



THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA



ANNUAL REPORT
RAPPORT ANNUEL

2015

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ROYAL ASTRONOMICAL SOCIETY OF CANADA—2016

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2015 - 2016 Committees

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Centre Representatives on National Council

Belleville:	Don Town	Ottawa:	Robert Dick
Calgary:	Arun Rau	Prince George:	Brian Battersby
Calgary:	Roger Nelson	Québec:	Pierre Desrosiers
	Susan Yeo	Regina:	Peter Hagar
Charlottetown:	Mike Critchley	St. John's:	Marcellus Redmond
Edmonton:	Ross Sinclair	Sarnia:	Alan Kenyon
Halifax:	David Chapman	Saskatoon:	vacant
Hamilton:	David Surette	Sunshine Coast:	Mike Bradley
Kingston:	Rick Wagner	Thunder Bay:	Ken Kaus
Kitchener-Waterloo:	Dave Kinjal	Toronto:	Eric Briggs
London:	Peter Jedicke	Toronto:	Rajesh Shukla
Mississauga:	Jo VandenDool	Toronto:	Laila Zichmanis
C. F. de Montréal:	Patrice Scattolin	Vancouver:	Doug Montgomery
Montréal:	Frank Tomaras	Victoria:	Lauri Roche
New Brunswick:	Peter Jensen	Windsor:	Michael Mastronardi
Niagara:	Janice Low	Winnipeg:	Dennis Lyons
Okanagan:	Richard Christie		Martin Rolando
Ottawa:	Brian McCullough	Unattached:	Randall Rosenfeld

PRESIDENT'S MESSAGE

The Royal Astronomical Society of Canada continues to do great things, providing more and better opportunities for understanding astronomy and related science to more and more people across this land. It's something we do well, and something in which we take great pride and satisfaction—education and public outreach.

Early in the year, we received an invitation from the Prime Minister's Office to attend an announcement on April 6 giving huge financial support from the Government of Canada to construction of the Thirty Metre Telescope dome and adaptive-optics system—designed and built in Canada. It was particularly gratifying that the amateur astronomical community received the invitation along with the professionals who will use the telescope. I was pleased that Vancouver Centre member, Dr. Howard Trotter, found the time to join with the Prime Minister and me (and others) at the Gordon MacMillan Southam Observatory in Vancouver for the announcement.

Even earlier than that, on March 8, the Board of Directors adopted an Anti-Harassment Policy (G24 at rasc.ca/system/files/PM4.8_Dec2015_0.pdf), firmly committing “that all members and Society employees will enjoy an environment free from all forms of harassment.” Further, the policy just ahead of that one, G23: Conflict and Complaint Resolution, was revised to clarify the procedure for appointing a mediator, if necessary.

In April, we learned that *SkyNews* Inc. was up for sale. Since *SkyNews* magazine is an integral part of the RASC and a member-

ship benefit, we looked closely at what would be involved. The subject captured much of the attention of the Board and the Executive Director for a full two months, and then some. I'm happy, even ecstatic, to say that we acquired *SkyNews*—this is old news now, but the purchase that concluded on June 30 will resonate throughout our Society for many years to come.

In the summer, we upgraded our rasc.ca website to a newer version of Drupal, using the talents of a young man just out of university, Joseph Astillero. He worked at the Society Office for four months, installing, upgrading, and checking the new system, which is now live and running.

The Board was pleased to approve a proposal to initiate the Special Projects Program, where individuals or groups (Centres) can apply for grants up to \$2000 each for a large variety of different projects. This policy is also in the link given above, at G26.

This presidency has been a most rewarding time for me, spanning nearly two years, and I thank all for their support and encouragement, especially the Society Office staff and Executive Director Randy Attwood, with whom I speak on a (nearly) daily basis. It's been a fun time!

Clear skies!

James Edgar
President

EXECUTIVE DIRECTOR'S REPORT

The highlight of 2015 was the acquisition of *SkyNews* Inc. in June. While the acquisition was unexpected, it is a good fit for the RASC. Moving operations of *SkyNews* magazine and *SkyNews.ca* with the RASC has been a big job, involving the work of many people. I am pleased to report that all went very smoothly. Both organizations will benefit from this new relationship.

The Society continues to grow due to the excellent work at the Centre level. For the first time in our history, in 2015 our membership passed the 5000 number, up nearly 1000 in four years. (It dropped below 5000 at the end of December after peaking at 5085 earlier in the month.)

Plans for 2016 include the further development of a Fundraising Committee formed in 2015. This committee will oversee fundraising activities to support Society programs.

I want to thank the Board of Directors for their commitment and their hard work over the past 12 months. We continue to experience challenges faced by many not-for-profits in Canada due to a weak economy. In 2016, the Board plans to refocus our strategic plan and address these challenges as well as plan new initiatives.

Special acknowledgment must go to our staff in the Society office. Renata Koziol oversees all things financial, for both the RASC and *SkyNews*. Julia Neeser handles membership queries and product orders, and keeps the office running smoothly.

Randy Attwood
Executive Director

SECRETARY'S MESSAGE

One of the duties of the National Secretary is to keep the online Policy Manual document updated whenever the Board of Directors votes to modify any of it. The following is a list of policies modified in 2015. A summary of the major modifications to the Policy Manual are listed in the extended Annual Report. Many minor changes were also made that were in the nature of 'housekeeping': updating web links, changing the name 'National Advisory Council' to 'National Council', removing inconsistencies introduced by modifications to fee structure and committee sizes in 2014.

- G1 **Objects, Mission and Vision.**
- G4 **Membership Benefits.**
- G6 **Centres of the Society.**
- G10 **Editors' Leadership Roles and Responsibilities.**
- G12 **Liability Insurance.**
- G15 **Public Speaker Program.**

Membership Statistics 2005-2015

Centre	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Belleville	33	28	31	30	31	37	26	32	35	33	32
Calgary	460	434	381	336	282	271	300	317	313	278	302
Charlottetown	0	7	13	20	19	25	24	24	22	21	20
Edmonton	294	274	277	229	235	260	257	258	255	241	261
Halifax	172	170	169	153	154	159	155	157	162	152	171
Hamilton	116	109	103	78	61	66	70	76	80	82	91
Kingston	65	72	75	66	66	74	90	98	106	125	128
Kitchener-Waterloo	126	130	109	115	106	115	116	118	104	101	127
London	124	129	110	126	104	118	97	101	104	99	112
Mississauga	179	188	168	132	123	120	127	120	103	53	
C.F de Montréal	17	18	16	18	20	22	24	23	28	32	32
Montréal	126	117	109	110	91	87	103	107	99	105	109
New Brunswick	88	77	66	68	68	66	75	79	88	78	75
Niagara	78	73	62	69	69	71	82	97	104	101	114
Okanagan	122	124	115	106	92	116	103	88	86	85	83
Ottawa	361	343	319	325	328	370	389	410	416	396	447
Prince George	76	57	66	63	69	64	64	79	67	82	75
Québec	15	18	16	20	20	17	17	35	44	40	39
Regina	111	94	80	75	62	62	52	48	55	53	47
St. John's	58	57	58	47	44	45	48	47	52	49	51
Sarnia	14	20	12	11	15	15	19	24	25	27	27
Saskatoon	75	73	68	70	70	72	71	71	78	76	70
Sunshine Coast	69	50	43	32	38	35	32				
Thunder Bay	49	45	51	50	46	46	44	37	41	40	39
Toronto	904	869	782	611	573	554	502	506	610	622	748
Vancouver	254	217	198	226	228	244	251	263	256	238	267
Victoria	216	202	176	163	164	166	185	173	188	177	186
Windsor	107	96	84	90	100	96	96	98	94	89	105
Winnipeg	228	221	210	178	180	168	162	169	157	136	132
Unattached	429	431	428	446	435	434	459	530	561	512	538
Honorary	15	15	15	15	15	15	15	15	14	15	15
	4981	4760	4410	4077	3908	4010	4055	4216	4347	4138	4443

Membership by Type

Type	Number	% of Total
Ordinary	3804	76.3
Family	713	14.3
Life	301	6.1
Youth	148	3.0
Honorary	(15)	n/a

Membership by Country

Country	Number	% of Total
Canada	4755	95.5
USA	195	3.9
Other	31	.6

- G16 **Publications and Subscriptions Pricing.**
- G21 **National Council Travel.**
- G23 **Conflict and Complaint Resolution.**
- G24 **Anti-Harassment.**
- G26 **Special Projects Program.**
- C11 **Publications Committee.**
- C12 **National Council Terms of Reference.**

We extend our condolences to the families and friends of the following members who passed away in 2015: Barry Arnold, Avard Mann (Edmonton Centre), Al Seaman (Ottawa Centre), John B. Norris (Toronto Centre) Ray Thompson (Halifax Centre), Ronald Niblett (Ottawa Centre), Paul Herzberg (Toronto Centre), and Timo Markkanen (Victoria Centre).

Karen Finstad
National Secretary

TREASURER'S MESSAGE

The Society recorded an operating deficit in 2013 of \$47,087 on revenues of \$462,738 (-10.1%). Our revenue decreased modestly by \$1,680 over 2014 as increases in some revenue sources (Membership, *Observer's Handbook*, *SkyNews* recoveries) offset reductions in other areas (*Observer's Calendar* and most importantly Investments).

Specifically, our investment portfolio returned an income of only \$15,084—a decrease of \$48,995 from 2014 and \$67,038 from 2013's returns. Membership revenues were up by 11.8% (\$21,082) reflecting larger membership numbers and the flow-through of fee increases approved in 2014. Publications revenues from the *Observer's Handbook* and *Observer's Calendar* went in opposite directions (+\$27,028 / -12,189) but with a net gain of \$14,839. The Society's donation income was relatively flat as no major donations or grants were received during the year.

On the expense side, there is a one-time "bump" in Membership Services costs attributable mostly to a special distribution of the print edition of the *Journal* in early 2015 which increased both distribution and production costs. Our publications costs now include new honorariums introduced for these publications. Office salaries and benefits were also higher in 2015 due to a short-term contract for IT support services and other increases approved by the Board.

The biggest change to the Society's finances has come about through our strategic investment in *SkyNews*, Inc. The impact of this investment can be summarized as follows:

- Our investment portfolio has been reduced by about 20% which will reduce future investment income flows
- Society staff are now providing direct services to *SkyNews*, Inc. and the RASC's operational overhead has been reduced as a result of this (\$31,770 in 2015)

- Potential strategic partnership arrangements are expected to be easier to manage and execute which will lead to increased revenue and reduced expenses going forward.

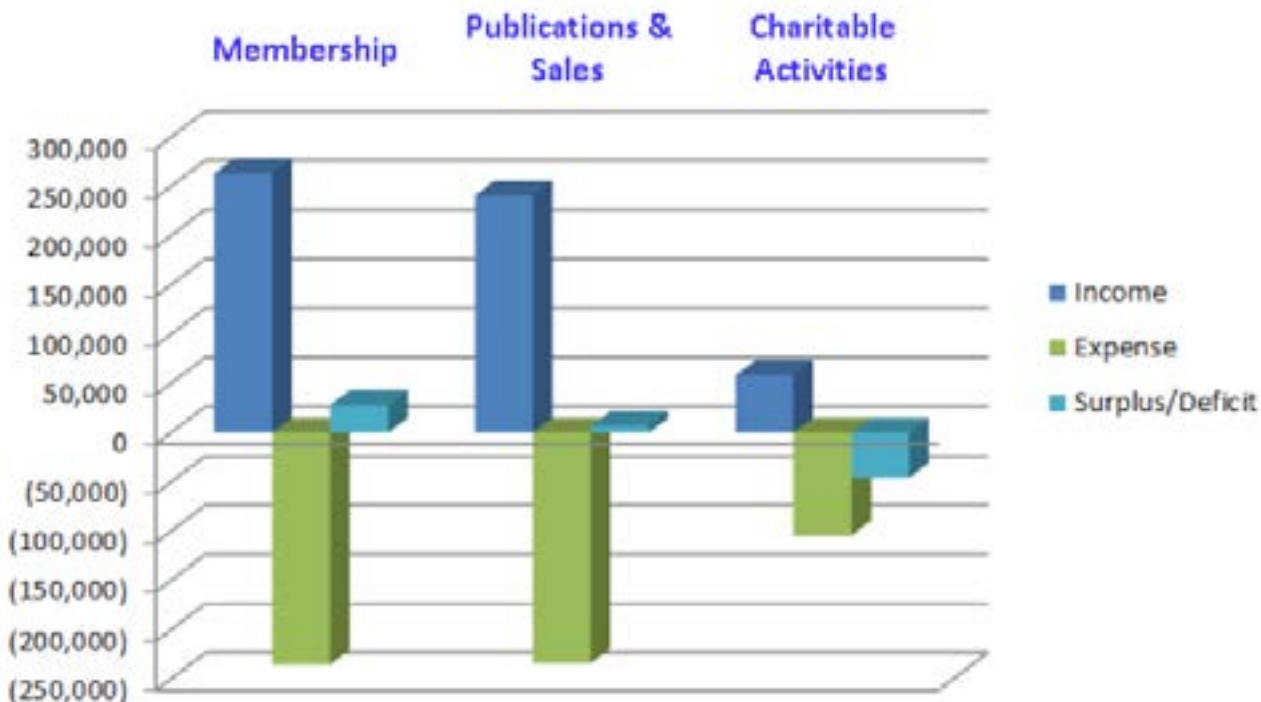
As a Registered Charity, the Society is permitted to run ancillary businesses but such business activity must not take resources away from our charitable aims. Our membership and publications business therefore cannot run deficits.

Our 2016 budget is summarized below. Our Membership business segment is expected to run a significant surplus for the first time in several years which has allowed the Board to forestall any fee increases in the current year. The publications business is expected to continue to make a positive contribution in 2016 with a favourable exchange rate and the introduction of two new publications which are in the late stages of development.

Our charitable programs are expected to run a deficit of approximately \$45,710 which represents the application of donations received in prior years to our charitable programs. The Society supports the advancement of astronomy through various programs including our publications, speaker's support, education and public outreach (EPO) programs, and other activities. Membership fees are expected to account for 47% of the Society's overall revenue in 2015, while publications will contribute 43% and charitable donations and investment income about 10%. For more information on the 2016 budget, please refer to the Council pages on the RASC website at www.rasc.ca/members

I would like to acknowledge the assistance of our Office Administrator, Renata Koziol, for her timely and valuable assistance in preparing these statements.

Denis Grey
Treasurer



AUDITOR'S REPORT

Tinkham & Associates LLP CHARTERED ACCOUNTANTS

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To the Members of
THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA

We have audited the accompanying financial statements of The Royal Astronomical Society of Canada/La Société Royale D'Astronomie Du Canada, which comprise the balance sheet as at December 31, 2015 and the statements of revenue and expenses, changes in net assets and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not-for-profit organizations and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our qualified audit opinion.

Basis for Qualified Opinion

In common with many charitable organizations, the Society derives revenue from donations, the completeness of which is not susceptible of satisfactory audit verification. Accordingly, our verification of these revenues was limited to the amounts recorded in the records of the Society and we were not able to determine whether any adjustments might be necessary to donation revenue, excess of revenues over expenses for the year, assets or unrestricted net assets.

Qualified Opinion

In our opinion, except for the possible effects of the matter described in the Basis for Qualified Opinion paragraph, the financial statements present fairly, in all material respects, the financial position of the Society as at December 31, 2015 and the results of its operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not-for-profit organizations.

TORONTO, Ontario
2016

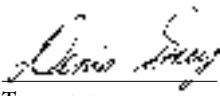
Tinkham & Associates LLP
CHARTERED ACCOUNTANTS
LICENSED PUBLIC ACCOUNTANTS

BALANCE SHEET

As at December 31	2015	2014
Assets		
Current		
Cash	\$ 110,600	\$ 122,115
Accounts receivable	38,913	40,021
Receivable from SkyNews Inc. (note 5)	5,983	-
Inventory	26,218	19,475
Prepaid expenses	10,172	10,315
	191,886	191,926
Long Term		
Investments (note 4)	828,414	1,090,980
Investment in SkyNews Ic. (note 5)	211,500	
Capital assets (note 6)		
Tangible assets	5,138	1,264
Intangible assets	37,425	37,421
	\$ 1,274,363	\$ 1,321,591
Liabilities		
Current liabilities		
Accounts payable and accrued charges	\$ 25,541	\$ 33,187
Deferred revenue		
Membership fees for ensuing years	126,248	118,274
Journal subscriptions	21,838	19,657
Unamortized life membership fees (note 7)	26,502	29,152
	200,129	200,270
Net Assets		
Unrestricted	564,148	621,985
Internally restricted (note 9)	510,086	499,336
	1,074,234	1,121,321
	1,274,363	1,321,591
Commitment (note 8)	<i>See accompanying notes to financial statements</i>	
On Behalf of the Board		



 President



 Treasurer

STATEMENT OF CHANGES IN NET ASSETS

Year ended December 31	Internally Restricted (note 9)		Unrestricted	
	2015	2014	2015	2014
Balance, beginning of year	\$ 499,336	\$ 621,985	\$ 1,121,321	\$ 1,110,133
Excess of expenditures over revenue for the year	-	(47,087)	(47,087)	11,188
Transfers (note 8)	10,750	(10,750)	-	-
Balance, end of year	\$ 510,086	\$ 564,148	\$ 1,074,234	\$ 1,121,321

See accompanying notes to financial statements

STATEMENT OF REVENUE AND EXPENDITURE

Year ended December 31	2015	2014
Revenue		
Membership fee revenue	\$ 199,452	\$ 178,370
Publication revenue		
<i>Observer's Handbook</i>	103,810	76,782
<i>Journal</i>	38,554	35,748
<i>Observer's Calendar</i>	35,473	47,662
Shipping and Handling	30,220	27,584
Educational Aids	3,212	2,713
Other Publications	2,169	2,195
Other	899	674
	214,337	193,358
Miscellaneous income		
Donations	19,854	18,626
Other income	9,749	5,337
Promotional products	4,262	4,648
	33,865	28,611
Investment Income (net)		
Interest and dividends	24,592	30,839
Gain (loss) on investments	3,021	47,834
Investment manager fees	(12,529)	(14,594)
	15,084	64,079
Total Revenue	462,738	464,418
Expenditures		
Publication costs		
<i>Journal</i>	55,216	40,686
Freight and handling costs	30,860	26,001
Cost of publications sold	25,649	24,895
<i>Observer's Handbook</i>	5,642	568
	117,367	92,150
Operating costs		
Office salaries and employee benefits	163,872	141,368
Membership services	71,536	65,125
Services	49,675	33,913
Travel expenses	37,258	33,538
Office expenses	30,834	26,208
Committees	26,354	23,338
Occupancy	17,818	17,294
Amortization of capital assets	14,691	10,697
Advertising and marketing	8,798	6,215
Cost of promotional items sold	3,392	3,384
Recovery of office salaries and rent (note 5)	(31,770)	-
	392,458	361,079
Total Expenditures	509,825	453,229
Excess of revenue over expenses (expenses over revenue) for the year	\$ (47,087)	\$ 11,188

See accompanying notes to financial statements

STATEMENT OF CASH FLOWS

Year ended December 31	2015	2014
Cash provided (used) by operating activities		
Excess of revenue over expenditures for the year	\$ (47,087)	\$ 11,188
Charges not requiring a current cash payment		
Amortization of capital assets	14,691	10,697
Amortization of life membership fees	(2,650)	(3,073)
	(35,046)	18,812
Changes in non-cash working capital components		
Accounts receivable and receivable from SkyNews Inc.	(4,875)	(17,842)
Inventory	(6,743)	1,852
Prepaid Expenses	143	(295)
Accounts payable and accrued liabilities	(7,646)	(4,937)
Deferred revenues	10,155	16,744
	(44,012)	14,334
Cash provided (used) by investing activities		
Investments (net)	262,566	11,569
Investment in SkyNews Inc. (net)	(211,500)	-
Purchase of capital assets	(18,569)	-
	32,497	11,569
Increase (decrease) in cash during the year	(11,515)	25,903
Cash, beginning of year	\$ 122,115	\$ 96,212
Cash, end of year	\$ 110,600	\$ 122,115

NOTES TO FINANCIAL STATEMENTS

1. Organization

The Royal Astronomical Society of Canada (“the Society”) is a Canadian corporation without share capital and a registered charitable organization, incorporated for the purpose of stimulating interest in and promoting astronomy and related sciences. The organization is not subject to income taxes pursuant to exemptions accorded to registered charities in the income tax legislation.

2. Significant accounting policies

These financial statements have been prepared by management in accordance with Canadian accounting standards for not-for-profit organizations.

(a) Cash

Cash includes cash on hand and deposits in financial institutions.

(b) Investments

The Society has elected to value all investments at fair value, which is based on quoted market values.

(c) Investment in SkyNews Inc.

The Society purchased 100% of the shares of SkyNews Inc., a profit oriented entity, and accordingly controls the corporation. The Society has elected to account for the investment using the equity method.

The Society purchased SkyNews Inc., a private corporation, on June 29, 2015 to further the Society’s mission. SkyNews Inc. publishes a highly regarded magazine which provides an excellent source of educational information on astronomy and allied sciences to the public. This aligns with the mandate of the Society.

(d) Inventory

Inventory is comprised of publications and promotional items for re-sale and is carried at the lower of cost and net realizable value. Cost is determined on an average cost basis.

(e) Capital assets

Capital assets are recorded at cost. Cost comprises the purchase price and any directly attributable cost of preparing the asset for intended use.

A capital asset is tested for impairment whenever events or changes in circumstances indicate that its carrying amount may not be recoverable. An impairment loss is recognized in the statement of revenue and expenses when the carrying amount of the asset exceeds the sum of the undiscounted cash flows resulting from its use and eventual disposition. The impairment loss is measured as the amount by which the carrying amount of the capital asset exceeds its fair value. An impairment loss is not reversed if the fair value of the capital asset subsequently increases. As at December 31, 2015, no such impairment exists.

Amortization has been determined using a straight-line basis over the estimated useful lives as follows:

Tangible assets:	Computer hardware	3 years
	Office furniture	10 years
Intangible assets:	Software	5-10 years
	Website development	3 years, 1/2 in year of acquisition

(f) Revenue recognition

(i) Membership fees

Membership fees received in the first half of the year are recognized during the current year. Those received in the second half of the year are recorded as deferred revenue and recognized in the following year. The organization previously offered life memberships to members. Life memberships received in prior years were credited to unamortized life membership fees liability account, as per Note 7. The unamortized life membership fees are being recognized as revenue evenly over the next 10 years.

(ii) Contributions

The organization follows the deferral method of accounting for contributions. Unrestricted contributions are recognized as revenue when received or receivable, if the amount to be received can be reasonably estimated and collection is reasonably assured.

(iii) Investment Income

Investment income is recognized on an accrual basis. The unrealized gain or loss on investments, being the difference between cost and fair value, is recognized in investment income for the year.

(iv) Subscriptions and publications

Journal subscription revenues are amortized into income over the subscription period. Publications are recognized as revenue when shipped.

(g) Contributed services

The organization is dependant on the voluntary services of many individuals. The value of donated services is not recognized in these financial statements

(h) Management estimates

The preparation of financial statements in accordance with Canadian accounting standards for not-for-profit organizations requires management to make estimates that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Significant estimates include the impairment of accounts receivable and the useful lives of capital assets. All estimates are reviewed periodically and adjustments are made to the statement of operations as appropriate in the year they become known.

(i) Financial instruments

(i) Measurement

The Society initially measures its financial assets and financial liabilities at fair value. The Society subsequently measures all its financial assets and financial liabilities at amortized cost except for its investments which are measured at fair value. Changes in fair value are recognized in the excess of revenue over expenditures for the year.

Financial assets measured at amortized cost include cash and accounts receivable. Financial liabilities measured at amortized cost include accounts payable and accrued charges.

(ii) Impairment

At the end of each reporting period, the Society assesses whether there are any indications that a financial asset measured at amortized cost may be impaired. When there is an indication of impairment, the Society determines whether a significant adverse change has occurred during the period in the expected timing or amount of future cash flows from the financial asset and it reduces the carrying amount of the asset to the highest of the following: i) the present value of the cash flows expected to be generated by holding the asset discounted using a current market rate of interest appropriate to the asset; ii) the amount that could be realized by selling the asset at the statement of financial position date; and iii) the amount the Society expects to realize by exercising its rights to any collateral held to secure repayment of the asset net of all costs necessary to exercise those rights. The carrying amount of the asset is reduced directly or through the use of an allowance account. The amount of the reduction is recognized as a bad debt in the statement of revenue and expenses. When the extent of impairment of a previously written-down asset decreases and the decrease can be related to an event occurring after the impairment was recognized, the previously recognized impairment loss is reversed to the extent of the improvement, directly or by adjusting the allowance account. The amount of the reversal is recognized in the statements of revenue and expenses in the period the reversal occurs.

