

CONFERENCE PROGRAM

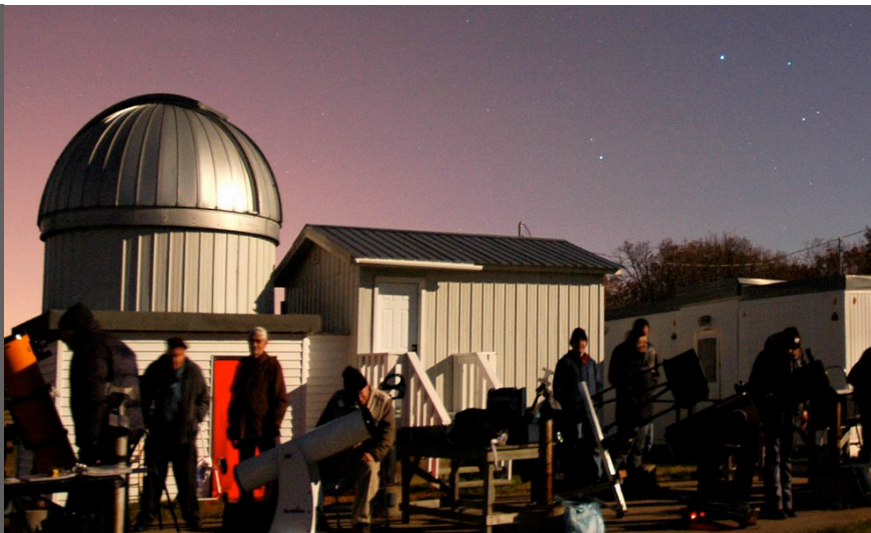
July 1 - 3, 2011

Winnipeg
welcomes
you to our
100th
anniversary
celebration!



CONTENTS

Winnipeg
Centre's Glenlea
Astronomical
Observatory.
Photo by centre
member, Ron
Berard



GENERAL ASSEMBLY July 1 - 3, 2011

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President's Message

Winnipeg Centre President

Kris Keller

On behalf of the RASC's Winnipeg Centre, I would like to extend a warm welcome to all the executives, delegates, and guests attending the General Assembly this year. We hope that your visit to Winnipeg will be memorable and that it will foster growth in the Society, your knowledge of astronomy, and your relationships with each other. Let me propose a toast then, to a fruitful meeting, to a pleasant stay under our "Friendly Manitoba" skies, and to another 100 years for the Centres and the RASC!

The General Assembly gives executives and members of the RASC the opportunity to address important business that will enhance the Society's structure and function. While this is the central purpose of the yearly meeting, it also offers its coast-to-coast membership a time to connect, to reinforce, and to form new friendships. The 2011 General Assembly falls on a very important date for us, as this is the year that the Winnipeg Centre celebrates its 100th anniversary. To help with the occasion, we have invited a number of "alumni" to a Manitoba homecoming to help us with the festivities.

Formed in 1911 with fewer than a dozen participants, the Winnipeg Centre has now grown to a respectable 170 astronomers. In recent years, we have seen the growth of member skills and a growing enthusiasm for public involvement, buoyed by the infectious enthusiasm that comes with a large group of participants. In common with many other Centres, we have seen a large increase in the number of astrophotographers as advancements in digital technology captured both photons and imagination. As a result, the photo displays at this GA are the largest and most comprehensive ever, showcasing the abilities of amateur astronomers from across the RASC.

Interestingly, the growth of electronic imaging has not diminished the enthusiasm for visual observing, as we have also seen a surge in the ownership of large and small telescopes within the Centre – a number of our members own glasses that range between 18 to 25 inches in size. It would seem that a rising tide of participation and enthusiasm has lifted all of our members and nurtured their love of the night sky.

Over the next four days, you will have the opportunity to participate in the business portion of the General Assembly, to listen to your fellow RASCals talk about their projects, to celebrate achievements, to learn from the professionals, and to discover the best of what this province has to offer. Welcome to Manitoba and to the Winnipeg Centre!

Kris Keller
President,
Winnipeg Centre, RASC

Welcome to Winnipeg

About our city

Winnipeg is a big city with a population of over 700,000 and a brand-new recycled hockey team. There are many things to do in your short stay and we've tried to provide you with an opportunity to sample some of them.

The Forks is the manufactured centre of the city, at the junction of the Red and Assiniboine rivers, both of which are in flood during your time with us. It is a great place to explore, and it will be crowded during the long weekend. The July 1 fireworks display at the Forks is a must-see event, but traffic will be very slow moving once the event is over. Our buses will leave for the University from the Museum, a 20-minute walk to the north of the Forks. The fireworks can be viewed from the Museum.

For night life, try the Exchange District north of The Forks, in the streets south of the Museum. For the best outdoor dining experience, try Corydon Avenue to see and be seen. Corydon Avenue is best experienced in a sharp-looking sports car. Wear lots of jewelry. A Harley and a leather jacket with an ominous-looking logo also works. Osborne Street works for those who appreciate an eclectic and artistic atmosphere.

For other things to see and do (and not do), talk to one of the Centre members.



General Assembly 2011 Program

Thursday

Thursday is arrival day, especially for the members of the National Council, who have meetings to attend to on the following day. Dinosaur lovers have a treat however, as today we offer a tour to the Canadian Fossil Discovery Centre in Morden, Manitoba and the opportunity to dig for fossils for up to 14 lucky souls. Manitoba is actually a fossil haven, and the Discovery Centre harbours the largest display of Cretaceous-era marine reptile fossils in Canada. For those who can't make the trip, pay a visit to the Wallace Building on campus to check out the display there, including the largest trilobite ever found. In the evening, we'll host the Council BBQ at a member's house.

Friday

Friday is a working day for the National Council Reps, with an all-day meeting in the Engineering Building. For those with time of their hands, we offer two tours: a trip on the Prairie Dog Central steam train, or a visit to the award-winning Assiniboine Park and Zoo. Assiniboine Park is the city's largest green space, and hosts the Conservatory, numerous playing fields, the Pavilion Gallery Museum, the Leo Mol Sculpture Garden, many flower gardens, and a memorial to Winnie the Pooh (who, of course, was named for Winnipeg). The Zoo hosts over 400 species of animals, specializing in cold-tolerating or high-altitude species, though not without its share of lions, tigers, and monkeys.

Prairie Dog Central Railway is a moving museum with 100-year station and a steam locomotive built in 1882. This tour will operate from north Winnipeg to Grosse Isle, in coaches built in the early 1900s.

In the afternoon, buses will be available to take RASC members and their families to The Forks – the historic centre of Winnipeg where the Red and Assiniboine Rivers come together. Dinner is on your own, but the get-to-know-you-and-meet-old-friends Wine & Cheese party will take place in the evening in the nearby Manitoba Museum. The Museum is renowned as one of Winnipeg's treasures, with a full-scale replica of the Hudson Bay Company's Nonsuch and fascinating displays and galleries that show off

General Assembly 2011 Program

the history of Manitoba. The Museum will be open to RASC members during the Wine & Cheese festivities.

Saturday

Saturday, it's down to business. This is the day reserved for the science and technology part of the General Assembly. A full day of invited speakers and paper presentations is planned, culminating in the Ruth Northcott Lecture in the evening.

