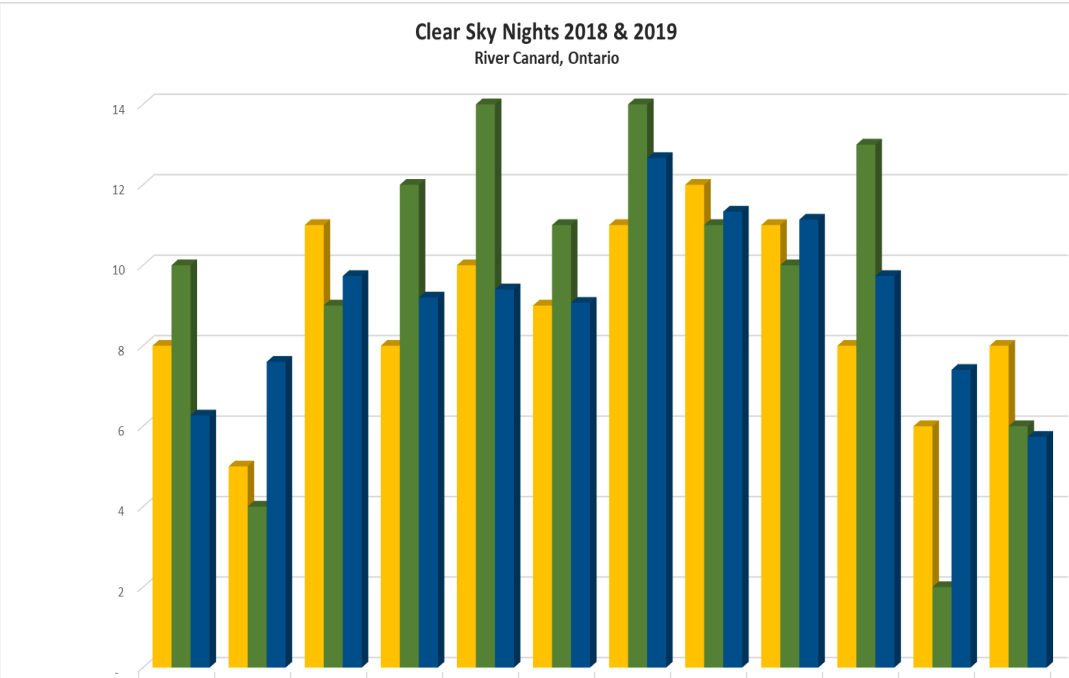
AURORA
The Royal Astronomical Society of Canada - Windsor Centre
Volume 45, No. 6
March/April 2020

# 2019 Clear Sky Nights by Art Rae




| | January | February | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 8 | 5 | 11 | 8 | 10 | 9 | 11 | 12 | 11 | 8 | 6 | 8 |
| 2018 | 10 | 4 | 9 | 12 | 14 | 11 | 14 | 11 | 10 | 13 | 2 | 6 |
| 15-yr Average | 6.3 | 7.6 | 9.7 | 9.2 | 9.4 | 9.1 | 12.7 | 11.3 | 11.1 | 9.7 | 7.4 | 5.7 |

Here is my tally of clear night skies for 2019 (green bars) from my location near River Canard, Ontario. In addition I have included the 2018 (blue) and a 15-year average (yellow) counts for reference.

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. 2019 brought 107 clear nights which is about 29% of the nights for the year and slightly below the 15 year average for my records of 109 nights or 30% of the nights. This is down significantly from the 2016 record total of 126 clear nights or about 35% and also down from the 116 (32%) last year. The pattern that was developing in 2016 through 2018 of having a lot of clear skies in the May through July period appears to have reversed itself and we are back to the long term norm of July through September being our clearest months. October is often thought to be one of the better months for observing and with the cooler temperatures and fewer mosquitos it is definitely more pleasant but the data shows it really is not much better than the Spring months of March through June. It is no surprise that the period from November through February is the worst time to observe in our area however December 2019 had 8 clear nights the highest in my records and well above the long term average of 5.7 nights. Since I have been keeping records we've experienced a high of 126 clear nights (2016) and as low as 85 (2008).

