Newsletter of the Royal Astronomical Society of Canada Winnipeg Centre March / April 2023

Winnicentrics

The Royal Astronomical Society of Canada - Winnipeg Centre

RASC Winnipeg Centre Monthly Meetings

Friday, Mar. 10, 2023
Friday, Apr. 14, 2023

Observing Nights

Saturday, Mar. 11, 2023
Saturday, Apr. 15, 2023

Partner Events

(These are events run by other organizations and may have admission fees or limited availability.)

Oak Hammock Marsh Astronomy Nights

Thursday, Mar. 16, 2023
(oakhammockmarsh.ca)

Lockhart Planetarium Open House

Wednesday, Mar. 29, 2023
Wednesday, Apr. 26, 2023
(umanitoba.ca/science/physics-and-astronomy)

Monthly meetings of the Winnipeg Centre are held in the Robert B. Schultz Lecture Theatre in St. John's College at the University of Manitoba, 92 Dysart Road. Free parking is available in the lot across the street. The theatre is on the lower (basement) floor of the College. Meetings are usually held on the second Friday of each month from 7 p.m. to 10 p.m. After the meetings, members who wish to do so usually retire for pizza and more conversation about astronomical subjects. The meetings moving forward will also be available via Zoom, Facebook, and Youtube.

Observing Nights are held at the Glenlea Observatory beginning at sunset or at 7:00 p.m. CST (whichever is later). They are open to members of the Centre only. Observing nights require clear skies and may be cancelled if the forecast is poor. Check the Centre's Facebook page or the email attached to your membership after 4 p.m. on the date of the event for a final decision if the weather looks cloudy.

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YouTube https://bit.ly/2FrcZJZ

https://bit.ly/3iSmFed

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Winnicentrics is published six times or more each year by the RASC Winnipeg Centre. *Winnicentrics* is produced by and for the members of the Winnipeg Centre.
Any opinions expressed are those of the author. Any questions or comments please email:
editor@winnipeg.rasc.ca
Or contact one of your Councillors above

Quick Notes

The **Glenlea Observatory LX200 / Dome is OPEN**! Please contact **observatory@winnipeg.rasc.ca** for current info, assistance, or to request training on the telescope and dome. Glenlea Warm Room and Pad are OPEN but please observe any Public Health requirements in effect. There is a portable toilet on site at present, pending repairs to the dome building.

Meetings are now hybrid virtual and in-person events at the Robert B. Schultz Lecture Theatre in St. John's College at the University of Manitoba Fort Garry campus. Those members attending virtually can do so by using Zoom – a link will be emailed the week of the meeting. The meeting will also be livestreamed to our Facebook and YouTube sites. If you are attending in-person, please ensure that you bring a mask and wear it when coming into the building. The University has a continuing mask mandate on campus described at https://umanitoba.ca/covid-19/health-safety. Boston Pizza after-meeting social events are in-person again.

Members Observing Nights are held the Saturday night after the Monthly meeting (weather permitting) at the observatory.

Visit our web site at:
www.winnipeg.rasc.ca

Visit our Facebook group at:
www.facebook.com/groups/rascwinnipeg

President's Corner

By Dennis Lyons, RASC Winnipeg Centre President

Hello everyone,

Slowly the weather is improving and based on the posts I have seen more and more of you are getting out under the stars. A quick update on things. The Incorporation of the Centre is now complete. Our official name is The RASC Winnipeg Centre Inc. The flood claim for Glenlea is moving forward and we hope to be submitting our actual expenses shortly. Council is continuing to work on firming up the administration on how the Centre runs and is hoping that there will be more Centre events in the future.

On a less positive note, the National Board of the RASC has run into some financial difficulties. Below is an update from the national President, Charles Ennis, explaining what has been done to date to address the shortfall. Please be assured that the Winnipeg Centre Council along with other Centres are working with National to find solutions to the immediate problem and a review to prevent this from happening again. If you have questions, you can contact myself and I will do my best to provide more detailed information.

Clear Skies,

Dennis Lyons,

RASC Winnipeg Centre President

"Good day to everyone. The Board of Directors of the Society is providing this update to the membership concerning decisions that have been made after consultation with the National Council and with the Centres through a poll that was conducted in the last two weeks, as well as changes to head office staff.

