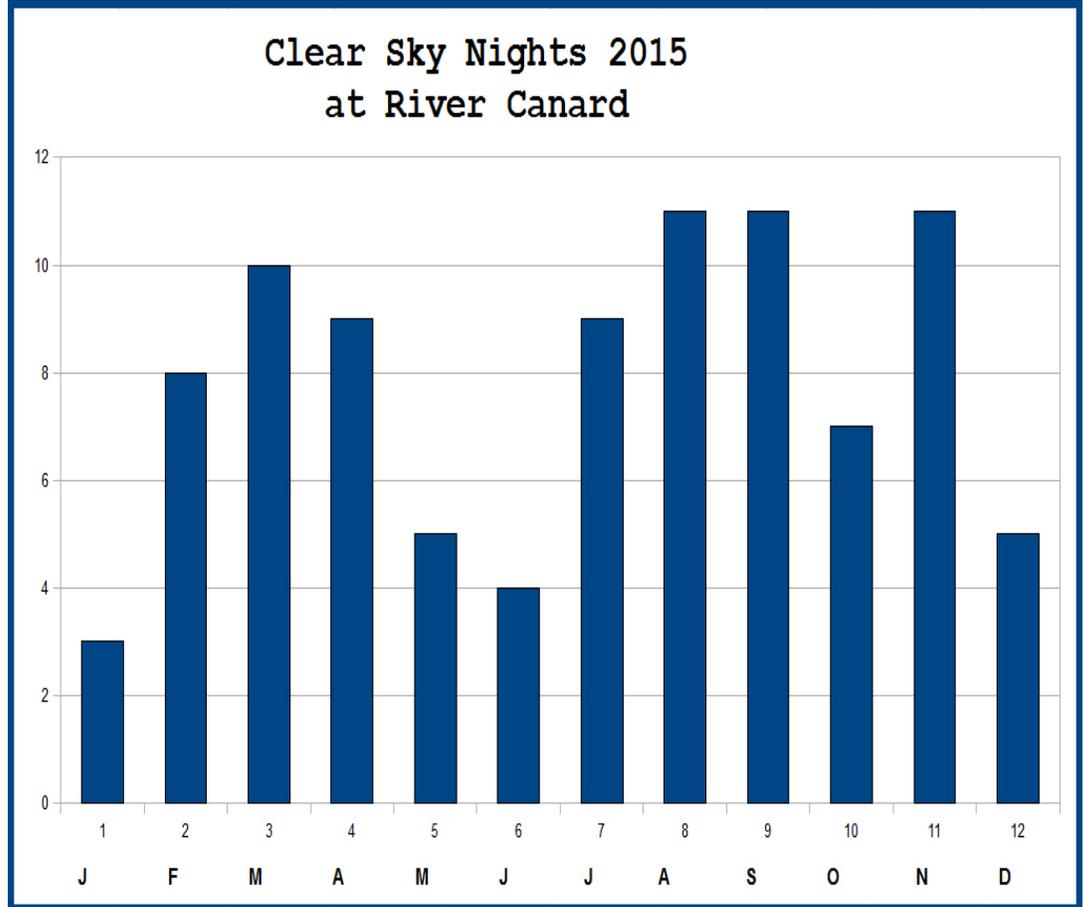


# AURORA



## 2015 Clear Sky Nights by Art Rae



Here is my tally of clear night skies for 2015 from my location near River Canard, Ontario.

This is an unofficial "look out the window" count of all the nights I saw what I considered a "clear sky". Seeing doesn't enter into it. But it gives an idea of what kind of observing year we had this past year. 2015 brought my total up to 93 clear nights, about 25% of the total nightly skies for the year. If you thought we didn't get a lot of clear skies you are probably right. In some recent years we've experienced as high as 120 clear nights others as low as 83. 2013 showed 119 open sky nights. Well maybe we will have a better chance in 2016. This year we get an extra day to count.

