



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



ANNUAL REPORT
RAPPORT ANNUEL

2019

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Note—The complete Annual Report is available on-line at:
rasc.ca/annual-report-2019

ROYAL ASTRONOMICAL SOCIETY OF CANADA—2020

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Observer's Calendar Editor: Paul Gray snpgray@gmail.com

2020 Committees

Astroimaging: Stuart Heggie stuart.j.heggie@gmail.com
Awards: Colin Haig astronome@outlook.com
Constitution: Michael Watson Michael.Watson@gowlings.com
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Nominating: Robyn Foret arforet@shaw.ca
Observing: Blair Stunder blair.s@shaw.ca
Publications: Robyn Foret arforet@shaw.ca

Centre Representatives on National Council

Belleville:	Don Town	Prince George:	Blair Stunder
Calgary:	George Cavanaugh	Regina:	Ross Parker
	Judy Sterner	St. John's:	Marcellus Redmond
	Doug Thorp	Sarnia:	Marty Cogswell
Edmonton:	Alister Ling	Saskatoon:	Les Dickson
Halifax:	Patrick Kelly	Sunshine Coast:	Daniel Sklazeski
Hamilton:	Abigail Hughes	Thunder Bay:	Mitchell Bagden
Kingston:	Richard Wagner	Toronto:	Laila Zichmanis
Kitchener-Waterloo:	Jim Goetz		Ralph Chou
	Jim Fairles	Vancouver:	Paul Delaney
London:	Rick Saunders		Kenneth Lui (joint)
Mississauga:	Jo VandenDool		Hayley Miller (joint)
C. F. de Montréal:	Patrice Scattolin	Victoria:	Nelson Walker
Montréal:	Frank Tomaras	Windsor:	Tom Sobocan
New Brunswick:	June MacDonald	Winnipeg:	Dennis Lyons
Niagara:	Pauline Horton	Yukon:	Peter von Gaza
Okanagan:	Richard Christie	Members:	Randall Rosenfeld
Ottawa:	Karen Finstad		

ANNUAL GENERAL MEETING 2020—AGENDA

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



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Annual General Meeting 2020

The Annual General Meeting of members will be held on Sunday, 2020 June 7 at 3:00 p.m. PDT (6:00 EDT)
by Teleconference.

Agenda

1. Minutes of the 2019 Annual General Meeting

Published in the on-line version 2019 Annual Report, and located on the Members-only section on the website
(www.rasc.ca/annual-meeting-minutes)

2. Reports of Officers

President	(Dr. Chris Gainor)	Financial Statements	
1st Vice-President	(Robyn Foret)	Motion to approve the financial statements	
2nd Vice-President	(Charles Ennis)	Executive Director	(Phil Groff)
National Secretary/Recorder	(Eric Briggs)		
Treasurer	(Catherine Carr)		

3. Reports of Permanent Committees

Astroimaging	(Stuart Heggie)	Inclusivity and Diversity	(Charles Ennis)
Awards	(Colin Haig)	Information Technology	(Dave Lane)
Constitution	(Michael Watson)	Light-Pollution Abatement	(Ed Reddy)
Education	(Lauri Roche)	Nominating	(Robyn Foret)
Finance	(Catherine Carr)	Observing	(Blair Stunder)
Fundraising	(Charles Ennis)	Publications	(Robyn Foret)
History	(Clark Muir)		

4. Reports of Other Committees

Public Speaker Program	(Charles Ennis)	Special Projects Program	(Charles Ennis)
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5. Election of Board of Directors

6. Motion re: By-Law Amendment

7. Election of Auditor

8. Other Business

9. Adjournment

AGM MINUTES—2019

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

Minutes of the Annual General Meeting,
Sunday, 2019 June 16, New Student Conference Centre,
York University, Toronto, Ontario, Canada.

1. Call to Order

The meeting was called to order at 9:17 EDT by President Dr. Chris Gainor

2. Minutes of the 2018 AGM

The minutes of the 2018 Annual General Meeting had been circulated and published to all members of the Society previously. The following motion was presented:

MOTION AGM19-1

That the minutes of the 2018 AGM be adopted as published. Moved by Don Town (Belleville), seconded by Eric Briggs (Toronto) CARRIED

3. Reports of Officers

President—Chris Gainor (Victoria)

The President's report had been previously published in the Annual Report. Dr. Gainor spoke to the report and added these additional comments:

He extended thanks for to the organizers of the 2019 GA. Dr. Gainor also spoke to the discussion that was underway with respect to *SkyNews*, a property of the Society, to raise awareness that changes are being considered by the Board. Members should be aware that more news in this regard would be forthcoming in the next year.

1st VP's Report—Robyn Foret (Calgary)

The report has also been published before the Meeting in the Annual Report. Mr. Foret shared the high points of his report to the Members in attendance. Robyn provided an update of the Elections of the Board of Directors. The Publications Committee

2nd VP's Report—Charles Ennis (Sunshine Coast)

Mr. Ennis spoke to his report that was published previous, in addition, he discussed his work with various standing committees for the Society.

In addition, Mr. Ennis spoke on the topic of Fundraising. He identified a need to review the terms of reference and the status of the Northcott Fund. A question was asked, about the adjustments in disbursements were needed to preserve the fund. Randy Attwood provided more information on this. This will be reflected in the Grants that will be approved for the future, as we had been withdrawing more than the Interest in the recent years. The Society shall revisit how this fund will be used.

National Secretary's Report—Roger Nelson (Calgary)

Mr. Nelson spoke to the Secretary's Report that was published in the Annual Report.

In addition, the list of members who passed away in the past year was read and a moment of silence was observed. The names were given in the Annual Report.

Treasurer's Report—Catherine Carr (Toronto)

Ms. Carr spoke to the report that was presented in the Annual Report and Finance Committee Report that had been circulated. She then took questions from members with regard to the financial statements, which were of an informational nature. In addition, a number of useful suggestions were made by members.

The following Motions were entertained and approved:

MOTION AGM19-2

Moved by Catherine Carr (Toronto) and seconded by Dennis Lyons (Winnipeg) that the audited financial statements be accepted. CARRIED

MOTION AGM19-3

To Appoint as Auditors Tinkham and Associates for 2019, moved by Catherine Carr (Toronto) and Seconded by James Edgar (Regina) CARRIED

4. Reports from Committees

The following Committees presented their reports to the Society:

Information Technology

Roger Nelson, the Committee Chair, identified that we need volunteers. He also proposed that each Centre should identify a contact person to work with the committee on related issues..

Awards

The committee chair identified that he is seeking volunteers for the Awards Committee.

Education and Public Outreach

Chair Laurie Roche gave a brief verbal report and asked for volunteers. A full report was published and is available for members of the Society to read.

Fundraising

Charles Ennis, chair, asked for volunteers.

Inclusivity and Diversity Committee

The Chair, Charles Ennis, invited everyone to attend the committee's workshop in the afternoon.

History Committee

A new Chairman, (Clarke Muir) has been appointed, Randall Rosenfeld (the newly appointed permanent Under Secretary to the committee) gave a verbal update on the activities of the Committee. The Society needs to decide an approach to keeping and preserving its history as we move forward in the digital age. It will have to decide what portions of its electronic information will be preserved for the future. We received a major donation from the family of Peter Millman, this will go to the creation of the Peter Millman Meteoritic Collection.

Light-Pollution Abatement— Robert Dick (Ottawa)

Robert Dick, on behalf of the committee, gave a brief note from the committee regarding recent activities.

Observing— Blair Stunder (Prince George)

Blair Stunder (Prince George) the chairman gave a report from the Observing Committee. Blair identified the current programs that

they are working on with the committee, including a double-star program for this fall. And other changes in the activities of the committee.

Special Projects Report

Katrina Ince-Lum Identified that a report of the activities had been filed on the website. She presented a brief summary of these reports and asked for more support from the Society for the Special Project Funds to focus on Long Term projects of the Society.

5. Reports from Executive Director—Randy Attwood

Report has been circulated and was published in the Annual Report

6. Announcements—Executive Director

The addition of a new Centre—Sudbury, Ontario—was announced. It had only recently agreed to join as a Centre, approval

by the Board was completed. The report included a welcome for the members of the new Centre that were in attendance.

With the recent Carswell Donation, the Society will move ahead with the hiring of a Communications and Marketing Coordinator.

Time and date of the next GA is to be announced, a location has not been identified at this time.

7. Adjournment

MOTION AGM19-4

Moved that the meeting adjourn by Glenn Hawley (Calgary)

Seconded by Don Town (Bellville)

CARRIED

The meeting adjourned at 11:15 EDT

Roger Nelson

National Secretary

PRESIDENT'S MESSAGE

After our 2018 celebrations marking 150 years since the Royal Astronomical Society of Canada came into being, one might have expected that 2019 and 2020 would be relatively quiet years for the RASC.

Instead 2019 turned out to be a busy year of transition and growth for the Society, especially at our National Office. Our Executive Director, Randy Attwood, stepped down in October after five years in the job. Randy's term as Executive Director capped his remarkable 50 years of membership in the RASC, which includes his serving as President of the Toronto Centre, founding the Mississauga Centre, and two years as National President from 1998 to 2000.

Randy has been heavily involved in the evolution of the RASC through its second century, along with his wife Betty Robinson, who like Randy has won an RASC Service Award. During Randy's time as executive director, the RASC purchased *SkyNews*, began the remote telescope project, and expanded our fundraising activities with the hiring of a professional fundraiser, Lisa Di Veto. Some of the results of her work are discussed below.

Our new Executive Director is Dr. Phillip Groff of Toronto, who brings experience running organizations similar to RASC and a doctorate in psychology. Phil has moved to implement improvements to our online systems and office organization, and he has begun to visit centres around the country. Although he is new to astronomy if not to an interest in outer space, he has already purchased a telescope so he can join us in our exploration of the skies.

At National Office, Phil joined Jenna Hinds, our Youth Outreach Coordinator, Adela Zyfi, our Membership Coordinator and Office Administrator, and Renata Koziol, our Accounting Manager. All of them are doing great work making our national programs reality and helping out all of our Centres.

Further changes to the Society were heralded at our 2019 General Assembly at York University in Toronto in June. The GA was a joint meeting with American Association of Variable Star Observers and featured a presentation by historian James Hansen, the author of the biography of Neil Armstrong, *First Man*, to mark the 50th anniversary of *Apollo 11*'s historic landing on the Moon.

Two exciting announcements at the GA showed how fundraising is paying off in the form of new services for our members and for everyone in Canada who is interested in astronomy. First we heard from Dr. Allan Carswell, a renowned physicist who developed LiDAR systems and applications for airborne surveying, 3D imaging, atmospheric measurements and space systems. As president of the Carswell Family Foundation, Dr. Carswell announced that the foundation will provide funding of \$100,000 a year for three years to the RASC for astronomy education and outreach.

This grant has allowed the RASC to engage a Marketing and Communications Coordinator, Eric Wickham, to provide vital support for astronomy initiatives that will be undertaken by the Society and its Centres. The funding is matched, meaning RASC must raise an additional \$100,000, which will have the effect of doubling the value of this generous gift.

The following day, RASC Kitchener-Waterloo Centre member Rudolph Dorner pledged a \$1.5 million bequest to establish the Dorner Telescope Museum. The museum's mission will be to showcase the remarkable and largely unknown story of astronomical optics in Canada by forming an institution to "tell the story" of the instruments, their makers and their users.

Mr. Dorner envisions an artefact-rich museum that will offer a robust interactive aspect to visitors. The Society's Archivist, Randall Rosenfeld, has been named Director of the museum, and he will use bridging funding being provided by Mr. Dorner to set up the first exhibits.

Also at the GA we were able to announce that the Sudbury Astronomy Club, which has served astronomers in and around Sudbury for nearly 40 years, has become the 29th Centre of the RASC.

This year, *SkyNews*, Canada's only popular science magazine, marks its 25th anniversary of publication and five years under the ownership of the RASC. Although *SkyNews* has always been known for its high quality, changes to the magazine and especially the skynews.ca website were needed to keep *SkyNews* operating on a sustainable basis.

Randy, Phil and the Board of Directors worked with consultant Paula Blacklock to make needed changes to *SkyNews* and its website in 2019. Now *SkyNews* is moving forward under the leadership of its new Managing Editor, Allendria Brunjes. *SkyNews* is benefitting from a new design, a new website, new contributors, and new content reflecting the life of our Society, while holding on to many features that longtime readers have come to appreciate.

Our other publications, the *Journal* of the RASC, the *Observer's Handbook*, its United States edition, and our *Observer's Calendar*, continue to be popular with our members and other astronomers. We also keep members informed on Society activities in the Bulletin and our Annual Report.

Following our successful publication in 2019 of David Levy's autobiography, *A Nightwatchman's Journey: The Road Not Taken*, we are working on creating a new history book, *A Shared Sky: The RASC 1868-2018*, which covers the first 150 years of the Society's existence. The Society has signed a contract with Firefly Books to publish an annual beginners guide, commencing with the *2021 Royal Astronomical Society of Canada Guide to the Night Sky*.

The remote telescope in California that the RASC purchased in 2018 is now going into operation after a great deal of work by RASC staff, volunteers, and consultants. We are forming scientific teams, public outreach programs, and making time available for members who wish to use this instrument.

The new *SkyNews* website is just the first part of the Society's plan to upgrade our information technology resources. In a world that includes increasing use of smart phones, tablets, and social media in a world with growing security issues, our online assets require a major shakeup. Work began in the fall of 2019 and soon RASC members should expect a new website built for the 2020s.

This report was finalized as Canada and much of the world began to experience severe public health measures designed to combat the spread of the COVID-19 virus. Starting in mid-March 2020, RASC Centres cancelled or postponed most activities and moved many online. National Office was closed at the same time, but our staff members have been working hard from their homes, carrying on the work of the Society and facilitating our move to online events.

The 2020 General Assembly, which was due to take place in June at the Executive Plaza and Conference Centre in Coquitlam, B.C. and Simon Fraser University in Burnaby, was cancelled in April. I would like to thank the organizing committee at the Vancouver Centre for the great work they did for what promised to be a ground-breaking GA.

In recent years, we have found that General Assemblies based at university campuses have become more difficult to organize and less accessible for many people. Centres have become increasingly reluctant to organize GAs, and indeed the 2019 GA was largely organized out of National Office. The changes that were being introduced for the 2020 GA, including moving most of the event to a hotel, were designed to reduce the workload for host centres and generate more benefits for host communities. We hope to pursue these changes in 2021 and beyond.

In the absence of a GA for the first time in 60 years, the Society will hold its first online Annual General Meeting in June.

As my two years as president come to an end, the Society still faces many challenges. One involves its governance.

Eight years ago, the RASC changed its by-laws and policies to reflect new federal legislation governing not-for-profit corporations. We moved from governance by our National Council to the Board of Directors in 2013. With the seven years of experience under the new legislation, it has become clear that our governance policies require improvement.

We are rethinking the role, size and composition of our Board to make it work better, and we on the board are also working with our friends on National Council to make it more effective in linking our Centres to the national Society. The Board has been working with staff and members to reorganize many of our committees to make them more effective. Much more work needs to be done to upgrade many of our committees.

And we also are continuing our effort to ensure that our membership better reflects the Canada of today. Our Inclusiveness and

Diversity Committee is working on this important matter, and so are the Board and our staff. I am proud that the editors of *SkyNews* and the *Journal* of the RASC are both women who are part of a younger generation than many members, but the Society needs to create the conditions where more women, members from multicultural communities and younger people take positions of responsibility in the RASC.

We also need to collaborate more with our friends in the Fédération des astronomes amateurs du Québec (FAAQ). We have started by coordinating our work with them in dealing with Transport Canada regulations affecting Green Laser Pointers, but this represents just a modest start. I hope that we can do more in the months and years ahead to better serve both our memberships.

Just like we want the RASC to help provide its 5,000 members with the tools they need to better explore and understand our universe, I hope we have also helped our 29 Centres

Throughout my time as a member of the Board of Directors, I have continued to take an active part in my home centre in Victoria, and I have enjoyed visiting other centres from coast to coast and seeing how their members share the wonders of the universe with each other and with other people in their public outreach activities.

Once we overcome today's challenges relating to the coronavirus pandemic, I look forward to many more great evenings exploring space with my friends from the RASC.

Christopher Gainor, Ph.D.
President

EXECUTIVE DIRECTOR'S REPORT

2019 was a year of transition, both for the Society and for me personally. In his report, President Chris Gainor has neatly summarized all the major Society events and transitions of the past year. For me, I joined The Royal Astronomical Society of Canada in October as both a new member and its third Executive Director. I was very fortunate to have my predecessor, Randy Attwood, stay on for that first month to mentor me, sharing generously from his Society lore acquired through more than four decades of membership and service. His support during this transition period was invaluable, and I can't thank him enough for making the transition in leadership of the Society much smoother than in any organization in which I'd previously worked.

In addition to his own time and patient tutelage, Randy also left me the legacy of an amazing staff. Accounting Manager Renata Koziol, whose title is insufficient to explain all the many ways in which she serves the RASC, is truly the institutional memory of the office and the strong foundation on which virtually all our operations are built. Adela Zyfi, our Membership and Administration Coordinator, joined the organization only a few weeks before I did. She has already been demonstrating her commitment to support the RASC by trouble-shooting the numerous challenges raised by trying to manage 5,000 individual members spread across 29 Centres with an aging IT infrastructure that hinders her as often as helps. This has never stopped her from solving issues with a smile and a willingness to do more. Eric Wickham, our Communications and Marketing Coordinator, has been working to further develop

the branding and core messaging of the Society while supporting numerous committees and Centres in their efforts at public education and outreach, keeping our voice authentic and authoritative. Finally, mentioning education and outreach naturally leads us to Jenna Hinds, Youth Outreach Coordinator. As with Renata, Jenna's title is not broad enough to convey the many sorts of outreach and educational activities she leads. Most notably, in 2019, she pioneered a program to support youth working with our Robotic Telescope to locate and track exoplanets. I cannot thank each of these amazing people enough for all their hard work for the Society, and equally for making the new guy feel welcome.

In addition to amazing staff, the work of the RASC in 2019 was supported by several key contractors, and a virtual army of volunteers. Special thanks go to our Fundraising Coordinator, Lisa Di Veto, for again setting records for charitable donations raised by the Society. My appreciation goes out to Paula Blacklock as well, as she gave tirelessly to support the Board of the RASC through some difficult decisions that were necessary to restructure and renew *SkyNews* this year. Toward the end of 2019, we added two new contractors to the *SkyNews* roster in the form of Managing Editor Allendria Brunjes, and Designer Isabelle Santiago, who will both get to exercise their talents revitalizing our magazine in 2020. Special thanks go to the many editors of our publications—James Edgar for the *Observer's Handbook(s)*, Nicole Mortillaro for the *Journal* of the RASC, and Paul Gray for the *Observer's Calendar*. Finally, I need to thank Randall Rosenfeld, who spent many hours as both the

Society archivist and in-house historian, and who in 2019 took on the herculean task of inaugurating the Dorner Telescope Museum as its first Curator.

As mentioned, there are also many volunteers without whose contributions the RASC wouldn't be nearly what it is today. I wish to thank the chairs and members of our 15 standing committees, the Council leadership, officers, and National Council representatives of our 29 Centres, the contributors to our various publications, the presenters at our various outreach events, and the countless others who give of themselves to support this Society and our common love of astronomy. Last, but certainly not least, thank you to our dedicated Directors and Officers of our Board, who provide policy and governance oversight for the organization. Beyond this, every single member of our Board is always willing to roll up their sleeves to do additional work, keeping the lights on and the Society operating.

There are still many challenges facing The Royal Astronomical Society of Canada, including volunteer overwork and burnout, increasing competition for the time and attention of our member-

ship and the public, increasing competition for charitable dollars, and changing demographics with different approaches to membership in an organization to name just a few. All of these are being faced by every membership-based association in the world today. Fortunately, there are strategies for meeting these challenges that have proven successful in other organizations. Successful organizations take steps to overhaul their governance model and committee structure, empower management, enhance staff expertise, rigorously define the member market, rationalize programs and services, and build a robust technology framework. The Society has already begun working on these strategies, and this work will be continuing and expanding in 2020. I see tremendous potential in the RASC as we continue into our second 150 years, and with your help and support, I'm sure this will be a year of growth and development as we harness more of that potential. Excelsior!

Clear skies in 2020!

Phil Groff
Executive Director

SECRETARY'S MESSAGE

The current National Secretary was appointed on 2020 February 6. During the year starting with the 2019 Annual Meeting on June 16, there were five National Council meetings and 12 Board meetings.

The new organizational rationale for the RASC that was inaugurated in 2013 led to uncertainty about the role of the National Advisory Council, later renamed the National Council. For a few years, the traditional agenda of the National Council meeting immediately following the Annual General Meeting, which concerned the inauguration of committee memberships for the coming year, was skipped over. Without that meeting, the opportunity to give committees a good in-person send-off at the conclusion of the annual conference of our most active volunteers was missed.

Through the course of 2019 and early 2020, National Council has assumed some new responsibilities, with the approval of the Board. National Council voted that it should be the primary communications method between Centres; should maintain the Centre Manual; and should assist in the selection of Centres to host future General Assemblies. One example of the role of communication with centres is that National Council should be the method to disseminate information about regulation of Green Laser Pointers within the RASC membership.

During the autumn of 2019 the Board oversaw the hiring process of our new Executive Director, Dr. Phil Groff, with thanks to Randy Attwood at the end of his term in that role. The Board also welcomed the new masthead of *SkyNews Magazine*.

Some underpinnings of the RASC Policy Manual were amended by the Board, so that committees are responsible to the Board, rather than National Council.

- The standing committees were appointed at the Board meeting in September. The "Unattached" members who have chosen not to join a regional RASC Centre were reclassified as "National" members.

- In the RASC Policy Manual, Policy G9: Society Nominations and Elections was amended so that an eligible candidate should "have the support in writing of at least 3 members of the Society," replacing the previous "have the support in writing of at least 3 people, one of whom is a member of the Society."
- The Policy Manual's Appendix A: Directors and Officers Code of Conduct, and Appendix B: RASC Board of Directors Agreement were deleted, and the Policy Manual retained the amended Policy B1: Board of Directors Terms of Reference, that no longer referred to Appendix A and B. Policy B7: Board Appointments was retitled "Filling Board Vacancies."
- By-law No. 1, Section 9—Board of Directors, 35.4 that "No person who is an elected officer of the Society may simultaneously be the President, Secretary, Treasurer, or a National Council Representative of a Centre" shall be amended to "No person who is a director of the Society or who is the President, a Vice-President, Secretary or Treasurer of the Society may simultaneously be the President, Vice-President, Secretary, Treasurer, or a National Council Representative of a Centre," to be ratified at the 2020 Annual General Meeting.

We offer condolences to the families of the following members who passed during the reporting period:

Michel Bois (Ottawa); Martin Mills (Mississauga); Shirley McIntyre (Toronto); Charline Norgrove (Toronto); John Payzant (Edmonton); Peter Ross Simpson (Toronto); Robert Spencer (Mississauga); James M. Tisdale (Okanagan); George P Wanjoff (National).

Eric Briggs
National Secretary

Membership Statistics 2009-2019

Centre	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Belleville	35	31	26	28	33	28	31	30	31	37	26
Calgary	463	460	458	421	460	434	381	336	282	271	300
Edmonton	311	325	332	302	294	274	277	229	235	260	257
Halifax	178	160	172	164	172	170	169	153	154	159	155
Hamilton	109	123	113	111	116	109	103	78	61	66	70
Kingston	63	60	64	67	65	72	75	66	66	74	90
Kitchener-Waterloo	134	142	135	114	126	130	109	115	106	115	116
London	114	116	115	119	124	129	110	126	104	118	97
Mississauga	177	180	183	170	179	188	168	132	123	120	127
C.F de Montréal	21	18	18	20	17	18	16	18	20	22	24
Montréal	171	169	143	135	126	117	109	110	91	87	103
New Brunswick	96	103	108	91	88	77	66	68	68	66	75
Niagara	100	98	95	88	78	73	62	69	69	71	82
Okanagan	145	141	133	133	122	124	115	106	92	116	103
Ottawa	391	387	372	358	361	343	319	325	328	370	389
Prince George	68	78	92	99	76	57	66	63	69	64	64
Québec			13	15	15	18	16	20	20	17	17
Regina	86	84	78	88	111	94	80	75	62	62	52
St. John's	79	74	60	61	58	57	58	47	44	45	48
Sarnia	15	16	11	15	14	20	12	11	15	15	19
Saskatoon	74	83	85	83	75	73	68	70	70	72	71
Sudbury	24										
Sunshine Coast	53	57	72	65	69	50	43	32	38	35	32
Thunder Bay	40	45	45	46	49	45	51	50	46	46	44
Toronto	757	803	824	860	904	869	782	611	573	554	502
Vancouver	284	262	254	236	254	217	198	226	228	244	251
Victoria	264	276	257	235	216	202	176	163	164	166	185
Windsor	100	104	116	106	107	96	84	90	100	96	96
Winnipeg	208	222	240	214	228	221	210	178	180	168	162
Yukon	32	34	32	44							
National Members	436	402	432	413	429	431	428	446	435	434	459
Honorary	15	14	15	15	15	15	15	15	15	15	15
	5043	5066	5093	4916	4981	4760	4410	4077	3908	4010	4055

Membership by Type

Type	Number	% of Total
Ordinary	3819	75.9
Family	750	14.9
Life	276	5.4
Youth	166	3.3
Honorary	(15)	.3

Membership by Country

Country	Number	% of Total
Canada	4806	95.5
USA	193	3.9
Other	29	.6

TREASURER'S MESSAGE

2019 was a year of transitions. You've already heard about some these from our President, Chris Gainor, and our new Executive Director, Phil Groff. In terms of organizational finances, 2019 also marked a transition. You will note, first of all, that as forecast in our budget, we did see an excess of expenditures over revenues of \$117,170. However, during this time of significant strategic change and organizational growth we have managed to reduce our deficit by \$20,000 over the previous year and produced a budget with a forecast \$20,000 surplus for 2020. In short, the Society has been transitioning from a somewhat static period, marked by years of increasing deficit, to a new era of prosperity and growth.

By now you will have noticed a change in the format of our financial statements. In 2019 the Board of Directors and the Finance Committee opted to move to a new format for assigning expenses to categories appropriate to the important charitable work of the organization. In this, we are following emerging best practices for not-for-profit financial reporting.

Looking at our revenues from 2019, you will see that they have increased both in absolute terms and in diversification of source over 2018. Our publications are, I believe, often underappreciated as a source of revenue for the Society. It should be noted, that as of this year, we are now a publication house earning more than a quarter of a million dollars annually. One area of our publications that did not perform as well as forecast in 2019 was *SkyNews*. You will see that the investment in our magazine lost \$64,171 due to a variety of issues ranging from declining sales to escalating costs. What must be understood is that the figure presented in our 2019 Financial Statements reflects the state of *SkyNews* in March, as *SkyNews* runs on an April-March fiscal year. Since last March, RASC has hired an experienced publishing consultant, Paula Blacklock, and on the basis of her recommendations has instituted significant changes in the staffing, governance, and other procedures for this

publication. As a result of these changes, and under the leadership of our dynamic new managing editor, Allendria Brunjes, we are seeing a potential profit of \$40,000 at the end of March 2020.

