

Saskatoon Skies

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

Vol. 46, No. 04

April 2015



In these photos supplied by member Ellen Dickson, Ron Waldron of Living Skies Stargazing invites centre members to gather inside the Digitarium dome in preparation for a star show he gave at the January meeting of the Centre. See the feature article on Ron's Digitarium adventures on pages 5,6, and 7 of this issue.



Saskatoon Centre
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To view *Saskatoon Skies* in colour, see
our Website:

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

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MEMBERSHIP? JOIN TODAY!

Regular: \$82.00 /year

Youth: \$43.00 /year

Family: \$77/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 <http://homepage.usask.ca/ges125/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!

*New subscription or renewal of Sky & Telescope? Send new info or renewal notice, plus credit card # to Norma Jensen, 128 – 4th Street East, Saskatoon, SK S7H 1H8, or email her at norj@sasktel.net.

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

SASKATOON CENTRE'S MAIN OFFICERS:

President – Jim Goodridge, 306-370-8530

Vice-President – **to be filled**

Secretary – Tenho Tuomi, 306-858-2453

Treasurer – Norma Jensen, 306-244-7360

Bottle Drive & Canadian Tire \$ By Jim Goodridge

If you cannot make it to a meeting but would like to contribute your Canadian Tire money please call me at 306-370-8530

Newsletter Editor – Ron Waldron

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 rmwaldron@shaw.ca in msword or text format. Images: .jpg please, no larger than 1 – 1.5 MB, 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 call the editor 306-382-9428 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

April 18	Observer's Group and Messier Marathon at Sleaford	Larry Scott
April 20-	International Astronomy Week	J. Goodridge
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April 20	Monthly Executive and General Meeting	J. Goodridge
April 24	Astronomy Week Observing at Lakewood Civic Centre	J. Goodridge
April 25	Astronomy Week Display at Farmer's Market & Evening Presentation and Observing at Beaver Creek	J. Goodridge
May 9	Observer's Group at Sleaford	Larry Scott
May 11	Monthly Executive and General Meeting	J. Goodridge
May 15-18	Grasslands National Park DSP Star Party	Rick Huziak
June 13	Observer's Group at Sleaford	Larry Scott

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



April RASC General Meeting

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

on
Monday, April 20th at 8:00 PM

Darrell Chatfield presents

William Herschel (1738-1822)



the preeminent visual observer of his time and also one of the top telescope makers. Along with his sister Caroline, Herschel observed and catalogued over 2500 objects. These objects along with observations by his son John Herschel, who added about another 2500 objects, form the basis for the NGC catalog.

There will be an Executive Meeting at 7:00 PM

Minutes of the March Executive and General Meetings – *Tenho Tuomi*

President Jim Goodridge opened the Executive meeting at 7 PM.

Moved by Tenho Tuomi and Les Dickson that the minutes of the February 23 meeting be adopted as circulated. Carried.

Committee Reports:

President's Report by Jim Goodridge. The May 11 meeting will be in room 127 due to renovations in room 175.

Treasurer's Report by Jim Gorkoff. Snow blower, shovel and broom purchased for Sleaford.

Newsletter Report by Jim Goodridge. Next deadline April 3. Looking for new editor by October.

Event's Report by Jim Goodridge.

- Thanks to Jeff Swick for help in organising the Centre events.
- March 28, 8:30 to 9:30, Earth Hour at the Centre Mall. Some insurance details still to be finalised.
- April 24, Astronomy Day evening observing at the Lakewood Civic Centre.
- April 25, 8 AM to 2 PM, Astronomy Day solar observing at the Farmer's Market, and evening observing at Beaver Creek with Ron Waldron as speaker.

SSSP Report by Les Dickson. All but one speaker spots have been filled. Campsite booking is open.

National Report. Still no National Advisory Council rep.

Other business:

Discussion about taking down the old observatory dome at Sleaford and how to use the floor and pedestal for an observing platform.

Meeting adjourned at 7:37 PM.

The General meeting opened after a coffee break. After answering some questions from the audience, Jim Goodridge showed a video on the sun, solar activity and aurora.

