

Saskatoon Skies

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

Vol. 40, No. 6

June 2009

Spring Skies at Sleaford



On a clear night at Sleaford in May, Jeff Swick used the motorized tracking platform built by Bill Hydomako to take this image of the Milky Way showing the North America Nebula with his Nikon D70 camera: "I didn't actually set out to shoot anything. In fact, it was an afterthought. It was just such a good night at the scope that I almost forgot about the camera. I ended up just opening the shutter and walking away to carry on at the scope."

Photo by Jeff Swick



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

MEMBERSHIP? IT'S NEVER TOO LATE TO JOIN!

Regular: \$77.00 /year

Youth: \$41.00 /year

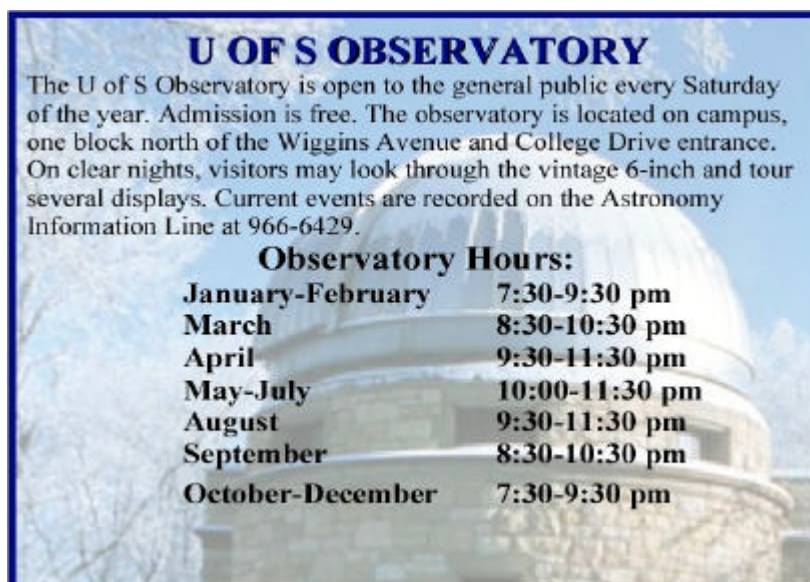
Associate: \$33 /year

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 membership coordinator, Mark de Jong, or renew through the National Office and let Mark know that you did!

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
- The 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 – Barb Wright, 249-1990
Secretary – Al Hartridge, 373-0034
Vice-President – Jeff Swick, 373-3902
Treasurer – Norma Jensen, 244-7360

**Bottle Drive &
Canadian Tire \$**
By Darrell Chatfield

If you cannot make it to a meeting but would like to contribute your Canadian Tire money please call me at 374-9278.



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

Newsletter Editors – Christine Kulyk & 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 clkulyk@sasktel.net – preferred as plain unformatted ASCII text files without line breaks. Images sent by e-mail should be 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 20th of the preceding month. Saskatoon Skies accepts Commercial advertising. Please call the editor 306-858-2453 for rates. Members can advertise non-commercial items free of charge.

RASC CALENDAR OF EVENTS

June 15	RASC Executive Meeting – 6:30 pm, 175 Physics, U of S	Barb Wright	249-1990
June 15	RASC General Meeting – 7:30 pm, 175 Physics, U of S	Barb Wright	249-1990
June 26	Observers Group – 9:30 pm, Sleaford Observatory	Larry Scott	934-5801
July 24	Observers Group – 9:30 pm, Sleaford Observatory	Larry Scott	934-5801
July 24-26	Calgary RASC Star-B-Q – Caroline, AB	http://calgary.rasc.ca/starbq2009.htm	
Aug 13-16	RASC General Assembly & SSSP – Cypress Hills	Barb Wright	249-1990
Sep 3	Opening Reception for “Celebrating the Night Sky” Exhibit - 7:00 pm, Frances Morrison Library Gallery	Kathleen Houston	665-3392
Sep 5-7	Spruce Woods Star Party – Spruce Woods Park, MB	http://winnipeg.rasc.ca/sprucewoods/	
Sep 15-20	Northern Prairie Starfest – Black Nugget Lake, AB	http://www.edmontonrasc.com/nps.html	
Sep 19-20	Alberta Star Party – Starland Recreation Area, AB	http://calgary.rasc.ca/asp2009.htm	



