

SKYNEWS

ROYAL ASTRONOMICAL SOCIETY OF CANADA



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IN THIS ISSUE

On The Cover
Presidents Report
Scheduled Speakers
Close Encounter with a Supernova
VCO Astro Planner Cancelled!
New! Letters to the Editor

NGC 891
by John McDonald

A Fall Splendour
On Alan Whitman's List
See Pages 4 & 5

NEXT MEETING

Annual General Meeting
Sunday Nov 27th 2016
At 6:00 PM
Cedar Hill Golf Course
1400 Derby Rd

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On the Cover

NGC 891By John McDonald

This lovely example of an edge on galaxy was obtained by combining color provided by a DSLR image and luminance from a QSI ccd image. The dust lane and central bulge are particularly clear. Using Meade C14 SCT on Paramount mount. 5 X 5 min exposures with QSI and 9 X 4 min exposures with Modified Canon 350D at ISO 1600. Okanagan RASC member Alan Whitman included NGC 891 on his list of All Splendours No Fuzzies. See page 4 and 5 to learn more.

Presidents Report

by Sherry Buttnor

Two thousand, four hundred fifteen. 2415. That's the grand total for our Summer Saturday Star Parties at the DAO. Despite clouds and rain, 194 visitors came out to our final star party at the DAO on September 24th, raising the total to 2415. That's an amazing number. Given that it was cloudy and showery for the first five or six Saturday star parties, and the final one, it's a testament to the knowledge and enthusiasm of you amazing Victoria Centre members offer the public, that visitors would come up to the DAO at all during inclement weather. But come they did, rain or shine, 2415 of them.

Once again, congratulations and a heartfelt THANK YOU to all the volunteers who made this work. Well done!

Remember the pizza party I mentioned?

Probably not...it was a year ago or more. Well, it's on! As a thank you for all the long hours and hard work you've put in at various events, we're inviting all Victoria Centre members (and your spouses) to a party. If you are a RASC-Victoria member, and have volunteered at one or more RASC events in the last couple of years, you're invited! **Pizza Party**

-Saturday December 3rd. -6pm-10pm

-Garry Oak room, Fairfield Community Centre, 1341 Thurlow Road, Victoria.

This will be a pizza party, our regular monthly meeting for December, and a Members Night combined. There will be a business meeting as required by our bylaws (around 7:30pm), but **this meeting will be primarily a Thank-You**

get-together for our amazing volunteers.

We'd like at least two or three members to come and show off their skills:

astrophotography, research projects, telescope making, crafts....anything astronomy-related that you'd like to share with the group. I will post this party as a separate event on our website front page. Please email me directly if you plan to attend (and if you're bringing your spouse), and if you'd like to present something as part of Members Night. It'll be fun!

The **President and Secretary** of the newly-minted **RASC Yukon Centre** will be visiting Victoria October 7th through 10th. Anthony Gucciardo (President) and his wife Catheryne Lord (Secretary) would like to meet us, and have a tour of the VCO. Depending on the weather; if it's cloudy/raining, we will meet them and show them around the VCO Saturday afternoon. If it's clear out, I've invited them to join in when the VCO is in action Saturday evening (Oct 8th). All Active Observers are welcome to come out and meet them. I'll send an email with details when I know what the weather is doing that day.

Observing plans with the UVic 32" telescope are ongoing. I've had to write a new proposal to the telescope committee asking for telescope time. I've asked for the second Friday of each month as before, but we may have to be flexible regarding which evenings we're allotted. I'll let you know.

Some sad news: **life Member Dr. Edward Robert Walker** has passed away in June. A longtime Member, the Victoria Centre meant a great deal to him, and he will be missed. Sincere condolences to his family from all of us at RASC-Victoria Centre.

Some upcoming events:

-Annual General Meeting. Sunday, November 27th, 6pm to 10pm. AGM details will be posted to the Victoria Centre website around October 15th. Just a reminder that we are returning to the Cedar Hill Golf Course; it's a great room, with a terrific menu. Let's all keep our fingers crossed for better weather, so we can get out there enjoy some great Autumn observing!

**Clear skies,
Sherry.**

October 12th Meeting Speaker

Searching for Habitable Planets around Alpha Centauri

Dr Christian Marois (NRC):

The Alpha Centauri star system is ideal to search for habitable planets by various observing techniques due to its proximity and wide range of stellar masses. Following the recent discovery of an Earth-size planet candidate located inside the Proxima Centauri habitable zone, I will discuss this remarkable discovery and the planet's potential to find life. I will also present our current project to discover similar planets around the two Sun-like pair located 15,000 AU from Proxima Centauri. The Alpha Centauri system is the prime target of the Breakthrough Starshot program, a project to send small quarter-size probes to take resolve images of these new worlds, and to prepare for Humanity's first step into a new star system.

