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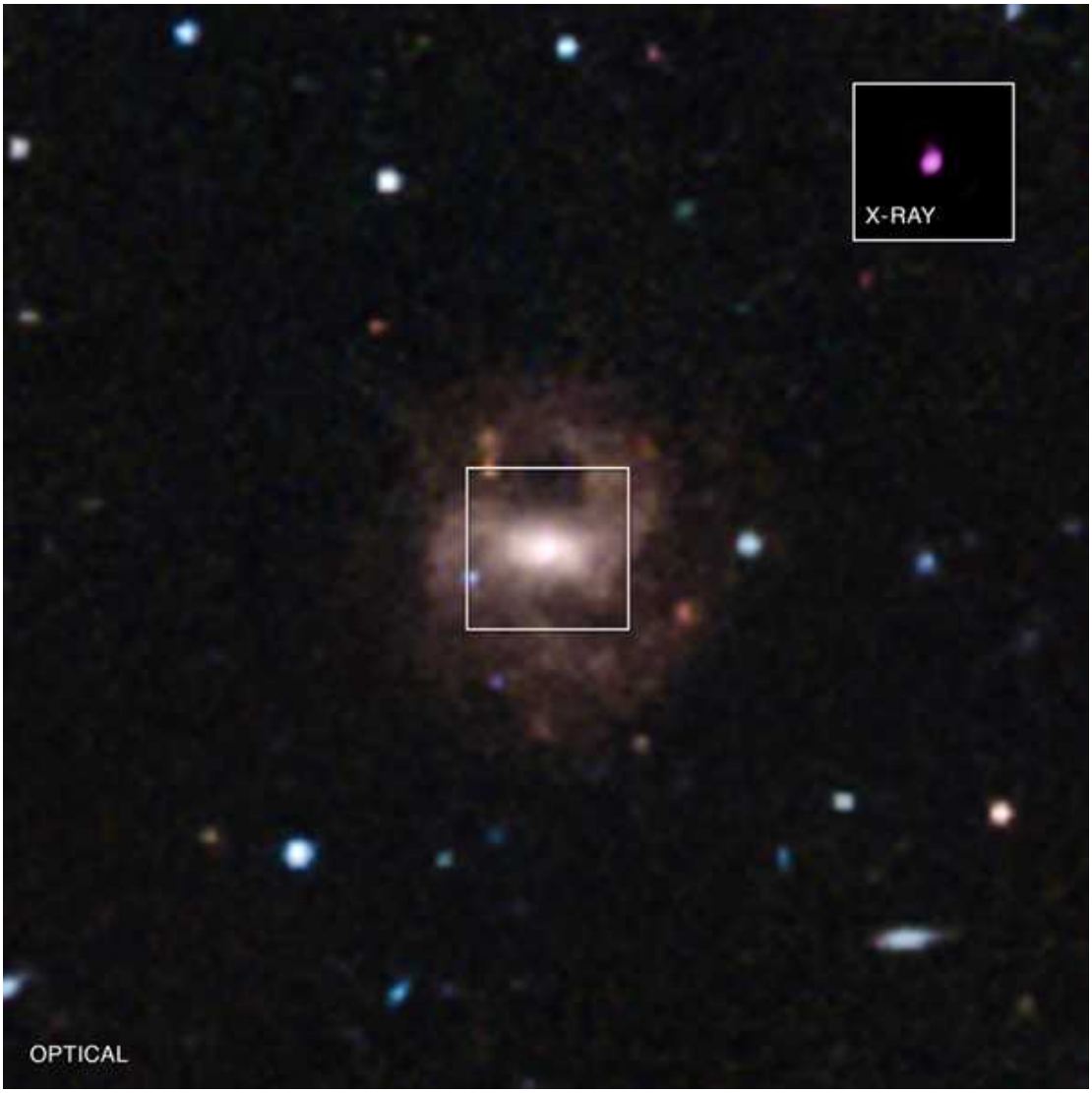
Newsletter of the Winnipeg Centre of the Royal Astronomical Society of Canada