(iii) Transaction costs

Transaction costs are recognized in the statements of operations in the period incurred, except for financial instruments that will be subsequently measured at amortized cost. Investment management fees associated with the Scotia McLeod managed portfolio are expensed as incurred.

3. Helm Fund

The Society is trustee of an endowment fund created by Mr. Walter J. Helm (a former Royal Astronomical Society of Canada member) who passed away 1960 June 5. In his will he provided a bequest to the Society that was to be used to support the general purposes of the David Dunlap Observatory (DDO) in Richmond Hill, Ontario. Under the terms of a 2010 court interpretation, the income of the Helm Fund is presently being applied in support of on-going public education programs at the DDO site.

Total assets of the fund under administration by the Society at December 31, 2015 are 137,682 (2014 - \$140,395) and are excluded from the Society's financial statements.

4. Investments

As at December 31	2015	2014
Managed portfolio at Scotia McLeod		
Fixed income investments	\$ 390,600	\$ 555,579
Canadian equity investments	222,695	342,019
US equity investments	116,656	147,281
Cash	98,463	43,664
Accrued interest and dividends receivable (net)	-	2,437
	\$ 828,414	\$ 1,090,980

The actively managed portfolio with ScotiaMcLeod includes 13 fixed income investments (2014—12 investments) comprised of government and corporate bonds with stated interest rates ranging from 1.75% to 5.53% (2014 - 1.75% to 5.53%), maturing from June 1, 2016 to December 6, 2024 (2014, maturing from September 8, 2015 to December 6, 2024).

The Canadian equity investments include share and trust units of 26 Canadian entities (2014—29 Canadian entities). The single largest holding is 402 shares of Toronto Dominion Bank with a market value of \$21,804 (2014—357 shares of Royal Bank of Canada with a market value of \$28,646).

The U.S. equity investments include share and trust units of 31 entities (2014—30 entities). The single largest holding is 50 shares of CVS Health Corporation with a market value of \$4,889 US\$ (2014—80 shares of CVS Health Corporation with a market value of \$7,705 US\$)

The fixed income and equity investments have been recorded at market value based on information provided by ScotiaMcLeod

5. Investment in SkyNews Inc.

The Society purchased 100% of the common shares of SkyNews Inc. on June 26, 2015. The fiscal year end of SkyNews Inc. is March 31, therefore no income or loss of the controlled entity has yet been determined or included in the financial statements of the Society. The most recent financial statements of SkyNews Inc. are as at June 29, 2015. The following summary is taken from the unaudited financial statements of SkyNews Inc.

As at	June 29 2015
Total assets	\$ 126,804
Total liabilities	225,194
Total deficit	(98,390)

The Society has recognized cost recoveries totalling \$31,770 for office salaries and rent charged to SkyNews Inc. Included in membership services expense is \$45,223 (2014 - \$44,558) for purchases of *SkyNews Magazine* in the year which is distributed to Society members as part of their membership subscription. The Society also expensed \$2,235 in advertising and marketing for advertisements in *SkyNews Magazine* and purchased inventory totalling \$3,388 from SkyNews Inc. These transactions were made in the normal course of operations and have been measured at the exchange amount, which is the amount of consideration established and agreed to by the related parties.

6. Capital assets

	2015 Accumulated Cost Amortization		2014 Accumulated Cost Amortization	
Tangible Assets				
Computer hardware	\$ 14,212	\$ 9,671	\$ 8,157	\$ 7,644
Office furniture	1,542	946	1,542	792
Library	1	-	1	-
	\$ 15,755	\$ 10,617	\$ 9,700	\$ 8,436
Net book value		\$ 5,138		\$ 1,264
Intangible assets				
Software	62,341	\$ 34,721	61,593	\$ 24,172
Website development	11,766	1,961	-	-
	74,107	\$ 36,682	\$ 61,593	\$ 24,172
Net book value		\$ 37,425	\$	\$ 37,421

7. Unamortized life membership fees

	2015	2014
Life membership fees as of January 1	\$ 29,152	\$ 32,225
Deduct: Amortization to income	(2,650)	(3,073)
Balance, December 31	\$ 26,502	\$ 29,152

8. Commitment

The Society has extended its existing lease agreement for office premises extending to 2017 February 28. The minimum annual payments required under the lease, excluding an estimate of the proportionate share of property taxes, maintenance and insurance for the premises, for fiscal 2016 is \$10,361 and 2017 is \$1,768. Property tax, maintenance and insurance in addition to the base rent is estimated at \$10,343 for 2016.

9. Internally restricted net assets

The Society has internally restricted certain funds. The Ruth Northcott Fund was established in 1969 and funds are used for a variety of specified purposes as approved by the Board of Directors related to public education and outreach. The P.M. Millman Endowment Fund was established in 1990 for the purpose of providing for the long-term growth of the Society. The Sustaining Membership Fund was

established in 2009 to encourage Centres to organize and host public talks by speakers from outside their local area about astronomical related topics.

An amount equal to the investment income for the year is transferred to all funds annually on a proportionate basis. All disbursements from these funds must be approved by the Board of Directors.

Schedule 1: Internally Restricted Net Assets				2015	2014
	Sustaining Membership Fund	Ruth Northcott Fund	P.M. Millman Endowment Fund	Total	Total
Fund balance, January 1	\$ 14,182	\$ 195,618	\$ 289,536	\$ 499,336	\$ 466,013
Transferred from Unrestricted net assets:					
Interest	191	2,631	3,895	6,717	26,899
Donations	3,257	6,392	120	9,769	7,969
Expenses	(5,736)	-	-	(5,736)	(1,545)
	(2,288)	9,023	4,015	10,750	33,323
Balance, December 31	\$ 11,894	\$ 204,641	\$ 293,551	\$ 510,086	\$ 499,336

10. Financial instruments

The Society is exposed to various risks through its financial instruments. The following analysis provides a measure of the Society's risk exposure and concentrations.

Credit risk

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation. The Society is exposed to credit risk through its cash, accounts receivable and investments. Credit risk related to cash is minimal as funds are fully insured and held by credit-worthy parties. Accounts receivable are generally unsecured. The investment policy requires diversification of investments within categories, and sets limits on exposure to individual investments.

Liquidity risk

Liquidity risk is the risk that the Society will not be able to meet a demand for cash or fund its obligations as they come due. The Society meets its liquidity requirements by ensuring adequate cash is maintained and investments are available to be converted to cash if and when required.

Market risk

Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk is comprised of currency risk, interest rate risk and other price risk.

Currency risk

Currency risk reflects the risk that the Society's earnings will decline due to the fluctuations in foreign exchange rates. The Society has cash and investments denominated in U.S. \$ totalling \$141,090 at December 31, 2015 (2014 - \$209,148). The exchange rate used to convert US\$ assets at December 31, 2015 is \$1 US = \$1.3840 Cdn. (2014 - \$1.1601 Cdn).

Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The Society is subject to interest rate risk to the extent of its fixed income investments and cash on deposit with financial institutions that earn interest at market rates. The Society manages its exposure to the interest rate risk of its cash by maximizing the interest income earned on excess funds while maintaining the liquidity necessary to conduct operations on a day to day basis. Fluctuations in market rates of interest on cash do not have a significant impact on the Society's results of operations.

The primary objective of the Society with respect to its fixed income investments is to ensure the security of principal amounts invested, provide for a high degree of liquidity, and achieve a satisfactory investment return.

Other price risk

Other price risk refers to the risk that the fair value of financial instruments or future cash flows associated with the instruments will fluctuate because of changes in market prices (other than those arising from currency risk or interest rate risk), whether those changes are caused by factors specific to the individual instrument or its issuer or factors affecting all similar instruments in the market.

The Society is exposed to other price risk because of its equity investments.

Changes in risk

There have been no changes in the Society's risk exposures from the prior year.

ANNUAL MEETING MINUTES—2015

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA

Minutes of the Annual General Meeting

Held Sunday, 2015 July 6 at 9:00 EDT, at St. Mary's University in Halifax, Nova Scotia

Board members attending: Randy Attwood as Executive Director (ED), Randy Boddam as Director, James Edgar as President (JE), Karen Finstad as National Secretary (KF), Robyn Foret as incoming 2nd Vice President (RF), Denis Grey as Treasurer (DG), Colin Haig as outgoing 1st Vice President and Director (CH), Chris Gainor as outgoing 2nd Vice President and incoming 1st Vice President (CG), Heather Laird as Director, Craig Levine as Director (CL).

The meeting was called to order at 9:04 EDT by JE, who welcomed members to the 2015 Annual General Meeting and introduced the attending Fellows of the Society and Board members. JE then called the roll of Centres; 22 out of 28 Centres were represented, with Unattached Members, observers, and guests present for an approximate total of 57 in attendance.

1. Minutes of the 2014 Annual General Meeting

MOTION AGM15-1 Moved by Dave Lane and seconded by Richard Wagner, that the Minutes of AGM 2014 be adopted as printed in the Essential Annual Report.

MOTION AGM15-1 was CARRIED.

2. Reports of Officers

President (James Edgar)

James Edgar highlighted accomplishments of the preceding year, highlighting the successful transition to our new governing structure, the hiring of Executive Director Randy Attwood, the implementation of a sponsorship program and other accomplishments as laid out in his written report. Unfortunately the Charlottetown Centre was dissolved this year due to lack of members. Looking forward it appears that Vancouver Centre will bid to host the 2017 General Assembly.

1st Vice-President (Colin Haig)

Colin Haig described this year's Board as very active, and recognized the efforts of the Society Office staff in supporting the many activities of the Society. He also expressed appreciation for the work of various publications editors and their teams of contributors, announcing that Nicole Mortillero would be taking over from Jay Anderson as Editor of the *Journal*, and James Edgar from Dave Chapman as Editor of the *Observer's Handbook*. He closed by referring to the very recently announced acquisition by the Society of *SkyNews* magazine as an exciting development.

2nd Vice-President (Chris Gainor)

Chris Gainor reinforced previous remarks on the hard work and talent of staff and Board members. He also reported on the success of visits to Centres across the country by various Directors, celebrating their many accomplishments on the local level.

National Secretary (Karen Finstad)

Karen Finstad reported on her duties recording minutes for various Board and Council meetings in 2014, on the six Public Speaker Program events funded in that year, with mention of policy changes in that program for 2015 and its new administrator Charles Ennis of Sunshine Coast Centre. Also looking forward to 2015, she noted that National Council Representative for Toronto

Centre Eric Briggs will take up the post of National Council Recorder. She closed with a request for reflection and respect to members who passed away in 2014, as listed in the written Annual Report.

Treasurer (Denis Grey)

Denis Grey summarised the 2014 year-end financial statements, for which complete details were shown and are included in the written report. Questions from the floor however, mostly dealt with the 2015 acquisition of *SkyNews* Inc and its implications. Roger Nelson asked where the new acquisition will show up in next year's statements; DG answered under investments. Patrice Scattolin asked where *SkyNews* revenues would show up; DG responded we would expect any such to come into our accounts as dividends and show up as another form of investment income, and that we hope that return will be better than typical returns on our other investments, based on *SkyNews* becoming a better publication and a more efficient operation, partly through 'synergies' with the Society and its staff, who may provide paid services to *SkyNews* Inc.

A question from a member on *SkyNews* operations was answered by CH, who will be on the new *SkyNews* Board, who affirmed that as sole shareholder in *SkyNews* the Society will receive reports on its performance but will not take part in the business of running *SkyNews* Inc. Also that we can also hope for 'soft' dividends, since *SkyNews* should be able to assist us carrying out the mission of the Society.

Patrice Scattolin then asked will the 'book value' of *SkyNews* change year to year; CH responded *SkyNews* tax accountants would give advice to *SkyNews* on this, depending on whether there is retained earnings for example, but since the corporation is not publicly traded there is no practical way to measure the value of its shares.

DG fielded another question about our investment manager fees, saying they are based on total assets under management and come to about 1.5%.

Rajesh Shukla asked how Society expenses are assigned to our three spheres of operations (membership charitable and publications business); DG answered this is done on a percentage basis which should remain consistent from year to year.

Following a brief description of the Helm fund and its management as a separate entity, DG noted that the Feibelman Fund has now been rolled into the Ruth Northcott fund, basically for bookkeeping purposes. Dave Lane asked if by doing so, the money in those combined funds would still be subject to the strict usage restrictions on the Northcott Fund, making it largely inaccessible. DG replied that at the moment we have sufficient unrestricted funds from other sources for it not to be a problem. JE added that the new Special Projects Program will make use of the Northcott Fund; there followed some discussion as to whether it may be advisable in the future for the Board to loosen those existing restrictions in order to make better use of the Northcott Fund.

Peter Jedicke asked where the Helm Fund records were reported; DG responded those were reported to the Toronto Centre once a year, and were very simple since it produces a single dividend each year, paid out to the Toronto Centre to support operation of the DDO.

MOTION AGM15-2

Moved by Roger Nelson, seconded by Mary Lou Whitehorne that the audited financial statements be approved as submitted.

MOTION AGM15-2 was CARRIED.

MOTION AGM15-3

Moved by Paul Gray seconded by Guy Nason, that Tinkham, LLP, be appointed as Auditor for 2016.

MOTION AGM15-3 was CARRIED.

Executive Director (Randy Attwood)

Randy Attwood presented his first report as ED, noting that he had stepped into the position only after Labour Day 2014, succeeding Deborah Thompson, and that he was looking forward to working with the Board, National Council and Centre executives to improve member services and outreach programs. He introduced the Society Office staff members who were attending, Renata Koziol and Julia Neeser, and encouraged members to meet them, learn what they do and take that information back to their Centres. RA went on to look forward to new events and programs for 2015 including RASC tours, and opportunities for partnerships with other institutions such as the Royal Canadian Institute, and the Planetary Society among others. On the subject of the *SkyNews* he promised no significant changes during the first transition year. The non-financial benefits of the acquisition were emphasized, principally the continuation of *SkyNews* as an entity and as a RASC benefit, useful input from the skilled *SkyNews* team, and the potential for increased membership.

3. Reports of Permanent Committees

Constitution (Colin Haig, Chair)

Chair Colin Haig noted the Committee has worked with several Centres on updating their own By-Laws, and said they remain available to provide guidance to others, although most Centres would also require legal guidance to align with their respective provincial corporate requirements. He also thanked the committee members by name for their work and support over the past year.

MOTION AGM15-4

Moved by the Constitution Committee that the following changes be made to By-Law #1:

1. Section 45.1, be revised to include the words shown in red: 45.1 President - The president shall be a Director. The president shall, when present, preside at all meetings of the Board and of the members. The president shall be the chief executive officer of the Society and shall be responsible for implementing the strategic plans and policies of the Society. The president shall, subject to the authority of the Board, have general supervision of the affairs of the Society, and shall be an ex officio member of all permanent committees. The president shall perform such other duties as shall from time to time be imposed upon him by the Board.

2. Section 45.4, be revised by the insertion of the words shown here in red and by removing the words shown struck through: 45.4 Secretary - The secretary, who shall be a Director, shall attend and be the secretary of all meetings of the Board, **and meetings of members** as defined in Section 4, and committees of the Board. The secretary shall enter or cause to be entered in the Society's minute book, minutes of all proceedings at such meetings; the secretary shall give, or cause to be given, as and when instructed, notices to members, Directors, the public accountant and members of committees; the secretary shall be the custodian of all books, papers, records, documents, and other instruments belonging to the Society.

3. That "National Advisory Council" be replaced with "National Council" throughout, i.e. in Definitions 1.7 and in Section 8 ("NAC" changes to "Council").

MOTION AGM15-4 was CARRIED.

Publications (Colin Haig)

Chair Colin Haig began by acknowledging the work of the committee members, and went on to call for a new volunteer

as Special Projects Editor. He reported that in the last year, the committee has devised a procedure for developing and publishing new projects, has instituted some formal volunteer recognition for contributors, and reported on the success of the *Observer's Handbook* and *Observer's Calendar*. The planned joint issue of *JRASC* and *Cassiopeia* did not come off, although a print copy of *JRASC* was circulated to the entire membership which resulted in a small increase of print subscriptions. He also thanked Dave Garner as *Bulletin* Editor.

Awards (Glenn Hawley, Chair)

Chair Glenn Hawley reminded members that next year's awards nominations should be submitted earlier rather than later since the 2016 GA will be held in May rather than July. He reported that the Awards committee had set up a special working group led by Mary Lou Whitehorne to discuss possible changes to the awards program; which will be implemented at some time in the future.

Education and Public Outreach (Robyn Foret, Chair)

Chair Robyn Foret pointed members to his written report for details, but highlighted key projects including new teacher materials, Lauri Roche's work with the Science Teachers Association, and the new Educator's membership kit which is projected to be available by September 1. In regard to the latter program, he said that Centres may choose to sponsor such memberships for local teachers. He gave brief updates on RASC participation in Discover the Universe, the Canada-wide Science Fair, and a planned renovation of the NOVA program; an effort that will provide opportunities for new volunteers.

Eric Kujala mentioned that webcasting of meetings was an excellent outreach tool which has been successful in recruiting members at the Ottawa Centre, and he offered technical support to any Centre interested in setting up to do the same.

Finance (Denis Grey, Chair)

Chair Denis Grey announced that the Society will be looking for a new Treasurer in a year or so, as his term will end in 2016, and anyone who is interested should come forward soon and speak to him about the position.

History (Randall Rosenfeld, Chair)

Chair Randall Rosenfeld first asked for feedback from members to the list of prospective anniversary projects currently available on the website. He went on to acknowledge his committee members, then handed the microphone over to Peter Jedicke who put out a call for further information on 19th Century librarian and philanthropist John Davis Barnett, whose name appears on a recently discovered miniature sundial. It is hoped to uncover a connection with the London Centre, since it is known that Barnett died in London in 1926.

Information Technology (Craig Levine, Chair)

Chair Craig Levine began with an expression of thanks to the Halifax Centre and all the volunteers who worked to organise and put on the GA. In giving thanks to his all Committee members, gave special mention to Dave Lane who has managed our web server since 1996. He reported that the website is now moving to a shared server following a major effort to upgrade the website platform. He also gave credit to a working group formed at last year's GA, for researching and implementing the new online teleconference application, Webex.

Light-Pollution Abatement (Robert Dick, Chair)

Chair Robert Dick also gave thanks to his committee for their effort in the past year, as he reviewed the highlights of his written report, including the designation of two new Nocturnal Preserves, a category of site which is designed to benefit wildlife, and requires no astronomical outreach. His experience at international conferences has shown a pervading ignorance about the effects

of light on the environment. Dave Lane commented on the new UNESCO Dark Sky reserve that was declared in Nova Scotia this year; the Halifax RASC has been involved in training of personnel at that park.

Membership & Development (Roland Dechesne, Chair)

Chair Roland Dechesne was not present; members were encouraged to read his written report.

Nominating (Chris Gainor, Chair)

Chair Chris Gainor said the main activity of the committee is conducting an election for Board members; this year Paul Schumacher stepped down and has been replaced by Heather Laird, James Edgar and Robyn Foret were acclaimed for another term each. Next year there will be at least three Board positions open for election; nominations are requested.

Observing (Alan Whitman, Chair)

Chair Alan Whitman began his report by thanking James Edgar for his support, and also the Society Office staff who have taken over the task of sending out Observing Certificates to Centre Presidents for presentation to members following review of applications by the Committee. He mentioned a recent decision, discussed in more detail in his written report, to remove the

star-hopping requirement from the Deep-Sky Challenge Objects and Deep-Sky Gems observing certificates. Coming soon is a Mini-Messier Certificate and an Introductory Lunar program.

5. Election of Board of Directors

All positions were acclaimed; see above.

6. Other Business

- Ralph Chou mentioned that Toronto Centre is organising its own 2017 Total Solar Eclipse expedition, and interested members should see him.
- RA announced that a new permanent committee for Fundraising is being formed, and looking for volunteers.
- JE reminded members that next year's GA will be held in London, in conjunction with the AstroCATS meeting, in May 2016.

7. Adjournment

MOTION AGM15-5 Moved by Roger Nelson seconded by Ross Sinclair, that the meeting be adjourned at 11:34 EDT. .

Karen Finstad

National Secretary

ANNUAL REPORTS FROM THE CENTRES

BELLEVILLE CENTRE

CALGARY CENTRE

January	Belleville's 25th Anniversary as an astronomy club (1990) Comet Lovejoy (C/2014 Q2) near Orion now naked-eye. David Cotterell - "January 23, 2015 Jupiter Triple Shadow Transit, Triple Moon Transit Randy Boddam - "Life in the Solar System, Part 1." Attempted to view triple moon transit, but mostly clouded out.
February	Randy Boddam - "Life in the Solar System, Part 2." Observing night: Feb. 20/21
March	Quinte Regional Science & Technology Fair - coming April 11, 2015 Film: "Brian Schmidt, 2011 Nobel Prize in Physics."
April	Science Fair tomorrow Film: "Lawrence Krauss - Our Miserable Future." Observing night April 24, 6 present.
May	Observing reports Our National Rep., Don Town will attend Halifax General Assembly RASC Board of Directors member Randy Boddam will also attend Randy Boddam: "Report on trip to NEAF (Northeast Astronomical Forum) in Suffern, N.Y." Observing night - May 23 following our Quinte Mall display
June	Presquile Observing Day: June 13, 12-2 p.m. David Cotterell and Don Town "Texas Star Party." Our new observing chair is David Billo.
July	StarBQ - July 29, Presquile Provincial Park Bob Bates showed his latest astrophotos.
August	Solar observing tomorrow at Presquile Randy Boddam: "Halifax General Assembly—Stars By The Sea." David Billo: astrophotos of Pluto; SkyLive site Starfest 2015 Aug. 13-16
September	Fall'n'Stars Star Party - joint RASC Belleville/Kingston centres annual star party Sept. 11-12 Greg Lisk: "Astrophotos" David Cotterell: "Starfest astrophotos." Bob Bates: "Astrophotos"
October	Greg Lisk: "Astronomy News from Last Month." Greg Lisk: "Astrophotos." David Billo: "Local Observing Sites."
November	Observing reports Greg Lisk: "Adobe Light Room" Bob Bates: astrophotos David Billo: reviewed local observing areas
December	Comet Catalina (C/2013 US10) near Arcturus Geminids, Dec. 13,14 Film: "Neil deGrasse Tyson: William Herschel, Clyde Tombaugh." Club annual Christmas Dinner

Joanne Burns
Secretary

2015 was another very active year for the Calgary Centre.

Our Public Outreach efforts realized 52 public events, some over multiple evenings, with 11,933 members of the public attending.

Centre Members also continued to show support to our communities of interest, the University of Calgary (Rothney Astrophysical Observatory Public Nights), Alberta Provincial Parks, the Town of Vulcan & the Vulcan Trek Centre, and the Banff and Waterton National Parks. Events were held in various locations around the City of Calgary and in Neighboring towns and Communities around Calgary.

Member's events throughout the year included the Annual Members Banquet, the Member's Bar-B-Q, the Alberta Star-B-Q, the Alberta Star Party, regularly scheduled General Meetings, NOVA, Observing Group and Youth Group at our Wilson Coulee Observatory south of Calgary.

Special mention too to Ken and Bev From, owners of All-Star Telescope for their support of the Calgary Centre, the Hosting of Events for Members from their site at Didsbury, Alberta and for their generous sponsorship.

Membership

At the end of December the Centre had 462 members, showing continued growth year over year. At our upcoming public events volunteers will be highlighting Centre activities and the benefits of RASC membership to encourage attendees to join the RASC. Our Social Media campaign continues to attract new followers and likely new members and our refreshed Youth Group is attributed with the addition of new Youth Members and their families. Active programs promoting events with Meetup.com encourages the interested public to attend our events, usually augmenting attendance significantly and supporting healthy membership growth. A Calgary Centre Facebook page also promotes events but encourage participation of members in sharing their astronomical areas of interest and astronomical events. Many members submit their work though this site increasing awareness of astronomical events to the community. Twitter and You-tube are also used to disseminate astronomical information to the community.

General Meetings

General meetings were held on the third Thursday of the month and featured the following main speakers and topics:

January: Prof. Rene Plume about titled Astrophysics & Astrochemistry: a Search for Origins in the Universe

February: Roland Dechesne and Steven Donaldson presented on Myths and Misconceptions in Astronomy

March: Roland Dechesne gave a presentation titled "Are We Alone?" about the search for/existence of Extra-terrestrial Life. Also we had the following member presentations: Larry McNish a presentation of the aurora from last night. And Dr. Nic David and Dr. Judy Sterner did a Presentation of their observing trip to Chile. They presented slides describing where they stayed, the scenery around the site, descriptions of and images of the sky that they observed when they were there.

