

AURORA



Volume 32, Number 3

The Royal Astronomical Society of Canada - Windsor Centre

Oct 2006

The Survey Says by Pierre Boulos

The RASC-Windsor Centre council initiated a survey in September. Roughly 33% of the general membership completed the survey of 29 questions. We have begun processing the data. It will take some time to do, however a cursory glance has already revealed some interesting things about our Centre.

At our recent Council meeting we began looking at some of these results and we plan on revisiting and acting upon what we learn from this survey. For instance, although we knew that our membership meetings are friendly and welcoming, it is a pleasure to see this borne out in the survey. The average (recall there was a scale from 1 to 5, with 5 being “strongly agree”) for the question pertaining to the “welcomeness” of our meetings came in at 4.2. A strong result to be sure, but there is still room for improvement.

There was a tendency to somewhat disagree with shortening our membership meetings while there was an indifference to lengthening it. Does this mean the current length is just right? Furthermore, there is a feeling (score =4.2) that the membership meetings are motivating you to participate in astronomy related activities – something that should raise our pride in the Windsor Centre!!!

The survey also reflected the pride we have in our Hallam Observatory (4.7) and the value of having the Newsletter (4.0). Not perfect, but definitely on the right track.

These are some of the preliminary results we’ve gleaned from the survey data. We were also pleased to have the comments some of you filled in or attached to your completed survey. Already one of the suggestions made in the comments will find its way into our membership meetings, so stay tuned. Council will consider each suggestion and the survey results seriously and will try to initiate positive changes. Thank you to all who have submitted their surveys. IF you did not have a chance to complete your survey, don’t worry we’ll be doing this again in the future. Oh yes, one change we cannot initiate (and which was suggested) is to improve the weather for the Windsor Centre – we checked and discovered our Council doesn’t have the authority :).

Stay tuned

In This Issue

Preliminary Survey Results	Cover
Next Meeting; Coming Events; Housekeeping	Page 2
Minutes of the Sept 19th meeting	Page 3
So What’s Your SQM?	Page 4
When a Star meets an Asteroid.	Page 5
Odds and Ends	Page 6

Calendar of Events

Our next meeting...

Tuesday, November 21 , 2006 8:00 p.m.
at

K of C Maidstone Recreation Centre
10720 County Road 34 (Old Hiway 3)

Annual General Meeting

Featured Topic...

Setting up a Telescope 101

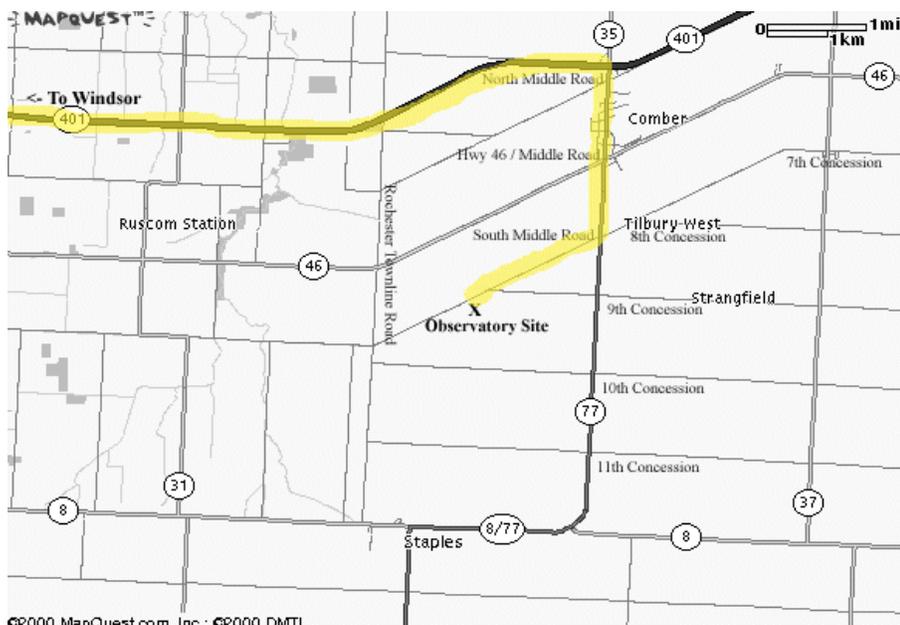
Coming Events

Astronomical Events:

October 20,	Orionid meteors
November 4	Taurid meteors
November 8	Mercury transits the Sun
November 16-17	Leonid meteors

Observatory Open House:

October 28th	7:00 p.m.
November 25th	7:00 p.m.
December 9th	7:00 p.m.



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 401 East to Highway 77 South to South Middle Road. While on South Middle Road you go about 1 kilometer and just after the barely discernable point where Concession 9 joins it you will find the observatory site on the South side of the road.