Join us for dinner at the National BBQ on campus, where we will celebrate the Winnipeg Centre's 100th birthday, and then return to the Engineering Building for the Northcott Lecture.

Sunday

Sunday features the General Assembly – the raison d'être of this meeting of the Society, where RASC business is presented to the general membership. At the end of the morning session, we'll have an invited talk from a Transport Canada representative about green laser pointers and the regulations governing their use. After lunch, the National Reps will gather again for a final Council meeting, but the rest of us can tour the old Hudson Bay Company fort at Lower Fort Garry, or wander about Winnipeg to see some of the sights we've missed – perhaps the Mint or Fort Whyte Nature park. Of course we can't forget the traditions: the Pyramid, the East-versus-West sporting event, and the formal GA photo.

In the evening, we'll host the National Banquet with invited speakers, awards and prizes.

Monday

On Monday, we say farewell, but if you feel like staying a few more days, we can arrange some sightseeing around the city and surroundings with our members. If demand is great enough, we'll arrange another tour to the Fossil Discovery Centre.

Good to Know - FYI Registration Kit

We are pleased to provide the following items within your registration kit:

- Registration Guide
- Name Tag (see notes below)
- Breakfast and Lunch Meal Tickets (if purchased)
- Username and password for wireless internet access
- Pre-ordered GA items
- A copy of Winnicentrics
- Full-sized Campus Map
- Winnipeg Visitor's Guide
- A copy of the June *Journal of the RASC*

Your Name Tag

Your name tag is your ticket to many of the weekend's activities, so please carry it with you at all times to ensure your entry. Please check your name tag carefully to ensure that all paid events are shown properly.

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Good to Know - FYI Registration Desk

Information about the program and events around the city can be obtained from the registration desk. The desk will be set up as follows:

Thursday June 30th	12:00 – 17:30	Arthur Mauro Residence
Friday July 1st	08:30 – 16:30	Engineering Information Technology
Saturday July 2nd	08:30 – 10:00	Engineering Information Technology

Also available at the Registration Desk

Winnipeg Transit Bus Schedules

Tourist Brochures for the city’s attractions

Should you require assistance outside of the hours of the Registration Desk you can contact the following people:

Jay Anderson	960-9730
Jennifer West	999-6344
Stan Runge	803-1248

We will do our best to ensure that you have an enjoyable assembly this weekend.

Good to Know - FYI

Residence & Hospitality Suite

Residence Check-In

If you are staying on campus, it will be at the Arthur Mauro residence or Mary Speechly Hall. They are across the street from each other, but check-in is conducted at Arthur Mauro. There are signs pointing to the check-in at the entrances to the campus.

The check-in desk is open from 08:30 to midnight. Outside those hours, security will be able to check you in.

Hospitality Suite

As at every General Assembly, a Hospitality Suite is being made available for people to congregate and relax. The suite is located on the main floor of the Arthur Mauro residence and will be available in the evenings. We also have access to a lovely outdoor courtyard adjacent to the Hospitality Suite if you wish to take in some fresh air.

If you are not staying at the Arthur Mauro residence, please stop by the check-in desk and indicate you are with the RASC event and they will be happy to buzz you in to the secure area where the Hospitality Suite is located. Please note that the Suite is a common area that is open to others staying in the residence and is not restricted to GA members.

Good to Know - FYI

Speakers Notes

Speakers (except for invited speakers) have been allocated 20 minutes for their presentations. As a general rule, you should allow 15 minutes for speaking, and the balance for setup and questions. A good rule-of-thumb is to plan on one minute per slide including titles and ending – and a few less slides will probably make your presentation more comfortable for you.

Please test your presentation beforehand, especially if you plan to provide your own laptop. You are responsible for the compatible operation of your system with the equipment provided. Videos should be cued to the start of the section which you wish to show. Moderators will inform you when there are 10 minutes and 5 minutes remaining, and will end the questions when your allocated time has run out.

The Northcott Lecture

The Northcott Lecture will take place in the MTS Allstream Theatre in the Engineering Information Technology Centre (EITC) beginning at 7:30 pm Saturday July 2. This is a public lecture. Our invited speaker is Dr. Christine Wilson from McMaster University. The title of her talk is “Beyond the Visible Universe: Dark Clouds, Galaxy Collisions, and the Origin of Stars.”

Banquet Speaker

Our banquet speaker is Dr. Samar Safi-Harb from the University of Manitoba. She will be speaking after dinner around 19:30 on Sunday evening. Her talk is entitled “Viewing the Universe and Supernova Remnants through X-ray eyes.” The banquet will be held in Marshall McLuhan Hall in University Centre.

Good to Know - FYI Tours

There are four tours available. Please be on time for departure, as some of these tours are very time critical.

Canadian Fossil Discovery Centre – Thursday June 30th

Departure is at 0800 from the Arthur Mauro Residence; return at 4:30-5:00 p.m. Lunch is provided.

Assiniboine Park and Zoo: Sunday July 3

Departure is at 0930 Friday July 1 from the Arthur Mauro Residence. Lunch on your own at the Zoo.

Prairie Dog Central Steam Train: Friday July 1

Departure is at 09:30 from the Arthur Mauro Residence. Lunch is provided. We have arranged to travel in the Party Caboose on the train.

Lower Fort Garry and Lockport: Sunday July 3

Departure is at noon from the Arthur Mauro Residence. There will be a lunch stop in Lockport, at Manitoba's iconic "World-famous Hot Dog" restaurant (Skinner's) where lunch is on your own.

Additional Tours

If you are staying over, talk to us about some other tour destinations or repeat visits to one you might have missed.

Good to Know - FYI National Council Meetings and AGM

The first National Council Meeting (NCM1) will begin at 09:30 in the Engineering Building (Room E2-399, just upstairs from the MTS Allstream Theatre). It will continue all day. This meeting is for National Council members and Centre representatives. Any RASC member can attend as an observer.

The General Assembly will take place on Sunday July 3 in the MTS Allstream Theatre beginning at 09:00. All RASC members are invited to attend and vote on Society affairs. It will last the morning. The Assembly will be followed by a presentation from a representative of Transport Canada who will speak on regulations governing green laser pointers.

The second National Council Meeting (NCM2) will take place in the afternoon of Sunday July 3 in the MTS Allstream Theatre. This meeting is for National Council members, but any RASC member may attend as an observer.

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Good to Know - FYI

Canada Day Events

Wine & Cheese

In our desire to allow the delegates of this year's General Assembly to participate in Winnipeg's Canada Day Celebrations, we have arranged to hold our "Wine and Cheese" event at the Manitoba Museum. Delegates may spend time at the Forks before they head to the Manitoba Museum, and then return at the end of the "Wine and Cheese" to enjoy the Fireworks display.

The evening will begin at 16:30 pm, after the conclusion of the National Council meetings and various Tours, when we will gather at the entrance of the Arthur Mauro residence to board buses to head downtown. Delegates will have a choice of either getting dropped off at one of two locations. You can go to "The Forks", where you can attend Canada Day events and obtain a meal at one of the many restaurants and fast-food outlets. The second option is to get taken to one of Scott Young's favourite beverage location called "The King's Head Pub", where we will have a dining area for our enjoyment at an attractive price. Both locations are a 10- to 20-minute walk to the Museum. In all circumstances, Winnipeg Centre, members will be present to provide an escort to all the events. Buses will depart the Museum to return to the University at 23:30.

