listen to radio bursts from Jupiter, and one may even try to detect the next ‘Wow! signal’ at 1420 MHz and if that fails there is always the neutral Hydrogen spectral line emission of the Milky Way to observe.

Presented By Rick Huziak:

The New Explore the Universe Guide Handbook

This summer, the RASC published a new handbook replacement to the aging *Beginning's Observing Guide*. Authored by Brenda Shaw, with illustrations by Brenda Stuart, the *Explore the Universe Guide* is an excellent book for budding beginners to learn about the basics of astronomy. The book roughly follows the *Explore the Universe* certificate program and goes into depth about the types of objects that you'd chase down while learning astronomy basics.

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

Minutes of the November Meetings

— *Marcel Müller-Goldkuhle*

Minutes of the Executive Meeting, November 21st 2016

Meeting called to order by Les Dickson at 7:01PM

Approval of minutes of Oct 17 Executive Meeting: Moved by Norma Jensen & Darrell Chatfield. Carried.

Reports:

Darrell Chatfield: Dome at Sleaford has been demolished, site is cleaned up.

Norma Jensen: Currently about CAD 12,000 on the bank account, some of it will be required for electricity maintenance at Sleaford in spring.

Kris Ohnander: Closing Date for the next Newsletter edition is Dec 2nd.

Article submissions are always welcome.

Errol Frazer-Harrison: Slow Motion Controls of the 80mm-Refractor are missing, no checklist is in place for this instrument. Rick wants to check if he has spares.

Old Business:

- Executive Nomination: Les appreciated that Tim May and Alan Duffy are willing to be nominated for the positions President and Vice President.
- Positions of Event Coordinator and Advertisement Coordinator still to be filled.
- Donation of a celestial globe: The globe is already in use at the Brightwater Eco-Centre. It is planned to be on display permanently. Ron accepted to provide an article and pictures about the globe for the Newsletter. Minor damage was detected when it was handed over (missing bolts).

New Business:

- Ron Waldron and Errol Frazer-Harrison presented a concept for a Youth Astronomy Club.
 - The idea is to establish a program for students in grade 7, 8, and 9 to introduce them to Astronomy and to attract more young people to the Club. The program is designed for a duration of 3 years and would be limited to a maximum of 20 participants. 8 meetings per year on the last Monday of the month are planned. TBD if the University Observatory would be available, this location is preferred by Ron and Errol. All participants would become members of the club and would have to pay annual fees of CAD 50 (CAD 45 National Fee plus CAD 5 for copy costs). Depending on some open questions and the support of the Club, the program could start in January 2017. Further information was provided in a concept paper. Ron and Errol asked the Executive Members for the opinion about this idea and if the Club would be willing to support this idea.
 - During the discussion concerns were raised if the fees are affordable for all families. Higher commitment is anticipated if fees have to be paid, in case a family can't pay them, they could be covered by the club. Further details TBD.
 - The question how to avoid that the program gets used as a "babysit service" was raised. It was noted that this can happen, but wouldn't repeat very often if handled the right way.

- For the case that more than 20 students would like to join the program, members would be selected on a "first pay, first serve" basis.
 - The club has already 3 youth members and 1 family member, it was suggested to ask them for their opinion about the program.
 - The availability of the facilities has to be checked.
 - Insurance questions have to be clarified, especially with regards to facility damage.
 - Motion by Ron Waldron and Errol Frazer-Harrison to establish a Youth Astronomy Club. Seconded by Kris Ohnander. Carried.
- Membership Update: 79 Members, 5 Associate, 7 new Members from the Beaver Creek Event
- Rick Huziak offered to buy a 16" dome from the Club which has been stored in his backyard for a long time. Motion by Norma to sell the dome to Rick for CAD 200. Seconded by Mark de Jong. Carried.
- Upcoming Events: Potluck on Dec 12 at 6:00PM, room to be confirmed
- It was noted that keys from the University can't be handed over directly to another person, it is required to return them to the University first.

Meeting adjourned at 7:57PM.

Minutes of the General Meeting, November 21st 2016

Meeting called to order by Les Dickson at 8:14PM

Elections:

- Executive Nomination: Les appreciated that Tim May and Alan Duffy are willing to be nominated for the positions President and Vice President.
 - Election of Tim May for Club President: Moved by Mark de Jong, seconded by Norma Jensen.
Carried, all in favor.
 - Election of Alan Duffy for Vice President: Moved by Ellen Dickson, seconded by Tenho Tuomi.
Carried, all in favor.
- As there was no volunteer for the position of the Activities Coordinator, the position is still open.