"First, SkyNews: As the membership knows, for many years SkyNews magazine has published by SkyNews Inc., which is an Ontario business corporation. Nine years ago, the RASC acquired SkyNews Inc. from its previous owners, and SkyNews Inc. thereupon became a wholly-owned subsidiary corporation of the RASC. SkyNews Inc. has its own board of directors, who are appointed by the RASC through the Society's Board of Directors. The SkyNews board makes all decisions concerning the business and affairs of SkyNews Inc.

"SkyNews has lost money in four of the nine years of the Society's ownership. Disregarding the one-time $60,000 COVID relief grant that SkyNews received in the 202-21 financial year (two-thirds of which has to be repaid this year), on average SkyNews has lost more than $10,000 per year during this nine-year period. The losses are increasing. The average loss in the last five years has been more than $25,000, and the loss for the current financial year, which ends on March 31, will be on the order of $50,000. These losses have to be financed by the shareholder, the RASC, which therefore effectively costs each member more than $10, and also endangers the RASC's charitable status. As is the case with so many periodicals in North America, the SkyNews subscriber base has diminished sharply, from about 20,000

nine years ago, to 6-7,000 today. Advertising revenue has also declined dramatically, to less than one-third of the level when the Society acquired SkyNews.

"As a result, SkyNews is no longer sustainable. After numerous meetings and discussions over the last few weeks, and consideration whether SkyNews could be saved in any form (including digital only), the Society's Finance Committee and Board of Directors therefore concluded that SkyNews Inc. should cease all operations, including publication of the magazine. A majority of the Centres who responded to the poll agreed. Last week, therefore, the board of directors of SkyNews Inc. passed a resolution implementing the RASC Board's recommendation, with the result that SkyNews will be shutting down.

"The SkyNews Inc. board will be meeting this coming week with legal counsel to start the shutdown process. The Editorial Board of the Society will be considering whether in future some of the content that has previously appeared in the SkyNews magazine can be incorporated into the RASC's other publications, such as the Journal.

"Second, the robotic telescope: The RASC board has also decided, again after consultation with the National Council and the Centres, to divest the Society of the robotic telescope, which is also a money-losing operations.

"Third, head office: One of the important areas in which the Society can reduce expenses is with the number of head office staff. Some staff have been let go, and two others have resigned. This included Executive Director Phil Groff, who has been with the RASC since the fall of 2019 and has now found a position that is more in line with his previous training and experience. We wish Phil all the best with his future endeavours. While the Board conducts a search for a new Executive director in the coming period, we are fortunate that former Executive Director Randy Atwood has agreed to step in as acting E.D. for the next few months. Randy has been a member of the Society since the 1970s, is a former President of the Society and an RASC Fellow and has detailed knowledge of the operations of both head office and the Society as a whole.

"The Board intends to communicate regularly with the membership about additional decisions that will be taken to place the Society on a more stable financial and operational footing.

"Clear Skies,

"Charles Ennis,

"National President, Royal Astronomical Society of Canada"

Did You Know…

There are active subgroups within the Centre? You can join the Binocular group, the Astro-sketching group, the solar observers' group, and other special interest groups on the Centre's forums. Sign in to groups.io with the email you registered your membership with (click on "forgot password" if it's your first time) and join in the conversations!

Editor's Message

By Scott Young, RASC Winnipeg Centre

As many folks know, our club is a chapter, or "Centre", of the Royal Astronomical Society of Canada, a national not-for-profit charitable organization. In past years this has provided our club with major benefits and economies of scale: publications like the *Observer's Handbook*, *RASC Journal*, *Observer's Calendar*, and other items which no single club could have produced. Our national presence has allowed us to attract major speakers to both national and local events, and provided opportunities for outreach and public engagement far beyond what a single local club could do.

As one example, in 2009, the United Nations declared the International Year of Astronomy, in celebration of the 400th anniversary of Galileo's first published observations through a telescope. Over 18 months the Society produced materials, hosted events, and gave more than 2 million Canadians their own "Galileo moment" at events across the nation. Canada's IYA efforts were lauded as a major impact in the UN report on IYA2009, and the RASC's national network of volunteer enthusiasts, with Centres across the country, was a major part of that impact.