Good to Know - FYI
Canada Day Events
 Wine & Cheese

Evening Schedule:

16:30	Busses depart from the University to Downtown
17:00	Option: King's Head group dinner (registration required, pay as you go) OR Dinner on your own at the Forks
18:00	Walk to Museum (shuttle will be available, but please request this ahead of time at the registration desk). Bar and food opens in Science Gallery.
18:30	Planetarium show
19:15	Museum and Science Gallery available to delegates; musical entertainment in Science Gallery ("open mic" style)
19:30	Optional laser show "Radiohead" in planetarium
20:45	Optional laser show "Beatles" in planetarium
22:00	Optional laser show "Pink Floyd: The Wall" in planetarium
23:00	Fireworks at the Forks
23:30	Buses depart to the University

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Good to Know - FYI

General Information

Coffee Breaks

For those attending the National Council meetings, the Annual General Assembly meeting and the Paper Sessions, there will be coffee breaks accompanied by a generous supply of goodies.

Group Photo

The traditional group photo will be done electronically, and the image made available on the Winnipeg Centre Website. Anyone wanting a print will be able to make their own. Guests are also welcome to bring their own cameras. Photograph is scheduled for Sunday July 3rd at 15:30 and will be taken on the Duckworth Quadrangle in front of the Engineering Building, weather permitting.

An attempt to take a Pyramid photo will also be made, should there be sufficient delegates willing to risk life and limb.

Sports

The traditional east-versus-west sports event (a soccer game) will take place in the grassy Duckworth Quadrangle in front of the Engineering Building. Everyone must participate, no matter the weather. High-heel shoes are recommended for the men in order to smooth out player abilities.

Good to Know - FYI

University of Manitoba Campus Services

ATM

CIBC ATMs are located in the University Centre across from the Bookstore.

Bookstore

The University of Manitoba Bookstore will be closed on Friday, July 1. They are open on Thursday and Monday from 9:00 am to 5:00 pm, and on Saturday from 11:00 am to 4:00 pm.

Computer and Network Access

Residence rooms have wired Internet access. You will need an ethernet cable to plug in your device. Cables can be borrowed from the residence check-in desk. Wireless access is available in common areas of the residence (no login required). Wireless access is also available at the meeting venue. You will need the log in name and password provided in your registration package to access this service.

First Aid and Medical Emergencies

The campus medical clinic is closed on the long weekend.

Housekeeping

If there are any issues associated with your residence, go directly to the main desk for assistance.

Parking

Parking at the University is free all weekend from Thursday at 4:30 pm until Monday at 7:30 am, **except for areas marked 24 hours reserved**. For those arriving on Thursday, or staying beyond Sunday, please inquire at the residence check-in desk.

Photocopier and Printers

The Digital Copy Centre in University Centre will be open Thursday and Monday from 8:30 am to 4:30 pm. The Elizabeth Dafoe Library (see map) has photocopiers and will be open on Saturday from 10:00 am to 5:00 pm.

Good to Know - FYI

University of Manitoba Campus Services

Food

For those who have purchased the meal packages, food will be provided at the Pembina Hall Dining Facility (July 1), located adjacent to Mary Speechly Residence and at Degrees restaurant (July 2-4), located on the second level of University Centre. Degrees restaurant is licensed and beer may be purchased for consumption with your meals. You must provide the meal ticket that is provided with your registration package.

Meals will be available during the following hours:

Breakfast	07:30 – 09:30
Lunch	11:45 – 13:00

On Thursday, and on Monday, Degrees is open from 11 am to 7 pm.

For those who have not purchased any of the meal packages, you may buy individual meals from the registration desk (note these meals are NOT at Degrees restaurant, but at the residence cafeteria). The cost for breakfast is \$10.00 and lunch is \$14.00.

Convenience Store

The University of Manitoba Students' Union operates a convenience store, GPA's, located in University Centre. GPA's will be open Saturday and Sunday from 11 am to 4 pm.

Vending Machines

Vending machines are available throughout the University, in particular there are many located in University Centre and also in the residences.

Tim Hortons

There are several Tim Hortons on campus, but all will be closed on the long weekend. On Thursday and Monday, the nearest Tim Hortons is located next to the MTS Allstream Theatre or in University Centre. Off campus, the nearest operating Tim Hortons is on the Pembina Highway, opposite and a little north of the University Boulevard entrance to the campus.

Good to Know - FYI Off-Campus Services

Banks/ATM

Montcalm Hotel	2280 Pembina Hwy
Assiniboine Credit Union	2659 Pembina Hwy
BMO	2785 Pembina Hwy
RBC	2855 Pembina Hwy
TD Greensheid	2799 Pembina Hwy

Bus Services

The university campus is serviced by a number of Winnipeg Transit Buses routes, which for the most part, will connect you with the Winnipeg Downtown area. Most will be running on Weekend schedules. Maps will be available at the Registration Desk. The bus stops are located beside the Arthur Mauro residence, and down the street a half-block. All Winnipeg buses have voice and electronic signs that indicate the next stop.

Taxi Cabs

Unicity Taxi	925-3131
Duffy's Taxi	925-0101
Spring Taxi	774-8294 (Limos)

Police

Non emergency	1350 Pembina Hwy	986-6042
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Beer, Liquor and Wine

Astoria Beer Vendor – next to the Four Points by Sheraton Hotel	2935 Pembina
Manitoba Liquor Store	2855 Pembina Hwy
Montcalm Hotel Vendor	2280 Pembina Hwy

Good to Know - FYI

Off-Campus Services

Coffee Shops

Tim Hortons	2401 Pembina Hwy
Starbucks	1740 Pembina Hwy and 2750 Pembina Hwy

Convenience Stores

Mac's	Unit One – 2077 Pembina Hwy
7-11	7 Kilkenny Ave, across from 2860 Pembina Hwy

Hospital

The nearest Hospital is called the Victoria General Hospital, and is located adjacent to the University campus at 2340 Pembina Highway.

Gas Stations

There are three gas stations at the corner of Pembina Hwy and University Crescent plus another three further south at the corner of Pembina Hwy and Bairdmore Ave (just north of the entrance to the Perimeter Hwy).

