

AURORA



Volume 45, No. 2

The Royal Astronomical Society of Canada - Windsor Centre

October 2019

Charitable Donations - Special Incentive by Greg Mockler



IMPORTANT – For our group to financially break even in a typical year we need to raise about \$1,000 over our normal income sources. In the past we have had garage sales, winery events and other fund raisers. These events are a lot of work for a few people as it is difficult to get enough people involved in planning and staging an event. As an alternate, we are asking our members to look at making a charitable donation. If most members contributed a few dollars (even \$25 or \$50) we would raise more than what a special event generates. Any donations made before the end of the year will be eligible for a charitable donation receipt which can be used on your 2019 tax return. As a special incentive, Art Rae has donated a number of First Day Covers (see image above) of the RASC 150th Anniversary stamps issued earlier this year which includes the two release stamps on the front of the envelope and seal cancelled with a special imprint for the occasion. These commemorative envelopes were limited issue (7,000) and will become collectibles in time and they honor the 150 years of the Royal Astronomical Society of Canada. We will be offering them as a special incentive to the first twelve members who make a donation of \$40 or more as a way of saying thank you for your help.

If you have any questions, please contact Greg Mockler, your treasurer.

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Calendar of Events

Our next meeting...

Tuesday November 19, 2019
7:30 p.m.
at
[Ojibway Park Nature Centre](#)
5200 Matchette Road

Main Speaker...

Annual General Meeting

Topic...

Elections and a few short talks

Activities...

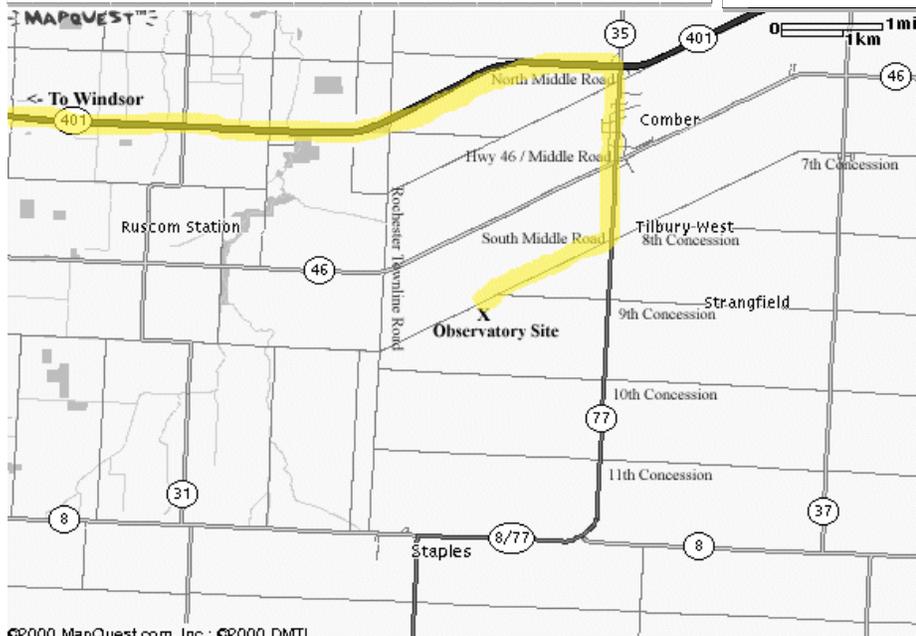
Orionid Meteor Shower: Peaks on the night of Monday October 21st. The radiant rises about 10:30 p.m. and unfortunately the near last quarter moon rises about 1:00 a.m..

Uranus: Is at opposition on Monday October 28th in the constellation Aries.

Daylight Savings Time: Ends at 2:00 a.m. on Sunday November 3rd. Set your clock back 1 hour.

Mercury Transit: On Monday November 11th Mercury will transit the Sun's disk from 7:40 a.m. - 1:07 p.m.. You will need a telescope with a solar filter to view this event.

Art Exhibit: We are running an astronomically themed art exhibit at the ArtSpeak Gallery on Wyandotte Street East in Windsor from November 3 - 10 and looking for both volunteers and your original photos, sketches, paintings, poetry, historical documents, scale or full size models, etc.



