Winnicentrics

Newsletter of the RASC Winnipeg Centre

November/December 2023

Winnicentrics is the newsletter of the Royal Astronomical Society of Canada—Winnipeg Centre, Incorporated and is published six times a year. Any opinions expressed are those of the authour(s).

Submissions or comments can be sent via email to: newsletter@winnipeg.rasc.ca.

Centre at a Glance:

Friday, Nov. 10—Monthly Meeting

Beginner's Session: Scott Young, "Backyard Science: Meteor Showers"

Featured Speaker: Richard Konrad, "Remote Imaging"

Saturday, Nov. 11—Members' Observing Night

Members event at Glenlea (weather permitting) 7pm
Host: Scott Young

Friday, Dec. 8—Monthly Meeting

Beginner's Session: gAIL Wise, "Caprine and the Ovine"

Featured Speaker: Ron Brecher, 'Astrophotography"

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Host: Stan Runge

Where is the Edge of an Eclipse?

by Jay Anderson

If you aren't tied into viewing solar eclipses in a big way, you probably haven't considered just where the edge of the eclipse lies. For some people, that's an important question because they want to observe right at the edge where certain phenomena become more visible. There is also a small controversy on whether or not the current accepted value for the diameter of the Sun is correct or needs a small correction in order to make it agree with predictions of photospheric beads during the stages of an eclipse when the Moon's limb is tangent to the solar limb.

Let's go back a bit.

Simple calculations of the circumstances of an eclipse—when it starts, ends, how long it lasts, and where it is—use a round, smooth shape of the Moon in the predictions. These work pretty well but they're not quite precise. The Moon's limb isn't smooth, but possesses mountains and valleys that interrupt the transition from partial to central eclipse (i.e. to either a total or annular eclipse). The irregularities on the Moon's limb are the cause of Baily's Beads (see Fig. 1), an interrupted arc of solar photosphere at the last instant before 2nd contact (the point at which an eclipse transitions from partial to central) and the first moment of 3rd contact. The last and first visible beads are responsible for the well-known diamond rings of an eclipse.

Fig. 1—An image of photospheric beads, also known as "Bailey's beads" during the 2023 annular eclipse.
(Image: Judy Anderson)

Several satellites that have been in lunar orbit for a number of decades have mapped the topography of the lunar surface to the extent that the beads can be predicted pretty closely. The same topography can be used to predict the ins and outs of the visibility of a star as it passes behind the Moon in a grazing occultation and in fact, grazing occultations were used to determine the edge shape of the Moon before the satellites went into orbit.

Modern calculations of the circumstances of the eclipse take the shape of the lunar limb into account and so, on a web site such as that constructed by Xavier Jubier) http://xjubier.free.fr/en/site_pages/SolarEclipsesGoogleMaps.html), you will find

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The President's Corner

by Dennis Lyons, Winnipeg Centre President

Good evening, everyone,

Well, the cooler weather has finally arrived. However, that also usually means some nice skies. It was nice this past month to spend some time with other RASCals at Glenlea looking for meteors. The night was clear, and the fellowship was great. Saw at least one good burner early on. Council is planning to have more of these short notice events at Glenlea when appropriate. While these events are based on something neat in the sky, they also depend on the sky cooperating. Good news though, Council and the Observatory Committee are committed to having members night every month. Even with overcast skies. The hope is to show members the benefits of Glenlea and if weather is not kind to just have another opportunity to get together to see how everyone is doing. Who knows, maybe the next great scientific discovery will have its roots at one of these nights.

A special thank you to Gerry and Silvia as they work with the Nature Conservancy of Canada on a new Dark Sky Preserve in Southern Manitoba.

Just a reminder that the Observatory committee is working on the following questions and would love your input. Why does the Centre have observing resources?" With the follow on "What should our resources look like?" Got thoughts on this? Please contact and share them with the Observatory Committee or a Council member.

Finally, we have our telescopes for kids' program coming up in December and just want to plant the seed in case you have an appropriate telescope to donate or perhaps some cash to purchase lenses for the scopes. Want to help? Let us know.

Clear Skies and Keep Warm

Dennis Lyons

Centre News

⇒ Council recently approved the expenditure of $600 to replace the LX200's fork mount at the Glenlea Observatory with a modern GPS-equipped one. The mount is scheduled to be installed in November, and will greatly simplify the set-up and use of the Centre's observatory.

⇒ **Telescopes for Kids** is on again! We are collecting donations to provide a number of young people with their first telescope. You can donate to our GoFundMe at https://gofund.me/20f35610, or contact Scott Young at vc.scott.young@gmail.com with donations of gently-used telescopes and accessories. The program is open to anyone in Manitoba under the age of 18 who does not already have a telescope. To be considered for a telescope, just send us a story, video, or other medium telling us why you want a telescope and what you would do with it.

Regular Meeting Agendas

Regular meetings are usually held on the **second Friday of each month** in the Robert B. Schultz Lecture Theatre in St. John's College, 92 Dysart Road, on the University of Manitoba's Fort Garry Campus. To find the Theatre, enter through the front door and go down the stairs to the left, then turn right and go down the hall until you reach the large open area with tables. The Schultz Theatre is on the right.

Regular meetings are "hybrid" meetings, with both in-person and online participation available. Members receive a meeting invitation with the Zoom link from the "rasc-main" forum on Groups.IO. The meetings are also live-streamed and archived on the Centre's YouTube channel at RASC Winnipeg.

After the meeting's conclusion, members are invited to retire to Boston Pizza on Pembina Highway south of Bison Drive for an informal social gathering. (This portion of the meeting is not available online or live-streamed.)

Friday, Nov. 10, 2023—Regular Meeting

7:00 p.m. Beginner's Session - Scott Young, "Backyard Science: Meteor Showers"

7:30 p.m. Main Meeting

- Dennis Lyons, Welcome & Announcements
- Bryan Stach—"What's Up?"
- Dr. Michelle Boyce—"What's New"
- **Main Speaker:** Centre member and astrophotographer Richard Konrad, "Remote Imaging"

Friday, Dec. 8, 2023—Regular Meeting

7:00 p.m. Beginner's Session - gAIL Wise

7:30 p.m. Main Meeting

- Dennis Lyons, Welcome & Announcements
- Bryan Stach—"What's Up?"
- Dr. Danielle Pahaud—"What's New"
- **Main Speaker:** astrophotographer Ron Brecher will discuss his experiences imaging the sky

Other Events—November & December 023

Saturday, Nov. 11: Members' Observing Night at Glenlea

Monthly observing night for members. Come use the Centre's Meade 12" LX200 go-to telescope in the dome or one of the loaner telescopes on the observing pad, or bring your own. If the sky is cloudy, the event will run but will focus on training to use the facility. Tonight's MON Host is Scott Young, and the theme will be "planetary imaging with pencil or pixel".