The smallest supermassive black hole has been detected in the center of a galaxy using NASA's Chandra X-ray Observatory and the 6.5 meter Clay Telescope in Chile. This black hole could provide clues to how larger black holes formed along with their host galaxies 13 billion years or more in the past. This black hole is located in the dwarf disk galaxy called RGG 118. Hot gas is shown to be near the black hole in the Chandra image of the galaxy's center. This black hole is estimated to be 50,000 times the mass of the Sun. This supermassive black hole is less than half the mass of the previous smallest black hole. Astronomers think supermassive black holes may form when a large cloud of gas, with a mass of about 10,000 to 100,000 times that of the Sun, collapses into a black hole. Many of these black hole seeds merge to form larger supermassive black holes. A supermassive black hole seed could some from a giant star when it runs out of fuel and then collapses.

http://www.astronomy.com/news/2015/08/oxymoronic-black-hole-provides-clues-to-growth

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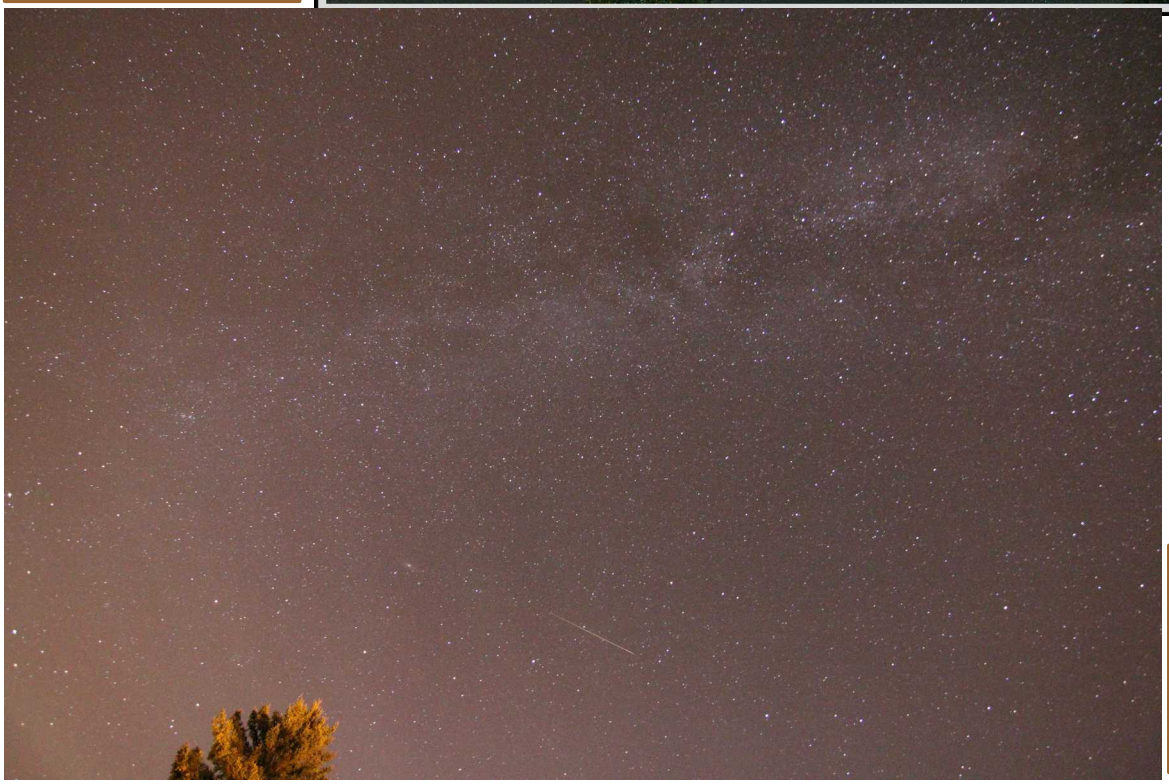
International Space Station passing over Winnipeg, Manitoba.

Photo by: Paul Paradis (Winnipeg)



Perseides near the Andromeda Galaxy.

