

Saskatoon Skies

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

Vol. 43, No. 02

February 2012



Why Has it Been Cloudy?

Blame it on Ron Waldron. He bought a big new scope last Fall and we have had nothing but clouds this winter.

Last November Ron posted on the Saskatoon RASC site,

“After four months of waiting, I just took delivery last week of my new 12.5" Discovery Truss Tube Dobsonian Telescope. It is an F5 Dob. Now if I could only get a few more clear nights to truly enjoy it.”

Photo by Ron Waldron



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To view *Saskatoon Skies* in colour, see our Website:
<http://homepage.usask.ca/~ges125/rasc/newsletters.html>

MEMBERSHIP? JOIN TODAY!

Regular: \$80.00 /year

Youth: \$41.00 /year

Associate: \$33 /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 <national@RASC.ca>!

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
- 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 – Jeff Swick, 373-3902
Secretary – Ron Waldron, 382-9428
Vice-President – James Gorkoff, 644-1343
Treasurer – Norma Jensen, 244-7360

Bottle Drive & Canadian Tire \$

By Colin Chatfield

If you cannot make it to a meeting but would like to contribute your Canadian Tire money please call me at 934-7046.



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

Newsletter Editors – Kathleen Houston & Tenho Tuomi

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. **Articles can be sent by mail in any format to the Centre's mailbox.** Submitted materials can be returned upon request. Submissions may also be sent by e-mail to the editor at e.b.a@sasktel.net as a .doc, no indents, no tabs, one line between paragraphs. Images: .jpg please, no larger than 1 – 1.5 MB, sent by e-mail as attached files.

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. **DEADLINE for submissions** for each month's issue is the 1st of the month. Saskatoon Skies accepts commercial advertising. Please call the editor 306-665-3392 for rates. Members can advertise non-commercial items free of charge.

RASC CALENDAR OF EVENTS

Feb 11	Observers Group – Dusk, Sleaford Observatory	Larry Scott	934-5801
Feb 13	RASC Executive Meeting – 6:30 pm, 175 Physics, U of S. Please note, one week early to avoid Family Day.	Jeff Swick	373-3902
Feb 13	RASC General Meeting – 7:30 pm, 175 Physics, U of S	Jeff Swick	373-3902
Mar 17	Observers Group – Dusk, Sleaford Observatory	Larry Scott	934-5801
Mar 19	RASC Executive Meeting –6:30 pm, 175 Physics, U of S	Jeff Swick	373-3902
Mar 19	RASC General Meeting – 7:30 pm, 175 Physics, U of S	Jeff Swick	373-3902
Mar 24	MESSIER MARATHON! Sleaford Observatory.	Larry Scott	934-5801
Mar 31	Earth Hour Public Star Night – Details to be announced	Barb Wright	249-1990
Apr 14	Observers Group – Dusk, Sleaford Observatory	Larry Scott	934-5801
Apr 16	RASC Executive Meeting –6:30 pm, 175 Physics, U of S	Jeff Swick	373-3902
Apr 16	RASC General Meeting – 7:30 pm, 175 Physics, U of S	Jeff Swick	373-3902
May 12	Astronomy Day. Farmer’s Market, 8-14h	Barb Wright	249-1990
May 12	Alan Dyer, “The Transit of Venus”, 20-21h Venus gazing 19h-20h, Star Gazing 21h-23h - Bethlehem Catholic High School theatre and grounds	Kathleen Houston	665-3392

For a complete list of club events, please check out: <http://homepage.usask.ca/~ges125/rasc/activities.html>

RASC SASKATOON CENTRE GENERAL MEETING

MONDAY, February 13, 19h30

Please note, one week early to avoid Family Day

Room 175, Physics Bldg., U of S

Speaker: To be announced

NOTE: There will be an executive meeting at 18h30.

SKY BUYS & MIRROR CELLS

The Saskatoon Centre’s Swap and Sale Page

FOR SALE: Two 7x50 Newtonian-view straight-through spotters c/w dovetail mounts. (No scope-side dovetails, though). \$40 each obo. Contact Rick Huziak 665-3392. Proceeds to the RASC.

