



Winnicentrics

Newsletter of the Winnipeg Centre of the Royal Astronomical Society of Canada

DECEMBER 2014

UPCOMING EVENTS

Next meeting:
December 12

Members Observing Night:
December 13

Geminid Meteors
December 14

Mercury & Venus in evening twilight
December 31

Quadrantid Meteors
January 4

Earth at Perihelion
January 4

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Geminid Meteors—the Best of the Year

Yes, we know it will be cold. And yes, the wind will probably be blowing. More than likely, it will be cloudy. However, at least the Moon will be cooperating, as it's just before last quarter and rising when most of us will be thinking more of bed than of counting streaks of light.

The Geminid meteor shower, a December favourite, is peaking on the 14th. The shower, along with the Quadrantids in January, boasts a Zenithal Hourly Rate (ZHR) of 120 meteors, the highest ranking of 17 best-defined meteor showers during the year.

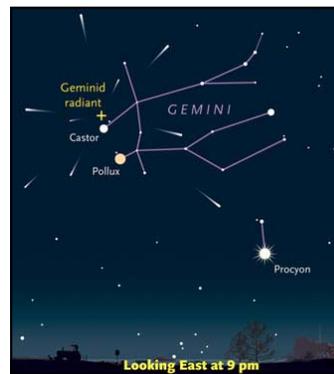
The ZHR is an estimate of the number of meteors that an observer could see if the radiant is overhead, the sky is very dark and clear, the horizon is open, and he or she had 180° of vision.

In practical terms, the Geminids should present about 50-80 meteors per hour to a dedicated observer if the Moon is absent. By comparison, August's Perseids have a ZHR of 90.

Geminid meteors have been linked to the asteroid 3200 Phaethon, one of only two meteor streams associated with an asteroid instead of a comet. The link was found in observations by the *Infrared Astronomical Satellite* (IRAS), which detected the asteroid in 1983. Two weeks later, F.L. Whipple noted the similarity between Phaethon's orbit and the

meteor stream. There is still quite a bit of mystery about the source of the Geminids, however, as Phaethon does not seem to produce nearly enough debris to maintain the density of the stream.

The Geminid shower seems to have begun in the 1860s, when it was first noted by English and American astronomers as a meager shower. The rate has been gradually climbing since that discovery, from around 14 per hour in the late 1800s, to 50 per hour in the 1930s, 60 per hour in the 1940s, and its present value of 80 per hour in the 1960s, where it has remained. The increase in numbers is related to the orbit of the asteroidal fragments, which has been deflected by Jupiter so that its intersection point with the Earth's orbit has gradually shifted outward from the Sun. At present, the dusty debris intersects the Earth's orbit slightly inside 1 AU. By the end of the century, it will be slightly outside our orbit. In other words, we are very nearly



The Geminid meteors appear to radiate from a position near the bright star Castor. Image: *Sky & Telescope*.

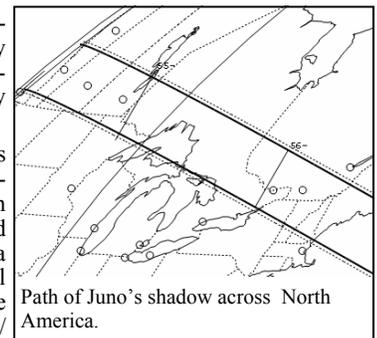
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Winnipeg Centre Members Observe Juno Occultation

On the night of November 19-20, the asteroid Juno occulted a 7th-magnitude star in the constellation Hydra. While the event was widely anticipated across the shadow track, only parts of Manitoba and Saskatchewan had clear skies. Manitoba watchers may have been the only observers of the event.

Gerry Smerchanski watched the star blink out for 21 seconds from his vantage point in Teulon. Gord Snarr followed the event in 10x70 binoculars from near Morris. Jennifer West, Ian Cameron, and Jay Anderson recorded the event from Glenlea using the 16-inch Evans telescope and an Apogee CCD camera, and watching the 20-second drama unfold on a monitor (see images on page 3). The timings by Winnipeg members will help to refine the shape and size of the asteroid, currently estimated to be about 240 km. Video of the occultation can be found at <https://www.youtube.com/watch?v=-8nV4ZhQP18> or on the *Sky & Telescope* web site.