Hallam Observatory Site

Directions: The map at left shows the Comber area and it includes the major highways (401, 77, 8 and 46) that are in the area of the observatory.

The most direct route from Windsor is "highlighted" on the map which is to take Highway 401 East to Highway 77 South to South Middle Road. Turn right onto South Middle Road and go about 1 kilometer and just after the point where Concession 9 joins it (it is hard to see this intersection) you will find the observatory site on the South side (left) of the road. 3989 South Middle Road.

If you hit the Rochester Townline Road (you come to a stop sign) you have gone too far.

Submissions

Aurora is published monthly except for July, August and December. The September, October, January, March and May issues are full newsletters (usually 6 pages) with a number of member submitted articles. The November, February, April and June issues are short flyers (2 pages).

Submitted articles can be of any length from a paragraph to multiple pages. I can scan pictures and/or diagrams (both prints and film) to support your article and the originals will be returned to you.

Submission deadline is the 1st of the month.

Editor: Steve Mastellotto Email: mmastellotto@cogeco.ca

Membership

The Windsor Centre of The Royal Astronomical Society of Canada meets on the 3rd Tuesday of every month (except July and August) at the Ojibway Park Nature Centre. In addition to regular meetings the centre hosts a number of observing nights, a picnic and a December social. Members receive a copy of the Observer's Handbook, a subscription to SkyNews magazine and access to the Centre's library and telescopes. Optionally the RASC Journal is available in print form—online version free.

Annual Membership Fees: Please see the RASC website at www.rasc.ca for current rates.

Contact Greg Mockler (greg.mockler@live.com) or visit our website at: <http://www.rascwindsor.com> for more information.

September 2019 Meeting Minutes by Sandy van Gaalen

The monthly meeting of the **Royal Astronomical Society of Canada - Windsor Center** was held at the Ojibway Park Nature Centre on **Tuesday September 17, 2019.**

Windsor Centre **President, Mike Mastronardi** chaired the meeting and **called the meeting to order at 7:36 p.m.** and welcomed members and guests to the Ojibway Park Nature Centre.

Mike invited members to review **the minutes of the June 18, 2019** meeting which were printed in the Aurora newsletter. A **motion to accept the minutes** was made by **Steve Mastellotto**, seconded by **Tim Bennett. MOTION CARRIED.**

Mike provided an overview of the meeting and then introduced our guest speaker.

Main Presentation

Dr. Adam Sirek is a medical doctor who practices family medicine and aerospace medicine, teaches at Schulich medical school, a pilot with the Canadian Air Forces and has entered the **Canadian training program for astronauts.** He made it to the final cut where two other people were chosen but continues to work towards his goal of becoming an astronaut and venturing out to space.

Canada has a **unique process** for choosing astronauts, one which other Countries are jealous. Other countries choose 17 and fire them just as quickly? We **choose 2 and keep them indefinitely.**

The selection process varied with each applicant but some **common characteristics** were:

1. they all loved what they did
2. they all worked hard to be good at what they did
3. willing to give that all up and sacrifice themselves to the government of Canada

Along with the **following qualities:**

- integrity
- motivation
- proven team player
- good public speakers
- can problem solve and think outside the box, resourceful and can MacGyver their way out of situations
- people who fill the base criteria just by all the things they have already done in life.

Then they put you to the test of a **year long process.** Water obstacle course, puzzles at the bottom of the pool etc., to see who was most physically fit to go to space. It is a Government position therefore you must have a university degree.

They tested how you **react under pressure.** They push you and push you and push you some more to **test your tolerance.** You would go days without any sleep and then they would drill you until you were absolutely drained. That is when they would **start accessing you.** They monitored your resilience, problem solving, coordination, team spirit, technical skills, focus and situational awareness, to see if they could handle intense situations similar to those that could be encountered in space. This could be the difference between **life and death** of the crew.

The selection was narrowed down to 17 from 3,700 participants.

Mike thanked Adam for his presentation.

Open Streets on Sunday September 22, we are looking for volunteers that can come out and help.

