

# AURORA



Volume 35, No. 2

The Royal Astronomical Society of Canada - Windsor Centre

October 2009

## A Galileo Moment by Matt McCall

On August 18, I witnessed a rather minor celestial event, but one that was also a first for me. Some might call it a 'Galileo moment', since it was the kind of thing that Galileo Galilei would have seen in 1610, when he first turned his telescope to the skies above. I'm referring specifically to the four major moons of Jupiter, and how he was able to discover them with his seventeenth century instrument. I also used an old instrument to observe Jupiter that night, my grandfather's old 7x35 field binoculars, very likely about equal in power to Galileo's antique telescope, at best.

It was with these that I managed to find the Galilean satellites of Jupiter. Callisto, to the extreme east of the planet, and Ganymede with Europa very close together nearer to the gas giant. Io was lost in the glare of Jupiter's reflected sunlight when I first started observing, not long after 10:00 p.m.. I never did see the whole moon the entire night, even though there was to be a transit along Jupiter's face. Though I did experience something that, to me, seemed somewhat unique and most likely rare, particularly with the use of such a low-powered tool.

At exactly 11:00 p.m., when Io was to begin its transit of Jupiter, the planet appeared to steadily brighten through my binoculars. Much to my amazement, the entire disk appeared to significantly increase its brightness to more than I had observed before. Over the course of about one minute, as Io slid invisibly across the edge of Jupiter, I could just make out what appeared to be faint detail on the planet itself, possibly even just the edge of the satellite. I quickly lowered the binoculars to steal a glance at Jupiter with my own eyes, to see if the brightening was noticeable without them, but as I raised them back to look through them again, I realized this little spectacle could only be viewed with optical aid at least as strong as what I had now.

As I watched, and Jupiter reverted back to its normal magnitude, it almost seemed that the lower part of the dark, blurry details was in fact, the Great Red Spot, also transiting the planet not far from Io. Of course I was never able to actually resolve it in my instrument; however, since I knew the position of the spot, it was safe to assume that patch of blur in my vision was the atmospheric hurricane the size of three Earths, and not merely the way light was entering the lenses. Then, as quickly as the features came, they went away, replaced by the same unchanging disk as before.

I waited until 11:07 p.m., when Io's shadow would begin its transit of Jupiter's atmosphere, but oddly enough, I saw nothing. I then decided to return to observing Jupiter over an hour later when Io would be finished its transit, unfortunately by that time the skies had clouded over and I was unable to view the planet after that. However, in the short span of time that I was able to, through the eyepieces of something nearly as crude as Galileo's scope, I believe it was not unlike seeing through the eyes of Galileo himself, as he first saw Jupiter's four largest moons, nearly four hundred years ago.

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## Calendar of Events

### *Our next meeting...*

Tuesday November 17, 2009

**7:30 p.m.**

at

Maidstone K of C Hall

10720 County Road 34 (Old Highway #3)

### *Main Speakers...*

Dr. Bill Baylis, Dr. Pierre Boulos, Steve Pellarin and Randy Groundwater

### *Topic...*

Presentation of "Galileo Meets Kepler"

### *Activities...*

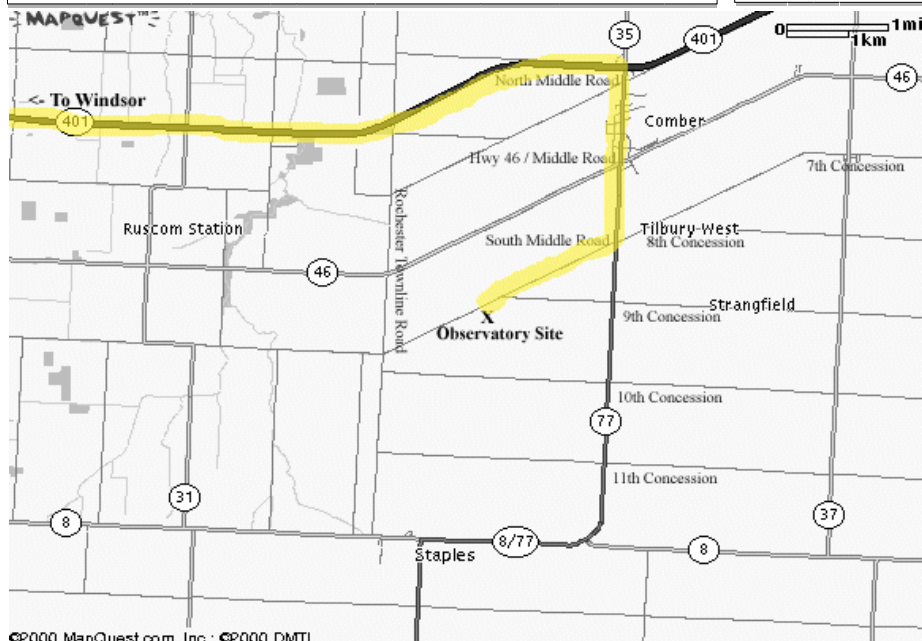
**Open House Nights at Hallam:** Starting at 7:30 p.m. on Friday October 23rd and Saturday October 24th we will be holding special back to back open house nights at Hallam Observatory to celebrate the IYA 2009 Galilean Nights program.