April: Doug Thorp gave a presentation titled “I Need my Space” about his visit to the Kennedy Space Center. We also presented a notice of Motion to update our Centre By-laws, which would take place at the next meeting. The following member presentations were also made: Video Presentation—Jack Milliken introduced a presentation by Brian Cox & Eric Idle and Stephen Hawking a video of a presentation at Royal Albert Hall, and a second demonstration of Galileo’s experiment to prove that Gravity is a constant force. Larry McNish—Presented an aurora video taken in the dawn hours of April 11th.

May: Peter Simm Lecture was given by Ivan Semeniuk the subject was a presentation on entitled the Three Roads to Dark Matter. After the break Consideration was given to a Special Resolution to Approve the By-Laws as Circulated to the membership. Which was carried.

September: Don Hladiuk gave a presentation titled “Standing in the Shadow of the Moon from the Faroe Islands”, of his tour of Iceland, Faroe Islands, the Aurora Borealis from Iceland and a brief presentation on the 2017 eclipse. Glenn Hawley gave a presentation on Summer Star Parties and avoiding Forest Fires.

October: “We’ve Got the Astronomy Blues” by Roland Dechesne and Jason Nishiyama. Also member presentations by Greg King concerning our telescope for rent program; Nic David regarding the Alberta Star Party, and members reported the outcome of the public events related to the September Lunar Eclipse.

November: Elections for the next year were held, afterwards we had the following member presentations: Jason Nishiyama on his conference and visit to The Keck Telescope Mauna Kea in Hawaii. Larry McNish presented Aurora Videos from the Alberta Star Party. Roger Nelson presented information on the Testaladen Fire which forced an early end to the Mount Kobau Star Party. Roland Dechesne gave a presentation on the RASC Light Pollution Abatement program, and a discussion was held regarding assessing the interest in hosting the 2017 GA in Calgary.

Public Education

Calgary Centre’s Public Outreach efforts hosted 52 public events, some over multiple evenings, with 11,852 members of the public attending.

Calgary Centre continued to provide volunteers with telescopes for the University of Calgary Rothney Astrophysical Observatory’s monthly open houses. These open houses are well attended by the public and the Calgary Centre sets up an information table with insight into the RASC, our local programs for public outreach and our work on light pollution abatement. Highlights included excellent views of the Milky Way during two three-night public observing sessions called Milky Way Nights in July and August.

Astronomy Programs with Parks Canada and Alberta Provincial Parks continued in 2015 with numerous Park’s events held in Banff National Park, Waterton National Park, Glenbow Ranch Provincial Park and Fish Creek Provincial Park to name a few.

RASC volunteers with telescopes also attended several other events in Airdrie, supporting the Airdrie Space Science Club and Vulcan, the home of the Star Trek Centre

Centre member Don Hladiuk appears on the CBC radio Eye-Opener show the first Tuesday of every month presenting Sky Highlights for the month.

Several groups came out for tours of our Wilson Coulee Observatory and most nights had skies clear enough to show them a few objects in the C-14 telescope in the dome.

The Calgary Outdoor Adventure Show and Comic Con proved to be busy venues for the Centre’s booth and event organizers in Banff

have discovered the entertainment value of bringing RASC volunteers to corporate events in the picturesque town in the Rockies. The latter offered a new venue for public outreach as well as an opportunity to bolster the Centre’s coffers with much appreciated honoraria.

Other Activities

Special events included the Annual Awards Banquet in January and members BBQ at the Wilson Coulee Observatory (WCO) in June, the Star-B-Q in July and the Alberta Star Party in September.

The Club’s Wilson Coulee Observatory hosts monthly Observer’s Group meetings, NOVA group sessions and the Youth Group meetings.

Social Media has proved to be a significant addition to the Centre’s outreach portfolio (shout out to Roland Dechesne) with over 16,000 recorded views-hits-followers-etc.

The popular Telescopes-for-Rent program available to Centre members continues to be very successful.

The Centre newsletter, The StarSeeker, is now distributed electronically to save production and mailing costs and was published 9 times in the year.

RASC Calgary Centre Council meetings were held at the University of Calgary

Roger Nelson
Secretary, Calgary Centre



The Edmonton Centre has been very busy this past year and it seems to be a habit for us.

Public Outreach is our single most important function. We provide telescope viewing, public talks and educational programs for school children.

Public Outreach Report

The tradition of providing public outreach by RASC Edmonton continued in 2015. Several events large and small were put on in and around Edmonton. RASC Edmonton volunteers participated in “Dark Matters” and “Yuri’s Day” events at the TELUS World of Science Edmonton. (TWOSE) Astronomy Day featured displays and talks at TWOSE as well as sidewalk astronomy in various locations around the city. Solar observing and a display were set up in Strathcona County for Canada Day celebrations. The tenth annual Beaver Hills Dark Sky Celebration on the Labour Day weekend suffered from poor weather for both days of the event, the first time we have been completely skunked out. Talks and displays still went ahead but our volunteers were disappointed being unable to set up their telescopes for viewing. The Jasper Dark Sky Festival in late October had over twenty RASC Edmonton members make the five hour drive to the town of Jasper where they had one night of rain but a day and night of clear skies for solar and night-time telescope sessions.

It is the smaller events however, carried out by one or two of our people before groups a few dozen that this author enjoys the most. There were very many visits to schools, guide, scout and other youth groups, as well as wilderness camps in 2015. These visits involved talks, observing sessions or both. There was also, what has

become an annual event at the Devonian Botanical Gardens just west of Edmonton, "Perseids in Pyjamas" where two or three of our people present before a family sleepover event on meteors and conduct an observing session.

Our observatory on the grounds of TWOSE, open on weekend's weather permitting, saw several thousand people come through in 2015 to view the Sun, Moon and other astronomical targets on one of our seven telescopes. The final lunar eclipse of the 2014/15 Tetrad, being at a reasonable hour saw over 2500 people come through in that single evening. There was much excitement about Pluto after the flyby by New Horizon and many people brought their questions to the observatory. 2016 has already had one event attended by over 2000 people take place as well as more than a few small scale visits/presentations. The volunteers of RASC Edmonton look forward to sharing our passion with the public in the coming year.

Public School Programming

Sky Scan - The RASC Edmonton Centre is a major partner in the Sky Scan Science Outreach program, along with the Department of Physics at the University of Alberta, and the Alberta Science Network. The Sky Scan Science Outreach program uses the universal appeal of astronomy to provide an inclusive and accessible learning program that inspires youth to a life-long interest and career choices in Science. We conduct engaging, astronomically motivated learning activities in Grade 6 and 9 classrooms, as well as at the University of Alberta (U of A) Observatory, using inquiry based practices that meet (and exceed) the goals of the Alberta Education curriculum. Our main focus is on Edmonton-area schools, but we do drive out to schools that are up to one hour away. All programming is free of charge in order to keep the learning accessible to all. Funding for this comes from Edmonton RASC, the University of Alberta, and in-kind donations of time from the Alberta Science Network.

Since our programming is tied to the school year, we report our numbers for September 2014 - June 2015. Our numbers for the 2015/16 school year are on track to be similar to the numbers presented here for 2014/15.

Our 3 main programs are:

(1) Astronomer in the Classroom - An astronomer (with a BSc or MSc in astrophysics) visits a school to lead astronomy-related activities and answer astronomy questions from the children. In 2014/15 academic year we visited 141 classrooms at 75 schools, reaching 3660 students.

(2) Class visits to the U of Alberta Observatory - Classes can visit the observatory at the U of Alberta to look through the telescopes either during the daytime or evening. If the sky is cloudy there are activities involving meteorites instead. In 2014 there were 46 field trips to the Observatory with a total of 1130 students.

(3) Solar Telescopes at Schools—Schools can request a solar-viewing session at their school. Solar telescopes are brought to the schools by volunteers who are usually RASC members. In 2014/15 we did 27 solar sessions at schools, reaching 1390 students.

Undergraduate Research in Science Conference of Alberta

RASC Edmonton Centre was one of the sponsors of the Undergraduate Research in Science Conference of Alberta, held April 30 and May 1, 2015 at MacEwan University in Edmonton.

To quote from the URSCA website, "Virtually all North American universities now recognize that research at the undergraduate level is essential to the preparation of the next generation of scholars, highly qualified personnel, and scientifically informed citizens." This relates closely to our mandate and we were pleased to be able to help.

Facilities: The Queen Elizabeth Planetarium

The Queen Elizabeth Planetarium (QEP) was Canada's first public planetarium, opened on September 22, 1960. It was part of the development of Coronation Park. However, it has sat empty since December 31, 1983 once the TELUS World of Science Edmonton opened its doors.

Members of the Edmonton Centre of RASC learned early in 2015 that the City of Edmonton had approved around five million dollars for QEP renovations as part of its four year capital budget 2015-19. This bodes well for the 55+ year old facility as a design tender was awarded and has been underway for sometime now as we've moved into 2016 with construction slated to start in 2017. In the spring of 2015, RASC EC had come up with a business case on how we might run the QEP only to eventually fold it into a response to an NRFP that the City issued in late summer. The committee met a number of times to discuss and prepare the RFP components and eventually it was submitted to the City in late October.

The winning bid announcement was set for December 18, however it was well into January 2016 before we learned the RFP had been canceled as only one submission was received by the city (ours), and instead the City is looking towards an lease partnership with the TWOSE (TELUS World of Science Edmonton) with the RASC EC heavily involved in programming. These discussions will be getting underway starting in February 2016.

2016 Northern Prairie Star Party (NPSP)

The 12th annual Northern Prairie Star Party was held at the Black Nugget Lake campground southeast of Tofield, from Sept 8 to Sept 13, 2015, with a total of 59 attendees. We had reasonably good viewing for only two nights, with Saturday evening rained out completely.

Our Saturday program was well attended. Alister Ling (Edmonton Centre RASC council member) gave a very interesting talk on the trials, tribulations and triumphs of high dynamic range (HDR) photography in astronomy, followed by long-time RASC member and photographer Warren Finlay speaking on photographing night-scapes around the world. David Miles, PhD candidate and research engineer (EIT), Department of Physics, University of Alberta, gave an entertaining and informative presentation on studying space weather from a sub-orbital sounding rocket. The afternoon concluded with Jeff Kuhn, from the Institute of Astronomy at the University of Hawaii, talking about the use of large telescopes to search for alien life in our galactic neighbourhood.

A big thank you goes out to our presenters, Rick Bramm for designing the popular t-shirt commemorating the July 2015 fly-by of Pluto by the New Horizons spacecraft, and many others who helped with the event. We distributed 41 door prizes donated by All-Star Telescope from Didsbury, the TELUS WORLD of SCIENCE Edmonton, Edmonton Centre RASC, Ross Sinclair, Mark Zalcik, Murray Paulson and Alister Ling. This year we awarded four Observing Certificates, up from one last year.

Mark your calendars for next year's Northern Prairie Star Party September 27 to October 2, 2016.

Astro-Café

This year saw the start of a new monthly event we call Astro-Café. Held the week between our regular meeting and council meeting, the sessions are generally for our members although there's a couple a year for the public. We do a list of topics such as, "Introductory Observing", "Introductory Astrophotography", "How to Buy a Telescope", "How to Set Up that New Telescope", "Astrophotography Processing" and many others. The sessions have been well attended.

Public Speaker Program

The Edmonton Centre has maintained a strong public speaker program and 2015 was a stellar year for us. Our emphasis has normally been speakers at our meetings, held in the TELUS World of Science Edmonton. However, in cooperation with the TELUS World of Science Edmonton and the University of Alberta Department of Physics, we have presented some prominent speakers and have drawn an amazing number of attendees.

February 9	Moritz Heimpel - Dynamics of Giant Planets
March 9	Dan Falk - The Science of Shakespeare
April 13	Ken From: Have Scope - Will Travel
May 11	Kaylie Green and Khaled Elshamouty - "The Life and Death of Stars"
June 8	Erin Walton - Steen River Impact Structure
September 14	Martin Connors: Algotcam
October 5	Alan Stern, Principal Investigator of the New Horizons Mission to Pluto
November 9	James Edgar - Synthesis of Elements in Stars
December 14	Sharon Morsink, "One Hundred Years of Relativity"

All in all, we've had a busy and productive year for 2015, long may it continue.

Kent Martens

General Secretary



The Halifax Centre of the RASC had a busy and successful year with regular meetings and a variety of Outreach events promoting astronomy to the public. The Outreach Committee and many Centre volunteers carried on with the activities and worked in

partnership with Saint Mary's University, Dalhousie University, the Minas Astronomy Group, and the Halifax Planetarium in hosting and supporting many programs and activities.

Centre & Council Meetings

Monthly Centre meetings are held generally on the third Friday of each month, except for the summer months of July and August, providing 10 monthly meetings this year. The Council meets in the hour prior to the main meeting to discuss Centre business. These

meetings are held in facilities provided by Saint Mary's University. The Centre's library cart, which contains a diverse selection of books on astronomy subjects, is available to members at each meeting. The Meetings open with welcome to guests and visitors followed by announcements then the evening's main presentation with Centre business and a What's Up by Centre members. Refreshments and discussion follows the formal meeting.

The Halifax Centre continues hosting a series of speakers at each monthly meeting who gave interesting and informative presentations. Meeting attendance varies from approximately 30 into the 60's, depending on weather conditions. Presentations included:

In January, we had a joint presentation by our Honorary and new President celebrating the 60th Anniversary of our Halifax Centre along with Dave Chapman providing a brief talk "The Frugal Astronomer's Affordable Image-Stabilized Binoculars."

February had a presentation by our National President, James Edgar, on "Synthesis of Elements in Stars."

In March, member Dr. David Turner presented on "The Eyes are Still Good Detectors!"

April's speakers were Quinn Smith, Patrick Kelly and Paul Gray on the upcoming RASC General Assembly.

May had member presentations on astrophotography, Nova East, other Maritime Star Parties and the Winter Star Party in Florida.

In June, we had a BBQ and observing night at our observatory site in St. Croix.

In September, we had photos and anecdotes on "What I did on My Summer Vacation" including member Tony Schellinck's account of teaching binocular observing at a flat planetarium (i.e. a movie theatre!).

In October, astronomer Dr. Alex Filippenko was the guest speaker for the inaugural Dan MacLennan Memorial Lecture at Saint Mary's which the Centre also participated. Dr. Filippenko lectured on Dark Energy and the Runaway Universe.

November held a talk by SMU professor Daniel Majaess speaking on VISTA Variables in the Via Lactea—VVV is scanning the Milky Way bulge where star formation activity is high.

December's meeting was our AGM followed by a Book Launch and tour of the "2016 Observers' Calendar" with editor Dave Chapman, guest editor Cathy LeBlanc, and guest contributor Chris Green.

Observing

The Centre has a dark sky observing site approximately 40 minutes from Halifax. The St Croix Observatory has a roll-off roof, warm room & WR facilities. The Centre has a 16" Go-To Skywatcher Dob which is very popular. There are regular observing nights each month with "weather permitting" gatherings arranged ad hoc on the Centre's web list.

Centre Newsletter—NOVA NOTES

Nova Notes, prepared by new editor Tony Schellinck, continued in its regular format with 5 editions in 2015. It is delivered in an electronic format through the Halifax Centre web site with notifications sent out on our List and a few paper copies mailed out on a subscription basis. The Newsletter contains articles, photos, astrophotos, poetry, meeting write-ups—all by Centre members. Publication will carry on through 2016.

Public Outreach

Along with the public observing sessions that have taken place in Halifax, many members have hosted their own observing session within their local communities. The Halifax Centre has continued to support the Halifax Planetarium and several of our members gave presentations throughout the year. Classroom and library talks continued largely through the work of Past President Paul Heath.

The Halifax Centre also had booths promoting astronomy at special public events including the RV Show, the Saltscapes Show, and Hal-Con (Atlantic Canada's premier sci-fi and gaming convention). We plan to participate in public events again in 2016.

Nova East Star Party, Smiley's Provincial Park

This year's Nova East, Atlantic Canada's regional star party, was a success and had an excellent guest speaker, author and astrophotographer Alan Dyer, who gave 2 talks: "The Amazing Sky" and "Top Tips for Terrific Pix". This star party is open to the public and shares the view with a field of telescopes and provides public talks for all ages.

Dark Sky Preserve Support

The Centre has also supported Kejimikujik National Park and National Historic Site which has been a Dark Sky Preserve since 2010. This summer Dave Chapman of the Centre again helped facilitate the Dark Sky Weekend, with presentations, talks, observing

sessions including solar observing sessions, by Centre members and Keji Parks Canada staff. Parks Canada has worked hard to sustain and enhance Kejimikujik National Park in maintaining its Dark-Skies Preserve certification.

General Assembly of the RASC

The Halifax Centre was fortunate to be chosen for the 2015 GA and it was held at Saint Mary's University. This year's GA carried on the tradition of social events, poster and paper sessions by RASC members from across Canada. The Northcott Lecture, "Raiders of the Lost Galaxy," was given by Professor Rob Thacker of Saint Mary's University and the Plaskett Lecture was given by Dr. Anne Archibald of McGill University on "The End of Accretion...".

The Banquet was opened by The Women of the Shore, a First Nation's women's drum group, and in addition to award presentations, Halifax Centre members Dave Chapman and Cathy LeBlanc of the Acadia First Nation gave an inspiring talk on "One Moon —Two Eyes." The GA was a grand success and many thanks to co-chairs Quinn Smith, Pat Kelly and the GA Committee for hosting this event.

Goals for 2016

For the coming year, the Halifax Centre has committed to carry on many of the public outreach programs provided in 2015. The Halifax Centre, with the drive and dedication of its members, will continue the sidewalk observing sessions, library talks, provide presenters for the Halifax planetarium, support Kejimikujik National Park, maintain the Halifax Centre and Astronomy Nova Scotia websites, which provide easy access to all astronomy event information in Nova Scotia.

Respectfully Submitted,

Chris Young

Past Secretary (2015)



The Centre hosts regular monthly meetings the first Thursday each month except during the Summer months. The meeting format is typically a combination of Centre business along with featured talk; the following is a brief summary of the meetings:

- January Dr. Paul Delaney, Professor of Physics and Astronomy at York University, presented a talk entitled "Update on Recent Exoplanetary Research". The talk covered the various search strategies and some recent discoveries of note.
- February Centre President, at the time, Gary Colwell gave a presentation on Cosmology which traced how our understanding of the Universe has changed through history up to the present time.
- March Rachel Ward, a Ph.D. candidate at McMaster University, presented at talk entitled "A Star is Born: Uncovering the True Nature of Molecular Clouds" which summarized her research into modeling star formation using supercomputers.
- April Chris Talpas presented a talk "The Impact Threat from Near Earth Objects" which discussed past impacts, their frequency as well as search efforts to discover

and track them as well as possible collision avoidance strategies.

- May Paul Mortfied, Chair of the David Dunlap Observatory, presented a talk on "40 years of Astrophotography" which chronicled his personal history of astrophotography from film to narrow band CCD imaging.
- June Keith Jarvie presented "Chandrasekhar's Limit" which traced the life of Subramanyan Chandrasekhar, his conflicts with Arthur Eddington and his important contribution to understanding the evolution of white dwarfs into type 1a supernovae.
- September This meeting had a number of member presentations telling about their astronomical adventures over the summer and sharing many beautiful images that were captured.
- October The annual general meeting with Directors reports and election of the new board occurred.
- November Stan Metchev, Associate Professor and Canada Research Chair in the Department of Physics and Astronomy at Western University gave a talk titled "From exoplanets to comets: a (random) walk through planetary astronomy" in which he discussed the direct imaging of exoplanetary systems, and novel ways to look for faint asteroids and comets in the solar system.
- December Cathy McWatters, a professional astronomy educator, using 3D glasses, took the audience on a 3D anaglyph presentation of the universe highlighting the additional details that become evident when images have depth.

Observing

The Centre's Leslie V. Powis Observatory which houses two permanent telescopes: a 14-inch Celestron Edge SCT and a 16-inch Ritchey Chretien reflecting telescope, is the site of regular public observing nights. The Hamilton Centre in partnership with Westfield Heritage Village hosts public observing nights at the Village using vintage telescopes, owned by the Centre and on permanent display there, and all of this while dressed in period costumes.

Orbit Newsletter

Orbit, edited by Roger Hill is published monthly in electronic format and is available for download at the Centre website. It contains photos and articles submitted by members as well as a calendar of upcoming events.

Chris Talpas

Secretary



The Kingston Centre was not as involved in public outreach to the extent it has been in previous years. This was due mainly to the closure of the Queen's Observatory to the public while renovations brought the 4th floor of Ellis Hall up to code with respect to adequate fire exits. October 3rd saw the reopening of the observatory complete with a new Observatory Coordinator. The Centre took this opportunity to present a plaque thanking the Coordinators we have worked with over the years. A new 6-inch Celestron GoTo scope was purchased to replace the Centre 8-inch Dob to make life easier for volunteers.

Other contact with the public this year involved the Kingston, Frontenac, Lennox and Addington Science Fair where Bruce Elliot found a suitable winner for the Leo Enright Prize in Astronomy, Justin MacKeigan. Susan Gagnon accompanied Bruce to a Girl Guide event in June where they did a talk and then a tour of the early evening planets. Susan was also at the K-Rock Center for Science Rendezvous. We shared a booth with RMC and added a scope to the solar observing line-up.

Another ongoing project has been the set up and function of the Torus scope that is on permanent loan from Queen's University. Several members have taken time to work on this project and the main drivers have been Kevin Kell and friend of the Centre, Brian Hunter. This scope is now ready to take on a serious project. A members BBQ in July was a great social event for humans and mosquitoes alike! Great food and lots of astronomy talk. Some uninitiated relatives found Hank Bartlett a one man sky tour! Thanks to Kim and Kevin for hosting this event.

September was another Fall'N'Stars camping event at the Vanderwater Conservation Area. It was quite enjoyable considering the constant rain! Thanks to Belleville Centre for sharing this event. While the Centre continues to keep an eye open for a better meeting site, this search has failed to find an alternative that matches availability and services like Queen's and as of Fall 2015 meetings will continue at Ellis Hall room 324. Meetings continue to be open to the public at no charge. Here is a list of the meetings held:

- January 8 Low tech solutions to our Rotating Planet, Brian Hunter moderator of 7 demonstration models of barn door trackers including their use in the digital age.
- February 12 Star Doctor, Taking a Star's Temperature, Rick Wagner, keys to understanding variability.
- March 12 Navajo Astronomy, Tim Sietz.
- April 9 Member's presentations at the MacLachlan Woodworking Museum.
- May 14 Member's home observatories.
- June 11 AAVSO Primer, Rick Wagner.
- September 10 Member presentations.
- October 8 Astrophotography focus, September 27th Lunar Eclipse, Lori Graham—Update on Pluto and the Deep Horizons Mission.
- November 9 AGM 2015
- December 10 Annual Christmas Banquet, Aunt Lucy's Restaurant, attended by 22 members. An evening of interesting discussion and a wealth of door prizes.

2015 was heavy on member participation at meetings. Interest in Astrophotography is very high and many members have much to share with regard to technique, hardware and software choices. Subject matter covers all things in the sky, from atmospheric effects like Sun pillars and Aurora, to Solar, Lunar, and planetary to deep sky. Along with these most photogenic, we were treated to a Nova, a comet and several lovely conjunctions. Kingston members captured them all.

As well as the tips provided by the experienced observers among us Kingston Centre members are inspired by the enthusiasm of new observers. The Centre Novice Award went to Richard Wiegand who is within 13 items of completing the Isabelle Williamson Lunar Observers List. Throughout the year Richard kept us updated as to his progress and the details that he has discovered. The Novice award consists of a book and certificate.

January

- 9 January General Meeting at the Bricker Academic Building, Wilfred Laurier University, Astronomy news by Rick Burke, Comet Love Joy, New Horizons to Pluto by Brian Hollander, Astrophotography Processing by Steve Holmes, What's Up with Serge Mammoliti.
- 23 January Stargazers 101—observing Comet Love Joy

February

- 13 February General Meeting at the Bricker Academic Building, Wilfred Laurier University, Astronomy News with Rick, Astrophotography Processing using Pixinsight with Ron Brecher. What's Up with Serge Mammoliti.
- 27 February Stargazers 101 at Zehr's on Ottawa St.—Astronews with Mike Renner

March

General Meeting held at the Bricker Academic Building, Wilfred Laurier University, Rick talked about Astronews and Steve presented the Astrophotography Contest. Stargazers 101 held at Zehr's on Ottawa St. Mike talked about current events, Andrew presented Basic Astronomy, Lawrence presented Ursa Major and Daryl talked about having a club star party at Kintail on Lake Huron. Member Ron Brecher's image of NGC6960 and Pickering's Triangle is posted on the website APOD as Amateur Astronomy Photo of the Day for March 22, 2015.

