

Saskatoon Skies

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

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Rosetta's lander Philae bounce-landed on the surface of Comet 67P/Churyumov-Gerasimenko last month on Thursday, November 13, and sent back this image. One of the lander's three feet can be seen in the foreground. While Philae is the first probe to land on a comet, Rosetta is the first to rendezvous with a comet and follow it around the sun. The information collected by Philae at one location on the surface will complement that collected by the Rosetta orbiter for the entire comet. To find out more, see pages 5 & 6 of this issue.



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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 – James Gorkoff, 306-644-1343

Secretary – Tenho Tuomi, 306-858-2453

Vice-President – Jim Goodridge, 306-370-8530

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

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

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.

RASC CALENDAR OF EVENTS

Dec 13	Observer's Group at Sleaford / Geminid Meteor Shower	Larry Scott
Dec 15	RASC Christmas Potluck Social – No Executive Meeting	Jim Goodridge
Jan 17	Observer's Group at Sleaford	Larry Scott
Jan 19	RASC Executive & General Meetings – Location TBD	Jim Goodridge

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



December Meeting

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

on
Monday, December 15th, 2014

Annual Christmas Potluck Supper

Bring a potluck dish and meet the rest of the club

6:00 PM



Note: There will not be an EXECUTIVE MEETING this month

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

President Jim Goodridge opened the meeting at 7 PM.

Moved by Les and Ellen Dickson that the October Executive minutes be adopted as circulated. Carried.

It was noted that Mark De Jong was omitted from the Annual Meeting minutes as Membership Coordinator.

Committee Reports:

- President's Report is in the November Saskatoon Skies.
- Treasurer's Report by Norma Jensen – books are closed and will be ready for the December meeting.
- Fundraising Report by Jim Goodridge – Sobey's gift cards are delayed.
- Observing Report by Norma Jensen – observing was good in October, observed several times, will try observing next weekend.
- Newsletter Report emailed by Ron Waldron – next deadline is December 5.
- Sleaford Site Report by Darrel Chatfield and Jim Young.
 - bathroom doors are fixed, other doors need looking at.
 - mouse problem solved, holes are sealed.
 - dome was not taken down yet.
- SSSP Update by Les Dickson – next SSSP meeting at Dicksons on November 27.
- Saskatchewan Light Pollution Abatement Committee report by Rick Huziak.
- Rick wrote a lighting policy for the city, they will respond to it in early 2015.
- Book Sales coordinator Jim Gorkoff announced that he has received 15 RASC calendars for sale.

Other Business:

- We need a list of committees and their members. The Sleaford joint site committee consists of Darrell Chatfield, Les Dickson, Stan Shadick and Yannis Pahatouroglou.
- Norma Jensen suggested that instead of having an Events Coordinator, different people could volunteer to coordinate specific events. Norma Jensen and Jim Goodridge volunteered to coordinate the December Potluck. Jim Goodridge volunteered to coordinate next year's Earth Hour event.
- Jim Goodridge asked for suggestions on how to celebrate our Centre's 50th anniversary in 2018. He gave a couple suggestions. We need a half-day retreat to plan for this.

The Executive meeting adjourned at 7:55 PM followed by the General Meeting at 8:15 and a Webex presentation on variable stars by Al Holm of the AAVSO.

Muppets & Stargazing – Ron Waldron

I was watching “The Muppet Movie” with my grandchildren the other night. My ears perked up as I was listened to Kermit the frog sing The Rainbow Connection. A small lump appeared in my throat when I heard these lyrics which I had never really paid attention to before:



*“What's so amazing
That keeps us stargazing
And what do we think we might see”*

Excerpt from The Rainbow Connection

Songwriters
WILLIAMS/ASCHER

Published by
Lyrics © Sony/ATV Music Publishing LLC

We all have our own reasons for stargazing. For me, it humbles me and fills me with wonder. If you are willing to share your own reasons for stargazing, why not send me a sentence or two outlining your reasons for stargazing and I may publish our collection of ideas in a future issue. Send to rmwaldron@shaw.ca

Rosetta and Philae – Comet Chasing and Landing

Adapted from the Weather Network (weathernetwork.com)

Wednesday, November 12, 2014, 1:28 PM - With the European Space Agency's historic comet landing now complete, here are five amazing facts about this ambitious mission to an ancient piece of our solar system, known as Comet 67P/Churyumov–Gerasimenko.