Grocery Stores

Safeway	2077 Pembina Hwy and 2860 Pembina Hwy
Superstore	80 Bison Drive

Pharmacy

Pharmacare	2265 Pembina Hwy
Shopper's Drug Mart (24 hour)	2211 Pembina Hwy and 2656 Pembina Hwy

Good to Know - FYI Off-Campus Services - Restaurants

Around the University

Alltos Garden Café	1824 Pembina Hwy
Applebee's Neighbourhood Bar and Grill	2065 Pembina Hwy
Boston Pizza (Wpg Centre's after meeting site)	2729 Pembina Hwy
China Garden	2740 Pembina Hwy
Dim Sum Gardens	2677 Pembina Hwy, 269-7799
Earls	2005 Pembina Hwy
Edna Fedya (Cafe)	750 One Research Road (on West side of campus in Smartpark)
Masa Sushi House	Unit 10 2077 Pembina Hwy
Michael P's	2860 Pembina Hwy
Meiji Japanese Restaurant	Unit 10 – 1875 Pembina Hwy
Mono Korean Restaurant	Unit 50 2077 Pembina Hwy
North Garden	Unit 33 University Crescent
Nicolinos Casual Fine Dining (Stan's pick)	Unit 4, 2077 Pembina Hwy, 269-5934
Orbit Room (Italian)	Unit 8 2077 - Pembina Hwy
Pizza Hut	2770 Pembina Hwy, 953-4133
Romani Famous Pizza and Chicken	2237 Pembina Hwy, 269-4499
Salisbury House (Winnipeg institution)	2081 Pembina Hwy
Smitty's Family Restaurant	2835 Pembina Hwy

Good to Know - FYI

Off-Campus Services - Restaurants

Fast Food

A & W	1877 Pembina Hwy (at the Petro Canada station)
Burger King	2829 Pembina Hwy
Dairy Queen	2525 Pembina Hwy
Domino Pizza	1743 Pembina Hwy, 987-5551
Eat-on Samosa Café	2810 Pembina Hwy
KFC/Taco Time	2077 Pembina Hwy
Little Caesars	2696 Pembina Hwy, 261-3200
McDonalds	2027 Pembina Hwy (24 Hour)
McDonalds	3045 Pembina Hwy
Quizno's Subs and Salads	Unit 2 – 1740 Pembina Hwy
Pita Pit (delivery to campus, open till 3am Fri/Sat)	Unit 1 - 33 University Crescent, 777-7482
Pizza Pizza	2677 Pembina Hwy, 957-1111
Santa Lucia Pizza	2985 Pembina Hwy, 269-4611
Subway	2077 Pembina Hwy

Program Daily Schedule

Thursday June 30

	Meetings	Food	Events	Trips	Registration
8:00					
8:30					
9:00					
9:30					
10:00					
10:30					
11:00					
11:30				Canadian Fossil Discovery Centre (Maximum 14)	
12:00					Registration
12:30					Arthur Mauro Residence
13:00					
13:30					
14:00					
14:30					
15:00					
15:30					
16:00					
16:30					
17:00			bus		
17:30			National Reps BBQ		
18:00					
18:30					
19:00					
19:30					
20:00					
20:30			bus		
21:00			Hospitality Suite		
21:30					
22:00					
22:30					
23:00					

Program Daily Schedule

GENERALASSEMBLY July 1 - 3, 2011

Friday July 1 (Canada Day)

	Meetings	Food	Trips	Trips	Registration
8:00		Breakfast			
8:30	National Council Meeting 1		Prairie Dog Central Steam Train	Assiniboine Park and Zoo	Registration
9:00					
9:30					
10:00		Coffee			
10:30					
11:00					Engineering & Information Technology Centre
11:30					
12:00		Lunch			
12:30					
13:00	National Council Meeting 1				
13:30					
14:00		Coffee			
14:30					
15:00					
15:30					
16:00					
16:30		bus			
17:00		Dinner (on own)			
17:30					
18:00					
18:30					
19:00		Wine & Cheese Manitoba Museum & fireworks			
19:30					
20:00					
20:30					
21:00					
21:30					
22:00					
22:30		bus			
23:00		Hospitality Suite			

Program Daily Schedule

Saturday July 2

	Meetings	Food	Events	Trips	Registration
8:00		Breakfast			
8:30	Paper Sessions				Registration EITC
9:00					
9:30					
10:00		Coffee			
10:30	Invited Speakers				
11:00					
11:30					
12:00	Posters	Lunch			
12:30					
13:00					
13:30	Paper Sessions Invited Speakers				
14:00					
14:30		Coffee			
15:00					
15:30					
16:00					
16:30					
17:00		RASC National BBQ			
17:30					
18:00					
18:30					
19:00					
19:30			Northcott Lecture		
20:00					
20:30					
21:00					
21:30					
22:00		Hospitality Suite			
22:30					
23:00					

Program Daily Schedule

GENERALASSEMBLY July 1 - 3, 2011

Sunday July 3					
	Meetings	Food	Events	Trips	Registration
8:00		Breakfast			
8:30					
9:00	Annual General Assembly				
9:30					
10:00		Coffee			
10:30					
11:00					
11:30	GLP Talk				
12:00		Lunch		Tour: Lower Fort Garry	
12:30					
13:00	National Council Meeting 2				
13:30					
14:00		Coffee			
14:30					
15:00					
15:30			Sports Pyramid Photo		Early Departures
16:00					
16:30					
17:00					
17:30					
18:00		Banquet 17:45 - 22:00			
18:30					
19:00					
19:30					
20:00					
20:30					
21:00					
21:30					
22:00		Hospitality Suite			
22:30					
23:00					

Program Daily Schedule

Monday July 4

	Meetings	Food	Tours	Tours	Registration
8:00					
8:30			Informal Tours can be arranged	Canadian Fossil Discovery Centre (if sufficient interest)	Departures
9:00					
9:30					
10:00					
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23:00					

Program

Speaker Schedule

Saturday, July 2

Time	Speaker	Title
8:30	Jay Anderson	Introduction
8:40	Alan Dyer	Top Tips for Terrific Pix: How to Get Great Astrophotos with your DSLR
9:40	Randall Rosenfeld	Is This Guy's Music Any Good? William Herschel's Music and his Astronomy
10:00	coffee	
10:20	Robert Dick	Cookbook protection of your observing site
10:40	Patrice Scattolin	The StarTrek observing list
11:00	Dave Chapman	Wide-field astrophotography with a compact mechanical equatorial mount
11:20	Jay Anderson	At last! Our own eclipse of the Sun
11:40	Eric Briggs	Digital Archiving of Canadian Astronomical Records
12:00	lunch	
13:30	Paul Delaney	Things that go bump in the night: the Study of Variable Stars
14:30	Scott Young	Graphite and Starlight: Recording the Visual
14:50	David Turner	Are the Symptoms of Future Supernovae Amenable to Early Diagnosis?
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15:50	Paul & Kathryn Gray	Starmus! An Astronomical Adventure!

Northcott Lecture

Christine Wilson

Saturday, July 2, 19:30



Beyond the Visible Universe: Dark Clouds, Galaxy Collisions, and the Origin of Stars

Much of the astronomical research of the next decade will focus on understanding the origins of planets, stars, galaxies, and even the universe itself. Millimeter-wave radio astronomy is a crucial tool in this quest for origins, because it allows us to probe into the cold, dark regions of space where many of these formation processes occur. This talk will illustrate the promise and potential of these techniques by examining spectacular galaxy collisions that have triggered intense bursts of star formation, as well as describing new results which shed light on how stars form in our own Milky Way Galaxy. In addition, the talk will describe how new facilities, such as the Herschel Space Observatory and the Atacama Large Millimeter Array (ALMA), promise a revolution in our understanding of the origin of structure in the universe.