MONDAY, June 15, 7:30 PM

Robert J. Sawyer:
“Astronomy & Science Fiction”

(There will be an Executive Meeting at 6:30 pm)



Meet Renowned SF Author Robert Sawyer at Our June Meeting!

by Les Dickson

Exploring strange new worlds happens as often at a writer’s keyboard as it does at an astronomer’s eyepiece. From exploring the worlds of our Solar System to the planets of other stars, from bases on Mars to the heat death of the universe, science fiction writers always get there first, and Canada’s leading SF writer will be our tour guide as we look at some of their (and his) visions.

Robert J. Sawyer, called “the dean of Canadian science fiction” by the *Ottawa Citizen* and “just about the best science fiction writer out there” by the *Denver Rocky Mountain News*, is one of only seven authors in history (and the only Canadian) to win all three of SF’s highest honours for best novel of the year: the Nebula Award (1996, for *The Terminal Experiment*); the Hugo Award (2003, for *Hominids*); and the John W. Campbell Memorial Award (2006, for *Mindscan*).

Rob’s novels are top-ten mainstream bestsellers in Canada, appearing on the *Globe and Mail* and SASKATOON SKIES

Maclean’s bestseller lists, and they’ve hit #1 on the bestseller list published by *Locus*, the US trade journal of the SF field. His latest book, *Rollback*, one of several novels he’s written about SETI, led to his being invited to participate in a joint NASA Ames/SETI Institute workshop in 2007. Rob’s nonfiction has appeared in *Sky & Telescope* and *Archaeology* magazines, and he’s a long-time member of the Toronto Centre of the RASC (for more information, see his massive website: <http://sfwriter.com>).

Rob will be writer-in-residence at the Canadian Light Source (synchrotron) from June 1 to July 31. Sawyer, widely regarded as one of Canada’s most influential authors and most successful science fiction writers, will use the residency to explore the creative processes at the root of science and art and increase public discussion of science in Canada.

Minutes of the Executive Meeting May 11, 2009 by Ellen Dickson

1. Meeting called to order at 6:40 pm.
2. Approval of the minutes of the previous (March) meeting: Moved by Barb Wright, seconded by Christine Kulyk, and carried.
3. Rules of order were discussed and agreed to: Speak respectfully, no muttering, no backbiting, no interruption of speakers. More to come.
4. Jeff Swick posed a question re. transportation for SSSP/GA: "Does it have to be a van?" - Discussion ensued, and it was decided that a "motorhome" won't work. Fifteen-passenger vans not available at any dealership.
5. There was a question about quorum for the Executive Meetings. According to the Bylaws, the Executive Meeting is four Executive personnel - President, Vice-President, Treasurer must be there. Moved and approved by all paid members.
6. There was a discussion about Associate Membership. An Associate Member is: a member of the immediate family of an Ordinary Member or Life Member living in the same household. They only receive the recognition in or benefits of the Centre, not from National nor National publications or privileges of National. Les will check with National on this regard.
7. National has decided that there will be no new Life Memberships. Any existing funds will be paid out in lump sums: each Centre in proportion to the number of Life Members in the Centre.
8. Jeff Swick made a number of suggestions to recruit and retain members, such as: make them welcome at meetings, telescope workshops or workshops in general, astronomy in the park, and more effective advertising.
9. Darrell Chatfield will be sending out an e-mail regarding Spring Cleaning at Sleaford.
10. IYA: Podcast (Jeff Swick) - there are transfer problems still to be solved.
11. Meeting adjourned at 7:30 pm.



