

Point Pelee destined to be a Dark Sky Preserve

It is with great pleasure that we announce that management and staff at Point Pelee National Park have agreed to adopt light pollution abatement practices and henceforth become a dark sky preserve. Point Pelee joins the growing assembly of dark sky preserves in Canada; McDonald Park, Torrance Barrens and Cypress Hills Inter-provincial Park.

Point Pelee is the first national park in Canada to do so. In detail the staff found the principles of exclusive full cut off luminaire use, and restricting sources only to when, where, and for how long they are needed, easy to incorporate with their existing operating policy. Most crucially, this example of leadership exhibits respect for the nocturnal environment including the flora and fauna for which Point Pelee is renowned.

In a measure of the regard the status is given, a presentation ceremony will take place on May 12, 2006 at Point Pelee's 'Festival of Birds' fundraiser diner. It is expected that public exposure will be optimum as this event is the highlight of the festival that engenders international acclaim. Three awards will be presented: the RASC National light pollution abatement award the RASC Windsor Centre light pollution abatement award, and a commemorative 'Dark Sky Preserve' certificate.

You are invited to join us in this momentous ceremony at the festival of birds fundraising dinner. Please visit:

http://www.pc.gc.ca/pn-np/on/pelee/ne/ne4_e.asp
for more details or call 519-326-6173 to order tickets.

Dan Taylor

Royal Astronomical Society of Canada- Windsor Centre, LPA Director

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Calendar of Events

Our next meeting...

Tuesday, May 16, 2006 8:00 p.m.
at
K of C Maidstone Recreation Centre
10720 County Road 34 (Old Hiway 3)
just west of beautiful downtown
Maidstone (and the railway crossing)

Main Speaker

Steve Pellarin

Topic

Trip to Arizona

Short Talk

Paul Preney

Topic

Astronomy software
update

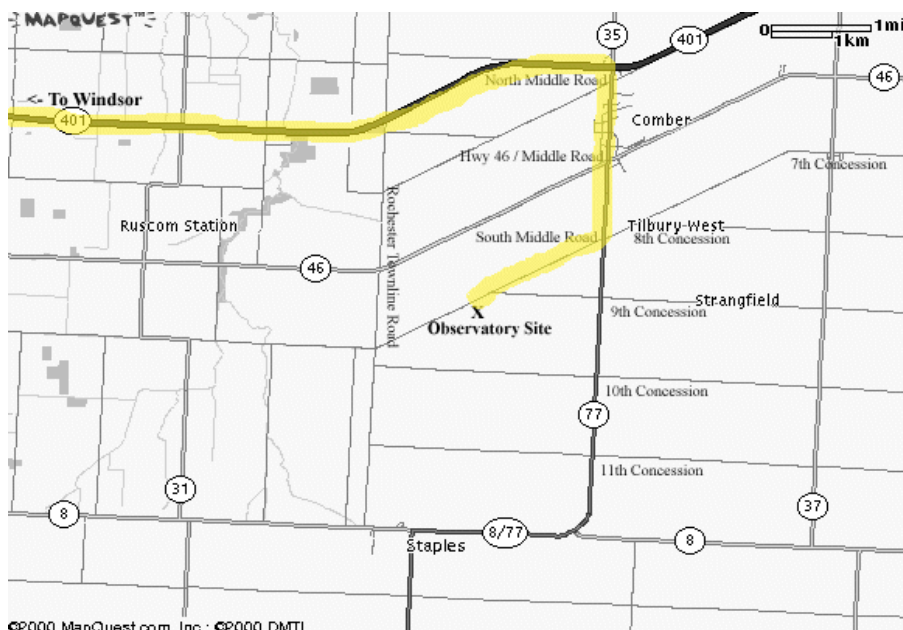
Coming Events

Astronomical Events:

April 22	Lyrid Meteor Shower
May 5/6	Eta Aquarid Meteor Shower
May 13	Comet Schwassmann- Wachmann 3
	Mag3.5 - 11million km away

Open House:

May 6th	9:30 p.m.
June 3rd	9:45 p.m.
July 1st	9:45 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 September, November, January, March, May and July issues are full newsletters (usually 6 pages) with a number of member submitted articles. The October, December, 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. I will accept Emails at the address below, floppy disks, CD's, or written submissions.