**Orionid Meteor Shower:** Peaks on the morning of Wednesday October 21st.

**Mars in the Beehive Cluster:** Watch Mars pass through M44 from Midnight through Dawn on the nights of October 31 - November 2.

**Daylight Savings Time Ends:** Sunday November 1, 2009.

**Leonid Meteor Shower:** Peaks on the morning of Tuesday November 17. Potential surges of activity may occur at 2:26 a.m. and 4 a.m. EST.



### Hallam Observatory Site

**Directions:** The map above 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.

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 and December. The August, October, January, March and May issues are full newsletters (usually 6 pages) with a number of member submitted articles. The September, November, February, April and June issues are short flyers (2 pages) with one short article.

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 K of C Maidstone Recreation 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. And optionally the RASC Journal 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 Ken Garber at (519) 966-3478 or visit our website at: <http://www.rascwindsor.com> for more information.

## September 2009 Meeting Minutes by Dave Panton

Minutes from the meeting of September 15, 2009 held at the Maidstone Recreation Centre and chaired by President Dr. Pierre Boulos.

Minutes from the June meeting were read. Steve Mastellotto made the acceptance motion, Tina Chichkan seconded and the motion carried.

Pierre announced that Past President and long time member Susan Sawyer-Beaulieu had just earned her Doctor of Philosophy degree at the University of Windsor. A round of applause ensued.

Events of the Summer were summarized by Pierre commenting that weather and other factors had reduced both attendance and revenue earned. Both the Point Pelee public observing event and the Pelee Island Winery evening suffered. We should not be discouraged and both events will be repeated in 2010.

The very important Garage Sale fund raising event held last year by Al DesRosiers will be repeated by Al on September 26th at his home on Lesperance road in Tecumseh. Donations of all manner of salable items are welcome. Al requested help to set up at 7:30 a.m. Assistance manning the sale to 3:00 pm is also needed. He plans to have a one day sale based on slow sales last year on Sunday.

### Main Presentation

“The Astronomy of the Invisible” by Juliana Grigorescu. Juliana was inspired by reading a book written in Bucharest by professor Ioan Todoran in 1989 revealing the enormous range of the electromagnetic spectrum, only a tiny portion of which is visible to our eyes. From the lowest radio frequencies to the highest in gamma waves they were discovered beginning in the 1930's when radio waves were found to be mysteriously coming to us from space.

Theories as to their sources were soon developed and broadened the understanding of physics. Star explosions are an example but there are many more such as charged particles drawn into strong magnetic fields. As one examines higher frequency radio waves it is necessary to rise above Earth's atmosphere, first via telescopes hanging below balloons, later mounted on rockets for brief flights above our atmosphere and then on satellites for long term observing.

Higher radio wave frequencies blend into the infrared waves we sense as warmth from the Sun. We can observe infrared with high altitude telescopes and satellites, such as IRAS. Examples are the slight warmth from Jupiter, galaxies, dying stars such as Antares and star forming areas as in Messier object 42.

Familiar visible light follows and blends into invisible Ultraviolet light from our Sun, mostly absorbed by Earth's atmosphere. Spacecraft are again the instrument of necessity. The Sun's corona is a major source but there are lots of others such as energetic stars and the jet of gas from Messier 87.