Minutes of the General Meeting May 11, 2009 by Ellen Dickson

1. Meeting called to order at 7:50 pm.
2. Approval of the minutes of the previous (April) meeting.
3. Barb Wright read correspondence received from Fairhaven School - a big Thank You.
4. Beavers Request: The Scout group that is donating the tents to use at GA/SSSP would like us to do a presentation up at Pike Lake on May 30 for them.
5. Other events upcoming:
 - Relay for Life - May 29 (Prince Albert) for cancer research
 - Hampton Village - May 30 Picnic & Trade Show
 - Relay for Life - June 12 (Saskatoon)
6. GA/SSSP: Registrations are coming in already. No 15-passenger vans are available.
7. Observers Group scheduled for May 15; alternate night May 22-23.
8. Membership Recruitment: Christine Kulyk suggested that we have a membership-info table available at every meeting and every event the Centre puts on; also that names of new members be announced at meetings and published in the newsletter.
9. A new member was welcomed: Adam Young (formerly of Regina).
10. Publicity: Ellen Dickson noted the following articles on Cypress Hills/IYA/SSSP:
 - in *Destination Saskatchewan*: pages 52-53 and highlighted section. (Rick will be correcting them for using the term "astrologists")
 - in *Wakeup Saskatchewan*: Cypress Hills article
11. Barb Wright noted that Connie Kaldor will be at the Children's Festival. Ellen Dickson suggested that we use this opportunity to present Connie with a copy of the GA presentation using her music.
12. Membership List: There are privacy issues re. circulating the list to the general membership. The subject was deferred to the next meeting.
13. Meeting adjourned at 8:52 pm.
14. "Galileo Gala" Presentations:
 - Galileo Live & In Person, by Kathleen Houston (assisted by Marael Houston)
 - DVD presented by Ron Waldron
 - DVD "Eyes on the Skies"

President's Message

by Barb Wright

The deadline for early registration to GA/SSSP 2009 is fast approaching. Be sure to get your name in before July 3 to take advantage of the early registration pricing. And you will want to be a part of the Friday night social as well, happening this year only.

Be sure to look at our Website <http://homepage.usask.ca/~ges125/rasc/starparty.html> for the jam-packed weekend plans (August 13-16). The Sunday tour to the Maple Creek Winery and Fort Walsh is likely to fill up fast, but don't be too disappointed if you don't get in, as we will very likely

organize a reprise of this feature next year. With everyone's help and participation, here's to a successful GA/SSSP!

We expect IYA activities to continue throughout the summer. Let's let people know we are here. One of the highlights of this year, our group art exhibit "Celebrating the Night Sky," will be up for the entire month of September at the Frances Morrison Library Gallery. Pick up the current issue of *Library News* at any Saskatoon Public Library branch for details (page 33). Have a great summer; see you in Cypress Hills.

Editor's Corner

by Christine Kulyk

As we head into summer, be sure to keep sending in your reports of observing projects and public astronomy events, whether it be an impromptu star party in your backyard or setting up your scope on a neighbourhood sidewalk. We're hoping to attract many new members to our group, such as Adam Young, currently residing in Saskatoon, who was welcomed to the Saskatoon Centre at our May meeting.

The people at Fairhaven School sent the following note to thank everyone who helped with the

Astronomy Night that was organized by Ron Waldron at the school on April 2:

"Thank you so much for giving of your time and your expertise at our Star Night at Fairhaven School. There is no doubt that the views you gave of the moon and Saturn was the icing on a very successful evening. Thanks also to Rick Huziak for trusting us and allowing us to hold his rock from space."

BOOKS FOR SALE

by Bruce Brandell, Sales Coordinator

NEW! Take a book for a "test drive" before buying:

Members may borrow a book for a month's trial period before deciding to buy. Just sign an IOU, then take a book home for a closer look, pay for it or return it at the next meeting.

Look for these featured titles available for purchase at an upcoming meeting:

CELESTIAL SAMPLER

by Sue French (2005) ----- \$26.00

An in-depth month-by-month sampling of the stars and constellations, with valuable tips on observing techniques followed by 12 very clear monthly sky charts showing constellations, asterisms, clusters, and

nebulae. For example, on pages 126-7, you are led from Albireo (head of the Swan), through Anser (in Vulpecula) to the Coathanger (Brocchi's Cluster), which I readily found with 10x50 binoculars last summer.