If you hit the Rochester Townline Road (i.e. you come to a stop sign and have to turn left or right) you have gone too far.

Submissions

Aurora is published monthly except for August. The October, December, February, April and June issues are full newsletters (usually 6 pages) with a number of member submitted articles. The November, January, March, May and July issues are short flyers (2 pages) with one short article. September is a dual issue with the full 6 page newsletter mailed just **before** the meeting and a flyer available **at** the meeting. 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: Ken Garber
Ass't: Dan Anzovino

Email: kgarber@cogeco.ca
Email: danzovino@sympatico.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, the RASC Journal, a subscription to SkyNews magazine and access to the Centre's library and telescopes.

Annual Membership Fees are Regular - \$55.00, Youth - \$34.25 and Life - \$1100.00. **** NOTE New Rates ****

Contact Ken Garber at (519) 966-3478 or visit our website at: <http://www.mnsi.net/~rasc> for more information.

General Meeting minutes of Sept 19, 2006 as recorded by Dave panton

Caired by President Steve Mastellotto

The minutes from the June meeting were read and accepted via a motion from Kevin Masterson, seconded by Ken Rount and carried.

Steve welcomed all back from a wonderful summer spoiled only by too many clouded observing nights.

Star Fest, attended by Tina Chichkan, Randy Groundwater, and Steve Pellarin was wiped out by rain.

Randy had better luck on a family trip to the U.K. with sunny skies, clear nights and a visit to the Jodrell Bank radio telescope facility.

Main Presentation

"A Dome on a Home" by Walter MacDonald

Steve introduced Walter who had driven all day from Winchester Ontario to present the story of building and equipping his observatory to do automated CCD imaging of variable stars.

Three years ago Walter acquired a large old family home South of Ottawa. Wanting his own observatory he took the unusual path of remodeling the third floor and attic to accommodate a fiberglass dome observatory. To obtain the desired telescope mount stiffness two heavy steel beams were raised by a crane and slid through holes in the roof and rested on shock absorbing pads set on the two outside walls.

A custom made steel box and column was bolted to the beams for telescope support. The fiberglass dome was then installed and water sealed.

Walter took us into the details of equipping his new observatory with all the bits and pieces of specialized equipment required to operate it remotely. Tying them together into a working system involved many complex steps including re-writing some computer control codes.

While a project like this is never finished, Walter now has the capability of automatically observing and recording variable stars over significant areas of the sky. It even detects lack of cloud cover, rain or snow and operates accordingly. He pointed out his sky is only mildly light polluted and CCD imaging can manage by compensating for it.

The data captured is transmitted via the net to the AAVSO a real time basis. It can be found on the net by searching for Winchester Observatory.

Members and guests gave a well earned round of applause admiring Walters ambition and dedication in completing (and documenting) such an ambitious project.

continued.....

Coffee Break and 50/50 Draw:

Members enjoyed the usual Tim Horton's goodies with coffee, tea or hot chocolate from Tom Sobocan's kitchen.

Business

Treasurer: Ken Garber

Bank balance approximately \$5000. Observer's 2007 calendars are now on sale at \$12 each. Canadian Tire money is welcome and used to purchase observatory supplies. Membership renewals can be handled by Ken or on line.

Librarian: Rick Marion

More surplus books are available to take from the front desk.

Newsletter Editor: Ken Garber

Ken needs member's articles for the newsletter.

Director of Public Education: Randy Groundwater

There are no events planned at this time.

Director of Public Relations: Peter Bondy

Peter could not attend the meeting.

Observatory Director: Peter Bondy

See above. Steve reminded members there is a public observing night on Saturday September 30th.

Membership Survey

Members were reminded to complete and leave their survey forms with Ken Garber.

Light Pollution Abatement: Dan Taylor

Dan thanked the members who attended Windsor's Devonshire Mall Environmental Master Plan display and help influence the City to specify full cutoff lighting fixtures in new developments.

The Essex Region Conservation Authority is seriously looking at Dark Sky protocols.

Some architects and developers are opposed to FCO fixtures. They would like to specify what they think is best for their projects. (A prize example is Bedford Court in the Cabana Howard Avenue area. It is a street lighting disaster).

Call 311 to report lights not conforming to the FCO configuration on new projects in Windsor.

Contact is being maintained with the MTO to encourage they stick to their plans for tall mast FCO fixtures along the new highway 401 intersections.

Essex County has a growing LP problem caused by the installation of 500 to 1000 Watt "prison yard lamps" on farm buildings and poles.

continued.....

Meeting Minutes (continued)

Director of Observing: Steve Pellarin

Steve gave a presentation showing the various astronomical events and sights to see over the September-October months. The big news was planet Pluto, demoted to a dwarf (or minor) planet joining many recently discovered similar objects.

So far away, it is little more than a tiny speck of light in even the largest telescopes it yielded a little information to the Hubble by revealing some areas are darker than others.