Wavelengths shorten until we observe damaging X-Rays from sources such as binary stars. All are observed from far above our protective atmosphere by spacecraft, most notably the Chandra X-Ray satellite.

Gamma rays top the observed spectra with the shortest wavelengths. They were first observed in 1963 from space. The Crab nebula is a strong source. Astronomical Images composed from the combined images of electromagnetic radiation from radio waves to gamma rays are not only spectacular, they help give us a much broader view of the wonders of our universe.

Juliana concluded her talk by distributing an astronomical cross word puzzle she prepared based on the material covered in her presentation.

Pierre thanked Juliana for preparing and presenting such an interesting talk.

**Break time and 50/50 draw** followed. Then Pierre welcomed new members and guests. Susan Sawyer-Beaulieu announced member Paul Pratt will be speaking at an Essex County Field Naturalists dinner, silent auction and fund raising event at the Fogular Furlan on November 7th. Tickets \$30 available at the Ojibway Nature Centre.

### Reports

**Treasurer, Ken Garber:** Ken reported our current bank balance is \$4,877.87. Paid up membership is currently 98, twenty four of whom are due for renewal this month. Ken will e-mail members to take orders for 2010 RASC National Calendars. They are \$14 each.

**Librarian, Rick Marion:** The white telescope has been sold and the rest will be placed for sale at Al DesRosier's fund raising garage sale in late September.

**Newsletter Editor, Steve Mastellotto:** Steve thanked contributors for articles and photographs and asked for more, needed in the full issue in October. He has placed the newsletter onto our website where the photos can be viewed in full color.

**Astrophotography, Steve Mastellotto:** Currently there is a small ad hoc group doing astrophotography at Hallam. Rick Marion has placed his auto-guider at Hallam for accurate tracking in long exposures. Steve suggested holding two formal meetings per year at Hallam.

**Public Education, Randy Groundwater:** Randy has two groups scheduled for visits to Hallam this Fall. Tom Sobocan hosted a group of friends and neighbours to see an ISS passage from his home. Tina Chichkan reported sharing a similar sighting with fellow guests at a lodge in Muskoka. Additionally they also enjoyed the Persied meteor shower. Pierre, in concert with a park guide in the Bruce Peninsula hosted three sky tours for overnight park guests. Steve Mastellotto gave a presentation to

*(Continued on page 5)*

## Hallam Happenings by Dave Panton

The Comber truck stop light pollution issue has not been settled. We have assurances (most recently on September 25) from the Town of Lakeshore authorities the lights must be changed. A large performance bond is still being held so there is substantial incentive for the contractor(s) to “get with it” and install full cutoff lighting to complement all the others on the site.