Photo by: Stan Runge (Winnipeg)

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A new analysis of 13 supernovae using current and archived data from NASA's Hubble Space Telescope. Astronomers hope to explain how young stars explode sooner than expected which hurls them to a lonely place far from their host galaxies. The above Hubble Space Telescope images show elliptical galaxies with dark, wispy dust lanes. These are the signature of a recent galaxy merger. The dust is the relic of a smaller galaxy that was consumed by a larger elliptical galaxy. The "X" in the images shows the location of the supernova explosions. Each supernova may have been gravitationally kicked out of its host galaxy by a pair of central supermassive black holes. The study leader Ryan Foley of the University of Illinois at Urbana-Champaign said "we knew these stars had to be far from the source of their explosion as supernovae and wanted to find out how they arrived at their current homes." It is discovered that the doomed stars were moving at about the same speed as stars that have been tossed out (at more than 7 million km/h) of our Milky Way Galaxy by its central supermassive black hole. It is known what causes these outcast supernovae. It is unknown why they are unusually weak. More than five times as much calcium as other stellar explosion is produced by supernovae. At the expense of producing the lighter calcium supernova explosion have enough energy to create much heavier elements, such as iron and nickel. For atypical explosions, the fusion chain stops midway leaving lots of calcium and very little iron.

http://www.astronomy.com/news/2015/08/hubble-finds-supernovae-in-wrong-place-at-wrong-time

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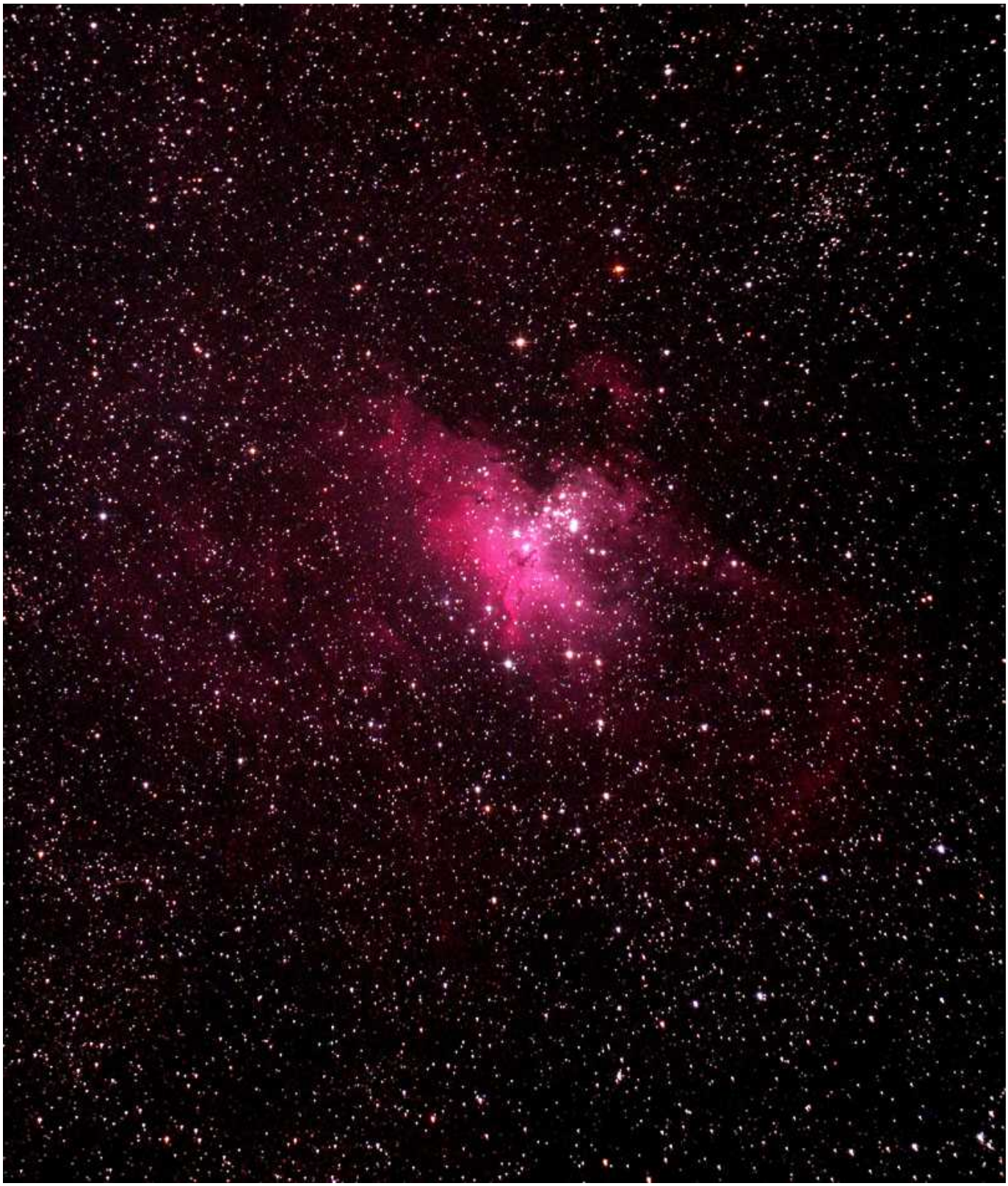

