

H.R. MacMillan Space Centre Society
ANNUAL REPORT 2019

***LIKE NO PLACE
ON EARTH...***

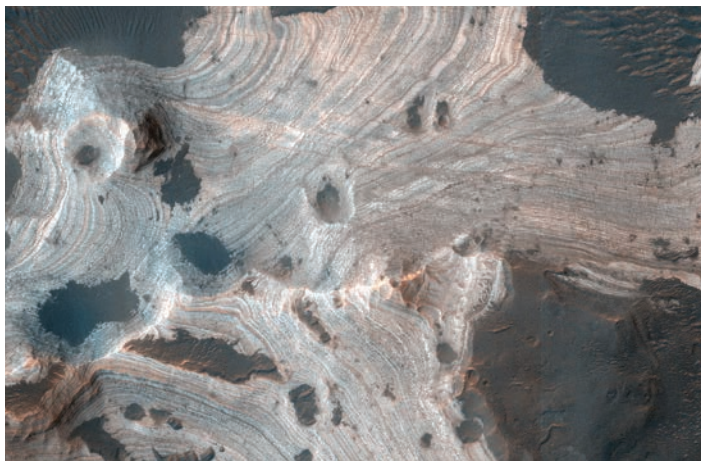




Image Name: Falcon 9, Crew Dragon Roll to Launch Pad
Credit: SpaceX
Image Source: www.nasa.gov

Front Cover Image: Sedimentary Layers of Mars
Credit: NASA/JPL-Caltech/University of Arizona
Image Source: www.nasa.gov

Back Cover Image: A Trail of Night Lights
Credit: NASA
Image Source: www.nasa.gov

"Never limit yourself because of others' limited imagination; never limit others because of your own limited imagination."

- Mae Jemison, *Engineer & Physician*
Former NASA Astronaut
First Black Woman in Space

OUR MISSION

To educate, inspire, and evoke a sense of wonder about the universe, our planet, and space exploration.

OUR VISION

An inspired and imaginative community connecting society, culture, and science to facilitate experiences that are... like nothing on *Earth*.

OUR VALUES

Wow · Innovation · Collaboration · Community



Message from the Board Chair and Executive Director

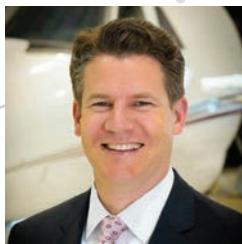
BREAKING THE BARRIERS TO SCIENCE LITERACY

It is another stellar year!

At the H.R. MacMillan Space Centre, people are at the heart of what we do. Every time we improve someone's life through their Space Centre experience, we are succeeding. From the launch of new *Space Centre on the Go!* programs that reach new populations to the addition of new exhibit elements in our gallery—the Space Centre is always evolving in exciting and unexpected ways.

The work we do is boosted by spaces designed (and renovated!) to inspire, community voices starting new dialogues and movements, Space Centre staff dedicated to finding answers, and the simple joys of discovering a new idea or attending a unique event. Welcoming people to tackle difficult conversations and work on solutions together is part of how we connect to our community. Possibility is all around us, and it looks different every day. We think that's visible in these pages.

Our community members and our stakeholders are our biggest champions and change-makers. We can't wait to see what we do next, together. Thanks for coming along for the journey.



Jonathan Burke
Chair, Board of Directors



Raylene M. Marchand
Executive Director

OUR BOARD

We would like to extend a warm thank you to our Board of Directors who continue to serve with passion, dedication and commitment. We extend our deepest gratitude for their significant and valued contributions.

- Keith Acton
- Matthew Anthony, Past Chair
- Dr. Aaron Boley
- Jonathan Burke, Chair
- Eric Hopkins
- Derek Lew
- Larkin MacKenzie-Ast
- Deidre Reid
- Greg Stanway
- Roger Watts



SPONSORS AND DONORS

New community touchpoints extend our service beyond our physical locations and create connections to our community in convenient places, building awareness and encouraging science literacy.