April

- Stargazers 101 held at Zehr's. Peter Pekurar presented Telescopes 101.
- 11 April Star Party with the astronomy class at WLU. 15 people attended.
- 15 April General Meeting held at KW Telescope in Kitchener. Gerry Bissett talked about his observatory in Baden and Brian Dernes showed some new attachments for cameras.
- 25 April Astronomy Day Star Party in Waterloo Park. 50 people showed up. There were six people in 2014. This success was by Rosemary Frim, the new Media Rep.
- 27 April Star party at Abraham Erb School in Waterloo. 30 kids and 20 adults showed up.
- 29 April Star party at Preston Public School in Cambridge. 30 kids and 20 adults showed up.

May

- 8 May General Meeting
- 22 May Stargazers 101 Meeting
- Star party for Elmira Secondary School. 20 people
- Star party for YMCA Camp at Paradise Lake. 60 people

June

- Supported "The Museum" in Kitchener with their summer Astronomy program with equipment and expertise. The program ran until Labour Day.
- 12 June General Meeting

LONDON

CENTRE

London Centre had a full and rich year in 2015 with our regular meetings well attended and a with a star-studded list of guest speakers. We also had a great year for public outreach with most of the action taking place at Western University's Cronyn Observatory where Bob Duff coordinated members to work with the grad students, professors and post-docs in several initiatives.

- January Dr. Peter Brown: Chernobyl—2 Years After
- February Dr. Tina Pollman: DEAP3600 and Dark Matter
- March Dr. Alison Sills Stellar Interactions
- April Keith Jarvie: Chandrasekar's Limit
- May Video and discussion
- June Member's Night (GoH cancelled)
- July Dr. Eduardo Martin-Martinez: Echoes of light from the early universe
- August No Meeting
- September Member's Night: 2015 Star Parties/Video
- October Dr. Stanimir Metchev: From Exoplanets to Comets
- November Michael Watson: Portable Astrophotography
- December Video and discussion (GoH cancelled)

Outreach

- Feb 2015 A one-night star party at Killarny Provincial Park
- April 12 Yuri's Night at Eldon House
- April 14 Byron Northview Public School
- April 25 Camp Orenda Sparks and Brownies
- April 27 Matthew's Hall
- May 1 St. Thomas Field Naturalists
- May 22 Ilderton Public Library
- May 26 Byron Northview Public School
- June 3 Montessori School
- July 1 Observing at Eldon House
- July 5 Fanshawe Lake Conservation Area
- August 22 Pittock Lake Conservation Area
- Sept 26-27 Western Homecoming and Lunar Eclipse
- Sept 27 Lunar eclipse at Fingal

London Centre Western Public Program Liason for 201

	Events	Public	Members
Exploring the Stars	43	1069	13
Cronyn Observatory	33	2776	45

	Nights	Students	Members
Astronomy 101	12	536	2

Thanks to David McCarter for co-ordinating our outreach and to Robert Duff for compiling the statistics

MISSISSAUGA

CENTRE

In its 9th year, the Mississauga Centre again had an eventful meetings program, outreach and observing. Speaker nights, organized by Randy Attwood, featured an astronomer or expert on a specific theme of astronomical interest. At potpourri nights, members had the opportunity to present on a large variety of topics, all related to astronomy. One of the benefits of membership is the ability to give such presentations.

- 20-21 June Kintail Star Party, 19 members gathered at Kintail Campground on Lake Huron for a weekend of observing.
- 26 June Stargazers 101 Meeting
- July**
Had a star party at Tilker's for 40 people for the Perimeter Institute's "Young Physicist Program."
- August**
12 August Perseid Meteor Shower. Worked with the University of Waterloo Science Department with a lecture and a star party for over 200 people.
- 16 August Open Streets Event in Waterloo. Two of us promoted the club with a solar scope.
- 20 August Steve Holmes gave a talk to Charterwell Retirement Home for 25 people
- 21 August Stargazers 101 Meeting was a star party for the campers at Conestoga Lake Conservation Area. 40 people.
- 22 August Worked with The Museum in Kitchener on their Waterloo Park star party. 150 people attended.
- 30 August Star party at Shades Mill Conservation Area with 20 people.
- September**
11 September General Meeting, The Cunninghams from Lion's Head, ON gave a talk on their Life in Astronomy George Peer was presented with the Ray Koenig Award for his ten years of outstanding work with school outreach.
- 25 September, Stargazers 101 Meeting, Mike Renner talked Astronews, Serge presented his What's Up and new photos of Pluto.
- 27 September Astronomy Day Star Party in Waterloo Park, 75 people attended, Full Lunar Eclipse, sorry but it was clouded over. Still everybody had a good time.
- October**
10 October General Meeting, Rick Burke talked about what was new in astronomy, Jim Goetz presented Discover the Universe's presentation on New Horizons and Pluto.
- 23 October Stargazers 101 Meeting, Mike Renner presented news in astronomy, Jim Goetz presented photos of his trip to the Archenhold Observatory in Berlin, Brian Hollander presented Backyard Astronomy and Serge presented his What's Up. observing—Jupiter, Mars, Venus and Mercury conjunctions.
- November**
13 November General Meeting, Annual General Meeting held at WLU. New Board: President: Rick Burke, 2VP: Myles MacInnes, Treasurer: Andrew Hill, Secretary: Denise Sutherland, National Advisory Council Rep: Kinjal Mayurkumar Dave. 2015 Club By Law voted on and accepted. Dave Garner presented The Sun. 900 people attended our star parties this year.
- December**
December 8 Board of Director's meeting
December 11 General Meeting held at WLU, with 40 members and guests in attendance. Dave Garner did a presentation on the History of Astronomy from Aristotle to Einstein.
- December 18 Stargazers 101 meeting

Jim Goetz
Secretary

Meetings are held on Fridays at the University of Toronto at Mississauga (UTM) thanks to the sponsorship of Dr. John Percy and Dr. Ulrich Krull.

There were 9 Speaker Nights as follows:

January 23	Keith Jarvie—Chandresakar's Limit
February 27	Michael Watson—Astrophotography with Portable Mounts
March 27	Dr. Michael Reid—Misconceptions about the Big Bang
April 24	Phil Mozel—The Stars of 1812
May 22	Prof. Bryan Gaensler—How the Cosmos Will Kill You
June 19	Dr. Paula Rodriguez Hidalgo—Understanding Quasars
September 25	Ivan Semeniuk—Three Roads to Dark Matter
October 30	Paul Delaney—Dwarf Planet Revealed: New Horizons at Pluto
November 27	Ernie Seaquist—Canada's Engagement in the New World Observatories

At the 13 Potpourri Nights 18 members gave presentations. There were a total of 53 talks as follows:



StarFest event (August 2015)

There were book, movie and video reviews: "Empire of the Stars", "Decoding the Heavens" (about the Antikythera mechanism), the video Understanding the Universe: An Introduction to Astronomy and a Hubble video. Talks about telescopes and accessories included the Asli20MC Astronomy Camera, focal extenders, Barlows, reducers, the Mississauga Centre's LUNT solar scope. Astrophotography was represented by presentations about photographing comets, time lapse photography, and the astrophotography contest and astrophotography in general. Observing presentations spoke of the solar eclipse of March 20 from the air and from Svalbard, the lunar eclipse of Sept. 27, observing high proper motion stars, the Sky in the months of May and June, Comet Catalina, the ISS near Jupiter and Venus, and the Centre observing program, events and volunteering.

There were talks on Star parties, gatherings, observatories and museums such as the General Assembly for the 60th anniversary of the Halifax Centre, Starfest 2014 and 2015 with a planetary exploration theme, the DDO 80th anniversary, World Space week 2015, Dunsirk Observatory in Ireland, a proposed star party at Long Point, Montreal Museum, the Mississauga Centre BBQ in Meadowvale. Science/astronomy talks were about 25 years of Hubble, massive impacts on Earth, the Large Hadron Collider, New Horizons at Pluto, star formation and death, do-it-yourself rocketry, basic math in Astronomy. There were also presentations on astrophilately, the RASC tour to Southern California, a re-cap of Amanda Peet's talk, and the benefit of RASC Member Group Insurance.

At the meeting of July 10, the first of (hopefully) many auctions was held with great success thanks to the work of Simon Cloughton.

At the meeting of September 11, Lara Awad was presented with an "Explore the Universe Pin and Certificate" for successfully completing this program. On January 16, Chris Malicki was named as recipient of the National Society Service Award.

The Mississauga Centre is very active in public outreach and partners with the Earthshine Organization in organizing observing nights and astronomy education at the Riverwood Conservancy. During the 8 observing nights that the Centre hosted from March 24 to November 18, more than 2,000 visitors had an opportunity to observe and learn astronomy. This large number accounts for 20% of the total number of visitors to Riverwood during the year and earned us a deepest thank you from Riverwood. Leslie Strike estimated that there were a total of 238 volunteer hours donated to outreach. For example, on March 24, there were 12 volunteers manning telescopes as 200 visitors lined up to observe Jupiter and the Moon. On April 28, 370 visitors had the prospect of using a cell phone adapter for imaging, and observing Mars and the Pleiades. For the lunar eclipse on September 27, 850 people showed up despite the cloudy skies.

As well, 3 Mississauga Centre members taught lessons on observing and astrophotography at 4 astronomy classes run by Past-President Randy Attwood for 31 registrants.

In addition to Riverwood, Mississauga Centre members volunteered at the 59th Mississauga Guides on April 16, at Lakeview Library on July 7 at an indoor daytime rainy event, at the "Our Night Sky" event of the Chamber Music Society Aug 31, and at UTM on September 15 at the Bob McDonald lecture.

The Mississauga Centre decided to hold a barbeque in June where members can meet and socialize. The centre's solar scope was very active under the clear sky where the 35 participants had a chance to observe impressive filaments, prominences and granulation. The Meadowvale event, organized by Simon Cloughton, Jo VandenDool and Gerard Foraie is meant to become a yearly event at which awards will be presented in future years.

Our Centre again had a large turnout at Starfest in August where 32 of our members attended. The talks were excellent and there were at least two nights of observing. Thank you again to David Mitchell and family for serving breakfast and dinner to the hungry participants. Other observing was done by members at Forks of the Credit (thank you Jo for organizing these). In addition, an official Observing Committee was again re-established under John Golla and then under Jo VandenDool.

On September 30, several members toured the York University Observatory on an excursion organized by Chris Lansdale. They were able to see a few star clusters, binary stars and the Ring Nebula with the 16" telescope.

Private observing by members during the year netted Pluto, Comets Lovejoy and Catalina, the lunar eclipse, the total solar eclipse in the arctic and other objects.

The Centre has a telescope loan program, run by Jo VandenDool, Gerard Foraie and Allan Connery with a variety of telescopes available for members to borrow. In addition the Centre acquired a high quality, hydrogen alpha solar telescope in 2014 which is available on loan to members. In 2015, only a few members took advantage of borrowing this telescope. The Solar Scope Committee made up of Chris, Allan and Jo have waived borrowing fees to encourage members to take advantage of this superb state-of-the-art solar scope.

For the Mississauga Council, Andrew Opala resigned as Vice-President and his office was taken by Jo VandenDool. Steve Mallia joined Council in April.

The Mississauga Centre continued its sponsorship of the Mississauga Clear Sky Clock.

Chris Malick
Secretary,

CENTRE FRANCOPHONE DE MONTRÉAL

L'année 2015 est notre première année complète au nouveau centre de loisir de ville St-Michel. L'édifice était, à l'origine, l'hôtel de ville de ville St-Michel est comme on peut s'y attendre est de qualité de construction supérieur. Étant à deux coins de rue du Métro St-Michel le site est aussi accessible que notre ancien local. Malheureusement la ville a entrepris des rénovations qui ont amputé l'édifice d'une partie de son stationnement. Nos collaborateurs aux publications et à la gestion des membres continuent leurs excellent travail.

Les soirées publiques au Parc de l'île de la Visitation ont été prises en charge par Yves. Il en organise les sorties et prépare les conférences. Avec l'aide d'autres membres cette année d'activité furent un succès. Pour plusieurs de ces soirées la météo à coopérer et la partie pratique fut apprécié du public, résultant en plusieurs nouveaux membres. Comme à chaque année nous avons aussi participé à une soirée publique au Parc de la Pointe -aux-Prairies qui fut un succès avec un ciel dégagé.

L'horaire de conférence fut complet et nous avons reçu plusieurs conférenciers de l'extérieur. Comme à l'habitude, il n'y a pas eu de conférences l'été. Le ciel du mois de Julien et Lucian est, comme toujours, complet et une source de suggestions d'un plus grand nombre d'observations que l'on peut faire durant le mois.

La météo n'a pas été particulièrement favorable pour les sorties au terrain. Ceci dit, il fut utilisé une bonne partie de l'année. L'éclipse de la lune y a été observée et photographiée sous un ciel dégagé pour presque toute l'éclipse.

MONTRÉAL CENTRE

Once again, this Year has been a resounding Smorgasbord of terrible weather. As 2015 goes, one can sum up the year where the Moon didn't look down upon us and grace us with clear skies.

It has come to a point where we at the Montreal Centre, have given a name to our locally distinct weather pattern. The "Montreal Nebula." Not a very glitzy one at that, but frustratingly poignant.

Membership

2015 showed a definite growth in our membership. The Montreal Centre started the 2015 year with 117 members. By the end of Dec, 2015, we had grown to a Montreal Centre record breaking 130 members strong.

As I look back on the year, I strongly believe the increase in our membership was in part due to our ongoing public media campaign. We made great strides to communicate with the public, not only through our website and social media faces but also through local

journals, and with the gracious help of long standing member and media personality, Andrew Fezekas, through radio and television.

Members Observing Nights

There are specific evenings throughout the Montreal Centre calendar year, that are registered as "member's observing" dates. These various sites are selected from our list of official observing areas that we been frequenting for many years.

During 2015, the Montreal Centre had allocated 14 evenings, spread over the calendar year for members observing nights. Due to the unpredictability of the weather, we had the chance to enjoy only 3 evenings out of the 14 scheduled. Rain dates did not fare any better.



Perseids event (Photo: Tom Robertson)

Members Events/Public Outreach Events

Though the weather wasn't in a cooperative mood, throughout the 2015 year, the Montreal Centre had its door opened on a weekly basis. Every alternate Friday and Saturday, the club held its weekly clubhouse meetings at the Morgan Arboretum's conservation centre, only yards away from the Bellevue Observatory.

Along with the weekly clubhouse meetings, the first Thursday of each month saw a scheduled RASC Library Night. These soirees are held at John Abbott College, in Ste-Anne de Bellevue.

These particular evenings give members the opportunity to borrow astronomical literature from the RASC Montreal Centre's library.

Our regularly scheduled clubhouse meetings host an average of 10 - 15 members, offering coffee, snacks and great conversation.

More so than ever, Public outreach has been a strong focal point for the Montreal Centre this year. So much so, that we integrated most of the members events along with the public events.

Our scheduled Centre events were as follows:

- | | |
|-------|--|
| March | Spring Break - City of Ste-Anne de Bellevue. Daytime solar observations followed by an evening lecture by RASC Montreal member, Gary Smith—Introduction to Astronomy.
Earth Hour—City of Westmount. An Invitation from Westmount to participate with exhibits along with Montreal Centre volunteers manning 6 telescopes. (approx. 300 attendees) |
| April | Vanier College Observing—Invitation from Wissam Chaya of Vanier College Physics Dept. Eight Montreal Centre volunteers with telescopes. 100 students attended.
International Astronomy Day (Public Event). Lecture |

	by RASC Montreal member, Gary Smith—Safe Solar Observing.
May	An outreach presentation for the St-Paul's Men's Group. Lecture by RASC member, Gary Smith. RASC volunteers manning 3 telescopes.
May	Wide Field DSS2 Images (Public Event). Lecture by RASC Montreal member Charles Shahr. (Images from his website.)
June	RASC Montreal Centre Star Party. Lecture by RASC Montreal member Mark Milos
July	A Plutonian Event (Public Event). A very special evening lecture by Dr. David H. Levy (+80 attendees)
August	Perseid Meteor Shower (Public Event). Two Lectures by RASC Montreal member, David Shuman. (approx. 200 attendees)
September	Westmount Summit Night. An annual public event on the summit of Mount Royal for the City of Westmount. (Cancelled due to weather) Total Lunar Eclipse (Public Event). Two Lectures by RASC member, David Shuman. (+300 attendees)
October	Halloween—Spooky Skies (Public Event). A lecture on celestial oddities in the night sky by RASC member, Andrew Fezekas. (approx. 50 attendees)
December	Geminid Meteor Shower (Public Event). Lecture by RASC member, David Shuman. (+100 attendees)

All our Public and Members events scheduled at the Bellevue Observatory included an observing session in the observatory and through member's telescopes.

All our events whether large or small take on a life of their own. Each one becomes special and gives a personal satisfaction to all our members. Having the chance to meet new people young and old, witnessing their child-like wonder every time they look through our telescopes or to simply look up and point into the night sky, is a proud accomplishment and testament that we are doing things right!

I would like to highlight 3 events during our 2015 public events as examples. Through extensive public announcements, the Perseid Meteor Shower had brought approximately 200 people to the Bellevue Observatory. Though sky conditions were not favorable to the shower itself, many onlookers did have to chance to witness the event. As an added benefit many onlookers had the opportunity to peer through our Observatory's 14" Meade Ritchey-Chrétien telescope and witness other heavenly bodies. The "ooh's and "aah's never cease to bore.

Next on the list of highlights was the total lunar eclipse. It turned out to be an event, unsurpassed in public turn-out, with the only exception being that of the Perseid meteor shower of 2014. With an early start to the eclipse, the public came out in droves. Cars were parked a mile back from the observatory, school buses commuting students in from McGill University lined the side of the road. The grounds of the observatory were laden with blankets, a star party at its best. An unofficial count had over 300 people in attendance.

On an annual basis, the Montreal Centre is graced by a visit from its honorary President, Dr. David H. Levy.

Almost every summer, David Levy returns to his old stomping grounds to share an evening of dinner with his fellow RASC members. A scheduled lecture afterward for RASC members and the public, drew in crowds wanting to meet and speak the world renowned comet hunter.

This year was once again exceptional; David would share his tales of a time when Pluto wasn't a planet...the first time.

His lecture was apropos. One week before, New Horizons voyage

to Pluto became a reality. David regaled stories of the times and friendship he developed with Clyde Tombaugh, throughout their years.

Our packed Conservation centre of 80 or so members and public turned every imaginary page in their minds, as David read from his book. One could hear a pin drop.

Bellevue Observatory

As it goes with all homes, repairs, modifications and upgrades are par for the course. This also stands true with our Observatory. With an ever-growing interest and more cost effective equipment in the market for astrophotography, we decided to expand the parameters of Bellevue Observatory. Apart from using the 14" Meade as a "visual" outreach tool at our events, the club added some upgrade accessories to the telescope itself. The Centre made an investment, purchasing a William Optics Megrez 80mm ED doublet refractor along with an Orion 50mm Starshoot auto-guider package. Now mounted on top of the Ritchey-Chrétien, preliminary tests have shown consistent guiding capabilities, giving the Centre a new avenue to expand the interests of our members and potentially excite new membership. My thanks go out club members, Richard Latulipe and Santiago Lopez for their efforts in setting up the system connections between hardware and software.

As the winter months of 2014 drew to a closer, not all seemed to be on a positive growth. The mount seemed to be encountering RA slewing problems. With a quick verification by the Observatory Director, it was confirmed at the RA motor in the mount had become defective. Due to cold temps, the Centre decided order a new motor and install it in the early spring of 2015.

With the installation of the new motor and an initial test run, the mount and telescope were re-installed in the observatory, re-tested and confirmed in proper working order. As the 2015 calendar year came to a close, other unscheduled maintenance work would have to be completed to the dome rotational motors and cables, in early 2016.

Member's Speaker Nights

As it stands, there are a handful of astro-imagers within the membership, but many new members have now developed an avid interest in this specific area. With this in mind, fellow member Mark Milos, a regular speaker at our events decided to develop a course on the Introduction to Astrophotography Development. These weekly sessions spanned out into a 7 week package.

Subjects covered were on types of equipment, Photoshop, DeepSkyStacker development, to name a few. A repeat of these sessions were also very popular to all in attendance the second time around.

Another topic of interest during our speaker nights, was on solar observing given by Gary Smith. A perfect culmination of day and night astronomy for all interests.

During the course of a regular clubhouse meeting, topics ranging from the latest gear out on the market to questions from new members on wanting to know where to start, makes every weekly meeting an informal speakers night. It's one of my personal joys to have the chance to take part in these moments.

On a final note, the year once again closed with our Members Annual Christmas Party held at Moe's Deli.

And with all the new equipment that various members of the Montreal Centre purchased, it's likely we'll never see the night sky!

Detlev Schmalhaus
Secretary

At the end of 2015 the NB Centre membership stood at 89, an increase of 11 over the year. There were 25 new members, including three Family members, 13 people did not renew and one transferred to another Centre.

We normally hold nine Centre meetings in a year, with venues rotating among Fredericton, Moncton and Saint John. Attendance averages 15-20 members and guests. In 2015 we held eight meetings and the mean attendance was 19 (range 10-33). In addition to the three regular venues, one meeting was hosted at Kouchibouguac National Park and the Annual meeting was held at Mount Allison University in Sackville. The March meeting was cancelled due to inclement weather.

Meetings consist of a "What's Up" talk, observing and imaging reports, Show & Tell/Buy & Sell, and presentations by members and guests. Guest presentations in the year included:

- How to Travel Astronomically by RASC member Charlie Szaboth
- The Sun—Our Personal Star by RASC President James Edgar
- In Search of the 13th Mi'kmaw Moon by Cathy LeBlanc, RASC member Dave Chapman
- Astroseismology of Binary Stars by Dr. Catherine Lovekin, Mount Allison University
- History of Imaging by RASC member Ron Brecher
- Pulsations in Massive Stars by Dr. Lovekin
- Building Deep Sky Eye Observatory by RASC member Tim Doucette
- Variable Stars by 50-year RASC member Damien Lemay.

Member presentations included topics on the nearest stars to Earth, noctilucent clouds, astrophotography for beginners, James Michener's book *Space*, updates on the New Horizons and Rosetta missions, listening to Jupiter on short wave radio, a recap of our star parties in 2015, maintaining an astronomy blog, satellite transits of the Moon, and a game of Space Jeopardy. Meetings are usually followed by a group dinner at a local restaurant.

Public outreach is a focal point of Centre activities and in 2015 we reported 114 events that involved 7262 people. In addition, 2350 Star Finders, 2724 Moon Gazer's Guides and 819 Getting Started in Astronomy guides were distributed. Approximately half of the events were night or day observing, 20 percent were presentations to various groups, another 20 percent were visits to schools or youth groups, and most of the rest were STEM-related exhibitions. Among the events were presentations and observing for star parties at Mactaquac Provincial Park, at the Dark Sky Preserves at Fundy National Park, Kouchibouguac National Park and Mount Carleton Provincial Park, and also presentations and observing at the Irving Nature Park Urban Star Park. Event approvals were obtained from Transport Canada for green laser pointer use at the star parties.

Two Council meetings and the Annual Meeting were held in the year to conduct Centre business. A third Council meeting was held for information exchange but no official business was conducted due to lack of a quorum.

Centre plans for 2016 include continuing support for the three DSPs and the USP through star parties and observing sessions, support of Moncton High School's observatory program, support of an application for an Urban Star Park, expanding contacts for public outreach, and increasing and maintaining Centre membership.

Curt Nason
Secretary

The Niagara Centre had a good year in 2015. Our year was filled with observing, public events, regular meetings and get-togethers.

Our membership grew steadily this year, going from the low 70s to the high 70s. For a few months we were over 80. We are very happy to see new faces at our meetings.

After more than 20 years of monthly general meetings on the third Thursday of the month, the Niagara Falls library made us change to the second Monday of the month. Luckily, this does not seem to have impacted attendance.

Our club produced its first calendar, with all the photos taken by our own members. We printed 50 and sold all of them quite easily. We were very happy with the quality of submissions and the resulting calendar. Many members bought multiple copies and gave them to others as gifts.

At our observatory, we sold the club's 12" Meade SCT and fork mount and replaced it with a Losmandy G11, to make the observatory more accessible and easier to use for our members who want to try astrophotography.



Niagara Centre Grade 6 outreach event

The Niagara Centre continued a strong tradition of public star nights and daytime talks at museums, libraries, schools, other recreational clubs and private establishments, as well as city, regional and provincial parks and campgrounds. Our audiences included students of all ages and members of the public from the Niagara Region and further away. When the location has electricity and a proper building or pavilion, our public events usually include a slideshow and informative astronomy talk by Brian Pihack. Even when our public star nights are completely cloudy, members of the public who turn up can still hear the talk, meet club members and see telescopes in person.