Thursday, Nov. 16: Oak Hammock Marsh Astronomy Night

November's theme is "Sketching the Sky". An indoor presentation will be followed by an outdoor observation session from the rooftop, including a guided tour of the night sky, weather permitting. Admission is $6 for Oak Hammock members and $12 for non-members. Details at OHM's website.

Wednesday, Nov. 29: Lockhart Planetarium Open House

The University of Manitoba's planetarium hosts an open house at 7:00 p.m. The event is free but tickets should be reserved due to limited seating. Check the Lockhart Planetarium's website for details.

Saturday, Dec. 9: Members' Observing Night at Glenlea

Monthly observing night for members. Come use the Centre's Meade 12" LX200 go-to telescope in the dome or one of the loaner telescopes on the observing pad, or bring your own. If the sky is cloudy, the event will run but will focus on training to use the facility. Host: Stan Runge.

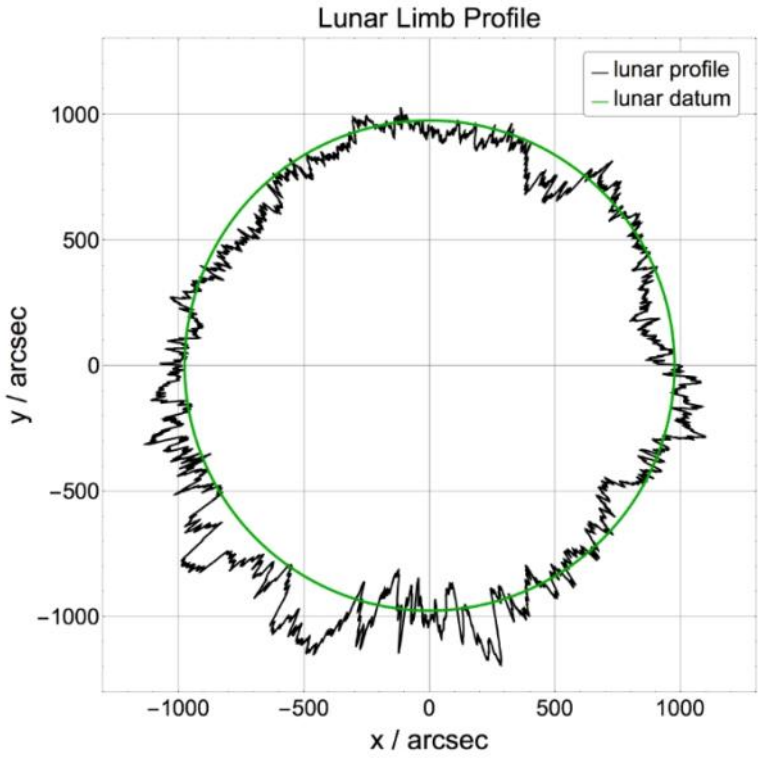


Fig. 2—Lunar limb profile as seen from south of Vale during the 2017 August 21st total solar eclipse. The departure of the limb from the lunar datum is magnified 100 times, high-lighting the details of mountains and valleys. Graphic: John Irwin

(continued from page 1) two predictions of the duration of an eclipse, one labelled "total eclipse" and the other "lunar limb corrected." They usually disagree by a few seconds though if the limb is unusually rough, it can increase to more than 30 seconds, with the corrected duration less than the smooth-limb value. The limb profile of the Moon can also shift the point of longest eclipse away from the centre line, moving it north or south by a kilometer or thereabouts.

Baily's beads, by their pattern of appearance and disappearance, offer a very fine measurement of the lunar limb profile, and, knowing the profile and the diameter of the Sun, very accurate predictions of the beads can be prepared ahead of the eclipse. The problem that arises is that the predictions don't quite measure up to what is actually seen unless a small increase in the official size of the Sun—959.63 arc seconds—is postulated. That correction is of the order of 0.25 arc seconds.