Bio: Dr Marois completed his Ph.D. at the Université de Montréal in 2004. The main topic of his thesis work was to understand the limits in exoplanet imaging and to design innovating observing strategies. After his thesis, he did postdoctoral research at the Lawrence Livermore National Laboratory, Univ. of California Berkeley and NRC. In 2008, while at NRC, he led the team that took the first image of another planetary system (HR 8799) using the Keck and Gemini telescopes. He is currently pursuing his research at the NRC Herzberg Institute of Astrophysics where he is part of the Gemini Planet Imager campaign.

Scheduled Speakers Fall 2016

Sunday Nov 27th **AGM:** Paolo Turri (UVIC)
Adaptive Optics in Astronomy and their results.



Astronomy Café



Our weekly **Astronomy Café** is an excellent, informal, way to meet us. New comers are especially encouraged. <http://victoria.rasc.ca/events/astro-cafe/>

Fairfield Community Centre - 1330 Fairfield Rd. Victoria 7:30pm

Contact: Chris Purse for further details
vp2@victoria.rasc.ca
Every Monday at 7:30 PM



Email Lists

Observer / CU Volunteers / Members

Contact Chris Purse to subscribe
vp2@victoria.rasc.ca



New Observers Group

Hosted by Sid Sidhu - 1642 Davies Road, Highlands. Call 250.391-0540 for information and directions.



Cattle Point observing in Victoria's own Urban Dark Sky Park:
<http://victoria.rasc.ca/events/rascals-cattle-point/>

Next Sessions : *Weather Permitting*
Friday November 4th at 7PM
Friday December 9th at 7PM



Victoria Centre Observatory: Every Saturday Evening.

Open to those on the Active Observers list only

Weather permitting. Dress warmly, and see you out there.

Membership Report - October 2016

Total membership is currently **234**. There are 13 members in the grace period which means their membership has expired in the past 2 months. Please contact Chris Purse (membership@victoria.rasc.ca) if you would like to check the status of your membership.

All Splendours, No Fuzzies.

Okanagan Centre RASC member **Alan Whitman** is well acquainted with the heavens above. He has written 25 articles for **Sky and Telescope** magazine and is the Chair of the RASC Observing Committee. So Alan is well qualified to compile a list of recommended celestial objects. Why another list? After all, the excellent RASC Observers Handbook has at least 8 observing lists. Well sometimes **Less is More** and that is the appeal of Alan's **All Splendours No Fuzzies** observing list. He has eliminated some of the more modest Messier objects and has included a number of splendours that deserve more attention. There is a separate list for each season and the length is not as overwhelming as some. Alan has also included Southern Hemisphere objects. So if an object has a declination lower than minus 30 degrees you may want to head south. Table abbreviations are to the right and the Fall Splendours are on the following page. An empty column has been included to the far right of the table so that you can mark your progress. Give a try. The full list can be viewed at the following link: <http://www.ocrasc.ca/All%20Splendor.html>

The VCO Astro Planner Cancelled by **Reg Dunkley**

After an agonizing reappraisal the Editorial Board has decided to discontinue the VCO Astro Planner. A sly survey of active observers, the very people who could have benefitted from this informative tool revealed that they never used it. We are not leaving the faithful users unsupported. Instead we highly recommend **Larry McNish's Night Time Planner V1.2** (see page 7 of September issue for details) Check it out at: <http://members.shaw.ca/rmcnish/darksky/nightplanner.htm>

A	component A of a double or multiple star
adj	adjacent
B	component B of a double or multiple star
B	(with number) Barnard's catalogue of dark nebula
C	component C of a multiple star
CC	concentration class for globular clusters, from I to XII
Cl	cluster(s)
cn*	central star of planetary nebula
d	degree
Dbl	double star
dl	dark lane in galaxy or emission nebula
DN	dark nebula
EN	emission nebula
G	galaxy (with type)
GC	globular cluster
IC	Index catalogue
-in	inch (as in "8-in", meaning a telescope of 8-inch aperture)
inv	involved
LMC	Large Magellanic Cloud
M	Messier catalogue
m	visual magnitude
mag	visual magnitude
Mlt	multiple star
[name]	the originator of a descriptive name
NE	visible with the unaided eye
Neb	nebula
NGC	New General Catalogue
OC	open cluster
OIII	An Oxygen III nebular filter is recommended
p	photographic magnitude
PN	planetary nebula