The Draconid meteor shower will occur during a full Moon. Only the brightest will be visible.

A partial Lunar eclipse was witnessed by Juliana Grigorescu while visiting family in Romania.

Uranus and Neptune are now in view. Steve covered many other interesting astronomical events and sights.

Thanks to Speaker

Steve Mastellotto thanked all who had contributed to a successful evening. Special thanks were given to speaker Walter MacDonald for coming so far to give us his impressive "Dome on a Home" presentation.

Meeting adjourned at 10:27 p.m.

David J. Pantou
Recording Secretary

Examples of Sky Quality Meters



So What's Your SQM? Dan Taylor

This odd phrase is a question that you might just be hearing at an astro-gathering in your future. To avoid that embarrassing counter question i.e. 'What IS an SQM?' Perhaps the following may be helpful understanding this novel item.

SQM is short for Sky Quality Meter. It measures night sky brightness - simply that.

It is manufactured in Canada by Unihedron, Essentially it is a sensitive light meter that is positioned pointing up generally at the zenith. At the press of a button and a few seconds processing time the unit calculates the sky brightness in the SI units of magnitudes per square arcsecond.

From the Unihedron site: * What are "Magnitudes per Square Arcsecond"?

Magnitudes are a measurement of an object's brightness, for example a star that is 6th magnitude is brighter than a star that is 11th magnitude.

The term arcsecond comes from an arc being divided up into seconds. There are 360 degrees in a circle, and each degree is divided into 60 minutes, and each minute is divided into 60 seconds. A square arcsecond has an angular area of one second by one second.

The term *magnitudes per square arcsecond* means that the brightness in magnitudes is spread out over a square arcsecond of the sky. If the SQM provides a reading of 20.00, which would be like saying that a light of a 20th magnitude star brightness was spread over one square arcsecond of the sky.

Some approximate magnitudes per arcsecond readings:

- 17.0 poor urban skies
- 18.0 good urban skies, poor suburban skies, full moon
- 19.0 fairly good suburban skies
- 20.0 very good suburban skies
- 21.0 typical rural skies
- 22.0 ideal dark-sky site

There is just one facet that makes this instrument so valuable to astronomy and LPA- the repeatable quantitative measurement of sky brightness. Heretofore this was only done for the most part qualitatively, and subject to ambiguous ingrained biases.

Today, on some astronomy lists, participants routinely trade SQM readings in a comparative and at times friendly competitive search for regional dark skies.

The implications and potential for this little meter are far reaching. It is a powerful tool in the battle for sensible lighting that we all quest for. Indeed in the future, light pollution arguments may be based solely on such readings.

continued....

So What's Your SQM? continued

Robert Dick, RASC National Light Pollution Abatement Committee chair provides some history and highlights the light pollution abatement potential of sky brightness measurements with the following:

About thirty years ago, Robert Pike and friends in the Toronto Centre applied an observing test to rate the quality of the night sky. During their summer holidays and trips, they recorded their observations. The result (to my knowledge) was the first light pollution map for a large region. He reported his results in the JRASC in June 1976. That was exactly 30 years ago! It is time to update his map and test his predictions.

1. The Sky Quality Meter (SQM) allows us to easily update Pike's map - aim and press a button. The results are also more sensitive and qualitative than Mr. Pike's original program.
2. We have bragging rights over our favourite observing sites. But how good is the site or a specific night? The SQM gives you an immediate calibrated number.
3. We are concerned about how light pollution is degrading our night skies. It is more effective to give specifics during a public meeting or a meeting of City Council. Say, "The wasted light from the city increases the brightness of the night sky by 50X". Instead of, "The city sky is much brighter than that in the country". The SQM lets you back up statements with facts.
4. An important path to a solution is to know the problem. Without quantitative data, there can be only general solutions and these may miss the mark. Without facts, a qualitative argument can be undermined by others that present their own data.

So there you have it: a thorough yet concise description of the SQM. It is quickly becoming indispensable as a tool in our hobby.

Oh yeah it would be good to have your SQM reading ready for the next star party (for those bragging rights)!

* <http://unihedron.com/projects/darksky/>

Time to Renew??

Don't forget that you can renew your membership at the treasurer's desk, by snailmail to the National, or online at the RASC 'store' at

<http://www.store.rasc.ca/>

And don't forget that the printed Journal is now optional extra. Look for the option on your form.

When a Star meets an Asteroid

by Dave Panton

The asteroid Dynamene occulted a star we could see on Oct 8 2006. These events are pretty rare at any single location. We were fortunate to have three in this area over Thanks Giving weekend. Steve Mastellotto videotaped one the morning of Oct 7th at Hallam but lost the second to a passing cloud.