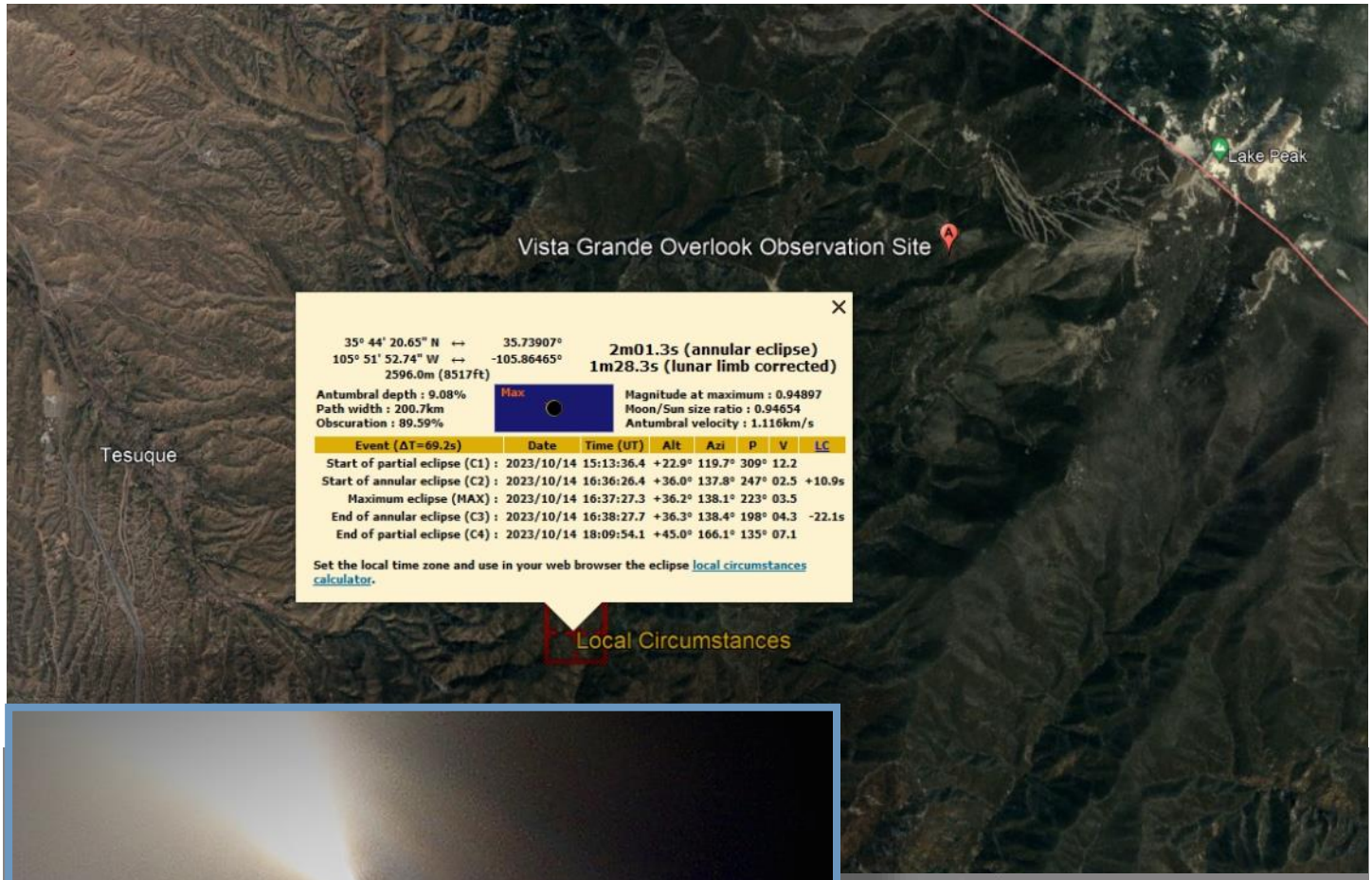
There has been considerable debate on the Solar Eclipse Message List (SEML) about just what is being measured when the beads are being used to determine a revised radius. The Sun has a different size according to the wavelength in which it is observed and so the official value given above may be perfectly adequate as every camera and filter combination (or no filter) may not be "seeing" the same wavelengths as that used to determine the standard diameter. The consensus seems to have come around that a larger diameter is needed to accurately predict the beads, but that larger value's relationship to the true diameter of the Sun is uncertain.

Judy and I undertook to help the effort to determine the solar diameter during the annular eclipse on October 14 by recording the beads from a precisely known location along with an accurate time stamp superimposed on the video. To do this, we used a vintage Celestron Nexstar 5" telescope and a Canon 80D camera while a shortwave radio played the WWV time signal on the sound track. The video was taken through a standard Celestron solar filter. Our location was chosen to be at the northern edge of annularity at 10,285 feet at the Vista Grande Overlook outside of Santa Fe, New Mexico

Central eclipses have a "graze" zone next to the edge, but that zone is several kilometres wide and there is always a question about how deep you want to go into it for the "best" beads. In our case, it didn't matter much for the experiment, but the visual experience is a little more entertaining if there are lots of beads forming and dissipating. That was the main reason for going to the edge, as the beads linger over a much longer time as the Moon rolls along the solar limb; a more central location would show a short set of beads at 2nd and 3rd contact only.

While I supervised the video of the Sun, Judy took exposures of the Sun and beads through a 600-mm telephoto lens. These 600mm images have a higher resolution than the video, in part because they were unfiltered. Her photos also showed the chromosphere and a prominence on the limb of the Sun while that part of the solar disk was blocked by the Moon. Those photographs take careful preparation to avoid damaging eyes or the camera while pointed at the Sun.

Our location as determined from Xavier's Google Earth-based map, was 2.6 km inside the north limit of annularity according to a smooth-moon profile. During the eclipse, we did not see a complete circle of photosphere but instead a beaded annular eclipse. Subsequent calculation shows that we were 470 m short of a closed annulus at our location. The absence of a closed annulus sets an upper limit of 960.19 arc seconds to the solar radius. Another observer at a different site was closer to the annular limit and a solar diameter of <960.09" was derived for that location. *(more)*