Alan Whitman's Fall Splendours, No Fuzzies

ID	Con	Type	RA(2000)	Dec	Mag	Size(')	Remarks
7009	Agr	PN	21 04.2	-11 22	8.3	0.5	Saturn Neb [Lord Rosse]; greenish; 18-in: knots at the ends of the bar
61	Cyg	Dbl	21 06.9	38 45	5.2,6.1	28"	Orange dwarfs
M15	Peg	GC	21 30.0	12 10	6.4	12	Core peaks like Mt. Fuji; CC IV
M2	Aqr	GC	21 33.5	-00 49	6.5	13	Brightest CC II
Zeta	Aqr	Dbl	22 28.8	-00 01	4.4,6.3	2.3"	Both white
7293	Aqr	PN	22 29.6	-20 48	6.5	13	7x50s show Helix Nebula; annular
7662	And	PN	23 25.9	42 33	9.2	0.3	Blue Snowball [Copeland]; annular in 10-in
7789	Cas	OC	23 57.0	56 44	6.7	16	Ri, 300 faint st
55	Scl	G-Sc	0 14.9	-39 11	8p	25x3	4-in: diffuse splinter
104	Tuc	GC	0 24.1	-72 05	4.0	31	NE; 47 Tuc: yellow core!; CC III
Beta	Tuc	Dbl	0 31.5	-62 57	4.4,4.5	27"	Both blue-white
M31	And	G-Sb	0 42.7	41 16	3.5	160x40	40 GC and 10 OC with 16-in. See Nov/13 Sky&Tel
M32	And	G-E2	0 42.7	40 52	8.2	3	M31 group; also M110, NGC 147, NGC 185
253	Scl	G-Sc	0 47.6	-25 17	7.1	22x6	Elongated, mottled; GC NGC 288 adj
SMC	Tuc	G-Im	0 52.6	-72 48	2.8p	216	NE; CI, EN inv
281	Cas	EN	0 52.8	56 37	7p	35	Use UHC; DN inv
362	Tuc	GC	1 03.2	-70 51	6.6	13	Milky Way GC beside SMC; CC III
457	Cas	OC	1 19.1	58 20	6.4	13	Airplane Cluster: Splendid
M33	Tri	G-Sc	1 33.9	30 39	5.7	60x40	Difficult NE; Two easy spiral arms; 7 knots in 8-in; 31 knots in 16-in. See Dec/04 Sky&Tel
p	Eri	Dbl	1 39.8	-56 12	5.8,5.8	12"	Both yellow-orange dwarfs
663	Cas	OC	1 46.0	61 15	7.1	16	80 st; four OC within 2d
Gamma	Ari	Dbl	1 53.5	19 18	4.8,4.8	7.5"	Both white
Gamma	And	Mlt	2 03.9	42 20	2.1,4.8	9.6"	Gold, blue
Iota	Tri	Dbl	2 12.4	30 18	5.2,6.6	4.0"	Gold, blue
869,884	Per	OC	2 19.0	57 09	4.4	30,30	NE; Double Cluster; 350 st
Omicron	Cet	Var	2 19.4	-03 00			Mira: orange; watch m rise with NE
891	And	G-Sb	2 22.6	42 21	10.0	14x3	Edge-on; 16-in shows dl
M34	Per	OC	2 42.0	42 47	5.2	35	NE; fine in small scopes
Theta	Eri	Dbl	2 58.2	-40 19	3.4,4.4	8"	Both white
Beta	Per	Var	3 08.2	40 57			Algol: NE eclipsing binary
A Per	Per	OC	3 22.0	48 36	2.3	240	Alpha Per Assoc; use binoculars