Here is hoping that 2020 will have a good run of clear nights in October so that we can all enjoy the favourable opposition of Mars when it will be much higher in the sky in the constellation Pisces.

## *In This Issue*

# Calendar of Events

***Our next meeting…***

April?, May?, hopefully soon
at
Ojibway Park Nature Centre
5200 Matchette Road

***Main Speaker…***

To Be Determined

***Topic…***

*To Be Announced*

## *Activities...*

***Moon, Jupiter, Saturn and Mars:*** The moon passes each planet on successive mornings from **Tuesday April 14th through Thursday April 16**. Should make a nice set of photos.

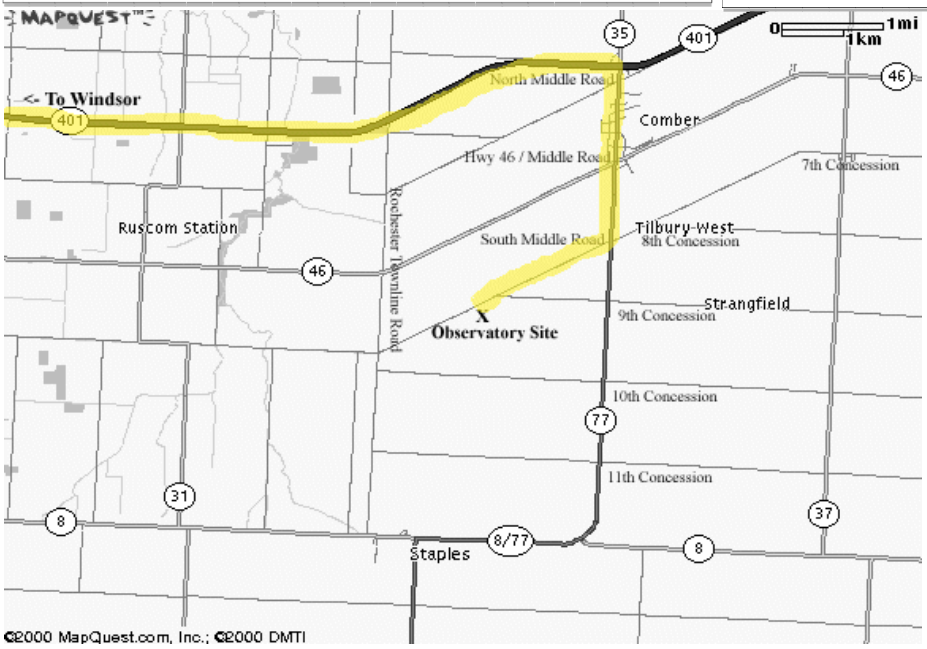
***Lyrid Meteor Shower:*** Peaks on **Wednesday April 22nd** which coincides with the New Moon so no interference.

***Venus:*** Attains greatest brilliancy at magnitude -4.7 on Monday April 27.

***Eta Aquarid Meteor Shower:*** Peak on **Wednesday May 6** however the Full Moon is the next day and will interfere with the view.

***Venus/Mercury:*** On **Friday May 22** Venus and Mercury are 1.5 degrees apart about 8 degrees above the Western horizon 45 minutes after sunset.

***Comet C/2019 Y4 (ATLAS):*** Is expected to be a naked eye sight in May but recent news is that it may be breaking up.




### 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.

# Director of Observing Report by Nancy Ng

**Period of April 21 – May 16, 2020**

The **new moon** will give us a nice dark sky on April 22 and the **full moon** will shine on May 7.

There are three planets visible in the early morning sky before sunrise toward the Southeast horizon.