Unfortunately, this national connection can also have a darker side. When the laws for national charities changed a decade or so ago, the RASC had to completely restructure to accommodate the new rules. This took a decade or more of volunteer time, and many charities had major issues making the transition, the RASC included. This is why our Centre has spent so much time recently on bylaws and incorporation – it lets us exist on our own in case anything happens with our parent organization. The recent closure of *SkyNews* and other items in Dennis' President's Corner on page 3 remind us that even an established organization can have troubles.

How does this turn up in the "Editor's Report", you may ask?

In my first column, I said I wasn't going to duplicate all of the "What's Up in the Sky" content that *SkyNews* does. That plan was rendered irrelevant by the closure of SkyNews. So, **beginning with the May/June 2023 issue, *Winnicentrics* will contain a center spread containing a seasonal star chart, celestial calendar of events, and highlights of the coming two months**, just like SkyNews used to**.** I don't think the Winnipeg Centre should lose this important content which has been provided as a part of membership for decades with no notice.

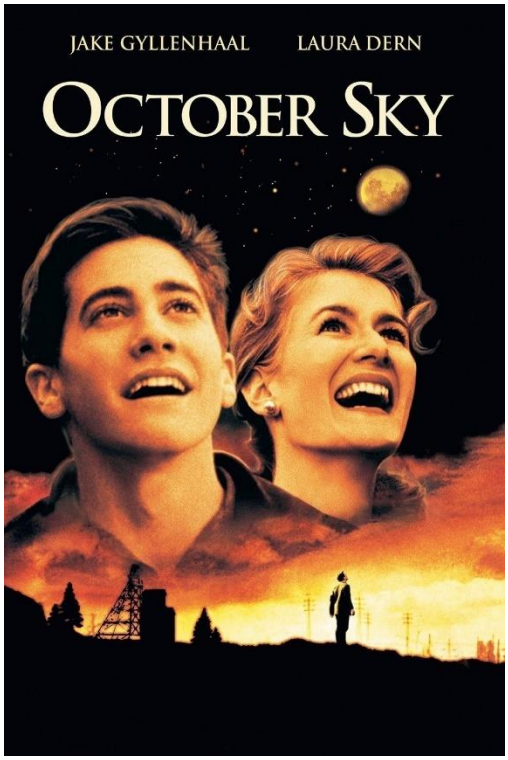
As always, articles and image submissions are always welcome and can be sent via newsletter@winnipeg.rasc.ca. *-SDY*

Did You Know…

Centre Council member Stan Runge is coordinating the Centre's "Explore the Universe" (EtU) certificate group. EtU is a great program for beginners to get used to observing and recording their observations, and is open to members and non-members alike. Join Stan for an orientation session, held 20 minutes before the March meeting outside the regular

A little story about movies

By Judy Anderson, Winnipeg Centre Vice-President



Winter evenings have some interesting opportunities to learn—in this instance, about the longevity of interests. One Friday, Jay and I watched *October Sky*, the story of four high school students in a coal-mining town who were inspired to build rockets. A teacher got them outside to look up as Sputnik passed by overhead. That was in the early days of space exploration, in 1957. I don't remember seeing it, although my guess is that Dad showed it to Mom and I. Jay certainly remembers seeing it, as he would have been 10 years old at the time. Then, it was something to see a satellite tracking overhead, and watch it brighten and dim with a roll in its orbit or altitude in the sky. Now, not so much, since the more-than-annoying swarm of satellites was launched. The movie dates from 1999 and reminded us just how much we had once watched for satellites while star gazing or camping.

Yes, the movie was a coming-of-age story about a young man who pursued an interest in rocketry and rocket science against the wishes of his father, who manages the coal mine. But it's a true story (more or less) and showed the dogged persistence of Homer Hickam as he tests variations in design and getting his three friends to persist with him. That experimentation ultimately led to university scholarships for the four after they won a Science Fair. Homer eventually became a NASA engineer and ended up in training roles for astronauts that went up on Shuttle launches. That was a good evening's viewing.

In the week following, we watched the beautiful conjunction of Venus, Jupiter and the crescent Moon, then the close proximity of Venus with Jupiter at half the Moon's diameter, and enjoyed the deep blues of the evening sky. A major auroral display was successfully viewed by many, although clouds did get in our way both nights.