Editor: Ken Garber

Email: kgarber@cogeco.ca

Ass't: Dan Anzovino

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.

Annual Meeting minutes of March 21, 2006 as recorded by Dave panton

Chaired by President Steve Mastellotto

The minutes from the February meeting taken by Mike Mastronardi in Dave Panton's absence were read. Susan Sawyer Beaulieu made the motion to accept, Harry Brydon seconded and it was carried.

Steve welcomed new members and guests, and gave a summary of typical meeting procedures, coffee break, 50-50 draw and programs.

Correspondence Secretary: Joady Ulrich

Joady was unable to attend the meeting.

Treasurer: Ken Garber

Ken reported our bank account balance is currently \$6387.88 and membership stands at 102. He had renewed membership cards at his desk and also forms for those who wish to opt out of subscribing to the Journal. It is still available to all via the internet. Ken made a suggestion to have it set up in file fashion per article linked to the table of contents. Items of special interest could be downloaded and printed.

Newsletter Editor: Ken Garber

Ken is always in need of member's articles and photos for the newsletter. Other centre's newsletters are available for the taking at his desk.

Librarian: Rick Marion

Rick has begun the big task of listing all the books held at the observatory and posting it on our Yahoo website.

Director of Public Education: Randy Groundwater

Randy reported he had approximately 100 people visit our Hallam observatory in one evening. They were two groups, one of girl guides and the other boy scouts plus accompanying adults. Handled in rows of two, twelve fit into the observatory and all had a chance to observe the Moon through the Henry Lee Telescope..

On March 3rd Steve Mastellotto and Peter Bondy were able to obtain some photographs of comet Pobjmanskic in the early morning hours. This was a busy dusk to dawn session, approximately 45 attending the monthly open house.

On March 24th another group of Scouts are to visit the observatory.

Director of Public Relations: Peter Bondy

Peter had a nil report..

Observatory Director: Peter Bondy

Peter is working on an application for a Trillium Fund grant. A wide variety of ideas have already been presented and Peter welcomes further suggestions.

The primary need is for equipment to observe the Sun's spectacular "boiling" motion thus utilizing the observatory on sunny days. For night work, astrophotography and computer

image processing equipment could be used to capture and produce some very impressive astronomical shots. Our excellent telescope funded by our first Trillium grant would make these possible. July 1st is the submission deadline.

April 1st is public open house night at the observatory.

Light Pollution Abatement Committee: Dan Taylor

Dan reported Point Pelee National Park is to be designated a "Dark Sky Site" on May 12 at the annual festival of birds. Many benefits are expected for birds, animals, visitors and the night sky in the area.

A presentation is planned to be certain the Detroit River International Crossing people include specifications for LPA fixtures in their border crossing proposals.

Becoming personally involved in LPA by purchasing a fixture for one's home is not easy. Most hardware and building supply outlets do not stock them. Dan suggested drawing a simple diagram, talking to the store manager to encourage stocking them. Randy Groundwater is hunting for home LPA fixtures. The TSC store in Essex will soon stock them. Dan encouraged all to BUY a fixture or two to show they are desired.

The new St. Joseph school should have them installed shortly. If not, observers can call 311 to have the situation rectified. The Separate School Board will install them on new County schools.

Susan Sawyer Beaulieu mentioned one cobra head in her sub-division has been changed to a FCO type. Essex Power now only install FCO fixtures.

Mike Mastronardi told members 80 new FCO fixtures were installed at a new sub-division in McGregor. He reported the night sky is quite visible.