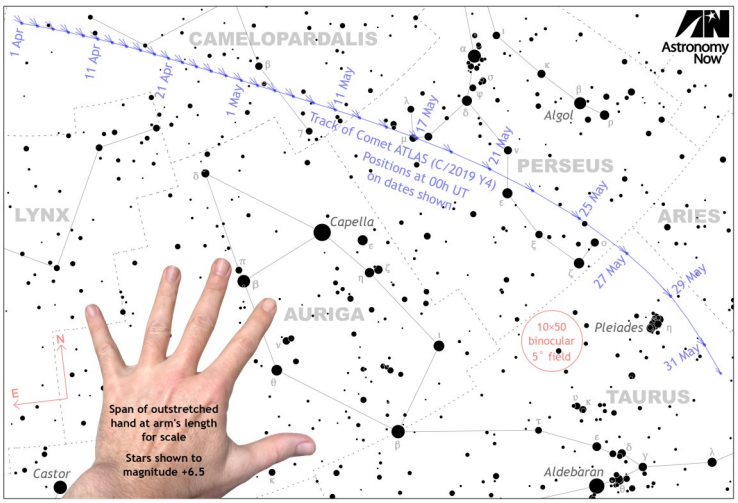
On April 22 **Jupiter** will rise by 2:50 a.m. followed by **Saturn** at 3:05 a.m. and **Mars** at 3:50 a.m.. These planets are stretched out across the constellations of **Capricornus and Sagittarius**. If you have a clear horizon and a very dark sky you may catch a glimpse of **Neptune** rising by 5:10 a.m. in the East. The waning gibbous moon will be visiting these planets from May 12 to May 15. **Uranus** is staying out of sight reaching solar conjunction on April 26 and **Mercury** reaches superior conjunction on May 4.

**Venus** is still shining brightly as our evening 'star'. Venus' altitude at sunset on April 21 is just over 40 degrees. After this time the planet will slowly begin to appear lower each night. On April 27 Venus will reach **greatest brightness** with 26.7% of the Earth facing portion of the planet being illuminated. On April 2, 3 and 4 as a last hurrah, Venus travelled through the **Pleiades** cluster in Taurus. This apparition will not repeat itself for 8 more years.

There is a new comet coming into view high in the northern sky. **Comet C/2019 Y4 (ATLAS)** was discovered in Hawaii on December 28, 2019 using the Asteroid Terrestrial-impact Last Alert System. Although this is an early warning system this comet will easily pass by Earth. The comet crossed over Mars' orbit in late March and was approaching the inner solar system. There is great expectation that this comet will become **naked eye visible** by April 24 with a 6.1 mag. (as seen from Earth). Travelling at 35km/sec, relative to the sun, this speeding rock is showing signs of a wide tail and the green/teal colour associated with some comets. C/2019 Y4 will reach its nearest distance to Earth on May 23 where it will be at 0.78 astronomical units. On May 31 it will reach perihelion at 0.2528 AU's. The Earth is 1 AU away from the Sun. Let's hope for something new and exciting in the night sky!

***"The cosmos is within us. We are made of star-stuff. We are a way for the universe to know itself."*** - Carl Sagan

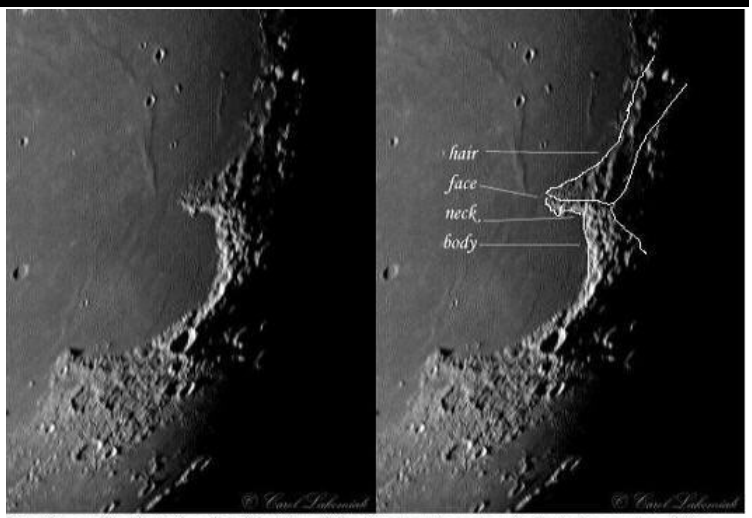
This interest in astronomy which we all share, can be very relaxing and tranquil as we look into the deep, never ending, mystical night. We're drawn to it with our telescopes, binoculars and cameras. At this time and with social distancing we can still share our amazement and joy of the night sky with others.