Messier 16.

Photo by: Doug Mong

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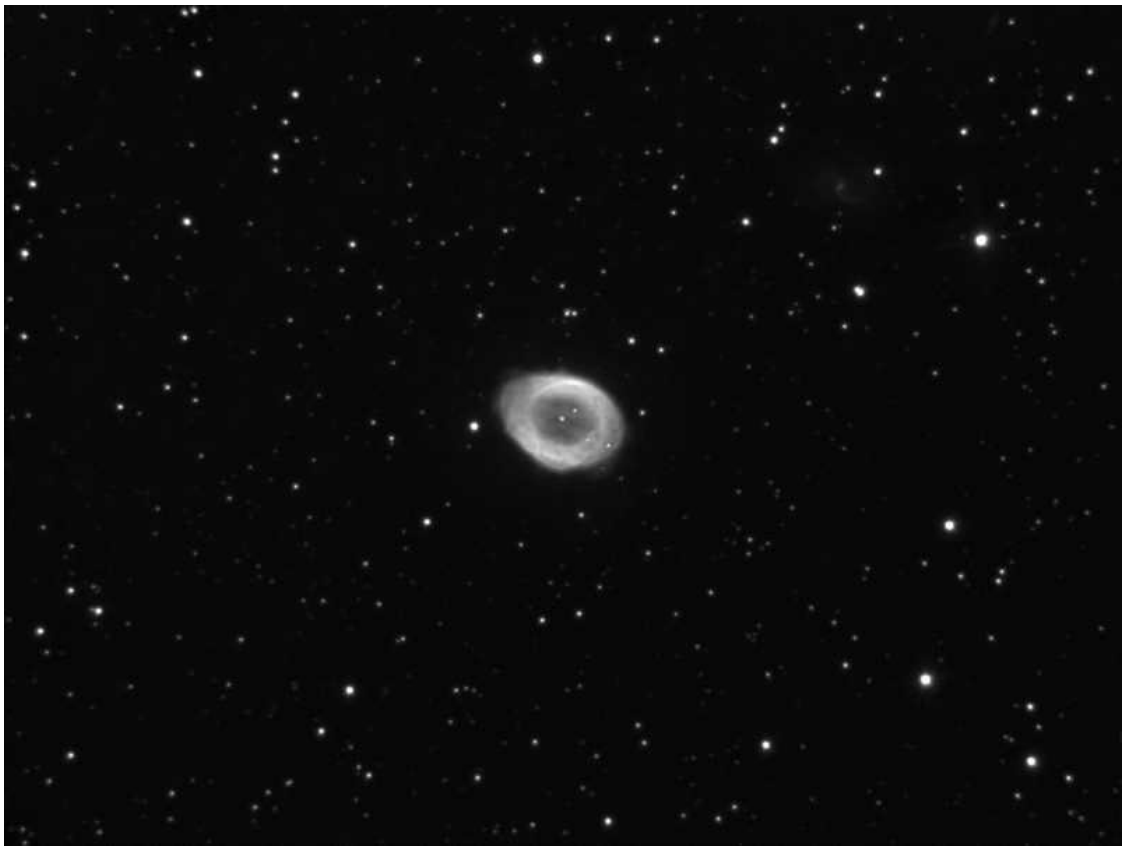

A photo of M57-L from Gleanlea, Manitoba.