### In This Issue

2015 Clear Sky Nights	Cover
Events / Housekeeping Items	Page 2
November Meeting Minutes	Page 3 and 5
At the Eyepiece	Page 4
2016 Executive and Council	Page 5
Member Astrophotos	Page 6

## Calendar of Events

### *Our next meeting...*

Tuesday February 16, 2016

7:30 p.m.

at

[Ojibway Park Nature Centre](#)

5200 Matchette Road

*Two speakers: Mike Mastronardi on using the **Observer's Handbook** (please bring your copy to the meeting) and Tom Sobocan who will be presenting his annual roundup of pictures he has taken at Centre events over the past year.*

### *Activities...*

**Occultation of Aldebaran:** The Moon will pass in front of Aldebaran tonight from 9:10 - 10:30 p.m.. Get outside during the break and have a look.

**Moon, Mercury and Venus:** Will make a nice trio in the morning sky on Saturday February 6th just off of the handle of the "Teapot".

**Mercury Greatest Elongation:** On Sunday February 7th Mercury will be 26 degrees away from the Sun at dawn.

**Council Meeting:** The RASC Windsor Centre Council will be meeting on Tuesday February 9th beginning at 7:30 p.m. at the home of Steve Mastellotto.

**Open House Night at Hallam:** The next open house night at Hallam is on Saturday February 13th at 7:00 p.m..



### 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](mailto: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](http://www.rasc.ca) for current rates.

Contact Greg Mockler at (519) 326-7255 or visit our website at: <http://www.rascwindsor.com> for more information.

## November 2015 Meeting Minutes by Dan Perissinotti

The monthly meeting of the Royal Astronomical Society of Canada - Windsor Center was held at the Ojibway Park Nature Centre on Tuesday November 17, 2015.

Windsor Centre **President, Randy Groundwater**, chaired the meeting and called the meeting to order at 7:40 p.m. and welcomed members and guests to the Ojibway Nature Centre. Randy invited the members to review the minutes of the October 20, 2015 meeting which were printed in the November newsletter.

A motion to accept the minutes of the October 20, 2015 membership meeting was made by Dr. Pierre Boulos, seconded by Steve Pellarin. **MOTION CARRIED.**

### Main Presentation

Randy introduced the guest speaker for the evening, **Dr. Pierre Boulos**. In the past, Pierre had completed some research on "Tom Telescope", which he revived for this meeting's presentation. The goal of this talk and his research is to understand how to educate children by engaging their attention in ways they would understand. Pierre viewed the book by Tom Telescope as "astronomy on political steroids". It's really about the role popular science has when it gets into people's hands and what happens thereafter. He related the idea to today's current events on what is happening with our political elections and what the media is calling the "muzzling of scientists". Tom Telescope is the antithesis of this current idea. Tom Telescope is about a fictitious writer who wrote on Newton's experimental philosophy, for kids.

Pierre described ways in which we all, knowingly or not, share our knowledge and joy for astronomy. He recalled a moment about 8 years ago on Halloween night. He noticed Saturn and Jupiter clear in the southeast sky and brought out his Dobsonian telescope onto the driveway. While focusing on Jupiter, four teenage boys walked by and asked what he was doing. After describing the telescope and what was in view, the teens were in awe, and asked to have a look. For the remainder of the night, Pierre bartered telescope views for Peanut Butter Cups. He kept these four boys off the streets, and engaged in science for about 3 hours, while collecting candy. Pierre invited the audience to discuss similar experiences amongst their neighbours for a few minutes.

Pierre briefly gave a history on Newton's works and public life. By the time he dies, there is still some debate as to whether or not he had the right system. By the mid-18<sup>th</sup> century, 25 years later, the western world had completely adopted his view. A clear lapse in acceptance, but how did it get diffused through the masses? One way is the acceptance in the scientific community, by being debated, adopted, and expanded upon, and so on. A second way is the rise in public literary pieces such as poems that talk about the new science. Then came the question of how to teach the young by means of scientific literacy? Enters, "The Newtonian system of philosophies of familial objects in an entertaining manner for the use of young persons, by Tom Telescope (1812)" – by John Newberry prior to 1767. The book

being an illustrated edition written in the manner for a layperson. Focusing on lecture number two, Pierre described the writings on what the horizon is, the reflecting and refracting telescope, down to the velocity of light and the eclipses of the sun and moon. "The young people were so well pleased with Mr. Telescope's instructions that Mrs. Mentor determined to gratify them further by taking permission to visit an observatory that was erected in the neighbourhood".