SPECTACULAR SOLAR SYSTEM IMAGES ON NEW NASA WEBSITE

[News Release from NASA Ames Research Center]

NASA has made available for the public a new online collection of images of our solar system and locations on Earth where astrobiology researchers travel to conduct field research. Called From Earth to the Solar System (FETTSS), the images showcase the excitement of planetary exploration and the journey to understand the origin and evolution of the solar system, and the search for life elsewhere. Images may be downloaded and displayed with the proper photo credit.

The collection is being released to celebrate NASA’s Year of the Solar System -- a time of unprecedented planetary science mission activity. The celebration runs until August 2012. The online collection will allow interested individuals, groups and organizations to plan their own solar system exhibits.

For more information, see: <http://fettss.arc.nasa.gov>
<http://solarsystem.nasa.gov/yss>

PRESIDENT'S MESSAGE

By Jeff Swick



Well it's sure been a couple of rough months for sitting at the scope but I'll take the warm winter weather that comes with it.

Most of my astronomy lately has been online and of course for solar observers, the sun has been very busy. I find it very rewarding to watch actual events on the sun and follow the activity as it heads to Earth and interacts with our magnetic field. Not only watching visually but using the data available from the fleet of solar telescopes and sensors as well as terrestrial based instruments such as Tenho's magnetometer at the Lucky Lake station.

Behind the scenes club wise we've been busy planning and preparing for SSSP and the site committee has been active in planning the new addition and the fund raising that must accompany it.

Our events coordinator has been busy as well putting together our calendar. We have our annual Messier Marathon coming in March and Earth Day at The Circle Center Mall with Bob Johnson.

If you would like to become more involved with any of our committees just shoot Barb Wright or me an



email and we'll set you up with the appropriate committee chair.

For our February meeting, our Vice President Jim Gorkoff will be conducting our meetings, as at this moment I'm not sure that I'll be back in town in time. As well as being our current Vice President, Jim is our incoming President and will be taking over in October when my term is up.

There are many rewarding things that come with being President but the one thing that I don't care for is that at the meetings I don't often get a chance to visit with our new members and people attending their first RASC meetings and am glad that our membership has taken it upon themselves to introduce themselves and answer questions about the club.

That said, I'm always happy to be able to have the time to visit with our new members out at Sleaford and of course Rick and Graham's "after meeting meetings" at Alexanders. For new members that have not yet made it out I have to say that the dark sky facility affords a great mentoring opportunity for you and a chance to visit and view through the different scopes.

We also have a few scopes out there that are available to those who do not own their own or just don't have the time or space to load up their own gear. If you have a new 'scope, Sleaford is the place to be for when you have questions. I hope these damned clouds go away soon so we can all get back in to the swing of things.

Should you be planning your first visit to Sleaford, keep an eye on our Yahoo Group to find out when people will be on hand, or reach out to our Observing Co-coordinator Larry Scott should you require more detailed information.

Full Moon from January 10, 2012. Stitched 7 images together to create this shot. Taken through a Celestron C8 with my Canon 7D.

Photo by Colin Chatfield

Kathryn 2011 Story!!!!

By Kathryn Gray



Neil Armstrong and Kathryn Gray at Starmus
©Max Alexander/Starmus

My last year has been very fun, different, unique and amazing. It all started on the day before New Year's Eve when my mom, dad and I were visiting my dad's friend Dave Lane who owns a back yard observatory. When we were visiting Dave at his house we toured his observatory and I asked "can I start searching for supernovae" Dave laughed for a second and then said "get your father to send me a list of images to take". Then I looked at dad and he walks over to his laptop and sat down to get one of his old list of search galaxies. (Note: my Dad and Dave have done supernova hunting together for years!)

On January 2nd my family and I got home from Christmas vacation. That afternoon Dad help me set up the computer and set up the image groups for searching like I had practiced in November on his old



supernovas. When I stated to search my dad sat beside me to make sure I was doing the search right and low and behold on the fourth image there was my first Supernova and I can't

remember getting any sleep that night. When I saw the blinking star I asked Dad, "What is that? Could that be one?" He responded surprised and at first said it likely was but also that it may have already been discovered. Turns out it wasn't and it was my first Supernova!