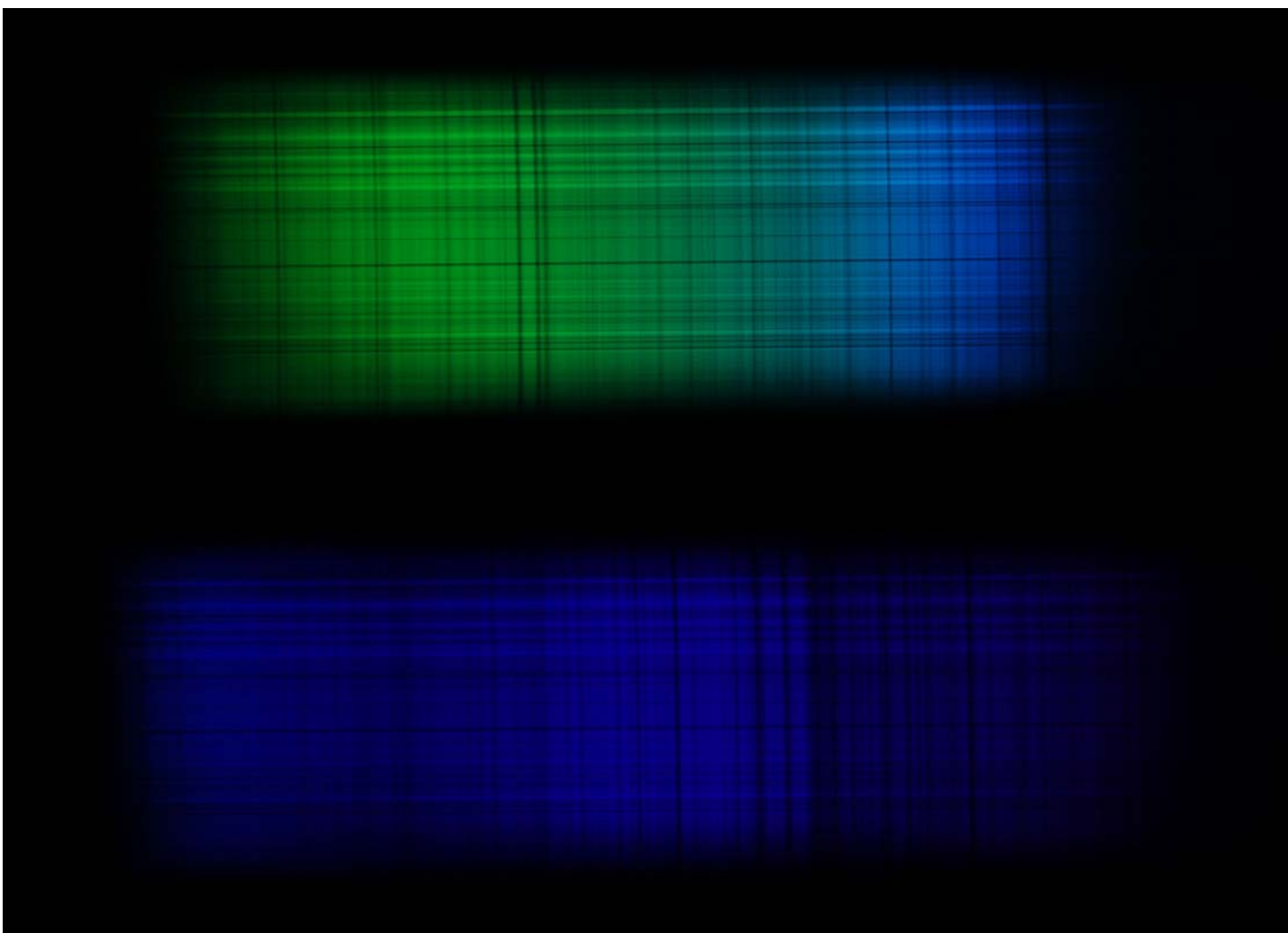
Ray Drouilliard has planted and cared for many pine trees on the Hallam site over the years and recently began a new line of trees to help block horizon lights to our North East. Ray deserves a lot of thanks for this mundane task as he not only provides and plants trees, he also brings large jugs of water in his van to water them until they are safely established and growing in our Essex County clay.

Recent efforts to shoot photos of the Sun's spectra from Hallam have yielded some interesting shots in the C14 (with Sun filter firmly screwed in place). It is a new experience to take “astrophotos” in the blazing light of the Sun. Dave Ainslie dropped by at one session and took great interest in the proceedings.

The September open house was attended by about a dozen people in spite of a very doubtful sky. Fortunately brighter objects shone through the haze and provided visitors with views of the Moon and Jupiter and a few bright stars.

Rick Marion's auto-guider awaits a new trial setup using a new set of instructions drafted by Juliana. It has not been used recently and is expected to help yield more very nice astrophotos.

The balky gate pin has been ground to a longer taper and is easier to push into the gate latch. At this writing all equipment is running normally.



The two images above are from Dave's recent spectra of the Sun. The image at top is in the green/blue region of the spectrum and the bottom image is in the deep blue/indigo region. The colours can be seen by viewing these images in the online version of Aurora found on our web site. The vertical dark lines are absorption lines from elements in the Sun's atmosphere and the horizontal lines are artifacts due to the irregular edges on the razor blades used for the spectrometer's slit.

## June Meeting Minutes

(Continued from page 3)

a full house of Kingsville photographers interested in astrophotography. On vacation with family in Montreal, Juliana attended a meeting held by RASC Montreal Centre. They witnessed the ISS and Shuttle pass overhead and vanish into the Earth's shadow.

**Public Relations, Tina Chichkan:** Tina reported the Summer picnic at Hallam was the usual enjoyable event for adults and children. She reminded us of the coming Christmas Social in December. Cogeco has been very helpful posting our various events on their community bulletin board channel. This year's Pelee Island Winery event was not as well attended as in prior years but was still judged a success. She brought a wine carafe to be signed by those who helped at the event.