# At the Eyepiece, Special Edition: The Moon Maiden by Mike Ethier

Remember the Face On Mars? It nearly started a revolution, even when NASA released images proving that it was but a trick of the shadows. Even today some people are still convinced that it was put there by intelligent life. Well, we can look even closer for more evidence. While many of you were out looking at Venus sailing through the Pleiades on April 3rd, I was searching for the Moon Maiden on the lunar surface. And I found her (I also saw Venus and the Pleiades)!

In Olcott's Field Book of the Skies, look for lunar plate VII, where he discusses Sinus Iridium. Capes Heraclides is at the eastern end of this fascinating small mare, and is 4000' high. When the moon is between 10 and 11 days old, the face, head, and hair of the maiden can be seen, with very little imagination required. We were using Deb's 6" reflector at 136x, and had a perfect view of her face, head, and hair. Her very small white face is seen in profile, resembling a carved ivory cameo. Her long dark hair comes streaming out behind her, with her body melting into the curving Jura Mountains, giving the overall effect of a ship's figurehead.



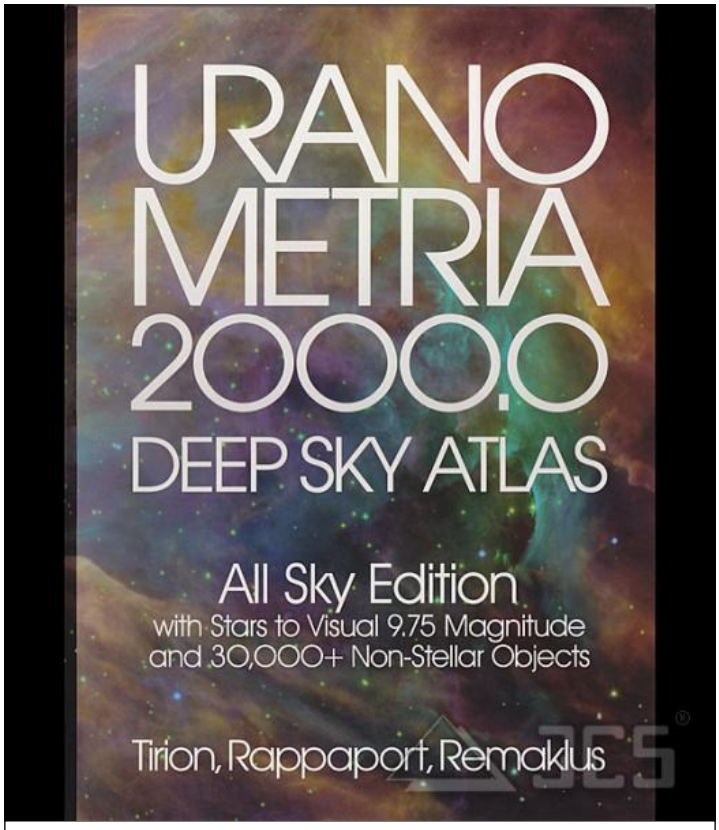
The Moon Maiden's head is the Heraclides Promontory; her body is the curve of the Jura Mountains; her hair is the leading edge of the area between Sinus Iridum and Sinus Roris.

There are images on-line that will help you see exactly where to look, but the live view is much better and more fun to view. Even APOD devoted a day's presentation about her, but I find their drawing unhelpful. And while observing there, look just above her head (south) for an unusual triangular formation of mountains, with a clear area in the center.

# At The Eyepiece: Uranometria 2000 by Mike Ethier

In earlier posts I talked about astronomers who work their way methodically through object lists, often to the detriment of the object. A quick glance, a note or two, maybe a quick sketch and then they are off to the next object. All well and fine if you are looking at 14th magnitude galaxies, but if your list is packed with the brightest deep sky gems, what is the hurry? 400 top objects could well last your entire life.