After a few questions and comments, Randy thanked Pierre for his always interesting lectures on the history of astronomy.

Randy then introduced Dave Panton and Dr. Susan Sawyer-Beaulieu to give a brief presentation on a handmade **scaled model of an oil pump** that runs off a solar cell and battery backup.

Randy asked Past President Rick Marion to present the list of candidates for **2016 executive and council positions**. Rick presented the list, the elections were held and accepted by the membership. **Motion Carried.** See page 5 for a complete list of the 2016 RASC Windsor Centre Executive and Councillors.

Randy then asked Joady to the floor to present the **Service Appreciation Award to Paul Pratt**. Paul was honored to accept the award, and thanks everyone while mentioning this is not work, it's fun.

Prior to the break, Randy asked the **new members** in the audience to introduce themselves, and welcomed them for joining and being present.

**Break and 50/50 draw:** \$17 which was donated back to the centre.

Mike Mastronardi discussed the **December Social** which would take place on December 4<sup>th</sup> at the Ojibway Nature Centre. It is a pot luck dinner with a raffle draw where people are encouraged to bring a wrapped gift.

Steve Pellarin took the floor and let the audience know about a special talk that was happening at Eastern Michigan University. The talk is given by **Brother Guy Consolmagno** (American research astronomer and Director of the Vatican Observatory) on Vesta and The Chaotic Formation of Planets. A car pool and directions were offered. Brother Guy was also hosting a physics seminar at the University of Windsor the following Thursday covering the classification of meteors and asteroids by their physical properties.

**Director of Observing Report, Steve Mastellotto:** Steve started off with the activities since the prior meeting. Some highlights include major sunspots, aurorae, Mercury in the morning sky, Venus at its greatest western elongation, Orionid and Taurid meteor showers, and Uranus' prominence near the star Epsilon Piscium in the constellation Pisces. Steve then encouraged the audience to offer their experiences and views within the past month.

(Continued on page 5)  
**3**

## At The Eyepiece: A Very Small Telescope Project by Mike Ethier

“Everything has beauty, but not everyone sees it.” Confucius

Galileo made about a hundred telescopes, many of them unusable. His best scopes (about ten of them pleased him) gave about 30x, and were stopped down to well below 50mm. They suffered from chromatic aberration, among other things. And yet his contribution to observing must rank up there with the 200” reflector on Mt. Palomar.

A fellow blogger caught my attention many years ago with his project of observing fifty objects with a toy 50mm refractor he purchased from *Toys R Us* (links to follow). He only managed twenty-four objects before his blog went silent. It took a long time before I figured out a way to pay tribute to both that blogger, and to Galileo. Into the mix came William T. Olcott, founder of the American Association of Variable Star Observers, and friend to small telescope users everywhere. This article is about discovering (or rediscovering) what amateur observational astronomy is supposed to be all about.

Many of us received our first small telescope under the Christmas tree many moons ago. More than likely it was a refractor of from 50mm to 70mm in aperture. Sadly, many of those scopes came with mounts that did no justice to the optics, along with eyepieces that hampered our first views. After all, who could resist using 300x or 400x on the moon with a 2.4” refractor? Remember the disastrous views that followed? And yet despite this, many of us went on to delve deeper into the mysteries, beauty, and wonder of the night sky, continuing to this day. We were also quick to learn the usefulness of lower magnifications!

Readers of this column know that I regularly observe with a 12” Orion Dob, so it may come as a bit of a surprise that I now also use a 50 mm refractor (no, it’s not my finder scope). You may be even more surprised to learn that this refractor is fully capable of giving me as much pleasure as the 12”, though on a decidedly different scale. Recently I purchased *Space Eye*, a 50 mm refractor from Vixen Optics (see image below). Unlike the *Toys R Us* blogger from Singapore, I wanted the best instrument I could buy at a reasonable cost, and I wanted to observe from a dark sky.