In past years, Winnipeg Centre members observed a number of asteroid occultations, but we seem to have gone away from the practice over the past decade. Occultation measurements usually require travel to obscure places at odd times, but the success with Juno and the potential for a scientific contribution may regenerate the enthusiasm of past years.



Path of Juno's shadow across North America.



Winter is galaxy season, as seen in this cluster around M84.

Winnicentrics is published six times each year by the Winnipeg Centre, RASC. *Winnicentrics* is produced by and for the members of the Winnipeg Centre, and any opinions expressed are those of the author. If you have comments, questions or concerns about *Winnicentrics*, you can contact any of the councillors or write to RASC, Winnipeg Centre, Box 2694, Winnipeg, MB, R3C 4B3



October's lunar eclipse brought out the photographer in many Winnipeg Centre members

Geminids continued

directly in the path of the stream in the present era and the current ZHR is as large as it's likely to get.

Manitoba Circumstances

The Geminid shower peaks at 6 a.m. on the morning of the 14th, making it well placed for observation by early evening. Unfortunately, the Last Quarter Moon rises just after midnight and will interfere with the observation of the shower after about 1 a.m.

Showers are easy to observe — provided you can stay warm enough. All that is needed is a lawn chair, blankets to cover both top and bottom, a heat

source (a heating pad works well), and normal winter outdoor clothing. The biggest risk is falling asleep. Instead of counting meteors, try plotting them on a star chart. It will take only a few trails to show you the location of the radiant.

Meteors are best seen in a direction off to the side of the radiant, where the trails are drawn out into longer streaks. It's a moot point whether looking under or above the radiant is the best approach. Locations under the radiant are viewing a much larger volume of sky and meteors will be more frequent, but the low altitude means that the fainter ones will be difficult

to see. The fainter streaks of light are better seen up high.

Photography is easy: just set up a camera on a tripod and open the shutter for a sequence of one- to five-minute exposures (depending on the darkness of the sky). Your stars will trail, so if you like pin-point stars, you'll have to use a driven mounting. A medium- to wide-angle lens is best.

Perseids may come with more comfortable weather, but the Geminids, with their reliable nature, bright trails, and high rates deserve a share of your attention as well.



Sheila Wiwchar captured herself, the Milky Way, and a meteor last May.

About RASC Winnipeg Monthly Meetings

Regular meetings of the Winnipeg Centre are held in the Robert B. Schultz lecture theatre in St. John's College at the University of Manitoba. The theatre is on the lower (basement) floor of the College. Meetings are held on the second Friday of each month beginning at 7 p.m. and ending around 10. After the meetings, members who wish to do so usually retire to the local Boston Pizza for more conversation about astronomical subjects.

Meetings begin with a half-hour Beginner's Session and then go on to the regular meeting, though, in fact, the Beginner's Sessions are popular with the whole of the Centre's members. After an hour, the meeting usually breaks for a half-hour for coffee and cookies, resuming, about 9, with a main speaker or event.

The June meeting is not held at St. John's College but is instead a barbeque at either a member's house or at Glenlea. Meeting dates and meeting places may be adjusted during exam times and during Bomber home games or stadium events.

Notices



The Meade 12-inch telescope at Glenlea

Telescope Loans

The club has a number of telescopes available for members in good standing to borrow. If you don't have a telescope of your own, or if you have one, but want to try something different, this program may have something for you. If you would like to borrow a telescope, go online to the Winnipeg Centre site and fill out the rental form

or come to a meeting and make arrangements in person. Equipment can be checked out for periods up to one month in length.

Glenlea Observatory Telescope

The Glenlea Observatory is equipped with a computerized Schmidt-Cassegrain telescope with a 12" objective lens that is available for club use.

This provides a fantastic opportunity for members who would like to do some serious observing, while avoiding the thousands of dollars it would cost to procure such high-end gear. The telescope is computer controlled and mounted in the dome.