Turning to other sources of revenue, an increase in membership fees, approved for 2019, has allowed us to keep better pace with the increasing costs of member and Centre services. Our donations have remained strong in 2019, thanks to the generosity of our members, and donations to the work of the Society have increased by nearly \$100,000 over previous years. A new grant of \$100,000/year over 3 years was received from the Carswell Family Foundation, as announced at last year's GA. Also announced at last year's GA was the offer to support a Telescope Museum as a new signature program for the Society, and in 2019 Rudolph Dorner has already contributed \$25,000 toward this project, with a further \$25,000 already received for 2020.

I would like to extend my thanks to the Centre Treasurers for all of their hard work in supporting the financial reporting of the Society. I would also like to thank the Finance and Audit committee for their work in 2019, as well as our ongoing relationship with our auditors, Tinkham LLP. Finally, I would like to thank Phil Groff our Executive Director, Renata Koziol our Accounts Manager, and Adela Zyfi our Membership and Admin Coordinator for all their support in maintaining the records of the organization.

It is, of course, impossible to perfectly forecast the future. As I write this, our nation finds itself facing new challenges with a global pandemic that threatens to throw any financial predictions for the coming year out the window. Nonetheless, the Board of Directors, management, and staff of the RASC have all committed themselves to aligning all of our activities to better match our expenditures for growth of programming and services with new revenue generation. I feel confident that our Society remains viable and sustainable.

Catherine Carr
Treasurer

AUDITOR'S REPORT

Financial Statements of

**THE ROYAL ASTRONOMICAL
SOCIETY OF CANADA**

**LA SOCIÉTÉ ROYALE D'ASTRONOMIE
DU CANADA**

December 31, 2019

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INDEPENDENT AUDITOR'S REPORT

To the Members of
**The Royal Astronomical Society of Canada /
La Société Royale D'Astronomie Du Canada**

Qualified Opinion

We have audited the financial statements of The Royal Astronomical Society of Canada / La Société Royale D'Astronomie Du Canada ("the Society") which comprise the balance sheet as at December 31, 2019, and the statements of revenue and expenses, changes in net assets, and cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, except for the possible effects of the matter described in the *Basis for Qualified Opinion* section of our report, the accompanying financial statements present fairly, in all material respects, the financial position of the Society as at December 31, 2019 and 2018, 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.

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 revenue over expenses, and cash flows from operations for the years ended December 31, 2019 and 2018, current assets as at December 31, 2019 and 2018, and unrestricted net assets as at January 1 and December 31 for both the 2019 and 2018 years.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Society in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our qualified opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the 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.

In preparing the financial statements, management is responsible for assessing the Society's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Society or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Society's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit 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 Society's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast doubt on the Society's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Society to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

TORONTO, Ontario
March 9, 2020

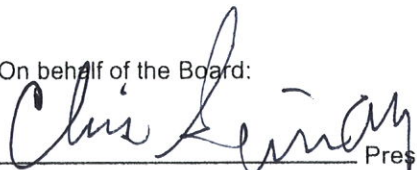



Licensed Public Accountants

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

As at December 31	2019	2018 (note 14)
Assets		
Current		
Cash	\$ 161,605	\$ 137,341
Accounts receivable	19,680	59,877
Loan receivable from SkyNews Inc. (note 5)	18,000	-
Inventory	34,483	22,007
Prepaid expenses	20,838	22,662
	254,606	241,887
Long term		
Loan receivable from SkyNews Inc. (note 5)	4,500	-
Investment in SkyNews Inc. (note 5)	134,566	198,737
Investments (note 4)	593,655	670,261
Capital assets (note 6)	64,391	80,173
Collections (note 7)	20,782	1
	\$ 1,072,500	\$ 1,191,059
Liabilities		
Current liabilities		
Accounts payable and accrued liabilities	\$ 43,861	\$ 56,308
Deferred revenue		
Membership fees for ensuing years	141,607	136,659
Journal subscriptions	30,111	21,351
Unamortized life membership fees (note 8)	15,902	18,552
	231,481	232,870
Net Assets		
Unrestricted	295,585	462,243
Internally restricted (note 11)	545,434	495,946
	841,019	958,189
	\$ 1,072,500	\$ 1,191,059

Commitment (note 9)
 Contingency (note 10)

On behalf of the Board:

 _____ President

 _____ Treasurer

See accompanying notes to financial statements.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
Statement of Changes in Net Assets

Years ended December 31	Internally Restricted (note 11)	Unrestricted	2019	2018
Balance, beginning of year	\$ 495,946	\$ 462,243	\$ 958,189	\$ 1,095,207
Excess of expenses over revenue for the year	-	(117,170)	(117,170)	(137,018)
Transfers (note 11)	49,488	(49,488)	-	-
Balance, end of year	\$ 545,434	\$ 295,585	\$ 841,019	\$ 958,189

See accompanying notes to financial statements.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
Statement of Revenue and Expenses

Years ended December 31	2019	2018 (note 14)
Revenue		
Publication sales	\$ 251,231	\$ 226,619
Membership fees	228,200	209,637
Grants	175,000	78,500
Donations	102,847	107,065
Investment income (loss)	62,775	(12,912)
General assembly	56,490	1,721
Miscellaneous	13,780	20,283
SkyNews Inc.	(64,171)	(16,501)
	826,152	614,412
Expenses		
National operations (note 12)	282,257	233,211
Member services (note 12)	206,826	192,896
Publications	129,780	116,368
Programming		
Public outreach (note 12)	138,204	135,976
Youth Outreach and education	61,824	22,057
Robotic telescope	30,771	24,254
Telescope museum	22,622	22,230
Light pollution prevention	4,628	3,297
Observing and astroimaging	881	1,141
General assembly	65,529	-
	943,322	751,430
Excess of expenses over revenue for the year	\$ (117,170)	\$ (137,018)

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
Statements of Cash Flows

Years ended December 31	2019	2018
Cash provided (used) by operating activities		
Excess of expenses over revenue for the year	\$ (117,170)	\$ (137,018)
Charges not requiring a current cash payment or receipt		
Amortization of capital and intangible assets	20,220	29,303
Amortization of life membership fees	(2,650)	(2,650)
SkyNews Inc. loss	64,171	16,501
	(35,429)	(93,864)
Changes in non-cash working capital components		
Accounts receivable and receivable from SkyNews Inc.	40,197	(13,259)
Inventory	(12,476)	(4,399)
Prepaid expenses	1,824	678
Accounts payable and accrued liabilities	(12,449)	26,874
Deferred revenue	13,708	15,430
	(4,625)	(68,540)
Cash provided (used) by investing activities		
Investments (net)	76,607	189,681
Loan to SkyNews Inc. (net of repayments)	(22,500)	-
Purchase of capital and intangible assets	(4,437)	(61,236)
Purchase of items for collections	(20,781)	-
	28,889	128,445
Increase in cash during the year	24,264	59,905
Cash, beginning of year	137,341	77,436
Cash, end of year	\$ 161,605	\$ 137,341

See accompanying notes to financial statements.

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

Notes to Financial Statements
December 31, 2019

1 Organization

The Royal Astronomical Society of Canada / La Société Royale D'Astronomie Du 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 Society 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, with the exception of the investment in SkyNews Inc., at fair value, which is based on quoted market values.

c) Investment in SkyNews Inc.

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.

The Society owns 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.

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) Collections

Collections are capitalized in the Society's balance sheet but not amortized. Collections consist of a library and the Dorner Telescope Museum. The library is recognized at a nominal value. The museum collection is recognized at cost as items are purchased. Costs incurred to maintain these collections are expensed as incurred.

f) Capital assets

Capital assets are recorded at cost. Cost comprises the purchase price and any directly attributable cost of preparing the asset for its 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, 2019, no such impairment exists.

Amortization is provided over the estimated useful lives of the assets using the straight-line basis as follows:

Tangible assets:	Telescope	7 years
	Computer hardware	3 years
	Office furniture	10 years
	Leasehold improvements	15 months
Intangible assets:	Software	5 - 10 years
	Website development	3 years, 1/2 in year of acquisition

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

Notes to Financial Statements

December 31, 2019

2 Significant accounting policies continued

g) 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 Society previously offered life memberships to members. Life memberships received in prior years were credited to unamortized life membership fees liability account, as described in note 8. The unamortized life membership fees are being recognized as revenue evenly over 10 years to 2025.

ii) Contributions

The Society 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. Changes in 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.

h) Contributed services

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

i) Allocation of common expenses

The Society allocates a number of its expenses by function: national operations, member services and public outreach. The costs of each function include an allocation of the costs of personnel, fundraising and computer and IT costs.

Personnel costs are allocated based on the number of hours spent on each function; fundraising expenses are allocated primarily to national operations as the majority of cost relates to general fundraising activities. Smaller portions are allocated to member services and public outreach for expenses related to fundraising for Centres and communications with members. Computer and IT costs are allocated based on the estimated usage of technology by each function.

j) 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 financial assets 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.

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

Notes to Financial Statements
December 31, 2019

2 Significant accounting policies continued

k) 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 statement of revenue over expenses 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 liabilities.

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 statement of revenue and expenses in the period the reversal occurs.

iii) Transaction costs

Transaction costs are recognized in the statements of revenue and expenses 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 June 5, 1960. 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.

The fair value of the total assets of the Helm Fund under administration by the Society at December 31, 2019 are \$148,402 (2018 - \$140,585) and are excluded from the Society's financial statements as the Society is not the legal owner or beneficiary of the Fund.

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

Notes to Financial Statements

December 31, 2019

4 Investments

As at December 31	2019	2018
Managed portfolio at ScotiaMcLeod		
Fixed income investments	\$ 278,163	\$ 294,330
Canadian equity investments	180,023	215,645
U.S. equity investments	115,743	122,702
Cash	19,726	37,584
	\$ 593,655	\$ 670,261

The fixed income portfolio includes 17 investments (2018 - 16 investments) comprised of government and corporate bonds with stated interest rates ranging from 1.20% to 4.00% (2018 - 1.20% to 3.19%), maturing on dates ranging from June 15, 2020 to June 15, 2024 (2018 - March 1, 2019 to December 15, 2023).

The Canadian equity investments include share and trust units of 33 Canadian entities (2018 - 33 Canadian entities). The single largest holding is 103 shares of Royal Bank with a market value of \$10,583 (2018 - 140 shares of Royal Bank with a market value of \$13,082).

The U.S. equity investments include share and trust units of 32 entities (2018 - 33 entities). The single largest holding is 31 shares of Microsoft Corp. with a market value of \$4,889 US\$ (2018 - 48 shares of Microsoft Corp. with a market value of \$4,875 US\$).

The fixed income and equity investments have been recorded at market values based on pricing information provided by Scotia McLeod.

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, accordingly, the net income for the year ended March 31, 2019 has been recognized in the financial statements of the Society in 2019. The following summary is taken from the unaudited financial statements of SkyNews Inc.

As at March 31	2019	2018
Total assets	\$ 82,815	\$ 82,039
Total liabilities	258,139	193,192
Total deficit	(175,324)	(111,153)
Year ended March 31	2019	2018
Total revenue	\$ 435,178	\$ 543,063
Total cost of sales	435,236	507,212
Total expenses	64,113	52,352
Net loss for the year	\$ (64,171)	\$ (16,501)

Due to the continuing losses incurred by SkyNews Inc. there is significant uncertainty as to whether the investment is impaired. Management estimates that no impairment exists at December 31, 2019 due to changes implemented at SkyNews Inc. since March 31, 2019. The investment is recognized on the balance sheet at \$134,566 however it is possible that the investment may be unrecoverable in future years.

During the current year, the Society loaned \$30,000 to SkyNews Inc. with repayment terms of \$1,500 per month, interest free. The balance outstanding at December 31, 2019 is \$22,500 of which \$18,000 is due in the next fiscal year and \$4,500 due in fiscal 2021.

Included in membership services expense is \$50,172 (2018 - \$50,087) for purchases of SkyNews Magazine in the year which is distributed to Society members as part of their membership subscription. The Society also expensed \$6,236 (2018 - \$6,236) in advertising and marketing for advertisements in SkyNews Magazine.

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.

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

Notes to Financial Statements
December 31, 2019

6 Capital assets

	2019		2018	
	Cost	Accumulated Amortization	Cost	Accumulated Amortization
Tangible assets				
Telescope	\$ 51,947	\$ 12,987	\$ 51,947	\$ 5,566
Computer hardware	22,950	18,571	18,513	16,531
Office furniture	6,094	3,021	6,094	2,353
Leasehold improvements	4,989	4,988	4,989	4,323
Intangible assets				
Software	104,594	87,590	104,594	78,815
Website development	13,715	12,741	13,715	12,091
	\$ 118,309	\$ 100,331	\$ 118,309	\$ 90,906
Net book value		\$ 64,391		\$ 80,173

7 Collections

	2019	2018
Dorner Telescope Museum	\$ 20,781	\$ -
Library	1	1
	\$ 20,782	\$ 1

8 Unamortized life membership fees

	2019	2018
Life membership fees as of January 1	\$ 18,552	\$ 21,202
Deduct: Amortization to income	(2,650)	(2,650)
Balance, December 31	\$ 15,902	\$ 18,552

9 Commitment

The Society leases space for offices and a museum. The leases extend to March 31, 2020. The minimum annual payments required under the leases, excluding an estimate of the proportionate share of property taxes, maintenance and insurance for the premises, for fiscal 2020 is \$6,704. Property tax, maintenance and insurance in addition to the base rent is estimated at \$33,000 for calendar 2020, provided the leases are extended to December 31, 2020.

10 Contingency

The Society has been named as a defendant in a lawsuit. The Society denies any liability with respect to this action and no amount has been accrued in the financial statements. Should the Society be unsuccessful in defending this claim, losses, if any, will be recorded when paid.

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

Notes to Financial Statements
December 31, 2019

11 Internally restricted net assets

The Society has internally restricted certain funds. The Ruth Northcott Education Fund was established in 1969 and funds are used for a variety of specified purposes related to public education and outreach. The RASC Legacy Fund was established in 1990 for the purpose of providing for the long-term growth of the Society.

An amount equal to the investment income (loss) 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.

	2019			2018
	Ruth Northcott Education Fund	RASC Legacy Fund	Total	Total
Fund balance, January 1	\$ 217,195	\$ 278,751	\$ 495,946	\$ 553,110
Transferred from (to) unrestricted net assets:				
Investment income (loss)	14,229	18,262	32,491	(6,521)
Donations	5,652	18,261	23,913	30,553
Expenses	(6,916)	-	(6,916)	(81,196)
	12,965	36,523	49,488	(57,164)
Balance, December 31	\$ 230,160	\$ 315,274	\$ 545,434	\$ 495,946

12 Expense allocations

Personnel, fundraising and computer and IT costs were allocated as follows:

	2019			2018		
	Personnel costs	Fundraising expenses	Computer & IT costs	Personnel costs	Fundraising expenses	Computer & IT costs
National operations	\$ 61,856	\$ 44,811	\$ 8,365	\$ 50,629	\$ 46,676	\$ 7,438
Member services	105,020	5,601	16,731	91,017	5,834	14,877
Public outreach	80,546	5,601	8,365	60,871	5,834	7,438
	\$ 247,422	\$ 56,013	\$ 33,461	\$ 202,517	\$ 58,344	\$ 29,753

13 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, loan 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.

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

Notes to Financial Statements
December 31, 2019

13 Financial instruments continued

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, investments and accounts receivable denominated in U.S.\$ totaling \$127,397 US\$ at December 31, 2019 (2018 - \$158,976). The exchange rate used to convert US\$ assets at December 31, 2019 is \$1 US = 1.2988 Cdn (2018 - \$1.3642 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.

14 Comparative figures

Certain comparative figures have been reclassified to conform to the presentation adopted in the current year.

HISTORY COMMITTEE ANNUAL REPORT—2019

Among the donations received for the RASC Archives in 2019, the most significant comprised books from the estate of the late Dr. Peter M. Millman on meteoritics, planetary science, astrophysics, and the history of astronomy. Most of these are autographed by the authors, and include works by figures of some importance in the world of 20th-century astronomy either internationally or locally, such as Ralph B. Baldwin, J. Paul Barringer, Clarence Augustus Chant, Ralph E. DeLury, Gabrielle Camille Flammarion, John Kraus, Ursula B. Marvin, Brian Mason, Margaret & Newton Mayall, H.H. Nininger, John A. O'Keefe, Otto Klotz, Henry Norris Russell, F.J.M. Stratton, Clyde W. Tombaugh, Gerard de Vaucouleurs, Fred L. Whipple, J. Tuzo Wilson, and John A. Wood. Dr. Millman, a meteoriticist of international note, was a past RASC National President, Honorary National President, a former chair of the History Committee, and a charter member of CASCA. The Archivist and Dr. Mark Tovey on behalf of the Committee wish to acknowledge the valuable assistance of Prof. Peter Brown of Western's Meteor Physics Group, and Prof. (emer.) Howard Plotkin in making the donation possible. This gift will form part of the Peter M. Millman Meteoritics Collection of the RASC Archives, presently in formation.

In the period covered by this report the Committee considered the development and implementation of two team projects, with the potential to enhance the landscape of resources for the culture of astronomy in Canada, and with long-term opportunities for the involvement of Centres, and individual members. One is The Astronomical Landscape of Canada, a cumulatively compiled resource of sites significant to astronomical history and heritage across Canada, in the form of a web-based online catalogue illustrated with images, modern and historical, descriptions, and links to literature and other resources in print, and electronic media. It would include past and present active professional institutions, significant amateur observatories, sites of observing campaigns,

sundials, astronomical instrument-making workshops, domestic and other buildings associated with figures from the astronomical past, buildings with astronomical decorative or design elements, realized, imagined, or conceptual astronomical landscapes, museums with significant astronomical content, planetaria, science centres, and Canadian Earth impact sites. The Astronomical Landscape of Canada could become a resource for the tourism sector of the Canadian economy (under the category of science tourism).

The other endeavour explored is a RASC Oral History Project, to record traditions of amateur and professional astronomy from the standpoint of the RASC, primarily through the medium of video interviews. Beyond the obvious benefit to strengthening knowledge of the Society and the practice of astronomy in a national sense, the results of this project would be of great benefit to individual Centres in recording and extending their cumulative knowledge. The American Institute of Physics (AIP)'s Oral History Interviews could provide a tried, tested, and successful model. The crucial requirements for lifting this project off the ground are a protocol, web location, due notice of its creation, and the recruitment of volunteers to interview and be interviewed. Unlike The Astronomical Landscape of Canada, the RASC Oral History Project would be time sensitive—the sooner it commences, the more chance there is of capturing the memory of our longest-serving members.

Committee members Chris Beckett, Peter Broughton, Chris Gainor, and R.A. Rosenfeld between them were responsible for the appearance of 15 publications in the history of astronomy in 2019, and with the addition of Eric Briggs and Andrew Oakes, delivered 20 presentations on the history of astronomy in various venues here and abroad.

R. A. Rosenfeld
Past Chair

PUBLIC SPEAKER PROGRAM—2019

In 2019, 8 Centres made applications for \$6130.56 from the Public Speaker Program for 12 events. The Centres involved were:

- Sunshine Coast
- Prince George
- Calgary
- Okanagan
- London
- Ottawa
- Victoria
- Vancouver

The amount claimed, the number of events, and the number of Centres involved is down from 2018, when 11 Centres made applications for \$10130.50 from the Public Speaker Program for 20 events and only slightly higher than 2017 when only \$6110.39 was claimed by 5 Centres for 16 events.

Since 2015, the Society was gradually getting more Centres involved in the PSP until January 2019 when due to financial restraints the

Board decided to restrict funding to only \$500 per Centre per year from the previous \$2000. Centres have reported that this has severely limited their ability to subsidize speakers, which in turn limits attendance at events that could bring in donations at the door. Centres in B.C. and the Yukon once again engaged in sharing arrangements for speaker tours to consolidate costs and some Centres elsewhere in Canada are trying this in their 2020 applications. The result is that the number of speaker applications is down. I highly recommend that, if the budget figures improve, the former funding levels be reinstated.

Only \$4,337.91 was claimed in reimbursement for Centres in 2019, possibly due to speakers waiving reimbursement, as happened with several Centres last year. The Sunshine Coast Centre only claimed to cover 3 of the 8 speakers that they had in 2019.

Charles Ennis
2nd VP RASC

DORNER TELESCOPE MUSEUM

In early March 2019, the RASC received a major enhancement to the potential of its cultural capital—Rudolph Dorner, a longtime member of the Kitchener-Waterloo Centre, was concerned that there was no program or institution whose prime mission was to “tell the story of the telescope in Canada.” He generously gave the RASC the means to tell that story through a pledge of \$1.5 million, the then single-largest monetary gift in its 150-year history. With that commitment, the RASC’s Dorner Telescope Museum (DTM) project was born.

The DTM proposes to tell the story of the telescope in Canada through telling the stories of Canadian telescope makers, users, and their instruments. In pursuit of that goal, the DTM is engaged in

- artifact identification, acquisition, preservation and conservation;
- research into the production and use of astronomical telescopes in Canada; and
- crafting an approach to education and outreach emphasizing real engagement with the instruments, and the styles of observation for which they were produced.

The DTM is not dedicated to locking telescopes in their cages, never to see starlight again. It is dedicated to finding ways to transgress the barrier of the museum case.



Normand Fullum 10-inch Dobsonian

Until the principal donation is received, the DTM is operating on bridge financing of \$25,000 per annum provided by the donor. R.A. Rosenfeld is appointed director (non-stipendiary pro tem), and a board of advisors has been chosen.

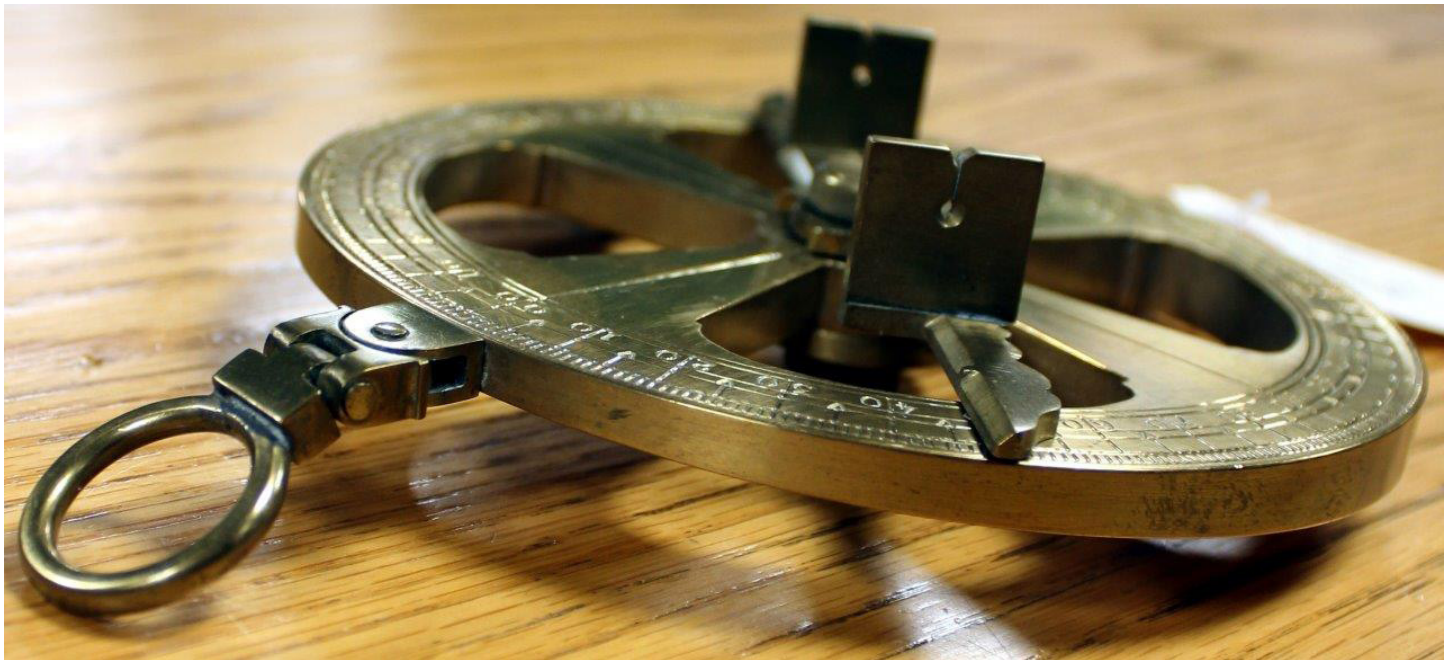
In its first year of developmental operation, the DTM has acquired 18 significant artifacts (including a telescope by Honorary Member John A. Brashear, which may have been his personal instrument from Urania Island, the Rogers-Zeglinski 12-inch f/8 reflector from the late 1920s made in Toronto and featured in Scientific American, one of Réal Manseau’s copies of the reflector by Sir Isaac Newton & John Wickens 1671–1672, and WWII ordnance with optical glass poured in Leaside, Ontario). Pledges for other artifacts (among which are the 1903 primary mirror by Jesuit opticians for what was then the largest telescope in Canada, and some of Dr. David Levy’s telescopes) have been received, which will formally enter the DTM as its infrastructure develops.

Presentations on the DTM were made at the 2019 GA, at the inaugural meeting of the Sudbury Astronomy Club as the RASC Sudbury Centre, at a meeting of the Montréal Centre’s Members Library Clubhouse, and at the 2019 convention of the Antique Telescope Society at the Sacramento Peak Observatory. Field work has been conducted at the 2019 Stellafane Convention, in Sudbury, and around Montréal.

Plans for 2020 include continuing with acquisitions, developing programs of research into Canadian telescope history, the use of DTM resources for innovative Education and Public Outreach, and evolving designs for the museum as an integral part of the plans for the RASC's national physical presence.

The Society welcomes Mr. Dorner's gift, and the enhanced capability it gives us to enliven Canadians' astronomical imagination. It will arise and thrive through the involvement of RASC members. For more information see rasc.ca/dorner-telescope-museum, or write r.rosenfeld@rasc.ca.

R.A. Rosenfeld



DTM Réal Manseau Champlain's Astrolabe

SPECIAL PROJECTS PROGRAM

While technically 2019 was the first year of the newer SPP (Special Projects Program) rules which meant the amount that could be applied for decreased from a maximum of \$2,000 to a maximum of \$500 (poor investment returns affecting the Northcott fund), there are two applicants this year that qualified for the SPP in 2018 that completed, and administered, their projects in 2019. The SPP spent \$3,857.88 in total (the maximum per year allotted is \$5,000, down from \$10,000 in past years).

There were three projects to mention. Two have been completed. One was approved, but has not yet started.

- Mi'kmaw Moons language videos, Halifax Centre; (YouTube channel here to watch the videos https://www.youtube.com/channel/UCmNRO8Ycc1_UV4akd8Fy6A)—\$1970.88
- Wilson Coulee roofing project, Calgary Centre—\$1887.00
- West Coast First Nations astronomy brochure, Vancouver Centre

\$500 for this was approved, but this project has not yet moved forward. No report at this time.