All county roadways are fitted with FCO fixtures. Ken Rounge mentioned some are installed at an angle and are not fully effective until set parallel to the ground.

Pierre Boulous has learned the planners for the new "Urban Village" near the library have chosen lights to suit their concept of ideal lighting in an architecturally unique setting.

They are very poorly designed. None meet the FCO concept.

The light pollution abatement award designed by Paul Preney was passed around the audience for comments.

National Council Representative: Tim Bennett

Tim was unable to attend the meeting. He is planning to participate in the Annual General Assembly this May in Ottawa.

Membership Chair Person: Pierre Boulous

Pierre reminded members to keep their home and e-mail addresses up to date to ensure Windsor Centre messages are always received.

Continued.....

Meeting Minutes (continued)

Coffee Break and 50/50 Draw:

Director of Observing: Steve Pellarin

Steve provided Messier Marathon finder charts broken into three stages "after sunset", "before bedtime" and "dead of night". They showed the best sequence to find Messier objects at the Messier Marathon on Saturday April 1st at our observatory.

He had been fortunate enough to spend two days at Kitt Peak, the location of 25 large telescopes. He was even able to assist in a Chandra X-Ray telescope observing session. We can look forward to a future presentation of his experiences.

For local observers, Jupiter offers a new "white spot" beginning to turn a bit reddish. The "Great Red Spot" is slowly fading. Observers must account for Jupiter's rapid rotation via careful timing. Consult the Observers Handbook for it's meridian crossing times. Another neat target is Saturn's rings current near maximum tilt until 2013.

Comet Pojmanski (C2006A1) was a good morning target but it is becoming dimmer. A new comet will be best visible in about 2 weeks in Bootes. We can also look forward to a Lyrid meteor shower, from debris shed from comet Thatcher observed in 1861.

A naked eye sight will be the Moon occulting The Pliades between 6 and 10 p.m. on April 1st.

Spring is a great time to observe lots of galaxies, some among them are M48, NGC 3242 (the Ghost of Jupiter) as well as M68, M83, M95 and M96.

Earth Day will be held on April 23rd at Ojibway Park from Noon to 4:00 p.m. We will have a display and telescopes for visitors to admire. Steve invited all to drop by to see what Earth Day is all about and also drop by our booth.

The Revolution in Variable Star Cartography: By Dan Taylor

Dan Taylor, a keen variable star observer explained some of the reasons variable stars are rewarding to observe. Then he went into the details and difficulties variable star observers face when recording and later studying their work.

Like much of science there is a long history of recording results and many ways of doing so. Most observations were done by personal estimates of skilled observers recording their results on normal sky charts. Automated sky surveys are now being done and the results ideally should be correlated with earlier observations.

The "All Sky Automated Survey" has been done, recording stars with magnitudes down to 13. The results more accurately reflect actual brightness. Further, charts produced from this survey will be more accurate than maps in current use.

Dan recommended the American Association of Variable Star Observer's charts as most accurate at the moment. The new ones will be a further refinement and the next step will be Automated Chart Plotting whereby charts can be custom printed to meet each observer's individual interests.

Visual observations by amateurs will become moot as CCD camera photography becomes the norm for most. Dan has visually recorded about 300 in one year. A well equipped CCD observer recorded over 65,000.

Questions from the audience included "How much variation qualifies a star to become a variable?" and "what are the mechanisms that cause a star to vary?". Both questions have many answers, capably provided by Dan.

Motorizing our Observatory Dome's Shutter: by Dave Panton

Dave showed a series of photographs illustrating why the shutter requires tedious hand cranked repositioning during any serious observing session. A discussion with Peter Bondy at the Christmas

party led to an idea to build a electric motor shutter drive entirely contained in the rotatable dome.

This led to making a simple test rig to prove feasibility. It used a single 12 volt geared motor windshield wiper drive. The Observatory Committee agreed the concept had merit and accepted a proposal to build a complete system.