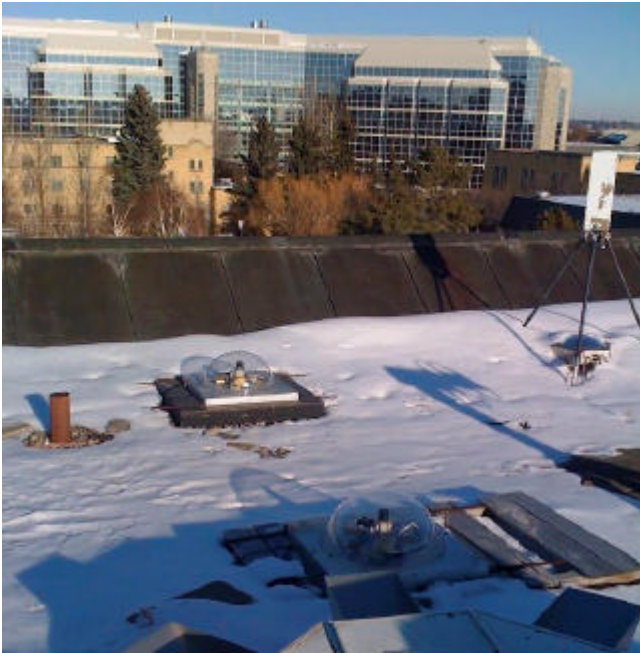
ATLAS OF THE CONSTELLATIONS

by Giles Sparrow (2007)-----\$15.00

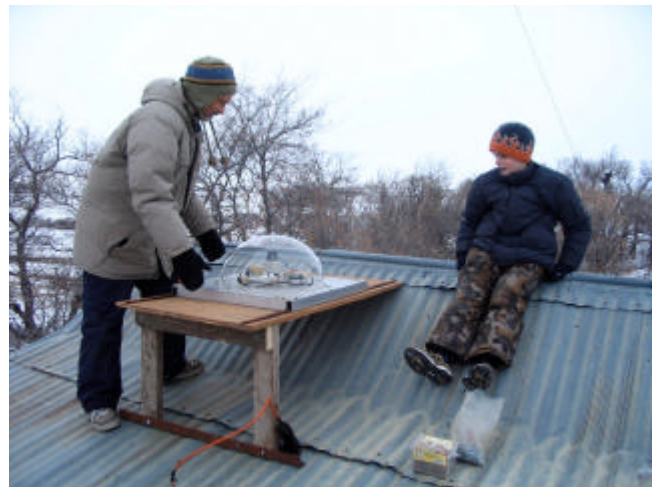
Charts and diagrams of all 88 constellations, with brief descriptions of the main features of each, including clusters, galaxies, parts of the Milky Way, and nebulae. Features detailed maps of six selected parts of the celestial sphere: the North and South poles, the Square of Pegasus, Orion, Ursa Major, and the Milky Way.

Fireball All-Sky Meteor Camera

by Tenho Tuomi



Gordon Sarty has been operating all-sky fireball cameras from the roof of the Physics building on the University of Saskatchewan campus in Saskatoon. One of his cameras captured the Buzzard Coulee Fireball of November 21, 2008. Read more about his cameras on his web page <http://homepage.usask.ca/~ges125/fireball/index.html>