It was January 4th when the phone started to ring off the hook! Live interviews, appointments for interviews and camera people from newspapers. It was two days of radio and TV interviews from around the world! (Kathryn did interviews from as far as New Zealand and Korea!)

Not long after that settled down I was invited to a festival called Starmus in June in the Canary Islands to do the official opening. I met some really cool me people like Neil Armstrong, Buzz Aldrin, Jill Tarter, Alexi Leonov, Brian May (Queen), Kip Thorne and Adam Burrows to name a few! Brian May even played his guitar at the concert!

In August I went to Starfest to get the Bring Home the Bacon award. It was lot of fun, we enjoyed the Bacon and I brought home my sock full of 500 loonies which I used some of to buy an iPod.

In November I went to New York City to partake in the Glamour Women of the Year Awards! It was so awesome to be there with 20 other ladies under 20 years of age that did something amazing for this world. Mom and I did some sightseeing and went to Carnegie Hall for the awards show where I was sitting only 2 rows in front of Jennifer Lopez!

My parents are now planning a family trip for us to go visit friends of my Dad's in Delaware. The purpose for going is so they can take my brothers and sister to Washington, DC to visit the Smithsonian. There is a new display called Math Alive starting in March with a space theme section that is going to have a display about me in it! I was born in Maryland so I can get to see where we lived when I was baby and meet some more of my Mom's and Dad's friends there.

So that is how it has been for me in the last year. Mom and Dad say I have grown a lot and I sure did get to see and learn a lot with traveling and meeting so many people. It has been a lot of fun and tiring!

11 year-old Kathryn and her father Paul Gray live just outside Fredericton, N. B. under very dark skies. For a full story of their trip to Starmus at Tenarifee, Canary Islands, see the December, 2011 issue of the Journal.

Dark Sky Lighting Monthly, Part II

By Rick Huziak <rickhuziak@shaw.ca>

So, What's Up with the Casinos?



There are six SIGA-run casinos in Saskatchewan that have light tepees as their visual calling card:

- Bear Claw (White Bear First Nation)
- Dakota Dunes (Whitecap Dakota First Nation)
- Gold Eagle (North Battleford)
- Living Sky (Swift Current)
- Northern Lights (Prince Albert)
- Painted Hand (Yorkton)

It's been a while since casino lighting has been in the news, but that doesn't mean we have forgotten about it. The light tepees continue to shine into the nighttime sky. In the case of Bear Claw and Dakota Dunes, these rural casinos still shine their light tepees over acreages and other natural areas. For the urban casinos, the light tepee is the major light pollution marker over each of their cities. At the Gold Eagle casino, the flashing LED sign and the light tepee create a glare and distraction that is dangerous when you approach on the Yellowhead highway from Battleford.

When the tepee design was announced, the *Saskatchewan Light Pollution Abatement Committee* (SLPAC), a committee of the Saskatoon and Regina RASCs, voiced opposition citing light pollution concerns for local residents, since SIGA had announced that the tepees of light were designed to be seen for 100 miles all around. In response, a new environmental non-governmental organization (ENGO) called the *Rural Environmental Preservation Association of Saskatchewan* (REPAS) was formed to fight the Dakota Dunes casino directly. It was thought better that a local citizen's group, that was directly affected, would lead the challenge against the lighting. REPAS members consisted mostly of residents of Pike Lake, Corman Park and area. We also bought the <dakotadunescasino.ca> domain name, and made it a light pollution webpage.



More than 160 dying warblers can be seen caught in these lights

After non-productive lobbying and petitioning of SIGA, provincial government MLAs, and Saskatchewan Law Reform Commission, REPAS and SLPAC challenged the *Saskatchewan Environment Management and Protection Act* (EMPA, 2002), citing that a pollutant was being intentionally discharged into the atmosphere that caused a *nuisance*, basically, disruption to faunal populations and the reduction of enjoyment of the properties of surrounding residents. To challenge the *Act*, the offense already had to have been committed, so we had to wait until the Dunes light tepee were turned on. We also pointed out that there was a potential hazard to migrating birds, moths, bats and other fauna. (I will get into details of the EMPA challenge in a future article.)