First a way to adapt a drive to the existing ugly crank mechanism had to be worked out. Al Desrosier's suggestion to scrap the original worm drive shaft and crank hook loop was the key.

Photographs showed how the drive was built up using twin motors, sprockets, chains, bearings, universal joints, shafts and a variety of machined parts. A prime requirement was to build a direct manual crank drive line which could be disengaged from the motor drive. In this way, the shutter could always be opened or closed in the event of motor drive failure. This was completed first and installed.

This left the shaft for the new crank dangling down into a pop bottle. It helped locate the optimum crank location. Templates were cut to aid making a bearing support assembly from tubing curved to fit inside the dome. These help spread cranking loads over the thin metal surface. On completion and installation the shutter became openable by standing on the observer's ladder and turning the crank. Now power was needed for the motors.

An automobile battery and control panel support were built up in a similar fashion. Heavier tubing was bent into the curves needed to distribute the weight over the dome's skin. Hung next to the dome rotate handle and shutter latch, the dome is fully controllable from this location. A battery charger was installed in the dome support wall at the dome parking position to recharge and maintain charge between observing sessions.

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Goodbye to Solar Cycle 23 By Bert Huneault

It looks like solar cycle 23 has finally come to an end, after an exceptionally active declining phase noteworthy for its frequent powerful X-ray flares, coronal mass ejections (CME), geomagnetic storms, and even aurorae at our Sun Parlour latitude! So far in 2006 no major X-ray flares have occurred, but as recently as last September giant sunspot 10798 had produced 26 M-class and 10 X-class flares in just 12 days! That was most remarkable, so late in the dying months of the solar cycle. In particular, on Sept. 7th an extremely powerful X17 solar flare caused a complete blackout of high-frequency radio transmissions on the daylight side of the Earth. It was the fourth largest X-ray flare in the last 15 years, and produced a very bright and fast CME as well as an aurora observed three days later by some of our members at the Hallam Observatory.

The approximately eleven-year-long cycle appears to be over, as the Sunspot Number remained zero for 10 consecutive days from January 29 to February 7; it also hit zero on 12 additional days in February and 3 days at the beginning of March. Figure 1 is a graph of Sunspot Numbers up to February 28, 2006.

But sunspot numbers are not the only way to track our star's restlessness; an excellent index of solar activity is the 10.7-centimetre microwave flux.

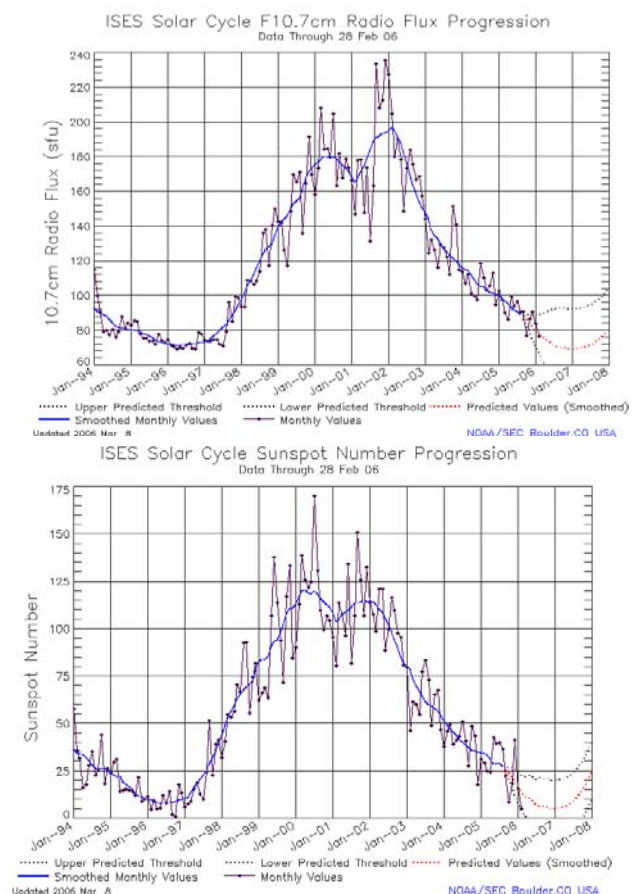
Karl Jansky, a Bell Telephone Company engineer, discovered previously unknown radiation coming from the sky in 1933. British coastal radar was plagued by interference in 1942 that was first thought to be enemy jamming, but that was later found to be coming from the Sun. That finding intrigued astronomers who subsequently discovered that the Sun emits electromagnetic radiation over a very broad frequency spectrum, and that surface regions near sunspots emit strong radiation at a wavelength of 10.7 cm (a frequency of 2.8 GHz, which is near the 2.4 GHz wireless-network/cordless-telephone band).