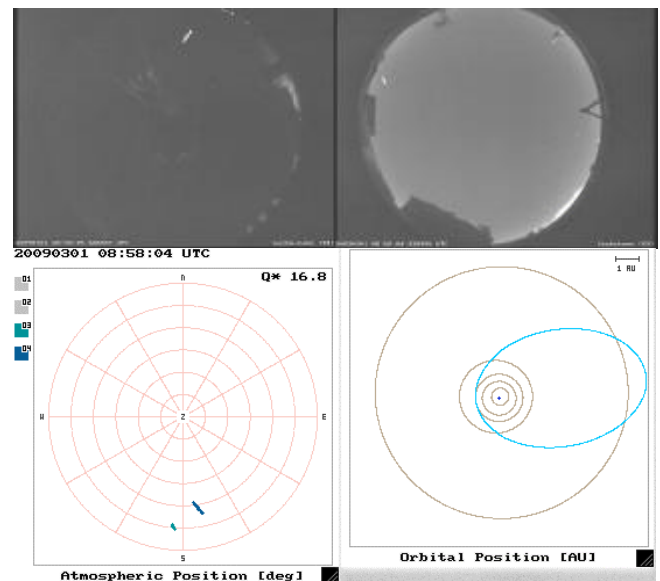
On February 16 Gordon Sarty moved one of his all-sky fireball cameras to the roof of our house to work together with his camera in Saskatoon to track bright meteors. Gordon's son Dominic is supervising his father's work.



Gordon's computer went into my basement to join the magnetometers, weather monitors and amateur radio equipment. It took a couple of days of work afterwards to get all the internet connections working.

On March 1 Gordon reported the first simultaneous detection from the two cameras.

Using software written by Rob Weryk who works with Peter Brown at the University of Western Ontario, <http://aquarid.physics.uwo.ca/~weryk/asgard/> orbits are automatically calculated for all meteors that are detected by both cameras.



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On cloudy nights, Jeff Swick uses photos taken at Sleaford to practise his star-hopping skills

Photo by JeffSwick

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The Planets This Month, June-August 2009

by Murray D. Paulson, RASC Edmonton Centre

June sees **Mercury** coming up to greatest western elongation (June 13). Mercury will shine at magnitude 0.6 and show an 8", 38% illuminated disk. As one of the quirks of Mercury's elliptical orbit, it will be just five days later when it will expand to a 50% illuminated disk. Dichotomy and greatest elongation vary quite widely for this busy planet. After June 18, Mercury starts its fall back to the Sun. On July 13, Mercury will pass behind the Sun in superior conjunction. Mercury will have a spectacular 27.4-degree evening elongation in August, and it sidles up with Saturn for a week around July 17. The two will be closer than 5 degrees from July 14 to 20. The greatest eastern elongation is on August 24.

Venus has climbed up so high in the morning sky in a relatively short time since April 1, and it has just past its greatest western elongation on June 5. I have seen these nice coincidences of Mercury and Venus arriving at a greatest elongation or superior conjunction at about the same time. It is kind of cool. It will make for a pleasant daytime chase to see if you can find both of them. Venus shines at magnitude -4.3 and will show a 24" half-disk in the eyepiece. Over the summer, it will slowly start its return to the Sun, moving down to an elongation of 32 degrees by summer's end. Venus will also shrink over this time, but will still pose a fat gibbous disk in the eyepiece for the diehard late nighters at summer star parties.

The beginning of June will see **Mars** lost in the perpetual morning twilight. It shines at magnitude 1.1 and will show you a 4.7" disk in the eyepiece. Mars lies in Aries and will slide across the sky over the summer till it lies in Taurus during the summer star parties. Now it is easily visible, competing with Aldebaran for reddest star in the sky. It now shines at magnitude 1.0, and the disk has swollen to a whole 5.5". It is high in the sky, so you may see some details on it while you are there. If the seeing is great, just crank up the power, and it will reward you with a view of the polar cap and some of the major features. The Moon passes 2.2 degrees above Mars on August 15, but we only get to see it on August 16 at 1:00 am, when it rises with the Moon 4 degrees east of it.

Jupiter is starting its comeback, and now resides in eastern Capricorn. It rises at the convenient time of 1:30 am, so it is a morning object. It shines at

magnitude -2.4, and in the eyepiece, it will show you a 42.6" disk. Over the month of June, Jupiter and Neptune sit within a degree of each other. The month starts off with them 36' apart, they move out to 50', then by early July, they are back to 35' again. Quite the dance. You can see the pair of them in a medium-power eyepiece field. Early July sees Jupiter expand to 46.5", and it will shine at magnitude -2.7. Compare this to Neptune at magnitude 7.8 with its 2.3" disk! Jupiter comes to opposition on August 14, just in time for the summer star parties. It will show a whopping 48.9" disk and shine at magnitude -2.8. It really will be the showpiece of the star parties!