The H.R. MacMillan Space Centre is honoured to recognize two of our community partners this past year for ongoing work in support of our mission.

AEROSPACE INDUSTRY ASSOCIATION OF CANADA

With a generous donation from the Aerospace Industries Association of Canada, 84 students (grade six) from Stride Elementary in Burnaby participated in a day of aeronautic programming where they explored the mechanics of flight. Students participated in our *Space Launch Challenge* workshop, watched the GroundStation Canada show, *Rocket Lab* and then joined us in the planetarium theatre to explore *The Universe*.

CHEVRON CANADA

Our tour of northern BC libraries is one of the programming highlights of our year—it is our chance to help kids in the north find their science passion. In urban centres many have access to hands-on science camps, but kids in more remote communities have much fewer opportunities to participate in science activities. Our programming was inspired by the theme chosen by libraries for their Summer Reading Club. Each customized program included STEAM opportunities like makerspace, coding and, in the summer of 2019, a reflection on the Apollo 11 Moon landing!



PARTNERS AND SUPPORTERS

GOVERNMENT PARTNERS

Young Canada Works
Province of British Columbia
City of Vancouver

PROGRAM PARTNERS

Adam Dvorak
Adler Planetarium
Alex Weber
Bard on the Beach
British Consulate General Vancouver
Bulkley Valley Museum
Canadian Association of Science Centres
Canadian Museum Association
Canadian Space Agency
Carina Graf
Christopher Blaber
City of Surrey
City of Vancouver Archives
Dr. Aaron Boley
Dr. Alex MacKay
Dr. Irene Vavasour
Dr. Mark Jellinek
Dr. Sun Yet-San Classical Chinese Gardens
Dr. Shannon Kolind
Exploration Place in Prince George
Heidemarie Stefanyshyn-Piper
Jarrett Plett
Knowledge Network
Louise Burns
Metro Vancouver Parks
MineralsEd
Museum of Vancouver
NASA
Outer Rim Garrison, 501st Legion
Prince George Railway and Forestry Museum
Royal Astronomical Society of Canada - Vancouver

Royal Astronomical Society of Canada - Prince George
Sarah Morris
Science World British Columbia
SFU Faculty of Education
SFU Satellite Design Club
Smithers Exploration Group
Starlit Citadel
Surrey School District
Sustainability Group, City of Vancouver
The Borealis Quartet
The Djavad Mowafaghian Centre for Brain Health
The Flame
The Planetary Society
Thomas Beckman
Two Rivers Gallery
UBC Faculty of Education
UBC Faculty of Science
UBC Orbit Satellite Design Team
UBC Teacher Education Office
University of British Columbia
Department of Physics and Astronomy
US Consulate General Vancouver
Vancouver Academy of Music
Vancouver Maritime Museum

CORPORATE & FOUNDATION PARTNERS

Aerospace Industries Associate of Canada
Chevron Canada Ltd.
B.C. Children's Hospital Foundation
British Columbia Psychological Association
Peacock & Martin Imports
Red Truck Beer Company
Sparks Children Education
Tap Media Labs
United Way
ZLC Financial Company

DONORS

Matthew Anthony
Jonathan Burke
Raylene Marchand
Lisa McIntosh
Maryalice Schaffer
Greg Stanway
Roger Watts

Glenn and Annetta Agnew Memorial Fund (Vancouver Foundation)

Anonymous and Point of Light (86)

FOUNDER

H.R. MACMILLAN

PATRON

Mrs. G.T. (Jean) Southam, C.M.

ENDOWMENT FUND

Vancouver Foundation

MEDIA SPONSORS

Breakfast Television
Corus
Crisp Media (Vancouver Mom)
CTV Morning Live
Family Fun Media
Fresh Hat Media (YoYo Mama)
Global
Google
Lamar
Outfront Media



SPACE CENTRE ON THE GO!