During the time that the Province's environmental lawyers were evaluating our challenge, a flock of migrating warblers flew into the tepee beams of the Painted Hand casino in Yorkton (at their old location) and, according to newspaper reports, thousands of birds flapped around in the intense beams until they died of exhaustion or from mid-air collisions. Despite this, the Ministry of Environment ruled that we did not have a case, citing from the *Oxford English Dictionary*, that light was not a particle and thus did not fit the EMPA definition of *particulate*

pollution. They failed to comment on how then the birds had died. The new location of Painted Hand was built only 100-metres from a nature preserve, and no one seemed to think this is an issue (except for the nature park curators!) We considered a re-challenge under the *Migratory Birds Convention Act and Regulations*, but just ran out of steam since we had other projects that needed attention and no money for a full-up court challenge.

We may not have eliminated the light tepees, but some progress has been made through our lobbying. After Dakota Dunes was built and controversy over the lights and bird deaths erupted in the media, some lessons appear to have been learned. Most other, if not all, casino parking lots were designed with FCO lights which do not pollute the sky. (Dakota Dunes

still has side-facing halogen lights.) The light tepees seem to have been turned down in intensity to what appears to be approximately 25% of their maximum intensity. And, in response to a promise made to Sask. Environment, tepee lights, at least at the Yorkton Painted Hand casino, are mostly off for the weeks surrounding the fall bird migration. (We don't know if other casinos participate in the fall migration lights-off period, nor do we know if the spring migration is also honoured.)

It seems a bit ironic that my last talk about light pollution for the *2011 Saskatchewan Waste Reduction Council Fall Forum* was given in the meeting hall at

the Living Sky casino in Swift Current! I don't think any of the staff or management saw it, though.

Resources:

Light Pollution webpage:

<http://www.dakotadunescasino.ca>

Law Reform Report:

<http://www.lawreformcommission.sk.ca/LightPollutionAbatementBP.pdf>

Bird deaths in the news:

<http://www.cbc.ca/news/canada/saskatchewan/story/2008/09/11/casinos-birds.html>

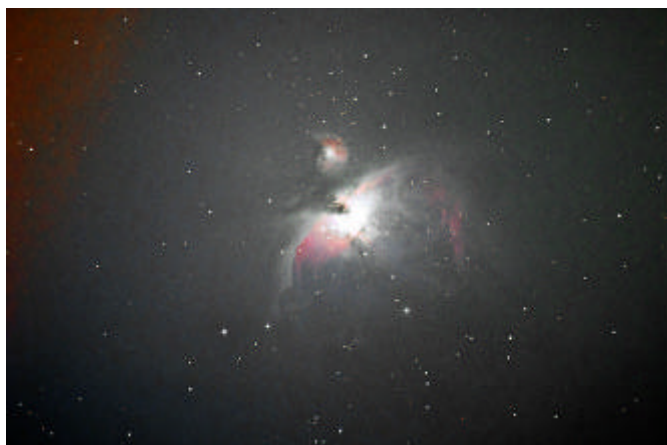
Meet Dick Kirk, Our New Member and Astrophotographer

As posted to the Saskatoon RASC Yahoo Groups list by Dick Kirk on January 23, 2012

I was interested in astronomy and telescopes from a very early age but did not become serious until I moved to Saskatoon last May. It was about the end of July that I began researching telescopes. I decided that I wanted to do photography as well as observing the many interesting objects in the night sky. Because I wanted to take pictures, some of the requirements for a telescope were fast f number and tracking or guiding. Other concerns were; light gathering power; easy and fairly quick set-up, no point in taking a long time to set up especially in the cold of winter; not too much time taken for temperature stabilization; not too much weight. A number of scopes seemed suitable including refractors and newtonians. I felt that an 8" objective would probably be ideal size. This meant that for me a

refractor was out of the question so I decided on an 8" newtonian with a go-to mount which would give me pointing accuracy and tracking with possibly guiding down the road if that is what I need to do.