Other Business:

- Ron Waldron and Errol Frazer-Harrison presented their concept for a Youth Astronomy Club.
- An update was given about the 16" dome which was sold to Rick during the Executive Meeting.
- The C8 from the demolished dome at Sleaford was repaired and collimated by Alan Duffy, it was discussed to store it in the storage shed at Sleaford.
- Date for the potluck is Dec 12 at 6:00PM, preparation starts at 5:30PM.

Presentations:

- Ron Waldron: Youth Astronomy Club
- Darrel Chatfield: Sleaford Site Update
- Norma Jensen: Impressions from Sleaford
- Errol Frazer-Harrison: The Telescope Rental Program

Saskatoon Centre Council for 2016-2017

| | |
|---------------------------|-------------------------|
| President..... | Tim May |
| Past President..... | Les Dickson |
| Vice President | Allan Duffy |
| Secretary | Marcel Müller-Goldkuhle |
| Treasurer | Norma Jensen |
| National Council Rep..... | Rob Shepard |
| Newsletter Editor | Kris Ohnander |

Councillors:

| | |
|----------------------------------|--------------------------------------|
| Events Coordinator | Vacant |
| Membership Coordinator | Mark de Jong |
| Observing Coordinator..... | Larry Scott |
| Sleaford Site Coordinator | Darrell Chatfield |
| SSSP Coordinator | Rick Huziak |
| Councillors at Large..... | Errol Frazer-Harrison, Curtis Tuplin |
| Meeting Room Coordinator | Ellen Dickson |
| Photographer and Archivist | George Charpentier |

President's Message – *Tim May*

Hi folks, thanks for the honor to preside at the Saskatoon Centre executive meetings. I anticipate fun and excitement in 2017. A bit about myself, an emigre from Wisconsin that moved here in 2000 to work at the Canadian Light Source, building a pair of beam lines for infrared spectroscopy. Prior to this I had a similar project at the Univ. of Wisconsin and before that worked at several spectroscopic instrument manufacturers in various engineering positions. I haven't done much observing as my work schedule covers evenings and weekends, but I enjoy the starry sky with binoculars, observing sunspots, auroras and meteors. I have assembled a couple of telescopes and recently got an eyepiece CCD camera to try some astrophotography using the LX200 at Sleaford. I hope to help the club as needed and am really amped up planning to see my first total eclipse on August 17, and attend the SSSP right after. A bit about the new vice-president - Alan Duffy works as a software engineer at the CLS and has been interested in astronomy as a hobby for a number of years. Alan has lately taken an interest in radio astronomy (possibly because of cloudy conditions) and wrote a plugin for the Software Defined Radio program SDR#. He will be talking about this project and his foray into the deep end of the spectrum in January of the New Year. Alan also has been volunteering some of his free time to help with the 24" Tarasoff telescope project donated to Physics Dept. He wrote an ASCOM (for AStromony Common Object Model) driver to provide a communication interface with the Compumotor controllers that move the motors of the telescope mount.

The Events Coordinator position is open and help covering these events will be needed - please consider joining in. A number of events are in the works for 2017- observers nights and general meetings already

on the calendar, and we need to get some event planning for items including: Earth Hour (March) Astronomy Week (March/April) Messier Marathon (April) Solar Observing at the Farmers' Market (May/June) Saskatchewan Summer Star Party (August 23 - 27) Sleaford Open House (Sep/Oct). Other than SSSP the dates need refining. More information is available on our website at <http://www.usask.ca/rasc/activities.html> .

I hope to see and talk with you at our regular meetings on the third Monday of each month (except July and August; date shifts due to holidays as necessary). Everyone is welcome- try something new this year, I did!

Astronomy Field Trip to Allan, SK – Norma Jensen

The Club was contacted by Brian Clark from Allan High School to give an astronomy evening for their Grade 9-10's. Rick and I went out October 26th when skies were uncertain and humidity high. We packed our Dobs in the back of his car and headed out for an 18:00 meet. Brian met us at the school and took us to a site on the south-east of town (☺) where we were able to set up, relatively clear of local light pollution sources.

Two very nice things happened that highlighted the night. The skies cleared and stayed so, with an aurora display at the end. The other was the group of 15-20 youth and one set of parents that had gathered to see the night sky. Most had walked from home, inadequately dressed for the damp and cooling of the fall night. Conditions did not deter the hardy rural crowd. The next 90 minutes were spent around the scopes.