Last night I watched a second movie, yet another showing of *Apollo 13*. Most of you will know about the Apollo missions to the moon, having directly watched TV as a child or much younger adult. Some younger people may not know that on #13, there was an explosion that jeopardized the lives of the three astronauts, commander Jim Lovell (who had previously walked on the moon), Jack Swigert (command module pilot), and Fred Haise (lunar module pilot). Oxygen leaked into space after the explosion, and life-support was in desperate trouble, but the NASA engineers on earth cobbled together a creative way to scrub carbon dioxide from the air in the lunar module where they lived for 4 days while other engineers improvised ways to save power and guide the capsule back toward earth.

Improvisations were made using hand calculations (and slide rulers) to double and triple check computations on the computers of the day. Absolutely everyone I knew, had watched the near-continuous TV broadcasts about the men aboard Apollo 13 and the mission, and I like to think that the

whole world breathed a sign of relief when the splashdown occurred safely that April 17, 1970. It was quite the moment at the time, and every time I see the movie, I marvel at "necessity, the mother of invention".

"We gotta make THIS… fit into the hole for THIS… using nothing but THAT." Engineers improvise a life-saving carbon dioxide filter essential for the survival of the Apollo 13 astronauts in this scene from *Apollo 13. (Image: Universal Pictures)*

I do a lot of outreach as a university scientist, and more than a few times used a clip from *Apollo 13* to illustrate science in action. There's one scene where everything in the Apollo lunar and command modules – manuals, filters, flashlights, tubing, tape, plastic bags, straws, clothing, paper, everything – is collected and dumped onto a big table, and engineers work quickly to invent a way to use a filter from the command module (square profile) in the air-filtration system of the lunar module (circular profile). The contraption is then successfully constructed in space by the astronauts. (Carbon dioxide is hazardous to normal function when it's at high levels in the air we breathe.) The film clip delivers a potent example of the importance of science in our lives.

Space exploration features so beautifully in the movie as the capsule orbits the moon and views earth on its return; likewise science is writ large throughout the film, as experimentation in space and on earth pushes the search for solutions to major problems and responds to curiosity by those on the ground.

Somehow all this seemed to connect when I went to Glenlea this week, for an inspection of the observatory building by the Province. The Winnipeg Centre has applied for funds to help with repairs from flood damage to the building last year. The inspector said "Wow! This place is neat!" when I opened the building and he saw the 1976 signatures on the concrete floor around the pier. And it is neat! I did a little reflecting on my own involvement in the RASC and the Glenlea observatory, and thought to tell you about it in context of the past week. I look forward to seeing you at Glenlea for spring observing or the summer barbeque in July, or even birdwatching!

Asteroid Occultation: Total Eclipse of the Rare Kind

By Bill Yeung

I believe that as an amateur astronomy lover, many of us may have witnessed, or would like to enjoy, the spectacular total solar eclipse. Some people like it so much, they would travel around the world, just to place themselves under the Moon's shadow to see enjoy one after another total solar eclipse.

While some would call these people shadow chasers, yet there are far fewer shadow chasers of another rare kind. When an asteroid moves between an observer and a distant star, this so-called *asteroid occultation* is also a kind of eclipse. It is much less pleasing to the eyes — you only see a typical mag. 12 star disappear for a few seconds, then reappear. Thus during the 80s, every year the IOTA (International Occultation Timing Association) only received a couple dozen successful observations, which allow astronomers to calculate fairly accurately the diameter of an asteroid.

There are many reasons for the lack of these kind of observations, but the main one is because it is not easy. The first difficulty is that it is hard to predict accurately where the eclipsing path lies. Just like any total solar eclipse, which is only visible to observers placing themselves inside a ribbon-like path on Earth. An error of one second of arc in either the star or asteroid position will shift the path a thousand kilometres in either direction.

