**Break and Fifty-Fifty Draw:** Winner was Rick Marion who donated winnings back to Centre.

**Announcements:** Next Hallam Open House is Saturday November 9 at 7:00 p.m.. Next meeting is Tuesday November 19 at 7:30 p.m..

**Director of Observing Report, Juliana Grigorescu:** Juliana showed slides of the sky in October, dominated by Andromeda and the Great Square of Pegasus to the East. We can still see the summer triangle around 8 - 9 p.m.. Vega is still almost straight overhead.

The Moon is 6° south of Mars in the morning sky on October 23. Another slide showed a photo taken by Art Rae of a scenic backyard with Moon & Venus about 5° apart. Venus is now an evening star and getting brighter.

Comet ISON can be seen in a small telescope at about magnitude 10 - 11 if you know where to find it in the early morning.

October 18 - 19: Jupiter double shadow transit starts at 2 a.m.

October 25 - 26: Another double shadow transit begins 4:37 a.m.

October 29: Moon, Mars, Regulus have a pre-dawn triangular conjunction.

Good deep sky objects to see include galaxies M31, M33 and NGC 891 as well as globular cluster M10.

Rick thanked the members for attending and **adjourned the meeting at 9:43 p.m..**

Reported by Matt McCall, RASC Windsor Centre Secretary.

**IMPORTANT** - *Did you know that the RASC Windsor Centre is a registered charity?*

*To break even in a typical year we need to raise about $750 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 and often the money is raised from other Centre members (e.g. sale of tickets to the winery event). It is difficult to get enough people involved in planning and staging an event, so instead 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 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 2013 tax return.*

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


# Aurora

The Royal Astronomical Society of Canada - Windsor Centre

Volume 39, No. 3

November 2013


# Flyer

Next Meeting

Tuesday, January 21, 2014
7:30 p.m.
at
Ojibway Park Nature Centre
5200 Matchette Road

Speaker: Movie Night

Topic: *"To Be Determined"*

## *Upcoming Events*

***December Social:*** Our annual Holiday Party will be held on Friday December 6th at 6:00 p.m. at the Ojibway Park Nature Centre. The dinner is "pot luck" style and will be served around 7:00 p.m.. Please contact Rick Marion at (**rjmarion@sympatico.ca**) to coordinate what you will be bringing and confirm the number of people in your party.

***Comet ISON:*** Will it be the comet of the century? It will be in the morning sky through perihelion passage on November 28th and also in the weeks following. Just as many were prepared to be disappointed ISON had an outburst on November 14th so who knows what to expect?

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

## Monthly Meeting Minutes
**October 15, 2013**

The Royal Astronomical Society of Canada - Windsor Centre, Ojibway Park Nature Centre.

Windsor Centre **President Rick Marion** chaired the meeting. Rick called the Meeting to order at 7:41 p.m. and welcomed members and guests to the Ojibway Park Nature Centre.

**Motion to accept the Minutes** of the September , 2013 meeting moved by Steve Mastellotto, seconded by Susan Sawyer-Beaulieu. MOTION CARRIED

### Main Speaker

Rick introduced the main speaker for the evening, **Dave Panton**, and his talk: ***"Designing and Building Equipment to Detect and Measure Infra-Red Star Light at Hallam Observatory."*** As Dave went into his presentation, images of various devices used in the IR detector's construction were shown. He had a tiny diode inside a small Panasonic remote control that was installed in the unit, and his brother Stan - who also helped with the project - found some red diodes that would work as well.

Given some initial data, through theory, one can estimate infrared light signal strength from stars behaving as classical 'black body' object. Could it be detected and accurately measured at Hallam? Dave then showed a graph displaying amounts of starlight above and below the atmosphere. It's difficult to detect from the ground as our atmosphere reduces the light signal coming in. He stated we try to detect the mid-way point of the signal but not much is left.

Knowing a star's luminosity & distance lets us calculate intensity of radiation as it reaches our atmosphere, and if we know it's temperature, we can predict how much radiation is falling within a band of wavelengths. Lastly, compensating for atmospheric losses including the altitude must take place. The IR receive diode works only beyond the range of visible light.

Dave spoke of the first IR signal amplifier he built, which had a meter with a signal strength reader within it, along with various other sensors. A more complex amplifier was then made, and he explained to the audience that complexity grew trial by trial, the more details he built into the whole project, the more fun it was. He mentioned the help Al DesRosiers had given him with it, and the reports that would be e-mailed to Stan every time the device was used and something went wrong. Dave gave a detailed look and explanation of the holder for the detector that gets placed into the eyepiece mounting.

More images of the original unit showed some white areas in certain places on it, indicating where holes were being burned through it.
The small sensor must be perfectly aligned with the focused star in the view field, and takes time to zero right in on even after using the observatory's crosshair finder built specifically for precise line-up of an object in the sky. When looking through the receive diode view-hole, the first indications that the target star is nearby would be if you begin seeing very slight brightening of the tiny red semi-conductor inside.

Moving the scope bit by bit in various directions using the computer's software controls, the little light may fade or brighten, depending on how closely centered the star is. On the unit itself, the meter also aids final aim and focus to help attain maximum signal strength. Most importantly, the detector also has a damping switch allowing you to more easily make adjustments & control the meter when making observations.

In closing, Dave gave examples of good IR source stars such as Arcturus in Bootes, showing the expected response of 520 picoamps, and his observed response from the object as 450-460 picoamps, explaining that pico is one trillionth of an amp). The unit can amplify signals by a factor of 20 million.

Rick thanked Dave for his excellent presentation and called on Past President Paul Pratt to provide the **RASC Windsor Centre proposed slate of Executive and Council positions for the 2014...**

### *Executive*

**President:** Rick Marion
**1st Vice President:** Brian Thomas
**2nd Vice President:** Mike Mastronardi
**Secretary:** Matt McCall
**Treasurer:** Greg Mockler
**National Council Rep:** Mike Mastronardi

### *Council Members*

| | | |
|---|---|---|
| Dr. Pierre Boulos | Randy Groundwater | Steve Mastellotto |
| Dave Panton | Steve Pellarin | Paul Preney |
| Dan Taylor | Joady Ulrich | |

### *Appointed Positions*

**Honorary President:** Dr. William Baylis
**Past President:** Paul Pratt
**Alternate National Council Rep:** *Open Position*
**Aurora Editor:** Steve Mastellotto
**Director(s) of Observing:** Juliana Grigorescu, Steve Mastellotto, Steve Pellarin
**Director of Public Education:** Matt McCall
**Director of Public Relations:** Mike Mastronardi
**Librarian:** Dr. Pierre Boulos
**Light Pollution Abatement Director:** Dan Taylor
**Hallam Observatory Director:** *Open Position*
**Recording Secretary:** Matt McCall
**Webmaster:** Steve Mastellotto