Digitarium – the universe at your fingertips – Ron Waldron

Astronomy has for many years been a part of science curricula in the province of Saskatchewan. Most of its teaching currently occurs at the grades 4 and 6 grade levels. Teachers, however, have often found the teaching of astronomical concepts to be quite difficult because of the complex nature of the material and the difficulty in keeping pace with new discoveries. Adding to these difficulties is the fact that a true study of astronomy must include some star and constellation identification, an evening activity best done outside the classroom and away from city lights. For many years, the solution was either an evening field trip to a local planetarium, observatory or an overnight outdoor camping experience.

A novel solution became available in 1978 when a company called Learning Technologies, Inc. introduced an inflatable and completely portable planetarium. I attended a demonstration of this equipment in Washington, DC and shortly afterward the system was purchased by the Saskatoon Public School Division for use in their public schools. I was given charge of servicing teachers in using the new system and became the resident “expert” in its use.

Because the original Starlab was an analog system consisting of motorized pinhole projection style star cylinders, it was not long before its shortcomings became apparent to me. The most prominent of these was the inability to show realistic sunrises and sunsets, apparent motions of the planets among the stars, and no zoom capability to examine stars, planets and deep sky objects close-up.

Because of these shortcomings, I was more than ready for any opportunity to improve my indoor star presentations under the dome. Enter the digital age and the new updated digital portable planetarium systems. The opportunity to try and experience one of these newer systems came to me thanks to member Stan Shadick who received a request from the FSIN for help with their newly acquired Digitarium planetarium. My name was forwarded by Stan to Garry Sibley who purchased the projector and dome for use with his Science Festivals on reserves all over Saskatchewan.

An agreement was struck and I was given two days to learn how to use and present the night sky under the 5 metre dome. The Digitarium system - <http://digitaliseducation.com/digitarium.html> is produced by Digitalis Education Solutions, Inc. in the US and is distributed in Canada by Canadian Planetariums - <http://canadianplanetariums.com/>. It uses a computer control unit, a DLP projector with proprietary fisheye lens and a remote control. The computer control unit runs planetarium and media software which are controlled by a Digitarium infrared remote control. Total cost – approximately \$38 000 in Canadian funds.



The equipment is compact and versatile and has many capabilities including the ability to:

- demonstrate beginner through to advanced astronomical concepts
- simulate the sky from any earth or space location
- move backward or forward in time at varying speeds
- simulate celestial events such as transits, eclipses and meteors.



- Display the orbital paths of planets, asteroids and moons
- Display the ecliptic, celestial equator, meridian and equatorial-azimuth grid
- Experience atmospheric effects such as sunrise, sunset and the blue sky
- View the constellations of many different cultures and zoom into more than 100 deep sky objects
- Show the phases of the moon

My two days of training were baffling but exhilarating – the pixilated sky was so realistic, it was often breathtaking. The Milky Way was equally realistic and just bright enough to be discernible under most conditions. The real treat, however, was when I performed a sunset and sunrise. The realism of the amber colored sunset followed by the staggered appearance of the brighter stars and planets was awe-inspiring even for this seasoned veteran. And if that wasn't enough, the system can show a variety of preloaded 360 degree short features and movies more than capable of filling your peripheral vision and over stimulating the senses.

The entire system is powered by Nightshade software – an open source simulation and visualization software for teaching and exploring astronomy. Nightshade is available for free download at: <http://www.nightshadesoftware.org/projects/nightshade>.

I found that after two days of self-training I was capable of giving a 30 minute show under the dome but far from competent. Much more time would be needed to discover the secrets contained in this marvellous piece of technology.

My first public presentation was in October of 2014, a three day trip to three reserves in Northern Saskatchewan. Presentations went well and pretty much without a hiccup thanks to the equipment and my knowledge of the night skies. Since then we have travelled extensively to other reserves, the FSIN providing the equipment and in most cases transporting me to the various schools on Saskatchewan reserves. The response by viewers is immediate – as predicted, the ooh's and ahh's begin right after the realistic sunset and the appearance of the night sky, and ends with the showing of a brief 360 degree movie on any variety of astronomical topic. More trips are planned for other reserves in the late spring as well as next fall.