Biography:

Dr. Christine Wilson is a Professor in the Department of Physics and Astronomy at McMaster University and the Canadian Project Scientist for the Atacama Large Millimeter Array (ALMA). Dr. Wilson did her undergraduate work at the University of Toronto and her graduate work at the California Institute of Technology. While at Caltech, she discovered Comet Wilson, believed to be a comet on its first passage through the inner Solar System. After receiving her Ph.D. in 1990, she spent two years as a postdoc at the University of Maryland before joining the faculty at McMaster in 1992. Recently, she has been a recipient of the Ontario Premier's Research Excellence Award.

Dr. Wilson's is an observational astronomer whose current research interests are centered on the interstellar medium and star formation, both in nearby galaxies and in our own Milky Way. She is particularly interested in the properties of giant molecular clouds, the nature of the interstellar medium in dwarf galaxies, the mechanisms regulating star formation rates and efficiencies in galaxies, and the properties of low-mass protostars in nearby molecular clouds. Since many of these problems require a multi-wavelength approach, Dr. Wilson uses a wide variety of optical and radio telescopes, including the Submillimeter Array (SMA), the James Clerk Maxwell Telescope (JCMT), and the Canada-France-Hawaii Telescope (CFHT). A large part of her observational work is concentrated in the regime of millimeter-wave radio interferometry, where high-resolution images of the emission from molecules in the interstellar medium can be obtained. She is one of six Canadian project scientists on the astronomical satellite ODIN that is studying water and oxygen in the interstellar medium. Instruments on ODIN have been credited with the discovery of molecular oxygen in interstellar space and with the mapping of water vapour in Comet Hartley 2. She is also an Associate Scientist with the SPIRE instrument for the Herschel infrared satellite.

Banquet Speaker
Samar Safi-Harb
Sunday, July 3, 19:30



GENERALASSEMBLY July 1 - 3, 2011

Viewing the Universe and Supernova Remnants through X-ray eyes

X-ray astronomy is a relatively new field that has opened a window to the High-Energy Universe allowing us to probe violent, extreme phenomena in our Galaxy and beyond. These include supernova remnants - the debris left after a supernova explosion of a massive star witnesses its death and the formation of some of the most exotic compact objects in the Universe: neutron stars. Neutron stars can be as small as Winnipeg, yet with a surface temperature exceeding millions of degrees and with a magnetic field exceeding the Earth's a trillion-fold. They can spew out a wind of relativistic particles which, as it interacts with its surroundings, forms a nebula like the famous Crab, referred to as a pulsar wind nebula. The fast-moving blast wave of the supernova also disperses heavy elements, of which we are made, into the interstellar medium, and accelerates cosmic rays to extremely high energies. As such, supernova-remnant studies address fundamental questions related to the evolution of stars, the physics of relativistic shocks, the "extreme" (gravity, temperatures and magnetism unattainable on Earth), and the lifecycles of matter and energy in the Universe.

I will briefly highlight the advent of X-ray astronomy and the exciting discoveries in the field. I will then focus on recent X-ray observations of supernova remnants obtained with state-of-the-art telescopes (such as the Chandra), complemented with multi-wavelength observations. These observations have in the past decade significantly advanced our understanding of these fascinating objects and their associated high-energy phenomena. I will end my talk with new questions driving potential missions for the future.

Biography:

Dr Samar Safi-Harb is an Associate Professor and Canada Research Chair Tier II in the Physics and Astronomy Department at the University of Manitoba. Dr. Safi-Harb received her undergraduate education at the American University of Beirut, moving to the University of Wisconsin in Madison to obtain her graduate degrees. After receiving her Ph.D. in physics from the University of Wisconsin, she moved to the Goddard Space Flight Center in Greenbelt, Maryland for post-graduate research. Since 2000, she has been a Professor at the University of Manitoba and in 2007 was awarded a Canada Research Chair in Supernova Astrophysics for her work on high-energy remnants of supernova explosions.

Dr. Safi-Harb was drawn to supernova remnants because they are perfect laboratories for studying the physics of extreme temperatures, gravity, and magnetism. Using state-of-the-art satellites like NASA's Chandra X-Ray Observatory and the European Space Agency's XMM-Newton, she and her team are conducting X-ray studies of supernova remnants to unlock some of the mysteries that surround these objects, including the fascinating way they energize their surroundings and the way they contribute to our galaxy's dynamics, evolution, and chemical enrichment.

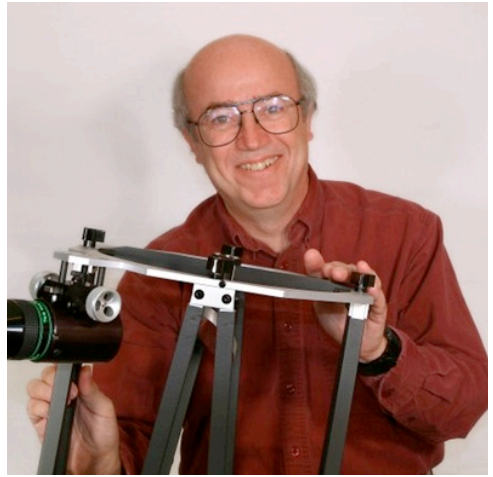
Invited Speaker**Alan Dyer**

Saturday, July 2, 08:40

Top Tips For Terrific Pix - How To Get Great Astrophotos With Your DSLR Camera

Want to see your astrophotos in the RASC Journal or SkyNews?

Alan Dyer presents his tips for getting spectacular images of the night sky with a DSLR camera, from nightscapes and time-lapse movies, to guided and stacked deep-sky images. He'll have lots of examples to show, with images and movies taken from Canada, Australia and Chile.

**Biography:**

Alan Dyer is a writer and producer of science programs for the TELUS World of Science in Calgary. He is one of Canada's best-known astronomy writers and currently serves as associate editor of SkyNews and as a contributing editor to Sky and Telescope, writing frequent reviews of equipment. He has co-authored several best selling guidebooks for amateur astronomers, including The Backyard Astronomer's Guide, Advanced Skywatching and Astronomy: The Definitive Guide. He is also author of several children's book on space, notably Insiders: Space and Mission to the Moon, both for Simon and Schuster. A new kids book about Stars is due out this year. He is known to RASC members as the author of some of the popular deep-sky observing lists in the annual Observer's Handbook. As an amateur astronomer, his interests include astrophotography and deep-sky observing, and takes the opportunity as often as possible to visit the southern hemisphere to pursue both interests under southern skies. His other obsession, eclipse chasing, has taken him to every continent, chalking up 13 total solar eclipses. Asteroid 78434 is named for him.

Invited Speaker

Paul Delaney

Saturday, July 2, 13:30

Things That Go 'bump' In The Night: The Study of Variable Stars

It is widely regarded that Omicron Ceti (Mira) was the first variable star to be identified and thus observed and studied for its variability. Such observations date back to 1638 (from Johannes Holwarda) indicating the long and arguably rich history that is associated with variable stars. The plethora of stars that now are recognized to be variable in some way at some level is often a surprise to people as there is something comforting about the 'steadiness' of starlight. The observations of these stars however, are key to our improving understanding of stellar evolution. Further, as the past 100 years of the AAVSO have shown, the ability for amateur and professional astronomers to support each other in the endeavour of variable star observations is all but immeasurable.