1. The mission was over a decade old!

All the attention on the mission has popped up over the last six months or so, but for the scientists and engineers involved with the mission, this was the culmination of over 10 years of waiting. Launched in March of 2004, the Rosetta spacecraft has traced a wide-arcing orbit in its flight to rendezvous with Comet 67P/Churyumov–Gerasimenko, journeying even beyond the orbit of Jupiter on its way! The mission was far from idle for all those year, though, as the team made some amazing discoveries even before the spacecraft arrived at its destination.

2. This isn't just a visit, but a historic landing!

Rosetta didn't make this decade-long journey just to make a flyby or only to orbit Comet 67P, and it didn't make the journey alone. The spacecraft has been carrying a small lander, roughly the size of a dishwasher, named Philae. On the morning of November 12, at 08:35 UTC (or 3:35 a.m. EST), Philae will detach itself from Rosetta and make a 7-hour-long descent to the surface of the comet. Why so long, when Rosetta will only be about 22 kilometres away when the lander begins its descent? Philae's landing target is one specific spot, located on a spinning, tumbling, rubber-ducky shaped hunk of ice and rock. Not only that, though, the gravity on Comet 67P is estimated at around one-ten-thousandth of the gravity of Earth, so an astronaut standing on its surface could reach escape velocity simply by stomping their foot. All of that adds up to a great need for caution during the operation.

3. The landing was dangerous!

No human lives were at risk from Philae's landing, of course, as the mission team will be safe at ESA's mission control centre in Darmstadt, Germany. However, the lander itself was at considerable risk, as the surface conditions could cause it to tip over as it touches down.

"There's craters, crevices, boulders, gravelly areas," Laurence O'Rourke, a lander system engineer with the Rosetta mission, told CNN. He added that the comet was a very strange structure and there was a lot of luck involved.

4. This landing could help us discover where we came from!

The science that Philae conducts on the surface of Comet 67P will certainly yield some fascinating results, simply about comets themselves. However, it could reveal answers to some of the most fundamental questions we have - where did Earth's abundant water come from, and what kick-started life on our planet?

5. This isn't just about exploration, or even science ... it's about ambition.

There's a motto on the wall at NASA's Jet Propulsion Laboratory. It says *Dare Mighty Things*. Stuck on this one planet, as we are, we're not only limited in our scope, but vulnerable to catastrophe. To broaden our horizons means to venture out and try new things, explore new worlds, and discover new things about not only the Universe, but ourselves. Missions like Rosetta are small ones, but they represent a beginning ... turning science fiction into reality. Just watch this incredible short film that explains why this is so important:



President's Report – *Jim Goodridge*

Announcements

Our Winter Solstice Potluck is coming up on December 15th at 6:00 PM in our usual meeting room. Please plan to attend and bring along a dish to share with everyone else. Also if you happen to have any astro-photos or sketches bring them along too so we can put them up and give everyone an opportunity to see them. There is not a formal program for the potluck but I am hoping everyone will bring a story along to share with the group. I do have two very short YouTube videos to share and I will be going over the past year's activities and what might be in store for the coming year. No Chocolates will be handed out this year.

We still have a couple of executive positions to fill, Vice-President, National Advisory Council, etc etc. Also no one has volunteered to do any of the events co-ordination other than the Sleaford open house, winter solstice potluck and earth hour. It's looking like we won't have many events this coming year unless some people step forward. There is still astronomy week to cover and the solar viewing at the farmers market. Astronomy week can be broken up and Lakewood and Beaver Creek can be done separately. Please volunteer to run one of these events as we need to get things going on them soon or they won't be happening.

The SSSP committee had its first meeting to plan 2015, it's not too late to join the group and we would love to have you come out. Email me or phone if you want to help with the planning.

Keep in mind that the January meeting will be held at a different location in order that Ron Waldron can show us the new digital planetarium that he has been using. He describes it as "*Starlab on Steroids*" so this will be a must see.