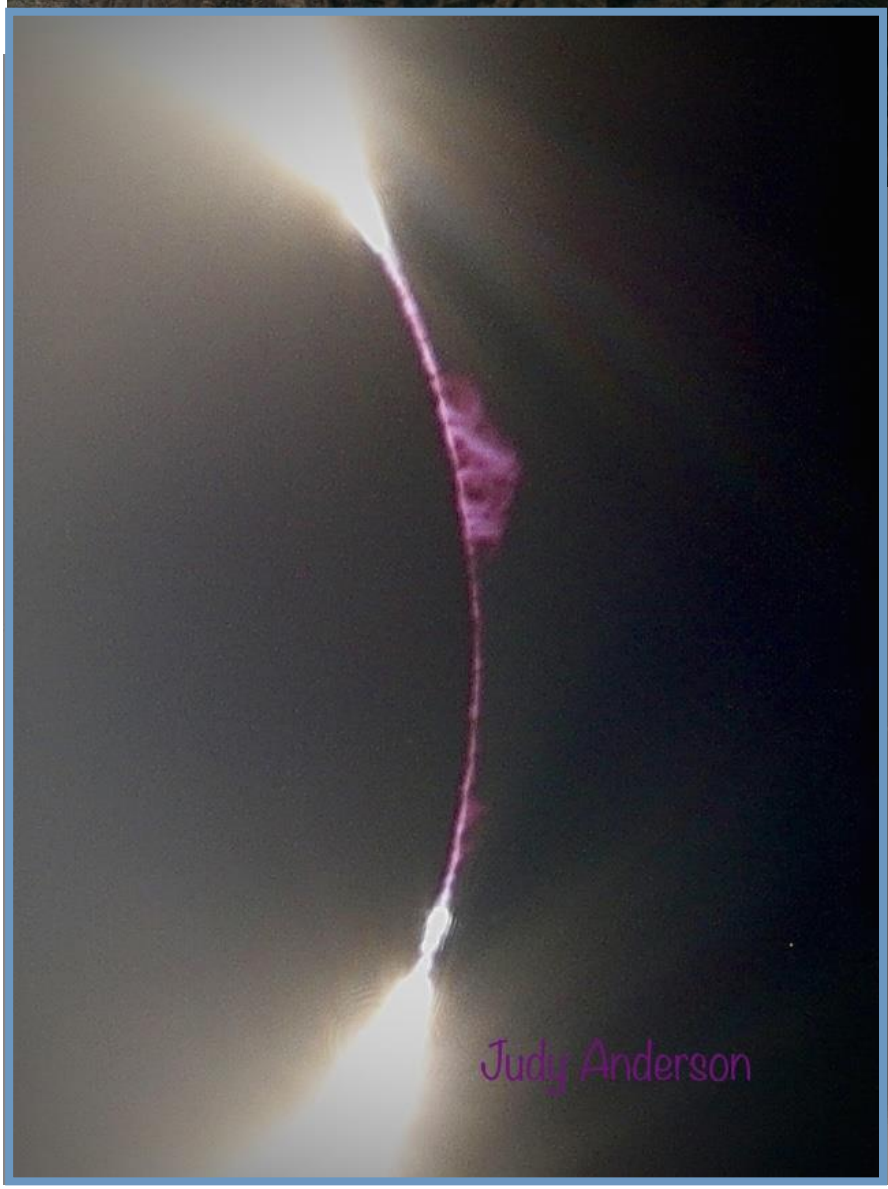


Fig. 3 (above)—The location of our observing site at the Vista Grande Overlook, the edge of the eclipse shadow (upper right), and a sample of the local circumstances showing the difference between the duration of the smooth limb eclipse duration and the limb-corrected duration.

(Image: Xavier Jubier)

Fig. 4 (left) - an image of the red chromosphere (the Sun's highest atmospheric layer) and a prominence.

(Image: Judy Anderson)

We, with others, are now able to provide one answer to the question of where to locate to see the best display of Baily's beads: within 3 km of the predicted edge of the smooth umbral shadow (total eclipses) or ant-umbral shadow (annular eclipses). This will change with every eclipse as it depends on the precise lunar profile at the time, but it's a good ballpark figure to start with if you want to try this yourself some day.

Further work needs to be done to better match the beads against the solar diameter, but we have some satisfaction in helping out with the solar diameter question, making the video, getting a spectacular set of photographs, and meeting up with a few eclipse-chasing friends. It was a fun eclipse.

Jay and Judy Anderson have traveled the world to stand in the Moon's shadow more than 30 times. A retired weather forecaster, Jay's website at eclipsophile.com is the world's premiere eclipse weather prediction site.

From the Edge, October 14, 2023

by Judy Anderson

I'd never observed an annular eclipse from the edge of the track, but I was expecting that a series of Baily's beads would complete the ring, filling in the gap in the narrowing, rolling arc between the horns of the Sun with a series of brilliant dots. I didn't try to predict how many beads, how long they'd last or how they might move around the circumference of the Moon's shadow over the Sun – that surprise would be the treat of the event!

We drove from Winnipeg through some wonderful scenery: volcanic-cone outcrops, pine forests, and high open plains, with some occasional stops for birding, cliff dwellings from ~1200 AD, and Pronghorn antelope. Along the way, we made the transition from Winnipeg's fall colours and bare trees to forests still in full leaf and green tints—in effect, back toward summer.

The trip was timed to have us arrive in Santa Fe in time for a pre-eclipse party at the home of Michael Zeiler (of map-making repute) and Polly Scott White (his partner), high on a hill overlooking the city. The hilltop is barely illuminated by street lamps, and even the city and suburbs are very dark. At the party, we met (or reconnected with) other solar eclipse chasers and friends of Polly and Michael, including Xavier Jubier (from France), Michael Bakich (contributing editor for *Astronomy Magazine*), Kris Delcourte (from Belgium), and Doug Wright (from NASA). The two Michaels had just published *An Atlas of Solar Eclipses*. Xavier missed the party, as he had a flight into Denver at 6 pm and a long drive with the two co-pilots to get to Santa Fe, but he was with us at the eclipse the next morning. Some guests had brought solar telescopes to the party, and they were set up for viewing as the Sun moved toward the evening horizon. Comparing different telescope views led us to an appreciation of the different qualities (and cost) of each instrument. While others were viewing, I developed my plan for the next day's eclipse photography; we had admired the scattering of sunspots (which are great help in focusing a camera) and a beautiful, large prominence on the solar limb. Later I wondered, as I ate my first-ever tamale with hot green chilis, guacamole, tacos, and pinto beans, whether I might be able to get a picture of that prominence during the eclipse.

Eclipse day

The next morning, we were on the road at sunrise, and travelled up the mountain we'd scouted the day before. The eclipse site was a viewpoint between a ski hill area toward the summit and an aspen-rich hiking area on the slopes. Twenty or so people from the party the night before set up various types of equipment, along with a few locals and people who'd driven in for the event from the surrounding area. There was even a faith group of some kind that met briefly (singing and praying) in the early morning sunshine but they departed well before eclipse maximum; I'm not even sure they ever even looked at the Sun. One vehicle even drove by during the maximum, obviously unaware of the unfolding spectacle. I guess we were the oddity, as they slowed briefly to look at us (one couple was wearing fuzzy rabbit ears while viewing from lawn chairs). They missed the whole thing! Go figure!

Our view of the eclipse event was much more exciting than I'd expected – it was so much more than rolling beads. There was a dynamic show of bright beads that started in the upper pole of the Sun quite a long time before maximum, and moved clockwise around the edge of the Sun toward the lower pole. I'd guestimate that the show lasted 10-15 minutes as my photos span almost that long an interval. Early pictures captured a long arc of chromosphere with a few beads near the horns of the Sun. Near maximum eclipse, when Jay was taking the video through a filtered telescope, there were brilliant beads strung close together on a thin connecting "thread" of crimson-red chromosphere. Decorating the chromosphere, two large prominences were visible, fortuitously located between the "horns" of the solar arc. *(continued on next page)*

Fig. 5—An image of the eclipse showing the outline of the Moon bulging beyond the horns of a waxing Sun.
(Image: Judy Anderson)

I did not use a solar filter, and so exposures were very fast (1/800-1/6400s) at ISO 100, f/22 using a 150-600mm Sigma lens on a Canon 80D) to show beautiful beads, chromosphere, and prominences. Judy was happy! I had specifically bracketed exposures across that range to capture the chromosphere and prominences, a practice that had worked well in previous eclipses.