Thank you to SPP trustees Charles Ennis, Howard Trottier and Katrina Ince Lum (Administrator) for time and effort. Please note that the current administrator is stepping down at the end of 2019. National needs to find a replacement. Suggestions were sent to the previous Executive Director.

As soon as investments show a better return, this Administrator would like to request the SPP be restored to its previous level. Centres probably won't bother to apply for SPP funds for a small amount, and in 2019 this administrator did not have much to do. We need to invest in worthwhile projects, and \$500 does not go far.

This administrator has been delighted at the scope of projects centres complete with the help of SPP funding, and encourages centres to continue to apply to this project for money. <https://www.rasc.ca/special-projects-program>

Sincerely,

Katrina Ince Lum, Toronto Centre
SPP Administrator

Mi'kmaw Moons language video project—report to RASC Special Projects Fund 2019 June 3 1

Many thanks to the Special Projects Fund of the Royal Astronomical Society of Canada for supporting this initiative. This project was conceived in November 2018 and the application was quickly approved with a \$2000 budget. Preparations began right away: Dave Chapman managed the project and brought on videographer Halley Davies to shoot and edit the videos (including lighting and sound). Halley is a professional in the film industry and we needed to work around her schedule. Dave invited Mi'kmaw language teacher Curtis Michael of Sipekne'katik First Nation to be the presenter. They had never met face to face so they had a first meeting at his home to review the Mi'kmaw Moon names—spelling and pronunciation, and “phonic” spelling for non-Mi'kmaw speakers.

The actual shoot took place at Curtis's home on 2019 January 15. It was necessary to arrange the set with a backdrop and to adjust lighting and sound, all gear that Halley provided or rented. We shot 14 videos with 2-3 takes each, all about 30 seconds long—12 Moon Times, one Four Seasons, and a “bio” video on Curtis. The entire day spanned 9 a.m. to 4 p.m., including travel there and back, setup, shooting, lunch break, and tear down.

Editing had to wait until vacation and work commitments were over. We had a few meetings to discuss the rough cuts, the sequence of titles-content-credits, and overall look and style. Dave found a 13-year-old artist Autumn McDonald (the daughter of a Mi'kmaw friend in Acadia First Nation) who agreed to create four seasonal graphics to our rough specification, to use as title backgrounds (to my best knowledge, this is her first job). As we worked on the edits, it became apparent that we had severely underestimated the time required: we thought 8 hours was enough but we ended up using 13. We are not sure why, but it may be due to the fact that we were editing 14 ½-minute videos instead of one 7-minute video. Lesson learned! Luckily, we underspent other parts of the budget and it all worked out (tabulated budget and expenses on the next page).

The entire video series was premiered at the RASC Halifax meeting on 2019 June 1, the first day of summer. It was simultaneously published on the Mi'kmaw Moons YouTube channel [tinyurl.com/y37a9dm9](https://www.youtube.com/channel/UCmNRO8Ycc1_UV4akd8Fy6A). Nearly 48 hours later, as I write, there have been nearly 600 views of all the videos in aggregate. Here's the “blurb” we used to promote the channel:

The Mi'kmaw Moons Project has created a series of very short videos teaching viewers how to spell and sound out the names of the Moon Times in the Mi'kmaw language along with their meaning in English and when to look for the corresponding Full Moon.

These names are unique to the land of the Mi'kma'ki comprising the eastern Canadian provinces of Nova Scotia, (muc of) New Brunswick, Prince Edward Island, and Newfoundland. They correspond to the more familiar names popularized by the Old Farmer's Almanac, which are based on the Algonquin tradition. One of the goals of the project is to revitalize the use of the Mi'kmaw names in Mi'kma'ki.

Mi'kmaw Moons Language Video Expenses

Budget Item	Budget \$	Actual \$	Remarks
Videography—1 day	\$750	\$750.00	Halley Davies—include personal gear
Equipment rental	\$100	\$49.95	Centre for Art Tapes
Honorarium	\$500	\$500.00	Curtis Michael
Travel (petrol)	\$50	\$36.43	2 trips to Curtis's house Dave & Halley
Graphic Arts	\$140	\$75.00	Autumn McDonald
Meetings 3h 45m	\$150	\$112.50	Halley (in-person + phone consultation)
Editing 13h 15m	\$240	\$397.50	Halley (see text report)
TOTAL	\$2000	\$1970.88	\$29.12 under budget

We are grateful for the collaboration of respected Mi'kmaw language teacher Curtis Michael, who has taught us much about his language. We also shot the video in the “man cave” at his home in Sipekne'katik First Nation (sib-beg-gun-ay-gah-dee).

Halley Davies looked after preparing the set, lighting, video (2 cameras), audio, and editing. She is a real pro! As she is an in-demand worker in the local cinema and TV industry, we had to wait until she had free time for the editing. She has also worked on previous video projects for RASC.

The seasonal graphics are by Autumn McDonald, an emerging teen-aged artist from Acadia First Nation.

Many thanks to the Special Projects Fund of The Royal Astronomical Society of Canada for supporting this initiative.

The purpose of the videos is to support educational activities in astronomy and Mi'kmaw culture. According to the terms of the proposal, the Mi'kmaw Moons Project, Curtis Michael, and the RASC all have right of use of the material, while RASC owns the intellectual property (as RASC paid for it). Any enquiries regarding commercial use will be forwarded to the RASC.

Dave Chapman

*Dartmouth, Nova Scotia
2019 June 3*

**Roofing at the Wilson Coulee
Observatory – Calgary, Alberta**

It was the afternoon of 2019 November 1 and the weekend forecast looked promising. Late autumn in Calgary is always a dice roll as to weather conducive to outdoor work and astronomy. One of our new members, Phil, called me and said, "Let's get the roof done."

A few hours later, our second vice president, Brian, met up with us at Home Depot. We put together all of the supplies we needed for a labourious weekend ahead. As we nearly reached the weight limit on our vehicles, we drove 20 km south to the Wilson Coulee Observatory to unload. The Sun had already set on the land where prairie meets the foothills of the Rocky Mountains and we turned on artificial white light at an astronomical observatory! Fortunately, there were no observers and we were able to work without disapproving sideways glances.

The next morning we arrived at the WCO



at sunrise to begin the job of tearing the old roof out. Phil had brought his brother, Tom, who is not yet a member, and the work began in earnest. With a pair of pitchforks in hand we completely stripped the former shingles and tar paper from their decades place of rest into the back of our President's 1953 truck. The infrastructure underneath the shingles was in moderate repair. A hole in the roof had developed over the restroom and other areas were becoming soft as well. Plywood was shipped in on the back of our 2nd VP's truck and the areas were quickly fixed. As this was happening the new tar paper was being applied to the intact areas. Even though we had a short day of sunlight, a quarter of the roof had been successfully shingled.

That night we slept and the clocks rolled back an hour for the change to standard

time. We arrived at the observatory the next morning at sunrise with our watches pointing at 7:30 instead of 8:30. It then began to snow. Large flakes fell from the sky and blanketed the site as if the Milky Way had been spilled across the coulee ridge. We were lucky. The snow only lasted an hour. Up on the rooftop with brooms we swept clear the harbinger precipitation of winter. It was 11:00 before the roofing began in full force. We added vents to allow better airflow to prevent future softening of the wood and carefully shingled around them. It was quite uneventful as we finished with two-thirds of the roof complete by sundown.

We returned the following Friday, November 8, to bring to a close a great renovation project that will last for a generation. The roofing was complete by mid-afternoon and we spent a good portion of the remaining sunlight time cleaning and inspecting the facility.

After all the paperwork had been filed, we had come in 6% under budget and able to return grant money to the National office.

A great deal of credit goes to Phil and Tom for leading on this project and providing professional service with their volunteer labour. Brian and Tom hauled thirty-seven 65-lb packages of shingles up a ladder and onto the roof. Roland was a key player in all aspects of the job and provided his truck to remove debris from the site for recycling in Calgary. My wife, Andrea, provided a steady stream of roofing supplies and food from the city so we could save precious 51°N autumn daylight hours.

Simon Poole
Calgary Centre



INCLUSIVITY & DIVERSITY COMMITTEE REPORT—2019

Chair	Charles Ennis
Vice Chair	Nicole Mortillaro
Members	Vikki Zsohar, Judy Sterner, Simon Poole, Bill Weir, Hayley Miller, Paul Heath, Aldo Van Eyk, Katrina Ince-Lum, Gavin Campbell, Marina Miller.

Formation of Committee

The new Inclusivity and Diversity Committee first met on 2018 October 3 and the Board created this Committee that same month. This proved to be a very easy Committee to create due to the many people interested in this work.

Terms of Reference

The Inclusivity & Diversity Committee's mandate is to provide equality and fairness to all and not provide less favourable facilities or treatment on the grounds of age, disability, gender, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, ethnic origin, colour, nationality, national origin, religion or belief, or sex and sexual orientation. We are opposed to all forms of unlawful and unfair discrimination.

Accountability

The committee is accountable to the Board. The committee will supply copies of its plans, minutes, reports, and other documents to the Board upon request. The committee will provide an annual report to the National Council.

Authority

The committee has the authority to

- encourage the growth of diversity within the Society;
- educate members and Centres regarding issues involving minorities;
- represent the interests of minorities to the Board and the membership of the Society;
- act as a resource for information on minorities to Society members; and

- act as advocates to represent members of minorities and assist in mediation.

Summary

The Committee presented an introductory workshop at the 2019 General Assembly in Toronto. It is working closely with the 2020 General Assembly Committee, who have made inclusivity and diversity a theme for that event. The Committee will be providing a welcome poster for future General Assemblies in multiple world languages. The Committee is also drafting a statement to highlight anti-harassment policies at the 2020 GA to be included in the registration package. Committee members have been in contact with Kwikwetlem First Nation regarding having them do a blessing ceremony for the opening ceremony of the 2020 GA.

The Committee has been working toward developing contacts with similar committees in other societies and NGOs, such as the AAVSO and CASCA.

The Committee is working with the Executive Director to create a report email to facilitate reporting of issues of concern.

The Committee has been posting astronomical events related to other cultures and faiths on the RASCals list and receiving positive feedback.

The Committee deferred training in 2019 due to the Society's financial situation at the time, but training has been restored to the 2020 budget.

The Committee has discussed changes to Society bylaws and policies related to inclusivity and diversity issues and the possibility of retaining an expert to work on modifying Society By-Laws and policies.

Committee members have been interviewing members of minorities within the Society to identify any possible issues requiring attention.

Charles Ennis

2nd VP, I & D Chair

MOTION TO AMEND BY-LAW NO. 1

MOTION AGM 2020-0X

Moved by the Constitution Committee that the proposed amendments to By-Law #1 of the Society, passed by the Board of Directors on 2020 March 7, be approved.

rasc.ca/system/files/Proposed_amendments_to_By-Law_No.1.pdf

ANNUAL REPORTS FROM THE CENTRES

BELLEVILLE CENTRE

January	Quadrantids Meteor Shower Comet Wirtanen Constellations of the Month—Lynx, Camelopardalis, Auriga Randy Boddam—Upcoming Lunar Eclipse Steve Burr—astrophotos of Comet Wirtanen and the Moon Greg Lisk—Life Cycle of Stars
February	David Billo—photos and video Norm Folkers—My Way to Make a Telescope Steve Burr, astrophotos of Venus, Moon, Jupiter Dave Cotterell—Photos of recent lunar eclipse; lunar halo; What's Up in the Sky for February
March	Dave Cotterell—The Sky for March Also—Constellations Hydra and Cancer
April	Science Fair, April 13. Centre donates prizes for astronomical-themed science entries. Science fair takes place at local college. Randy Boddam—Explore the Universe Observing Program Constellation of the Month—Corvus and Crater
May	Astronomy Day, May 11—display at local mall manned by 5 centre members South Bay Under The Stars—joint star party by Belleville and Kingston Centres, May 31 weekend Discussion of first-ever photo of a black hole re- leased last month. Located at centre of galaxy M87 (the one with the jet)—55,000 l-y distant David Cotterell—Trip to Australia—including pho- tos taken of southern-sky objects
June 13–16	RASC General Assembly in Toronto
June	What's Up in the Sky for June Don Town—Intro to Spectroscopy Greg Lisk—How Do We Study Stars?
July	David Cotterell—Observing Jupiter and Its Moons
July 27	Club Star-BQ Presquile Provincial Park Summer Observing Program for the public—July, August, September. Both solar and nighttime viewing for the public every other weekend.
August	Member Joanne Burns was presented with the RASC Service Award by President David Cotterell. Don Town—Laser Pointer Etiquette and Rules of Use David Billo—Lunar Libration David Cotterell—1. How To Report a Fireball —2. Constellation Sagittarius Mark Coady—Light Pollution in the Peterborough Area Gary Magwood and Sean Scally—film titled <i>Hello, Darkness</i>
August 23–25	Starfest, Mount Forest, Ontario, star party, —12 members attended.

September	What's Up in September—Capricorn, Aquarius,
September 8	David Levy's cross-country tour arrives at Queen's University, Kingston, Ontario. David talks about his latest book " <i>A Nightwatchman's Journey—The Road Not Taken</i> "
Sept 27–29	Annual Fall'n'Stars Star party—joint Belleville– Kingston event
October	Astronomy Day David Cotterell and Don Town—Okie-Tex Star Party photos Robert Bates—astrophotos Don Town—"Steve" Strong Thermal Emission Velocity Enhancement, a New Kind of Skyglow Observing session for Girl Guides and Brownies at Vanderwater Conservation Area
November	Patrice Scattolin—Astronomy in Winter at Florida Star Party
November 11	Mercury Transit—clouded out.
December	Randy Boddam—Intro to Globular Clusters David Cotterell—Get Sirius Don Town—Using Green Lasers Legally and Safely
December 14	RASC Belleville Centre annual Christmas Dinner

Joanne Burns
Secretary

CALGARY CENTRE

2019 was another very active year for the Calgary Centre.

Calgary Centre's Public Outreach efforts hosted over 52 public events, some over multiple evenings, with about 12,000 members of the public attending; our biggest hit being the Astronomical Sights of Summer for youth at nearly every Calgary Public Library branch in Calgary. This helped us reach out to over 400 youth across the city and helped form a fantastic partnership with the Calgary Public Library.

Centre Members also continued to show support to our communi- ties of interest, the University of Calgary (Rothney Astrophysical Observatory Public Nights), Alberta Provincial Parks, and the Banff and Waterton Lakes National Parks. Events were held in various locations around the City of Calgary and in neighbouring towns and communities around Calgary.

Members' events throughout the year included the annual Banquet, the Bar-B-Q, the Alberta Star-B-Q (at the Eccles Ranch Observatory near Caroline Alberta), the Alberta Star Party (at Starland Campground, near Morrin, Alberta), regularly scheduled general meetings, NOVA, and 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 October, the Centre had 471 members, showing an increase in membership. I would say that our outreach programs helped to increase our membership. At our upcoming public events, volunteers highlight Centre activities and the benefits of RASC membership to encourage attendees to join the RASC. Our Social Media campaign continues to attract new members and helps sustain awareness to the public concerning our activities in the Calgary Centre, supporting the membership level we currently maintain. Our Youth Group helps 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 sustenance. A Calgary Centre Facebook page also promotes events but encourages participation of members to share their astronomical areas of interest and astronomical events. Many members submit their work through this site, increasing awareness of astronomical events to the community. Twitter and Youtube 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	R. Dechesne—Lighting & Crime J. Sterner—RASC 150 Member Shots—Comet 46P R. Nelson—Lunar Eclipse; Video of Global's The Roger Segment
February	Dr. Jo-Anne Brown, Radio Astronomy
March	(Peter Sim) Dr. Fraser Cain, "The Universe Today" at U of C Science Theatre 140 Live video conference with Hawaii's CFHT.
April	Dr. Beatriz Gallardo, & Dr. Wm. Archer, "STEVE and Aurora" David Brown "Taking Flats"
May	Dr. D. Hobill, "Einstein was right—Black holes, gravitational waves & the nature of gravity" Roland Dechesne "Blue Moon" Jeff Zambory presented some time-lapse photography of asteroids.
September	Dr. Lisa Hughes, "Classic Myths & the Constellations" With a focus on Hercules
October:	Sophia Nasr, "Dark Matter" U of C, Irvine
November	Elections & Member presentations— Elections. Nic David, "Can You Trust Your Star Atlas?" Steve Donaldson provided most recent update list of members

Public Education

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 with numerous Park's events held in Banff National Park, Waterton Lakes National Park, Glenbow Ranch Provincial Park, and Fish Creek Provincial Park.

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 a few objects in the C-14 telescope in the dome.

The Calgary Outdoor Adventure Show proved to be a busy venue 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 venues included—Ambrose University College; Olds Library; All-Star Telescope; Mount Royal University; Hawkwood School; Harley Davidson; Kerry Woods Adventure Nature Centre, Red Deer; Cross Conservation; Glenbow Ranch Provincial Park; Bar U Ranch; Alberta Science Council Annual Conference; and Brewster Sulphur Mountain. An astronomical Sights of Summer program with the Calgary Public Library made great use of the StarLab portable planetarium at several Girl Guide meetings and a school.

Other Activities

Transit of Mercury

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 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 distributed electronically 9 times in the year.

RASC Calgary Centre Council meetings were held at the University of Calgary and also the Calgary Public Library Central Branch. The library agreed to use both the meeting rooms and the presentation hall to have both the general meeting and council meetings there at no cost to the Centre and will also promote our general meetings on their website to increase attendance.

Brian Lyonnais

Secretary

EDMONTON
CENTRE

RASC Observatory Outreach

The RASC Edmonton Centre Observatory is in Coronation Park adjacent to the Telus World of Science Edmonton (TWOSE). The observatory features a roll off roof and houses 6 telescopes all on polar-aligned piers, range in size from 4" to 17", including a 6" Ha Solar scope.

The observatory is staffed by RASC Edmonton Centre volunteers September-June. In July and August, the volunteers are supple-

mented by paid staff supplied by the Telus World of Science. Daytime shifts typically see between 25 and 60 people, while evening shifts normally see 30 to 100 people. In addition, the observatory is visited many weekend evenings by youth groups such as guides and scouts who are participating in science programs at TWOSE.

To commemorate the 50th anniversary of *Apollo 11*, the observatory stayed open to the public until midnight on weekend nights.

The largest attendance event was the January 20 lunar eclipse. Since it occurred in the evening hours, over 2,500 members of the public passed through the observatory that night. Additionally, RASC members set up extra telescopes around the observatory, while other RASC members explaining the eclipse to the public standing in line.

Another major observatory event was the November 11 transit of Mercury. When the Sun rose at 7:54 a.m., the transit was already well underway but was obscured from the observatory telescopes by trees until almost 9:00. The transit ended just after 11:00 a.m. Despite the short window, several dozen people attended and viewed the transit through the observatory's solar scopes.

Northern Prairie Star Party & Black Nugget Lake Observatory

The 15th annual Northern Prairie Star Party (NPSP) was held September 4 to 9 at the Black Nugget Lake Campground southeast of Tofield. We had 64 registered attendees, with 5 youth (under the age of 21), and 17 being first timers. Attendees were well rewarded with three interesting talks, lots of networking opportunities, and three nights of viewing.

On the Friday, a tour of the Black Nugget Lake Observatory (BNLO) construction site was given to eight "official" daytime visitors, including four elected officials and four project supporters. In addition, more than 20 local residents and campers (including several under the age of 21) attended the event during the day and night.

The Saturday afternoon program was well received. It included talks by RASC member Roman Unyk (constructing the new 32" telescope for the BNLO), Dr. Rodrigo Fernandez of the University of Alberta (Detection of neutron-star collisions and the formation of heavy elements in our Universe), and RASC member and astronomy lecturer, Bruce McCurdy (Adventures chasing meteors and meteor showers over the decades). Also noteworthy for 2019, seven attendees completed NPSP Observing Lists of varying complexities. More than 20 volunteers helped.

Next year's NPSP will include first light for the extraordinary 32" BNLO telescope housed in a domed observatory. It will provide a unique opportunity for amateur astronomers and for public education and viewing, at what will be Western Canada's largest-aperture, publicly accessible telescope.

Jasper Dark Sky Festival

2019 marked the 9th year of the Edmonton Centre's partnership with Tourism Jasper for the annual Jasper Dark Sky Festival (JDSF). Since 2011, the Edmonton Centre has spearheaded one of the festival's major events—"Beyond the Stars" at Lake Annette.

The Friday evening sky was unfortunately overcast; therefore, we were unable to set-up telescopes at Lake Annette. An impromptu decision was made by Tourism Jasper to switch the venue and hold the Friday event indoors at the Jasper Junior Senior High School. Telescopes, astrophotography presentations, meteorite displays, spectroscopy, and Solar System exhibits were set up in the school gymnasium and presented by RASC members to the attending public. We estimate approximately 250 attendees.

That same evening, Edmonton Centre also planned to host night-sky observing at the Maligne Canyon Wilderness Kitchen. It too was faced with the overcast conditions. As an alternative, RASC members presented a selection of astrophotos to attendees and this was well received by all. We estimate approximately 90 attendees.

The Saturday evening Lake Annette event experienced a mostly cloudy sky, however there was intermittent clearing. Subsequently, we set up four telescopes and observed various celestial targets as permitted by breaks in the clouds. Meanwhile, Edmonton Centre members walked around and engaged in astronomy-related conversation with the attending public. We estimate approximately 350 attendees.

Despite the inclement weather over this weekend, it was really quite fascinating to see how engaged the festival goers were; a real testament to the knowledge and skill of the 12 attending Edmonton Centre members.

Mike Szelewicki
Secretary

HALIFAX CENTRE

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 out activities and worked in partnership with Saint Mary's University (SMU), Dalhousie University, the Minas Astronomy Group, and The Discovery Centre to host and support many programs and activities.

Centre Meetings

Eight monthly meetings were held the first Saturday of each month in facilities provided by SMU, except for July and August; September was cancelled due to a tropical storm. The Board met prior to the Members' meeting. The Centre's library cart was available and a new Librarian was appointed in November 2019. Refreshments were served during the break at each meeting.

The Halifax Centre continued hosting a series of speakers at each monthly meeting with attendance varying from 40 into the 50s with an increase in the number of female members and guests attending meetings. Presentations included—Paul Heath's monthly instalment of Food for the Soul; Paul Gray's Dark Nebulae in New Light and his report of Starmus 2019; presentation of the RASC Observing Program videos produced in Halifax Centre by Dave Chapman, Halley Davies, and John Read; Kathryn Gray's What's new in Astronomy & Astrophysics; Mary Lou Whitehorne presented Wolf-Rayet Stars—Truly Scary Monster Stars; Dr. Rob Thacker's The RASC in 2019; an introduction to the youth program at RASC by Jenna Hinds; Mark Rector's Oh Canada—Our Home and Inventive Land; Blair MacDonald's Urban Imaging; Pat Kelly's Quito Astronomical Observatory in Ecuador; and Dave Chapman with his regular instalments on the Mi'kmaw Moons Project. Reinstated this year were presentations of sections of the *Observer's Handbook* by members Pat Kelly (Jupiter's natural satellites), John Read (Lunar Observing, Women with Impact) and Judy Black (the Observing Logbook).

Thirty-two members attended our annual Members' BBQ held on September 20, where Jane and Alfred Howard were recognized for their donation of a telescope for visual work and astrophotography. The Annual General Meeting (AGM) was held December 7.

Halifax Centre Website (halifax.rasc.ca/index.php)

The Centre's website over the past year underwent a major revision using Joomla! by Jerry Black and Dave Lane and is hosted at Saint Mary's University. It is a responsive web design, includes updated Halifax Centre information, and has site search capabilities.

Halifax Centre By-Law #1 and Policy Development

In January 2019, the Nova Scotia Registry of Joint Stock Companies approved the addition to By-Law #1 (2017) that would allow for electronic voting. Position descriptions for appointed Halifax Centre roles (except the National Representative) were Board-approved in December 2019 to reflect non-mandatory attendance at Board meetings. The Policy Manual and the Board of Directors Reference Manual were revised to reflect these changes.

St. Croix Observatory (SCO)

The Centre's dark-sky observing site is approximately 40 minutes from Halifax. SCO has a roll-off roof, warm room, WR facilities and a 16" Go-To Sky-Watcher Dobsonian. A larger propane tank and new thermostat were installed, as well as a door replaced following a break-in. Site clean-ups were organized in June and September. There are regular observing nights each month with "weather permitting" gatherings arranged ad hoc on the Centre's web list. A new SCO Manager was appointed in November 2019.

Halifax Centre Newsletter — Nova Notes

Charles White produced 5 editions in 2019, with a range of 6 to 16 pages per issues that were posted on the Halifax Centre website with notifications emailed to our list. An average of 17 copies were printed and mailed to members. The Newsletter contains articles, photos, astrophotos, Paul Heath's poetry, and Members' Meeting write-ups provided by Centre members. Publication will carry on through 2020.

The contributors to *Nova Notes* were Charles White, Michael Boschat, Paul Heath, Pat Kelly, John McPhee and John Read. Photo contributors were—Jerry Black, Judy Black, Michael Boschat, Barry Burgess, Dave Chapman, Jeff Donaldson, Bruce Hamilton, David Hoskin, and Blair MacDonald. Astro-sketchers were Dave Chapman, Melody Hamilton, and Charles White.

Several other Members had front-page photographs—David Chapman, Judy Black, and Michael Boschat. Twenty-eight additional photos and six astro-sketches were included in *Nova Notes*. Looking forward to increased submissions in 2020.

Public Outreach

The Halifax Centre can be proud of its outreach again this year. We participated in the following—library presentations, school and park presentations, youth-group talks, and outreach events (Kejimikujik Dark-Sky events, Nova East, APS sidewalk). Both classical (SCANS) and student (THRIVE) introductory astronomy classes were held, and the Centre supported local astronomy venues with the Burke-Gaffney Observatory. Members also did astronomy presentations in support of other groups' events. We celebrated over 4,000 Galileo Moments in 2019!

Revised flyers about our Centre and SCO reflect our new meeting dates and times and policies regarding the use of SCO and its equipment.

Nova East Star Party, Smileys Provincial Park

Nova East, held Labour Day weekend, was almost cancelled this year due to Tropical Storm Erin. However, Erin left the area early on August 30 allowing set-up at Smileys Provincial Park to progress as per usual that afternoon. The public presentation, Tweeting to the Stars at the Burke-Gaffney Observatory, was given by SMU Masters student Tiffany Fields. Other speakers included Dr. Roy

Bishop, Charles White, John Read, Tony Schellinck, Kathy Walker, and Dave Chapman. Our in-field presenters were Paul Heath (sky tour) with Judy Black and Melody Hamilton (binocular table). New to Nova East was Tony Schellinck's successful telescope field where he provided an introduction to using telescopes to find DSOs. Nova East is open to the public and shares telescopes and provides public talks for all ages.