Steve Mastellotto reminded everyone that **Hallam Observatory key fees** are due October 1st and that he was still looking for **calendar photos.**

Jeremy Hansen won the **50/50 draw** - \$16.50 and donated it back to the center.

Steve Pellerin is **looking for volunteers** on October 3rd for an observing night at the **UofW for his students** and October 4 at the **Fogolar Furlan Club** at 7 p.m. which will include a talk and then observing outside - open to the public.

Director of Observing Report

Nancy and Jesse were welcomed to the floor and opened the Director of Observing report with **various pictures submitted** by Randy Groundwater, showing the night sky and concerns about Light Pollution. Steve Pellarin submitted a picture of the Northern Aurora Borealis and Andromeda Galaxy. Nancy showed pictures taken at Starfest.

Some upcoming celestial events include:

- **Full moon** is October 13.
- **Autumnal Equinox**- a result of the Earth's axis tilted at 23.5 degrees is on September 23 at 3:50 a.m. in the Northern Hemisphere. The day and night are equal at this point.
- **Jupiter** is sitting in Ophiuchus and **Saturn** is sitting inside Sagittarius underneath the teaspoon. Both the planets rise during the daytime and by 8 p.m. they have already started to sink into the western horizon.
- October 3 is a **crested moon** with Jupiter very bright. It would be great for taking pictures. It turns a beautiful orange as it approaches the horizon. They will be setting early in the evening.
- We are **losing the summer constellations.**
- Conjunctions - **Jupiter / Moon** on Oct 3, **Saturn / Moon** on Oct 5.
- **Neptune** rising at 7:20 p.m. in Aquarius, **Uranus** rising 9:15 p.m. in Pisces.
- **Mars** rises at 6:48, **The Sun** at 7:13, **Venus** and **Mercury** at 8:00 a.m.. They are all too close to the Sun to be visible now.
- **Venus** as the "evening Star" will begin after sunset by October 10, low near the western horizon.
- October 15 **Orion** rises at midnight and by November Orion rises by 8 p.m..

Transitioning from the **summer constellations** to the **autumn constellations.** By the time our next meeting occurs the summer constellations **Scorpio and Sagittarius will be gone** and **Taurus and Orion** will be coming up. **Andromeda Galaxy and Triangulum Galaxy** are great for viewing all night. **Cygnus** constellation is flying through the Milky Way.

Our next **dark sky night at Point Pelee** is on October 26th.

Reminders: Astro Luncheon at **Skippy's Restaurant** every second Wednesday of the month, at noon. Located at 954 University Ave West, Windsor.

Mike thanked everyone for coming out to the meeting and reminded everyone that the **next regular membership meeting** would take place on **Tuesday October 15, 2019 at 7:30 p.m..**

Meeting adjourned at 9:30 p.m. September 17, 2019.

At The Eyepiece: Creating a Custom List of Double Stars by Mike Ethier

This is the last article in a series dealing with preparing object lists for observers. I have been using Lyra as an example in previous articles, so I will continue with that. What happens when all of the deep sky objects have been logged and observed in a constellation? I have seen all of the NGC objects within Lyra's boundaries, as well as many of the IC and other object catalogues. I have even observed the main attractive double stars. What next?

More double stars. Many more. As much as I enjoy the NGC catalogue, I also enjoy hunting down double stars. The Washington Double Star Catalogue is the most in-depth list of such stars available. The list also includes triples and multiples. Maintained by the US Naval Observatory, it lists nearly 150,000 such objects! Most of these are too faint and/or too close for amateur scopes. The list is arranged by RA, and of course includes the southern skies as well as northern. It is a daunting beast to attempt to use. However, there is a website that allows custom double star lists to be created from the catalogue.