Rick started with a walk through the constellations, and using his green laser pointer, was able to educate on its use as well. At some point, I started to let students learn to use a Dob. Find a star field and the move the Dob away and back, side to side, up and down. There was great delight with this as they were able to return to their original star field. I also placed the eyepiece on the double star Zeta (Mizar & Alcor) in Ursa Major. Again, students could hold them in the centre of the eyepiece with manual tracking. Smiles and interest.

Objects shared that night included: Double Stars - U.M.Zeta, Alberio Cyg.; Globular Cluster M13 Her.; Galaxy M31 And.; Nebulae M57 Ring Ly.; and M27 Dumbbell Vul.; Open Clusters M45 Pleiades Tau., IC 4665 Oph., and NGC 884/869; the Double Cluster in Perseus. Attention held throughout.

After an hour and a half of decreasing temperatures and increasing humidity, the tour was done and students drifted away back home. We packed up and visited with Brian who is both Science and Shop teacher. Maybe a Dob will be built in the shop this winter.

Celestial Globe Donated – Ron Waldron

Editor's Note: As is stated in the minutes, Ron did in fact send in an article for this month's issue. Due to an unfortunate technological mishap, the article was lost! This small write up stands in its place. Thanks Ron for putting this together with such short notice – Kris



This one metre diameter transparent celestial globe was donated last month to the Brightwater Eco-Centre 15 km south of Saskatoon (across highway 219 from Beaver Creek). The globe was donated by Ms. Gillian Muir formerly of England who wanted it to be placed somewhere that students could view it. Approximately 3000 public school division students (grades 6 – 12) go camping at the Brightwater site each year so it seemed a good location. Member Ron Waldron, who conducts Star Talks and Star Tours in the evenings at Brightwater suggested the site to the RASC and delivered it to the location.

The Brightwater Eco-Centre
is pictured at right.



Observer's Group – Larry Scott

Our weather in November was good news, bad news. It has been beautiful temperature-wise and this resulted in my observing some things I wouldn't normally see. On November 9th, about 18:25, while walking my dog (WWMD) I got to see one of the finest fireballs I have ever seen. While looking south it travelled the sky from east to west covering about 50 degrees of sky. Halfway through it flared, broke into half dozen pieces and I stood gobsmacked as its trail faded away. Keep looking up, you never know when something amazing is going to happen. Less amazing but still an attractive site was the "supermoon" phenomenon. On the 12th, WWMD, I got to see the moon rise just before sunset from a murky horizon into a blue sky. On the 13th, WWMD, I saw it rise at sunset and saw it shining off some clouds like a sunrise before I could even see the moon. On the morning of the 14th I saw the moon setting in the morning on my way to work. That evening, WWMD, I again saw the "supermoon" rise into a triangle of clear sky surrounded by clouds. Who knows, maybe I'll have to start looking at that moon more often.

The downside of the warmer weather has been nearly endless clouds during our dark sky period. Although four members did meet for the scheduled Observer's Group on November 26th, the marginal skies kept me from setting up a telescope. Instead I grabbed my Chatfield Binocular List and sat in a lawn chair. We observed some objects through sucker holes till about 22:30 and then we were clouded out. A good evening and time well spent. For anyone interested in pursuing the Chatfield Binocular List, Rick Huziak wrote a great series of articles in the 2004, August through November issues of Saskatoon Skies which I found very helpful and enjoyable.

Our next dark sky period is from December 17th till January 2nd. I have not scheduled an Observer's Group due to its proximity to the holiday season. This doesn't mean there won't be people observing and as usual I will post on our yahoo! page if I'm heading out. Our next scheduled Observer's Group will be January 21st, 2017. Happy Holidays to one and all.



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 |
| Wayne | 43 |
| Schlakohl | |
| Ellen Dickson | 34 |
| Graham | 9 |
| Hartridge | |

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 | 13 |
| Charpentier | |

EXPLORE the UNIVERSE

Certified at 55 to 110 Objects:

T. Tuomi,

| | |
|---------------|----|
| Wayne | 55 |
| Schlakohl | |
| 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 | 400 |
| Chatfield | |
| Tenho Tuomi | 378 |
| Rick Huziak | 246 |

LEVY DEEP-SKY GEMS

Certified at 154 Objects:

| | |
|-------------|-----|
| Tenho Tuomi | 150 |
| Darrell | 70 |
| Chatfield | |



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.astrolounge.org/al/obclubs/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/TWLOP2015.pdf>

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