Our most commonly used locations are Heartland Forest, a handicapped-accessible park and conservation area in Niagara Falls, and the Chippawa Creek Conservation Area in Wellandport, which also hosts the Centre, Aôs observatory. We are always looking for new locations and venues.

Club members travelled to star parties in Ontario and Pennsylvania. About 20 members attended Starfest in August.

In November, almost 50 members, as well as their families and friends, went on a trip to the David Dunlap Observatory.

White LED lights are continuing to appear in the Niagara Region, including our two biggest cities, St. Catharines and Niagara Falls, which have taken advantage of subsidized retrofit programs. Although some lights are full cutoff design, many are too bright and are the wrong colour. We continue to lobby city and regional government to not use these models.

A new executive will be elected in October 2016 to lead the club for the next two years.

RASC Niagara Guest Speakers 2015

January	Gwen Eadie, "The Winter Hexagon"
February	Jeanette Goemans "Kennedy Space Center"
April	Robert Godwin "The Avro Arrow and Canadian rocket defence"
May	Andy Blanchard "AstroCATS"
June	Margaret Campbell-Brown, Western University, "Meteors and Meteorites"
September	Richard West "Observatories of Hawaii"
October	Tracy Gregg, University of Buffalo, "Volcanoes in the Solar System"
November	Brian Pihack, Demonstration of a Cloud Chamber for detecting ionizing radiation
December	Members' Astrophotography Slideshow with Philip Downey, Glen Pidsadnick, Greg Taylor, David Perry, Bob Lewis.

OKANAGAN CENTRE

Our Centre's membership spans the length of the Okanagan Valley in British Columbia's southern interior. The Centre is organized into three meeting groups—Penticton, Kelowna & Vernon, each holding monthly meetings and providing Outreach to their local communities. Our 2015 year end membership numbered 123.

The Centre continues providing an assortment of resources keeping its members advised of all things astronomical, either by website, electronic messaging, or our Google discussion group. It includes, on a monthly basis, our "President's Report" by Olaf Lutz, a celestial happenings report "*What's Up*" provided by Dave Gamble and our Centre newsletter "*Focus*" by editor Hugh Pett. Members of the Centre also utilize the "AstroOkanagan Google Discussion Group" for distribution of time sensitive messages of Centre or astronomical importance.

Meeting Groups & Outreach Activities

Penticton Meeting Group

Monthly meetings are held throughout the year, and at two meetings had the fortune of having exceptional outside guest speakers making presentations—Marshall McCall from York University and Tony Willis from the Dominion Radio Astrophysical Observatory. Other monthly presentations were provided by Centre members on a broad range of astronomical topics.

Penticton's Outreach was provided throughout the local South Okanagan area and is coordinated by member Al Fishler.

Events during the year where members volunteered included partnering with the Dominion Radio Astrophysical Observatory (DRAO) near Penticton for the annual Meadow Lark Festival, likewise the Perseid Meteor Shower and a Girl Guide/Sparks Star Party—all utilizing DRAO's grounds as a dark venue. Other public events with telescope viewing were held at the Tinhorn Creek Vineyards,

as well as a presentation to school kids. These events attracted 525 members of the public.

Vice President Chris Purton continues to take the lead in coordinating the 'PenHenge' solstice/equinox celebrations on Munson Mountain. The Summer Solstice was notable this year in that clear skies provided an opportunity to image the setting sun (used to obtain horizon parameters). The Winter Solstice, while being clouded out, was the lead in to Midwinter Festivities at the Shatford Centre in Penticton where Okanagan Centre provided the primary speaker and a number of displays outlining the astronomical aspect of the solstice event. The afternoon included other information sessions, warm beverages and treats for the crowd of 60. Each of the solstice/equinox celebrations at 'PenHenge' was attended by dozens of the local public.

Vernon Meeting Group

In addition to the customary presentations at their monthly meetings, they have introduced a session titled "Observing Challenges" prepared by members James Kanester & John Karlsson. Each month they create a take home astro project, and members who take up the challenge report back on their success (or shortcomings) at the next meeting. The Meeting Group continues providing pre-meeting Beginner Telescope Sessions. In June, Ted Stroman from the Vancouver Centre provided a presentation to the group on the current science on origins of our Moon, with other presentations throughout the year being provided by knowledgeable Centre members. In July, Vice President Jerry Thompson hosted a Pluto Party & BBQ at his home, complete with celebratory cake in recognition of New Horizons successful arrival. Overall, the Vernon Meeting Group feels it had an exceptional year and noticed a considerable increase in attendance at its monthly meetings.

Vernon's Outreach was coordinated by Raffaele Scotto Lachianca & James Kanester providing local educational outreach to many in the North Okanagan during the year.

Along with their continued collaboration with the Okanagan Science Centre, they participated in two telescope workshops, their first Astronomy Day celebration in April and the annual Vernon Winter Carnival. Other observing sessions were held for the public at the Allan Brooks Nature Centre during the year. The group held an informal gathering (non-publicized) to observe the Sept 27 Lunar Eclipse and ended up with an unexpected crowd of 120. Other outreach presentations with observing sessions were given to the Mme Baturin's French Immersion students on a rural dark property as well as to teens attending the Lumby Christian Camp near Cherryville.

Kelowna Meeting Group

Kelowna Meeting Group held a full season of meetings, including the AGM of our Centre in October. The meeting's main presentation and the shorter Constellation of the Month were presented by our knowledgeable members on an array of topics to the enjoyment of those members and the public in attendance.

Kelowna Outreach—lead by coordinator Colleen O'Hare—again handled a large number of events throughout the year. Total events numbered 75 with in excess of 3,500 guests being exposed to astronomy education and observing of the night sky wonders. This year it included the usual array of school events, monthly visits to the Cancer Rotary Lodge, 15 large community family events including Canada Day and various Children's Festivals. Also on the agenda were kids' camps/groups, adult groups and Spring & Fall Wine Festivals to highlight a few. For the second year now our members have traveled to Mount Revelstoke National Park to assist the park service with an "Evening Under the Stars." Members gave our Tour of the Universe presentation to tourists and park staff followed by telescope viewing at the top of Mt. Revelstoke. And

lastly, this year our Outreach provided astronomy presentations for Science Literacy Week collaborating with the Okanagan Regional Library and the Centre for Inquiry. During September we visited 10 libraries up and down the Okanagan valley and in the process spread the astronomy word to approximately 500 children.



An evening of Public Outreach at the Okanagan Observatory

Okanagan Observatory

Our Centre's Observatory is located a 40 minute drive southeast of Kelowna. We continue to offer regular scheduled free public educational / viewing nights as well as the Observatory being available to our members any evening for their personal observing, sketching & astrophotography.

The public nights (normally Fridays) include a program in the SkyTheatre usually conducted by members Colleen O'Hare and Guy Mackie. Afterward, guests can tour the night sky assisted by our volunteer member Night Sky Guides. Ample opportunity is available for a closer look for everyone utilizing any number of telescopes provided.

The club's primary scopes, the Gamble 25" Newtonian Reflector and the Astrophysics 130 mm (5.1") Refractor, provide regular service every public night. The Astrophysics is usually paired with our Articulating Relay Eyepiece allowing the eyepiece to be lowered to any height providing wheelchair visitors an opportunity to comfortably observe the night sky "live". To further promote accessibility, the Observatory continues to provide free bus transportation for wheelchair visitors (including others with mobility challenges) and operated this service on three clear-sky observatory evenings. During 2015 we were fortunate to receive financial assistance for this endeavour from the Morningside Rotary Club.

On any particular night, our club owned telescopes are joined by a half-dozen member telescopes—providing a great astro experience for all our guests. This year by seasons end, our schedule provided 14 clear-sky Friday nights hosting 562 visitors, a seasonal record number of guests.

The Observatory continues to be a work in progress. Aside from normal maintenance tasks required on a continuous basis, development has continued on our Observatory's radio astronomy capability being spearheaded by Hugh Pett. What began as a project with a predicted five year window to full operational status has now accumulated four years of effort on research, design, re-design and build. Many members have assisted Hugh with the various construction phases to get to where things stand today. Currently, steel towers have been built for the two 10-ft telescope dishes (future interferometer), dishes assembled, electronic systems constructed and safety fences built around each dish. During early 2016 the first motorized mount assembly (which took two years to

design and build) will be attached to the first antenna. This will be followed by what is expected to be months of commissioning to achieve full sky coverage with sidereal tracking capability. At that point, observing targets will be available for as long as 24 hours in a single run if required, day or night, rain or shine. It appears the original five year project window will be pretty much exactly as predicted. For those interested, Hugh periodically produces a newsletter, titled *RAdius* providing information/progress about the Project. For more information, or to receive the newsletters, you may contact him at hughirenep@gmail.com.

Annual Fund Raising Dinner

During May, the Okanagan Centre held its Fourth Annual Observatory Fund Raising Dinner & Member Social. Dinner chair, David Hawkins and his Committee organized an excellent event following on previously successful events; a fun evening get-together with fellow astronomers, friends, an abundance of interesting conversation and a silent auction. Oh, and pretty good food as well.

As has become custom, our Centre's Member of the Year was announced at the dinner. We annually recognize a member for their specific accomplishments or long standing service to the Centre. This year we recognized Dennis Krause, our current Secretary-Treasurer. It was noted Dennis had dedicated many years promoting the purposes of the Society. Chiefly cited was his Public Outreach involvement, in particular his interaction with and welcoming of the public on our Observatory Public Nights. As well, his manning of our information kiosk and infrastructure development enabling a organized and safe flow for the public nights was noted. His spearheading of recent successful Gaming Grant Applications which provided significant funding assistance to our program was also mentioned.

This year our featured dinner speaker was Mr. Bob McDonald, the noted science writer, commentator, author, space enthusiast and host of CBC's *Quirks and Quarks*. Bob's presentation, "The Long Road to Pluto" recounted his many trips over the past 40+ years to witness launches, landings and science produced by space probes including Viking and Voyager culminating later this summer with his journey to Baltimore to attend the control center at Johns Hopkins University for the arrival of New Horizons at Pluto. Bob's presentation was enthusiastically received by members and the public in attendance.

Further information on our Centre can be found at www.ocrasc.ca (including newsletters, picture of the month, image gallery) and on the Okanagan Observatory website at www.okanaganobservatory.ca (operations, facilities, future plans, our donors).

Dennis Krause

Secretary



The year is rapidly coming to an end and we find ourselves once again at the AGM. This is a sometimes tedious but always necessary part of our process as a not-for-profit organization. It is also an opportunity for you to step forward to help guide our Centre. That is what your new council has done and what we hope some of you will do in the future.

In many ways 2015 has been an amazing year for Ottawa Centre. Thanks to Mike Moghadam, we have had some outstanding

speakers at our monthly meetings, both from inside and outside our Centre. We have had outstanding response to our Carp Star Parties with attendance of about 350 to 400 people at each event. As well we only missed one Star Party due to weather. Our Lunar Eclipse event was equally well attended with similar numbers. And our membership is up, likely as a result of these successful events and our monthly meetings. Art and Anne Fraser make sure that we always have refreshments at the meetings and Art is our membership expert.

We have received a donation of 18" Starmaster and we are planning to build a new observatory to house it, and another scope we have, at the FLO. In meantime, Ron St. Martin continues to make sure that the grass is cut, the laneway is plowed and the 16" is maintained. The SmartScope, which we have been working on for many years, is now in its final tests before being made available to the membership. Jim Maxwell and his team assure me it will be fully functional before the spring. Thanks to all involved with both of these projects.

Mike Moghadam's Telescope Clinics were back this year and just as popular as before. Members and others were able to get help with any issues they were having with their telescopes, mount, collimation or whatever they needed.

Using social media the Ottawa Centre continues to reach hundreds of people via our web page, Facebook and MeetUp. Our webmaster, Chuck O'Dale deserves a special thank you for his efforts updating our site. Eric and Eunice Kujala continue to provide us with video recordings of every meeting and stream our monthly meetings live over the Internet. Thank you both.

Every month our librarian Estelle Rother has a new recommendation from our book library. Al Scott continues to look after our telescope loan library. We have a new magazine subscription co-ordinator, Stu Glenn. Karen Finstad, as Editor, has done wonders with *AstroNotes* this year and Janet Tulloch has returned as Assistant Editor so we can look forward to even more in the coming year. Our finances are kept in order by our very capable Oscar Echeverri. Thank you all.

The Annual Dinner a couple of weeks ago was a great success thanks to our Vice President, Tim Cole. We had 65 people in attendance who were treated to a wonderful presentation on robotics in space and Canadarm II by the delightful rising star in the Canadian Space industry, Kristen Facciol. This was also the last chance you had to enjoy the culinary treats prepared under the guidance of our host of the past 11 years, Gordon Esnard, who, as yet unbeknownst to his employer, is retiring in a few weeks. The Paul Comision Observer of the Year went to Paul Klauninger again this year making that two years in a row. Best *AstroNotes* Article went to Barry Mathews and Best Presentation went to Alan Scott.

I would like to thank Bill Wagstaff and Rick Wagner for serving as our National Council Representatives for the past two years and all they have done before that. I'm sure they will continue to contribute. As well I want to thank all those on council for all your hard work over the past year. You are the ones who keep this group running and worth belonging to. We all owe you our thanks.

One person who deserves our special thanks is Chris Teron. Chris has been doing what he does for our centre for as long as I have been coming to these meetings. Chris makes everything happen and makes it seem effortless. Chris is here an hour before every meeting and is usually the last to leave. He sometimes spends hours correcting problems the rest of us haven't noticed. When we arrived at this location there were numerous issues with the audio-visual system that he spent many hours working to resolve. I don't know where we would be without Chris and I am not anxious to find out.

I don't know about you, but I see a pattern to all everything mentioned above: people volunteering their time and talents to ensure that the rest of us don't have to do anything but show up and enjoy all that Ottawa Centre has to offer. If you are a new member or even someone who has been here for a while, I can think of no better way of enhancing your RASC experience than to get involved. It doesn't have to be a large time commitment. Help with a star party, share an observation at a meeting, write a book review for *AstroNotes*. It's a cliché but it's true, you get much more out of volunteering than you ever put in.

Finally I would like to thank you for having me as your President. I am looking forward to the next year.

Clear skies,

Gordon Webster
President

PRINCE GEORGE CENTRE

- The NOVA (New Observers to Visual Astronomy) course, now in its 12th year, started off the Centre's activities for 2015. The course was well attended by enthusiastic students. Now that the *Beginner's Observing Guide* is no longer in print, it has become somewhat difficult to offer a 'textbook' to accompany the course.
- As part of our outreach mandate, a Centre member served as judge and award presenter at the Central Interior Science Exhibition. Prince George Centre Youth memberships were awarded to two students for their winning entries.
- Always popular, the Spring windup barbeque was well attended.
- Our booth set up at the Canada Day Lheidle T'Enneh park festivities attracted over 800 visitors. Telescopes equipped for solar viewing were a big attraction.
- Outreach in remote locations, most notably Williams Lake and Mount Robson Park was facilitated by three Centre members. Activities included lectures and hands on telescope experience.
- The Perseid meteor shower in August was adversely affected by smoky skies.
- The Fort St. James Star Party event was too cloudy for viewing.
- The 24" mirror was sent away to be re-figured. Image quality has improved remarkably as a result.
- Members manned the Centre booth in the Pine Centre shopping mall for the Fall Active Living Market. Many people visited our booth.
- Bob McDonald of CBC's 'Quirks and Quarks' was the Centre's guest during the September 20 weekend. Bob visited our observatory on Friday Night and took part in the PG Mini Maker Faire on Saturday afternoon. Many Centre members met with him for dinner prior to attending his presentation 'Canadian Spacewalkers' in the evening.
- Unfortunately, the skies were too cloudy to view the total lunar eclipse. 75-100 hopeful people, some with cameras and telescopes set up, mingled with each other for quite some time until they left disappointed.
- The Centre partnered with the Prince George Public Library on October 29 to host a lecture on First Nation

- Astronomy Folk Lore. The event was very well attended.
- The Observatory was the centre of activity on November 14 when a Binoculars Only Open Cluster Marathon was held.
 - The H.R. Macmillan Space Centre's Star Lab inflatable dome was in Prince George in November to introduce local students to astronomy. The Centre arranged to have an evening event open to the general public. Setup was in a local school and along with the Star Lab presentations was the opportunity for all to view the sky through Centre telescopes set up outside. Various crafts and displays were set up in the gym as well.
 - Public tours continue to be a major part of our fundraising. Hosted by a dedicated team, the tours offer a lecture tailored to the age group, laser pointer tour of the constellations, and hands on experience using the Centre telescopes.
 - 'Our Night Sky' is broadcast weekly on a local radio station to make people aware of interesting objects and/or events in the night sky. The broadcast also helps to advertise the Prince George Centre.

Glen Harris
Secretary



En 2015, le Centre de Québec de la SRAC a tenu 10 soirées conférences sur des sujets variés. Deux de ces conférences ont été particulièrement populaires auprès de nos membres et du public.

Intitulées la construction et l'utilisation du nouveau module d'observation Sittelle du télescope Canada France Hawaii, ces deux conférences ont été présentées par notre président, monsieur Steve Lévesque, pour la construction et l'installation du module Sittelle sur le télescope et par le professeur d'astrophysique de l'Université Laval, monsieur Laurent Drissen, pour l'utilisation. Les premières données reçues sont très encourageantes pour l'avenir.

Notre traditionnelle party hot-dog à l'observatoire Alphonse Tardif de St-Nérée a permis de réunir plusieurs de nos membres. Des discussions entre nous sur les différents aspects de l'astronomie ont animé la journée pour préparer nos observations du soir.



I'd like to start off by thanking the outgoing Past President's for 2015, Chris Beckett and Mike O'Brien, for all their work and dedication in serving the membership. These guys have done a great job in leading the Regina Centre and I want to thank them for your efforts. In addition, I'd also like to thank outgoing Treasurers Rob Sheppard and Shane Maitland for their volunteer work in taking care of the club's finances. Job well done guys!

We were treated with many astronomical events throughout the year with Comet LoveJoy starting us off in January. It brightened enough to be visible with the naked eye. Also in January was a couple of new meteor showers, the Canum Venaticids

and X Corona Borealis. These showers were discovered by Dr. Peter Brown from the University of Western Ontario. Personally, I observed the brightest moon bows I had ever seen from the ice crystals in the cold January air. Very cool! In addition to all this activity were some nice planets in the evening sky as well as a rare triple shadow transit of Jupiter's moons. A couple days later, Asteroid 2004 BL86 made a close flyby of the earth and because here in Saskatchewan, we had the clearest skies in the country, the videos and images of the pass that I and Tehno Tenomi took, made it onto the evening news. January was a busy month and many of our members enjoyed all the activity.

The past year is filled with memorable events and accomplishments from both volunteer events and club observing nights. Our dark site outside of Regina was well used this year and a lot of cleanup of the site was done by member, Shane Maitland. At one of the observing nights, I enjoyed showing Pluto to a few members. It was not an easy observation to make down in Sagittarius but because very few people have ever seen it though a telescope, I was happy to share the views.

There were numerous public events throughout the year and always well received by the general public. We have many members that volunteer their time to create a unique observing opportunity for both young and old so a huge thank you to all our Regina Center volunteers! A special thank you goes out to Ron Haughey and Len McDonald who continue to open the Kalium Observatory to the public and for Science Centre events. We also had the star parties in Grasslands National Park and Cypress Hills Interprovincial Park which continue to provide the opportunity to enjoy the awesome skies we have here in Saskatchewan.

Another significant event in 2015 saw the publication of our club's history book entitled "100 Years of Astronomy in Regina". This collection of historical images, articles and meeting minutes was a 7 year project by member, Ross Parker. With the help of Maryanne Slater, Don Moreau and myself, Ross was able to finally see his years of work put into print. It's a 712-page book with over 100 pages of color. The book is available for purchase at a cost of \$85.

In the fall, we were treated to a wonderful visit and presentation by our RASC National Director, Randy Attwood with funding graciously by the National Speaker's Program. His stories and images from the Space Shuttle launches was incredibly interesting and inspiring.

One Regina Centre member completed an observing certificate in 2015. Darnell Ogradnick was awarded his Messier certificate from the RASC. It was made even more special by having our national president, James Edgar, present Darnell with his certificate and pin at our June meeting. Congratulations Darnell!

2015 was a great year for the Regina Centre and the way things are looking, 2016 is going to be equally as great! So come join the Regina Centre for some fun and learning as we share in the wonders of the universe.

Clear Skies,

Vance Petriew
President

St. John's Centre had another active year with 10 public meetings (Sept through June), annual star party, public observation sessions, Astronomy Day.

Meeting topics were:

- Annual General Meeting with remembrance of two lost members.
- Fred Smith, HR-Diagram
- Christmas Social; Speaker: Jim Lacey, PhD candidate Carlton/CERN - LHC and the discovery of the Higgs Boson particle.
- Dr. John Lewis, current picture of the Universe and Dark Matter.
- James Edgar, RASC President, RASC structure changes. Lecture: Synthesis of Elements in Stars.
- Upcoming eclipses—March 20 and 2017. St. John's is fortunate to get a partial solar eclipse on March 20th 2015, the only part of North America to see it.
- Anna O'Grady, Intercluster Light.
- Dr. Doug Forbes, a live video conference from Corner Brook with a tour of the new Observatory.
- Astronomy Day.
- Member Show/tell and Summer plans.
- Butterpot Star Party, Terra Nova Star Party and Summer observing wrap-up.
- September Lunar Eclipse, extensive media coverage.

St. John's summer weather started with a normal June, but a winter-like July, typically the best weather month, caused a loss of some summer observing opportunities.

The annual Butterpot Star Party went ahead as scheduled with limited clear skies. We partnered with Parks Canada for sessions at Signal Hill and Terra Nova and provided RASC material during the observing sessions. We expect to repeat these events during 2016.

Member interest in astrophotography has surged over the past year and several members are producing high-quality imagery. Presentations were made on software and techniques being used.

Our centre website continues to be the main repository of information and member-submitted photos and sketches. A renewed effort in social media (Facebook, Twitter) has been extremely successful and is resulting in additional interest in the centre and astronomy.

Due to manufacturing delays for the observatory dome, we are still awaiting completion of the Centre's first observatory.

Another exciting year !

The Sarnia Centre has a total of seventeen members on the books and between six and twelve members regularly attends the monthly meetings. The group meets in the library at the Errol Road Public School. The library is well serviced with computer and SmartBoard equipment.

Presentations

As part of regular meetings various club members have given presentations on subjects of interest.

- Alan Kenyon gave a presentation of the Orion Nebula and



Hobby Fest show on July 19 in Canatara Park

Trapezium noting that this was the first object observed with binoculars.

- Shelley Jackson made a presentation on Comet Chasing. The presentation included useful information and Shelley's personal experiences and observations to date. Following the presentation the group went outside to view comet C/2014 Q2 Lovejoy through Shelley's 10" Dobsonian.
- Marty Cogswell presented a link to a presentation by Tony Hallas of post AP processing with images from a DSLR camera. Pictures capture more than the eye can see and selected processing can provide much more details and colour.
- Shelley Jackson gave a short info session for the Astrocats Annual Show on June 26/27 in the Ontario Science Centre, Toronto.
- Alan Kenyon made a quick presentation of Denis Grey's "What's Up With RASC" at the subsequent.
- Stefan Jackson did a "show and tell" of his new (to him) AltAz/EQ mount he has acquired. It was a SkyWatcher AZ EQ6 GT which can mount two scopes and is a very robust design.
- The group undertook a general discussion and "show and tell" on star charts and associated web sites.
- We were fortunate to have Denis Grey, RASC National Treasurer, as a special guest speaker. He made a very interesting presentation of the total solar eclipse 2015 in the Faroe Islands in the North Sea between Scotland and Iceland. Denis recounted his trip from Toronto, via London, to Torshaven, the capital of the islands, and the subsequent tortuous drive to the scheduled viewing location. Denis' photo journal of the trip was a great record of an opportunity not to be missed. The presentation was attended by five members and about a dozen guests. Denis followed up this with "What's Up With RASC", a presentation of the recent developments within the RASC.

Outreach Activities

- The Centre participated in the annual Hobby Fest show on July 19 in Canatara Park in Sarnia. Four members were in attendance with display boards, giveaway information, various telescopes and our new RASC banner.
- Shelley Jackson authored an article, including astrophotos by Marty Cogswell which was published in the Amateur Sports News, a regional publication promoting various sports and community groups for this area. The article detailed activities with which the Sarnia Centre RASC has been involved.
- Sarnia hosted a public observation evening in Mike Weir



Shelley Jackson presented with her Messier Certificate by President Marty Cogswell.

Park for International Astronomy Day on April 25. The evening was hosted by five members and attended by roughly 30 visitors.

Our club was contacted by another local group, Lambton wildlife, to host a star party for them. We agreed & had a great night with 5 RASC members showing the sky to the 15 or so who turned out.