Photo by: Kevin Galka (Winnipeg)

A photo on July 22 of M27 at Glenlea, Manitoba.

Photo by: Ron Bryson (Winnipeg)

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Scientists are using the photographs taken from the International Space Station by Astronauts to research the amount of light pollution worldwide. The above photograph shows Milan, Italy from the International Space Station in 2015. This study also studies the effects of faint indirectly scattered light. This light has not been studied quantitatively before. The new results confirm that this diffuse glow is scattered light from streetlights and buildings. The study uses the International Space Station images as well as data from the Defense Meterological Satellite Program and Suomi National Polar-orbiting Partnership Satellite. The study discovered that European countries and cities that have a higher public debt also have a higher energy consumption of street lighting per inhabitant. The total cost of the energy consumption for streetlights is estimated by the study to by 6,300 million euros per year.

http://www.astronomy.com/news/2015/08/first-use-of-iss-astronaut-pictures-for-light-pollution-studies

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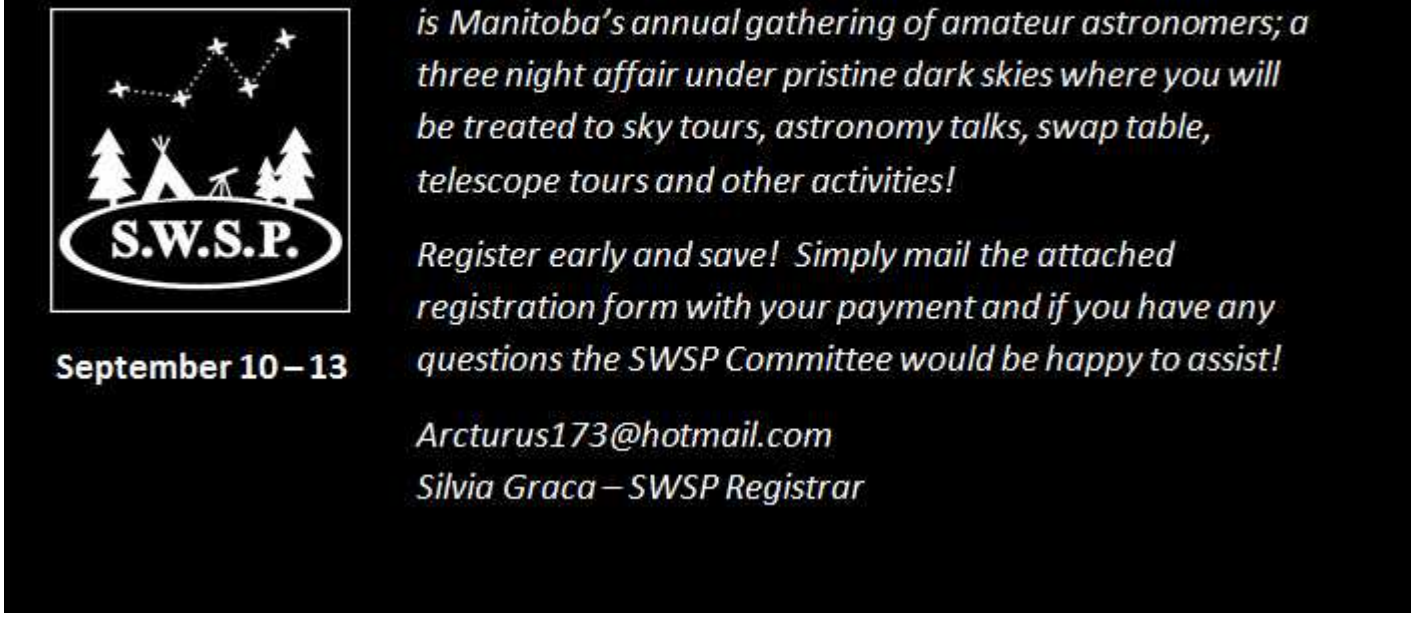

Our presenters for this year:

Friday: Sky Tour with Gerry Smerchanski

Saturday: James Edgar: Synthesis of Elements in Stars
Sean Ceaser: Finding Messier Objects
Alan Macklem: Exotic Observatory Tour

The weekend begins on Thursday night (September 10, 2015) and ends on Sunday morning (September 13, 2015) with a breakfast.