At the party the night before, solar scopes showed a very large prominence in the southwest part of the Sun. I was hoping that the gap in the solar arc would fall right over that region, and I was as prepared as I could be, thanks to prior experience and some contemplation about what might happen, to capture an image of that prominence and some beads in the gap. The trick was to take the pictures with touch-screen triggering and the camera's live view, rather than using a direct view with 600mm magnification (my usual approach during total solar eclipses). The screen view was kept small so that I could see the histogram display and monitor the exposure. In that view, I could just make out the chromosphere in the camera's screen, so after ending the photography, I was tickled to see that the marvellous prominence and the beads had been recorded so nicely!

A curiosity

In an eclipse such as this (and in total solar eclipses), the face of the Moon is illuminated only by the full Earth and is pitch black in the short exposures that I used. However, in reviewing the images after maximum eclipse, I wondered why the Moon's circumference was visible where it had moved off the solar disk: the outline of the Moon is faintly illuminated by a thin line, arcing outward from a waxing crescent Sun. I also found it interesting that the whole Moon is visible for quite a long time after eclipse maximum (about 9 minutes, when I stopped taking pictures), as I thought it should disappear after it left the Sun. So, I continued taking pictures because I was curious about that persistent, visible profile outside of the circumference of the Sun.

In these full-sun images, the light scatter and diffraction spikes are strong even though I set the aperture at f/22 to reduce the glare of the exposed Sun. This image of the Moon's outline was exposed at 1/1600s when the crescent of the Sun was getting quite large (way too bright to look at by eye, without a filter). The outline is round outside the overexposed solar arc. While we had several thoughts about how this outline might originate – a glow from the solar corona, an internal reflection, or an artefact of something else – we decided that it is most likely the outline of the Moon visible against the much brighter sky. The dark Moon is easily seen on unprocessed, non-cropped images, as it was on the camera screen with live view during the eclipse.

Using indirect observation from the camera screen during the recent annular has opened a new set of ideas for photography at future total eclipses. I'm going try to continue photography at "chromosphere settings" well after totality, to see how well I can capture the prominences along the limb after totality. Success would depend on the relative sizes of the Moon and Sun, but it might be possible to see prominences and beads well after totality if the Moon is quite close to the Earth. (Note to me: this would occur when the track is wide, as in the upcoming 2024 total.) It's worth a try, for sure – this old dog is still learning new tricks! And Jay has done this visually at previous eclipses, following the chromosphere along the horns of the Sun in a telescope for nearly five minutes after 3rd contact.

As always, the people, present and in memory, added to our experience on a beautiful hillside of yellow-gold aspens at a 10 thousand foot elevation. The Sun and the Moon made a mighty nice light!

Jay and Judy Anderson have traveled the world to stand in the Moon's shadow more than 30 times. Professor Emerita of the University of Manitoba's Department of Biological Sciences, Judy serves as the Winnipeg Centre's Vice-President and coordinates the line-up of speakers for the Centre's regular meetings.

Centre Member Benefits

As a paid member in good standing of the RASC Winnipeg Centre, you receive a number of benefits from the local group in addition to any benefits that come from the national Society. These include:

Access to the **Glenlea Observatory**, which features a 12" Meade LX200 computer-controlled telescope under a dome, a 14.5" truss-tube Dobsonian reflector, and a warm room. There's also a concrete observing pad with power hook-ups to set up your own telescope. **Member observing nights** are held once a month (usually on the Saturday after the regular meeting), and members can use the observing pad and warm room any time. Once you've taken the training course you can also book the LX200 dome for your own use. (Booking the observatory can be done by sending an email to the Glenlea booking coordinator at observatory@winnipeg.rasc.ca.)

Telescope Lending Library: The Centre also has a number of portable telescopes that members can borrow on a first-come, first-served basis. The current inventory includes reflectors, refractors, and SCTs of various sizes, as well as some specialized gear such as a Coronado Personal Solar Telescope.

Online Forums: The Centre has a series of Forums on Groups.io, which all paid members are automatically subscribed to so they can receive announcements from the Centre. You can also sign up for other forums depending on your interest - go to Groups.io and sign in with the email address you used to sign up as a member.

Other local benefits such as attending **meetings** and **special events**, a **mentoring** program for beginners, this **newsletter**, **voting rights** at the Centre's Annual General Meeting (usually held in January each year), and **opportunity to serve** on the Centre Council – the group of folks who put together meetings and run the Centre!

Camp Copernicus

by Stan Runge

If you had asked me where I was when Apollo 11 astronauts first walked on the Moon in 1969, I would tell you that I was at a private Polish Boy Scout Camp. Unfortunately, I was not one of the hundreds of millions of people who watched the historic event live on television. The camp is located on the south shore of Big Whiteshell Lake, in Whiteshell Provincial Park. I was however aware of the historical event and would take a long walk daily to the nearest store to purchase the Winnipeg Free Press, so I could follow along their progress.

At that young age, Space and Astronomy were in my blood.

Four years later in 1973, I became a junior member of the Royal Astronomical Society of Canada – Winnipeg Centre.

That year also coincided with the 500th anniversary of the birth of Polish astronomer Nicholaus Copernicus (or as the Poles spell it - Mikolaja Kopernika).

Known as the Father of Modern Astronomy, Nicolaus Copernicus was born in Torun, Royal Prussia, Poland on February 19, 1473. He was an active mathematician, astronomer and a Catholic Canon. He was the first European scientist to propose the Heliocentric theory of the solar system. Using his mathematics skills, he formulated the model where the earth and other planets revolved around the Sun. This had opposed the accepted version at that time, that of them all revolving around the Earth.

So the Polish community in Winnipeg celebrated the year with some major events held at the Manitoba Planetarium. No less than twelve different Polish organizations participated . They paid for the installation of a Solar Telescope, which would project a live image of the Sun onto a screen in what is now the Science Gallery at the Manitoba Museum . Many of you might remember the Heliostat placed on the south end of the Museum building.

My family and I were proudly involved in the activities.

This year marked another 50 years since that event. There were no major events planned this time, however, the suggestion was made to rename the Polish Scout camp in honour of Nicholas Copernicus. So on June 12th, a dedication ceremony was held at the camp, and it was formally renamed Camp Copernicus. A plaque has been installed at the entrance to the camp.