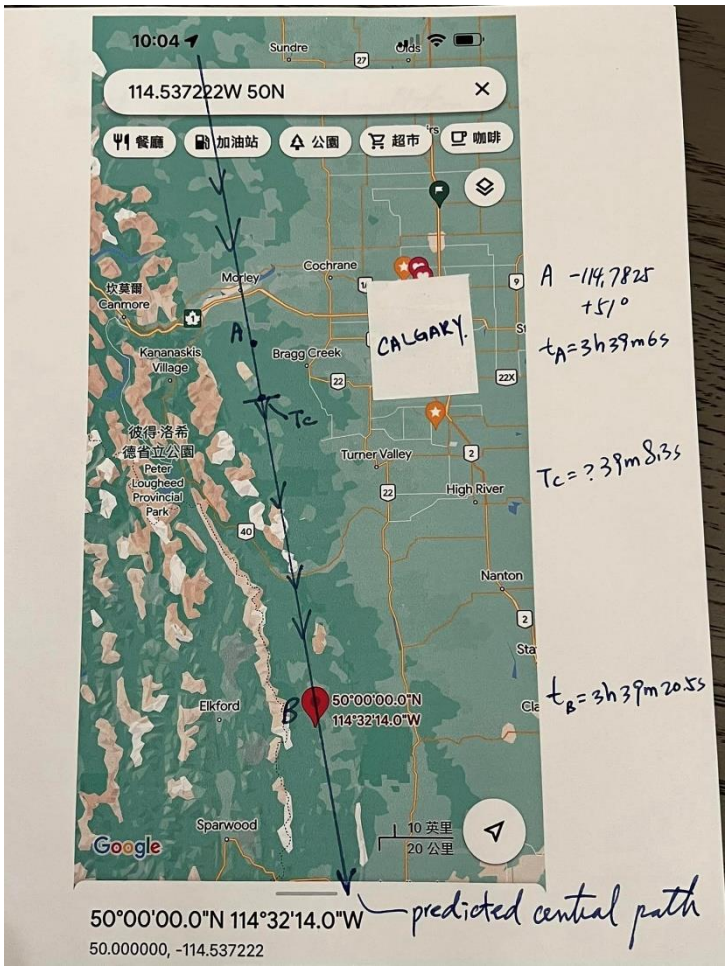


Figure 1. An asteroid occultation track, showing the narrow area of the world where the event can be seen. (All figures supplied by the author.)

The second difficulty may not be so obvious: finding the target star is not easy. Finding the Moon, planets, and deep-sky objects are relatively easy, because they are bright and you know what they look like when you find them. But finding a dim star is another can of worm. After all, there are so many dim stars and they all look the same!

We all know that in Canada, while the summer weather was warmer, the night may last only a few hours. While the winter night could be 14 hours long, it could be bitterly cold. So if you heard that a long-anticipated event has its path shifted to 200 km south of Edmonton... at 10 pm you pack all your gear and drive two hours in the dark to the center point of the new predicted path, find a secure

location, set up your scope, then spend another 30 minutes in -20 degree weather to fine tune your polar alignment. You swing your C8 to a bright star and adjust the setting circles accordingly to the star's RA and Declination, then you slew the scope to the target star. After pulling out the Northern star chart and comparing the mirror image stars you see to the finder chart, half-heartedly you *think y*ou are looking at the right star. With only 20 minutes before the event, you turn on the voice recorder, then turn on the short-wave radio that beeps out the time signal and hope to record the start and stop of the event on top of the time signal. You watch and wait. To your surprise, the predicted occultation time passes but you saw no star disappearance. Then you know either you are not located inside the occultation path or were looking at the wrong star! If the former, you take comfort a negative report is still a useful observation. Sometime for beginners it would be the latter which could be devastating.

So, with only a couple events nearby every year and the difficulty in doing observation, I don't blame myself for not being to see even just one asteroid occultation.

After graduation there has been almost a 40-year absence for trying this stunt. Of course, time flies and technology advances. With the persistent promotion by the *International Occultation Timing Organization (IOTA)* and capable experts like Dr. David Dunham, also with much more accurate star catalogues and asteroid orbit, and powerful computer and prediction software, there are more predictions, and they are much more accurate. The appearance of camcorders, computerized telescopes and the internet has made asteroid occultation observing much less difficult, and IOTA now regularly receives a couple of hundred reports every year. (Having said that, except for rare cases, many events are still observed by only one or two observers.)