Recreation Activities

The second summer barbeque was hosted by a member on August 22 with nine in attendance.

Web Page

The Sarnia Centre web page was revamped to include more details on membership, meeting dates and photographs taken by the members. The link to the site is: <https://sites.google.com/site/rascarnia/home>

Facebook

The Sarnia Centre also has a closed group of 25 members on Facebook.

AOB

Shelley Jackson was presented with her Messier Certificate by Centre President Marty Cogswell.

SASKATOON CENTRE

2015 was another busy year for the Saskatoon Centre, with activities involving public events involving public outreach the Sleaford Observatory and the Saskatchewan Summer Star Party which was co-organized with the Regina Centre. Several of our members and their astronomical activities were featured in articles in the local media.

The Saskatoon Centre organized several public events over the year. We participated in Earth Hour on March 28 by holding a

public star night at the Circle and Eighth mall in Saskatoon. We thank the mall management for turning off the lights for the hour and allowing us to set up telescopes in the parking lot and a display table inside one of the main entrances. Our Astronomy Week activities in April included a Friday evening public viewing night outside the Lakewood Civic Centre, a Saturday display at our local Farmers' Market (inside due to a freak snowstorm) and a talk and public viewing at the Beaver Creek Conservation Area south of Saskatoon the following weekend. In May we participated in Saskatoon's Nature City Festival where we had a display table and several telescopes set up for solar viewing. On October 17th the last of our public events was the Open House at the Sleaford Observatory co-operated by the Physics and Engineering Physics Department of the University of Saskatchewan. Over 60 people made the drive 45 min east of Saskatoon led by university astronomy lecturer Stan Shadick and his students.

Several our members organized their own public viewing events in addition to Centre events. Garry Stone and Tenho Tuomi gave a public star night April 21st at the Lucky Lake Library. Ron Waldron was invited to organize and host a public star night at the Wanuskewan Heritage Park just north of Saskatoon to observe the "Blood Moon" lunar eclipse. The Park management was very pleased with the attendance: it was the largest turn-out for an evening event in the Park's history.

Several of our members were featured in media articles. Richard Huziak, an alumnus of the University of Saskatchewan, was the subject of a feature article (and appeared on its cover) in the Spring 2015 issue of the "Green and White", the U of S alumni quarterly alumni newsletter. He was recognized both for his accomplishments as an observer and his ongoing efforts to combat light pollution by working with local and provincial governments and agencies to change policies to reduce light pollution and improve lighting. Tenho Tuomi and Garry Stone were featured in an article in the newspaper "The Western Producer" in February.

The Saskatchewan Summer Star Party ran from August 12th to 16th for its 19th year. Although the weather was temperamental at times, the event attracted 333 attendees and was very successful overall. Speakers included: Dr. Ron Brecher (Guelph, ON) "A History of Imaging the Cosmos"; Vance Petriew (Regina Centre) "Photometry of Variable Stars"; Rick Huziak (Saskatoon Centre) "Eleven Years of Dark-sky Preserves". A clinic was put on by Colin Chatfield (Saskatoon) "Night Sky Photography FUNdamentals". The planned observing clinic by Gerry Smerchanski (Teulon, MB) was rained out. The organizers and volunteers put in a great effort under difficult circumstances to create another memorable star party at the Cypress Hills Interprovincial Park Dark Sky Preserve.

Executive and General meetings were held each month except July, August and December. Programs for the year are listed below:

January	Ron Waldron—"Digitarium Portable Planetarium System"
February	Lorin Briand—"Alsask Radio Observatory Project"
March	Jim Goodridge—a video presentation on the sun, solar activity and aurora
April	Darrell Chatfield—a 'first person' presentation on the life of William Herschell
May	Dale Boan—"How to Make Astro-movies using a Digital Camera"
June	Kenton Lysak, Senior Interpreter with the Meewasin Valley Authority Saskatoon—presented on a project to measure light pollution a various urban and rural sites using Sky Quality Meters
September	Jim Goodridge—"Good Deep Space Objects for Beginners"
October	Randy Atwood, Executive Director of the RASC—"Society News" and "Space Shuttle"

Dr. Les Dickson
President

SUNSHINE COAST CENTRE



Roberts Creek Earth Day event

I discussed our Sunshine Coast Centre with past president Bill Clark the other day, and he observed that the Sunshine Coast Astronomy club he founded back in 2004 was entering a new era. As Bill saw it, his watch was all about building the club. If he sought a single word to describe his era, that word would be foundations. Our early years were all about creating our Centre's tradition of community service, as well as fulfilling the dream of building an observatory. We both agreed that on my watch things have changed. As we enter our twelfth year, our centre is currently building on the foundations laid down by our original members. Our SCC Observatory has had its first light and is now in use. If I had to use a word to describe the era we are now entering, that word would be exploration. We're now starting to reach out from our foundations to try new ideas and see what we can achieve. Our National HQ already recognizes that the SCC is one of the most active centres in the country. I believe we can make them start describing us as one of the most extraordinary.

Let's examine what we've accomplished since we first started in 2004:

We log over 2200 hours of volunteer work at outreach events every year. This is a deceptive figure, as only a small group of members have put in all these hours. In future, I'd like to see more members come forward and help. Some members seem reluctant to involve themselves in outreach as they don't think they know enough about astronomy to face the public; we're going to help members to give them the support to make them feel comfortable.

We added to our busy outreach program: Roberts Creek Earth Day and Synchronicity Arts Festival in Gibsons. However we came to a realization that we were doing an enormous amount of outreach and next to no inreach. Therefore we deleted a number of unproductive outreach events and are largely replacing star parties all over the Sunshine Coast for community groups with viewing

sessions at our observatory. We've deleted Astronomy in the Park from our outreach events. Even though Astronomy in the Park was one of the most productive events on our calendar for 11 years, two years ago the contractor running BC Parks on the Coast started asking us to pay \$100 to use the park. We talked the contractor into waiving the fee last year, but this year the contractor blamed pressure from BC Parks and forced us to pay it. I approached our local MLA to report this problem. Kim Tournat, Constituency Assistant to MLA Nicholas Simons, got back to me to inform me that BC Parks is blaming the contractor and the contractor is blaming BC Parks. We aren't paying the BC government \$100 for the privilege of staging such an event. We are going to replace Astronomy in the Park with Astronomy at our Observatory this year.

We're planning to have more member events this coming year. Past President Mike Bradley and I have just published the SCC Observatory Operations Manual V 1.0 and put a link to it on the "Our Observatory" page of our web site. I encourage anyone who would like to use the observatory to download the manual and read it. Operating the observatory isn't difficult and we encourage our members to use it. We started as a club with frequent members star parties, and we want to bring that back.

We revived our Light Abatement efforts with presentations to the Sandy Hook Community Association, the Davis Bay Wilson Creek Selma Park Community Association, the East Porpoise Bay Community Association, the Roberts Creek Community Association, the Rotary Club, and the Hospital Auxiliary Association this year. We hope to make a presentation to the District of Sechelt to have them register themselves as a Dark Sky Community in the coming months as well as lobbying to have them change their building bylaws to require full cut-off lighting.

We replaced our web site in July 2014 with a Wordpress site that allowed us to track activity. We had an exceptional month for views of our web site in August: 1,832 views, which is nearly twice the previous record. In September we broke the record again with 2,251 views from 338 visitors. By the end of 2014 we had 4,626 views of our web site from 1,385 visitors. So far this year we've had 10,851 visits from 3,421 visitors from 66 countries and territories. That's 15,477 visits from 4,806 people. Several youth organizations have complimented us on our web site.

Our speaker's program started in our early days has evolved into at least 8 nationally recognized experts doing presentations at our meetings every year. We lead all the other RASC Centres in use of the national Public Speakers Program. We have plans to bring in a fund raising event with a keynote speaker in the coming year.

We created one of the past president's dreams: An astronomy TV program, Night Lights. Other RASC centres have attempted this, and spent thousands doing so, and never went beyond a few episodes. Our SCC entered a partnership with Coast Cable that costs us nothing; in fact they pay for our meals breaks and for road trips to video tours of astronomical facilities. Our Night Lights program is now going into its second season, with taping of sessions for this season going on this month. Word of this has reached Telus, who have approached us to see about entering into a similar partnership. If you'd like to be part of this, please let us know.

We realized the past president's dream of an operational observatory, but this means that for the first time in our history we need an operational budget. We must have an operational budget plan because one of the common errors made by other RASC Centres over the years is a lack of budget planning coupled with uncontrolled spending to purchase gadgets for their observatories, landing them all in financial difficulties. People donate equipment to these centres, which is appreciated, but if it doesn't fit into an operational plan they end up being pushed in directions that they may not be able to sustain. We are not going to let that happen here.

THUNDER BAY CENTRE

Centre Regular Meetings

There were 10 monthly meetings held, with a break during July and August. The meetings were held at Confederation College, in various rooms. The typical attendance for each meeting was 15

Membership

As of October 2015 it stands at 52.

Centre Observing

There were 12 monthly sessions on the 4th Thursday of every month organized and led by President Brendon Roy. Typical turnout was 3 members.

Outreach

March

Science North Exhibit

Location: Lakehead University Bora Laskin Building. We were voted as best exhibit.

August Long Weekend

Quetico Park

It was an unusually hot weekend that culminated with a powerful thunder storm at the end of the last day. Due to the raging BC forest fires, the sky was dulled somewhat which limited what you could normally see at this location. Campers came out despite the heat to view the skies through the scopes at night and the solar scope in the daytime. There were several presentations given with good attendance by the campers, except for the last evening. A special treat happened on the final evening with a magnificent display of the Aurora Borealis.

September Labour Day Weekend

Sibley Provincial Park Thunder Bay

The Sibley talks were well attended as usual.

President Brendon Roy, Dave Gallant and Randy Martin each talked one evening. Only one of the nights provided good observing, although there was some opportunity on another night to do some limited photography with Aurora. The campers were also treated to looking through the solar telescope on one of the afternoons.

September 27 Hillcrest Park, Lunar Eclipse

Led by Dave Gallant

The lunar eclipse was well attended by the public, over 500 people despite cloudy skies! The weather was warm which encouraged young and old alike to come out. However, those patient enough got to witness the eclipse briefly as the moon came out for roughly 20 minutes before it got swallowed up by the clouds again for the rest of the evening. The Centre was also well represented as 10 to 15 members came out to help and had 4 to 5 telescopes set up. Many moon finders and sky maps given out. Earlier that day, Dave also did an open streets where 50 or so people stopped to see the Sun through the solar telescopes.

September 29 Hillsdale Retirement Centre:

President Brendon Roy gave a talk for the residents.

Thunder Bay Centre Assisting Fort William Historical Park.

October 2014 Death in Space Presentation



Girl guides outreach event (@ SCC Observatory)

We've created a budget plan and following the lead of successful RASC observatory programs such as those run by the Prince George and Okanagan Centres. We are committing ourselves to specific objectives and working towards them. We are submitting requests for grants from the Sechelt Community Investment Program, the Sunshine Coast Community Forest Legacy Fund, the BC Gaming Policy and Enforcement Branch's Community Gaming Grant, the Sunshine Coast Community Foundation, the Rotary Club, and even a Wood Council of BC award. These grants will allow us to insure and maintain the observatory, add accessories to our telescope and its systems, and have a warm room built to control the telescope.

Although we reached a point at the end of June 2015 where our observatory became operational, it is not yet finished. At the end of June we still did not have a roof retraction mechanism, we still did not have lighting in and around the observatory, we still had no protective cover or dew control system for our telescope and its sensitive electronics, and we still had not finished the roof soffits or closed in the gap between the rails and the roof to keep the weather and wildlife out. A small group of volunteers has pressed on completing the closing in of the observatory, installing and improving a dew control system, and installing a roof retraction mechanism. Lighting will be finished in the coming months as will upgrades to the solar charging system, which is currently running near capacity to power the dew control system.

Only three months after I first joined this centre in 2013 I put myself forward as a director at large and the following year I stepped up as president. Last April I became the National Public Speaker's Program Administrator for the RASC. This year I am putting myself forward for a director's position on the National Board of Directors. Everyone in our Centre can help our Centre in some way, whether it is by volunteering at outreach events, helping set up and take down at the monthly talks, serving on a committee, or serving on our board of directors. I'm not asking any of you to do anything I am not prepared to do myself. What we've accomplished so far happened because a small group of members donated some of their time, creativity, and ideas, making us one of the most active RASC Centres in Canada, even if we are nowhere near being the largest.

Think of what we could accomplish if a few more of you members came forward...

Regards and Clear Skies,

Charles Ennis
President

The Centre assisted the Fort in their theme of Halloween presentation: Death in Space. Anthony gave presentations. Only the Thunder Bay RASC members showed up, and unfortunately the public did not. The duration of the presentation was 2 hours. Discussed different ways to die in space. It was a nice evening. Weather cloudy/rainy so the scope wasn't used.

September 27 Lunar Eclipse

It was good, a good crowd for that time in the morning. Dome was open and 8" Dobs out. Had the 5" out also for photographs. Did a short presentation on astronomy. Gas fireplace was up and running, really nice. Keeps you warm. Got to see the eclipse. Anthony, Chris and an intern were the Fort employees. Heavy dew

Talks

Naked Eye To Deep Sky: Each month, President Brendon Roy provides us with the Constellation of the Month and a list of interesting targets, along with the story behind the constellation based on Greek mythology.

October 2014 Maureen Nadeen—Naming Exo Planets

IAU has opened up to the astronomy clubs to assist with naming exo-worlds (host star as well as the planets). Proposals have to be submitted by December 31, 2014. Each club can only submit one name. There are rules that has to be followed in providing a name. These are non Kepler Group planets. Maureen suggests the executive come up with up to 7 names and then bring it to the membership to vote on.

Membership was interested in participating. The members can also provide names for the executive to ponder.

Brendon Roy—Grand Moons of the Solar System
Talked about the number of known moons (173), when first moon discovered (outside of earths), range of sizes, what makes them special (i.e. Size, geologically active). Talked about the top 7 moons and what makes them special.

December Father Franco—Sky-Watcher Motorized Camera
Father Franco talked about the Sky-Watcher motorized camera mount that can be used for many kinds of cameras. The cost of the camera is around \$500.

President Brendon Roy—Recognizing Constellations (Interactive).
Brendon quizzed us on our knowledge of the constellations. He would show a bunch of stars and we try to recognize the constellation. It was very well received.

March Brendon Roy—Fun With Shadows

May Ted Bronson—Eclipses And The Current Tetrad

September Doug Stuart—Canon SL1 Camera
Doug bought a Canon SL1 camera that he brought to the meeting. Doug showed pictures taken with different configurations. He showed us pictures of the Milky Way, Aurora, moon and fireworks.

Visitors

May Ted Bronson gave a presentation on Tetrad eclipses by the moon.

Committees

Library—Interim Librarian: Barney DeSousa.

Barney very graciously stored all the equipment and materials

from the Centre in his home. Not only that, he organized and catalogued everything so that we have a record of each. He also developed a sign-out system to keep track of equipment and material when on loan.

The Librarian position is still open. All of the work is done. All that is required now is someone to take it over.

International Astronomical Union Planet Naming Competition—Chair: Maureen Nadin.

Our Centre chose the Andromedae 14 System for naming. Maureen and her team decided on the name Veritas which means truth for the star. For its planet, the name Spes, which is Latin for hope. The members approved of the names.

Business

Memorandum of Understanding with FWHP. On the May 2015 business meeting, the Centre executives approved the MOU. As at the Centres Annual Meeting, the MOU has not yet been approved by FWHP.

Membership Dues: The membership fee has been increased at the Centre effective July 1st: \$3.00 for general and \$1.00 for students and family members.

New Donation Box President Brendon Roy introduced our new donation bin to be displayed at all our events.

Executive Positions Not Filled: As at the October Annual Meeting, the Vice President position has yet to be filled.

Social Media: We're on Facebook now.



This is a shortened version of the Toronto Centre annual activity report. The full report was published in the Toronto Centre SCOPE newsletter in February 2016 and is on the RASC website.

The Toronto Centre participates in astronomy events at several locations around the city. During the reporting period from 2014 October 1 to 2015 September 30, we participated in several Ontario Science Centre events.

Lecture Nights, starting at the Ontario Science Centre, were co-ordinated by our 2nd Vice-President, Prof. Paul Delaney from York University. Twelve "Recreational Astronomy Nights" were organized, the first eight of which at the Science Centre by Paul Markov, one of which included a swap meet. Our meetings of June 3rd, July 8th and August 5th were hosted at the University of Toronto's Earth Science Centre, and the meeting of September 9th was at North York Civic Centre. We are grateful to our hosts at the Science Centre, the U of T, and the City of Toronto for hosting us, and to Tom Luton for emcee'ing our summer meetings.

We also provided a monthly solar viewing session at the Science Centre, organized by Shawn Lee on a clear-skies-only basis usually on the first Saturday of the month, and during sunny mornings during Astronomy Week, April 20-25, which only constituted the Friday and Saturday mornings.

This winter we hosted N.O.V.A. Program, "New Observers to Visual Astronomy" at the Ontario Science Centre. This series of 6 classes held on Wednesday evenings between January 27th and March 3rd, hosted by a variety of members, was open to the public



Carr Observatory Work Party at the Solar System Walk; Photo by Ian Wheelband

too. A six-lesson N.O.V.A. was also provided for Seniors at St. Clair O'Connor senior community centre.

We had our traditional joint lecture with the Royal Canadian Institute on February 22nd when Dr. Ralf Gellert presented 'Roving the Red Planet: Exploring from Afar'.

This year at the Toronto Science and Technology Fair, we awarded Justin Sam Kumplapallil the astronomy prize, \$100, and an RASC membership for one year. And at our meeting on March 5, Paul Mortfield had the pleasure of presenting the Gold Medal of the RASC to the 2014 recipient from the University of Toronto, Ms. Miranda Jarvis.

The National RASC's newest award program, the RASC Fellowship, was bestowed on Dr. John Percy. Also during this reporting period, the National RASC's Qilak Award for Education and Public Outreach was awarded to the Toronto Centre's DDO Volunteers. The same volunteers were honored by the Town of Richmond Hill's Volunteer Appreciation Award.

An analogous Qilak Prize is also awarded by the Canadian Astronomical Society, our national society of academic astronomers, who this year chose to honor Paul Delaney.

Several of our members were also recognized by the Province of Ontario for their years of RASC volunteer service: Lily Gao, Sharmin Chowdhury, Diane Shukla, Trevor Horvatin, Leslie Harvey, Shawn Lee, Tim Hunter and Guy Nason.

The Toronto Centre also has a set of awards for our members who have accomplished great achievements:

- Ray Thompson Award for Astrophotography: Risa Horowitz
- Ostrander-Ramsay Award for Astronomical Writing: Maggie Fei
- Jesse Ketchum Award for Construction: Lance Clarke
- Andrew Elvins Award for Public Outreach: The DDO SkyLab Team
- Bertram Topham Award for Observing: Chris Vaughan
- H.A. Winearls Award for Service (The President's Award): Leslie Harvey

The above six awards were presented at the Annual Open House and Picnic at the Carr Astronomical Observatory on June 6. About 60 members and some guests attended this event.

This year we celebrated our seventh season managing, operating and maintaining Canada's largest optical telescope at the David Dunlap Observatory in Richmond Hill. Four thousand enthusiastic visitors joined us for public viewing nights, star talks, family nights and private evening programs including schools, scouts, guides and corporate groups. This brings us to over 25,000 visitors since the Toronto Centre took over stewardship of the observatory in 2009.

It was the celebration of the decade, or rather, the eighth decade. On May 31st, the David Dunlap Observatory turned 80 years old and in June, we marked the occasion with two major events. First came a day-long symposium that brought together RASC Toronto Centre members, many present and former U of T faculty alumni and nearly a dozen members of the Dunlap family. The occasion was also marked by a letter of recognition from the Prime Minister, presented by federal MP Costas Menegakis. In the letter, then-Prime Minister Harper complimented the "the hard work and dedication" of our many volunteers.

The public summer programs began on May 9, 2015 under a clear sky for Science Rendezvous Day, with 375 visitors attending. Our summer series of "Star Talks" provided 14 lectures. We ran 18 of our popular "Family Night" public programs designed to appeal to families with younger children. All our ticketed programs were sold out a month or more in advance, due to the demand we added programs to accommodate an additional 200 visitors. The DDO hosted 14 private evening programs for girls and boys in Brownies, Guides, Cubs and Scouts to assist in their "Astronomy" or "Exploring Space" interest badges.

In all, for fiscal 2015 the DDO ran a total of 63 education and outreach programs, which is an increase over last year. We also hosted 3 corporate group events bringing the total to 66 programs held at the observatory.

Toronto Centre members contributed 2,400 volunteer hours dedicated to program delivery. Toronto Centre members also contributed an additional several thousand hours in maintaining the telescopes and buildings.

As a registered charity, we continued to provide opportunities for high school students to gain their required community service hours by volunteering at the DDO. The students assist in delivering our public programs from May through October. We had a total of 21 students participate this season, with 14 students being new to the program this year. In total they contributed over 480 hours of volunteering.

We continued an educational partnership with Controlled Geophysics Inc. to provide educational daytime field trips for schools at the DDO in FY2015. In the spring we executed the TD Securities Hope Charities Grant obtained in FY2014. Two hundred and eight Grade 9 students from three different high schools attended a daytime education program at DDO. The grant program included the cost of transportation and lunch for the students. The DDO continued to host Toronto Centre member activities including the "First Light" program for new members, the fall/winter member's night programs, and several Tailgate Astronomy nights. It was also the setting of our members' Volunteer Appreciation BBQ on September 20th.

At the Carr Astronomical Observatory, the Geoff Brown Observatory (GBO) and Tony Horvatin Observatory (THO) are both in good shape.

We planned and ran two safe and effective major work parties at the CAO in the fiscal year, the Oct 2014 and May 2015 events. Mini or small work parties were also scheduled. Weekends at the CAO were supported, of course, by the site supervisors.

This year we tried something a little different for the "big" weekends, that is new Moon weekends in the summer, when we expected large groups: we arranged for two supervisors on-site, a primary and an assistant. This worked very well in that the primary was not overwhelmed supporting a large number of guests on their own. It afforded practical benefits such as one supervisor running the C14 in the GBO while the other helped users on the Observing Pad outside. We will continue to use this model going forwards.

Education and Public Outreach activities continued at the CAO

with Ian Wheelband coordinating activities this year. We received a number of local area Probus groups, Scouts Canada Venturers, and the Thornbury library and community, through private events and public star parties. We hosted the planning team of Toronto Maker Faire.

We continue to lease five MODL spaces and rent out three equipment lockers. We continue to lease the surrounding lands to a local farmer.

The CAO was used for 1100 person-days during the period. The usage breakdown was: 60% pass holders, 9% other members, and 31% guests. We scheduled 23 supervised weekends and we were open about 80% of those.

The combined income from user fees, annual passes, EPO events, MODL and rental lockers, and donations, plus the aggressive cost-cutting measures employed at the CAO, allowed it in 2015, for the first time ever, to become financially self sufficient.

The Carr Astronomical Observatory, now beginning its 18th year, remains an attractive destination for members, family members, and friends, looking for some of the comforts of home while looking to escape city lights. The committee appreciates and thanks the CAO's many supporters for their continued financial support of the facility's development and operations.

It continues to offer dark skies, telescope and astronomical equipment and accessories for members to use and learn, and outstanding coaching and support from supervisors and fellow members.

The CAO is wholly owned by and represents a significant asset to the RASC Toronto Centre. We hope all members will visit at least once to learn more about this wonderful facility.

The renewal of the Telescope Loan Program was a key activity of our Observational Activities Committee this year. A new, highly portable 10cm table-top Dobsonian was purchased at the closing out sale of an Ontario retailer. The scope has proven popular with families with young children, a demographic that is seeing rapid growth within the Centre. The annual AstroCATS trade show, held at the Ontario Science Centre in June, presented an opportunity to purchase a hot new product, a SkyWatcher Star Adventurer, which is a mini-equatorial mount for wide field astrophotography tracking with a DSLR or small telescope. Wide field imaging is an area of interest that is growing rapidly and provides a manageable first step into the alignment and processing skills needed for more advanced astro-imaging.

As the fiscal year came to a close, we were fortunate to receive a donation of a 20cm Meade LX10 telescope system with DC drives and carrying case, in excellent condition. This is a highly versatile system and we expect it to be in high demand.

The Observational Activities Committee co-ordinates 3 monthly observing events:

- City Star Parties, held at Bayview Village Park
- Dark Sky Star Parties, held at Long Sault Conservation Area, and sometimes Glen Major Forest, and
- Solar Observing at the Ontario Science Centre

Event-related, sidewalk, and ad hoc gatherings are organized as conditions permit.