This microwave energy varies slowly in intensity during the solar cycle, and the National Research Council of Canada began logging the amplitude of solar flux at that wavelength at its Algonquin radio telescope near Ottawa in 1947, as well as at its Dominion Radio Astrophysical Observa-

tory in Penticton, BC since 1991. That record proved over time to be an easier-to-obtain and more reliable indicator of solar activity than the Sunspot Number. Sunspot observations are often obscured by clouds, but 10.7-cm radio flux penetrates clouds and can be measured regardless of cloud cover. Fig. 2 is a graph of the 10.7-cm solar flux, in solar flux units (one sfu = 10×10^{-22} watts per square metre) up to February 28, 2006.

As I write this (March 23rd), I see in my daily log that solar flux has been consistently below 80 since January 29th, varying between 72 and 79. These values are suggestive of "solar minimum", so it's tempting to say that cycle 23 has bottomed out. But when quiet, the Sun produces a 10.7-cm radio flux of 64 sfu. So, have we really reached bottom yet?... The next few weeks or months are likely to provide the answer.

However, considering that sunspot numbers have definitely increased in March (SS = 49 on March 22), and that on March 12 a new sunspot appeared at a fairly high latitude in the Sun's northern hemisphere (usually indicative of the beginning of a new solar cycle), my guess is that we've seen the end of Cycle 23; we can thus confidently say goodbye to that old friend that's been with us for a



NEW Centre 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>

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?

We're always buying bits and pieces - be it nuts and bolts or a can of bug spray - to use out at the observatory.

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.

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 Journal will be optional. Look for the option on your form.

Meeting Minutes (continued)

The final touch was "Heavenly bells", suggested by AI for the top of the dome to indicate upper shutter travel is nearing the companionway clearance limit. Bells from a pair of 60 minute cooking timers were mounted on a small bracket and installed in the dome. A small tab on the shutter trips a hammer giving a single "ding" in either travel direction at that position.

The system has been in operation since February 19th. So far reports have been favourable. Randy said his young visitors are fascinated as the shutter motors smoothly opening the dome. The old hand crank was a genuine embarrassment. The observatory has become more functional by becoming more user friendly.

Steve thanked the speakers for the evening and adjourned the meeting at 10:15 p.m.

David J. Panton
Recording Secretary

And yet another Dark Sky Preserve

The Royal Astronomical Society of Canada's Edmonton Centre, in partnership with Parks Canada, Alberta Parks and Protected Areas announced the creation of the Beaver Hills Dark Sky Preserve, an area of about 300 square kms. Located about half an hour east of Edmonton.

The official declaration is scheduled for this September.

The full announcement is at http://www.edmontonrasc.com/BHDSP_Announce.html

General Assembly 2006 - Ottawa

The Ottawa Centre is now 100 years old and to celebrate this milestone they are hosting the
R.A.S.C. 2006 General Assembly
from
May 18 to May 22, 2006.

www.ottawa.rasc.ca/events/GA_2006/

Register Online at

www.rasc.ca:8080/rasc/index.jsp