The Spruce Woods Star Party (SWSP) is a place where amateur and professional astronomers gather to observe the night sky in one of the darkest skies of Manitoba in Spruce Woods Provincial Park. It is an overnight excursion where RASC members will camp amongst approximately 60 to 80 participants; three nights will be spent under the stars in a wide open field where you can camp and set up your equipment in one spot. There is no electricity but we have a cabin nearby where you can recharge all your batteries.

You are responsible for providing your own food, drink and camping supplies so be sure to check out what camping supplies are necessary in order to have an enjoyable camping experience!

The Spruce Woods Star Party attracts beginners as well as serious observers and astrophotographers; the star party's main focus is astronomy, so any kind of light and traffic is strictly controlled during the star party.

Activities include astronomy talks and workshops during the day, a guided sky tour under the stars and a catered meal at the Glenboro Community Centre.

You are also free to do your own thing! During the day there are many activities and places to explore in and around the park, such as the unique Spirit Sands with its beautiful shifting sand dunes or the numerous beautiful trails that follow the Assiniboine River and its river bank forests. Enjoy the wildlife, birdwatching, hiking, canoeing and so much more!

Spruce Woods Star Party (SWSP) 2015 Registration

September 10 - 13

Name:	
Address:	
E-mail:	
Valid RASC Membership: (To join the RASC go to Winnipeg.rasc.ca or contact Silvia at arcturus173@hotmail.com)	
Your accompanying family members (names):	

Events Registration Check ☑:

Thursday Night	Free night – no event	
Friday Night	Sky Tour with Gerry Smerchanski	
Saturday Afternoon	Workshops & Speakers	
Saturday Night	Banquet	
Sunday Morning	Continental Breakfast	

Indicate how you will be camping in observing area ☑:

Tenting		
Camper	Indicate Camper Length?	
Extra Unit	Describe Extra Unit	
Generator	Must park in designated area please check with SWSP organizer	
Private Camping	Please contact park directly at 204-948-3333.	

PAYMENT OPTIONS

Event	Cost	Amount	Total
Total Weekend Package for one (workshops, talks, camping, banquet, Sunday continental breakfast):	$50 before August 31 $70 after August 31		
Add a Family Member to the Total Weekend Package:	$25 each		
Events & Camping package (no banquet and no Sunday continental breakfast) for one person:	$35 before August 31 $50 after August 31		
Events & Camping package (no banquet and no Sunday Continental Breakfast) for the whole family:	$50 before Aug. 31 $70 after Aug. 31		
Banquet Only: (add 6 dollars per child age 3 – 12)	$25		
	TOTAL		

Mail your cheque and this form to:
Silvia Graca
8 Monterey Road Winnipeg, Manitoba R2J 1X1
Make cheques payable to RASC Winnipeg Centre