In summer 2021 I moved back to Calgary. After settling down I picked up this old trade. From Sept. 2021 to Jan 2023, out of the 40 or so nearby occultations, the weather only allowed trying maybe six times, and all of them clouded out at the last moment.

My First Successful Asteroid Occultation

Staying in Calgary, the weather had been nice, and I had time to plan for the February 5 occultation by asteroid (117) Lomia. It was very favorable: the path width was about 157 km and the center line passed just 40 km west of Calgary. And most important, the error in prediction is only 0.28 path width on the ground and just 4.1 seconds in time.

Figure 2. The author's EVScope set up for the occultation.

To cut the story short, the evening of the event the weather was nice. Setting up the EVScope was easy. So was finding the target star using this scope. The target star has declination of +41 degrees, combined with Calgary's 51-degree latitude, making the star altitude to be over 80 degrees at the time of occultation – causing trouble for the alt-az mounted EVScope's tracking. Coupled with a software problem with the scope, instead of using the EVScope

program to image the whole event I had to fall back to more conventional video capturing.

Upon careful examination of the video, the target star (magnitude 12.1) did dim from 3:39:06 to 3:39:24.5, for a duration of 17.5 sec (predicted maximum was about 20 seconds). And yes, after starting 40 years ago, I finally fulfilled my dream — for the first time, being able to be under the shadow of a star!

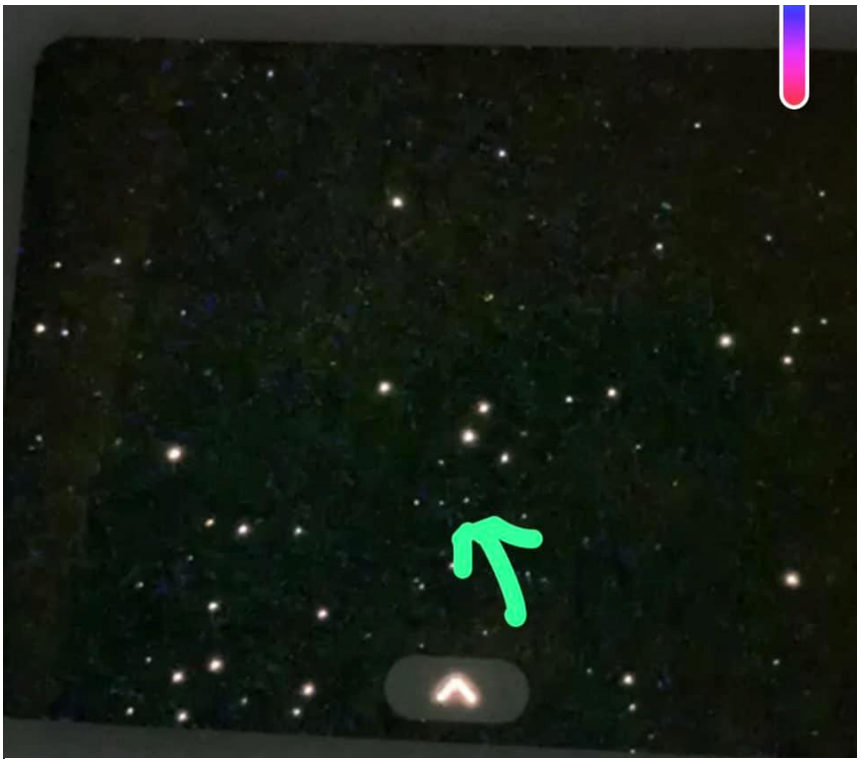


Figure 3. The target star, nearly lost in the background of a crowded field of view.

Because It Is There

I sometimes wonder why I would pursuit a goal with such persistence? Be it going after a new asteroid or standing under its shadow. George Mallory was a famous mountain climber, and he was often asked why he want to climb mountains, to which he simply replied, “Because it is there”.

As amateur astronomers, we are lucky to be able to go after whatever targets we like, with no need to give any reason. Be it simply be enjoying the beautiful starry sky or taking beautiful deep sky photos. We love the stars, just as Mallory once said: because they are there. We set our own goal, enjoying every moment on our route going there, and can be proud that one day we arrived there.