Saturn is sinking fast into the summer twilight and toward the Sun. At the beginning of June, Saturn shines at magnitude 0.9 and shows a 17.8" disk in the eyepiece. Over the month, it will fade slightly to magnitude 1.0, and the disk will shrink to 16.9". Later in the summer, remember the good conjunction with Mercury in August's evening skies from August 14 to 20! We also get a last series of Titan transits in July (see table below).

Uranus hides in the morning twilight just below the circlet of Pisces. It really won't be visible till August, when it gets into the evening skies and the summer twilight abates. Uranus will be prominently placed for the summer star parties. In August, Uranus rises at 10:00 pm and shines at magnitude 5.7. It will show a 3.7" blue-green disk in the eyepiece. Once again, get a finder chart before the summer star parties to look for Uranus's brighter moons. Titania is as bright as Pluto (mag 13.9), with Ariel at 14.3 and Umbriel at a challenging magnitude 15. Good luck!

June sees the dance between **Neptune** and Jupiter, but they are poorly placed for easy viewing, with the perpetual twilight and the early morning hours. Wait a month or so, and much changes. Neptune comes to opposition on August 17, when it will shine at magnitude 7.8 and the disk will subtend 2.35". Tiny, but unmistakably green. Neptune's moon Triton is an easy target at magnitude 13.4, so do go for it at the star parties.

Pluto comes to opposition on June 22, around the time of the longest day and the deepest twilight. No, it won't be on anyone's observing list till August, when

it will be “well” placed for observing (ahem!). Pluto is situated 2 degrees northeast of M23, not quite in the thick of the Milky Way. Take your finder charts to the star parties and see if you can do the Pluto challenge.

When Pluto was higher, it was reasonably easy in an 8” scope, but now with it in the bottom of the ecliptic, it is much more challenging. Till September skies, good luck, and good hunting.

Titan Events (Eclipses & Shadow Transits):

Ec=Eclipse (D=Disappearance; R=Reappearance)

ShI=Shadow Ingress; ShE=Shadow Egress

Date	Event	UT	CST	Local Date
8-Jun	EcD	5:39	23:39	Jun 7
8-Jun	EcR	11:31	5:31	
16-Jun	ShI	3:40	21:40	Jun 15
16-Jun	ShE	9:18	3:18	
24-Jun	EcD	4:50	22:50	Jun 23
24-Jun	EcR	10:53	4:53	
2-Jul	ShI	2:49	20:49	Jul 1
2-Jul	ShE	8:35	2:35	
10-Jul	EcD	4:03	22:03	Jul 9

Date	Event	UT	CST	Local Date
10-Jul	EcR	10:13	4:13	
18-Jul	ShI	2:00	20:00	July 17
18-Jul	ShE	7:50	1:50	
3-Aug	ShI	1:12	19:12	Aug 2
3-Aug	TrE	2:55	20:55	Aug 2
3-Aug	ShE	7:03	1:03	
10-Aug	OcD	23:36	17:36	
11-Aug	EcR	8:46	2:46	
18-Aug	TrI	22:07	16:07	
19-Aug	ShI	0:25	18:25	Aug 18
19-Aug	TrE	3:43	21:43	Aug 18
19-Aug	ShE	6:15	0:15	Aug 19

Observers Group Notes

by Larry Scott



A short story about a lunatic: On April 24, the weather was mostly cloudy, with persistent snow flurries during the day. The Clear Sky Clock boldly predicted clear, steady, transparent skies after 20:30.