The best way to continue reading this article is at home in front of your computer. Go to the web-

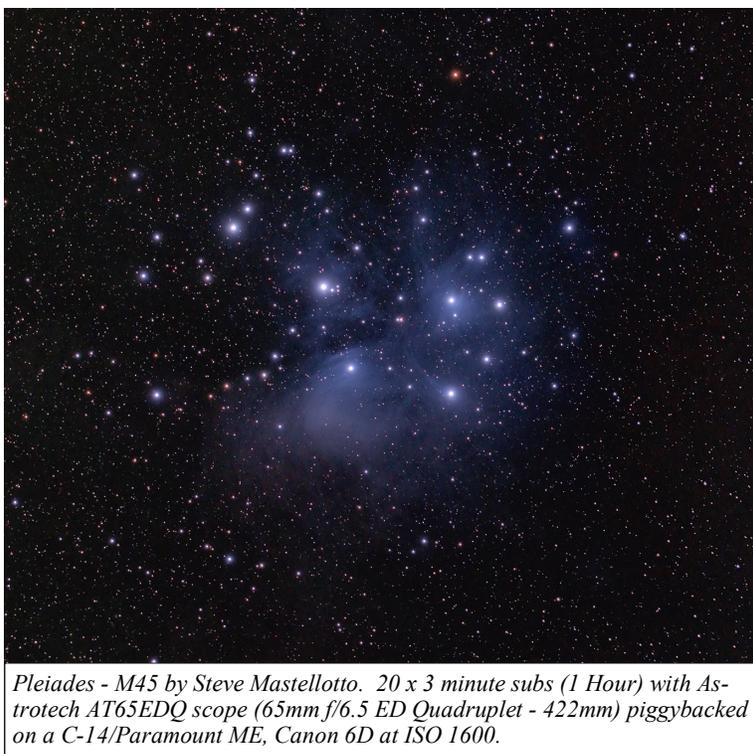
site www.stelledoppie.it. To make this site really work for you, create an account - it's fast and free. You can play with this site for hours, but allow me to walk you through an example for a 6", 8", and 12" scope, using Lyra as our base. Let's begin by creating workable double star list for a 6" reflector.

- 1) Go to the Home Page, then click on the Work Bench tab at the top of the page. This will eventually store your lists for printing or exporting to an observing program.
- 2) In the left margin, under "Actions," click on Advanced Search.
- 3) Don't panic when you see all those options! We will only be using a few of them.
- 4) Find the Mag pri block and choose "less than", and then type 7.9 in the space provided. Your primary star will be no fainter than mag. 7.89.
- 5) Find the Mag sec block and choose "less than", and then type 12 in the space provided. Your secondary star will be no fainter than 11.9.
- 6) Find the Separation block, and choose "more or equal to", then type in 2. None of your stars will be closer than 2".
- 7) Nearly done! Find the Constellation block, and using the tab select Lyra.
- 8) Scroll to the bottom of the page and click on "Search The Database." You will now be presented with your list, consisting of 99 stars.
- 9) Under "Actions" in the left hand margin, click Save This List. This is important.
- 10) You are asked to name the list. Just call it Lyra 6" for now. It should appear in the Workbench tab. Open the list and look through it. All of the Washington Catalogue info is there. You can go through and remove stars if you wish. I would, for example, take out the 2nd star on the list, as the mag difference is

too great, and the distance too small, for a 6" scope. The better you know the limits of your instrument, the easier it is to pare down the list to a workable limit.

You can now print your list, or export it to a number of programs. If you have a Go-To scope, you can likely import it into your telescope computer program. We less fortunate observers now begin to plot each star on Uranometria. The stars are all there on the atlas, but not named, so I merely number them in pencil 1,2,3...corresponding to my printed list.

To revise the list for an 8", simply change a few parameters. When you come to Step 4, above, put in 8.6 for the magnitude. For step 5 put in 12.9. For separation, put in 1.5. All less than/equal to choices etc. remain the same. Keep Lyra as the constellation. When you go to the bottom of the webpage and click on Search The Database, your list will now expanded to 185 stars! You cannot remove unwanted stars from the list unless you save it and name it. Read through the saved list and cancel out stars that seem too difficult.



Pleiades - M45 by Steve Mastellotto. 20 x 3 minute subs (1 Hour) with Astrotech AT65EDQ scope (65mm f/6.5 ED Quadruplet - 422mm) piggybacked on a C-14/Paramount ME, Canon 6D at ISO 1600.