While the results of my observing project can be found elsewhere (see note and link at end of this article), in this space I mainly want to share my enthusiasm for observing with my fellow astronomers. Firstly, the mount of my 600 mm refractor is rock steady, and has slow motion controls. Secondly, the inexpensive scope came with two Plossl eyepieces, giving 30x and 60x. Both are usable and give very good to excellent results. We have observed nebulae, globular and open clusters, planetary nebulae, double and multiple stars, galaxies, as well as lunar objects. Sat-

urn, Jupiter, Mars, Venus and Mercury await, as well as a host of deep sky objects.

Each time I observe something with Space Eye, I am pleasantly reminded of my earliest days as an amateur astronomer. There were great mysteries in the night sky, and I was determined to solve them all. The smallest scope I ever observed with was a 40 mm refractor. I will never forget my first views of the lunar surface with it, or of open clusters NGC 2244 and 2264 in Monoceros, not to mention the Pleiades and the Orion Nebula. This was all done beneath a brilliant street light in front of my house in Sudbury, under rather chilly winter observing conditions. Upgrading to a 3” reflector, and then later to a 4½” reflector (thank you Consumers Distributing) nearly exposed the entire universe to my hungry eye.

And so my latest project has begun, alongside the work I am doing with the 12”. Using Olcott’s *Field Book of the Skies* (1954 edition), I am seeking 60 objects with Space Eye, all taken from the maps and descriptions within those hallowed pages (to find out why I am setting my goal at 60 objects, see link to my blog, following). I am now more than halfway through my initial goal, and have been having the time of my life! Most of us have come up through the years viewing the same objects with larger and larger objectives. However, it is just as refreshing to begin all over again, seeing the marvels of the heavens much as Galileo saw them (though still much better than he ever did). In fact, if you are not impressed with, say, the view of the Double Cluster, or the Orion Nebula, through a scope like Space Eye, then you may in fact be done with the wonder part of astronomy.

And so I challenge you to dig out that old small telescope gathering dust in your attic or basement or garage, and have a peek at a few showpieces this winter. Small scopes do not take long to set up, and they cool down much quicker than large ones. Even on the coldest night, a view of the Great Nebula and a few other easy, large and bright objects takes almost no time and very little effort to set up. I am looking forward to Spring and Summer, too, when I can enjoy the sights of several other famous objects, as if I am seeing them for the first time, way back in the day. Referring to the Confucius quote at the beginning of this article, night sky beauty is everywhere, and if you have forgotten how to appreciate it in a small scope, then you really have missed the point of viewing with a larger one. Not everyone can appreciate beauty with such small instruments. This is unfortunate. There is a cure, however. Get out there and try it for yourself!

<http://small-telescopes.blogspot.ca/> This is the blog that started me thinking about using a small scope again. I highly recommend it! The blogger has been silent since 2010.

<http://deepskyngc.blogspot.ca/>

My own adventures with Space Eye are detailed here. So far, there are 7 illustrated entries under the “Small Telescope” heading, mixed in amongst my 12” notes.

## November Meeting Minutes (continued)

(Continued from page 3)

Steve offered some pictures of Taurid meteors and highlighted an image taken on a fixed tripod that showed Taurids streaking through the long exposure while moving across the field of view. This caused the meteors to look as though they were emanating from all points in the sky.

A photo was provided by Art Rae taken on November 9<sup>th</sup>, three images shown with different lighting levels over time. In the image, clearly defined was Venus, Mars, Jupiter, Moon, and Regulus, showing the dance of the planets across the ecliptic.

Steve presented a video and still image of the ISS transiting across the disc of the moon that he made in October. Steve subscribes to the CalSky notification service that alerts its users when the ISS is going to pass near or across the disc of the moon or sun. After some careful calculation and calibration, Steve was able to capture multiple frames, stack them into a video, and show the path and time taken to cross the moon (approximately 1.2 seconds as shown). Upon closer study the solar panels of the ISS can be seen and detailed.