In addition, I am able to take the Digitarium into Saskatoon schools as part of a daily rental system established to offset the cost of future movie purchases and fisheye lamp replacements. Needless to say the Saskatoon schools are responding and I am becoming quite busy sharing the night sky locally as well.

As I continue to travel with the Digitarium Planetarium, I continually uncover more of its secrets – besides being able to zoom in on the sun, planets, and messier objects; it is also able to show a very realistic and moving (pun intended) rendition of the aurora in both northern and southern hemispheres.

I look forward to working with the FSIN and schools in Saskatoon to bring astronomical concepts into the classroom using a realistic simulation of the night sky. As a retired classroom teacher I do receive payment for these services, but believe me it is still a gift to be able to go to schools and present my passion to others in hopes of recruiting just one more convert to the wonders of the night sky.



Finally, here are some specifications of the Digitarium Planetarium system equipment that the reader may find interesting:

Maximum Dome Diameter	<i>Approximately 40 feet/12 meters. Brightness is the main issue, since the larger the dome, the larger the surface area the light from the projector must cover.</i>
Resolution	<i>1200 pixels across a diameter</i>
Field of view	<i>180 degrees, full sky.</i>
Pixels per degree of sky	<i>6.7 average</i>
Angle of Projection	<i>175 degrees</i>
Base Projector Brightness	<i>4000 Lumens with non-fisheye lens (Provided for comparison purposes with other systems. Actual brightness with a fisheye lens is significantly less due to not projecting the whole video rectangle and differing lens properties. Please contact us if you may be interested in a brighter system.)</i>
Contrast Ratio	<i>Nominal contrast ratio 2000:1.</i>
Lamp life	<i>2000 hours on high lamp setting.</i>
Image Quality	<i>Excellent</i>
Internal Storage	<i>1000 GB expandable up to 3 TB or more.</i>
Dimensions	<i>System: 18.0 x 13.5 x 33.8 inches (45.7 x 34.3 x 85.7 cm)</i>
Weight	<i>System: 86 pounds (39.1 kg)</i>



The September 2015 issue of Saskatoon Skies will be my last publication as your editor. If you would like the opportunity to take on this important role in the life of our club, please contact me ASAP. I am willing to offer you training on the June and September issues. It really isn't complicated (we've deliberately kept it that way) – as long as you own a computer and have a reasonable knowledge of MS Word, being the editor will be an easy task for you as it was for me.

I can be reached by e-mail at strman@shaw.ca.

Earth Hour Photos – Jeff Swick

Skies cleared up beautifully for Earth Hour Activities held annually at Circle Park Mall on Saturday evening, March 28th. Members of the public were treated to great views of the moon, Jupiter, and Venus through over a half dozen telescopes. Thanks to all members who came out and a special thanks to Jeff Swick for both arranging the event and for providing us with these photos.



Observer's Group Notes – Larry Scott

Editor's Note – A miscommunication on the part of this editor resulted in Larry's submission for the February issue of Saskatoon Skies being omitted. I apologize for my error and publish both months in this issue.

February, 2015

February turned out to be a big disappointment after all the fine observing opportunities in January. Conditions were mostly cloudy with the few clear nights being much too cold for me. I did manage to get out to Sleaford on Friday, February 20th to blow out the yard. Having finished about half the yard our trusty snow blower made an awful noise and ran no more. I'm going to try and get it fixed if it doesn't cost too much. In the meantime this set off a flurry of events which resulted in a new snow blower for the club. After the very sad snow blower story got out at the meeting on Monday the 23rd, our members leaped into action and approved a budget for its replacement. (Thank you everyone!) On Thursday the 26th I found a new snow blower on sale for about \$36 under budget and on Saturday the 28th, Jim Gorkoff (special thanks to Jim) helped me get our new snow blower out to Sleaford. If anyone is interested in using the snow blower please contact me so you can be trained in proper care and feeding of our new equipment. There are a couple of quirks with it which operators need to be aware of prior to use.