To revise the list for a 12" scope (these plug in numbers are only suggestions of mine) at Step 4 put in magnitude 9.4. Any fainter than that and the star will not appear on Uranometria. At Step 5 put in 14, and for separation put in 1. The list now has 369 stars listed! If you wish to see how many double stars in Lyra are listed in the full catalogue, don't enter any parameters at all. Keep everything blank. Then choose Lyra. I won't tell you how many there are, but the number is rather impressive.

I am currently working my way through a very long list of doubles in Cassiopeia with my 12" Dob, and reviewing previously seen clusters and such as I go. I work by star hopping from the first star, and enjoy having long looks around as I move slowly from star to the next. I hope this works for you! Clear skies.

Messier Of The Month: Messier 45

Does anyone else remember the lunar occultation of the Pleiades on March 22nd, 1969? I lived in Sudbury at the time, and only had very poor 6 X 30 binoculars, and a toy 3" plastic telescope, the same one used by Gumby in one of his bizarre adventures. Of course I had winter weather to worry about, and light pollution. But living in Sudbury at the time, there was also another kind of pollution, produced by the three INCO stacks back then. Here is a quote from my logbook from that day:

"Tonight, to my utter disgust, the smog completely covered the Pleiades and the 5-day old moon. Besides that, a west wind shook my telescope till I was ready to scream. And the cold was numbing. The show began at 7:56 pm, when Electra was occulted, followed at 8:06 pm by Celeano. Merope disappeared at 8:53 pm. At 9:03, stars began to disappear into the smog, until everything was gone by 9:18." Ah, the good old days of observing, when everything was so much better. Ha-ha.

At The Eyepiece (continued)

Jump to December 9th, 1991, to my back deck in Anderdon Township. It is 0 Celsius (much warmer than that Sudbury March viewing in 1969), and I am using the Astroscan 4 1/4" scope, which turns out to be the perfect instrument for this job. I had enjoyed many binocular views, and again back in the early 1970s with the Tasco 4.5" reflector. But the Edmund Astroscan gives unrivaled views, the entire cluster easily fitting into the field of view at 16x and 23x. I am always astounded at how much of the reflection nebula can be seen through a telescope. Of course images show much more, but it is fun to trace the wispy clouds, even in the 12" Dob.

M45 was also the 13th object in my Space Eye project, using a 2" refractor. It is a showstopper at 30x, and some nebulosity could be seen even at this aperture range. I needed to use the slow motion controls to sweep the area, but this little scope shining on M45 would be certain to wow people at a star party. Uranometria Star Atlas features a full-page close up of the cluster, showing all stars to mag. 11.5. The cluster is mostly made up of white stars, and there are hardly any double stars within it. It is one of the nearest clusters to us, about 136 light years away, and one of the finest objects for naked eye viewing. I have no trouble counting six stars, but that seventh one has always eluded me. I need to try it from the top of a mountain someday. Galileo was the first to record a telescopic observation of the cluster, where he counted 36 stars.

As of mid October, The Pleiades is well up in the sky by midnight, just as Orion begins to peep over the horizon. Happy viewing!

Calendars



Moon and Jupiter
By Nancy Ng

2020 RASC Windsor Centre Calendar
Member Astrophotos

RASC Windsor Centre - Has once again produced a calendar featuring the astrophotography of Windsor Centre members. Our initial order was 75 calendars so please see our Treasurer, Greg Mockler at the October meeting if you indicated that you were interested in purchasing the 2020 calendar. There should be a number of extra calendars available if you did not speak up and we can always place a second order for the November meeting. **Price will be \$20.00** (same as last year) which includes all postage, handling and taxes.