A photo taken of IC 342 (an extremely hard object to see visually due to its low surface brightness) was captured by Brian Thomas. As well as another local photographer, Pete Barbaro, an image taken within the City of Windsor of the Pleiades Star Cluster. The same star cluster was taken by Steve Mastellotto at the Hallam Observatory. He used his newly purchased Orion 65mm piggybacked on the C14, exposed for one hour. Lastly a photo taken by Brian Thomas was offered showing the Rosette Nebula. A vivid and bright object which can be easily photographed.

Continuing with the objects to look out for, Steve started off with the Leonid meteor shower which was peaking on the night of the meeting and reaches storm levels every 33 years. The Geminids meteor shower will peak on December 14<sup>th</sup> at 1 p.m. A Comet C 2013 Catalina can be viewed throughout December and January, through Virgo right past Arcturus. It will be at its brightest at the beginning of December as it passes its perihelion, reaching approximately 5<sup>th</sup> magnitude.

For early December, Steve showed the positions of the Summer Triangle as still being visible up to the winter solstice. Prominent in the sky will be the constellations Gemini, Orion, Pegasus, and Andromeda and so on.

Steve had brought up a great topic accessible to all skill levels. Weather and its relationship to astronomy. Introducing the Clear Sky Chart (formally, Clear Sky Clock) to the audience as a quick and accurate measure for cloud cover, temperature, transparency, seeing, darkness, and general weather forecast for a 48 hour time scale. Links can be found on our RASC website, as well as Steve Pellarin's.

Steve highlighted an area of the sky to keep a look-out over the Fall/Winter. He suggested the areas around the constellation Taurus and Auriga, in particular M45, open clusters, clusters with nebulosity, as well as a super nova remnant. Elnath being the star in common between the two constellations, is a bright star located along the Milky Way. Starting with M45 (Pleiades), NGC 1647, a pair of open clusters NGC 1807 and 1817, M1 (Crab Nebula), M37, M36, M38 and the IC 405 (Flaming Star Nebula).

Randy thanked Steve for his presentation and mentioned how amazed he was at the ISS passing the moon photo. He reminded the audience that the next regular membership meeting would take place on Tuesday January 19<sup>th</sup> at 7:30 p.m. and the next open house at the Hallam Observatory will be taking place Saturday December 12<sup>th</sup> at 7:00 p.m.

Randy adjourned the meeting at 10:13 p.m.

## 2016 Executive and Council of the RASC - Windsor Centre

### Executive

President	Randy Groundwater
1st Vice-President	Mike Mastronardi
2nd Vice-President	Rick Marion
Secretary	Dan Perissinotti
Treasurer	Greg Mockler
National Council Rep.	Mike Mastronardi