William Kwong Yu (Bill) Yeung is a Hong Kong-born Canadian amateur astronomer based in Calgary. Using telescopes in Calgary and Arizona, he has discovered more than 2,200 asteroids as well as comet 172P/Yeung. His favorite discovery (so far) was the object J002E3, which was first thought to be an asteroid but is now known to be part of the Saturn V rocket that propelled Apollo 12 into space. The outer main-belt asteroid 40776 Yeungkwongyu was named in his honor in 2017.

Want to observe an asteroid occultation yourself? There’s a small group of folks locally who keep their eyes open for nearby events. Visit the Centre’s forums at groups.io and subscribe to the “Solar System” forum to get information on upcoming occultations observable from Manitoba!

Upcoming Meeting Agendas

March 10, 2023
6:40 p.m. – "Explore the Universe" group meeting – Stan Runge
7 p.m. Beginner's Session - Scott Young, "Get Ready for Galaxy Season"
7:30 p.m. Main Meeting

- Dennis Lyons, Welcome & Announcements
- Bryan Stach, "What's Up?"
- Dr. Michelle Boyce, University of Manitoba "What's New?"
- Jay Anderson, History of Glenlea; Q&A
- **Main Speaker:** Darryl Hennig – "Double Trouble: The Joys of Observing Double and Multiple Stars"

April 14, 2023
7 p.m. Beginner's Session - gAIL Wise, "Constellation of the Month"
7:30 p.m. Main Meeting

- Dennis Lyons, Welcome & Announcements
- Bryan Stach, "What's Up?"
- Dr. Danielle Pahud, University of Manitoba "What's New?"
- **Main Speaker:** Dr. John Percy, University of Toronto - "Pulsating Variable Stars: Some Human-Interest Aspects"