Once again, I was in attendance of the event, and this time I provided two solar telescopes for people to view the sun in white light and H alpha. Fittingly, the images I have show some to the current Scout leaders viewing the Sun.

And the circle continues.

Stan Runge is a long-time member of the Winnipeg Centre, and has mentored generations of observers to get the most out of their equipment and themselves.

What's Up for November 2023

Planetary Highlights

November sees **Jupiter** at opposition on the 3rd, providing its largest face this year at nearly 50 arcseconds across, close to the limit of the human eye's resolution. It rises at sunset and is visible all night, finally setting in the west as the sun rises.

Saturn is at its highest shortly after sunset, but still low in the sky for much of the country. Although visible until after midnight, you'll want to catch Saturn and its rings as early in the evening as possible to minimize the poor seeing nearer the horizon.

Uranus reaches opposition on November 13th, its best and brightest for the year but still requiring at least binoculars for most observers to spot it as a faint "star".

Jupiter imaged with a Celestron 8" SCT and ZWO ASI678 colour camera. The moon Europa and its shadow are in transit. *(Image: Scott Young)*

In the morning sky, **Venus** rises about 3 hours before the sun and stands high in the east in the pre- dawn sky. **Mercury** has moved into the evening sky but the angle of the ecliptic at this time of year keeps it too low to be easily spotted. **Mars** passes around the far side of the Sun on November 17th and so is invisible from Earth.

The Moon passes several planets this month:

- November 9 (morning sky): the waning crescent Moon is about 1 degree away from Venus in the morning sky (closer in the eastern part of the country), a spectacular alignment worth getting up for.
- November 14 (evening sky): the thin crescent Moon is near Mercury, but the pair will be too lo to observe from Canada.
- November 24-25: The waxing gibbous Moon is near Jupiter tonight.

Other Events

The annual **Leonid meteor shower** peaks on the night of November 17-18, with a predicted rate of about 10-15 meteors per hour (under a dark sky) in the pre-dawn hours of the 18th. The Moon is a thin crescent in the evening and so won't interfere with observation, making this a decent year for this famous shower. Unfortunately, no major outbursts are predicted for this year, which can cause rates of several thousand per hour. A potential minor outburst may occur near 12h Universal Time on November 21st, consisting of 10-15 bright meteors per hour. This timing is well-placed for North American observers and is worth monitoring. For details on how to turn your meteor watching into scientifically useful data, visit the International Meteor Organization's page at https://www.imo.net/observations/methods/visual-observation/.

What's Up for December 2023

December provides early sunsets and long winter nights for observing, provided the observer and their gear are prepared for the cold temperatures. This month we have the best meteor shower of the year as well as the return of the winter constellations to early evening prominence.

Planetary Highlights

Saturn is low in the south as darkness falls and sets into the southwest by mid-evening. Its low altitude will make clear telescopic views of the rings a challenge from Canada. Snowbirds will have a better view as Saturn will be higher in the sky from more southerly latitudes.

Jupiter is well up in the east-southeast as darkness falls and is high in the south by mid-evening, providing clear views for Canadian observers. Binoculars show several of its four largest moons, and a telescope will reveal cloud bands and structure in the gas giant planet's atmosphere.

Venus rises about 4 a.m. local time at the beginning of December. It stands about 20 degrees up in the southeast before dawn but rises later and loses altitude throughout the month. By the end of December is rises about 5:30 a.m. local time and only rises to half the height it did on Dec. 1.

Mercury begins to creep above the eastern horizon at dawn towards the end of the month but is more easily visible in the first week of January. Even so, Canadians north of 45 degrees latitude will have a tough time spotting the inner planet so close to the horizon in a dawn sky.

Mars is too close to the Sun to be visible in the morning sky this month.

The Moon passes near the planets and some bright stars as it orbits Earth. This month, the following events happen at convenient times for Canadian observers:

- Dec. 9 (morning): The waning crescent Moon is 4° to Venus' lower right.
- Dec. 17 (evening): The waxing crescent Moon is about 3° below Saturn.
- Dec. 21 (evening): The waxing gibbous Moon is far to Jupiter's right.
- Dec. 22 (evening): The waxing gibbous Moon is far to Jupiter's left.