Since the 1911 meeting at the Winnipeg Centre and the talk by I. G. Johannsson on "Variable Stars," Canadian contributions to variable star research have been significant. This talk will outline some of the highlights of the history of this research, as well as some of the exciting frontiers that are being explored today. The variable star research contributions by amateur astronomers can lead to not only immensely satisfying observing experiences but can advance significantly (and quickly) the science of Astronomy.

Biography:

Paul Delaney, a Winnipeg Centre alumnus, has been a Senior Instructor at York University for two decades, turning non-science majors into astronomy enthusiasts. In a TV Ontario competition, he was named one of ten best lecturers in the province and his "Rate Your Professor" comments on the Web are universally favourable. York University has awarded him several teaching awards and the broadcast media have his phone number when comments about astronomy-related subjects are needed. Delaney received his Bachelor of Science at Australia National University in Canberra, then moved to Victoria, B.C. to complete graduate studies, specializing in observational astronomy. Since that time, he has worked as a nuclear physicist for the Atomic Energy of Canada, a support astronomer at McGraw Hill Observatory near Tucson, Arizona and, since 1986, as a faculty member in the Department of Physics and Astronomy at York University.

At York, Delaney is the Director of York University Observatory, Director of the Division of Natural Science, and Master of Bethune College.



Program Abstracts

Is This Guy's Music Any Good? Herschel's Music and his Astronomy **09:40 ~ Randall Rosenfeld, Unattached member**

It is common knowledge among astronomers that William Herschel went from being a provincially fashionable musician to being a world-renowned natural philosopher. The legacy of his astronomical achievements is widely dispersed and easily accessible, from the solar system objects he discovered to late-Georgian images of his great 40-foot telescope, from his papers on the "construction of the heavens" to his substantial double-star and dso catalogues. These objects of his discovery and industry can readily be found in the sky, in public and private collections, and most accessible of all, on the internet. His musical work is much less well-known, and vastly more inaccessible. Even during IYA 2009, the cumulative exposure to his music did not appreciably increase, despite that year's emphasis on drawing broader connections between astronomical culture and culture at large. The first part of this talk looks at the connection between Herschel's intellectual commitment to music as a "philosophical" pursuit together with his attention to the craft of music in performance, and his engagement with cosmological speculation, and the development of his design and production skills as a renowned and innovative maker of scientific instruments. It is argued that not only did music equip him with conceptual tools and practical skills which were useful to his astronomical work, but that in going from music to astronomy he was going no great distance, penetrating no impermeable disciplinary boundary. He was in fact walking a path broadly laid down in antiquity. The second part of the talk is a concrete attempt to increase exposure to Herschel's music, at least for GA delegates. It consists of a live performance of one of his pieces as it could have been performed during his lifetime. The instrument used is an accurate copy of an instrument by one of the outstanding musical instrument makers of late-18th century England. GA delegates will be able to answer the question posed in the title for themselves.

Cookbook Protection of your Observing Site **10:20 ~ Robert Dick, Ottawa Centre**

Canada leads the world in the number and size of its Dark-sky Preserves. The three main reasons are its rational lighting protocol, a clear list of necessary documentation and a national organization that accepts and vets the nominations. This presentation will outline how to nominate a park as a RASC-DSP by using examples from existing Preserves. Although Parks Canada is encouraging its facilities to seek a DSP designation they may require assistance

Program Abstracts

from local astronomers as they develop their astronomy outreach programs. Therefore the catalyst for a DSP is the local astronomy membership. If you rely on park for observing, then a DSP can institutionalize its protection.

The Star Trek Observing List

10:40 ~ Patrice Scattolin, Centre Francophone De Montreal

The Star Trek observing list is a combination of Science Fiction and Astronomy. It is a typical observing list like other more ambitious observing projects proposed to amateur astronomers. All the objects it contains appeared in a Star Trek episode or movie. Derived from secondary sources the list unites both universes and entices the reader to relive the Star Trek universe at the eyepiece. Mostly made of bright northern sky stars it is an ideal list for the beginner observer and has served to hone the observing skills of co-author Clara. We will present the genesis of the project, of the document itself as well how the list was tested and promoted. As a conclusion we will compare the fictional universe against what is currently known of some of these objects in attempt to determine if the pervasive picture of our surroundings painted by this popular science fiction is close to the real universe.

Wide-field astrophotography with a compact mechanical equatorial mount

11:00 ~ Dave Chapman (Dave XVII), Halifax Centre

Many consumer digital cameras allow amateur astronomers to create high-quality night-sky photographs like never before; however, time exposures longer than a few seconds demand a polar-aligned and driven mount to minimize star trails. The MusicBox EQ mount is a solid mechanical mount that allows exposures of up to 5 minutes using a standard camera. It is sturdy, but small enough to pack for a trip. Its operation is explained—yes it involves a music box!—and some example astrophotos are shown. A trip to the southern hemisphere posed some challenging complications.

At last! Our own eclipse of the Sun

11:20 ~ Jay Anderson, Winnipeg Centre

A central solar eclipse hasn't been spotted over the populated parts of North America since 1994, but next year that drought is about to come to an end. The event that brings the 17-year hiatus to a close is an annular eclipse that crosses into the U.S. in northern California and ends at sunset in Texas. Weather prospects are important, but annulars also present a very different observing

Program Abstracts

experience than total eclipses. Where do you position your observing site - on the edge of the track, at sunset, or in the middle of the shadow? This presentation will discuss those questions and provide a weather outlook.

Digital Archiving of Canadian Astronomical Records

11:40 ~ Eric Briggs, Toronto Centre

Current technology now allows for rapid archiving of old records. Private and public records can be used to build a more-or-less accurate visualization of the history of the study of astronomy in Toronto, and the rest of Canada. Examples of this archiving are demonstrated, and reasons why this procedure may or may not be a good idea are questioned.

Graphite and Starlight: Recording the Universe

14:30 ~ Scott Young, Winnipeg Centre

Telescopic observation is a uniquely human experience, one that cannot be replicated by digital imagery. The appearance of an object through the eyepiece is most faithfully reproduced by drawing what is seen, complete with all the bias and subjectivity inherent in the process. This talk covers the process of sketching through the telescope, and provides tools and techniques for the budding astro-artist.

Are the Symptoms of Future Supernovae Amenable to Early Diagnosis?

14:50 ~ Dr. David Turner, Halifax Centre

The possibility that a bright, “nearby,” red supergiant like Betelgeuse or Mu Cephei might soon explode as a Type II supernova is a genuine, if highly uncertain, prospect. The variability observed in many M supergiant type C semiregular (SRC) variables like Betelgeuse and Mu Cephei may contain a signature of their future fate, but has not yet been examined in sufficient detail to establish notable trends. Our present understanding of such stars is presented from a knowledge of their brightness and spectroscopic changes, as tied to archival material and AAVSO magnitude estimates. M supergiant variables are more regular than sometimes believed, although the nature of the regular pulsation in some is still unclear. Amateur astronomers could provide valuable assistance to such research through regular observations of the dozens of variable M supergiants readily accessible to observation, as do many members of the AAVSO. Precision monitoring of the variability in M supergiants is a challenging, yet attainable, goal, one that could improve the quality of all types

Program Abstracts

of observations made by regular sky observers. Such observations seem essential for learning more about massive stars as they approach the terminal stages of their evolution.