I now have the same scope as Jeff [Advanced Series Celestron C8-NGT] and am so far quite happy with its' performance especially the "Precise go-to" feature. Once the mount is polar aligned the pointing accuracy is excellent and tracking is about as good as one can expect with a mount at the same price. Some of the pictures that I have taken from my light polluted back yard have not needed adjustments prior to taking a photo and 30 seconds is about the limit of exposure due to sky fog and light pollution.



M42 and M43 at prime focus 30 sec ISO 1600



Double Cluster prime focus 175 sec ISO 1600

Photos by Dick Kirk

RASC Observing Lists Compared

By Tenho Tuomi

	Messier	Finest NGC	DS Gems	DS Challenge	Herschel 400
Open Clusters	28	12	14	2	99
Globulars	29	2	14	4	34
Nebulae	8	14	7	16	12
Planetaries	4	24	1	8	24
Galaxies	40	58	112	15	231
Misc.	1		6		
Totals	110	110	154	45	400
Av. size	19.4	11.4	5.6	37.4	7.5
Av. gal. size	15.4	9.0	4.1	10.4	5.5
Av. mag.	7.4	9.6	10.8	12.5	10.6



Above is a comparison of the RASC Observing Lists with data taken from the RASC Certificate Programs pages, <http://www.rasc.ca/observing/certificate-programs>, along with a comparison to

the Herschel 400 list. The last three rows; average size, average galaxy size, and average magnitude, were calculated from the Handbook data.

It is difficult to compare the lists by visual magnitudes for the magnitudes for the same objects vary wildly among the lists. The magnitudes for the Herschel 400 objects are generally a magnitude fainter than in the other lists, some up to 3.4 magnitudes fainter and some 2.4 magnitudes brighter.

Each list has its own characteristics. There are no overlaps among the RASC lists.

The classical Messier list has most of the open and globular clusters, which are the brightest objects in the sky. Some are naked eye objects. Most can be seen with binoculars.

The Finest NGC list by Alan Dyer concentrates on the planetary nebulae which are small but colorful. At least a 200mm telescope is recommended for this list.

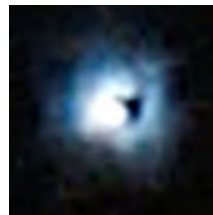
David Levy's Deep-Sky Gems list is made up mostly of small, faint galaxies. It is a fitting challenge after the Messier and FNGC lists. The objects in it are even smaller and fainter than in the Herschel 400 list. It probably requires a 300mm telescope. ("I wonder why he called them 'Gems', if they are so hard to find and see." - Darrell)

The Deep-Sky Challenge list by Alan Dyer and Alister Ling is different. It concentrates on large, faint nebulae and galaxy clusters. The range is from Barnard's Loop to quasars. Some objects require a 400-500mm telescope

The Herschel 400 list has a good cross section of all deep-sky objects, similar to the Messier list, but smaller and fainter, falling between the FNGC and the Gems lists in size and brightness. A 200mm telescope should be all that is required.

If you complete the RASC observing lists, you will have 150 objects observed for the Herschel 400 list, though there are no overlaps between the Deep-Sky Challenge list and the Herschel 400 list. However remember that you need descriptions of the objects for the Herschel 400 list which you do not for the other lists, so you might have to start from the beginning anyway.

In an analysis that I made several years ago, the Saskatoon RASC centre had the most observing certificates per member of any centre. If you complete a list, send for a certificate and keep our reputation alive. Keep observing!



A Deep-Sky Gems Object.

Reflection nebula NGC 1999 in Orion, with a triangular hole.

Photo by author, Dec. 25, 2011



The Planets for February 2012

Murray Paulson,
RASC Edmonton
Centre

Mercury has swung down from a good December's morning elongation to a superior conjunction with the sun on February 7th. It will head to its next elongation much quicker than this leisurely descent. In the last week of the month, look for it about 1 hour after sunset near the horizon where the sun set. It will be shining at magnitude -1. By the 5th of March we will see the greatest eastern (evening) elongation of Mercury. On this date Mercury will shine at magnitude -0.1 and will display a 42% illuminated 7.5" disc. Note, on March 4th, Uranus sits 2.4 degrees below Mercury and shines at magnitude 5.9.