Good enough for me! Leaving the city around 19:30, the skies had cleared and the Sun was shining. As I drove east to Sleaford, I could see a dark cloud ahead, but assumed that the skies would clear as the storm tracked northeastward. Halfway there, the snow began to fall in earnest. Soon, the approaching cars could be seen crawling towards me with their four-way flashers on. In about 10 kilometres, I saw several crashes, 2 police cars, 3 fire trucks, and 2 rollovers. Arriving at Sleaford, the visibility was about 10 feet at 20:35; and 10 minutes later, I could see clear sky overhead. The skies, as

predicted, were phenomenal for about one and a half hours. At 23:00, the temperature dropped and a very heavy fog rolled in. After a wait in the shelter, the skies cleared again for an hour till 02:00, when it socked in again. Well worth the trip for two and half hours of exceptional skies.

Observers Group was held, as scheduled, on May 15, under variable skies. Although the skies were average, the roads were in much better shape than last time. Also got out on May 22 and 23 (that’s right, two nights in a row), with good turnouts on both nights. We had good skies, moderate temperatures, no snow, and no bugs. Very good, indeed.

Next scheduled Observers Group is June 26, which is right at the end of moonless skies in June. I won’t say dark skies, as there really aren’t any in June.

The Messier, H-400 & H-400-II, FNGC, Binoc & EtU Club

Join the Club! Observe all 110 Messier, 110 Finest NGC, 400 Herschel I or II, 135 Lunar, or 35 Binocular objects, or Explore the Universe and earn great OBSERVING CERTIFICATES!

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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

Ken Maher	Done!	110
Norma Jensen		108
Ron Waldron		105
Kathleen Houston		89
Margo Millar		77
Wade Selvig		75
Garry Stone		57
Ellen Dickson		32
Jeff Swick		24
Barb Wright		23
Bruce Brandell		5

FINEST NGC CLUB

Certified at 110 Objects:

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

Larry Scott	Done!	110
Scott Alexander		97
Sandy Ferguson		23
George Charpentier		13
Ken Maher		10
Mike Clancy		7

Chatfield BINOCULAR CERTIFICATE

Certified at 35 to 40 Objects:

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

Isabel Williamson Lunar Observing Certificate

Norma Jensen	50
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EXPLORE the UNIVERSE

Certified for Certificate:

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

Sharon Dice	23
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HERSCHEL 400 CLUB

Certified at 400 Objects:

D. Jeffrey, R. Huziak, D. Chatfield

Tenho Tuomi	398
Gordon Sarty	251
Scott Alexander	117
Sandy Ferguson	18

HERSCHEL 400-II CLUB

Darrell Chatfield	315
Rick Huziak	211

The Messier & Finest NGC lists can be found in the *Observer's Handbook*.

The Explore the Universe list is available on the National website.

The Binocular List will be available at each general meeting or can be mailed out on request to distant members.

On-line Messier and Finest NGC lists, charts and logbooks – check out:

<http://www.rasc.ca/observing>

On-line Herschel 400 List – check out the official site at:

<http://www.astroloague.org/al/obsclubs/herschel/hers400.html>

Copies of the Isabel Williamson Lunar Observing Program Guide can be purchased from Bruce Brandell.

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



Sky Buys and Mirror Cells

The Saskatoon Centre's Swap and Sale Page

FOR SALE: 12.5" split-tube Dobsonian. Too heavy for girl astronomer to move in and out of car. Purchased six months ago. I am located in Saskatoon. Available immediately, or will deliver to Summer Star Party August 13-16 in Cypress Hills, Saskatchewan. \$1,500 Canadian. Shipping not included. Contact Norma: norj@sasktel.net



FOR SALE: 5" Astroscan telescope. Red exterior. Good condition.

8" Celestron Celestar Deluxe S/C telescope. Includes many extras and upgraded items, such as finder, W/O diagonal, Feather-touch focuser, Telrad, Bob's Knobs, Dry Eye dew heater system, padded main scope case, and tripod bag. This scope has great optics, as attested to by a former Celestron employee at a previous SSSP. This scope has seen me through 3 certificates, and will track for hours on end. If you want a great scope, then please consider this one. Over \$3,300 invested. Asking \$1,700. Will consider offers. Please contact Darrell (306-374-9278; novachat@sasktel.net)