Nightsapes: Creative use of composition and lighting in wide angle astrophotography

15:30 ~ Ron Berard, Winnipeg Centre

Combining the techniques of landscape and portrait photography with astrophotography can yield compelling images that appeal to a broad variety of viewers.

Starmus! An Astronomical Adventure!

15:50 ~ By Paul and Kathryn Gray, New Brunswick Centre

Following the hype around Kathryn's discovery of SN2010lt she was invited to participate in a number of events. The most exciting of all was invitation by Garik Isrealian to perform the official opening of Starmus! In this presentation I will highlight some of Kathryn's amazing adventures in the Canary Islands where she (we) had a chance to meet many interesting people from astronomy, space flight, music and art backgrounds that made Starmus the amazing event it was. As a representative for the RASC Kathryn, Susan and I owe many thanks to the RASC family for its support of this adventure.



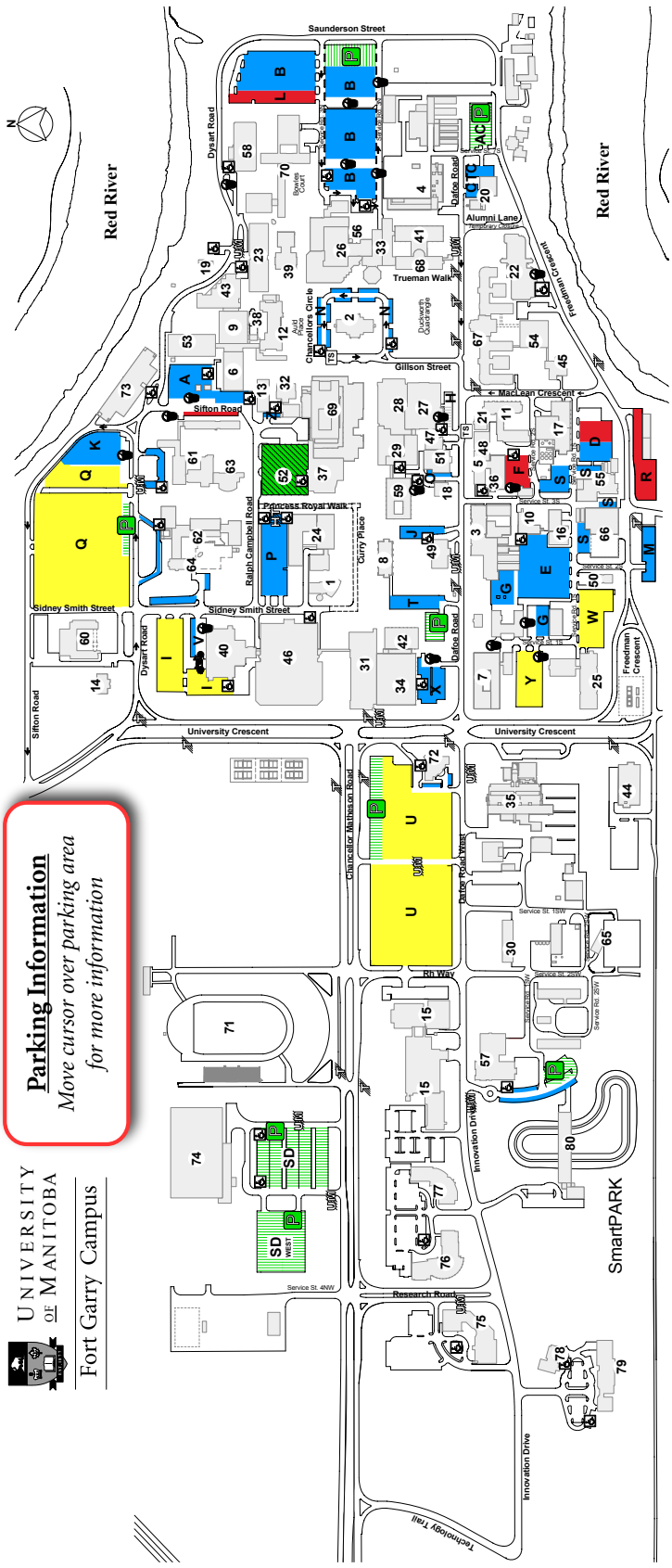
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Reference Maps

(full size maps available at the registration desk)



UNIVERSITY OF MANITOBA
Fort Garry Campus

Parking Information
Move cursor over parking area for more information

*U of M PERMIT REQUIRED FROM 7:30 am to 4:30 pm

LEGEND

- Parkade (Public Parking)
- Meter Parking
- Pay & Display Parking
- Reserved Parking Areas*
- Staff Parking*
- Student Parking*
- Residence Parking (24hr.)
- Accessible Parking*
- Motorcycle Parking (permit required)*
- Taxi Stand
- Handi-Transit Pickup
- University Shuttle Bus (September to April)
- Fort Garry Campus Shuttle
- Transit Bus Stops