Venus has really jumped into prominence in the evening sky. At magnitude -4.1, the moon is the only thing brighter in the night sky. In an eyepiece you will be treated to a 72% gibbous 15.75" disc. Venus now stands 41 degrees from the sun. Over the month it will brighten imperceptibly to magnitude -4.2 as it catches up to us in our orbit and it gets closer to Earth. By March 7th it will have expanded to a 60% illuminated disc of 19.7" in diameter. Venus is now 45.1 degrees from the sun. It will only move out another .9 degree before it will start its journey back to the sun.

Mars is brilliant and red in the morning sky, shining at magnitude -0.7. It now subtends 12.4" and is 97% illuminated. It is about 90% of its maximum size, so it is well worth hunting down. Mars now rises just after 8 pm and if you are up at midnight, it sits 30 degrees above the horizon just below the haunches of Leo in the southeast sky. I have seen images taken in the last few weeks of Mars that are just outstanding. The North polar cap is quite striking and the disk is obviously gibbous with lots of details. Over the month Mars just becomes more and more available for viewing. On March 3rd, we come to Mar's opposition, where the red planet will shine at magnitude -1.2 and will show a 14.3" disc in the eyepiece. Mars's north pole is tilted at an angle of 22 degrees towards Earth, so we will get a really good view of it this apparition.

Jupiter is getting low in the sky but is still a respectable beacon shining at magnitude -2.3. Jupiter

is in Aries now and will be making M33 hard to see. In the eyepiece it will show you a 38.3" disc with a great interplay of moons. On February 26, a crescent moon passes 3 degrees above Jupiter. It will make for an excellent photo opportunity. By early March, Jupiter will have faded to magnitude -2.1 and the disc will be 35.4". It still is worth watching and you will now notice the terminator side, the trailing side, is softer than the other side.

Saturn rises just around midnight and is 7 degrees east of Spica. It will be a while before it is an evening planet, but at 9 degrees south declination, it will not rise too high in the night sky. It shines at magnitude 0.5 and will show you a 17.8" disc in the eyepiece. Over the month it will show up earlier in the night sky and by early March, it will rise just before 10 pm and will brighten to magnitude 0.3. Its disc will expand to 18.6" and by midnight will sit 15 degrees above the SE horizon. I think that is above the trees out at Blackfoot, so it may be a good dark of the moon target.

At the beginning of the month there was a Venus **Uranus** conjunction, February 9th. Uranus still shines at magnitude 5.9, but it is disappearing fast and you have to catch it quickly before it is gone in the early evening sky. By early March it will be lost to the evening twilight glare, and it will be gone for another season.

This month **Neptune** is in conjunction with the Sun on February 19th . It is lost to the twilight glare and we won't expect to see it again until the summer. **Pluto** was in conjunction with the sun in late December, and also will not be available at our latitude for observation until the summer time as well.



Globular cluster M92 and comet C/2009 P1 (Garradd)
Picture taken February 3 through 12" scope.

Photo by Tenho Tuomi

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. Hydromako, T. Tuomi, L. Scott, G. Charpentier, B. Johnson, M. Clancy, L. Dickson, B. Burlingham

Kathleen Houston	Done!	110
Norma Jensen		109
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

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	Up!	58
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
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	Up!	7

HERSCHEL 400-II CLUB

Darrell Chatfield	Up!	395
Rick Huziak		246

LEVY DEEP-SKY GEMS

Certified at 154 Objects:

Tenho Tuomi	Up!	97
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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.astroloague.org/al/obsclubs/herschel/hers400.html>

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

Copies of the Isabel Williamson Lunar Observing Program Guide can be purchased at meetings.

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

Observers Group

by Larry Scott

The January 14th Observers Group was postponed due to six inches of snow and then it turned cold. Really, really cold. Norma and I did manage to get out on January 22nd to clear the yard and get in a little star gazing. Skies were decent but the auroral glow extended past zenith so we kept our observing low and to the south. Early in the evening the lights got organized into some nice pink, dancing curtains in the northern sky. It made the loss of our deep sky objects from the glow a lot easier to take.



Next Observers Group is scheduled for February 11th. We have moonless evenings from about February 10th to the 24th.