In April, the photography contest was adopted as Halifax Centre's contest that mirrored the structure of the national astro-imaging awards; the winners are to be announced each year at Nova East. Thanks to our adjudicators Blair MacDonald, Mary Lou Whitehorne, and Ian Corbett. This year's winners were—Jerry Black for Wide-Field (I feel like a spot of Tea. Where is the Teapot?), David Hoskin for Solar System (Mare Nubium Straight Wall), and Jeff Donaldson for Deep-Sky/Prime Focus (M27 Narrowband). Barry Burgess won the People's Choice Award for his photo Balancing Rock and the Milky Way.

Dark-Sky Preserve (DSP) Support

The Centre supported Kejimikujik National Park and National Historic Site, which has been a Dark-Sky Preserve since July 2010. Tony Schellinck represented the Centre at a meeting to update the Park's management plan in June. This fall, a 5-member DSP Committee formed and was granted the official capacity to establish a formal partnering agreement regarding Kejimikujik Dark-Sky Preserve Coordination between our Centre and Parks Canada. The signed agreement, for 5 years (renewable) as of 2019 December 12, is the first of its kind for RASC.

Dave Chapman again helped facilitate the Dark-Sky Weekend (August 23–25), with presentations, talks, and observing sessions, including solar observing near the ice-cream booth and by Centre members and Parks Canada staff. Cake was served as part of the 10-year anniversary celebrations of the Dark-Sky Weekend.

Members Achievements & Recognition

RASC Explore the Universe observing certificate was awarded to Liz Greenough. David Hoskin is the second RASC member to receive all three astro-imaging awards—Solar System, Deep-Sky and Wide-Field—following the footsteps of fellow Nova Scotian Tony Schellinck.

Barry Burgess and Kathy Walker earned Photos of the Week in *SkyNews*.

Goals for 2020

For the coming year, the Halifax Centre has committed to carry on many of the public outreach programs provided in 2019. The Centre will continue the sidewalk observing sessions and library talks. It will support Kejimikujik National Park and National Historic Site, maintain the Centre and Astronomy Nova Scotia websites, and revise the Board Reference and Policy Manuals as required. Nova East Star Party date is 2020 August 21-23. The Centre will also determine the Centre's fiscal, event and activity priorities for the coming 3–5 years, including its relationship with The Discovery Centre and the planetarium.

Judy Black
President

HAMILTON CENTRE

The Hamilton Centre has been continuing the RASC mandate of promoting and increasing knowledge of astronomy and related sciences to not only our members but the community at large through several activities. We utilize the club website, Facebook, and Twitter to announce the events to the public and provide them with daily doses of astronomy news and information. Regular observation evenings held monthly at the observatory have been run by Roger Hill and provide our members and the public the opportunity to view the sky through either of our large telescopes, any of the freely available loaner scopes we have on site or their own equipment. Public viewing events in the community or “Sidewalk Astronomy” continued in 2019 with events held at Spence Smith Park in Burlington right on the lake, run by Ed Mizzi and Bob Prociuk from our club. Members came out with their own gear or the club’s loaner scopes and set up in the park, inviting the public with the opportunity to see the stars.

We ran courses during the year for members and the public, including the NOVA program, which is a general introduction to astronomy and visual observing, and the CAPS course for astrophotography, both of which were well attended.

The monthly general meetings were well attended this year with a number of excellent speakers who spoke about observational cosmology, space exploration triumphs, galaxy evolution, and exoplanets, to name a few topics. Additionally, we run a monthly astrophotography contest with two categories, simple single-shot photos and complex photos. The contest is open to all members with a topic that is announced at the end of the general meeting for that month.

2020 is looking to be very busy for the club, particularly in the areas of public observation and enhancements to the observatory. There are plans to increase the number of courses that we offer and to expand the course delivery through more venues. We want to establish a monthly set of public observation nights at Spence Smith Park to further expand our involvement with the community. The club also realizes the importance of reaching the younger generations on how astronomy is fun and engaging so we want to expand outreach to schools, kids’ clubs, and organizations to further that message. Finally we are planning a number of improvements to the observatory, including an expansion of storage space to recover some prime real estate in our two buildings, and a concrete observation pad to provide a safe and secure location for members and the public to set up and use their own telescopes.

KINGSTON CENTRE

In this our 58th year (since 1961), the Kingston Centre is holding its own as a Centre. Membership numbers have been relatively stable, or down a little, for the last 10 years and our financial status is good. In the past we reduced our Centre surcharge to make up for national fee increases, until 2011 when we eliminated the Centre surcharge entirely. Since then we have been working with a fixed \$23/member fees and have run small surpluses in 8 of the 9 years.

Our search for observatory land is now well over a decade old and has not had any success. Without a central meeting place for observing groups, work parties, or outdoor social events, the Centre is in a holding pattern with much of its library, equipment, and outreach material in storage.

The Executive is still in the older governance model (members directly elect Officers), awaiting the proclamation of provincial legislation to start the move to the new Board of Directors model (members elect Board of Directors, Board appoints Officers). We have been provincially incorporated as a not-for-profit since 2005 September and as a federally registered charitable organization since 2006 September. We have been running short of a full slate of Executive for some years now, with many Executives doubling up on duties and jobs that required work.

Our website has moved from a member volunteer host to a commercial 3rd-party hosting service and is working well. Our astronomy chat email list has moved off the RASC host after a recent failure. We wish to thank Dave Lane for his support over at least the last 19 years (our oldest existing email record shows 2000 April 17 but is almost certainly underestimated).

We hold regular meetings monthly from 7-9 p.m. on the second Thursday of the month, from September to June, taking a break for July and August each year. From January to June we met in Macintosh Corry Hall Room D214, Queen’s University in Kingston and in the fall, Macintosh Corry Hall Room D216.

We continue to partner with Queen’s University Department of Physics, Engineering Physics and Astronomy on monthly Kingston Astronomy Outreach Network (KAON) open houses at the Ellis Hall Observatory on the second Saturday of the month. Volunteers bring and operate telescopes on the observing deck outside the warm room. Guests range from 60-225 each month, averaging 115.

Our regular meetings hold to a standard agenda:

- An informal dinner at a local restaurant before the meeting.
- At the meeting—Welcome, introductions of Officers in the room, upcoming astronomy related talks, seminars, etc, and astronomical events.
- Normally there follows a short 30-45 minute presentation by an invited guest or volunteer member, follow by a break.
- After the break we have a door prize draw and move into short (5 minute) observing reports/presentations from members.

2019 Meeting Summaries:

January 10—Susan Gagnon spoke to our first fundraising raffle; Bruce Elliott asked for a volunteer co-judge for the Kingston Frontenac Lennox Addington Science Fair; Kevin Kell talked about SCGO’s 365 Days of Astronomy resolution; Greg Latiak spoke on observatory renovations and PixInsight software. Bruce Elliott presented some image comparisons of last year vs this year. Kevin Kell presented images and a short video of a road trip to the Camden Lake Wildlife Management Area, a potential observing site, and his latest planetary imaging of Mars. Stephen Craig follow with some of his latest deepsky images. Rick Wagner presented a formal favourite variable star and the story behind it.

February 14—Rick Wagner presented some images from last month’s total lunar eclipse; Susan Gagnon discussed the Centre’s first Raffle Fundraiser with tickets selling for \$2 each or 3 for \$5. We have \$600 in a prize package, which will be drawn at the June KAON on Saturday, June 8; Brian Hunter talked about some of his equipment for travelling to Chile with, a Star Adventurer tracking camera mount; Kim Hay and Kevin Kell talked about the 15-cm Bushnell Voyager Dobsonian telescope donation from Janet Gibbs and our intent to try and use it on the observing deck at KAON; Hank Bartlett presented some solar imagery as well as images of

some of his astronomical equipment that he is selling (a C9.25 on a Losmandy mount, among other telescopes) in order to purchase more astronomical equipment; Steve Craig showed some of his latest images with his C11, plagued by bad seeing this time of year; Rick Wagner discussed some of his photometry results using Maxim DL to generate a data file and Libreoffice spreadsheet to create graphs; Kim Hay, chair of the 2019 Fall'N'Stars Star Party, reminded us of the dates Friday to Sunday Sept 27–29 at the regular location, Camp Sagonoska inside the Vanderwater Conservation area near Thomasburg, north of Belleville. We were also invited to an observing camping weekend by the RASC Belleville Centre, in a private campground in the SE of Prince Edward County for a weekend this summer.

March 14—Guest speaker—Dr Kristine Spekkens (from The Royal Military College & Queen's University) spoke on “Galaxies, Cosmology and the SKA.” She told us of the background of galactic studies, rotational speeds, missing dark matter, methods of detection, and the upcoming Square Kilometre Array. It was a fast-paced talk that touched on and explained all aspects of the observational problem of galaxy rotation not matching models.

Kim Hay and Kevin Kell made a short presentation on the SMUBGOBS robotic twitter telescope in Halifax. A handout with the basic operational steps was given out; Rick Wagner presented about the RASC 16-inch remote telescope project. It is still in the commissioning phase and the final use and time model have not yet been set; Rick Wagner presented how small Bahtinov focusing masks worked; Steve Craig showed his latest images of Messier and NGC objects over the last month; Malcolm Park showed a time-lapse work from earlier in the week, an overnight DSLR time-lapse overlooking Lake Ontario, along with the equipment that he used to make it. This included a Nikon D810A, modified for astro DSLR, a 14-mm wide angle lens, a dew-heating strap around the lens, a camera cover, a power supply for the camera, an Emotimo TB programmable tracking mount, and a Tupperware tub for all the cables and power; Bruce Elliott showed us five images of DSLR and tripod from the last couple of months including the total lunar eclipse from January 21; Rick Wagner showed a variety of deep-sky images from his observatory and telescopes, including Hubble Variable 1 in M31

April 11—Rick Wagner displayed many images taken recently, mostly about asteroids; Steve Craig then displayed some of the images he has taken with his C11 and a Mallincam Universe camera, Moonlite focuser, and experiences using PixInsight software sharpening features on images of Messier's objects and the Moon. He also has started using the Microsoft Image Composite Editor to stitch together lunar images; Hank Bartlett showed some of his latest solar imagery along with a travelogue of a recent trip to Costa Rica; Rick Wagner presented the first Halifax Centre video of the RASC Observing Certificate Program—Beginners and encouraged all to start thinking about earning observing certificates; Bruce Elliott reported on the Frontenac, Lennox and Addington Science Fair (FLASF) results. Two projects were the recipients of our Leo Enright Award of \$100 and a *Beginner's Observing Guide*; Rick Wagner showed more images of recent imaging; Malcolm Park, just two days back home, showed some images from his adventures near San Pedro de Atacama in Chile; The RASC General Assembly/AAVSO Annual Meeting was held Thursday to Sunday, June 13–16. As most of the Kingston Centre Board will be attending, the regular Centre meeting in June will be moved to Thursday, June 27.

May 9—Brian Hunter showed a few images from his recent trip to the Atacama Desert. Some images of geosynchronous satellites followed. That was followed by a short demonstration of the camera-control software, BackYardEOS and the free open-source software “Nighttime Imaging 'N' Astronomy” available; Brian donated three

5/4 Plossl eyepieces for use with the 6-inch Dobsonian telescope “Gibbs” now in operation at the Queen's Ellis Hall Observatory for public outreach; Donations were collected by Kim Hay for the purchase of trees at the Lemoine Point Conservation Area in October in memory of Past-President Ruth Hicks; she noted that Terry Hicks, Ruth's husband, is still very much alive, contrary to reporting in the RASC Annual Report. Rick Wagner then presented a short background on the Event Horizon Telescope black-hole image; Stephen Craig then showed images captured this month of galaxies from his observatory near Battersea; Hank Bartlett showed some solar white-light and hydrogen-alpha images from his observatory near Newburgh; Malcolm Park showed a few images from an operational remote scope in the area of San Pedro de Atacama. Typical exposures were up to 10 hours in each of five or six filters, over the course of a month. To say that they (Eta Carina and NGC 6188) were spectacular is an understatement. A room discussion then took place on poor reproduction quality of the video projectors both in resolution and colour accuracy. We might need to start searching for a rental room that comes with a large screen 4K resolution display instead of a projector; Rick Wagner closed with many images he has recently taken, with animated combinations of images taken 30 years ago from other sources, showing for instance, proper motion of local stars, and the growth of the Crab Nebula M1.

June 27—Rick Wagner also presented short descriptions of events that had occurred over the past month including—South Bay Under the Stars with the Belleville Centre and his experiences at the General Assembly. Kim Hay talked about some of the presentations and workshops that she attended, as did Susan Gagnon and Kevin Kell. Rick Wagner was congratulated on his RASC Service Award, actual (award) hardware to be delivered in the near future. Following that was an outreach demo on the Scale of the Solar System by Kevin Kell. Opening with the Hitchhikers Guide to the Galaxy “Space is Big” Youtube video, it was a 5-minute demo of marking on paper the distance scale of the Solar System, including Pluto and the asteroid belt; After the Solar System demo, Kevin demonstrated the new SMUBGOBS Android app that allows for voice requests, demonstrating commands of “take a picture,” then “M13,” and that request is in the telescope queue for later that night; Kim reminded people of Fall'N'Stars and that application forms were available at the table. Many members, including Mark Kaye and Graeme Hay, presented their imagery of the *International Space Station* transit of the Sun on Sunday, June 23.

Observing reports from Members followed with Graeme Hay, Stephen Craig, and Rick Wagner.

The *Apollo 11* 50th anniversary outreach session for Tuesday, July 16 was moved to the KAON session at Queen's Ellis Hall Observatory for Saturday, July 13.

Science Literacy Week is coming up in the fall and Rick Wagner will be presenting a few outreach sessions at his local library near Elgin. Susan Gagnon announced the results of the raffle. The winner was Brian McCullough from Ottawa and Rick will be transporting the prize pool to him in the near future.

September 8—This was a special meeting with the Belleville Centre from 3 to 5 p.m. at Queen's University, featuring Kingston's Honorary President David Levy speaking on the event of his autobiography “*A Night Watchman's Journey—The Road Not Taken*” publication. We had purchased a box of 24 books from the RASC and had them on hand to sell to members at cost. We had over 40 people in attendance, with the majority being RASC members. Kevin Kell opened the meeting with introductions of those Kingston and Belleville Board members he saw in the audience. Kevin then introduced Dave Cotterall, Belleville Centre President, to introduce David Levy. David then proceeded with his talk for the

next hour and took questions at the end. Kevin presented David with a thank you letter and card. Ten people purchased books, which David signed for them.

September 12—Kim Hay (Chair, Fall'N'Stars 2019) spoke on FNS and the change of venue from Vanderwater Conservation Area near Thomasburg to the Johnson RV Park southeast of Picton. Member Richard Schmude (Georgia) sent a report to Rick Wagner, who read it out; Susan Gagnon spoke on her move to motivate... more observing or her observatory would come down. So far she is working with a renewed interest in variable-star observing; Hank Bartlett showed some images of recent solar minimum followed by successful attempts at imaging daytime stars. He now has imaged over 20 different stars in the daytime; Brian Hunter then showed images from his 2019 July 2 solar eclipse trip to Chile and ensuing travelogue to Rapa Nui (aka Easter Island); Leslie Roberts then showed many deep-sky images, processed using Registar and Images+; Stephen Craig talked about and showed images from Starfest 2019, and his exceptional observing runs over the summer of deep-sky objects; Malcolm Park then treated us to some images from the remote observatory in Chile; Rick Wagner talked about the Kingston City Hall outreach event on July 12 in which eight members participated and the resulting honorarium from the city. The Elbow Lake Queens University biological station event with 5 members had a small turnout of about 40 people amidst mostly cloudy skies on Friday evening August 8.

Fall'N'Stars 2019 Star Party—cohosted with the Belleville Centre. Friday to Sunday, September 27-29. This was the 20th Annual Star Party, chaired by Kim Hay. We were forced to relocate the star party at nearly the last minute as our location inside an Ontario Conservation Area had locked their gates and charged for parking 1 km away from the site where we have been for 18 years, rendering it inaccessible. We still had an above-average turnout, some observing skies, some rain, some cloud. Belleville Centre leads next year.

October 10—Rick introduced our guest speaker, Mike Adler from the Jackson Hole area of Wyoming. He is a highly skilled astro-photographer who does a lot of public speaking and displays his pictures in many venues around Wyoming; his talk was “Jupiter Re-Discovered, the Juno Mission to Jupiter.” After answering a lot of questions, Mike was presented with an Kingston Centre coaster set and a small honorarium; Members picked up pre-ordered RASC 2020 *Observer's Calendars*; Rick Wagner then reviewed the details of the upcoming Transit of Mercury on Monday, November 11. Start 12:35 UTC Mid 15:20 UTC End 18:04 UTC Total transit time = 18:04-12:35 = 5 hours 29 minutes.

Daylight Saving Time switches on Sunday, November 03!

For us the transit starts at 07:35 EST and ends at 13:03 EST.

Observing reports from members followed with Stephen Craig showed images from Fall'N'Stars, a panorama generated using Microsoft's Image Composite Editor (ICE); Bob Olsen showed some nebula images taken with his homemade Newtonian telescope on an equatorial mount with 30 kg of homemade counterweights; Bruce Elliott showed some recent outreach images along with some southern summer constellations; Malcolm Park showed two images of his recent work imaging M31, the Andromeda Galaxy. Not a completed work, he will return when he is happier with the processing; Brian Hunter expanded on our discussions about SpaceX Starlink satellite constellation, with some existing videography and how bad it may get; Kevin Kell showed some images from Fall'N'Stars, which included images from Stephen Craig, Hank Bartlett, Kim Hay, and himself, and also talked about the tree planting for Past President Ruth Hicks at the Lemoine Point Conservation (just past the nursery) area on Saturday, October 5.

November 14 was the Centre's Annual General Meeting and Elections. The positions of President, Vice President, National Council Rep, and Editor were unfilled. Susan Gagnon was acclaimed for Treasurer, after which the guest speaker, Patrice Scattolin from Montréal, spoke about his Winter Star Party experiences.

December 12—the Centre does not hold a Regular Meeting but rather gathers for a Holiday Dinner at a local restaurant with a tableful of door prizes!

Kevin Kell

Secretary

KITCHENER-WATERLOO CENTRE

Our Kitchener-Waterloo Centre began its 39th year with RASC in a fog. For the first several months, overcast skies put a damper on outdoor activities. We learned how to give an “indoor star party” at various schools, nature centres and even did one by candlelight with the Girl Guides. January's Lunar Eclipse was a rare exception with an amazing event in a spectacular sky.

Centre Meetings

Our regular meetings were well attended. Notable guest speakers were Astronaut Bjarni Tryggvason and Danielle Greaves, of UWaterloo on their work with astronauts on the *International Space Station*. Davide Gauiento, of the Perimeter Institute, presented the latest guesses about Dark Matter and Energy. Alan Ward gave several talks on telescope building. Randy Attwood helped us celebrate the *Apollo 11* 50th Anniversary.

Club members giving monthly presentations were Ellen Papenburg, our comet expert, Marie Newnham, our resident Moon expert, and Karol Sokander took over “What's Up.” Gerry Bissett gave us the *Astronews*. Prolific telescope builder Peter Pekurar spoke several times.

Other Things Our Members Did

Rick Burke observed the skies in Namibia, Clark Muir in Australia, and Jim Goetz in California. Gerry Bissett built a new observatory. Rick Burke continued to work with the Guelph Rotary Club on their new observatory to open in 2020. Philip Forsyth started a regular “Introduction to Telescope” meeting in Guelph. For the past several years, the club has put on a weekend star party at Bayfield, one of the darkest spots in Southern Ontario. This year the London Centre joined us for a few nights under the stars.

Star Parties and Outreach

Though the weather was against us, we had some success. Our annual Perseid Meteor Star Party still attracted 300 people. Late into the night, there were still lots of enthusiastic people laying out on the grass looking up at the clouds.

Our annual star party for the Perimeter Institute's Young Physicists Program introduced the night sky to 40 of the brightest teenage physicists from around the world. It was held at our dark-sky site on Tilker's farm. Starting with the ISS going over as they were getting off of the bus, it turned out to be a perfect night to introduce them to looking up.

We had five observing locations planned for the November Transit of Mercury. This time it snowed.

Milestone Events

At the RASC General Assembly, Rudolph Dorner announced the creation of the Rudolph Dorner Telescope Museum. The museum, due to open in 2021, will highlight the history of telescopes in Canada. Working with RASC Archivist, Randal Rosenfeld (now the museum's director), Rudolph began acquiring astronomical artifacts. The growing collection can be currently seen at the RASC National Office in Toronto.

At the 2019 Stellafane Convention in Vermont, Peter Pekurar gave the first public demonstration of the new spray-on silver coating for mirrors. The audience of telescope makers let out a collective gasp as the mirror magically appeared on the glass. This simple process makes silver coatings easily available at a much lower cost. It is a big step forward in amateur astronomy and its effect will be seen in coming years. Peter is commended for his efforts to bring this to us.

Conclusion

Many thank yous go out to all our members who made 2019 a successful year. They proved once again that the first 60 kilometres of water vapour can't stop us from having fun with the night sky.

Jim Goetz

Communications Rep

LONDON

CENTRE

2019 has been a busy year again for us. We continue to have our monthly meetings except for August every 3rd Friday of the month at Hume Cronyn Memorial Observatory at Western University. Members continue to use our two observatories and their own scopes at our dark site when weather permits. We had another busy year with outreach.

We continued helping with public nights and special events at Cronyn. Also, we had multiple star nights with various groups (schools, camp grounds, Scouts, and Girl Guides). We continue to help out at all the events at Cronyn Observatory. Some of our members also did talks for various groups.

Our membership is down again from last year as following:

- Family Regular-4
- Family Youth-5
- Life-9
- Regular IN- 1
- Regular US-3
- Youth-6
- Regular-73

Everett Clark

Secretary

MISSISSAUGA

CENTRE

The Mississauga Centre had a successful 2019. The Centre meetings are held on Friday nights at 8:00 p.m. at the University of Toronto Mississauga (UTM), thanks to the generous sponsorship of Dr. Ulrich Krull. There are generally two meetings a month—a Speaker Night and a Potpourri Night. On Speaker Nights, an expert in astronomy or a related topic gives a presentation. On Potpourri Nights, members of the Centre give short presentations on astronomy, including observing, equipment, travels, astrophotography, and other areas of personal interest. Member presentations are appreciated and stimulate ideas and discussion.

In 2019, there were nine Speaker Nights:

January 25	Michael Watson, RASC Life Member—The 1979 Total Solar Eclipse
February 22	Randy Attwood, RASC Executive Director—The Flights of <i>Apollo 9</i> and <i>10</i>
March 22	Professor Mark Rector, Humber College—OH CANADA! Our Home and Inventive Land!
April 26	Charissa Campbell, York University—Clouds on Mars
May 24	Renée Hložek, Assistant Professor of Astrophysics, Dunlap Institute, University of Toronto—Echoes of Our Beginnings
June 21	Ben Feist, Spaceflight Data Management and Visualization Researcher & Apollo Historian, NASA— <i>Apollo 11</i> , Bringing the Apollo Program to a New Generation
September 20	Simon Claughton and Chris Malicki, Mississauga members— Various Aspects of Collecting Astronomy and Space Exploration Stamps



Centre member Gord Williams was presented the Public Outreach and Education award by Past President Leslie Strike.

- October 18 Chris Gainor, RASC National President, Victoria Centre—*Not Yet Imagined—A Study of Hubble Space Telescope*, a book he is writing for NASA
- November 22 Scott Sutherland, The Weather Network Meteorologist and Science Writer—Insight—What an Inside Look at Mars Can Tell Us

The Centre enjoyed the Potpourri Nights and special events:

- There were 12 Potpourri Nights with members giving presentations on areas of interest, including—collimating, lunar eclipses, solar eclipses, transits, astrophotography, astronomy-related travels, observing techniques, the sky this month, the Yerkes Observatory, astronomy and space stamp collecting, space exploration, the science of astronomy and physics
- Introduction to Astronomy Course—In April, the Centre conducted a public four-night astronomy course given by members in partnership with the Riverwood Conservancy and Earthshine Astronomy and Space Science Organization.
- July 2 Total Solar Eclipse—Members shared their stories and photographs of the eclipse in South America.
- SNOLAB—The Centre organized a successful trip to SNOLAB in Sudbury. This included obtaining permission for a tour, arranging for transportation and accommodation, socializing with Sudbury Centre members, and a visit to Science North. The group had an excellent trip and gave detailed presentations at our Potpourri Meetings.
- New Members' Welcome Meetings—The Centre created a welcome event to introduce new members to the RASC and the Centre and answer any questions. It is to be held quarterly. In 2019, the New Members' Welcome was held before the Potpourri Meetings in September and December.
- Public Observing Nights were held at the Riverwood Conservancy, and Members Observing Nights were held at Riverwood and the Forks of the Credit.

- The 5th Annual Auction—Fun for the members and raised money for the Centre.
- The 5th Annual Barbeque and Awards Presentation at Meadowvale Park. Well-attended and a good time for all.
- The 2019 Annual General Assembly in Toronto partnered with the AAVSO—Many Centre members and AAVSO members attended the event at York University.
- NYAA Starfest—Many members enjoyed the presentations, camaraderie, and dark skies of the August star party weekend near Mt. Forest, Ontario.
- Centre Newsletter—Six issues of *Messenger*, the Centre newsletter, were published to keep members up-to-date on Centre news and activities.
- During 2019, the Mississauga Centre continued to sponsor the Mississauga Clear Sky Chart.
- Council updated the Centre's By-Laws. The revised By-Laws were completed in December and are awaiting a vote by the Centre Membership.
- The Mississauga Centre migrated groups and content from Yahoo to [Groups.io](https://groups.io).

The Mississauga Centre notes the passing of two members in 2019—Martin Mills, Robert Spencer.

Mississauga Centre Outreach Numbers for 2019

The total outreach participants were:

- Total participants—986
- Total youth—306 (as a part of the total number of participants)

Thank you to all the Centre Councillors, volunteers, and members for their involvement and enthusiasm.

Sheila Stephenson
Secretary



Mississauga Centre members enjoyed the dark skies at NYAA Starfest 2019.



The Mississauga Centre held its Awards Picnic in June

MONTREAL

CENTRE

Once again, terrible weather wreaked havoc on our observing nights. Out of 30 planned members' Wednesday observing nights, only 10 were a go. Out of 15 planned Members' Arbo Clubhouses only on 5 occasions members could observe. Out of 17 planned members' off-site observing nights, only 5 were a go.

2019 showed a slight drop in our membership. At the end of 2018, we had 175 members, and by the end of 2019, we had 166 members. We had a significant increase in youth membership, three of which have key roles in our Centre, one is our President, another the editor of our newsletter *Skyward*, and the other our librarian.



Members Reception with Natalie Ouellette before the Lecture:



Natalie Ouellette's

Every alternate Friday or Saturday, the club holds its weekly meetings at the Morgan Arboretum, only metres away from the Bellevue Observatory. Members gather to talk astronomy, hear an occasional talk, and weather permitting, the observatory is opened for observing through the 14-inch Meade Cassegrain telescope.