**Membership Director, Paul Pratt:** Nothing to report.

**National Council Representative and IYA 2009 Coordinator, Mike Mastronardi:** Mike listed the many local events for IYA 2009. Talks were given at local libraries and at the Science Centre. The Galileo play was presented and will be re-enacted for Windsor Centre in November by Pierre, Steve Pellarin, Randy and Dr. Baylis. At Hallam, three consecutive "Galileo moment" nights were held. Further were suggested for Hallam late in October. A group from Wright State University in Ohio are expected to visit Hallam on the September 26th open house night. Another Point Pelee IYA 2009 event may be held in October.

**Past President, Steve Mastellotto:** As past president Steve asks members to stand for nomination and possible election for 2010 Council positions. Steve is looking for anyone who would like to help out with the running of the Centre and stand for election during our November General Meeting. Those interested were asked to contact Steve.

Steve also reminded Hallam key holders their annual fee must be paid to have access to the observatory. At the moment there are about 26 keys, only 13 of which are currently paid up. He proposed the locks be changed at the observatory.

**Coming Events, Pierre:** announced the October meeting would feature Dr. Robert Weir from the University of Windsor discussing astronomy in antiquity. In November the Galileo play will be the main feature.

**Director of Observing, Steve Pellarin:** Steve reviewed the many coming astronomical sights and events in October. One major event is the expected crash of the LCROSS satellite on the Moon into a nearly invisible (from the Earth) crater which may harbour some water ice. A plume of water laden dust is hoped for and may be visible from Earth on October 9th.

Pierre thanked Steve for his observing suggestions and **closed the meeting** at 10:25 p.m..

## Proposed 2010 Council of the RASC - Windsor Centre

### Elected Officers

President	Paul Pratt
1st Vice-President	Tina Chichkan
2nd Vice-President	Peter Bondy
Secretary	Dave Panton
Treasurer	Barry Martin/ Greg Mockler
National Council Rep.	Mike Mastronardi

### Councillors

Randy Groundwater	Sue Iihola
Steve Mastellotto	Steve Pellarin
Paul Preney	Donna Ronconi
Ken Rount	Susan Sawyer-Beaulieu
C. Joady Ulrich	

### Appointed Officers

Honorary President	Dr. William Baylis
Past-President	Dr. Pierre Boulos
Librarian	Rick Marion
Recording Secretary	Dave Panton
Public Education Director	Randy Groundwater
Public Relations Director	Peter Bondy
Directors of Observing	Steve Pellarin
	Susan Sawyer-Beaulieu
	Juliana Grigorescu
Light Pollution Abatement Dir.	Dan Taylor
Hallam Observatory Director	Dave Panton
Aurora Editor	Steve Mastellotto
Webmaster	Steve Mastellotto

## Reminders

**Hallam Observatory Fees:** All key holders to Hallam Observatory must return their keys by October 1 or pay the \$40 access fee to keep using the observatory. Windsor Centre members can have exclusive access to the observatory by paying the annual access fee of \$40 (plus a one-time key deposit of \$10). Also, if you use the observatory site and find it of value we have a voluntary support fee of \$10 that helps offset the cost of maintaining the site.

**Canadian Tire Money:** Do you have any Canadian Tire money lying around? Why not donate it to the Centre? We have collected about \$100 and use the money for the trees planted on the grounds, oil and gas for cutting the grass, chain lube for the dome and bug spray. Bring it along to any meeting and drop it off at the Treasurer's table and it will be put to good use.



## RASC - Windsor Centre Events/Photos



*Clockwise from top left: The Windsor Centre Garage Sale at Al DesRosiers house raised just over \$900 - Al, Dave Pantoni and Donna Ronconi await customers. The Pelee Island Winery event raised just over \$250 - Windsor Centre members and some spouses are waiting for the guests to arrive. An Iridium flare on July 25, 2009 from Hallam Observatory. Another photo of the Winery event - skies remained clear until 11p.m.. Parks Canada Day on July 18, 2009 was a cloudy cold evening but Randy Groundwater is seen here addressing the hearty souls who hung around despite the weather. A great photo by Rick Marion of the Space Shuttle and ISS passing over his house in Windsor on September 8, 2009. All photos by Steve Mastellotto unless otherwise noted.*