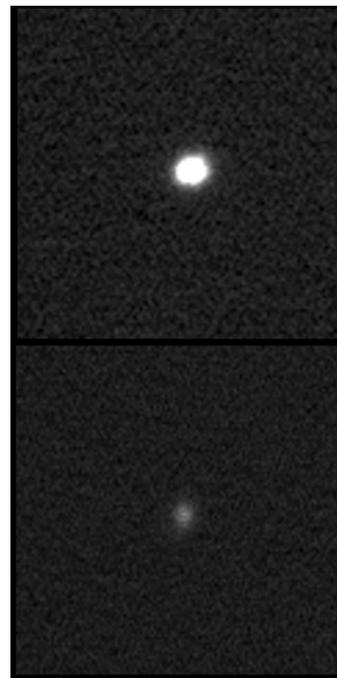
As with all specialized, high-tech equipment, it can feel somewhat daunting to jump head-first into using it. Fortunately, we have a training course available for members who would like to make use of the telescope dome at Glenlea. Talk to one of the councillors to get the details.

The Warm Room

All Centre members are entitled to use the warm room at the Glenlea Observatory site. A small refundable deposit is required to get a key to the facility. The key also opens the Observatory building and gives members access to the washroom.

December 12 Meeting Schedule

- 7:00-7:30** Beginner's Session: "Light"
7:30-8:30 Announcements
 What's New?
 new discoveries in astronomy
 What's Up?
 coming events in the sky
- 8:30-9:00** Break for refreshments and gossip
- 9:00-10:00** Ian Cameron "The History of Astronomy in Manitoba"



These two images were extracted from the 3000 collected during the occultation by Juno on November 20. The top picture shows the merged images of the star and asteroid at 07:54:39; the bottom shows the occulted star with the asteroid alone, 1 second later.

The occultation lasted for 20 seconds from the Glenlea observatory grounds.



M83—the 83rd entry in Messier's list of comet-mimicking objects—is an easy 8th-magnitude, barred-spiral galaxy in the constellation Hydra. One of the brightest of its type, it is easily visible in binoculars and shows off in medium-size telescopes. While relatively low from Winnipeg's latitude (reaching an altitude of only 10 degrees), it can be viewed most easily in May, when temperatures are more suitable for evening observing.

M83 is a supernova factory, having hosted six of the exploding stars—more than any other Messier object. Even this small image reveals bright knots of gas and dark lanes of dust in the spiral arms, both sites of new star formation. The galaxy lies at a distance of 14.7 Mly and has a size of 55,000 light years (10 x 11 arc minutes in a telescope).

Winnipeg Centre Officers & Volunteers

President	Andrea Misner
Vice President	
Past President	Kris Keller
Treasurer	Jay Anderson
Secretary	Stan Runge
National Rep	Jennifer West
Councillors	Bryan Stach
	Kris Keller
	Brenden Petracek
	Silvia Graca
Observatory Director	Bryan Stach
Winnicentrics Editor	Jay Anderson
Webmaster	Julius Lopez-Garcia
New Member Liaison	Dennis Lyons

Elections are coming...

Winnipeg Centre elections are held annually at the January meeting. The number of positions open varies according to the length of term of the current office holders. President and Vice-President are elected for 2-year terms, councillors for 3-year terms, with limits on the number of terms in each position for which an individual can be elected. Positions for Treasurer and Secretary are elected but have unrestricted tenures.

In addition to the formal positions, there are several other task-related duties for which members can volunteer and which are confirmed by Council agreement. These include observatory manager, web manager, *Winnicentrics* editor, loaner-scope administrator, and new-member liaison.

This January, we will be electing a President, Vice President, and several councillors. A Nominating Committee has been struck to find candidates for the open positions, but nominations are welcome and encouraged from the floor. If you know a member who you think would be suited for one of the positions, you may nominate them at the meeting or let Stan Runge (stanrunge@hotmail.com) know that you are advancing their name for a Council position. Candidates must be members in good standing and, of course, agree to let their name be placed into consideration.



Sheila Wiwchar likes old barns and Full Moons. The bracelet of light from the 22° halo adds a touch of mystery to the scene. The halo is formed from randomly oriented ice crystals in the thin cirrus clouds.

University of Manitoba, Department of Physics and Astronomy &
The Royal Astronomical Society of Canada, Winnipeg Centre present

**Ewen Campus Observatory
& Lockhart Planetarium**

OPEN HOUSE

First Thursday of every month at sunset
Come rain or shine!

Find us in University College,
University of Manitoba, Fort Garry Campus

<http://www.physics.umanitoba.ca/>

UNIVERSITY OF MANITOBA

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
WINNIPEG CENTRE