Close Encounter With A SuperNova

by Reg Dunkley

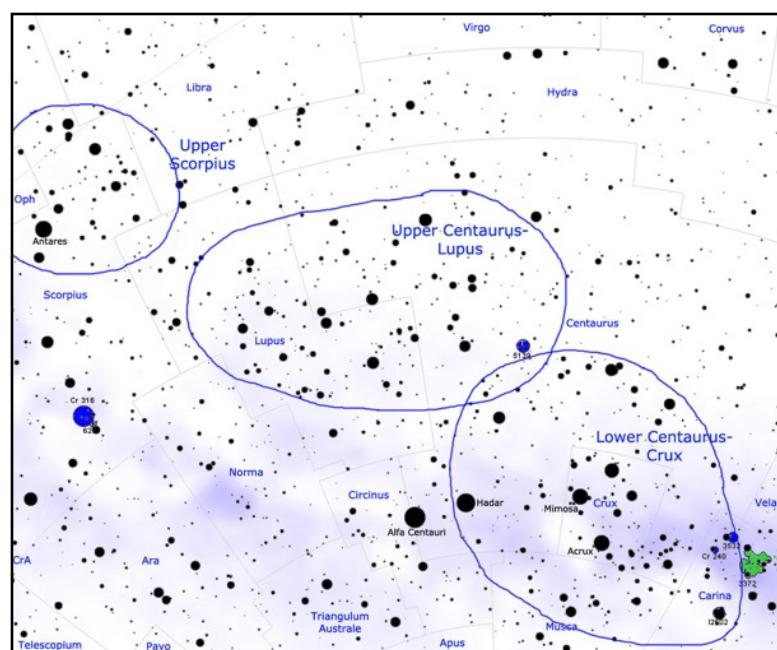
What goes up must come down. While that old adage is valid for baseballs and bullets it also applies to air pollution. Particulate matter from many sources, ranging from automobile exhaust to nuclear explosions ends up as "fall out" which often sinks to the bottom of lakes or oceans and become embedded in time capsules of sediment. A chemical analysis of these sediment cores allows one to monitor the change of pollutants over time. For instance in sediment cores from lakes, a sudden drop in radioisotopes reflected the signing of the 1963 nuclear test ban treaty while a substantial drop in lead concentrations marked the change to unleaded gas in 1975.

In August, news of a radically different source of "air pollution" was [published](#). A team of scientists in Germany, including Dr. Shawn Bishop a former UVic grad student, detected minute levels of the rare radioisotope Iron 60 (^{60}Fe). This radioisotope can only be synthesized from an explosion of a type II supernova. Because it has a relatively short half life of 2.6 million years any ^{60}Fe present when the Earth formed over 4 billion years ago would have long since decayed. The source of this ^{60}Fe therefore must have **arrived from a fairly recent supernova!**

Detection of ^{60}Fe had been reported in oceanic features called FeMn crusts in [1999](#). Bishop's team obtained a more precise signal by analyzing marine sediments which contained the microfossils of a hardworking bacteria with an appetite for iron. These magnetotactic bacteria sequestered the iron, which when fossilized securely preserved the record of their existence. Because this layer of marine sediment accumulates much more rapidly than FeMn crusts it provides a more precise timeline of when the ^{60}Fe arrived. The minute amounts of the ^{60}Fe were isolated by a huge instrument called an accelerator mass spectrometer (AMS). This incredible technology was able to detect one atom of ^{60}Fe in an

enormous haystack of one thousand trillion (10^{15}) normal" iron atoms. These magneto fossils were obtained from two sediment drill cores from the Pacific ocean bed. From the depth of the sediments it was determined that the ^{60}Fe from a supernova arrived about 2.7 million years ago, peaked about 2.2 million years ago and terminated 1.7 million years ago.

This means that **for about 1 million years, the Solar System was travelling through a cloud of particles ejected from a super nova**. For these particles to reach the Earth the supernova would have to be relatively close. The prime candidate for a nearby supernova is the Scorpius - Centaurus OB association, located 380 to 470 light years away. This grouping of young luminous blue stars extends over a large swath of the sky from Antares to the Southern Cross. One intriguing aspect of the **arrival of** the supernova stardust is that it occurred near the time of the [Pliocene–Pleistocene boundary marine extinction](#). Could the shockwave of this supernova have contributed to that calamity? The plot thickens.



Scorpius -Centaurus OB association

The supernova that bombarded the Earth 2 million years ago may be lurking in this group.