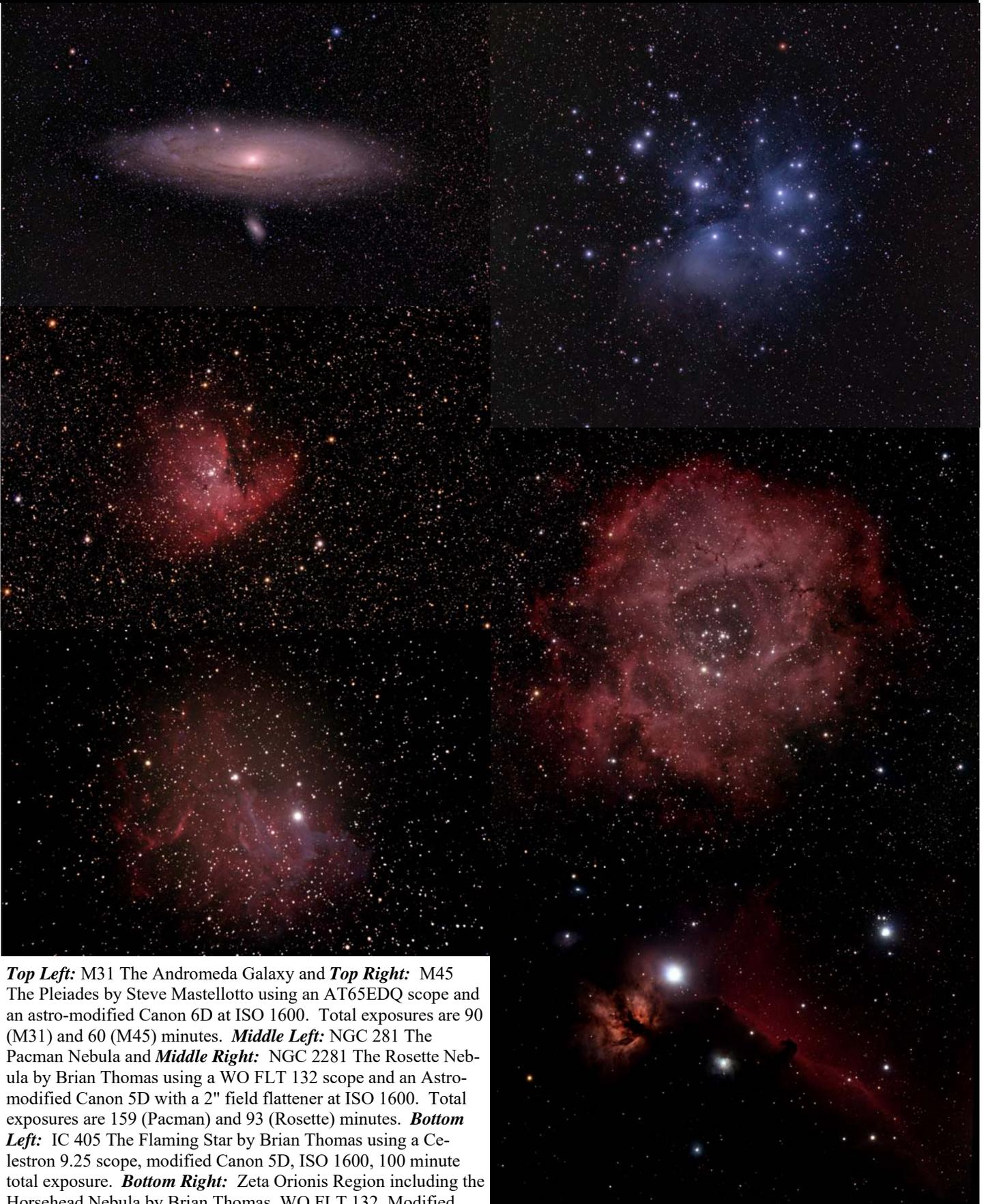
### Councillors

Dr. Pierre Boulos	Melissa Martin
Steve Mastellotto	Paul Pratt
Paul Preney	Tom Sobocan
Dr. Susan Sawyer-Beaulieu	C. Joady Ulrich
Mahayarrahh Starr-Livingstone	

### Appointed Officers

Honorary President	Dr. William Baylis
Past-President	Rick Marion
Alternative National Council Rep	Tom Sobocan
Librarian	Dr. Pierre Boulos
Recording Secretary	Dan Perissinotti
Public Education Director	Randy Groundwater
Public Relations Director	Rick Marion
Directors of Observing	Steve Mastellotto
	Steve Pellarin
	Brian Thomas
Light Pollution Abatement Dir.	<b>Open Position</b>
Hallam Observatory Director	John Marn
Aurora Editor	Steve Mastellotto
Webmaster	Steve Mastellotto

## Member Astrophotos



**Top Left:** M31 The Andromeda Galaxy and **Top Right:** M45 The Pleiades by Steve Mastellotto using an AT65EDQ scope and an astro-modified Canon 6D at ISO 1600. Total exposures are 90 (M31) and 60 (M45) minutes. **Middle Left:** NGC 281 The Pacman Nebula and **Middle Right:** NGC 2281 The Rosette Nebula by Brian Thomas using a WO FLT 132 scope and an Astro-modified Canon 5D with a 2" field flattener at ISO 1600. Total exposures are 159 (Pacman) and 93 (Rosette) minutes. **Bottom Left:** IC 405 The Flaming Star by Brian Thomas using a Celestron 9.25 scope, modified Canon 5D, ISO 1600, 100 minute total exposure. **Bottom Right:** Zeta Orionis Region including the Horsehead Nebula by Brian Thomas, WO FLT 132, Modified Canon 5D, ISO 1600, 90 minutes total exposure.