On the Wednesday of each full Moon, the Centre holds a Member's Library Clubhouse. Members are able to borrow and return books, talk with other members, show & tell, etc. Sometimes there is a short presentation.

In 2019, during the months of January, February, November, and December, we replaced the Members' Wednesday Observing Nights to Members' Astrophotography Sessions, Members' Library Movie Nights along with the Monthly Library Clubhouses. On one of the December Wednesdays, we had a Members' Holiday Potluck Party.



Morrie Portnoff & Nathalie Ouellette



Morrie Portnoff & Nathalie Ouellette

The Montréal Centre allocated 17 evenings, spread over the calendar year, for members' off-site observing nights to allow them to observe in darker skies. Unfortunately, only 5 were clear.

Public outreach is a strong focal point for the Montréal Centre. We integrated most of the members' events with public events, and we have public observing after the talk, weather permitting.

Some of our premier public & member events in 2018/2019

September 21 Public Event Our Keynote Townsend Lecture "Revealing the Universe with JWST—James Webb Space Telescope" featuring Nathalie Ouellette, JWST Canadian Outreach Scientist.

September 5 Dr. David Levy's Book Signing & Talk about his Autobiography "*A Night Watchman's Journey*"

January 13 Public Event "A Time for Comets" featuring Dr. David Levy. David Levy reviewed his 60 years of searching for comets.



Dr. David Levy with Katherine



Dr. David Levy

Dr. David Levy's Book Signing & Talk about his Autobiography "A Night Watchman's Journey"



Karim Jaffer and David Levy



David Levy with Nora Hague



Dedication of one shelf of the I.K. Williamson Library for Dr. David Levy's Books

“A Time for Comets” featuring Dr. David Levy



Dr. David Levy



Dr. David Levy



David Levy receiving award.



David Levy and Constantine Papacosmas received the Charles M. Good Award

At the same event, two longtime members of the Montréal Centre, Dr. David H. Levy and Constantine Papacosmas received The Charles M. Good Award.

March 30 Public Outreach Event Westmount Earth Hour. Our Centre always experiences a significant increase in membership after this event.

April 30 The Montréal Centre and other astronomy clubs in the Montréal Region joined together to celebrate

International Astronomy Day at the Rio Tinto Alcan Planetarium. Below are photos of the Montréal Centre’s involvement in the event

Other Pubic Events

March 15 Talk by Pierre Paquette “Aurora 360 - A New Way to See the Northern Lights” at John Abbott College Penfield P-204.

Public Outreach Event Westmount Earth Hour



Centre Members with Marc Garneau at Westmount Earth Hour



Centre information table at Westmount Earth Hour

International Astronomy Day at the Rio Tinto Alcan Planetarium



Paul, Detlev, Carl, Frank at International Astronomy Day



Terry, Detlev, Frank at International Astronomy Day

- April 11 Talk by Michael Pagano “Observational Evidence of Cosmology” at Marianopolis College.
- May 25 Montréal Aviation Museum Garage Sale at the Montréal Aviation Museum
- June 8 Talk by Youssef Bestaveros “The Summer Night Sky” at the Morgan Arboretum Conservation Centre
- July 6 Talk by David Shuman “*Apollo 11*—50th Anniversary” at the Morgan Arboretum Conservation Centre

- August 9 Talk by Marc Ricard “How to Photograph a Meteor Shower” at the Morgan Arboretum Conservation Centre
- August 12 Talk by Robert Vanderwee “The Perseids Meteor Shower” at the Morgan Arboretum Conservation Centre and observation of the Perseids after the talk.
- October 5 Talks by Emilie Lafleche “Investigate the Characteristics of the Moon” and by Nicole Laporte “How to Earn the RASC Explore the Moon Certificate” at the Morgan Arboretum Conservation Centre
- October 25 Spooky Nights the John Abbott College Astro Club Presented Spooky Nights—Halloween Under the Stars (Astronomy Myths, Activities and Treats for Young Astronomers at the John Abbott College Agora (Casgrain Building)
- December 13 Talk by Kristofer Karam “The Geminid Meteor Shower” at the Morgan Arboretum Conservation Centre and observation of the Geminids after the talk.

Carl Jorgensen
Secretary

The Montréal Centre's Youth Members Astronomy Activities Tables for Children



Bettina Forget



David Schuman



Ilyas Jaffer



Katherine Dulong

Montréal Centre's Members Public Solar Observing



Nicole, Santiago, Terry, Frank



Paul Simard, Carl Jorgensen

No report submitted.

NEW BRUNSWICK

CENTRE

At the end of 2019 the New Brunswick Centre membership stood at 98, a decrease of 7 over the year. There were 12 new members and 19 people did not renew.

Eight meetings were held during the year, with two in Moncton, four in Fredericton, and two in Saint John. A meeting scheduled for Moncton in June was cancelled and none were scheduled for the summer months and December. The mean attendance was 20 (range 15-28). 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:

- Nicholson Lake Crater by Maree McGregor of the UNB Planetary and Space Science Centre
- Robyn Foret talked about the relationship between the Society and the Centres
- Astrophotography by Stephan Hamel

Member presentation topics included—Eyepieces, *New Horizons* Update, Earth's Magnetic Field, Starizona's Hyperstar, Astronomy Quiz, Planetarium Programs, Inner Solar System, Black Hole Primer, Space Junk, Stereoscopic Photos, GLP Certification, Building an Observatory, Starmus 2019, Comets, Mercury Transits, and Cassiopeia.

Public outreach is a focal point of Centre activities and in 2019 we reported 240 events that involved 53,711 people. In addition, 1536 *Star Finders*, 1723 *Moon Gazer's Guides* and 58 *Getting Started in Astronomy* guides were distributed. The number of people includes 46,675 who viewed live-feed views of the Moon and planets through Chris Curwin's telescope via Facebook. In November, Chris, Paul Owen, and Mike Powell began broadcasting a weekly one-hour astronomy program on YouTube. The number of viewers is included in the live-feed total above.

Approximately 42% of the events were for night or day observing, 25% were presentations to schools or youth groups, 31% were presentations to other groups, and the rest were STEAM-related exhibitions. The events involved an estimated 1950 volunteer hours by Centre members. Of the 7036 participants who attended events in person, 3077 (44%) were under the age of 21.

Six Centre or Council business meetings were held in the year. In autumn the Centre became incorporated and at year-end charitable status was being pursued. Gerry Allain resigned his position as Councillor and was replaced by Detlef Rudolph.

Curt Nason
Secretary

The Niagara Centre had a good year in 2019, filled with observing, public events, regular meetings and get-togethers.

Our membership was steady this year, around 100.

Our club produced its sixth calendar, with all the photos taken by our own members. We printed 50 and sold them all. We were very happy with the quality of submissions and the resulting calendar. Some members bought multiple copies to give as gifts.

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. So even when our public star nights are completely cloudy, members of the public who turn up can still hear a talk, meet club members and see telescopes in person.

We hosted about 1200 people at our 2019 public events. Our most commonly used locations for public events are Heartland Forest, a handicapped-accessible park and conservation area in Niagara Falls, Firemen's Park in Niagara Falls, Cindy Drive Park in St. Catharines, Rock Point Provincial Park near Dunnville, and the Chippawa Creek Conservation Area in Wellandport, which also hosts the Centre's observatory.

This year we gave 14 presentations and star nights to students in Grades 4-8 who were in an overnight camping program at Ball's Falls Conservation Area. After a short talk indoors, students would look through telescopes outdoors.

After 17 years, we ended our monthly beginners' sessions at A.N. Myer high school in Niagara Falls. Attendance at these events was dwindling below 5 people, while beginners sessions held one hour before our monthly general meetings have continued to grow, often with over 20 people, with many parents and children coming together.

We have started hosting more teaching and training events for members. One popular session is spring and fall training nights on using the club's equipment at our observatory. Another member hosted three beginners' astrophotography sessions at his private backyard observatory. Members with compatible DSLRs were able to photograph a few deep sky objects and take their pictures home with them all on the same night.

The total lunar eclipse in January was completely cloudy and snowy in the eastern half of Niagara, while the western end was clear.

Club members travelled to Starfest in Ontario.

White LED lights and outdoor signs are continuing to appear in the Niagara Region, especially in our two biggest cities, St. Catharines and Niagara Falls, which have taken advantage of subsidized retrofit programs. Hardly any of the 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.

Niagara Guest Speakers 2019

- January—Tom Vassos "Astronomy, A Fascinating Tour of The Universe"
- February—Jenna Hinds "Youth Outreach"
- March—Video on Mars InSight mission

- April—Philip Downey and Rob Lenz “NEAF, the AMNH and Corning Museum of Glass”
- May—Glen Pidsadnick “Planetary Astrophotography”
- June—Kerry-Ann Lecky Hepburn “Capturing the Stars Under Less Than Ideal Conditions”
- October—John Gauvreau “History of Moon Observations”
- November—Robert Godwin “The Avro Arrow”
- December—Mark Rector “Oh Canada, Our Home And Inventive Land”

Outreach summary

Ball’s Falls attendees, these includes the teachers and support staff.

- May 17, 15;
- May 27, 45;
- May 29, 40;
- June 3, 40;
- June 5, 45;
- June 10, 48;
- June 12, 50;
- June 17, 55;
- June 19, 45;
- June 24, 56;
- Sept. 25, 40;
- Sept 30, 45;
- Oct. 2, 48;
- Oct. 26, 25

Total- 597 students, teachers, staff.

Public Outreach Events:-

- Feb. 16. H.F 35;
- March 16. Fireman’s Park 0;
- April 13. Fireman’s Park 0;
- April 19. Beamers Point 0;
- May 11. IDA Heartland Forest 16;
- May 11. IDA Heartland Forest 25;
- June 15. Heartland Forest 55;
- CCCA July 45, August 95;
- Sept. Cindy Park 30;
- Oct. 5. Fireman’s Park 75;
- Nov. 9. Heartland 60;

Total—391

Rock Point—Estimate about 200 for Solar Viewing and Presentation. This number is not included in the above total.

Philip Downey

Secretary



GENERAL

The Okanagan Centre has regular meetings across the Southern Interior of British Columbia. The Centre is organized into three meeting groups to accommodate the three major population centers of Vernon, Kelowna, and Penticton. Each group holds monthly meetings and outreach events in their local areas, and meet together for the AGM, an Annual Fundraising Dinner, and many observing events. The Centre operates the Okanagan Observatory, 40 kilometres south-east of Kelowna, near Big White Ski Resort. Our

membership in December 2019 was 145, an increase of 4 members for the year.

MEETING GROUPS AND OUTREACH ACTIVITIES

MONTHLY MEETINGS

The Okanagan Centre had a full slate of speakers in 2019, providing excellent lectures on a wide range of topics. We are fortunate to have the resources of three Okanagan College campuses, the University of British Columbia Okanagan Campus, and the Dominion Radio Astrophysical Observatory (DRAO) at our disposal. Some of the scientists and educators from these institutions are also members of the Okanagan Centre. In addition to the many professionals available to us, we have many other knowledgeable and talented amateur members able to speak competently on a variety of subjects. We look forward to continued success with our speaker program.

PENTICTON OUTREACH

The Penticton group participated in multiple outreach programs throughout 2019. Our largest numbers this year were at the annual open house for the DRAO, which coincided with the apex of the Perseid meteor shower. At this event, Centre members gave tours of the August sky to over 1200 non-RASC participants, many families with children.

A sidewalk astronomy event was organized in July to commemorate the 40th Anniversary of the Apollo Moon Landing, where we observed and demonstrated the brilliant Moon and multiple planets to 150 people. At both events we handed out *Star Finders* and *Moon Gazer’s Guides*, as well as activity cards for children.

A 90-minute presentation on the known Universe, focusing on bright stars in the Milky Way and observable galaxies, was given as part of the Night Sky Event of the annual Meadowlark Nature Festival. After the presentation members provided telescopes, star charts, and night-sky tours for 22 guests.

Penticton members invited the public to Solstice celebrations on June 21 and December 21 at “Penhenge,” a standing-stone array at the top of Munson Mountain in Penticton. Both days provided views of the setting Sun over the stones marking the northernmost and southernmost points of the Sun’s annual traverse across the sky. The Summer Solstice drew 60 guests, and the Winter Solstice drew 100 members of the public. At the Winter Solstice, the setting Sun of the shortest day was saluted and invited to return to our northern skies by a sweet French Horn Aire played by a member of the Okanagan Symphony. Many people happily signed up for notice of future RASC events.

VERNON OUTREACH

The Vernon group enjoyed a very successful year where hundreds of people attended events to experience astronomy first-hand. The January lunar eclipse was shared with the BC Nature Kids and their families, showing the eclipse through our telescopes. We partnered with the Okanagan Science Centre to present a Telescope Workshop. Our ongoing partnership with Alan Brooks Nature Centre included public observing nights from July to Oct, a Summer Solstice celebration, Opening Day events, and participation at their Annual Gala Fundraiser. Many visits to schools and clubs allowed us to share our talks and telescopes throughout the year.

We organized an event for the NASA International Observe the Moon Night where we had 50 people attend. We registered our event on the <https://moon.nasa.gov/> website, where the location is displayed on the NASA Moon Observing website map. According to the NASA website, there were a total of 2113 event participants, so we are very proud, and plan to repeat our participation in 2020.

KELOWNA OUTREACH

Led by coordinator Colleen O'Hare, the Kelowna group handled 86 outreach events in 2019 with almost 4000 guests being exposed to astronomy education and observing night-sky wonders, including almost 2000 guests under the age of 21. This year included the usual array of school events, monthly visits to the Cancer Rotary Lodge, and nine community family events. Also, on the agenda were kids' camps/groups, adult groups, and Spring & Fall Wine Festivals, to highlight a few.

For the sixth year now, our members have travelled to Mount Revelstoke National Park to assist the park service. This year we helped them give 7 planetarium shows to over 200 children.

The Kelowna group continued the astronomy presentations for Science Literacy Week collaborating with the Okanagan Regional Library, visiting 12 libraries during the year with over 400 guests.

Each Friday night, weather permitting, the Centre hosts a public night at the Okanagan Observatory that is usually staffed by the Kelowna members. The cloudy weather this year meant a lot of "No Gos" but we still managed 8 clear sky Friday public evenings, hosting 286 guests. Once each month, weather permitting, there is a "Mobility Bus" service that allows wheelchair-bound individuals and those that have difficulty driving at night to visit the Observatory. An articulating telescope eyepiece offers mobility-challenged viewers the ability to share the same experiences.

OKANAGAN OBSERVATORY

The Okanagan Observatory provided a full program of public outreach events such as weather conditions would allow. Volunteer members enthusiastically supported all the public events and have set course for construction of a warming house for member observing in 2020. Hugh Pett planned and oversaw extensive field preparation, trenching and laying of underground communication cables, for further development of the Radio Telescope Park in 2020. Committee member Jim Failes continues to organize the monthly free bus service which met the needs for persons with mobility challenges wanting to attend the public program in 2019.

The Okanagan Observatory lost one of its original and very dedicated supporters, Jim Tisdale, deceased 2019 June 23. Jim was essential in determining the location for the observatory and was a strong supporter of all aspects of the development of the Okanagan Observatory.

ANNUAL FUNDRAISING DINNER

Committee Chair David Hawkins led the team organizing the 8th Annual Observatory Fundraising Gala, which was very successful. Attending members and guests enjoyed an excellent meal and a great presentation, "Chasing the Northern Lights," by Alan Dyer. The evening was capped off with a silent auction, organized by Christine Janzen, that raised a record-breaking amount that went toward funding the Okanagan Observatory programs.

Christine Janzen

Secretary

OTTAWA CENTRE

We have had another busy year in the Ottawa Centre with numerous outreach events, developments at Centre facilities, and member programs.

Outreach program

We are proud of our association with the Canada Aviation and Space Museum (CASM). The partnership allows us to participate at numerous public events that often attract large crowds. The recent International Astronomy Day (IAD) event in October was especially memorable and worth noting.

CASM invited us to celebrate World Space Week which coincided with IAD on October 5. CASM provided a series of planetarium shows, special demonstrations and tours, while Ottawa Centre volunteers set up telescopes for solar observing and evening public stargazing. Due to some excellent promotions by CASM and the Ottawa Centre, over 1,500 people joined us to look through our telescopes during the evening, including many people who had returned after daytime solar observing. Thanks to Chris Teron who organized volunteers at this event and also participated with his telescope.

We also participated in a Learn to Camp event in August with CASM that was jointly sponsored by Parks Canada. Dave Chisholm rallied 7 RASC volunteers with telescopes to participate in this event that touched 75 participants. CASM was grateful to the RASC for our support. Thank you, Dave.

Other events we held with CASM included sidewalk observing during the Ontario and Québec student March breaks, Canada Day solar observing events (with large crowds all day!), and solar observing at the spring International Astronomy Day. We are developing plans with CASM to offer more programs in 2020 to build on the public interest in astronomy that is clearly evident.

Our Ottawa Centre Public Stargazing program is one of our flagship programs. For the last two years it has been organized by Paul Sadler, an exceptionally organized and gifted communicator. Paul has fully embraced the public star party coordinator role and has frequently solicited ideas from Ottawa Centre members to continuously improve it. He even reached out to other RASC Centres with a survey on their public star party programs. To say that Paul is inclusive would be an understatement. Thanks to Paul's organization, the Ottawa Centre typically attracts 300+ people at public star parties, along with 30 telescopes. These are big events. As a result of his dedication, Paul was recognized recently with a 2019 Ottawa RASC Service award.

I am especially grateful for Jean-Sebastien Gaudet for stepping forward to be our new Outreach Co-ordinator. Jean-Sebastien recently organized 10 Ottawa Centre members to participate in an event titled "Nature Nocturne" at the Canada Museum of Nature. He organized a large exhibit that included astro-sketching, indoor telescope observing, live stargazing through a remote observatory and several displays. Easily 1,000 mostly young adults stopped at our exhibit, many staying for 20 minutes. The Canada Museum of Nature organizers thanked us profusely.

Jean-Sebastien also recently organized a group of volunteers to offer observing the Transit of Mercury at Marion Dewar plaza at City Hall on November 11, but unfortunately the event was cancelled due to clouds. If this event had proceeded, we could have had thousands of people look through our telescopes on their way to, and returning from, the Remembrance Day ceremonies.

Member Programs

Many thanks to Gordon Webster who organized several monthly members-only star parties at the Ottawa Centre's Fred Lossing Observatory. At FLO star parties, members bring their telescopes or look through the 18-inch Dobsonian that was donated by Mike Wirths. Great conversation always ensues. On several evenings we have been entertained by Ottawa Centre member Ghislain Serise, who plays his guitar and sings. Ghislain's music brings a magical quality to these wonderful, tranquil evenings.

Also at FLO, Rick Scholes has been offering a series of training programs for members on the use of the 18-inch Dobsonian. The observatory and the observing site are a major Centre asset, because of the dedication and contributions of Rick and other volunteers.

Gordon Webster helped organize something we have not done in a long time. He organized a visit to the Plevna dark-sky site that was well-received by members. This dark-sky site is only a couple of hours drive from Ottawa. I am sure we will offer more of these events in the future. Thanks, Paul, for motivating us.

In the autumn, Brian McCullough organized a very successful astro-sketching workshop that attracted over 20 members, including 5 members from the Montreal Centre. I had the privilege of attending myself and can tell you that every minute of the workshop was well planned and executed. Feedback was entirely positive. Thank you, Brian.

Building on the success of Brian's workshop, another workshop titled "Introduction to Astrophotography" will be held in January. Fifty-two people have enrolled. It will be run by Paul Klauninger, who has aided us for many years with his astroimages. (Please contact me if you are interested in attending this workshop).

Recently in November, we hosted our annual dinner at Algonquin College. Our guest speaker was Dr. John Moores, the York University Research Chair in Space Exploration. Thanks to Ottawa Centre VP Stephen Nourse for organizing this event, which included a lovely dinner buffet and awards ceremony to recognize members who have contributed to the Ottawa Centre. I would also like to thank Gordon Webster for organizing the wonderful door prizes, as well as the donors for their generosity—Focus Scientific, O'Telescope, Brightstar Communications, Diffraction Limited, Canada Aviation and Space Museum, and MallinCam.

Another member benefit that I look forward to is our Centre newsletter, *AstroNotes*, organized by Editor Gordon Webster. This Ottawa Centre publication contains information that is relevant to members, topical and always interesting. Thank you, Gordon, for caring, and to all the contributors to *AstroNotes*.

Our monthly meetings are very popular with members and help attract new members. Oscar Echeverri, our Meeting Chair, has created a perfect program that appeals to the wide interests of our member base. He has re-introduced a popular Observers' Challenges program that includes challenges for members of all skill levels. Each meeting provides a wonderful opportunity to learn something new and socialize with members. In the background for each meeting, many of us know that Chris Teron is assembling slides and ensuring the smooth operation of the meetings.

At our meetings, members Art and Anne Fraser do something very special by providing a table with coffee, soft drinks, and cookies. They have been doing this for more years that I can remember for the sole purpose of making people happy and encouraging socialization. Because of their long-term service to the Ottawa Centre, Art and Anne were recently recognized with the 2019 Ottawa Centre President's award.

There are two other programs for members that are popular and well used by new members especially—the Stan Mott Astronomy

Book Library and the Ted Bean Telescope Loan Library, run by Estelle Rother and Darren Weatherall, respectively. Our Centre regularly invests in these programs. We are also grateful for donations. Thanks to Estelle and Darren for their dedication. As a result of Estelle's long-term service to the Ottawa Centre, she was recognized with a 2019 Ottawa Centre Service Award.

Finally, Mick Wilson deserves our thanks for maintaining our "virtual space"—our website. Since Mick has become our webmaster, our website has been very stable and is kept current. Mick is also volunteering with the National IT Committee. Thanks, Mick.

Facility updates

SmartScope Remote Telescope. After nearly 20 years, Ottawa Centre Council decided to decommission the SmartScope facility. There were several challenges to using this remote observatory on the grounds of the Shirley's Bay Communications Research Centre (CRC). Internet access is vital for the remote operation of this facility. With the security restrictions at this site, and ownership of the site being transferred from CRC to DND, it became clear to us that we would likely not have Internet access again. It was time to discontinue operations.

The building and dome were donated to Defence Research & Development Canada, while Chris Teron is temporarily holding on to the mount, scope and accessories. The steel pier is being stored at FLO. We will find a home for this equipment in the future.

There are many volunteers who gave their heart and soul to the SmartScope. I can't possibly name them all here, but on behalf of all Ottawa Centre members, thank you.

Fred Lossing Observatory Site. We continued to make enhancements to the FLO site this year. We added a SkyPod observatory on a large wooden deck. The observatory houses a 14 inch Meade Schmidt-Cassegrain telescope. Thanks to Chris Teron, Andrew Brown, Gordon Webster, Tim Cole, David Lauzon and others for assembling the deck. Chris was especially active in acquiring the dome and assembling it. We had problems with the telescope mount, so we replaced it with a mount that was donated from the family of late, prominent Ottawa Centre member Paul Comision. To honour him, we will name the observatory The Paul Comision Memorial Observatory. Currently Tim Cole is developing a training program for members using the telescope. It will be introduced for use in early 2020. This is a wonderful addition to the FLO site.

Few members may be aware that we received a very generous donation from Rick Scholes. Rick acquired late Ottawa Centre member Rolf Meier's observatory that includes a 6-inch Astrophysics refractor. Rick recently moved the entire observatory to the FLO site. We plan to erect the observatory in 2020. It will be named the Rolf Meier Observatory. Rick, thank you for your generosity.

In summary, we will have three telescopes available for use by members, once they have received training—A Dobsonian, a Schmidt Cassegrain, and a refractor. This is a great combination and we hope members take full advantage of these wonderful Centre assets.

We plan to make additional earth-grading improvements to the FLO site in 2020. We will keep members posted on developments.

Recognizing Centre Members

I have already acknowledged the contributions of many Ottawa Centre members. There are a few more that deserve our thanks.

Rick Wagner

Rick was awarded a National Service Award at the RASC General Assembly in Toronto this past summer for his contributions over

several decades to the RASC in many roles, including his current role as the Kingston Centre President. Rick is always willing to share his knowledge and, as was stated in the award citation, he “represents the very best of the RASC”.

Janet Tulloch

In February of this year, we received wonderful news about Janet Tulloch. She was a recipient of a top award in the RASC's sesquicentennial (150th year) Imagining the Skies contest. Her submission title “Twilight of the gods” won in the Creative Works Category, Experienced Level. The judging panel commented that her work had “Good balance of line, texture and form with rich coloration” and it was “A delight for the senses.” Chris Gainor, the RASC National President, summarized her award beautifully—“Congratulations to you for this fitting recognition of your efforts to celebrate the beautiful skies that for countless eons have inspired humans, including members of the RASC since our founding 150 years ago.”

Dave Chisholm

Dave has been an active volunteer with the Ottawa Centre for many years now. He has been involved with outreach, and is responsible for the Monthly Sky segment at the Ottawa Centre meetings, where he raises awareness of items of interest to observe each month. In 2019, Dave has gone in to overdrive with his outreach. Here is the record of his outreach events in 2019. It is truly extraordinary:

- Jan. 15 Girl Guide Astronomy Night, Manotick, 25 youth, 7 leaders.
- Jan. 29 Cub Scout Astronomy Night, Ottawa, 15 youth 2 leaders.
- Mar. 04 Seniors Introduction to Astronomy, Barrhaven, 18 seniors.
- Mar. 06 Solar Viewing March Break, CASM, 45 youth, 30 adults.
- Apr. 30 Brownie Astronomy Night, Barrhaven, 25 youth, 5 leaders.
- Jul. 04 Vacation Bible School Astronomy Presentation, Lancaster, 100 youth, 20 adults.
- Aug. 10 Learn to Camp Event, CASM, 35 youth, 40 adults.
- Aug. 15 Seniors Introduction to Astronomy, Kanata, 15 seniors.
- Aug. 27 Seniors Introduction to Astronomy, Carlingwood, 30 seniors.
- Sep. 16 Seniors Introduction to Astronomy, Bells Corners, 35 seniors.
- Oct. 24 Cub Scout Astronomy Night, Rockcliffe, 16 youth, 3 leaders.
- Nov. 05 Cub Scout Astronomy Night, Barrhaven, 20 youth, 5 leaders.
- Nov. 12 Brownie Astronomy Night, Manotick, 21 youth, 5 leaders.
- Nov. 18 Sparks Astronomy Night, Manor Park, 19 youth, 4 leaders.
- Nov. 20 Sparks Astronomy Night, Barrhaven, 16 youth, 4 leaders.
- Nov. 25 Cub Scout Astronomy Night, South March, 23 youth, 4 leaders.
- Nov. 26 Beaver Astronomy Night, Ottawa, 15 youth, 3 leaders.
- Nov. 26 Joint Cub/Scout Astronomy Night, Ottawa, 15 youth, 5 leaders.
- Nov. 27 Brownie Astronomy Night, Kanata, 17 youth, 3 leaders.

In total, Dave touched 645 people in 2019. In recognition of Dave's contributions, he was recently awarded a 2019 Ottawa Centre Service award. In case you are wondering, he already has bookings with two groups (Beavers and Cubs) in February 2020. Thank you Dave. You have created some beautiful, life-long memories for many people.