Tailgate Astronomy evenings are held on an ad hoc basis, weather permitting at the David Dunlap Observatory (DDO). These included at least 4 events and participation of more than 46 members.

The Education Committee consists of Leslie Harvey, Diane Shukla, Sharmin Chowdhury and Ian Wheelband, representing DDO, CAO, and general membership.

On very short notice, Sharmin Chowdhury, Chris Vaughan, and Vikas Nath gave a public star party and indoor presentations at

the 2015 International Space Development conference in late May. Over 400 persons were treated to planetarium shows and observing on the roof.

On August 21, a large public star party was held at Pickering's Millennium Square, in partnership with Durham Skies Inc. Well over 500 persons were shown views of the Sun, Moon, Saturn, and deep sky objects.

Lunar Eclipse night, Sunday Sept 27, saw RASC-TC volunteer and host several eclipse viewing events. OSC asked us to participate with them, and we were helped by Liu Na, Hocine Boudhar, Denis Grey, and Eric Peters. Shame about the clouds!

Our efforts on social media paid off. At the time of writing we have 736 followers (last year: 338) on Twitter and 697 (last year: 449) likes on Facebook.

Our Web Team worked closely with Ian Wheelband and Tanya Oleksuk to email NOVA participants and process course sign ups through Brown Paper Ticket. We continue to explore video recording and broadcasting at meetings and work with Mike Crabtree and Tanya Oleksuk on this. Mike Crabtree and the webteam are looking into possible Yahoo Group replacements and hosting.

Toronto Centre members accomplished many observing achievements this year, from far-flung locations as well as at home. Tom Luton and Ron Macnaughton successfully observed the occultation of a star by the asteroid (595) Polyxena on April 15th. Eric Briggs was in Halifax in July for the RASC's General Assembly when he co-discovered his eighth supernova with the help of other RASC members and Tim Puckett. Some members visited the Algonquin Radio Observatory as a group in August. Some members are also submitting variable-star observations to the American Association of Variable Star Observers. After the Partial Solar Eclipse of October 23, 2014, the September 2015 Lunar Eclipse has been noted.

Two members completed observing certificate programs this year: Mélanie and Emma Seabrook completed "Explore the Universe."

I am not aware of any Toronto Centre members who have passed away during the reporting period, but I should draw your attention to the loss of Robert Taylor, one of our most distinguished members during the late 1990s and early 2000s. Robert frequently used to promote the RASC Toronto Centre with displays of our telescopes and other equipment and astrophotography in malls around Toronto, and at the once-annual Hobby Show. Also this year Ray Thompson passed away. Ray was the president of the Toronto Centre in 1963 and 1964, and for years operated a busy observatory out of his house in Maple. He received several awards from the RASC and the AAVSO, and we have named our Ray Thompson Award in his honour. Would you please stand for a moment of silence for our departed colleagues.

In closing, I wish to also thank St. Joan of Arc Parish Church for the use of their offices for some of our Council meetings. On behalf of the Council, I thank all members for your continued trust and support of our ongoing saga.

Eric Briggs
Secretary

RASC Vancouver Centre had another successful year in 2015 contributing to the advancement of free public science and astronomy in British Columbia and specifically the Greater Vancouver area. We hosted 14 major public events including 11 free public lectures as well as 30 free public astronomy observing events. We were also major contributors toward 13 other free public events. Our largest event of the year, International Astronomy Day held in conjunction with Science Rendezvous at Simon Fraser University, saw 8,000 visitors. (see below for a detailed list of all events)

In 2015, RASC Vancouver volunteers were involved in amending the City of Vancouver's light pollution bylaw.

RASC Vancouver volunteers were also involved in the planning and operation of the Trottier Observatory and Science Garden at Simon Fraser University, a location that has hosted multiple free public events since opening in April of this year.

RASC Vancouver created and distributed seven issues of our free astronomy newsletter NOVA. They were published bi-monthly with an exclusive NOVA for International Astronomy Day on May 9.

In the media, RASC Vancouver Centre was featured in a half-hour light pollution documentary created by Shaw Cable. Also, several RASC Vancouver members have made television and radio appearances, including Scott McGillivray's regular educational astronomy segment on Global Television, "Space Talk with Scott".

RASC Vancouver membership grew in 2015 from less than 200 to 241.

Council decided to proceed with the revitalization of the Antony Overton Memorial Observatory. Under the direction of AOMO Chair Alan Jones, we have been working primarily on structural needs of the observatory building. Next year, we plan to revitalize the dome and astronomical devices within the building.

In 2015, we received notice from Canada Revenue Agency that RASC Vancouver Centre had lost its charitable status. RASC Vancouver Centre is currently appealing this decision. A subsection of Council including all executive members met several times during November to assemble and file the appeal.

We met and exceeded 9 of our 10 planned goals for 2015, determined by Council at the start of the year. Our only goal not met was Item 3 as it was decided we did not need to create videos for setting up telescopes.

- 1 Get our web presence up and running
- 2 Connect with other centres
- 3 We would like to create video for setting up telescopes (goal not met)
- 4 Host 24 total observing sessions
- 5 Increase LPA initiative
- 6 More options for observing sites
- 7 Evaluate AOMO plans and resolve our dome issues.
- 8 Organize the telescope loaner program.
- 9 Improve our connection with new members. Introduce new members at the meetings, etc.
- 10 Better promotion of the benefits of RASC membership

Regular RASC Programming

14 events (includes 11 lectures)

All events at Simon Fraser University unless otherwise noted.

January 15 Dr. Howard Trottier—The Trottier Observatory:
Wheels Up

January 31	Bob McDonald—Canadian Spacewalkers (Paul Sykes Memorial Lecture)
February 12	Dr. Ben Williams—Using the Hubble Space Telescope to Create a High Resolution Mosaic of the Andromeda Galaxy
March 12	Dr. Jaymie Matthews—A Decade of Exoplanets with M.O.S.T.
April 9	Star Theatre Show at the MacMillan Space Centre Planetarium
May 9	Six lectures during RASC International Astronomy Day
May 14	Ted Stroman—The Formation and Differentiation of the Moon
June 11	Tom Field—You can Almost Touch the Stars
July 9	Ian McLennan—Space Centres and Planetarium Projects in the 21st Century
August 8	Perseid Meteor Shower @ Aldergrove Lake Park - over 700 in attendance
September 10	Various Speakers—So You want to Buy your First Telescope
October 8	Dr. Douglas Scott—The Humble Study of the Whole Universe
November 13	Elise Harrington—Venus Revisited
December 10	Annual General Meeting followed by a video link lecture from Dr. Christian Nitschelm of the Universidad de Antofagasta in Chile—The Cosmologies of Andean Civilizations



1st Haney Cubs are located in Maple Ridge, BC.

30 Public Observing Events

January 20	Comet Lovejoy observing at SFU
February 16	Observing at SFU
February 24	Observing at SFU
March 28	Night Quest—observing at Pacific Spirit Park (with Metro Parks)
April 17	Solar observing at the gala opening of the Trottier Observatory at SFU
April 17	Evening observing at the gala opening of the Trottier Observatory
April 18	Observing at a gallery opening at the Deer Lake Park Art Gallery
May 7	Observing at SFU
May 8	Starry Nights* at SFU
May 9	Astronomy Day at SFU with Solar Observing
May 22	Observing at Selvey Park in Maple Ridge
May 29	Starry Nights* at SFU
June 22	Aurora Borealis observing at Spanish Banks, Vancouver



Goldstone Park event: Goldstone Park Elementary is located in SW Surrey, BC.

June 26	Observing at the Trottier Observatory
July 1	Canada Day solar observing in Maple Ridge
July 3	Starry Nights* at the Trottier Observatory
July 18	Solar Observing at Still Creek Corporate Plaza, Burnaby
July 25	Solar Observing at Campbell Valley Regional Park, Langley
August 1	Starry Nights* at the Trottier Observatory
August 8	Perseid meteor shower at Aldergrove Lake Park (with Metro Parks)
August 12	Starry Nights* at the Trottier Observatory
August 15	"Starry Night" family event at Deas Island (with Metro Parks)
August 18	Observing at Queen Elizabeth Park
September 27	Lunar Eclipse observing at the Trottier Observatory
September 27	Lunar Eclipse observing with Boy Scouts at Colony Farm, Coquitlam
September 28	Extreme Tide and Saturn observing at English Bay
November 13	Observing at TELUS World of Science
November 28	Starry Nights* at the Trottier Observatory

* "Starry Nights" are family oriented astronomy evenings organized by Simon Fraser University and run by RASC volunteers

RASC involvement at 13 other free public events

January 20	Astronomy talk for Coquitlam Boy Scouts
January 24	New Westminster Scouts observing on Mount Seymour
February 3	Astronomy talk for Port Moody Scouts
February 23	Astronomy talk at Walnut Grove Elementary School
March 28	Night Quest at Pacific Spirit Park with Metro Parks
May 2	Astronomy talk for the Coquitlam Brownies
May 5	Honorina Conway Seniors Home - astronomy lectures for Science Day
May 20	Science Fair at Pleasantside Elementary School
September 9	Simon Fraser University's 50th Anniversary celebration
September 12	Kalahanie community block party in Port Moody - solar observing
November 13	Science World S.W.E.E.T. program for highschool students
November 14	TEDx Youth conference in Richmond
November 18	Annual Summit for the Canadian Space Society

Scott McGillivray
Secretary

Both membership and the activity level of the Victoria Centre continued to increase in 2014-15. We reached a high watermark of 228 members. With respect to our activity level, perhaps most significantly, we increased the number, and enriched the activities, of the Summer Star Parties we organized at the Dominion Astrophysical Observatory. In addition, two representatives from RASC joined the board of the newly-formed Friends of the Dominion Astrophysical Observatory (FDAO), and new partnerships began to be forged with this like-minded nonprofit organization aiming to increase public access to the DAO and improve public astronomical education.

Public Outreach

The record of our public outreach activities from September 1st 2014 to August 31st 2015 was as follows:

• Total Galileo Moments:	10,909
• RASC members participating:	57
• Total number of Volunteer Hours:	1579
• Number of Outings:	70
• These outings included:	schools, clubs, International Astronomy Day, the Symphony Splash, the Saanich Fair, the Hobby Show, solar viewings, and Cattle Point.

Under the capable leadership of Sid Sidhu, all of these numbers surpassed those for 2013-14. After many faithful years of service, Sid made his last reports in September to Council and to the General Meeting and submitted his resignation as coordinator of public outreach. (He is, however, continuing to coordinate school presentations.)

Regularly Scheduled Meetings and Functions

New Observers Group

Sid Sidhu continues to offer the New Observers Group every 4th Friday of the month upon request (except summer), weather permitting.

Astronomy Cafe

The Monday night Astronomy Café continues to be held on a weekly basis at the Fairfield Community Centre from the first Monday after Labour Day through the end of May with John McDonald and Chris Purse hosting. Reg Dunkley joined as a host starting in September 2015. In addition to coffee and informal chatting with other amateur astronomers, activities include scheduled speakers and pre-planned programs, periodic astronomy gear sales and swaps, and, beginning in September, on the last Monday of each month, presentations intended for new observers.

General Meetings

The monthly General Meetings, held in the Bob Wright Building at the University of Victoria on the second Wednesday of the month (excluding July and August), continue with a short business meeting followed by invited speakers on a variety of astronomical topics of interest. For the first time this year, we began to live-stream the meetings so that they could be watched from home by those who could not be physically present at the meetings.

Council Meetings

Council meetings are held in the Fourth Floor Lounge, Elliott Bldg, University of Victoria on the first Wednesday of every second month, with additional meetings when necessary, to discuss Centre and national RASC business. Council meetings are open to all members.

Active Observers Group

The Active Observers Group continues at our Victoria Centre Observatory (VCO) on Observatory Hill in Saanich, under a land-use agreement with the National Research Council's Herzberg Institute of Astronomy and Astrophysics. Observing sessions are presided over by Members-in-Charge (MICs) on Saturday nights, subject to weather-related viewing notifications. All members on the Active Observers List are welcome to attend.

Skynews

Skynews, the Victoria Centre's monthly newsletter, edited this past year by Malcolm Scrimger, keeps the membership up-to-date on news and upcoming activities and features astrophotography by our members. Contributions of short articles from members are always welcome.

Website

The RASC Centre public website is maintained by webmaster Joe Carr with contributions from several Victoria Centre members. Web and email infrastructure is provided by Matt Watson, who reports that visits to the website climbed from in excess of 1,000 visits per month to more than 2,000 per month as the year went on. The peak number of visits occurred on Sunday, September 7, the day of the lunar eclipse, when 3,027 people accessed the site.

Observing Activities

Victoria Centre Observatory

- The Victoria Centre Observatory (VSO) has undergone a variety of repairs and upgrades in 2015, including replacement of the carpeting with a pool-like mat that has substantially cured the wet floor problems. In addition, new insulation has been installed.
- Consideration is being given to replacing the primary telescope at the VCO next year.

Urban Star Park—Cattle Point

- This public event, facilitated by Bruce Lane and other Centre members, now occurs monthly on Fridays closest to the first quarter phase of the moon (or the last quarter as noted by a specific date), from September through March, weather permitting.
- Cattle Point is one of only two Urban Star Parks in Canada where artificial lighting is strictly controlled and the public is educated about the benefits of reducing light pollution.
- The dates are publicized on the RASC Victoria Centre website.

Messier Marathon

- Each Spring, weather permitting, Victoria Centre holds an Annual Messier Marathon at the VCO and its environs, on West Saanich Road. Start time is about an hour before sunset and finish is the following morning at dawn.
- In 2015, the annual Messier Marathon was scheduled for March 23, but the weather did not cooperate.

RASCals/Metchosin Star Party for 2015

- This annual event, held this year from August 21 to 23, had a respectable turnout, though perhaps fewer people than last year. The weather was excellent on both nights this year.
- We had two excellent speakers: Dr. Chris Gainor, who is currently writing the official history of the Hubble Space Telescope, discussed the Hubble's first 25 years, and Dr. Philip Stooke delivered a talk entitled "Exploring Mars—A Cartographer's View."
- Star Party Donations totaled \$580.

"Supermoon" Lunar Eclipse

On September 27, a "supermoon" lunar eclipse was visible in Victoria. Centre members set up their telescopes at Mt. Tolmie,

Cattle Point, Observatory Hill and other locations to facilitate public viewing of the last total lunar eclipse in North America until 2018. The day of the eclipse, the *Times Colonist* carried a front page story quoting Centre members and the event drew hundreds of people eager to view the phenomenon.

UVic's 32-inch Telescope

With permission from university authorities, John McDonald and Sherry Buttner operated the 32-inch telescope at the University of Victoria Observatory monthly, weather permitting, from October to May. This observational opportunity was available to all RASC members, not just members on the Active Observers List (registered VCO observers).

Other Activities

Regional Science Fair

In April, RASC Victoria Centre members Lauri Roche, David Lee, Sherry Buttner and Dorothy Paul helped judge astronomy-related entries from students in grades four through 12 at the Vancouver Island Regional Science Fair. The top prize in astronomy included a Junior Membership in RASC. RASC Victoria gave a total of five awards.

International Astronomy Day

For 2015, daytime activities were held once again at the Royal BC Museum on April 25. RASC members set up telescopes for the viewing public, and, as always, the response of the public was enthusiastic. Evening activities and viewings were at Observatory Hill in Saanich.

Pluto Celebration

In honour of the space probe New Horizons' fly-by of Pluto on July 14, Centre member Chris Gainor organized a public event, complete with speakers, at Victoria's Pluto's restaurant.

RASC General Assembly

Our National Rep, Lauri Roche, accompanied by a number of other Centre members, including Chris Gainor, who is Second Vice President of the National Board of Directors, attended the General Assembly, which was held in Halifax this year.

Friends of the Dominion Astrophysical Observatory

Lauri Roche and Nelson Walker assumed positions representing RASC on the council of the newly-organized Friends of the DAO. This not-for-profit organization intends to raise funds to restore regularly scheduled year-round activities at the DAO, particularly through restoration of programming for schools during the academic year, and otherwise animate and lead in new public outreach activities, often in partnership with the Victoria Centre.

Summer Star Parties at the Dominion Astrophysical Observatory

For the second year in a row, Victoria RASC hosted free Summer Star Parties for the public at the Dominion Astrophysical Observatory, and they were better than ever. Last year, there were seven parties; this year that number increased to 12, beginning in April and ending in September (with a break during June and the first part of July, when darkness didn't come until late). The event was held on Saturday nights from 7:30 p.m. until 11 p.m. and was open to 200 members of the public at a time, a number set for reasons of public safety as per NRC terms-of-use restrictions. Our activities were supported by the Friends of the DAO Society and by the University of Victoria's Science Venture.

In addition to an increase in the number of Star Parties held, activities were enriched because RASC was afforded access by the NRC to the Center of the Universe building. This made it possible to organize planetarium shows and a series of astronomy lectures

in addition to the tours of the historic Plaskett telescope, night viewing through members' telescopes and "constellation walks" offered in 2014.

The popularity of this event was illustrated by the fact that we had to turn away people almost every night and on the last night we had to turn away approximately 350 people.

Special thanks to Lauri Roche, Nelson Walker, Sherry Buttner, Sid Sidhu and David Lee who were deeply involved in the planning of this year's Summer Star Parties, as well as to all the many volunteers and NRC staff who made these Summer Star Parties such a success.

Joy Fisher
Secretary

WINDSOR

CENTRE

Windsor has consisted of a membership average of about 90-100 people during 2015. Monthly meetings for members and visitors are held at the Ojibway Park Nature Centre in Windsor's far west side. Various main talks presented at meetings this year have included Observing Southern Skies, Extra Solar Planetary Bodies, Ultra Wide-Angle Binoculars, and The Grid: Is It Safe? Are you Safe? to name a few.

People have found it easy to find out about our centre online through our primary local website www.rascwindsor.com, and also via Facebook. Our well-detailed newsletter can be viewed online and printed copies are given out at meetings.

The Windsor Centre manages its own observatory far outside the city within the municipality of Lakeshore. Named after one of Windsor Centre's founding members, Hallam Observatory consists of a 12-foot high dome with a warm-up room connected to it, including an observation deck attached on the outside. Within the dome is our pier-mounted Celestron 14 Schmidt-Cassegrain telescope, with an Astrotech 111 refractor mounted onto it with a CCD camera used for auto-guiding, all of which is operated via a Windsor



Youngster having her first close-up view of the moon through at a public stargazing event we held downtown in the Sculpture Garden on the banks of the Detroit River near the Ambassador Bridge. (Photo by Dave Sobocan).

centre warm room PC. Public Open House evenings are held once each month, with members able to receive their own key to access the site following training on use of dome and equipment and paying an annual fee.

There have been a few booked group visits to the observatory over the past year, such as one by nearly 30 students from a private high school, a church group, and a small group of various friends and colleagues of Windsor Centre members.

Point Pelee National Park remains open for the public until midnight once a month during Dark-Sky Night events, where visitors are welcome to bring their own telescopes and equipment to utilize this southern Dark Sky Preserve. Every two months Windsor members are always on hand with their own astronomical equipment to provide views of the splendors of the night.

For the past several years, our Light Pollution Abatement Director has continued to remain steadfast and dedicated to the cause of preserving our dark skies against encroaching sky glow from city and county intersection lights. The year 2015 has been no exception, as plenty of hard work has been done to the best of ability to ensure county engineers abide by full cut-off lighting standards. It is unfortunate that one of the small towns near our observatory is having new light fixtures installed that do not conform to FCO standards, despite our letter requests and other towns throughout Essex County having already adopted proper lighting. Earlier in the year, centre members wrote to their local members of parliament and project managers to request that FCO lighting be used on an upcoming county road extension, and the response from some indicated a possibility our concerns will be addressed in the near future. Our Centre extends its thanks to our director as he felt the time was right to wind down his activities in this field starting this new-year. LPA reports from previous years can be found on our main web page.

Matt McCall
Secretary



The Winnipeg Centre continues to actively draw new members and recently surpassed the 200 member mark. Our regular meetings are held on the second Friday of the month at the University of Manitoba, Fort Garry Campus, St. John's College at 92 Dysart Road in the Robert B. Schultz lecture Theatre. The meetings are formatted into two halves, separated by a coffee break. In the first half, we have announcements and some regular short presentations such as "What's Up", a review of upcoming astronomical events, and "What's New", a presentation on the latest astronomical discoveries presented in layman's terms. We will also have sessions on new "Astronomy Apps", or a Constellation of the month. In the second half we have our Keynote Speaker. Our close association with the University of Manitoba ends us into have many presentation based on the faculties latest research projects. The meetings are well attended and often draw 80 or more members and guests.

The Winnipeg Centre continues to support the St John's College by providing monies for a scholarship award for one student.

Our Centre maintains an observatory at University of Manitoba's Glenlea Research Station, about 15 km south of the City of Winnipeg. There we have a dome which houses a 12 inch Meade LX telescope; plus we have a warm room complete with restroom facilities. A large concrete pad to the south, complete with power posts, allows for the members to setup their own equipment. This site is where we hold our "Member's Observing Night", on the Saturday following our regular meetings. Our Observatory Director Bryan Stach has been actively upgrading the building, including the installation of computers and networking box for controlling your mount remotely. There are some concerns with the encroachment of light pollution, leading to ongoing debate on possible future relocation. In 2015, we again had no issues flooding from the Red River!

We have an active "free" loaner telescope program, with three Dobsonian telescopes. We generally lend them out for period of more than a month. We felt this was necessary, particularly with the unfavourable weather we sometimes experience. Plus we have a number of scopes such as solar scopes, maintained by our Councillors, which are used for Public Observing events.

The Winnipeg Centre participates in numerous regular astronomy events; some where we provide viewing opportunities for the General Public. One such event is the "Astronomy Night", held in March for the members of Fort Whyte Alive, a regional conservatory agency. It features our members providing presentations during a Banquet Dinner, followed by an observing session with telescopes outside in the cold. We did have clear skies for the post-dinner observing event.

On a regular basis we also support the Oak Hammock Marsh, a nature centre located 30 km north of the city, for their monthly Astronomy Observing Night.

New in 2015, the Centre has partnered up to support the University of Manitoba with their "Open House" program. Held on the first Thursday of the month during the scholastic year, it welcomes University students to come to the University Planetarium for a presentation. It is followed by the opening of the Ewen Campus Observatory, with supporting telescopes provided by RASC members, when weather permits.

We participated in the 2015 International Astronomy Day festivities by setting up a daytime display inside of a local "Chapter's" book store, and solar telescopes setup for viewing outside its doors. We normally then proceeded to Assiniboine Park, our largest city park, where we setup for an evening observing session.

In 2015, we hosted one major Public Observing event in Assiniboine Park, the Lunar Eclipse in September. This event caught the eye of the media which includes CBC and CKY. By our counts, there were few thousand people and about hundred telescopes all over the park. In addition, we did have members who support the astronomy programs of the Birds Hill Provincial Park in Manitoba and the Rushing River Provincial Park in Ontario and First Nation. They include evening presentations, daytime displays and late night observing sessions. Reportedly, they are the most popular of their public events programs of the Provincial Parks.

The Winnipeg Centre also supports the Manitoba Schools Science Festival by providing Judges, plus a cash prize to the person with the best astronomically-based display. Plus we attend a Science Teacher's Symposium, where we help to promote the RASC teacher's Guide Skyways. Our membership will also provide their time and telescopes for requested star party events, such as scouts or schools.

One of the favourite events we promote for our membership is an annual event called the Spruce Woods Star Party. Organized again by Silvia Garca, it is held at Spruce Woods Provincial Park, about 200 km west of Winnipeg, in a rural area with very little light pollution. We have a separate campground provided to ourselves, at the cost of providing the park with a Public Observing night in exchange. In 2015, it was held in Spruce Woods on August 22 and had the Spruce Woods Star Party in September 10-13.

The star party also featured the well-respected "Gerry's Bino Tour", by Gerry Smerchanski, which is always welcome and attended by the majority of the 60 campers. We did have success in observing which include a little hike in the very early morning to view the moon, but the sky was partly cloudy. The last evening features a Banquet dinner in the nearby town of Glenboro. Awards were given to the members of the RASC and a very special award for Jay Anderson. This award was presented by the Present of the RASC, James Edgar. The event closed Sunday morning with a continental Breakfast provided by the members the Star Party Committee. The SWSP event is very important to the Winnipeg Centre, as it provides not only an observing event but is an important socializing event for the membership.

In exchange for the free and exclusive use of the "Winter Camping area" for the SWSP, the Winnipeg Centre provided members for the Spruce Woods Public Observing Night, held three weekends earlier. We provide speakers for evening's event, followed by an observing session.

Finally, on the business side, the Winnipeg adjusted its Financial Year to extend to December (previously it ended in September). Starting in 2015, the Financial year will match the Calendar year, followed by our Elections and the Business meeting in January.