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Upcoming events

September 5, 2015
Last Quarter

September 10-13, 2015
SWSP

September 13, 2015
New Moon
Partial Solar Eclipse

September 18, 2015
RASC Montly Meeting

September 21, 2015
First Quarter

September 28, 2015
Full Moon
Total Lunar Eclipse

October 4, 2015
Last Quarter

October 9, 2015
RASC Monthly Meeting

October 13, 2015
New Moon

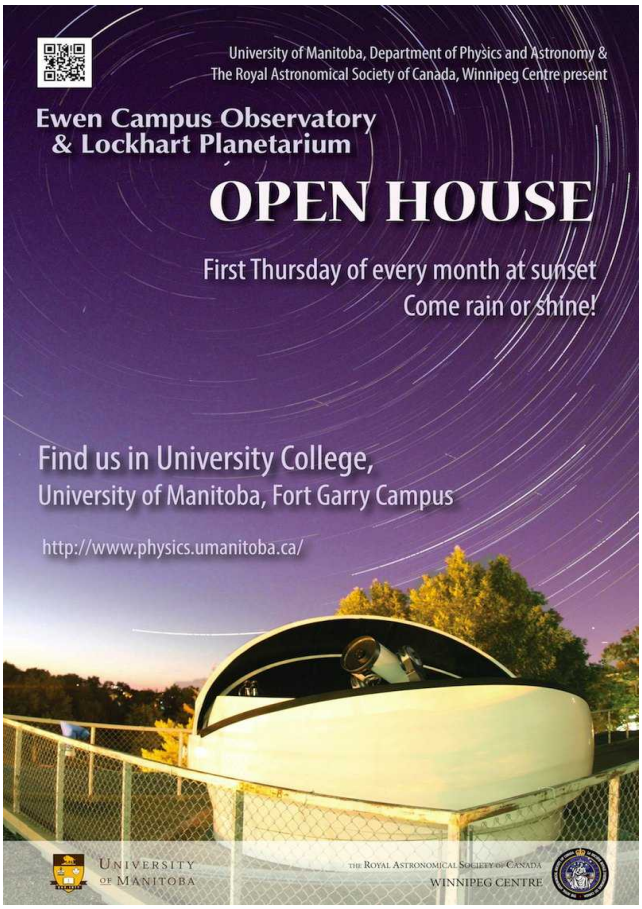
October 20, 2015
First Quarter

October 27, 2015
Full Moon

The regular meeting will be moved to Friday, September 18 due to the Spruce Woods Star Party on Friday, September 11.

Regular meetings of the Winnipeg Centre are held in the Robert B. Schultz lecture theatre in St. John's College at the University of Manitoba. The theatre is on the lower (basement) floor of the College. Meetings are held on the second Friday of each month from 7 p.m. to 10 p.m. After the meetings, members who wish to do so usually retire to "The Hub" in University Centre for more conversation about astronomical subjects.

The June meeting is not held at St. John's College but is instead a barbeque at either a member's house or at Glenlea. Meeting dates and meeting places may be adjusted during exam times and during Bomber home games or stadium events.



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Vice-President:
Brenden Petracek
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Brian Stach
Treasurer:
Stan Runge
Past President:
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Kris Keller
Ralph Croning
Silvia Garca
National Representative:
Rolando Martin
Dennis Lyons
SWSP Organizer:
Silvia Garca
Webmaster:
Julius Lopez-Garcia
Winnicentrics Editors:
Meghan Ostrum
Drew Daniels

September 18th Meeting Schedule

7 p.m. Beginner's Session
7:30 p.m. Announcements; What's New?: Jennifer West; What's Up?: Jay Anderson
Break for refreshments
Feature Presentation: The Parabolic Flight Experiment with Dario Schor

The Parabolic Flight Experiment investigated how the human body performs and adapts to different gravity conditions when some of the visual and physical cues are taken away. Its goal was to develop new techniques to train and prepare counter measures that help astronauts work in a microgravity environment. The testing was conducted by the International Space University (ISU) and supported by the European Space Agency (ESA). This unique weightless experience was a collaboration between students in Canada, United States, Italy, Germany, and France who had varying backgrounds, including engineers, physicists, neuroscientists, and medical professionals.

In this talk, I will give an overview of the experiment, how parabolic flights simulate microgravity, and the experiment. The core of the presentation will focus on the parabolic flight, the preparations, effects on the boy, and trying to articulate what the weightlessness experience is like. Finally, there will be a short description of some of the preliminary results and ongoing work.

Dario Schor completed his B.Sc. and M.Sc. in Computer Engineering at the University of Manitoba in 2008 and 2013 respectively. During this time, he founded and lead the UofM Space Applications and Technology Society (UMSATS) team in developing the first UofM nanosatellite, which finished 2nd overall in the inaugural Canadian Satellite Design Challenge. After completing his degree, Dario attended the nine-week Space Studies Program from the International Space University in Strasbourg, France. Currently, he works as a Software Engineer for Magellan Aerospace working on flight software, ground tools, and testing for the RADARSAT Constellation Mission and as a Seasonal Instructor for the UofM Computer Science Department. He is an active volunteer with IEEE Winnipeg, the Space Generation Advisory Council, the Canadian Manufacturers and Exporters, and other organizations focusing on outreach activities promoting careers in Science and Engineering for pre-university students.