Estelle Rother

For many years, Estelle has quietly served as the librarian for the Stan Mott Astronomy Book Library. Before we started recording our monthly meetings with videos, Estelle provided summaries to members in AstroNotes. For her many years of service and devo-

tion, she was awarded recently a 2019 Ottawa Centre Service award.

Taras Rabarskyi

Congratulations to Taras for receiving the Rolf Meier Award for Planetary Observing this year. I remember when Taras was just starting with astrophotography. Now, quite frankly, I am in awe of his work.

Brian McCullough

Congratulations to Brian for receiving the Best Presentation award this year for his account of the 50th anniversary of the Moon landing. His enthusiasm was palpable during his presentation. He transported all of us in the audience back to another time.

Janet Tulloch

Congratulations to Janet for receiving the Best *AstroNotes* article this year for her archaeoastronomy article titled “Outstanding Standing Stones.” Janet's work is always thorough and interesting. Congratulations Janet.

Paul Klauninger

Well, he did it again. Paul won the Observer of the Year award again. Paul is widely recognized in the Ottawa Centre for the astroimages he shares at the monthly meetings, but his observing logs—on which this award is based—set a very high standard for observers.

Ottawa Centre Council

We are fortunate to have a group of volunteers that help manage the operation of our Centre and think about its future. I have already mentioned the contribution of some of them. Here, we recognize the others:

Oscar Echeverri

He has served as both Meeting Chair and Treasurer. Oscar is stepping down from both these roles this year. Thank you for your contribution.

Rick Scholes and David Lauzon

FLO Co-Directors who oversaw the biggest re-development of the FLO site in decades. Dave recently stepped down.

Tim Cole

Former President, Tim has provided more support and guidance to me than I think he realizes. Thank you, Tim.

Carmen Rush, Gerry Shewan, Jim Sofia

As Councillors, their input is vitally important to the health and success of our Centre.

Karen Finstad and Ingrid De Buda

As National Council representatives, and a vital interface to other Centres. The NC representative role is evolving. Thanks to Karen and Ingrid during this transition. Ingrid recently stepped down.

Stephen Nourse

Stephen is a long-time RASC member who brings a lot of experience from within and outside the RASC to Council.

Chris Teron

I mentioned Chris already a few times in this report. He is clearly an active member of the Ottawa Centre and is widely recognized to be a pillar of the Centre. He is our liaison to CASM and was responsible for the success of many events with CASM. Officially he is our Centre Secretary, but his helpful hand extends all throughout the Ottawa Centre.

In Memoriam

In June of this year, we lost a friend of the Ottawa Centre. Michel Bois, our Centre Videographer, passed away suddenly. Michel was active at star parties, where his willingness to share his love of astronomy was evident. We also remember him for his beautiful smile.

Chris Teron

Secretary

PRINCE GEORGE

CENTRE

Two dedicated members conducted seven outreach activities during the summer at Mount Robson Park. Two presentations occurred at Berg Lake, one at Whitehorn, an 11km hike up the Berg Lake trail, and the remainder at the park amphitheater. Activities included lectures and hands on telescope experience. The presentations were enhanced with the use of a chargeable mini projector and screen mounted in the open-air shelter. Mount Robson is a popular tourist attraction approximately 290 km east of Prince George.

Two Introduction to Astronomy Telescope courses were held in 2019. A new iteration of the telescope course focused on parents and children.

The Lunar Eclipse held on 2019 January 20 was hampered with scattered clouds resulting in poor viewing.

Chris Gainor visited us on 2019 February 1 at our first open house of 2019. Chris talked about the History of the Hubble Space Telescope.

Canada Day in the park continues to draw much public attention with more than 800 people visiting the Centre booth throughout the day.

Scheduled tours and public open houses remain a major source of Centre revenue. One of our members held a talk at the library where he explained his research of supernovae. He also discussed his research in an interview by the College of New Caledonia.

The Perseid meteor shower attracted 70 people to the observatory.

In Williams Lake, two members were approached by the Elder College to do an astronomy course, which was held in November. The course was spread over two evenings, one in the classroom and the other split between the classroom and outdoor observing. For the scope review session, an 8 Sky-Watcher Dobsonian and a laser pointer to review the locations of constellations and Mars were used. Viewing was poor and it was almost not worth getting a scope out. We viewed a few Messier objects, Mars, double stars, and a few of the brighter stars to demonstrate the various colours. Nine people signed up for the course. A number of hand-outs were used along with some of the *Star Finders* we had on hand.

Four articles were prepared and submitted to the Williams Lake Field Naturalists group. This has been an ongoing effort for the past few years.

Informal viewing in our neighbourhood—invite neighbours to join when we are doing viewing. There were approximately 1900 visitors to various open houses, tours, and special events hosted by Prince George Centre.

Blair Stunder

Secretary

REGINA

CENTRE

The RASC Regina Centre had another very active year. While we worked on improving our Centre governance, our primary focus was the many things we do to serve our members and the public. Along the way, three of our members received some well-deserved special recognition.

Improving Centre Governance

The Centre's Council put a focus on improving our operational governance in 2019. This is not "exciting," but it does improve the long-term growth and development of the Centre. The following are a few of the major improvements:

- An agenda is circulated in advance of all Council Meetings to keep us focused on the most important matters.
- We keep a history of our outreach and programming activities to support planning our upcoming year.
- Our Treasurer produces regular monthly Financial Statements for Council to monitor our financial health and ensure informed use of our resources.
- We created a Reserve Development Fund and invested \$15,000 in GICs. The fund exists to support development of future dark sky and outreach facilities, acquisition of equipment, development of programs, and to support operations on an exception basis.
- We established policies on Charitable Receipting and Mileage Reimbursement to bring consistency to our practices.
- We developed an Operating Budget and circulated it to our members via the Stargazer newsletter to keep them informed on our financial plans.

Serving our Members

We also focused on providing support to our members.

We developed our own Beginners Observing List with 12 Deep-Sky Objects (DSOs) that are visible naked eye or with binoculars plus the Moon, Jupiter, and Saturn. It includes an introduction to observing, constellation charts, finder charts, and what each object will look like when found.

We held the five-day Saskatchewan Summer Star Party that includes clinics, presentations, a photo / sketch / art show, a kids program, a BBQ, banquet, and potluck supper. This is a "must attend" event for people new to astronomy or who just want time with friends under a dark sky.

We held ten Centre meetings covering many topics specifically requested by our members, including:

- Building a custom Dob telescope
- Wide-field astrophotography
- Light-Pollution Abatement
- Using the *Observer's Handbook*
- Observing Logs
- Basic Image Processing
- The Invention of Planetaria
- Detecting Exoplanets
- Green-Laser Pointer Training
- Planning Your Eyepieces
- The Milky Way and Galaxies

We also provided equipment support helping people build, repair, or learn how to use their telescopes.

The weather didn't cooperate with our BBQ plans, but we did hold our indoor Annual Christmas Dinner.

Public Outreach

The public interest in astronomy continues to grow and we see this reflected in our outreach numbers that rose to over 2,600 people, of which 1,300 were youth. This was in spite of a higher-than-usual number of weather cancellations.

The following are some of the major events with total and youth attendance in brackets:

- International Astronomy Day (279/196)
- Regina Symphony Orchestra—Gustav Holst—The Planets (200/10)
- Cathedral Village Arts Festival—solar viewing (275/180)
- Western Development Museum—solar viewing (398/343)
- Moose Mountain Provincial Park—solar and planet viewing (174/62)
- Saskatchewan Summer Star Party—multiple public events (354/94)
- Transit of Mercury (116/11)

We also did library events, individual outreach, school visits, and other special request events (163 / 64)

It takes a dedicated team of volunteers to put on these events for the public. The following 30 members and their families (over 1/3rd of our membership) contributed well over 300 hours. My apologies for any I may have missed from this list.

Bob Brann, Fred Cawsey, Kevin Fenwick, Alden Foraie, Peter Hagar, Lorne Harasen, Ron Haughey, Dan Heiberg, Gerry Hodges, Russ Knaus, Mimi Martin, Len McDonald, Paul Meyer, Don Moreau, Vance / Jennifer / Emily / Vanessa / Melody Petriew, Denis Pilon, Pierre / Mary-Louise / Katelyn Schierle, Jerry Shen, Ian Sloman, Greg Swanson, Curtis Tuplin, Warren / Marcella / Cloey Zatwarniski

The Kalium Observatory team held 22 public nights and 10 group nights for Cubs, Scouts, Guides, and schools. They contributed 226 hours and reached 716 people of which 346 were children or youth. Thank you to:

Ron Haughey, Francis Israel, Len McDonald, Jerry Shen, Malcom Warren

Recognizing our Members

Three of our members received special recognition this year.

Vance Petriew received a National Service Award at the General Assembly in Toronto in June. Vance has served the Regina Centre for two decades filling many different roles, including three times as Centre President. He has been our single largest fundraiser and made major contributions to the AAVSO.

Ali Rizvi received the Canada-Wide Science Fair—Excellence in Astronomy Award that is sponsored by RASC. Ali's Grade 10 project at Campbell Collegiate focused on "Detecting Exoplanets Using Supervised Machine Learning." The award included a one-year youth membership in RASC Regina and a Sky-Watcher 8-inch collapsible Dobsonian telescope.

Denis Pilon completed the Messier List and received his Pin and Certificate.

It has been an honour to serve the Regina Centre and the public over this past year.

Clear and Dark Skies,

Pierre Schierle
President

St. John's Centre had a very active year with 10 public meetings along with two Annual Public Star Parties, a members-only Star Party, Astronomy Day, Science Literacy at the Mall, public observing sessions (very popular Observe the Moon Nights) and a dozen special events, e.g. IAU100 celebrations, 50th Anniversary Moon Landing. Our Internet presence via Webpage, Twitter, Instagram and Facebook continues a renewed interest in Astronomy and enhanced public awareness. An increasing number of members continue to advance efforts in Astrophotography with tremendous results, with results and comments complemented by an active email discussion list. As a benefit to members, we offered 9 free planetarium shows that are topical and well attended.

We now have our first established Dark Sky Preserve in Terra Nova National Park, with the hope to have another operational within a year or so. Our Annual Public Star Party at the Preserve is very well attended. We also organized a member-only 3-day Star Party in the Preserve at the Malady Head.

We prepared a new outreach media tool by printing two colorful bookmarks, using local astrophotographs.

We have broadened our group of event partners to include Parks Canada, Johnson Geo Centre, Salmonier Nature Preserve, Admiralty House Museum, NL Folk Festival.

Our membership year runs from October's Annual General Meeting through September with no planned public meetings during July and August. Fortunately we haven't been short of topics for speakers and were able to program a Member's Night.

Meeting highlights

- October 2018—Lecture—Mike Flaherty, ceramic artist/ amateur astronomer—Astronomy used in my professional life as an artist.
- Annual General Meeting and Election of Officers.

Review of the year's meetings and events

Nov 2018	Member's Night, Christmas Astro-Gift Suggestions
Dec 2018	Movie: <i>Apollo 8 Earthrise</i> Social: RASC calendars were offered for sale and the audience was invited to partake in a festive celebration.
January 2019	Lecture: Doug Grouchy—Home Light-Pollution Abatement
February	Lecture: Jim Johnson—Astrophotography
March	Lecture: Anna O'Grady—Throne-Zythkow Objects
April	Nikolay Damyanov—Visit to US Arizona Observatories (Lowell, Kitt Peak), Meteor Crater
May	Lecture: Dr. Timothy Dowling—Latest results from Proximity Orbits of Juno at Jupiter and Cassini at Saturn
June	Lecture: Dr. Joe Hodych—Did Earth tumble through 90-degrees and back again?
September	Committee Reports, call for committee participation

A review of summer activities.

Outreach Activities

- IAU Observe the Moon IAU 100 National Star Party

- Astronomy Day
- Salmonier Nature Park—With SpaceX *Starlink* visit
- Signal Hill National Park Day
- Observing Session with CPAWS
- Newfoundland Folk Festival Solar Observing
- Butterpot Star Party
- Terra Nova Star Parties
- *Apollo 11* 50th Anniversary Day- astronaut visit, Observing

We make extensive use of RASC material (*Star Finders*, *Moon Gazer's Guides*, *SkyNews*) at all outreach events.

We are a small Centre but have managed to replace fall-offs with new members, both young and old, and there's been a recent uptick in membership. We are empowered by public participation and the opportunity to embrace their interest in Astronomy.

We look forward to more events where we can show the public the true nature of the RASC.

SARNIA CENTRE

No report submitted.

SASKATOON CENTRE

Monthly Meetings and Presentations:

Jan 21	Marcel Müller-Goldkuhle—What's in the Sky this January? Tenho Tuomi—Update on Comet Wirtanen—with New Images Rick Huziak—The online AAVSO Chart Plotter Utility and its other uses
Feb 25	Marcel Müller-Goldkuhle—What's in the Sky this February? Jim Goodridge—Binocular Observing—Resources Available to enhance Grab'n'Go Astronomy Colin Chatfield—Social Media in a Nutshell
March 18	Velma Tuomi—The Perks and Perils of being an Astronomer by Marriage Colin Chatfield—Social Media in a Nutshell Tim Yaworski—Photographing and Processing Star Trails
May 13	Marcel Müller-Goldkuhle—What's in the Sky this May? Ashley Stock—Designing a Radio Receiver for the 8.5-m Radio Telescope Riley Whyte—The Skynet Robotic Telescope Network
June 18	Marcel Müller-Goldkuhle—What's in the Sky this June/July? Jim Goodridge—The AAVSO 10-star Tutorial

Sep 16	Daryl Janzen—A New Citizen Science Program at the University Rick Huziak—A Short Review of Green Laser Pointer Usage Rick Huziak—Outdoor Lighting Design & its Effect on Saskatoon's Environment
Oct 15	Marcel Müller-Goldkuhle—What's in the Sky this Month? Les Dickson—The 2019 General Assembly, National Meeting & the David Dunlap Observatory Riley Whyte—The Skynet Robotic Telescope Network
Nov 28	Jim Goodridge—What's Up this Month? Les Dickson—National Council Report Rick Huziak—Observing and Measuring Double Stars
Dec 10	RASC Saskatoon Christmas Social and Potluck

Observers Group Meetings at the Sleaford Observatory

The Observers Group meeting, organized by Larry Scott, occurs monthly weather permitting.

Public Outreach Activities:

Random Acts of Astronomy

	Members of the club ran functions throughout the year, setting up telescopes throughout the city for viewing objects such as the Moon. These were quite successful.
January 20	The campus observatory opened to the public for viewing the total lunar eclipse. About 300 people attended. Interviews were given by Chris Marten, Daryl Janzen, and Tim Yaworski.
May 24	Members set up telescopes at the Firefly Walk at the North-East Swale.
May 10	Rick Huziak supported the Regina Centre at public star nights and training at the Grasslands National Park Dark-Sky Preserve.
June 1	Rick Huziak returned to Grasslands to promote the Dark-Sky Preserve, with 85 or so campers attending each presentation.
July 27	Rick Huziak and the Regina Centre returned to put on a Starnight for the West Block of the Grasslands National Park, about 150-200 people attended.
August 28-September 2	23rd Annual Saskatchewan Summer Star Party with 349 registered participants, the second-largest enrollment ever.
October 19	Saskatoon Symphony Orchestra played Gustav Holst's <i>The Planets</i> . Members of the RASC Saskatoon Centre were there to provide outreach materials to the public.
October 27	Dark Sky at the Creek (Beaver Creek), attendance was about 80-100, despite cloudy weather.
November 11	The University Observatory opened for public viewing of the transit of Mercury, and members set up telescopes in other places in the city. The observatory attracted several hundred people and around 80 people showed up at telescopes elsewhere in the city.

Youth Astronomy Club

Ron Waldron and Mark DeJong ran the club until May, having meetings at the U of S Observatory. The club was terminated due to low enrolment.

Light Pollution Awareness

Light-pollution awareness outreach was continued from 2018 with many light-pollution-based lectures and events.

Special Events

- March 8 To celebrate International Women's Day, University of Saskatchewan astronomy students gave a public talk on women's contributions to astronomy in history. The talk was well attended and successful.
- April 15 90th Anniversary of the University Observatory was celebrated. It was well attended.
- July 20 The 50th anniversary of the *Apollo 11* landing on the Moon was celebrated by screening the 2019 documentary film. Over 300 people attended the event.

SUDBURY CENTRE

The Sudbury Centre has grown from the long, successful history of the Sudbury Astronomy Club which has been in existence since September 1981.

In June of 2019, the members voted to become a Centre of The Royal Astronomical Society of Canada, and our first meeting as the new RASC Centre came in September 2019.

In the first few months, we have enjoyed presentations from several guest speakers.

- Randall Rosenfeld attended our September meeting to speak about the Dorner Telescope Museum
- Peter Jedicke attended our October meeting with his presentation titled "Why I love Globular Clusters."
- Rick Burke shared with us how he got started in astronomy at our November meeting.
- Patrick Dodson shared his Journey as a Telescope Maker in December
- Alan Ward presented two topics in January—"From Ironic Beginnings to Unprecedented Outcomes" and "Reviewing a process for Silvering Mirrors that is making a comeback."
- At our March Meeting, Paul-Emile Legault presented a very enlightening review of stellar evolution, particularly discussing the current changes in Betelgeuse, and Steve Dodson presented a portrait of Bellatrix as a mini-lecture.

On 2020 February 7, we held our Annual General Meeting, per our By-Laws. The Executive includes the following people and their executive positions:

- | Name | Position |
|------------------|----------------|
| • Alan Ward | President |
| • Pete Marshall | Vice President |
| • Monique Martel | Treasurer |



Members of the new Sudbury Centre meet with Randy Attwood, at left.

- | | |
|-----------------|----------------------|
| • Norman Hey | Secretary |
| • Linda Pulliah | Director of Outreach |
| • Luc Comtois | Observatory Chair |

Sudbury Centre's Astronomy Outreach program has held Star Parties every month so far in 2020 and we will have met over 100 participants by the end of April. A complete list of our Star Parties and those organized by Science North are listed on our website, sudburyastronomyclub.com

Pete Marshall
Vice-President



Members of the new Sudbury Centre meet with Randy Attwood, second from left.

SUNSHINE COAST

CENTRE

For the Sunshine Coast Centre, 2019 was another year full of hard work, public engagement, and intriguing observation for club members and the public. The following are some highlights and challenges for our club over the past year.

Our Executive met 8 times in 2019. At our October AGM two longtime members passed the torch to two new and enthusiastic members of the Board. The Executive had been trying for some time, without success, to expand community awareness of the club by developing a regular column for the local newspaper. One of the new Board members has taken this on, producing to date a number of perfectly toned articles. The Board continues with three women and five men. Discussion is ongoing regarding reaching out to encourage new members and executive from diverse communities with special focus on attracting young people for the coming years. In 2019 the SCC executive formalized administrative processes. The Board completed and adopted a written manual of policies and procedures, while the Treasurer has upgraded and modernized the club's financial management.

Club members were very busy with Outreach at local public events. These included a total of 32 events in 2019, made up of 9 monthly meetings, often featuring a guest speaker, 5 outreach booths at local community events including 1 at a local library, and 17 hosted evenings at our observatory. Winter weather in 2019 proved a challenge for SCC, with one monthly meeting cancelled due to snow and not one evening for opening the observatory after October 26. Total attendance (members and public) for all events was 1388, supported by 141 total volunteer days (a number of members making repeated appearances), and 461.5 hours of volunteer time dedicated to outreach and observatory care and maintenance.

Our President, Bruce Fryer, and our Past President and 2nd Vice-President of RASC, Charles Ennis, continue to shepherd the Coast Cable television series "Night Lights," an ongoing program featuring all aspects of astronomy. The program was developed locally but has now been taken up by a few other outlets. In 2019 Bruce and Charles were supported in this programming by RASC Centres in Calgary and Halifax.

Our observatory was significantly upgraded in 2018 so 2019 was a year of enjoying the fruits of all the work as well as beginning new plans for the next phase of improvements. The observatory itself (building, telescope, and assorted equipment) is well outfitted, operating at a stellar (pun intended) level. The next investment of time and money will be in improvement of the grounds. The plan is to better accommodate all visitors regardless of mobility status with improved parking and paved access to the telescope, as well as improve designated parking generally and provide concrete pads and tables for members to set up their own telescopes.

The Sunshine Coast Centre continues to face the challenge of lobbying local governments for not only verbal support, but action in pursuit of the Dark-Skies program. Our community, like so many others, is facing pressures from development and the club is working to make preemptive changes to lighting regulations as well as upgrading current lighting to recognize the need to reduce light pollution. This work will be continuing.

As shown, our small club had a busy and productive 2019. We will be continuing with efforts in the areas of outreach, member-

Following are 3 photos taken during the year. All have been taken by long-time RASC/SCC member Danny Sklaszski.



The SCC Observatory



Members of the Club hosting and doing some solar viewing



Club members hosting a booth at a local fair

ship, diversity, accessibility, and community enhancement. We look forward to another successful year in 2020.

Gwen Willox
Secretary

Membership

As of the end of December, the Thunder Bay Centre had 40 members.

General Meetings

Our general meetings are held on the second Tuesday of each month, excluding July and August, providing 10 monthly meetings for the year. Attendance was between 10-15 members/guests per meeting.

The following are the presentations given at each of our monthly meetings:

January	Brendon Roy: "The Discovery of Ceres"
February	Brendon Roy: "Can a Planet Survive the Death of Its Star?"
March	Brendon Roy: "The Discovery of Neptune"
April	Brendon Roy: "Protoplanetary Disks"
May	Doug Stuart: "How to Plan Successful Observing Sessions"; "Palomar Globular Clusters"
June	Ted Bronson: "My 45 Years of Astronomy"
September	Brendon Roy: "Lunatics"
October	Scheduled: Annual General Meeting of the Thunder Bay Centre. Unfortunately, there were not enough members in attendance to meet quorum, so the Executive decided to postpone the AGM to the following month. Brendon Roy: "Trials of Astrophotography"
November	Annual General Meeting of the Thunder Bay Centre. Position of Treasurer was open for nominations. Brigitte Schaffer was the only nominee. She accepted the nomination and was acclaimed to the position. The position of Secretary was open and Tracy Irvine (not in attendance) submitted her written intention to stand for nomination. There were no other nominees and Tracy was also acclaimed to the position. Brendon Roy: "Finding Life in the Outer Solar System"
December	The Thunder Bay Centre received a visit from Philip Groff, the new RASC Executive Director and Robyn Foret, 1st Vice-President of the RASC Board of Directors. They introduced themselves to the members, relayed information about the RASC's ongoing Strategic Plan Initiatives and answered questions from the members. Afterwards, everyone went to Boston Pizza for a Christmas celebration dinner.

Outreach Events

February	Science Carnival hosted by Science North This annual event by Science North was held at Victoriaville Mall. The Thunder Bay Centre had 3 volunteers available to answer the flood of astronomy questions from both children and adults. It was a great success with many star-finders and moon-gazer guides being handed out to the public.
March	Visit with St. Francis School's Kindergarten Class
April	Northwestern Ontario Regional Science Fair

The Thunder Bay Centre was asked to set up a booth for this event for the benefit of the children attending the Science Fair. We had handout materials available and were able to encourage kids to have an interest in astronomy and the sciences.

June Creekside Nursery

Every year, Creekside Nursery in Thunder Bay holds its "Dawn to Dusk" sale that sees more than a hundred customers start lining up at 1am waiting for the doors to open at 5am. While the customers waited in line, the Thunder Bay Centre had its telescopes set up for viewing, as well as handouts available. This year the skies were clear and the public was able to see Saturn, Jupiter, and the Moon. And, just before the doors opened, a dazzling display of noctilucent clouds appeared in the morning sky.

July Hazelwood Lake Family Fun Day

This year our Centre was invited by the Lakehead Regional Conservation Authority to attend its annual Family Fun Day at Hazelwood Lake. We had our solar telescope and an 8-inch Schmidt-Cassegrain telescope fitted with a solar filter set up for the public to view the Sun. We highlighted the differences between the two telescopes and answered any and all astronomy questions.

August Quetico Provincial Park

An annual event for the Thunder Bay Centre is to attend Astronomy Weekend at Quetico. Every year, this event is held on the weekend closest to the peak of the Perseid meteor shower. The Friday night presentation saw a large number of campers (50-60) in attendance followed by some observing through the telescope. There were many 'oohs' and 'ahs' thanks to the Perseids that weekend. Saturday afternoon we had our 40mm Coronado PST set up for solar observing. The Saturday night presentation had fewer attendees but they were very interested and had many questions. That was followed by a not so clear night, but with much perseverance, we were able to show the campers some of the night sky.

September Sleeping Giant Provincial Park

Our largest outreach event of the year is always at Sleeping Giant Provincial Park on Labour Day Weekend. This year the Thunder Bay Centre provided three talks given by members Brendon Roy and Randy Martin. The talks were well attended by the campers, averaging 60-70 people for each of the three nights. These talks were followed by observing on the beach. The first night was quite clear and there were a large number of campers who joined us for observing. The second and third nights were intermittently cloudy but the temperatures were warm and the company was good. Any campers who stayed out long enough each night were treated to beautiful displays of northern lights.

October Kingfisher Lake Educational Centre

Our Centre was contacted by a Grade 6 teacher from Kingsway Park Public School to give a talk to her class at the Kingfisher Lake Educational Centre. The Kingfisher Centre allows children to partake in hands on learning activities using the natural environment as their classroom. The children were learning about biodiversity but needed an activity to fill their nighttime schedule and what better than a talk about Astronomy?

Special Events

January Total Lunar Eclipse

Although the night was bitterly cold, with wind chills in the -40's, a chance to see a Total Lunar Eclipse under clear skies could not be missed. The Thunder Bay Centre decided to set up at Hillcrest Park, inside the city, as it gave an excellent view of the Moon as well as allowing us to be available to the public to answer any questions. We had 8 of our members come out to Hillcrest Park, with the

rest of our members viewing from their home locations. Despite the cold temperatures, quite a number of people from the general public came out to ask questions and gaze through the telescopes. Overall, it was a successful night.

November Transit of Mercury

The Centre decided to hold this event at the Terry Fox Memorial and Lookout site located just east of the city. We had 8 members attend and, although the day was cold and the clouds rolled in before the end of the transit, all felt it was a morning well spent.

In Memoriam

November 16 saw the passing of Bill Unger. As a member, Bill showed a great interest in solar activity and its relevance to radio communications. He was also active in the Lakehead Amateur Radio Club. We extend our condolences to his family and friends.

Tracy Irvine

Secretary

TORONTO CENTRE

Meetings

As usual, Paul Markov hosted most Recreational Astronomy Nights (RANs) with Tom Luton hosting the October, January, and April events. The February RAN was cancelled due to winter weather. This year, Paul Delaney and Ralph Chou split the hosting duties for Speaker Nights. The November Speaker's Night was another in the Charles Darrow Lecture Series, featuring Dr. Rainer Weiss. All meetings were held in Studio 2 of the Ontario Science Centre. Andrew and Elizabeth Reid, Ward LeGrow, and Ennio Cellucci handled setting up and streaming our talks on the internet, and then editing our talks into shorter clips for YouTube. Past talks can be viewed on the Toronto Centre's YouTube channel.