Other Events

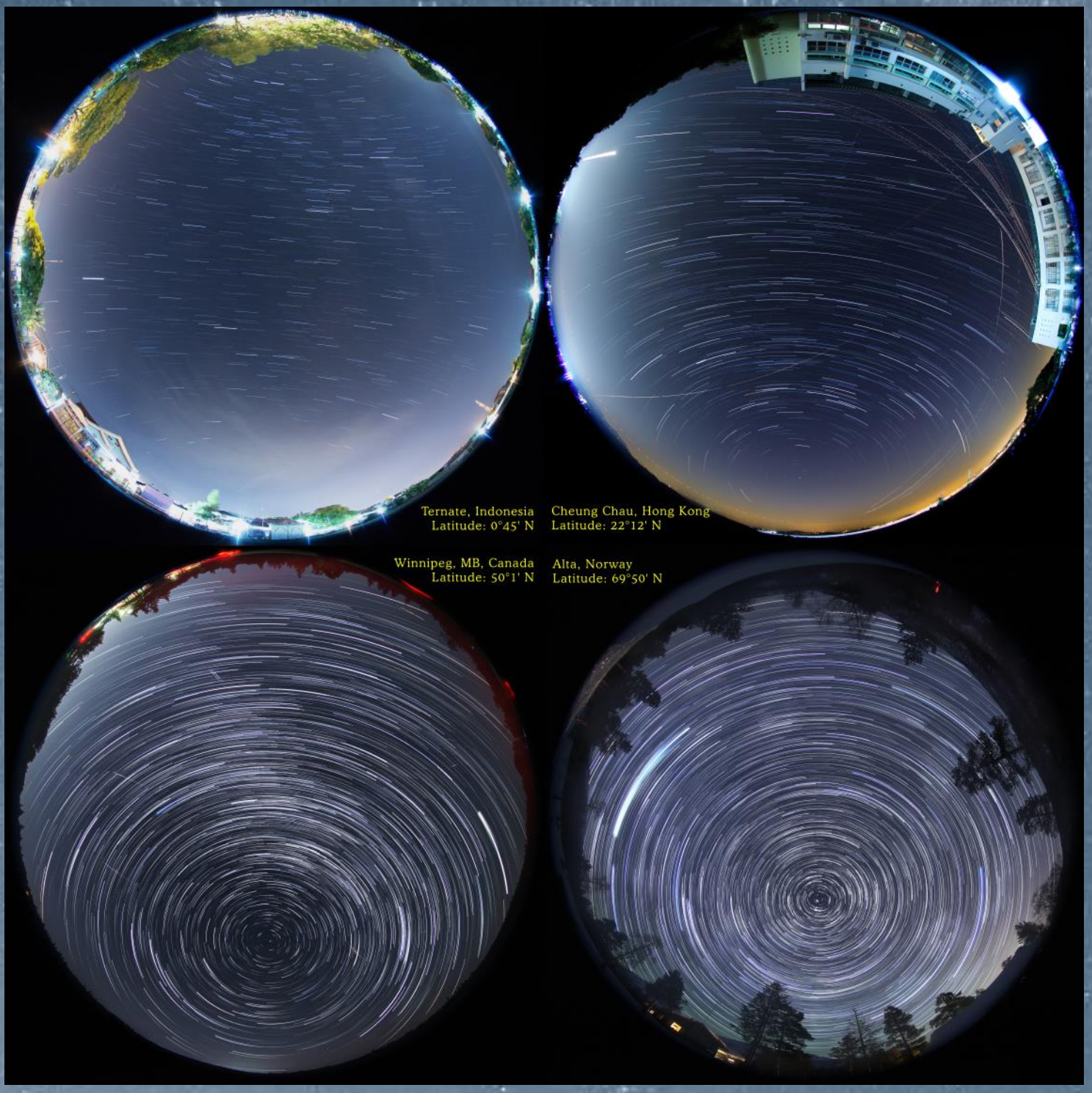
Dec 13-14: The annual Geminid meteor shower peaks overnight, with the nearly new Moon providing dark skies. With a theoretical rate of over a hundred meteors per hour for most of Canada, this is the meteor shower to see. You'll want to get to dark rural skies and be well-prepared for a long night of winter observing. Pay particular attention to your vehicle if the temperatures are low, as being stuck in the middle of nowhere on a cold December night can be dangerous. For details on how to turn your meteor watching into scientifically useful data, visit the International Meteor Organization's page at https://www.imo.net/observations/methods/visual-observation/.

Members' Gallery

Marc Irvine captured this image of the Andromeda Galaxy at the 2023 Spruce Woods Star Party in September. He used a TV NP101 telescope on an EQG mount and a QHY268C colour camera.

Wing Kwong captured the Orion nebula, under bright city street lights (Bortle 6). The image is a stack of 74 10-second exposures. The image had no further colour adjustments other than background gradient removal using an AI algorithm in the beta version of GraXpert.

Members' Gallery (Continued)



Ivan Yuen's image demonstrates the variety of long-exposure star trails at four different latitudes.

Groups.IO: How to Use the Centre's Forums and E-Mail Lists

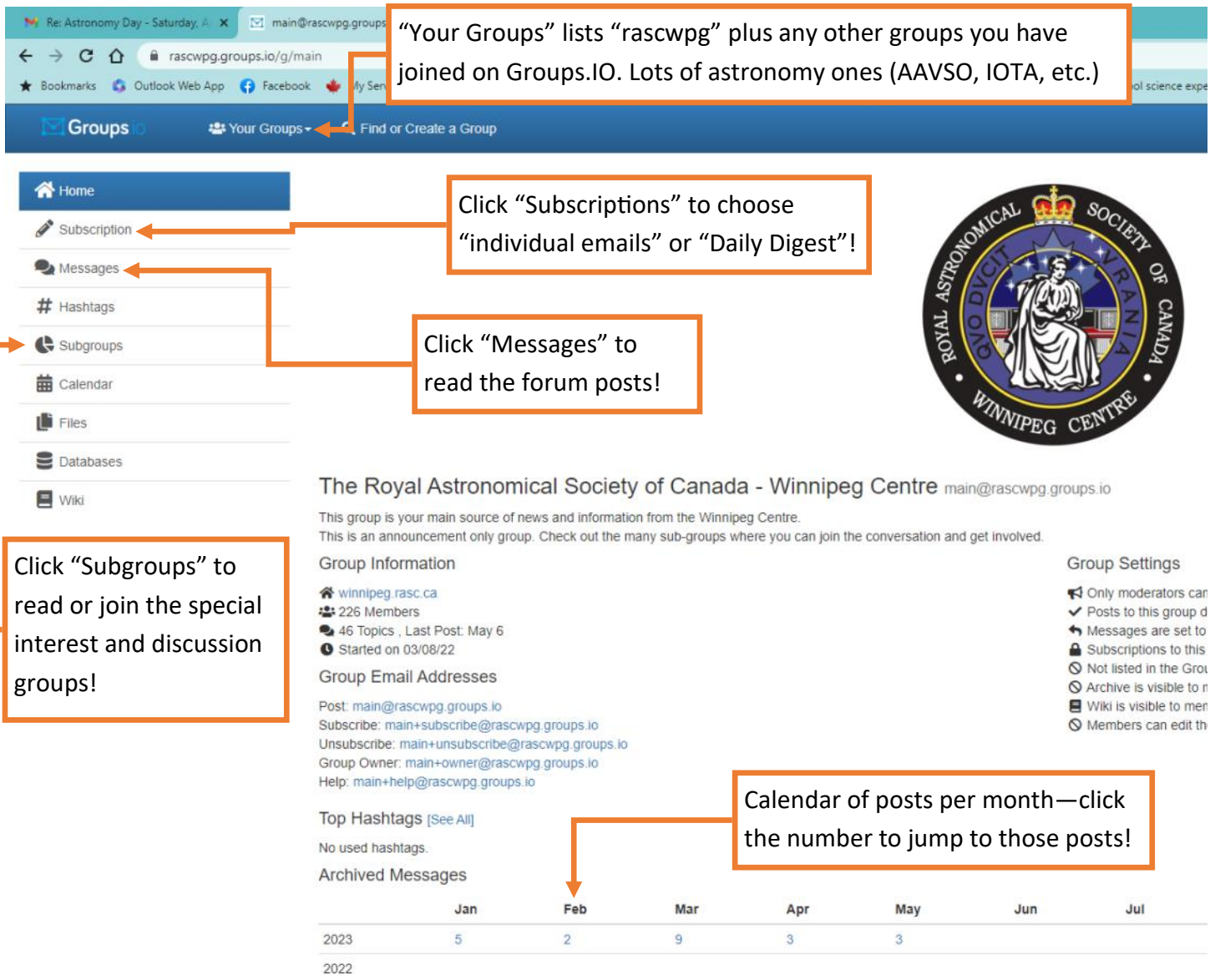
The Centre has moved to the Groups.IO platform for all of its forum and email services. This replaces the in-house forums and the old system of trying to mass-email all 200+ members. It really is a good system, both for the Council and for the users, but it is different and takes a bit of set-up.