Proposed 2020 Council of the RASC - Windsor Centre

Executive

President	<i>Open Position</i>
1st Vice-President	Rick Marion
2nd Vice-President	<i>Open Position</i>
Secretary	Sandy van Gaalen
Treasurer	Greg Mockler
National Council Rep.	Tom Sobocan

Councilors

Steve Mastellotto	Nancy Ng
Steve Pellarin	Paul Preney
Tom Sobocan	C. Joady Ulrich
Mahayarrahh-Starr Livingstone	

Appointed Officers

Honorary President	Dr. William Baylis
Past-President	Mike Mastronardi
Alt. National Council Rep	<i>Open Position</i>
Librarian	<i>Open Position</i>
Recording Secretary	Sandy van Gaalen
Public Education Director	Mahayarrahh-Starr Livingstone
Public Relations Director	<i>Open Position/2nd-VP</i>
Directors of Observing	Steve Mastellotto
	Nancy Ng/Jessie Passa
	Dr. Susan Sawyer-Beaulieu
Light Pollution Abatement	Mahayarrahh-Starr Livingstone
Hallam Observatory Director	John Marn
Aurora Editor	Steve Mastellotto
Web Master	Steve Mastellotto



RASC National - Our Treasurer, Greg Mockler is taking orders for the 2020 RASC Calendar. **Price will be \$20.00** which includes all shipping, handling and taxes if he gets over 10 orders - this is the same price as last year and is substantially less than the \$26.22 (includes shipping, handling and taxes) by ordering directly from the National Office. Please see Greg at the October meeting.

**RASC
Windsor Centre**

**Financial Statement
for year ending September 30, 2019**

	Current	Last Year	Difference
Balance Sheet			
Assets			
Cash	9,250.32	7,944.56	1,305.76
Building & equipment	80,000.00	80,000.00	-
	<u>89,250.32</u>	<u>87,944.56</u>	1,305.76
Liabilities			
	-	-	
Accumulated surplus, open	87,944.70	87,340.97	603.73
Earnings (loss)	1,305.76	603.73	702.03
Accumulated surplus, close	<u>89,250.46</u>	<u>87,944.70</u>	1,305.76
 Statement of Revenue & Expenses			
Revenue			
Revenue - Donations - receipted	495.00	140.00	355.00
Revenue - Donations - not receipted	600.00	956.00	- 356.00
Revenue - Sale of property or goods and services - scopes	-	-	-
Revenue - Membership fees - National	2,601.17	2,784.60	- 183.43
Revenue - Membership fees - Obs fee	916.00	944.00	- 28.00
Revenue - Fundraising - meetings	234.65	226.85	7.80
Revenue - Fundraising - 50/50 draws	253.90	215.50	38.40
Revenue - Fundraising - special events	250.00	125.00	125.00
Revenue - Fundraising - pubs	2,060.00	2,380.00	- 320.00
Total revenue	<u>7,410.72</u>	<u>7,771.95</u>	- 361.23
Expenses			
Expenses - Office supplies and expenses	121.45	267.74	- 146.29
Expenses - Occupancy costs - mtg rental	817.50	765.00	52.50
Expenses - Occupancy costs - obs rent	500.00	500.00	-
Expenses - Occupancy costs - obs utilities	480.00	480.00	-
Expenses - Occupancy costs - obs other	1,357.59	2,701.76	- 1,344.17
Expenses - Adv & promo	389.83	567.22	- 177.39
Expenses - Fundraising expenses - meetings	483.44	431.60	51.84
Expenses - Fundraising expenses - pubs	1,800.15	1,245.40	554.75
Expenses - Travel and vehicle	-	117.50	- 117.50
Expenses - Social	-	-	-
Expenses - Honoraria	155.00	92.00	63.00
Expenses - programs	-	-	-
Total expenses	<u>6,104.96</u>	<u>7,168.22</u>	- 1,063.26
Net Earnings	<u>1,305.76</u>	<u>603.73</u>	702.03

Notes

Net Earnings for the year approx. \$1,300; compared to earnings of about \$600 the previous year

○ Revenue was down about \$360 compared to the previous year (calendar sales down by \$320, membership fees down about \$210 and partially offset by an increase in special events, meetings and 50/50 draws by about a \$170)

○ Expenses were down about \$1,060 primarily because observatory insurance was down by over \$1,400; also down were costs for office supplies (by \$145), promotional (by \$175) and travel (by \$117); partially offsetting these decreases were a few increases including calendars (up by \$550), meeting room and coffee (up by \$100), porta-john clean-out (up about \$100) and honoraria (\$60)

We remain in good financial shape largely because of a large reduction in observatory insurance; however we need to continue looking for additional sources of revenue as there is not really any room to cover unexpected expenses