Telescope Loan Program

Telescopes are borrowed for periods of two to four weeks. This is a very popular program managed by Marc Teitelbaum, George Slavinski, and Peter Richards

Observing Programs

Monthly star parties are held at Bayview Village Park & Long Sault Conservation Area, which were well attended. Other impromptu events attracted even more people throughout the Greater Toronto Area (GTA).

Weather conditions were not very favourable for observing this past year, with city star parties being held in only 6 of the 12 months. On average, the star parties drew 30 visitors and 7 members. The peak was in August with 55 visitors and 11 members. Weather conditions were much more favourable this year for dark-sky star parties. We were able to successfully hold 9 events, with an average of 20 visitors and 5 members. The July event saw over 55 visitors and 8 members enjoying the views from the parking lot at Long Sault Conservation Area.

Education and Public Outreach

Toronto Centre Education and Public Outreach Committee (EPO) reached out to over 19,300 members of the public during this

reporting period. This was done through various means, including our NOVA (New Observers to Visual Astronomy) course, monthly solar observing at the Ontario Science Centre, multiple school and scout events across the GTA, our First Light course for new members, outreach on the Chi-Cheemaun car ferry between Tobermory and Manitoulin Island, and major star parties, such as the Dunlap Institute Star Party.

David Dunlap Observatory (DDO)

Toronto Centre provided astronomy family nights and lecture nights at the DDO, with two per month from May to October. Seven family nights and five lecture nights took place. Over the entire year there were another 20 youth events with different organizations, six school classes, eight private events, and three events hosted with the Dunlap Institute, reaching about 4900 members of the public. There were several events for Centre members, the largest being the annual awards picnic.

The DDO received two major acknowledgements this year. On Thursday, March 29, the DDO community partners received an award from Parks and Recreation Ontario. On Wednesday, July 31, the Government of Canada announced that the DDO had been recognized as a place of national significance.

E.C. Carr Astronomical Observatory (CAO)

During 2018, the CAO hosted three Scout and Venturer weekends, a Thornbury Library presentation with observing through telescopes, a Rovers group, a Big Brothers/Big Sisters group and a Beaver Valley Bruce Trail group. The CAO also held special events during 2018 for its members, including two work parties to maintain the facility in tip-top shape.

Web Team

At the time of writing, we have 1,732 followers (1,536 last year) on Twitter and 1,345 likes (compared to 1,175 last year) and 1,427 followers on our Facebook account. We have 420 followers (183 last year) on our Instagram account.

Tom Luton

Secretary

VANCOUVER CENTRE

Vancouver Centre is so pleased that our membership is currently at its highest since 2003. We are hopeful that 2020 will take us over that peak to achieve a new membership record.

Vancouver Centre has continued with our mission to advance education in astronomy and allied sciences by providing a plethora of presentations and outreach programs.

We hosted 10 guest speakers, 15 community events, 15 Starry Night star parties, and numerous educational outreach events to schools, guides, and scouts.

Some highlights of the amazing speakers we had were:

- Robert Sawyer "The Science Fiction Vision"
- Paul Gray "Supernova Hunting"
- J.J. Kavellars "New Horizon's Ultima Thule Flyby"
- Eric Lanoix "Orbital Rendezvous and Capture"
- Michael Landry "Gravitational Waves"
- Jess McIver "Cosmic collisions observed with Advanced LIGO"

- Linda Spilker and Tom Spilker of NASA JPL “Cassini’s Intriguing New Discoveries/Space Station from Orbital Assembly”

Some highlights of our community events were:

- March—Night Quest with Metro Parks
- May—Night of Science at Pleasantside Elementary School
- May—Astronomy Day and Science Rendezvous
- July—Canada Day celebrations with the City of Maple Ridge
- August—Perseid Meteor Shower with Metro Parks
- September—ILOA/SFU Galaxy Forum
- October—Manning Park Dark Sky Astronomy Weekends

Some highlights of our educational outreach events were:

- Maple Ridge Regional Library presentations
- Eagle Mountain Guides Camp—star party
- Fraser Valley libraries—telescope loaner program
- Pathfinders—observing at Porteau Cove
- Ladner Beavers—Astronomy badges
- Zajac Ranch for children with disabilities/illnesses—star party
- First Nations—grant for First Nations sky chart

Our public relations director, Scott McGillivray, has continued with his regular “Space Talk With Scott” on Global BC TV. Videos from his live broadcasts can be found at www.rasc-vancouver.com and searching for “space talk”.

Vancouver Centre is looking forward to 2020 as we are hosting the General Assembly June 5 - 7. We have an exciting schedule of meetings, talks, and workshops as well as an afternoon for Public Youth and Family activities. We hope to see you there!

Suzanna Nagy
Secretary

VICTORIA CENTRE

2019 was another busy year for the Victoria Centre and a particularly hectic one for our president, given that he operated the entire year without a vice-president, 2nd vice-president or a director of public outreach. The continued support of our volunteers helped alleviate some of the workload.

At the end of the year we had 268 members, down slightly from one year earlier (an all time high). We organized 165 events, and co-hosted or supported another 27 events, for a total 192 events and over 10,000 Galileo Moments. Nine issues of our *SkyNews* (the original *SkyNews*!) were published this year by editor Bruce Lane bringing total to 412 issues over the years. Joe Carr kept our members up to date on all the happenings with our website. Highlights of the year follow.

- | | |
|----------|--|
| January | Paul Gray (RASC, Halifax)—Dark Nebulae |
| February | Dr. Samantha Lawler (NRC Herzberg (Dominion Astrophysical Observatory))—The outskirts of our Solar System—the Kuiper belt |
| March | Dr. J.J. Kavelaars, NRC Herzberg (Dominion Astrophysical Observatory)—Exploring a new world on the edge of the Solar System—New Horizons and 2014 MU69 |

- | | |
|-----------|--|
| April | Dr. Karun Thanjuvar, University of Victoria—Deep (Machine) Learning with Neural Networks—the second industrial revolution |
| May | RASCals on the loose, Victoria Centre |
| June | Matt Williams (Science journalist)—Going Interstellar—When and How Will We Travel to the Nearest Stars? |
| September | Dr. Alan McConnachie, NRC Herzberg (Dominion Astrophysical Observatory)—Maunakea Spectroscopic Explorer |
| October | Linda and Tom Spilker, NASA and Jet Propulsion Laboratory—Exploring the Solar System from front row seats of major NASA missions |
| November | Dr. Philip Stooke, University of Western Ontario—Lunar Exploration after the Apollo Landings |
| December | Dr. Marcin Sawicki, St Mary’s University—The lives and deaths of galaxies—more than just a metaphor |

Astro Cafes

We had 33 astro cafes in 2019 with over 900 attendees. In addition to our usual exchange of presentations, ideas, and photos, we had a pre-Christmas swap-or-sell evening. We also had some out of towners (Hamilton, Edmonton, Calgary, Nanaimo) tell us what they had seen/done in their neck of the woods.

School Programs

The Centre’s School Telescope Program continues to be highly successful under the leadership of Sid Sidhu and Lauri Roche, with the addition of core volunteers when Lauri was on the “injured player list” for part of the year. This small team of dedicated volunteers made 94 presentations this calendar year for 2261 Galileo moments.

Observation Sessions:

The technical committee led by Matt Watson and Dan Posey wrestled some issues with the 16-inch Ritchey-Chrétien telescope to the ground this year, making it useable for looking up again as well as for astrophotography. Also, the 20-inch Obsession donated in 2018 was made ready for use. Some new tools for use on these telescopes were purchased.

- Regular sessions at the VCO (Victoria chamber orchestra)—17 observation evenings with 150+ attendees. Alas, bad weather resulted in 24 sessions being aborted.
- March 9—Plaskett Telescope, 19 people attended
- October 26—Plaskett Telescope with a clear night and no moon!!!! 26 people attended and some of have been dining off the data collected since then!

Also in early March—A Road trip to Arizona courtesy of Gary Sedun was an observing adventure for 6 local Rascals

Not to mention the numerous ad hoc observations from back yards, balconies, parks and cricket pitches

Special Events

Astronomy Day

On April 27, the astronomy community of Greater Victoria and beyond descended on the Royal British Columbia Museum for one of our largest public outreach events of the year, about 700 members of the public attended. While the rain chased the solar telescopes inside, a large group of volunteers coordinated by David Lee continued their work in the museum lobby. The event is organized every year by RASC, but they were joined by the FDAO (Friends of the Dominion Astrophysical Observatory),

the NRC (National Research Council), the University of Victoria Astronomy Department, Camosun College Astronomy Department, Victoria High School Astronomy Program, Shawnigan Lake School Astronomy Program, and Science Ventures. Astronomer, JJ Kavelaars gave the feature presentation in the Newcombe Auditorium about Ultima Thule and the New Horizons mission. Authors Ria Voros (Centre of the Universe) and Elizabeth Tasker (The Planet Factory) delivered an interesting tag team presentation.

Annual Star Party

For the second year in a row we held our Victoria Centre Star Party in the serene yard of St. Stephen's Anglican Church, held in late September because our meteorologist president conducted an in-depth study as to the probability of clear skies and limited winds at that time of the year. And indeed, it looked like that he might even have been right at the beginning of the weekend, however early Friday evening, hail was bouncing off cars and a deluge of biblical portions followed. We received one quarter of the normal September rainfall in one hour! Nevertheless, we persevered and a beautiful Saturday afternoon graced our "StarBBQ." This was perhaps the highlight of the weekend thanks to Deb Crawford and her team of flippers. The sunshine seduced many RASCals to set up scopes. However, a return circulation that delivered cloud from Friday's storm quickly returned from Idaho over the churchyard Saturday evening. Swaddled in cloud, several pockets of RASCals nonetheless participated in discussions on a wide range of topics.

Pixinsight workshop

Joe Carr organized a weekend workshop on the incredibly powerful astrophotography software package PixInsight on September 21-22 at the Centre of the Universe. One of the instructors, Warren Kellar, is an expert on PixInsight and has authored this must-have "how to" user manual on this software. Ron Brecher, (astrodoc.ca) also provided instruction. 14 people attended.

Mirror Washing Clinic

Using the Guy Walton 20-inch Dobsonian telescope, Bill Weir kindly demonstrated his mirror washing technique to 10 RASCals at the Centre of the Universe in June. Several people have already cleaned their mirrors using this technique.

Cridge Centre and Ross Place presentations

Two Presentations for Seniors at Ross place by John MacDonald and one at the Cridge Centre by Chris Purse and David Lee proved very popular resulting in 85+ Galileo moments and requests to return for other presentations.

Henrietta Leavitt Memorial Horizon Watch

10 RASCals and 2 Police at Cattle Point on July 4 enjoyed views of transboundary fireworks ... guaranteed starlight on a cloudy evening.

Transit of Mercury November 11

Again poor weather limited but did not eliminate the viewing of this transit. Transit cookies made by host Nathan Helner-Mestelman highlighted the event he hosted at Oak Bay Marina.

Cosponsored/Supported events

Summer Star Parties

All 21 star parties sold out this year. More than 2000 attendees came to these events of the Friends of the DAO. RASCals set up their telescopes for the public to use and Marjie Welchframe organized the volunteers at the RASC table. David Lee helped arrange many of the speakers at the events.

50th anniversary of moon landing

On the Moon Again (at Cattle Point) IAU—Despite the clouds on July 12th, this was nonetheless a successful public outreach event involving about 7 volunteers and 100 people from cruise ship buses. The star party on July 13 also had a focus on the Moon. Reports on both events were submitted to the IAU. The festivities continued July 16 to 18 and 20. Apollo Fever at CU Saturday attendance strong; proved an excellent outreach program with kudos to FDAO.

Fort Rodd Hill Star Party and Pender Island Fair

We do not let cloudy weather get in the way of a good sky event when we've got blankets. At Fort Rodd Star Party, Aaron Bannister captivated the audience with his Night Sky Blanket and great tales about the constellations. And on Pender Island that same evening Dianne Bell also performed a show using her Night Sky Blanket. The Fort Rodd Hill event was coordinated by Chris Aesoph and 13 Rascals participated - deploying 8 telescopes. Marimba Music and the smell of waffles wafted through the air. Park Staff were delightful and could not have been more helpful.

New Horizons Conference

A RASC table was set up at the Victoria Conference for this event. New Horizons Project Scientist Kelsi Singer delivered an interesting presentation attended by 4 outreach volunteers and 50 Galileo Moments.

Saanich fall fair

Over 3000 people attended the RASC booth at fair again this year

Fairfield fall fete

5 RASCals assisted over 100 Galileo Moments gazing at our nearest star

Recognition

Lauri Roche won the 2019 national RASC Service Award. The Service Award is a major award of the Society given to a member in recognition of outstanding service, rendered over an extended period of time, where such service has had a major impact on the work of the Society and/or of a Centre of the Society. We all know the many things Lauri does in the Victoria Centre, and at the national level she has also made major contributions, including her work with education programs.

Acquisitions

Members

We had 268 members at the end of the year (down slightly from 2018 when we had 277).

Equipment

Argo Navis setting circles were purchased for the 20-inch Dobsonian (acquired in 2018). Special collimation tools for the Ritchey-Chrétien telescope restored that unit to operational use. Coffee makers were also purchased making the amateur astronomers more functional as well.

Barbara Lane

Secretary

Last year, 2019, was another busy and productive year for the RASC Windsor Centre. In addition to our regular membership meetings, we enjoyed many successful public events while also encountering some challenges.

We continue to enjoy a stable membership of approximately 100 members who attend monthly meetings at the City of Windsor's Ojibway Nature Centre, located at 5200 Matchette Road, in West Windsor.

PUBLIC OUTREACH

Public Education has always been a cornerstone of centre activities beyond the regular meetings. Our Director of Public Education, Mahayarrahh Starr-Livingstone, along with other volunteers, have participated in a many successful events over the course of the year. These include exhibits and/or demonstrations at Science Rendezvous (hosted by the University of Windsor) in May, the annual Perseid Meteor Watch at Point Pelee National Park in August, Open Streets Windsor in September and ArtSpeak in November. Our Public Outreach extends to include a visit to Tecumseh Library, Montessori School at a camp south of Essex, Christian Horizons, a group of special needs individuals and a night at the Detroit River for public viewing where members had telescopes set up for the public. Additionally, the centre hosted a many "Dark Sky Nights" at Point Pelee, where members set up telescopes at the Nature Centre

and hundreds have had the opportunity to be introduced to the wonders of the night sky.

ATTENDING THE GA

Mike Mastronardi (President 2019) and Randy Groundwater attended the GA in June where Randy received the much notable National Service Award for outstanding service to the Society.

OBSERVATORY

For the past 19 years, the RASC Windsor Centre has operated Hallam Observatory, near Comber, Ontario. It has been a very effective tool through the years for both our membership and the many guests that have been hosted at the facility during this time. During these years, however, the growth of population in Essex County, and most notably, the recent and explosive developments in the greenhouse industry in and around the communities of Leamington and Kingsville to the south of the observatory, has created significant light pollution which has compromised the visibility of the sky. This unfortunate situation is creating a difficult challenge for the effectiveness of programs we have traditionally held at our observatory.

DIRECTORATE OF OBSERVING

The Windsor Centre held nine regular membership meetings during 2019. A highlight of each meeting is our "Directorate of Observing" report. Our centre members alternately take turns presenting sky highlights for the coming month. Thanks to Steve Mastellotto, Susan Sawyer-Beaulieu, Juliana Grigorescu, Nancy Ng & Jessie Passa for the great work that they do with this segment each month.

MEETINGS AND DATES



Public Outreach

A brief summary of our main presentations for 2019 is as follows:

January	video, "New Horizons spacecraft mission to Pluto."
February	Jack Zhu—"Astronomy Observation with Raspberry Pi—Building a robotic controlled astronomy telescope."
March	Gary Ross, Warren Michigan; "The rehabilitation of Percival Lowell."
April	Fred McPherson; "Meteorites and his Adventures in Collecting them."
May	Steve Pellarin—"Astronomical Discoveries of the 20th Century."
June	Janet Hart—"Planetary Geology of Venus."
September	Dr. Adam Sirek—"Canadian Training Program for Astronauts."
October	Dr. Chitra Rangan, University of Windsor—"Cosmic Microwave Background."
November	Mahayarralh Starr-Livingstone—"Remote Telescope Control," Along with our regular "Annual Meeting."

This coming year, 2020, is the RASC Windsor Centre's 75th Anniversary. We plan on extending our limits to reach above and beyond all previous expectations. Our goal is to continue with public awareness, while attracting new members from within the younger generations, and to continue with our efforts toward the challenges with which our Centre is faced.

Sandra van Gaalen
Secretary



The Winnipeg Centre membership currently stands at nearly 220 members—slightly down from last year.

We hold monthly meetings, open to the public. Eleven of the meetings were held at St. John's College at the Fort Garry Campus of the University of Manitoba. The meetings are designed to accommodate a wide range of knowledge and experience in the audience. We start with a beginner's session, followed by "What's up," a review of upcoming astronomical events and viewing opportunities for the month, and "What's new," which is an update of current astronomical topics and events in the astronomical news. We also have sessions on other topics of interest including RASC programs and certificates, imaging, astrophotography, and computer applications. This year we also had sessions presented by Dennis Lyons on green-laser pointer safety, regulations, and certification.

Following a coffee break we have a presentation by a keynote speaker. This year's visiting keynote speakers were:

- Dr. Yjan Gordon. Department of Physics and Astronomy. U Manitoba Extragalactic astronomy in a nutshell
- Prof. Philip A. Ferguson. Faculty of engineering. U Manitoba Canada's history in space

Local keynote speakers included Gerry Smerchanski (The Copernican Revolution and The Scientific Revolution Part 3—

Johannes Kepler); Michelle Boyce (The dark Universe); Gord Tulloch (70th Anniversary of 1st light for the Hale 200 telescope and Building a backyard observatory); Jay and Judy Anderson (The 2019 eclipse); Jay Anderson (How the sky moves); Mick Rice (The big bang theory); Ralph Croning and Stan Runge (Meteor hunting); Richard Conrad (Image processing with startools)

The meetings, recorded and are available on YouTube, are well attended and often attract 80 or more members and guests. The meetings are followed by pizza and beer at a local restaurant.

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

Our July meeting was a barbecue at our observatory at University of Manitoba's Glenlea Research Station, about 15 km south of Winnipeg. There we have a dome, housing 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 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 and maintaining the building. A recent upgrade was completed in July 2019. There are some concerns with the encroachment of light pollution, leading to ongoing debate on possible future relocation. The observatory is situated adjacent to the Red River with the inherent annual concerns of flooding.

The Centre newsletter Winnicentrics, edited by Kaeren Anderson, contains a list of local RASC upcoming events, astronomical upcoming events, an astrophotography gallery featuring members' astroimages, and articles on astrophotography and digital image processing, astronomy news, and articles of interest to local members.

A complete redesign of the Centre website was just completed, and the Centre now also has Instagram and Facebook accounts.

We have an active "free" loaner telescope program with a variety of telescopes available for club members including a solar or PST scope. We generally lend them out for a period of a month (or longer if the demand is low).

Spruce Woods Star Party (SWSP)

Organized by Silvia Graca, SWSP is held at Spruce Woods Provincial Park, about 200 km west of Winnipeg; in a rural setting with very little light pollution. The park provides us with exclusive use of the winter campground, at the cost of providing the park with a Public Observing night in exchange. Over the years the Winnipeg RASC has developed a close relationship with Spruce Woods Park and has worked together with the Park in preparing to apply for a deep sky preserve designation. In 2019 the public viewing event was held on August 10 with presentations by Winnipeg members on constellations, light pollution, and a demonstration on the Solar System. The skies were cloudy and viewing was limited. A small group was able to view in our campsite when the skies cleared up later.

SWSP August 30–September 2—As always SWSP is the highlight of the Winnipeg Centre year. This year (just like last year) had rain and overcast skies for most of the weekend. Despite the weather, the attendees had a great time together. Gerry Smerchanski's binocular sky tour is was once again one of the highlights of the weekend. He presented a slideshow version of his sky tour the night before anticipating cloudy skies. He also presented an awesome collimation clinic. Highlights of the weekend included lectures on "Where did all the heavy elements really come from?" by Prof. Samar Safi Harb, and "Amateur telescope making" by Gord Tulloch.

The last evening features a Banquet dinner in the nearby town of Glenboro. The event closed with a Monday morning breakfast. The SWSP event is very important to the Winnipeg Centre, as it provides not only an observing event but is an important socializing time for the membership.

This year the Centre held a members' viewing event on November 11 at the Glenlea observatory for the transit of Mercury (complete with transit of Mercury pancakes) hosted by Dennis Lyons.

The Winnipeg Centre participates in numerous regular outreach astronomy events where we provide viewing opportunities for the public:

- Centre members provide presentations followed by a telescope viewing session at Oak Hammock Marsh, a nature centre located 30 km north of the city, for their monthly Astronomy Observing Night.
- The Centre has partnered with the Department of Physics and Astronomy of the University of Manitoba for their "Open House" program. Held on the last Wednesday of the month during the scholastic year, it welcomes University students to come to the University Planetarium for a presentation followed by an observing session at the Ewen Campus Observatory, with supporting telescopes provided by RASC members.
- We participated in the 2019 International Astronomy Day festivities by setting up a daytime display inside of a local Indigo bookstore, and few solar

telescopes set up for supervised public viewing outside its doors. At the same time, we participated in Science Rendezvous at the University of Manitoba with supervised solar scopes for public viewing.

- Spruce Woods Public Outreach— August 10
- The Winnipeg RASC set up an information booth in the foyer of the Centennial Concert Hall during a Winnipeg Symphony Orchestra concert featuring Holst's "Planets".
- On April 27 RASC members presented an information night in conjunction with the Nature Conservancy of Canada

at the Westin Family Tall Grass Interpretive Centre as part of the process in creating a dark sky preserve.

- The Winnipeg Centre also supports the Manitoba Schools Science Symposium (MSSS) held at the University of Manitoba by providing a judge (our president - Bryan Stach) and a cash prize to the person with the best astronomically based display.

The Winnipeg RASC is actively pursuing liaisons with various Manitoba sites to establish designated Deep Sky Preserves.



Information night with the Nature Conservancy of Canada



The transit of Mercury at Glenlea 2019 November 11

January

We had a great start of the year in January 2019 with a successful “Lunar Eclipse and Coffee” event at Shipyards park. Our popular Monday Night Astronomer series continued in January, and for the rest of the year.

Our first guest speaker was Paul Gray who shared the story of how he and his children discovered supernovae and inspired all of us to bring our observation skills to the next level. Mr. Gray’s trip to the Yukon was sponsored by RASC’s own Public Speaker Grant.

Moreover, we were honoured by another guest speaker in February, Tianwei Zhang, who is a solar eclipse hunter and live-streaming astronomy idol in China. Ms. Zhang shared her worldwide Solar Eclipse adventures during our second Monday Night Astronomer public event and live-streamed her visit to the RASC Yukon Centre’s observatory to many of her on-line followers, making the Yukon Centre and the aurorae known to many others, who otherwise could not have visited this part of the world.

February

RASC Yukon Centre became a Centre with its own astronomical observatory! The construction of the RASC Yukon Observatory and Astronomy Education Centre was completed and occupancy permit received in February. The observatory’s main telescope, an 11-inch Celestron Schmidt-Cassegrain is ready to share the Universe with visitors!

The first event at the observatory was held by us by providing a night-sky presentation to the 15 guests of tour operator Aurora 360 Experience.

Society directors were invited to participate in the “Fem in STEM” networking event at Yukon College where we built partnerships to other societies of the Yukon.

March

We attended the “NorthLight Innovation Hub” event where both government and non-profit societies of the Yukon had the opportunity to meet each other and do networking.

April

The Yukon Astronomical Society (RASC Yukon Centre) was recognized by the Yukon Legislative Assembly as part of the remembrance of the *Apollo 11* mission. Directors of the Society attended the event.

In April, we continued our mandate to popularize astronomy to all Yukoners and visitors of the Yukon. We provided observatory tours for groups.

May

International Astronomy Day public event was held at the observatory. Approximately 30 people attended and enjoyed H-alpha views of the Sun, BBQ, and activities for children and adults.

Parks Canada became our official Valued Partner for both the Yukon Star Party (August event) and the Kluane Northern Nights – Dark-Sky Festival (September event).

June

Solar observation public events were held every Saturday between 2 and 4 p.m. at the observatory.

July

Solar observation public events were held every Saturday between 2 and 4 p.m. at the observatory.

The RASC Yukon Centre was invited to Kluane First Nations ‘Nan-Na-Je’ Campsite to do astronomy outreach and record elders speaking traditional stories of the sky.

August

Solar observation public events were concluded after the second week of August.

The 4th Annual Yukon Star Party public event, together with our Valued Partner Parks Canada, was held at the observatory with approximately 50 visitors.

September

The Kluane Northern Nights – Dark-Sky Festival, a weekend-long event during equinox, has become a Yukon tradition. For the fourth year in the row, hundreds of people visited Haines Junction’s Kathleen Lake to participate in arts, music, astronomy, storytelling, and kids’ programming. The Yukon Centre provided pancake breakfast and hot-dog lunch for everyone and held its astronomy-related presentations and nightly public skygazing with telescopes, in partnership with Parks Canada.

October to December

Our main events of the year have been successful, and for the rest of the year, we focused on continuing our Monday Night Astronomers with hosting presentations by local Society members, and welcoming visitors to the observatory during our public observation nights.

In addition, two classes of 6-graders and a class of 9-graders gained inspiration from us to discover the Universe by looking through the observatory’s main telescope and became more curious about astronomy and space during our interactive presentations.

In November, the Yukon Centre continued its partnership with the Continuing Education Department of the Yukon College—Vikki Zsohar and Forest Pearson taught the non-credit college course “Universe from your Backyard.” Students also got hands-on experience how to observe the night sky with telescopes.

FUTURE PLANS

We are working toward establishing a steady “OPEN” schedule for the observatory and fundraising for O&M expenses. Our long-term goals also include acquiring a weather-proof automated fork-mounted telescope that fits in our observatory and can be remotely controlled. In addition, we are planning to install an all-sky camera for live aurora monitoring when internet becomes available. The Yukon Centre is also dedicated to have its charity status in 2020.