Thoughts

I am waiting to get cataract surgery as my eyesight has been deteriorating noticeably; it seems my eyes get worse every week. Right now I am unable to use the telescope at the U of S observatory because there is just no contrast when I try to point it. It is really embarrassing and hopefully the surgery will come before SSSP so I can avoid being disgraced there as well. Since it is difficult to go observing, never mind the fact it has been really cold, I have been doing some thinking about hobbies and how they fit into a person's life. Two things have me thinking, one is that I was told that marketing research on hobbies indicates that people usually go all out for a period of three years and then drop it, the second thing is that learning new things is good for the brain and helps to prevent dementia. Putting those thoughts together I started thinking of ways to keep my hobby of astronomy progressing and also what other activities are complementary to astronomy. I personally understand that a one-legged stool falls down so I have a lot of interests but having a passing interest in something is quite different than a passion/hobby.

One of the great things about being a stargazer is that there are so many facets of the subject to explore. You can go from deep sky objects, to variable stars, to double stars, to astrophotography to spectroscopy. You can do outreach, write articles, serve in astronomical organizations. There are

incredible numbers of observing lists that you can challenge yourself with. You can become an amateur telescope maker if you like to build things, there is a tonne of stuff to read every week and I haven't even mentioned radio astronomy, star parties to attend and eclipse chasing. If you are feeling in rut, try a different aspect of the hobby. (Especially try the part where you serve on the executive of astronomical clubs - that's the best thing to do.)

I have a complementary hobby to astronomy and am starting another one so these following two ideas are based on actual experience. Birding is a great complement to stargazing. You still get to use binoculars and spotting scopes, you still get to observe, photograph and draw (yes Virginia draw) and there are lists to keep and challenges in finding and identifying objects. You can still bird if it is raining, dawn and dusk are great times to bird so you can do it at the end of an observing session or while you are waiting for your scope to cool. There is even a type of "goto" for birding called a zoo. Birders don't count birds seen in captivity in much the same way that many lists don't recognize things found by goto.

In both cases though you do get to see the object and if that is your goal, it works. You can also bird in a different way by feeding birds and providing habitat for them. There are a gazillion birders out there and incredible amounts of information. Just like stargazing you learn an absolute amazing amount when you get to bird with one of the experts. Hmmm maybe we should have a birding walk at SSSP?

I have recently taken up microscopy/biology as a hobby. I don't have a microscope yet but I am pretty sure one will be coming soon. With microscopy you still get to play with optics and guess what - the most important aspect of a microscope isn't the magnification - sound familiar. With microscopy you get to observe, photograph, draw. You also get to grow neat things in your lab and do it inside. Think about a microscope for when it is cloudy, the sources of information are a little harder to find than with Astronomy but there are two online magazines devoted to microscopy and both are free of charge.

Birding and Microscopy help to hone your observational techniques and give you something to do when the skies don't cooperate. Changing your stargazing focus allows you to refresh and recharge your interest. Are you tired of faint fuzzies after getting half way through the Herschel 400, take a break for a while and do some double star stuff or do some solar work in preparation for the coming eclipse in 2017.

Still, the best part of all of these past-times is the people you get to do and share them with. It is great to see Saturn the first time, and we get to relive that experience every-time we show it to someone who hasn't seen it before. Likewise I will never forget the first time I saw a Pileated Woodpecker and Great Gray Owl and sharing those experiences with others makes it new each time. I am hoping it will be the same thing when I see my first Tardigrade in person and get to share it with others.

The International Year of Light in 2015

- The International Year of Light is a global initiative that will highlight to the citizens of the world the importance of light and optical technologies in their lives, for their futures, and for the development of society.
- The International Year of Light will consist of coordinated activities on national, regional and international levels.
- Activities will be planned so that people of all ages and all backgrounds from all countries enjoy and appreciate the central role of light in science and culture, and as a cross-cutting scientific discipline that can advance sustainable development.
- The International Year of Light is planned for the year 2015. To learn more, visit this website: <http://www.light2015.org/Home.html>

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	105
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	Done!	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	Done	55
Jim Goodridge		35
Sharon Dice		31

Isabel Williamson Lunar Observing Certificate

Certified at 140 Objects:

T. Tuomi

Norma Jensen	133
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	Done!	400
Tenho Tuomi	New!	343
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.astrolodge.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.shtm>

Merry
Christmas