To make certain that I never finish my life list, or run out of options on any given clear night, I chose the NGC list a long time ago as my main deep sky emphasis. I will not pass a Collinder or Berkeley cluster without a look, but my longest viewing time is spent on the NGC list. In a lifetime of observing I have seen and logged many of them. Ones seen previously with the 8" scope are being reviewed with the 12". And some of the best ones are being glimpsed with my 2" refractor. It's fun to compare the notes of past viewed objects when using a different scope.




*The Uranometria 2000 All Sky Edition is available from Willmann-Bell, Inc. at:* https://willbell.com/u2k/index.htm

The current edition of Uranometria 2000 claims that more than 30,000 non-stellar objects are on its charts. That's over 22,000 more than are in the NGC list. Good grief. Makes me kind of thankful that I am not overly obsessed. Of those 30,000 objects, nearly 26,000 of them are galaxies. Which means that nearly 5 in 6 non-stellar objects viewable in the night sky with amateur scopes are galaxies. Most of those are pretty faint, too. Here is the breakdown, as reported on the atlas' back cover, remembering that this encompasses the north and south skies:

*25,883 galaxies*

*671 galaxy clusters (Abell)*

*14 star clouds*

*1,613 open clusters, including those in the Magellanic Clouds*

*170 globular clusters*

*355 bright nebulae*

*367 dark nebulae*

*1,145 planetary nebulae*

*260 radio sources*

*35 x-ray sources*

I remember being very surprised when I first learned how many galaxies were available to amateur astronomers (all the ones listed in Uranometria are mag. 15 or brighter). I mean that I was very surprised. Growing up loving the Milky Way area and all of its clusters and nebulae, it was easy to conclude that clusters of stars far outnumber galaxies. That, to say the least, was an erroneous conclusion. If one decides to choose the NGC for a life list, one must be prepared to see some galaxies. I don't just mean the ones in the Messier catalog, either.

Finding and doing justice to galaxies requires the very darkest of dark skies. I used to be able to pick off 12th mag. galaxies from my back deck in Anderdon with my 8" scope. Light pollution has increased so much in my area that this is now almost impossible, even with a 12". If I want to do a decent job of observing in Sextans this spring, I have to be prepared to travel with the scope. This brings on an interesting conundrum. Do I observe the brighter galaxies from my home, saving the fainter ones for country skies? Though this is a feasible plan, I try to imagine what brighter objects might look like from a dark sky. If I can even glimpse it from home, then it should be that much more impressive from a dark sky. Should I save all my faint objects for darker skies? What about the Messier list? What would these objects look like from a really dark sky site, if only seen from light polluted ones?

One way to help tackle this problem, which I'm certain many of us face all too often, is to keep notes and report on the brighter ones as seen from home suburban skies, but also return to them in dark skies and enjoy another, more lingering look. Open clusters and globulars that resolve, for example, will show many more stars from a dark sky, and galaxies can be expected to show a larger area and appear brighter, especially towards the center. Light pollution filters work extremely well in light polluted skies. However, their future under LED lights remains in flux.

Double star work can carry on quite well, too, from poorer skies, often even during full moon nights, though the rich background seen in a dark sky might reveal a hidden gem or two to the very observant viewer that would be otherwise unnoticed. However, I am determined to do as much deep sky work in the darkest skies I can reach, though I realize that time is running out for the Wind-

## At The Eyepiece (continued)

sor area. I've been spoiled by my northern Ontario early years of observing, and even by Hallam when it was at its best.

**Messier Of The Month: M 43**

M43 is also commonly known as De Mairan's Nebula, as well as NGC 1982. De Mairan was a French scientist who lived from 1678-1771. He observed the nebula in 1731, which Messier later added to his now famous list. The sword area of Orion, which also includes the more famous and much larger M 42, contains no less than 10 separate NGC numbers, and makes for a fascinating hour of observing to tell one from the other. This area shall be the subject of a future At The Eyepiece article.