Note: 'Q', 'U' and 'W' Lots include minimal staff parking

CAMPUS MAP BUILDING INDEX

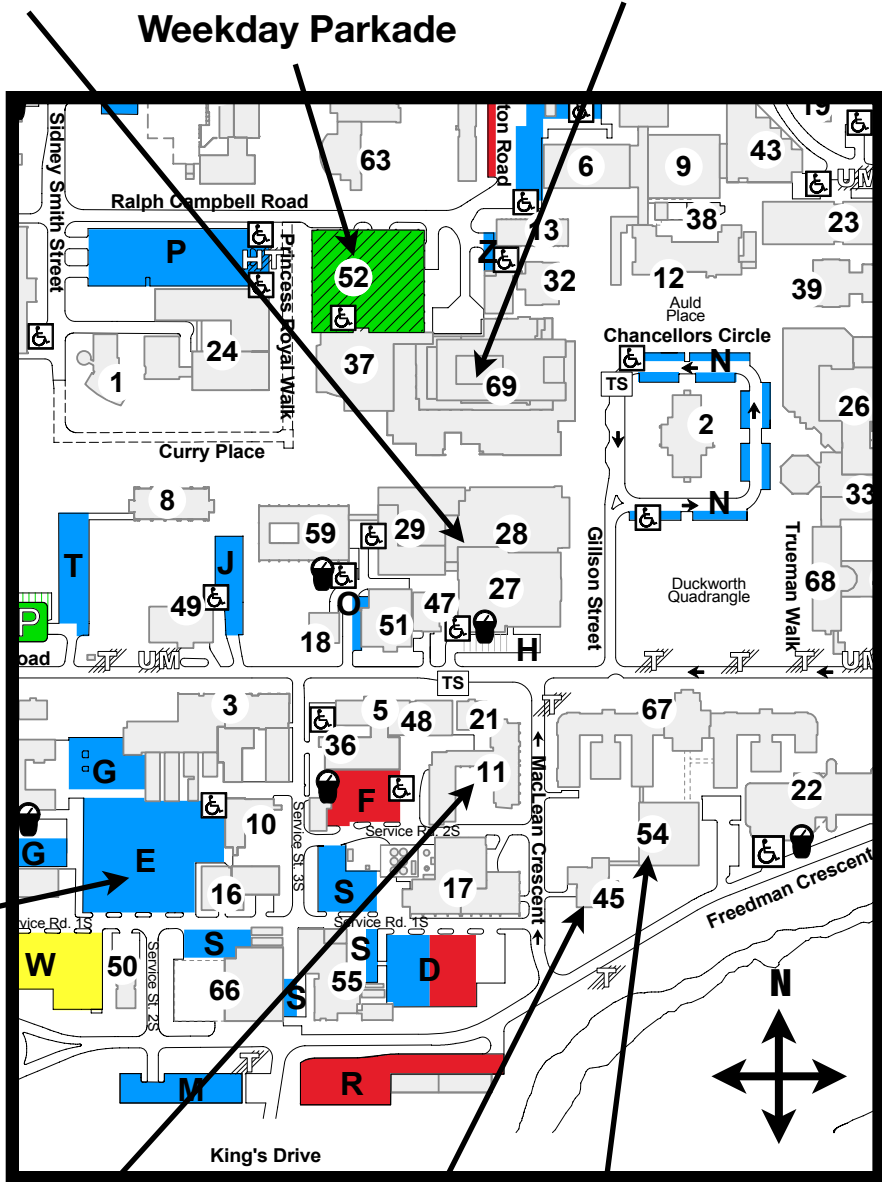
1. Aboriginal House	22. Drake Centre	34. Frank Kennedy Centre	43. Machray Hall	51. Music Annex Two	62. St. Paul's College	72. Welcome Centre
2. Administration Building	23. Duff Robin Building	35. Freshwater Institute	44. Manitoba Agriculture & Animal Industry	52. Parkade (Public Parking)	63. Robert B. Schultz Theatre	73. Wallace Building
3. Agriculture Canada	24. Education Building	36. CFB Grain Storage Research Lab	45. Mary Speer Hall	53. Parker Building	64. Simnott Building	74. Winnipeg Indoor Soccer Complex
4. Agricultural & Civil Engineering	25. Ellis Building	37. Helen Glass Centre	46. Max Bell Centre	54. Pembina Hall	65. Straw Bale Bldg./The Alternative Village	75. One Research Road
5. Engineering	26. Elizabeth Datoe Library	38. High Performance Laboratory	47. McMillan High Voltage Laboratory	55. Psychological Services	66. Stores Building	76. 135 Innovation Drive
6. Allen Building /Entomology	27. EITC E1	39. Human Ecology	48. McCuaie Structures Laboratory	56. Richardson Centre	67. Tache Hall	77. 137 Innovation Drive
7. Animal Science	28. EITC E2	40. Investors Group Athletic Centre	49. Marcel A. Desautels Music Building	57. Robson Hall	68. Tier Building	78. 100-78 Innovation Drive
8. Architecture 2	29. Environmental Safety	41. Isbister Building	50. Music Annex One	58. Russell Building	69. University Centre	79. 200-78 Innovation Drive
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May 2, 2011

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Engineering Complex:
Talks and Meeting Rooms

University Centre:
Degrees Restaurant, Banquet Location (Marshall McLuhan Hall) & Other Campus Services



Free
**Weekend
Parking** in
any area
labeled
with a
letter

Arthur Mauro Residence:
Hospitality Suite!

Pembina Hall:
Breakfast & Lunch on July 1

Mary Speechly Residence

Reference Maps

(full size maps available at the registration desk)

WINNIPEG 2011 VISITORS' GUIDE

4 MUST-SEE AREAS

neighbourhoods & maps

4 MUST-SEE AREAS

Airport | West End
Downtown | Exchange | The Forks
St. Boniface
Corydon | Osborne | Osborne South

For detailed maps of each of the 4 Must-See Areas please see maps on pages 95.

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● Canal Inns Destination Centre Provo Park	2	◆ Gas Station Arts Centre	3
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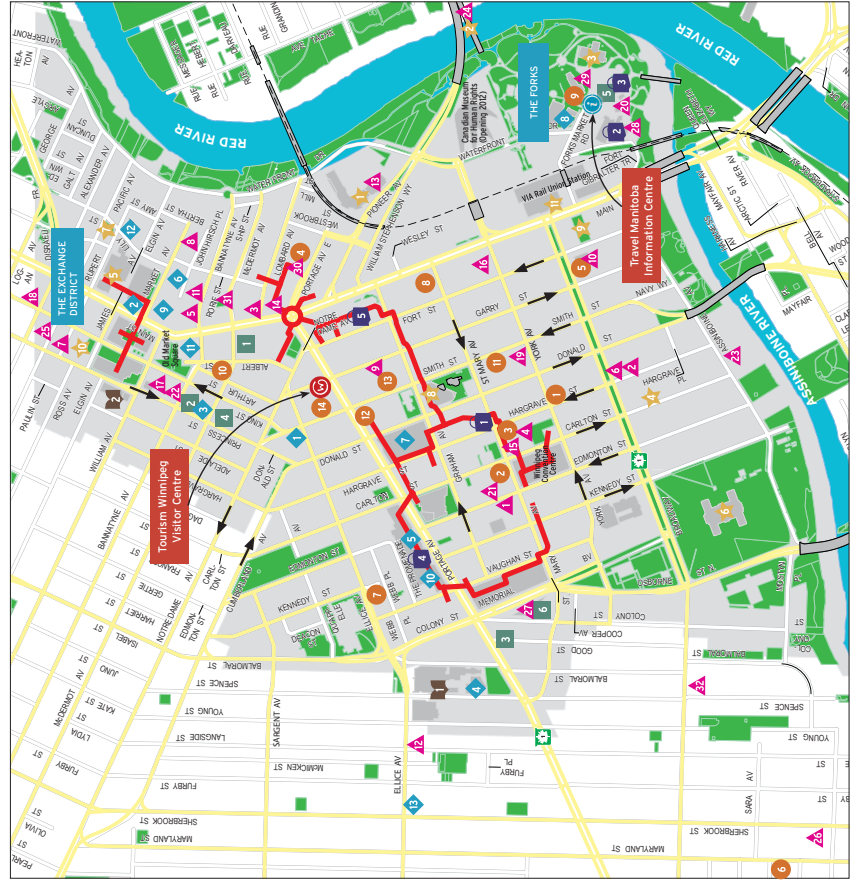
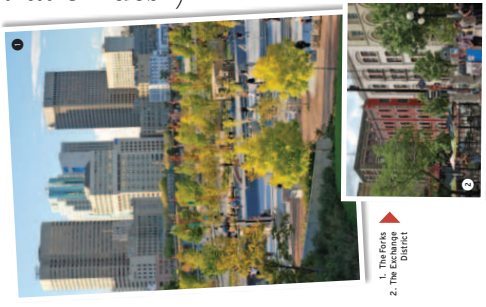
(full size maps available at the registration desk)

neighbourhoods & maps

DOWNTOWN WINNIPEG

LEGEND

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	Attractions & Sights
	Entertainment Venues
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	Universities & Colleges
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WINNIPEG 2011 VISITORS GUIDE

THE FORKS | EXCHANGE DISTRICT | DOWNTOWN WINNIPEG

For a description of this neighbourhood, please see page 97.

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Platform: Centre for Contemporary Art	2	Red River College	2
Platform: Centre for Contemporary Art	3		

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Reference Maps

(full size maps available at the registration desk)

CITY OF WINNIPEG



Reference Notes