By Roberto Mura - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?>

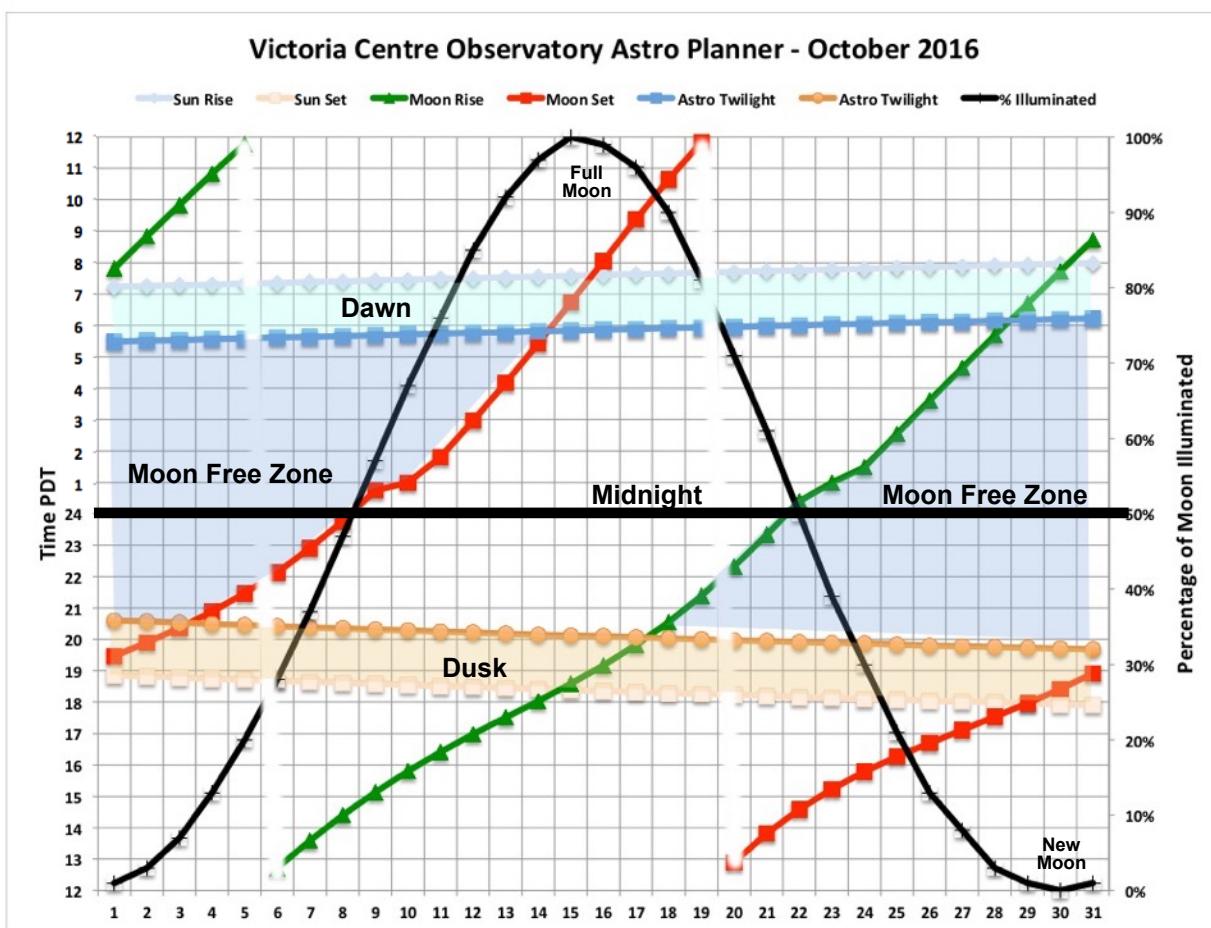
Letters to the Editor

I enjoyed your excellent article on rotation curves in the September SkyNews. Readers might enjoy the following unusual Canadian link to Vera Rubin's discovery. In the late 1980s Alex Brett worked for NRC Communications. From her base in Vancouver she and I collaborated on the updating of our previous tiny, unheated visitor area on the ground floor of the Plaskett Telescope (long before we built the Centre of the Universe in 1999-2001). Alex moved to Ottawa to work for a number of years in NRC's central communications office, which she left (about 1998, as I recall) to dedicate herself to developing the Morgan O'Brien mysteries dealing with science topics. Her first novel (Dead Water Creek)

was about salmon in BC. Her second novel (*Cold Dark Matter*)-- based at the "France Canada Hawaii Telescope" and NRC Ottawa--deals with astronomy with a surprising twist involving a contemporary social issue. After reading it immediately following publication I encouraged her to share a copy with Vera Rubin (a friend of ours of many years). With some trepidation Alex did so. She soon received an extremely warm, appreciative letter from a very surprised and pleased astronomer that Alex treasures to this day.

Jim Hesser

Editors note: A number of copies of *Cold Dark Matter* are available at Russell's Book Store.



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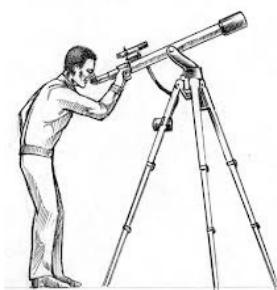
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Online Resources

Magazines

[SkyNews](#) Our National RASC Newsletter
[Sky & Telescope Magazine](#)
[Astronomy Magazine](#)
[Astronomy Now](#) Astronomy in the UK
[Amateur Astronomy Magazine](#)
[Astrophotography Magazine](#)

Borrowing Telescopes



The centre has telescopes for new and seasoned observers that members can use. Contact Sid Sidhu from the email list above.