Vikki Zsochar

President

CENTRE TREASURERS' REPORTS FOR FISCAL YEAR 2019

		Belleville	Calgary	Edmonton	Halifax	Hamilton	Kingston	Kitchener-Waterloo	London	Mississauga
REVENUE										
Membership	Membership Fees—Centre Fee	849	11,175		2,950	3,353	1,100	2,976	3,250	3,457
	Membership Fees—Affiliate						23			
	Membership Fees—other		453	6,771						
	Centre Newsletter				187					
Donations / Fundraising	Donations		834	1,314	68		1,155			379
	Fundraising		5,753			48	242	730	6,050	
Sales Revenue	Sale of <i>Observer's Handbooks</i>									
	Sale of <i>Observer's Calendars</i>	94		1,825	690	1305	330	420	58	600
	Other Publication Sales		1,303		50		386			
	RASC promotional items	13				65		25		
	Other Sales		110				10			
Subscription Revenue	<i>Astronomy / Sky & Telescope</i>									
	Other									
Events Revenue	Star Parties	38		2,923	1025	116	2,086			1,070
	Annual Dinner							1,575		
	Astronomy Day									
	Meetings									
	Other Events		875			2,215				1,900
General Assembly Revenue	General Assembly		4,052							
Miscellaneous Revenue	Interest and Dividends	1	49	47	283		169	49		
	Advertising									
	Observatory Site					712				
	Equipment Rentals/Loans		3,027					20		
	Public Services, events, outreach						500			
	Miscellaneous		1,390	76,865		3,810			100	
TOTAL REVENUE		995	29,021	89,745	5,253	9,409	6,001	5,796	9,4597	7,406
EXPENDITURES										
Sales Expenses	RASC Publications	331	180	1,532		162	746	405	385	725
	Other Publications						815	296		
	Newsletter						60		405	
	RASC promo items	13					77			
	Other		1,306					457		
Event Expenses	Star Parties			9,969			1,789			
	Annual Dinner	320		770				1,681		479
	Astronomy Day						60			
	BIYA									
	Meetings	100	100	1,142		1,385	561	534	1,170	774
	Other Events		5,076	3,927		1,635	106	192	8,577	573
Travel	General Assembly and Council Meetings		1,615	205						
Administrative Expenses	Office Administration	22	3,126	4,466		484	25	341		585
	Equipment and Supplies		674	630			25			
	Insurance		2,739	2,900		432	432			432
	General Expenses and Audit	8	1,704				45			
	Awards	35	2,052	934				156		46
	Donations			2,800					250	370
	Advertising									250
Miscellaneous Expenses	Observatory and Site Expenses	163	4,225	33,524		2,783	86		1,665	
	Equipment & Supplies/Library			335			146			
	Depreciation									
	Miscellaneous		3,737			2,200	244	101	2	462
TOTAL EXPENDITURES		992	27,460	63,164		9,081	5,217	4,163	12,454	4,714
SURPLUS OR DEFICIT ON OPERATIONS		3	1,561	26,610	5253	328	784	1,633	2,995	2,692
ASSETS	Current assets	5,569	118,232	108,438		26,234	30,907	17,753	12,119	21,667
	Capital assets	811	22,519	208,500		104,178			37,209	
	Total assets	6,380	140,751	316,938		130,502	30,907	17,753	49,328	21,667
LIABILITIES	Current liabilities		109,390							740
	Long-term liabilities			24,750						
EQUITY	Net Equity	6,380	31,361	292,188		130,502	30,907	17,753	49,328	20,927
TOTAL LIABILITIES AND EQUITY		6,380	140,751	316,938		130,502	30,907	17,753	49,328	21,667

CENTRE TREASURERS' REPORTS FOR FISCAL YEAR 2019

		C. F. de Montréal	New Brunswick	Niagara	Okanagan	Ottawa	Prince George	Regina	St. John's	Sarnia
REVENUE										
Membership	Membership Fees—Centre Fee	3,793	1,845	300	2,977	7,189	1,419	769	1,742	300
	Membership Fees—Affiliate									
	Membership Fees—other				640			520		
	Centre Newsletter									
Donations / Fundraising	Donations	1,412	25		20,644	1,262	3,274	539	361	
	Fundraising				7,799		12,000	2,800		
Sales Revenue	Sale of <i>Observer's Handbooks</i>									
	Sale of <i>Observer's Calendars</i>	765	963	150	880	1,478	707	755	864	150
	Other Publication Sales									
	RASC promotional items				93					
	Other Sales	75			2,155		66	5,363		
Subscription Revenue	<i>Astronomy / Sky & Telescope</i>									
	Other									
Events Revenue	Star Parties							928	944	
	Annual Dinner				7,381	3,943				
	Astronomy Day									
	Other Events						769	568		
General Assembly Revenue	General Assembly									
Miscellaneous Revenue	Interest and Dividends	801			21	1,100			200	
	Advertising									
	Observatory Site					438				
	Equipment Rentals/Loans				35	325			35	
	Public services, events, outreach					225				
	Miscellaneous				342	960				
TOTAL REVENUE		6,846	2,833	450	42,967	16,920	18,235	12,243	4,146	450
EXPENDITURES										
Sales Expenses	RASC Publications	716	849	150	732	1538	1,102	994	898	150
	Other Publications		396						176	
	Newsletter				48					
	RASC promo items				124	750				
	Other		34	71		38				71
Event Expenses	Star Parties	1,257	312			561		27	616	
	Annual Dinner	893	481		3,100	4,819				
	Astronomy Day									
	BIYA									
	Meetings	560		141	225	297		1,485		141
	Other Events				1,036		37			
Travel	General Assembly and Council Meetings	500	346		563					
Administrative Expenses	Office Administration	167	131			721	786	405	106	
	Equipment and Supplies	274			594		169		87	
	Insurance	1,002	23		400	1,434	1,598		460	
	General Expenses and Audit						259	391		
	Awards					311			150	
	Donations		20			150				
	Advertising						156			
Miscellaneous Expenses	Observatory and Site Expenses				25,092	1,563	7,164	718		
	Equipment & Supplies/Library				47	25				
	Depreciation	3,309				2,609				
	Miscellaneous	89			445		1,019	587	44	
TOTAL EXPENDITURES		8,767	2,592	362	32,406	14,816	12,290	8,493	2,637	362
SURPLUS OR DEFICIT ON OPERATIONS		(1,921)	241	88	10,561	2,104	5,945	3,750	1,509	88
ASSETS	Current assets	72,743		2,688	51,547	59,077	1,3974	21,962	6,743	2,688
	Capital assets	30,018			273,488	21,042	121,075	72,726	23,532	
	Total assets	102,761		2,688	292,926	80,119	127,589	94,688	30,275	2,688
LIABILITIES	Current liabilities					1,580	1,547		515	
	Long-term liabilities									
EQUITY	Net Equity	102,761		2,688	324,905	78,539	133,502	94,688	29,760	2,688
TOTAL LIABILITIES AND EQUITY		102,761		2,688	324,905	80,119	135,049	94,688	30,275	2,688

CENTRE TREASURERS' REPORTS FOR FISCAL YEAR 2019

		Saskatoon	Sudbury	Sunshine Coast	Thunder Bay	Toronto	Vancouver	Victoria	Windsor	Winnipeg	Yukon
REVENUE											
Membership	Membership Fees: Centre Fee	2,045	313	972	1,098	17,849	5,716	5,240	2,601	3,941	1,099
	Membership Fees: Affiliate										
	Membership Fees: other										
	Centre Newsletter	20									
Donations / Fundraising	Donations	2,231	303	3,781	150	14,952	260	332	1,095	525	250
	Fundraising	40					420		488		43,996
Sales Revenue	Sale of <i>Observer's Handbooks</i>						200				
	Sale of <i>Observer's Calendars</i>		160	274	200	1,900	1,328	925	400	308	
	Other Publication Sales							250	1,660		
	RASC promotional items						96	464			
	Other Sales	360					810	185			
Subscription Revenue	<i>Astronomy / Sky & Telescope</i>										
	Other										
Events Revenue	Star Parties	17,691						381			205
	Annual Dinner										
	Astronomy Day										
	Other Events							334			
General Assembly Revenue	General Assembly										
Miscellaneous Revenue	Interest and Dividends	221			10		5,823	12		35	
	Advertising										
	Observatory Site								916		
	Equipment Rentals/Loans	235				7,165					
	Public Services, events, outreach					25,739			250		
	Amortized deferred capital contributions					10,243					
	Miscellaneous					1,026					
TOTAL REVENUE		22,843	776	5,027	1,458	78,874	14,653	8,123	7,410	4,809	45,550
EXPENDITURES											
Sales Expenses	RASC Publications	481	148	299	437	3,521		693	344	809	
	Other Publications				71				1,456	396	
	Newsletter	256					1,217	389			
	RASC promo items			430	35		490	319		356	
	Other	35					2,765	477		80	
Event Expenses	Star Parties	15,662						1,384			50
	Annual Dinner										
	Astronomy Day						551	75			
	BIYA										
	Meetings	131		1,109			3,002	110	1456	500	143
	Other Events	133		20			2,808	848			
Travel	General Assembly and Council Meetings	196					334			542	
Administrative Expenses	Office Administration	234		91	49	44,440	598	1,025		67	51
	Equipment and Supplies			85			141		121	188	
	Insurance	1,452	361	988			400	535	619	701	684
	General Expenses and Audit					7,008	578				
	Awards						500	772		50	
	Donations		12								
	Advertising						95		390	313	
Miscellaneous Expenses	Observatory and Site Expenses	721		4,740			451	2,086	1,719	456	548
	Equipment & Supplies/Library										
	Depreciation	1,396				18,670	608	725			
	Miscellaneous			118	180		976	758		50	200
TOTAL EXPENDITURES		20,697	521	7,881	772	73,639	15,513	10,195	6,105	4,508	1,676
SURPLUS OR DEFICIT ON OPERATIONS		2,146	255	(2,854)	686	5,235	861	(2,072)	1,305	301	43,874
ASSETS	Current assets	26,384	612	3,804		141,003	355,210	9,922	9,250	19,219	3,474
	Capital assets	26,522	76,500	57,892		335,297	21,062	39,677	80,000	25,000	99,469
	Total assets	52,906	77,112	61,695		476,300	376,272	49,599	89,250	44,219	102,943
LIABILITIES	Current liabilities					18,529					3,321
	Long-term liabilities					50,776					64,347
Equity	Net Equity	52,906	77,112	61,695		406,995	376,272	49,599	89,250	44,219	
TOTAL LIABILITIES AND EQUITY		52,906	77,112	61,695		476,300	376,272	99,198	89,250	44,219	102,943

DONATIONS 2019

Fundraising Committee Report

I would like to extend sincere thanks to everyone for their invaluable support of the Royal Astronomical Society of Canada! Every year, members give thousands of volunteer hours to program and event delivery at the national and local levels and many provide generous financial gifts. Thank you all so very much!

Total contributions from members, foundations, and funders in 2019 approached \$300,000—a significant sum to help advance the Society's charitable mission. Over 500 donations were made by 330 donors, an astronomical increase in the number of gifts over the past few years.

In addition, the National office receives some donations designated to Centres. Last year, \$12,225 from 220 donors was forwarded, a

26% increase from \$9,700 in gifts received in 2018. The Fundraising Committee welcomes the opportunity to work with Centres on revenue generation and invites discussion on how we may collectively raise more dollars in support of new or expanded astronomy programming. Please don't hesitate to contact us at any time with your thoughts and ideas.

As a board member, I make donor thank you calls every month and it's such a pleasure to learn of the passion and commitment the Society has from members across the country. Again, thank you for your support.

Sincerely,

Charles Ennis
Fundraising Committee Chair



Dr. Allan Carswell (centre) with Lisa Di Veto, Fund Development (left) and Randy Attwood, Executive Director, right.

Two significant funding announcements were made at the 2019 General Assembly. Marshall McCall, Chair of York University's Department of Physics and Astronomy, opened the ceremonies by introducing Dr. Allan Carswell, a world renowned physicist who developed LiDAR systems and applications for airborne surveying, 3D imaging, atmospheric measurements and space systems. Dr. Carswell, President of the Carswell Family Foundation, spoke of "Philanthropic Approaches to Community Outreach" and announced the Foundation's funding of \$100K a year for three years for astronomy education and outreach. This significant grant will allow RASC to engage a Marketing and Communications Coordinator to provide vital support for centre and committee astronomy initiatives. The funding is matched meaning RASC must raise an additional \$100K which will in fact, double the value of this generous gift.

The following day, RASC Kitchener-Waterloo member Rudolph Dorner made a stunning announcement to GA attendees. Mr. Dorner



Rudolph Dorner (centre) with Paul Mortfield (left) and Randall Rosenfeld (right).

pledged a \$1.5 million bequest to establish the Dorner Telescope Museum. The museum's mission is to showcase the remarkable and largely unknown story of astronomical optics in Canada from the beginnings to the present by forming a world-class institution to "tell the story" of the instruments, their makers and their users. Mr. Dorner envisions an artifact rich museum that will offer a robust interactive aspect to visitors. R. A. Rosenfeld has been named Director. Kindly contact Mr. Rosenfeld if you have museum quality artifacts to donate to the Dorner Telescope Museum. He can be reached at rosenfel@chass.utoronto.ca. In advance of Mr. Dorner's Will being in effect, Mr. Dorner has thoughtfully committed annual support of \$25K.

We are extremely grateful to Allan Carswell and Rudolph Dorner for their visionary and exceedingly generous contributions to the Royal Astronomical Society of Canada. Their gifts will allow the Society to continue delivering its important mandate of astronomy education and outreach and support the further expansion of RASC's astronomical endeavours!

DONATIONS 2019

The Royal Astronomical
Society of Canada
Charitable Registration
#119126282 RR0001

RASC Donations

\$100–\$249.99

Anonymous
John Allard
James Ansley
Peter Ashenhurst
Dirk Auger
Denise Ballentine
James Barrie
Fritz Boehm
Elaine Bonnenfant
William Bradley
Donald Bradt
Eric Briggs
Gary Bunclark
Joanne Burns
David Chapman
Johnnie Chernusky
David Chisholm
Michael De Robertis
Gay Docherty
Charles Ennis
Joyce Feinberg
Gary Finley
Donald Funston
Christopher Gainor
William Gamec
Randolf Girardin
Frank Graham
Randolph Groundwater
Yvan Guay
Nikola Halar
Lloyd Higgs
David Hogg
James Hughes
Norman Jeffery
Cor Kruijer
Heather Laird
Damien Lemay
David Lindo
Andrew Love
Donald Macdonald
Kevin McNamara
Allan Moore
Pranab Mukherjee
Cliff Nordal
Asbjorn Olsen
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David Robinson
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Charles Schaeffer
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Peter Schreibermaier
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Tom Stevens
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David Tindall
Terry Torra
Carl Tubbs
David Turner
Marc Vermette
Jeffrey Walker
Susan Weedon
Michael Wheatley
Eric Wickham
Adela Zyfi

\$250–\$499.99

Jay Anderson
Dale Ellis
Fintan Kennedy
Renata Koziol
John Ross
Blair Stunder

\$500–\$999.99

Raymond Auclair
Donald Morton
Gina Payzant
Robert Thacker

\$1000–\$4999.99

Randy Attwood
Antonio Batek
Christine Clement
Lisa Di Veto
James Edgar
Robyn Foret
Philip Groff
James Hinds
Don Jones

\$5,000.00–\$24,999.99

Anonymous
Canada Summer Jobs

\$25,000–\$100,000

Rudolph Dorner
Trottier Family Foundation
Carswell Family
Foundation

Ruth Northcott Education Fund

\$100–\$249.99

Margaret Scorthorne-Brons
Victor Gaizauskas
Jenna Hinds
David Illig
Shawn Lee
Donald Macdonald
Kevin McNamara
Oliver Robinow
Lauri Roche
Amelia Wehlauf

\$250–\$499.99

Verna McNichol

\$500–\$999.99

Christina Barker
Stephen Bedingfield
Len Chester
James Hesser
John Percy

Legacy Fund

\$100–\$249.99

Heather Dillon
Shawn Lee

\$5,000.00–\$24,999.99

Robert Fidler Bequest

Robotic Telescope

\$100–\$249.99

Scott Alexander
Robert Allin
Patrick Ashmore
James Barrie
Chuck Bennett
Bill Blackwood
Kenneth Boshcoff
Catherine Carr

Gilles Ferrand
Stephan Gabos
Michael Glowacki
Diego Gomez
Peter Hanson
Douglas Hardy
James Hoag
Douglas Hube
Gregory Inglis
Ronald Kerr
Jim Laing
Calvin Lambie
Shawn Lee
David MacKinnon
James Matthews
Alan McKeown
Jim McWilliams
Graham Murphy
Henry Neil
James Olsen
Greg Osborne
Patrick Rooke
Charles Schaeffer
Neil Taylor
Nada Tjanic
David Tremaine
Carl Tubbs
Jeff Vincent
Leonard Walker
Catherine Walkington
Mark Windsor

\$250–\$499.99

James Drinnan
Rick Foster
Gary Irwin
Damien Lemay
Dean Rear
James Skinner

\$500–\$999.99

Richard Armstrong
Stephen Bedingfield

\$1,000–\$4999.99

Randy Attwood
James Edgar

\$5,000 Plus

Kevin Watson

Thank you for your generous support.
Gifts of \$100 plus are gratefully recognized.

2020 AWARD WINNERS

Ken Chilton Prize	Peter Pekurar (Kitchener-Waterloo)	Chant Medal	Michel Duval (Centre Francophone de Montréal)
Service Award	Steve Holmes (Kitchener-Waterloo) Dennis Krause (Okanagan)	The Plaskett Medal	Dr. Simon Blouin (Université de Montréal)
Fellowship Award	Dave Chapman (Halifax) Randall Rosenfeld (National Member)	Simon Newcomb Award	John A. Read (Halifax)
		Qilak Award	not awarded

2019 CERTIFICATES

EXPLORE THE MOON—BINOCULAR

Leon Brown (Calgary)

EXPLORE THE MOON—TELESCOPE

Larissa Awad (Mississauga)

Randy Enkin (Victoria)

Henry Leparskas (London)

EXPLORE THE UNIVERSE

Berta Beltran (Edmonton)

Cole Beselaere (Sarnia)

Thomas Bracken (Montreal)

Leon Brown (Calgary)

Nora Jean Chetnik (National Member—USA)

Robin Clarke (Winnipeg)

Jean-Mark Drapeu (New Brunswick)

Kevin Dromereski (Winnipeg)

Suzanna Nagy (Vancouver)

Nick Pierre (Toronto)

Corrine Robinson (Winnipeg)

Nicole Laporte (Montreal)

Vasileios Varsamis (National Member—Greece)

Catherine Wigorski (Calgary)

FINEST NGC

Murray Campbell (Ottawa)

Nick Pierre (Toronto)

MESSIER OBJECTS

Nick Pierre (Toronto)

Denis Pilon (Regina)

Westcott Loudon (Calgary)

Ingrid G. de Buda (Ottawa)

Chris Vaughan (Toronto)

ISABEL WILLIAMSON LUNAR OBSERVING PROGRAM

Kirby Alguire (National Member)

PAST AWARD WINNERS

Below is a list of former winners of the Society Awards.

For names before 2000, please refer to "Looking Up—A History of the RASC" by Peter Broughton. www.rasc.ca/sites/default/files/LookingUp-300-text.pdf

For names after 2000, go to the RASC website www.rasc.ca/rasc-awards

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) |
| | | 2008 | Dr. Geoff Gaherty (Toronto) |
| | | 2018 | Peter Broughton (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) | 2016 | Jay Anderson (Winnipeg)
Alan Batten (Victoria)
Doug Hube (Edmonton)
Franklin Loehde (Edmonton)
Patrick Kelly (Halifax) |
| 2015 | Robert Dick (Ottawa)
Dave Lane (Halifax)
Dr. John Percy (Toronto)
Mary Lou Whitehorne (Halifax) | 2018 | Peter Jedicke (London) |

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.

- | | | | | | |
|------|--|------|--|------|--|
| 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) | | Kim Hay (Kingston)
Marc Keelan-Bishop (Belleville)
Don Kelly (New Brunswick)
Rémi Lacasse (National Member)
Dave Lane (Halifax)
Damien Lemay (Québec)
Ron Macnaughton (Toronto)
Chris Weadick (New Brunswick)
Jennifer West (Winnipeg) |
| | | 2009 | Brian Battersby (Prince George) | | |
| | | 2010 | Brian Battersby (Prince George)
Lise Charlebois (National Member)
Ted Dunphy (New Brunswick)
Paul Gray (New Brunswick) | | |
| | | | | 2012 | Holly Ayles (New Brunswick) |
| | | | | 2014 | 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.

- | | | | |
|------|---|------|---|
| 2006 | Dr. Lauren A. MacArthur (British Columbia) | 2013 | Dr. Yasuhiro Hasegawa (McMaster University) |
| 2007 | Dr. Frédéric Grandmont (Université Laval) | 2014 | Dr. Andrew Pon (University of Victoria) |
| 2008 | Dr. Adam Muzzin (University of Toronto) | 2015 | Dr. Anne Archibald (McGill University) |
| 2009 | Dr. Catherine Lovekin (Saint Mary's University) | 2016 | Dr. Jonathan Gagné (Université de Montréal) |
| 2010 | Dr. Helen Kirk (University of Victoria) | 2017 | Dr. Fereshteh Rajabin (Western University) |
| 2011 | Dr. Kaitlin Kratter (University of Toronto) | 2018 | Dr. Gwendolyn Eadie (Queen's University) |
| 2012 | Dr. Pier-Emmanuel Tremblay (Université de Montréal) | 2019 | Dr. Alexandra Tetarenko (University of Alberta) |

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); | 2016 Terence Dickenson (Toronto) |
| 2011 Mayer Tchelebon (Toronto) | 2017 Dave Garner (Kitchener-Waterloo) |
| 2012 Randall Rosenfeld (National Member) | 2018 Rick Huziak (Saskatoon) |
| 2013 Dave Lane (Halifax) | 2019 Michael S.F. Watson (National Member) |
| 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) | Mike Moghadam (Ottawa) |
| 2013 Robert Duff (London) | Daniel Brousseau (Sherbrooke) |
| 2014 Dr. Howard Trotter (Vancouver) | 2019 RASC—Chris Curwin (New Brunswick) |
| 2015 Toronto Centre DDO Volunteers (Toronto) | CASCA—Dr. Jan Cami (Western University) |
| 2016 Doug Cunningham (Toronto) | FAAQ—Hugues Lacombe (Club d'astronomie de Charlevoix) |
| 2017 Paul Heath (Halifax) | |
| 2018 Dr. Rob Thacker (Halifax) RASC | |

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.

- | | | |
|--------------------------------|-------------------------------------|---------------------------------------|
| 2010 Guy Mackie (Okanagan) | Chris Stevenson (St. John's) | Grant Rice (Okanagan) |
| Bryan Kelso (Okanagan) | Mary Lou Whitehorne (Halifax) | Brian Lucas (Sunshine Coast) |
| Jim Tisdale (Okanagan) | 2015 David M.F. Chapman (Halifax) | Neil Sandy (Sunshine Coast) |
| Barry Matthews (Ottawa) | Colin Haig (Hamilton) | 2019 Michael Bradley (Sunshine Coast) |
| Curt Nason (New Brunswick) | Chris Malicki (Mississauga) | Joanne Burns (Belleville) |
| 2011 Robert Dick (Ottawa) | 2016 Andy Blanchard (Hamilton) | Phil Chow (Toronto) |
| 2012 Roland Dechesne (Calgary) | Gary Bennett (Hamilton) | Bruce Fryer (Sunshine Coast) |
| James Edgar (Regina) | Paul Gray (Halifax) | Robyn Foret (Calgary) |
| Fred Smith (St. John's) | Hugh Pett (Okanagan) | Mike Hanes (London) |
| 2013 Larry McNish (Calgary) | Chris Teron (Ottawa) | A.W. Scott Masterton (Toronto) |
| Dietmar Kupke (Toronto) | 2017 Eric Briggs (Toronto) | Ed Mizzi (Hamilton) |
| Brian McCullough (Ottawa) | Simon Hanmer (Ottawa) | Blake Nancarrow (Toronto) |
| 2014 Jay Anderson (Winnipeg) | Katrina Ince-Lum (Toronto) | Roger Nelson (Calgary) |
| Dave Gamble (Okanagan) | Michael Moghadam (Ottawa) | Vance Petriew (Regina) |
| Susan Gagnon (Kingston) | Charles O'Dale (Ottawa) | Linda Pulliah (National Member) |
| Dr. James Hesser (Victoria) | Dr. Brian Pihack (Niagara) | Laurie Roche (Victoria) |
| Greg Lisk (Belleville) | Betty Robinson (Mississauga) | Rick Saunders (London) |
| | Randall Rosenfeld (National Member) | Danny Sklazeski (Sunshine Coast) |
| | Stan Sammy (Niagara) | Leslie Strike (Mississauga) |
| | Gerry Smerchanski (Winnipeg) | David Thompson (Sunshine Coast) |
| | Don Town (Belleville) | Luca Vanzella (Edmonton) |
| | 2018 Colleen O'Hare (Okanagan) | |

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 (National Member)	2002	Dr. David Levy (Kingston)	2011	Jay Anderson (Winnipeg)
1999	Terence Dickinson (Toronto)	2003	Alister Ling (Edmonton)	2012	Randall Rosenfeld (National Member)
2001	Dan Falk (Toronto)	2004	Mary Lou Whitehorne (Halifax)	2013	Alan Whitman (Okanagan)
		2006	Dr. Warren Finlay (Edmonton)	2016	Martin Hellmich & Halley Davies (Halifax)
		2007	Alan Dyer (National Member)	2017	Ivan Semeniuk (Toronto)
		2008	Gary Seronik (Victoria)	2018	Nicole Mortillaro (Toronto)
		2009	James Edgar (Regina)		

HONORARY MEMBERS OF THE RASC

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

PAST APPOINTED AND 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	Dr. Jack Locke
2001-2005	Dr. Roy Bishop
2005-2010	Dr. Robert Garrison
2010-2013	Dr. James Hesser
2013-2018	Dr. John Percy
2018-2022	Dr. Douglas Hube

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
2014-2016	James Edgar
2016-2017	Craig Levine
2017-2018	Colin Haig
2018-	Dr. Chris Gainor

Secretaries

1999-2005	Kim Hay
2005-2007	Stan Runge
2007-2014	James Edgar

2014-2016	Dr. Karen Finstad
2016-2018	Charles Ennis
2018-2020	Roger Nelson
2020-	Eric Briggs

Treasurers

1998-2004	Michael Watson
2004-2006	David Clark
2006-2007	Alan Whitman
2007-2012	Mayer Tchelebon
2012-2016	Denis Grey
2016-2016	Susan Yeo
2016-2017	Colin Haig
2017-2018	Anthony Gucciardo
2018-	Catherine Carr

GENERAL ASSEMBLIES—2001 TO 2019

The following Centres hosted the General Assembly from 2001 to 2020:

2001	London	2008	Toronto, Mississauga and Hamilton
2002	Montréal	2009	Saskatoon
2003	Vancouver	2010	New Brunswick
2004	St. John's	2011	Winnipeg
2005	Okanagan	2012	Edmonton
2006	Ottawa	2013	Thunder Bay
2007	Calgary	2014	Victoria
		2015	Halifax
		2016	London

2017	Ottawa
2018	Calgary
2019	Toronto, joint with AAVSO
2020	Vancouver—remotely

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

2021	TBD
------	-----

OFFICERS AND COUNCILS OF THE CENTRES—2020

BELLEVILLE CENTRE

c/o Greg Lisk
11 Robert Drive
Trenton ON K8V 6P2
rascbelleville.ca
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