Ever hopeful, I look forward to March for clear skies and warmer temperatures. The moon begins to leave our evening skies around March 8th and doesn't return to become a hindrance till March 23rd. If there are clear nights in between we should all try to get out to Sleaford, especially on Saturday, April 18th for the Messier Marathon. If you're interested in trying the Marathon or have questions about it you can email me at larry.scott@sasktel.net for further information. In past years with good weather we've had some excellent turnouts for this event. Even if you're not interested in trying the Marathon, there can be a lot of scopes to check out that night and it's another observing opportunity.

March, 2015

The Observer's Group on March 14th and the Messier Marathon on the 21st were both cancelled due to weather conditions. Despite having both of the organized events clouded out, there was some observing in March. A trip to Sleaford on Friday, March 13th afforded me my first real opportunity to observe since the end of October. There were 5 of us out that night and it turned out to be a great evening. Some clouds contributed to a beautiful prairie sunset, but they blew past and left us with a clear sky. We observed till the wind started to pick up around midnight and chased us home. The following Monday, the 16th, was forecast to have some very good transparency so off I went to Sleaford again. I and others have noted that RASC meeting nights do seem to have a high percentage chance of being scheduled on clear nights. I may have to start charting this. Anyway, Monday evening was, as promised, a real beauty. Whereas Friday evening had a spectacular prairie sunset with clouds, Monday's was a completely barren sky that slowly got darker. The skies transparency was very good encouraging an evening of galaxy and nebula hunting. Six members and guests enjoyed the sights until aurora came up at 01:00 and finished our deep sky search.

Our next opportunity for the Messier Marathon/Observer's Group will be April 18th, with moonless evenings from the 8th till the 21st.

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. Jeffrey, D. Chatfield, B.
Christie, K. Noesgaard,
M. Stephens, B. Hydomako, T. Tuomi, L.
Scott, G. Charpentier, B. Johnson, M.
Clancy, L. Dickson, B. Burlingham, K.
Houston, Norma Jensen

Ron Waldron	New	108
Wade Selvig		75
Garry Stone		57
Bernice Friesen		45
Wayne Schlapkohl		43
Barb Wright		40
Ellen Dickson		34
Jeff Swick		24
Graham Hartridge		9

Chatfield BINOCULAR CERTIFICATE

Certified at 35 to 40 Objects:

M. Stephens, T. Tuomi, M. Clancy,
R. Huziak, K. Maher

Jim Goodridge	12
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FINEST NGC CLUB

Certified at 110 Objects:

R. Huziak, D. Jeffrey, G. Sarty,
D. Chatfield, T. Tuomi

Larry Scott	110
Scott Alexander	97
Norma Jensen	72
Sandy Ferguson	23
Kathleen Houston	23
George Charpentier	13
Mike Clancy	7

EXPLORE the UNIVERSE

Certified at 55 to 110 Objects:

M. Clancy, T. Tuomi, K. Maher,
B. Gratias

Wayne Schlapkohl	55
Jim Goodridge	35
Sharon Dice	31

Isabel Williamson Lunar

Observing Certificate

Certified at 140 Objects:

T. Tuomi

Norma Jensen	149
Jeff Swick	29

HERSCHEL 400 CLUB

Certified at 400 Objects:

D. Jeffrey, R. Huziak, D. Chatfield, T.
Tuomi

Gordon Sarty	251
Scott Alexander	117
Sandy Ferguson	18
Larry Scott	20

HERSCHEL 400-II CLUB

Darrell Chatfield	400
Tenho Tuomi	New 391
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.astrolounge.org/al/obsclubs/herschel/hers400.html>

Binocular List is at: http://homepage.usask.ca/~7Eges125/rasc/Chatfield_Binocular_List.pdf

"Isabel Williamson Lunar Observing Program Guide:

<http://www.rasc.ca/observing/williamson-lunar-observing-certificate>

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