The Winnipeg Council voted to change our newsletter *Winnicentrics* delivery method from a paper copy to an electronic copy only.

CENTRE TREASURERS' REPORTS FOR FISCAL YEAR 2015

		Belleville	Calgary	Edmonton	Halifax	Hamilton	Kingston	Kitchener-Waterloo	London	Mississauga
REVENUE										
Membership	Membership Fees: Centre Fee	829	9,732	4,987	2,874	3,444	1,479	2,482	2,658	3,044
	Membership Fees: Associate									
	Membership Fees: Affiliate									
	Membership Fees: other				660					
	Centre Newsletter				136					
Donations / Fundraising	Donations		1,126	523	400		1,069	500		
	Fundraising		1,472					600		
Sales Revenue	Sale of Observer's Handbooks						25			
	Sale of Observer's Calendars		1,210	680	679		390	375	506	525
	Sale of Beginner's Observing Guides				50					
	Other Publication Sales									
	RASC promotional items	227								
	Other Sales		389		76					1,032
Subscription Revenue	Astronomy / Sky & Telescope									
	Other									
Events Revenue	Star Parties	88	2,649	2,470	3,979		1,494	1,600		
	Annual Dinner		1,098						580	
	Astronomy Day					24,913				
	BIYA									
	Meetings									
	Other Events		303	1,000		1,794				
General Assembly Revenue	General Assembly				1,386					
Miscellaneous Revenue	Interest and Dividends	2		73	176		258			
	Advertising									
	Observatory Site		393			400				
	Equipment Rentals/Loans		2,640							
	Miscellaneous		1,000	86,600	18	260				
TOTAL REVENUE		1,146	22,012	96,534	10,416	31,336	4,715	5,557	3,744	4,601
EXPENDITURES										
Sales Expenses	RASC Publications		1,643	2,042	526		306	309		433
	Other Publications									
	Newsletter				473		63		233	
	RASC promo items	240		1,364		300				
	Other		2,213		32					161
Event Expenses	Star Parties	158	4,399	5,099	3,254		1,248			
	Annual Dinner	140	1,498	780				1,802		683
	Astronomy Day			96		19,436		375		
	BIYA									
	Meetings		1,070	549	198	474	470	648	50	700
	Other Events		2,089	18,759	1,285	840	382			
Travel	General Assembly and Council Meetings		1,204	563						
Administrative Expenses	Office Administration	51	179	128	342		30	11		247
	Equipment and Supplies		286		211		121	138	221	324
	Insurance		2,416	1,530	1,208	1,385	486	486		729
	General Expenses and Audit	14		3,899	31	1,041	72			
	Awards	200	875	120				100	14	
	Donations		100	300					600	
	Advertising							218		
Miscellaneous Expenses	Observatory and Site Expenses		1,507	5,791	261	463	372	1,650	126	136
	Equipment & Supplies/Library		3,745	104		41				
	Depreciation				879					1,096
	Miscellaneous	23	1,533	4,532	57	763			4,090	163
TOTAL EXPENDITURES		826	24,757	45,656	8,757	24,743	3,551	5,738	5,686	4,672
								-182		
SURPLUS OR DEFICIT ON OPERATIONS		321	-2,745	50,878	1,659	6,593	1,165	14,377	-1,942	-71
ASSETS	Current assets	6,456	53,680	220,446	36,844	130,176	28,200		40,738	18,238
	Capital assets									
LIABILITIES			1,475		2,868					
	Capital assets	720	27,711	63,268	14,299	104,102				4,384
LIABILITIES			198							

CENTRE TREASURERS' REPORTS FOR FISCAL YEAR 2015

		C. F. de Montréal	New Brunswick	Niagara	Okanagan	Ottawa	Prince George	Québec	Regina	St. John's
REVENUE										
Membership	Membership Fees: Centre Fee	3,819	1,649	1,726	2,495	6,534	1,603		1,431	1,507
	Membership Fees: Associate									
	Membership Fees: Affiliate									
	Membership Fees: other			70	535					
	Centre Newsletter									
Donations / Fundraising	Donations	233	10	890	5,861	404	2,028			353
	Fundraising			162	7,377	1,200	12,200			
Sales Revenue	Sale of Observer's Handbooks									61
	Sale of Observer's Calendars		923	120	760	1,313			370	537
	Sale of Beginner's Observing Guides			795					3,102	
	Other Publication Sales			21						
	RASC promotional items			1,400						
	Other Sales									
Subscription Revenue	Astronomy / Sky & Telescope									
	Other									
Events Revenue	Star Parties									
	Annual Dinner				9,805	2,562			5,338	
	Astronomy Day									
	Other Events			450					750	
General Assembly Revenue	General Assembly									
Miscellaneous Revenue	Interest and Dividends	805		123	16	578				
	Advertising									
	Observatory Site					595				
	Equipment Rentals/Loans					75				
	Miscellaneous			203	664		216		701	
TOTAL REVENUE		4,857	2,582	5,960	27,588	13,222	16,047	215	11,701	2,457
EXPENDITURES										
Sales Expenses	RASC Publications		894	95	543	1,220			502	562
	Other Publications								2,599	
	Newsletter					20				
	RASC promo items								172	
	Other			732	797				248	
Event Expenses	Star Parties		536	131					3,477	159
	Annual Dinner		56		6,603	3,244				
	Astronomy Day		176							15
	BIYA		355							
	Meetings	161	298	706	146	2,033		112	1,035	209
	Other Events	86		450		135				
Travel	General Assembly and Council Meetings				344					
Administrative Expenses	Office Administration		227	10	49	548	169	56	651	32
	Equipment and Supplies			7	522		135		722	35
	Insurance				486	2,175	1,144		486	486
	General Expenses and Audit		67	773			181		770	
	Awards			102		153				
	Donations		50							
	Advertising		120				1,124			
Miscellaneous Expenses	Observatory and Site Expenses	878		2,214	15,580	1,353	20,031	20		
	Library				53			155		
	Depreciation			1,074		1,722				
	Miscellaneous	86	92	131			36	68	28	190
TOTAL EXPENDITURES		1,211	2,870	6,425	25,143	13,238	22,820	411	10,689	1,685
SURPLUS OR DEFICIT ON OPERATIONS		3,646	-288	-465	2,445	-16	-6,773	-196	1,012	-772
ASSETS	Current assets	103,763	2,370	24,986	251,587	61,034	117,383	400	83,445	26,075
	Capital assets									
LIABILITIES						39				
	Capital assets	30,848		18,266	217,399	12,458	109,070		71,648	25,303
LIABILITIES						208	129			

CENTRE TREASURERS' REPORTS FOR FISCAL YEAR 2015

		Sarnia	Saskatoon	Sunshine Coast	Thunder Bay	Toronto	Vancouver	Victoria	Windsor	Winnipeg
REVENUE										
Membership	Membership Fees: Centre Fee	271	2,616	2,000		19,600	5,126	3,969	2,736	3,364
	Membership Fees: Associate					500				
	Membership Fees: Affiliate									
	Membership Fees: other								1,030	
	Centre Newsletter					200				
Donations / Fundraising	Donations		579	200		13,608	361	42	829	55
	Fundraising			1,240				1,570	696	84
Sales Revenue	Sale of Observer's Handbooks						93			
	Sale of Observer's Calendars					2,500	1,216	528	405	419
	Sale of Beginner's Observing Guides									
	Other Publication Sales									
	RASC promotional items					709	907			
	Other Sales		709				594	267	350	
Subscription Revenue	Astronomy / Sky & Telescope									
	Other									
Events Revenue	Star Parties		14,246	15,000				580		
	Annual Dinner							1,820		
	Astronomy Day									
	Other Events		350			35,374				
General Assembly Revenue	General Assembly									
Miscellaneous Revenue	Interest and Dividends		409			399	5,827	11		39
	Advertising									
	Observatory Site					4,905				
	Equipment Rentals/Loans									
	Miscellaneous	17		4300		18,298				
	Helm Fund									
TOTAL REVENUE		289	18,909	22,741		96,094	14,124	8,788	6,046	3,961
EXPENDITURES										
Sales Expenses	RASC Publications			525			1,952	528		537
	Other Publications							169		
	Newsletter						894	210		
	RASC promo items					1,800		34		
	Other	192	371			200				
Event Expenses	Star Parties		14,364	15,000				842		
	Annual Dinner	230						1,890		
	Astronomy Day						512	29		72
	BIYA									
	Meetings			520		200	1,019	557	1,016	798
	Other Events			200			2,058	687		480
Travel	General Assembly and Council Meetings					627		337		
Administrative Expenses	Office Administration		674	200		4,518	1,488	189	199	48
	Equipment and Supplies					19,037	20	123		
	Insurance		1,579			4,168	486	500	1,890	621
	General Expenses and Audit	13				6,000	1,305			
	Awards					460		318		405
	Donations						528			
	Advertising						793			
Miscellaneous Expenses	Observatory and Site Expenses		380	1,450		38,411	2,936	1,060	1,564	107
	Equipment & Supplies/Library		359	3,900						102
	Depreciation		1,351			17,553	799			
	Miscellaneous			562			580	488		
TOTAL EXPENDITURES		435	19,078	22,357		92,974	15,371	7,918	4,969	3,171
SURPLUS OR DEFICIT ON OPERATIONS		-146	-169	384		3,120	-1,247	870		789
ASSETS	Current assets	2073	29,100			469,102	379,389	49,671	85,384	42,171
	Capital assets		25,677							
LIABILITIES						117,793				
LIABILITIES	Capital assets			24,564			375,500	10,705	53,107	80,000
LIABILITIES				55,485				1,323		

OFFICERS AND COUNCILS OF THE CENTRES—2016

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Treasurer: Garth Penn
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Vice-President: Greg Latiak
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Secretary: Steve Hart
Directors: David Maguire
Walter MacDonald

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Vice-President: Andrew Hill
Treasurer: Steve Holmes
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President: David Player
Vice-President Kelowna: Olaf Lutz
Vice-President Penticton: Dave Whalley
Vice-President Vernon: Jerry Thompson
Secretary/Treasurer: Dennis Krause

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President: Blair Stunder
Vice President: Robert Nelson
Treasurer: Glen Harris
Secretary: Glen Harris

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Président: Steve Lévesque
Vice-Président: Daniel Tardif
Trésorier: Pierre Desrosiers
Représentant national: Pierre Desrosiers
Secrétaire: Daniel Tardif

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President: Michael O'Brien
Treasurer: Shane Maitland
Secretary: Vance Petriew
National Representative: Peter Hagar
Past President: Chris Beckett

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President: Chris Stevenson
Vice-President: Garry Dymond
Treasurer: Doug Grouchy
Secretary: Randy Dodge
National Representative: Marcellus Redmond

Webmaster: Craig Peterman
Observing Director: Robert Babb
Librarian: Fred Smith
Membership: Marcellus Redmond

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Vice-President: Stefan Jackson
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Treasurer: Martin Cogswell
Vice Treasurer: Ralph DeJong
Newsletter Editor: Ron Waldron

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President: Jim Goodridge
Vice-President: vacant
Treasurer: Norma Jensen
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Membership Coordinator: Mark de Jong
Observing Coordinator: Larry Scott
Sleaford Site Coordinator: Darrell Chatfield
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Vice-President: Adrian Payne
Treasurer: vacant
Secretary: Bruce Fryer
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 President: Brendon Roy
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 Rajesh Shukla
 Laila Zichmanis
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 Vice-President: Suzanna Nagy
 Treasurer: Bruce Hutchison
 Secretary: Scott McGillivray
 National Representative: Doug Montgomery

Director of Telescopes: Harvey Dueck
 Librarian: William Fearon
 Membership: Rohit Grover
 Events Co-ordinator: Suzanna Nagy
 Education: Bill Burnyeat
 Observatory Chair: Alan Jones
 Webmaster: Harvey Dueck
 LPA Chair: Jim Ronback
 Nova Editor: Gordon Farrell
 Observing: Scott McGillivray
 Public Relations: Scott McGillivray
 Speakers: Barry Shanko
 Merchandise: Kenneth Lui
 At Large: Terry McComas

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 National Representative: Lauri Roche
 Skynews Editor: Malcolm Scrimger
 Membership Co-ordinator: Chris Purse
 Webmaster: Joe Carr
 Observing Chair: Michel Michaud
 Jim Stillburn

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 President: Randolph Groundwater
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 Secretary: Stan Runge
 National Representative: Jennifer West
 Councillors: Brian Stach
 Paul Trudel
 Kris Keller
 Brenden Petracek
 Silvia Graca

2016 AWARD WINNERS

Ken Chilton Prize	not awarded	Chant Medal	not awarded
Service Award	Gary Bennett (Halifax) Paul Gray (Halifax) Chris Teron (Ottawa) Hugh Pett (Okanagan) Andy Blanchard (Hamilton)	The Plaskett Medal	Dr. Jonathan Gagné
Fellowship Award	Jay Anderson (Winnipeg) Doug Hube (Edmonton) Franklin Loehde (Edmonton)	Simon Newcomb Award	Martin Hellmich and Halley Davies (Halifax)
		Qilak Award	Doug Cunningham (Toronto) Jaymie Matthews Vincent Desmarais

2015 CERTIFICATES

EXPLORE THE UNIVERSE

Larissa Awad (Mississauga)
Emile Cormier (New Brunswick)
Paul Kerans (London)
Janine Lee (Vancouver)
Emma Seabrook (Toronto)
Melanie Seabrook (Toronto)

MESSIER OBJECTS

Julien Dompierre (Centre francophone de Montréal)
Francois-Olivier Houle (Repentigny, QC)
Shelley Jackson (Sarnia)

Darnell Ogrodnick (Regina)
Ted Wang (Taiwan, ROC)

ISABEL WILLIAMSON LUNAR OBSERVING PROGRAM

Richard Wagner (Ottawa & Kingston)

FINEST NGC

Tim Bennett (Windsor) Melody Hamilton (Halifax)

DEEP-SKY CHALLENGE OBSERVING PROGRAM

Nelson Walker (Victoria)

PAST AWARD WINNERS

Below is a list of former winners of the Chant Medal, Ken Chilton Prize, Plaskett Medal, Service Award, and Simon Newcomb Award. For names before 2000, please refer to "Looking Up—A History of the RASC" by Peter Broughton. www.rasc.ca/publications/lookingup/index.shtml

CHANT MEDAL

The Chant Medal of the Society was established in 1940 in appreciation of the great work of the late Professor C.A. Chant in furthering the interests of astronomy in Canada. The medal is awarded

not oftener than once a year to an amateur astronomer resident in Canada on the basis of the value of the work carried out in astronomy and closely allied fields of original investigation.

- 2001 Richard Huziak (Saskatoon)
- 2002 Dr. Roy Bishop (Halifax)
- 2006 Ed Majden (Victoria)
- 2009 Dr. Geoff Gaherty (Toronto)

FELLOWSHIP AWARD

Developed jointly by the Awards and Nominating Committees, and approved by the RASC Board of Directors in November 2013, the award of Fellow of the RASC (FRASC) is created to acknowledge the work of long-serving members. It recognizes those outstanding members who have made extraordinary contributions to the Society over

the long term, much of which service has been rendered at the national level.

- 2014 Randy Attwood (Mississauga)
- Dr. Roy Bishop (Halifax)
- Peter Broughton (Toronto)
- Dr. James Hesser (Victoria)

- 2015 Robert Dick (Ottawa)
- Dave Lane (Halifax)
- Dr. John Percy (Toronto)
- Mary Lou Whitehorne (Halifax)

KEN CHILTON PRIZE

The Chilton Prize was established in 1977 by the National Council of the Society in remembrance of Ken E. Chilton, an active member of the Hamilton Centre. The prize is awarded annually to an amateur astronomer resident in Canada in recognition of a significant piece of astronomical work carried out or published recently.

- 2001 Michael Boschat (Halifax)
- 2002 Vance Petriew (Regina)
- 2003 Doug George (Ottawa)
- Peter Ceravolo (Ottawa)
- Paul Boltwood (Ottawa)
- Jon Buchanan (Ottawa)
- Glenn LeDrew (Ottawa)
- 2005 Attila Danko (Ottawa)

- 2008 Eric Briggs (Toronto)
- Debra Ceravolo (Ottawa)
- Peter Ceravolo (Ottawa)
- Lou Cox (Ottawa)
- Steve Gauthier (London)
- Doug George (Ottawa)
- Paul Gray (New Brunswick)
- Walter MacDonald (Kingston)
- Jack Newton (Victoria)
- Ajai Sehgal (Ottawa)
- Jennifer Tigner (Victoria)
- Dave Toth (London)
- 2009 Brian Battersby (Prince George)
- 2010 Brian Battersby (Prince George)
- Lise Charlebois (Unattached)

- Ted Dunphy (New Brunswick)
- Paul Gray (New Brunswick)
- Kim Hay (Kingston)
- Marc Keelan-Bishop (Belleville)
- Don Kelly (New Brunswick)
- Rémi Lacasse (Unattached)
- Dave Lane (Halifax)
- Damien Lemay (Québec)
- Ron Macnaughton (Toronto)
- Chris Weadick (New Brunswick)
- Jennifer West (Winnipeg)
- 2012 Holly Ayles (New Brunswick)
- 2013 Kathryn Gray (Halifax)
- Nathan Gray (Halifax)

PLASKETT MEDAL

The Royal Astronomical Society of Canada and the Canadian Astronomical Society together present an award in recognition of the pivotal role played by John Stanley Plaskett in the establishment of astrophysical research in Canada. The award is made to the graduate from a Canadian university who is judged to have submitted the most outstanding doctoral thesis in astronomy and astrophysics in the preceding two calendar years. An award need not be made every year.

- 2000 Dr. Alexei Razoumov (British Columbia)
- 2001 Dr. Peter Brown (Western)
- 2002 Dr. Edward W. Thommes (Queen's)
- 2003 Dr. Tracy Webb (Toronto)
- 2004 Dr. Jo-Anne C. Brown (Toronto)
- 2005 Dr. Christian Marois (Montréal)
- 2006 Dr. Lauren A. MacArthur (British Columbia)
- 2007 Dr. Frédéric Grandmont (Université Laval)
- 2008 Dr. Adam Muzzin (University of Toronto)

- 2009 Dr. Catherine Lovekin (Saint Mary's University)
- 2010 Dr. Helen Kirk (University of Victoria)
- 2011 Dr. Kaitlin Kratter (University of Toronto)
- 2012 Dr. Pier-Emmanuel Tremblay (Université de Montréal)
- 2013 Dr. Yasuhiro Hasegawa (McMaster University)
- 2014 Dr. Andrew Pon (University of Victoria)
- 2015 Dr. Anne Archibald (McGill University)

PRESIDENT'S AWARD

Established in 2008, this award is to be given at the President's discretion, usually once a year, to a member who has made an important contribution to the Society, and to be presented by the President either at the General Assembly or during a visit by the President to the home Centre of the recipient.

- 2010 Sid Sidhu (Victoria);
- 2011 Mayer Tchelebon (Toronto)
- 2012 Randall Rosenfeld (Unattached)
- 2013 Dave Lane (Halifax)
- 2014 Robert Dick (Ottawa)
- 2015 Walter MacDonald (Kingston)

QILAK AWARD/LE PRIX QILAK

This award is jointly administered by CASCA, the FAAQ, and the RASC, instituted to acknowledge excellence in astronomy outreach and communication. One prize can be awarded annually in each of the three founding societies.

- 2012 Colleen O'Hare (Okanagan)
- 2013 Robert Duff (London)
- 2014 Dr. Howard Trottier (Vancouver)
- 2015 Toronto Centre DDO Volunteers (Toronto)

SERVICE AWARD

The Service Award was established in 1959 and takes the form of a bronze medal presented to members who have performed outstanding service to a Centre or to the National Society. Below is a list of recent winners of the Service Award.

- 2000 Phil Johnson (Calgary)
- 2001 John Rousom (London)
David G. Turner (Halifax)
- 2002 (Not awarded)
- 2003 David McCarter (London)
- 2004 David Clark (London)
Jim Failes (Okanagan)
Art Fraser (Ottawa)
Guy Nason (Toronto)
Stan Runge (Winnipeg)
- 2005 J. Randy Attwood (Toronto)
Dr. Robert Garrison (Toronto)

- 2006 Ted Bronson (Thunder Bay)
Mark Kaye (Hamilton)
Kevin Kell (Kingston)
- 2007 Dr. Rajiv Gupta (Vancouver)
Bruce McCurdy (Edmonton)
- 2008 Dennis Grey (Toronto)
Leslie Harvey (Toronto)
Tony Horvatin (Toronto)
- 2009 Clint Shannon (Halifax)
Robert Duff (London)
Kim Hay (Kingston)
Richard Huziak (Saskatoon)
Walter MacDonald (Kingston)
Al Seaman (Ottawa)
Patrice Scattolin (C.F. de Montréal)
Alan Whitman (Okanagan)
- 2010 Guy Mackie (Okanagan)
Bryan Kelso (Okanagan)

- Jim Tisdale (Okanagan)
Barry Matthews (Ottawa)
Curt Nason (New Brunswick)
- 2011 Robert Dick (Ottawa)
- 2012 Roland Dechesne (Calgary)
James Edgar (Regina)
Fred Smith (St. John's)
- 2013 Larry McNish (Calgary)
Dietmar Kupke (Toronto)
Brian McCullough (Ottawa)
- 2014 Jay Anderson (Winnipeg)
Dave Gamble (Okanagan)
Susan Gagnon (Kingston)
Dr. James Hesser (Victoria)
- 2015 David M.F. Chapman (Halifax)
Colin Haig (Hamilton)
Chris Malicki (Mississauga)

SIMON NEWCOMB AWARD

This award was instituted in 1978 to recognize literary ability among non-professional members of the Society.

- 1994 Michael S.F. Watson (Unattached, Canada)

- 1999 Terence Dickinson (Toronto)
- 2001 Dan Falk (Toronto)
- 2002 Dr. David Levy (Kingston)
- 2003 Alister Ling (Edmonton)
- 2004 Mary Lou Whitehorne (Halifax)
- 2006 Dr. Warren Finlay (Edmonton)
- 2007 Alan Dyer (Unattached, Canada)
- 2008 Gary Seronik (Victoria)
- 2009 James Edgar (Regina)
- 2011 Jay Anderson (Winnipeg)
- 2012 Randall Rosenfeld (Unattached)
- 2013 Alan Whitman (Okanagan)

HONORARY MEMBERS OF THE RASC

Dr. Oscar Álvarez-Pomares (Cuba)	Prof. Andrew Fraknoi (United States)	Dr. P.J.E. (Jim) Peebles (United States)
Dr. William Bottke (United States)	Dr. Owen Gingerich (United States)	Dr. Sara Seager (Canada)
Dr. David L. Crawford (United States)	Dr. Stephen W. Hawking (United Kingdom)	Dr. William Sheehan (United States)
Rev. Robert Evans (Australia)	Dr. Jean Meeus (Belgium)	Dr. Carolyn Shoemaker (United States)
Dra. Julieta Fierro (Mexico)	Dr. Jay Pasachoff (United States)	Dr. R. Brent Tully (United States)

PAST ELECTED OFFICERS OF THE RASC

Below are lists of former Honorary Presidents, Presidents, Secretaries, and Treasurers of the RASC. For names before 1990, please refer to "Looking Up—A History of the RASC" by Peter Broughton.

Honorary Presidents

1997-2001	Jack Locke
2001-2005	Roy Bishop
2005-2010	Robert Garrison
2010-2013	Dr. James Hesser
2013-	Dr. John Percy

Presidents

1998-2000	Randy Attwood
2000-2002	Dr. Robert Garrison
2002-2004	Dr. Rajiv Gupta
2004-2006	Peter Jedicke
2006-2008	Scott Young
2008-2010	Dave Lane
2010-2012	Mary Lou Whitehorne
2012-2014	Glenn Hawley
2014-	James Edgar

Secretaries

1999-2005	Kim Hay
2005-2007	Stan Runge
2007-2014	James Edgar
2014-	Dr. Karen Finstad

Treasurers

1998-2004	Michael Watson
2004-2006	David Clark
2006-2007	Alan Whitman
2007-2012	Mayer Tchelebon
2012-	Denis Grey

GENERAL ASSEMBLIES—2001 TO 2017

The following Centres hosted the General Assembly from 2001 to 2015:

2001	London
2002	Montréal
2003	Vancouver
2004	St. John's
2005	Okanagan
2006	Ottawa
2007	Calgary

2008	Toronto, Mississauga and Hamilton
2009	Saskatoon
2010	New Brunswick
2011	Winnipeg
2012	Edmonton
2013	Thunder Bay
2014	Victoria
2015	Halifax
2016	London

The following Centres will host the General Assembly in the future:

2017	Ottawa
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