If you've never used it before, it is very easy to access. Go to the website https://rascwpg.groups.io and click, "Forgot Password" when you are asked to log in. Enter the email that you used when you joined the Centre. You'll receive an email at that address telling you how to set up a password, and then you are good to go.

Once you've set up your password and logged in, you'll see a blue menu across the top of your screen. (See the next page for an annotated diagram.) If you click on "Your Groups", you will see that you are already subscribed to a group called "rascwpg.groups.io". This is the Centre's all-hands email, where we send meeting invitations, event news, and information we are required to send to all members (like calls for nominations for Board positions, news about the AGM, and so on).

When Council wants to send an email to everyone, they just make a post to this "main" group, and then everyone in the Centre gets an email. It helps prevent Centre mass emails from ending up in a spam folder or not getting through, and it also archives the email on the group where you can see it again. This "main" group can only be posted to by the Council Executive, and generates a few emails per month at most, so it shouldn't overwhelm most people with email.

(continued on page 11)



There's lots more than just the main announcement list, though. Click on "Subgroups" on the left-hand menu, and you'll be presented with a list of the various special interest forums attached to the rascwpg group. So far, there is a solar group, a sketching group, a binoculars group, a groups for posting astroimages,an armchair astronomy group, a buy & sell, an equipment discussion group, a solar system imaging group… you get the idea. If you are interested in a topic, click on that group and you'll be brought to that group's home page. You can click "join this group" here, and start getting the posts emailed to you, but you can also see how many messages have been posted in this group and even read them without joining. The calendar at the bottom shows how many posts were made each month, and by clicking on the number under a given month you will be shown the list of posts.

Some of the groups have a lot more discussion than others, though, and so you might not want 30 emails a day about a topic. Luckily, you can adjust the settings for each group. Go to the group you want to adjust, and click "Subscription" on the left-hand menu. This brings up the options for that group. You can elect to receive emails as individual messages as soon as they are posted—this is the best setting for the "rascwpg-main" group because it may contain timely information like a meeting change or observing session cancellation. For other groups where the information isn't time-sensitive, then "Daily Digest" is a good option—you'll only get one email a day from that group, containing all the posts that have been made that day. This prevents your email box from being flooded, but also sends you the content rather than you having to go look for it.

Every time someone posts to a group, every member of that group gets an email according to their personal settings. The emails are also archived, forming a valuable reference of the Centre's activities and discussions. There are some really good nuggets of wisdom in the forums already, and it would be a shame to lose them.

The key things to remember about Groups.IO:

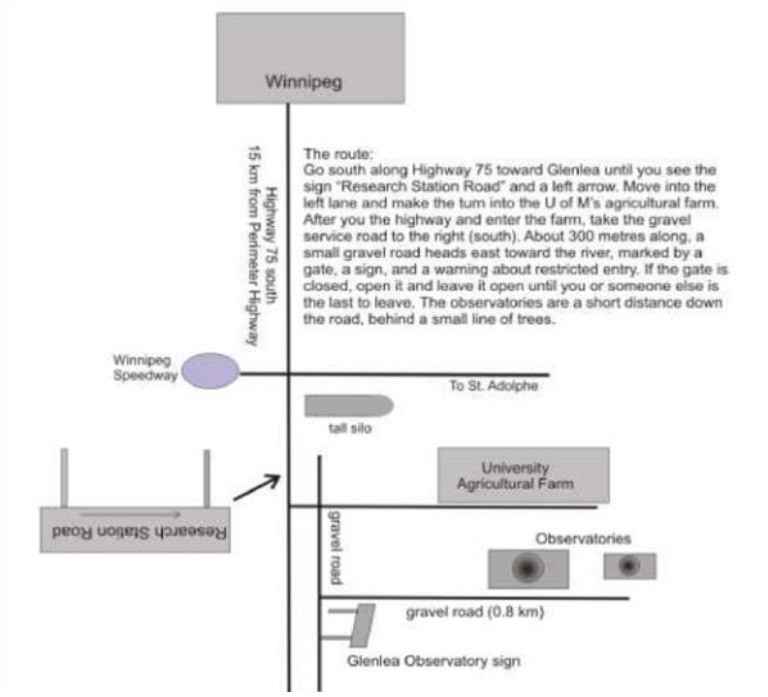
⇒ **if you unsubscribe from the "rascwpg-main" group, you will not receive Centre emails**—this is the only way they are sent out! Please don't do this, or you will not receive important information like noties of meetings, calls for elections, and other important stuff,

⇒ Most conversation happens in the "rascwpg-general" forum, which roughly duplicates the function of the old RASC email list. Other groups are more focused in their topic. If you're not sure where to post a specific question or idea, "general" is the place for it.

⇒ You have to set your email preferences for each group—if you want daily digests, you have to set that up in the group's home page.

If you'd like help getting set up on Groups.IO, email newsletter@winnipeg.rasc.ca and we'll figure out a way to walk you through it.

Glenlea Observatory

The Winnipeg Centre maintains a working observatory, pad, and warm room at the University of Manitoba's Research Farm. The observatory dome contains a 30cm (12") Meade LX200 telescope on a fork mounting. Members of the Centre who have taken the training course can reserve this telescope by emailing observatory@winnipeg.rasc.ca.

Etiquette requires that you approach the observing site with your headlights off if that's possible on your model of car. Headlights should remain off, but you can still use your parking lights to drive. Proceed slowly, and be careful about parked cars along the road, or people walking. If you cannot turn off your headlights, make a cardboard or garbage bag mask to dim the lights or, raise the parking brake lever one click-stop. This usually turns the headlights off on most, if not all, cars. You might wish to turn around at the end of the road so that you are facing the direction back toward the highway at the end of the evening.