M43 is not only overshadowed by its bigger deep sky mate M 42, it is actually a part of it. M 43 lies just barely north of M 42, separated from it by a narrow dark lane, and is almost touching the main nebula. Look for an ivory coloured 7th magnitude star north of the big nebula. M 43 encircles this star, with more of it showing south of the star than north. A fainter elongated segment lies north again, towards another star. The nebula is easy to see without a filter, and should be visible in scopes of 4". Although noted in years past with the 4.5" Tasco reflector, the above description was made using the 12" Orion Dobsonian, from Hallam, on January 5th, 2019. Next time you are observing in this area, make sure to take a look at Messier 43. An interesting article could also be written about Messier objects that can be viewed with other Messier objects in the same field of view. This is one of them.

Messier 43 (NGC 1982): 20' x 15'; Emission and Reflection Nebula.

Clear skies, and happy observing - Mapman Mike

## President's Message

Dear RASC Windsor Center Members:

In these most unusual and disturbing times we find ourselves in, I hope that each and every one of you are remaining well and adjusting to the new routines of daily life. We are all doing everything we can to minimize the spread of the COVID-19 virus and that of course has included suspending our regular membership meetings until such time as it has been deemed safe by the medical authorities to resume public gatherings.

There has been a couple of suggestions made about considering an online meeting or conference via a remote service such as Zoom or the like and that is something that we might look into at some point should social distancing go on for a longer period of time.

In the meantime, we will continue to make the *Aurora* available, here, on our website and I encourage you to send our Editor, Steve Mastellotto, a contribution, be it a paragraph, an article, or even just a photo with a caption to let your fellow center members know what you have been up to, astronomically speaking.

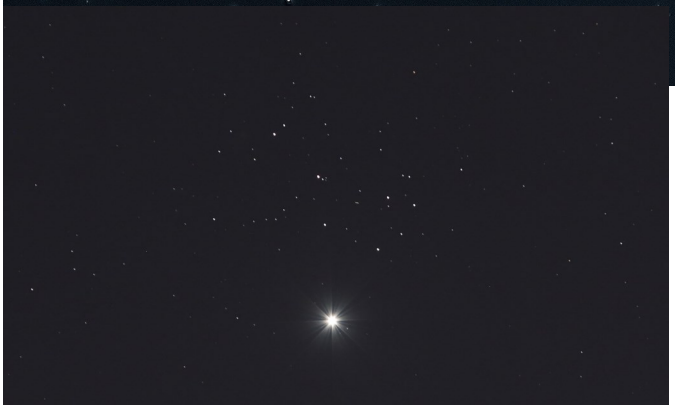
With the coming of April now and milder temperatures, many of us will be dusting off our telescopes and getting back under the stars a little more often. We can be thankful, at least, that skywatching is, in essence, a solo activity so is really not affected by the current situation! A reminder that Hallam Observatory grounds are still accessible to center members who would like to set up there for an evening of observing, social distancing considered, of course, and likewise the observatory telescope itself continues for those with key access.

Randy Groundwater



**For Sale:** We have a 6" f/8 Sky-Watcher DOB that was donated to the Centre that is now for sale. It comes with two Plossl 10mm and 25mm eyepieces. Starr just cleaned the optics and they look good. Contact Starr if you are interested in making an offer - $300 OBO.

# Member Astrophotos



***Top Left and Right:*** Randy Drumm got out with his new Skywatcher Esprit 100mm APO, EQ6 R Mount and Canon 77d DSLR with CLS filter and field flattener guided with PHD2 to capture the Horsehead and Orion Nebulae. ***Middle Left Top:*** Nancy Ng captured this wide shot of Venus with the Pleiades and Hyades on April 2. ***Middle Left Bottom:*** Mahayarrahh-Starr captured the Fireworks Galaxy from Hallam using the AT111 telescope. ***Middle Right:*** Brian Simpson captured this narrowband image (SHO palette) of the Crab Nebula from Lasalle using his C-11. ***Bottom Left:*** Susan Sawyer-Beaulieu got this close-up of the Venus/Pleiades conjunction on April 2 from her backyard using a tripod mounted Canon 5D Mark IV, EF 70-200mm f/2.8 L IS lens, a 2 second exposure @ 200mm f.l., f/4.0, and ISO 1600.