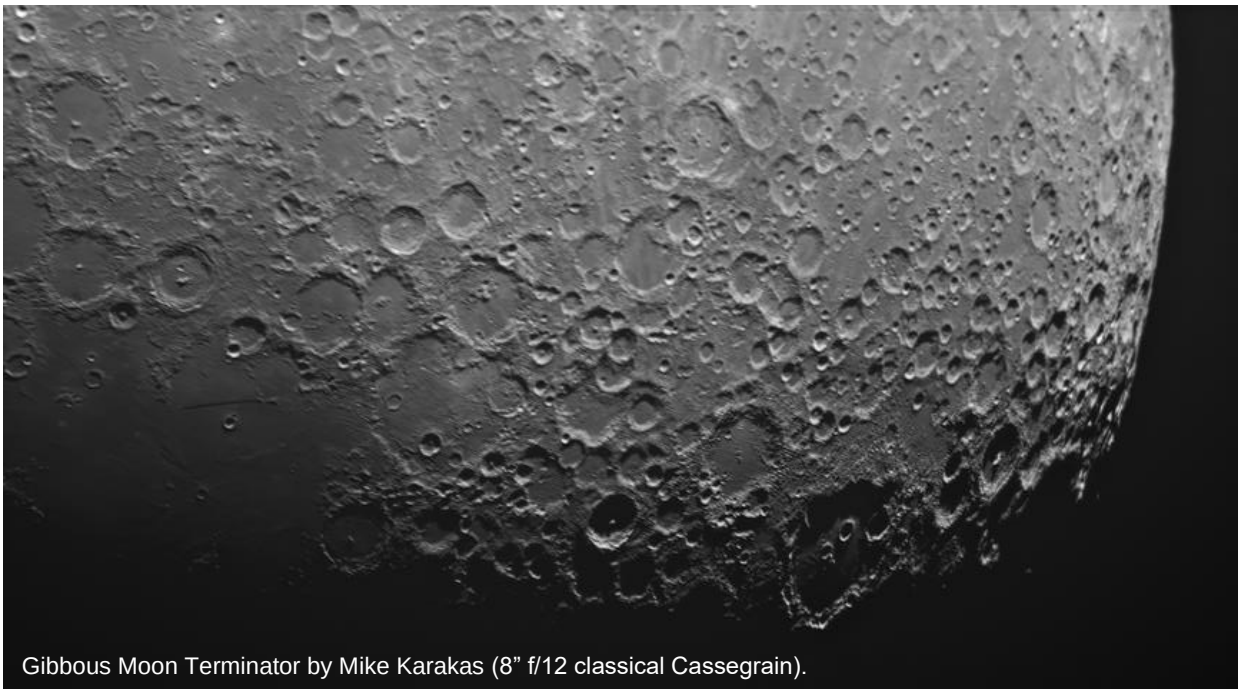
Member Benefits

As a member of the RASC Winnipeg Centre, you receive a bunch 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 houses a 12" Meade LX200 equatorially mounted 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 dome for your own use. (Booking the observatory can be done by contacting 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.
- **Spruce Woods Star Party:** The highlight of the year, this weekend of observing and astronomy is available to Centre members and their families. Usually held in late August or Early September each year.
- **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!

Member's Photo Gallery



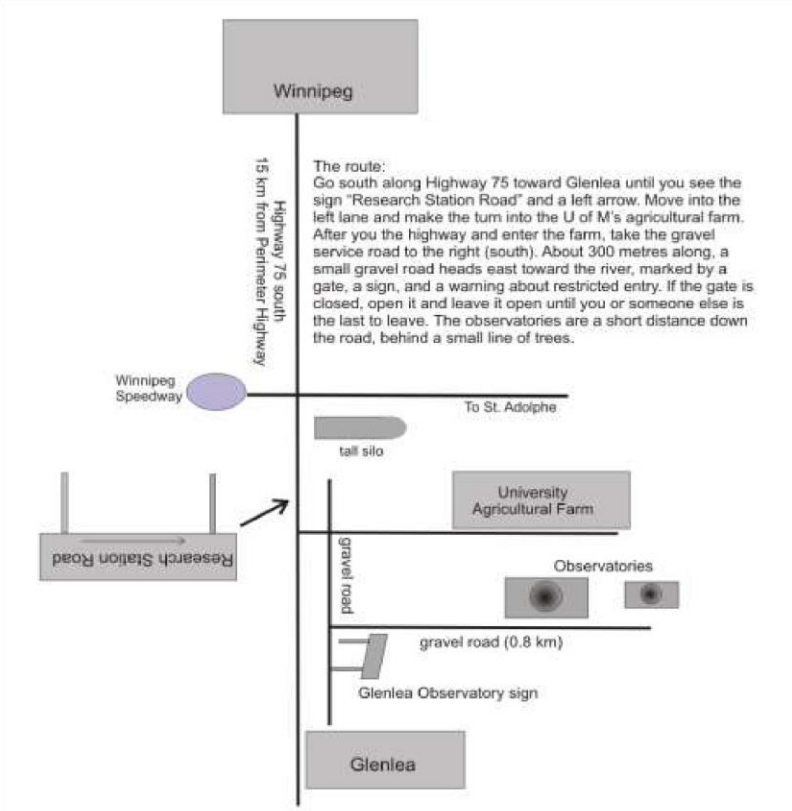
Gibbous Moon Terminator by Mike Karakas (8" f/12 classical Cassegrain).

YOUR PICTURE HERE

Send your astronomical images or sketches to newsletter@winnipeg.rasc.ca and we'll publish them! Please include the equipment you used and any story about the experience you'd like to include.

Jupiter (left) and Mars, as seen through a 7" telescope last November. Gerry Smerchanski sketched these planets using graphite, charcoal and colored pencils on white paper, with black felt marker for the background sky.

Glenlea Observatory Information



The Winnipeg Centre maintains a working observatory, pad, and warm room at the University of Manitoba's Research Farm. The observatory contains a 30 cm Meade LX200 telescope on a fork mounting. Members of the Centre may sign up to use this telescope by emailing: observatory@winnipeg.rasc.ca provided they have first taken a short instruction course on its use.

The Meade provides outstanding views of the night sky. Its large aperture collects more than 1800 times as much light as the human eye. It is capable of magnifying more than 500 times under favourable conditions.

The warm room also provides a convenient place for members to take refuge from winter temperatures and summer mosquitoes, or to wait out a passing cloud. The building also provides desk space and lighting for planning a night's observing session. A concrete pad in front of the warm room and observatory provides a convenient space to place members' telescopes while conducting personal observing programs. A computer is available as well.

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.

Remember to turn off all lights, make sure doors are locked, and close the gate if you are the last one to leave!