A third was to occur just after 9:00 p.m. on Sunday evening Oct 8th. Having observed one a few years ago with Larry Burgess at Hallam I was keen to see another "naked eye" only using a telescope.

Conditions to witness the occultation first hand at the eyepiece were far from ideal. The magnitudes were 11.3 for the star and only 12.6 for the asteroid. The Moon would be nearly full in the South East and the event to the South near the ecliptic. I tried to locate the star Saturday night but failed mainly for lack of preparation.

Most of Sunday afternoon was spent preparing appropriate sky maps. First were Uranus maps in mirror image form to match the 40 mm eyepiece view. Dynamene would not be far away so similar maps were prepared for the time of occultation. The plan was first to locate the easy target Uranus in the eyepiece and orient it's map to match the surrounding star pattern as seen in the eyepiece. Then the asteroid map would be marked in the same orientation and the telescope slewed to the target star.

It turned out the map had to be rotated upside down and turned a bit more clockwise to make it match the Uranus star field.

This significantly improves one's chances of finding the target star in the eyepiece. Practice asteroid occultation simulations were also run on Starry Night Pro 4.52 to help get a clear sense for its motion.

Juliana Grigorescu, with her lap top computer joined the expedition late in the afternoon. All was set to make the attempt. Given the slightly hazy sky and big bright moon, conditions were not promising.

About 45 minutes prior to the occultation the star was located. In the 40 mm eyepiece it seemed fuzzy and maybe a bit elongated. Boosting magnification with the 18mm eyepiece quickly revealed there were two objects very close together, one brighter than the other. Were these Really the targets? Now it was a waiting game. My afternoon efforts included extrapolating likely occultation times for Hallam. There was enough uncertainty to require constant observation a few minutes prior to avoid a total loss should it be early. The event would last less than 36 seconds.

continued on next page...

When a Star meets an Asteroid

continued

At the eyepiece the two objects became one and then dimmed as Dynamene blocked the star's faint twinkling. With desk atomic clock in hand the best I could do was glance down and get a single 9:09:22 timing. This was within the expected time zone. The star's twinkling began to return but the two were still one to the observer's eye. More time should split the two and confirm the sighting.

Dave Ainslie, in from harvesting happened to visit at this point and soon was telling stories of his many adventures back packing in Europe and Asia as student back in the sixties.

Forty five minutes after occultation Dynamene was easily visible as a dim object moving away from the star it had just occulted, good bye little star. Outside, Sandpipers were crying as they flew in the moonlight. Good fortune smiled, allowing the event to be observed from Hallam that night.

The reward far exceeded the effort.

Dave Panton

A Little Fund Raising

Got any Canadian Tire money lying around that you'd like to get rid of?



Why not donate them to the Centre?

To date we've collected almost \$75. Some of this will go towards preparing the site against wasps and other creepies. We're always buying bits and pieces - be it hardware or a can of bug spray.

Bring them along to any meeting and throw them into the box on the treasurer's table, and they will be made to good use.

Sharing Light Pollution Information

Notes on the RASC LPA list.

Recent LPA discussions on the RASC list has lead to rapid growth of the seldom used RASC LPA list. Thus far expansion has largely remained limited to centre LPA officers (who else would be willing to take this punishment). This bolsters the original list members, those on the RASC National LPA committee. It is expected that this will increase list traffic significantly. Heretofore it was seldom used. Early topic of discussion includes hours of darkness, the FCO survey, and acronym definitions.

SUBSCRIBING

To join the list send a message to
lpa-subscribe@lists.rasc.ca

UNSUBSCRIBING

To leave the list send a message to
lpa-unsubscribe@lists.rasc.ca

You can also subscribe at

<http://crux.stmarys.ca/mm21/listinfo/lpa>
and at the same time, set the list to arrive in digest mode.

Dan Taylor

Centre Internet Communications

A Newsgroup/discussion board has been set up for Centre members on Yahoogroups. Created by Pierre Boulos, the list is called **RASCWINDSOR**.

To find out more about the *rascwindsor* group and to subscribe, please visit

<http://groups.yahoo.com/group/rascwindsor>

Proposed Windsor Centre Council for 2007

Honorary President	Dr. William Baylis
President	Dr. Pierre Boulos
1st Vice President	Open
2nd Vice President	Tina Chichkan
Secretary	David Panton
Treasurer	Ken Garber
Aurora Editor	Ken Garber
National Council Representative	Tim Bennett ALT: Steve Mastellotto
Librarian	Rick Marion
Directors of Observing	Susan Sawyer-Beaulieu Steve Pellarin Steve Mastellotto Randy Groundwater Dan Taylor
Director of Public Education	Randy Groundwater
Recording Secretary	David Panton
Councilors	Susan Sawyer-Beaulieu Paul Preney Robin Smallwood Steve Pellarin Rev. Harry Brydon C. Joady Ulrich Ken Rong