The beauty of the Space Centre is our ability to be just what someone needs at just the right time, whether that's a 'first date' on a Saturday evening, an outlet for creative energy, or the source of motivation through visual inspiration, words, music, or friendship. These many moments define our important role in the community...

PERIHELION: The Real New Year's

We rang in the real New Year on January 2 as we marked perihelion—the moment when the Earth was at its closest point to the Sun for 2019. We celebrated with activities, a tour of our observatory and a special planetarium star theatre show reviewing the astronomy highlights of the past year and the stories to watch for in 2019.

SPACE DEBRIS DAY

Working with local researchers associated with UBC's *Outer Space Institute*, Dr. Aaron Boley, Professor Michael Byers, and experts from MDA we talked about the debris orbiting Earth and the issues related to the sustainable use of space.

VENUS AND MARS: A LOVE STORY

We celebrated Valentine's Day this year by delving into the two heavenly bodies of Venus and Mars. Our event included music in the planetarium star theatre with Jody Glenham, cosmic drinks and appetizers and a rousing debate about which planet would make a better place for a date—Venus or Mars (Venus won!).

PERSPECTIVES ON THE SOLSTICE

We partnered with the *Museum of Vancouver* to host an adult-only event that explored the summer solstice through scientific and cultural lenses. Over 500 guests explored the galleries, participated in special solstice-themed programming with guest experts and a special live planetarium star theatre show about the solstice.

APOLLO: AN EVENING OF MUSIC AND EXPLORATION

Acclaimed musicians, *Elastic Stars*, played a selection of original songs and covers, and took part in a discussion on space exploration under the visuals of the planetarium star theatre.

GEORGES MÉLIÈS' A TRIP TO THE MOON (1902)

An evening of live music by Owen Connell accompanying the classic films by French cinematographer Georges Méliès. Films include *A Trip to the Moon* (1902), *The Impossible Voyage* (1904), and a film that Thomas Edison made *A Trip to Mars* (1910). Film historian Michael Van Den Bos, and the Space Centre's astronomer Rachel Wang provided context and discussion about the films.



STRIKING A CHORD

We love when our initiatives surprise and delight our community. These initiatives are often the ones that call on us to redefine what is modern in our world. Looking back on our 2019 year, it's the moments, big and small, that speak to our community impact...

SPLENDOR IN SPACE: A DRAG ODYSSEY

Our first all ages drag performance with music and astronomy was set within the context of the 60's space race. Local drag performer Shanda Leer and program coordinator Michael Unger guided our audience through a fun evening of exploration. The evening included live drag performances, storytelling and conversation with our performers Shanda Leer, Dust and Rose Butch.

PASSION FOR ASTRONOMY In Conversation with Dr. Elizabeth Tasker & Author Ria Voros

The two authors discussed how they came to work together through Ria's novel. Ria explained the backstory and process to her novel, *The Centre of the Universe* and how the use of space metaphors have helped explain relationships between the characters.

APOLLO 50

We marked the 50th Anniversary of *Apollo 11* landing on the Moon through special programming all summer long. We brought some of the challenges of this historic achievement in space exploration live with a new planetarium star theatre show, *Capcom Go!*, a GroundStation Canada science demonstration show, *Science of the Impossible*, and activities in our Cosmic Courtyard exhibit. The highlight of the celebrations was a premiere event with the *Canadian Space Agency*. We hosted CSA astronaut Jenni Sidey in our planetarium star theatre and connected virtually with Dr. Robert Thirsk (former CSA astronaut) live from the Ontario Science Centre and David Saint-Jacques (current CSA astronaut) at the Montreal Science Centre for a presentation and an opportunity to ask questions of Canadian astronauts.

QWALENA: THE WILD WOMAN WHO STEALS CHILDREN

We worked with Indigenous storytellers Dallas Yellowfly and Alysha Collie to redevelop their theatrical production of *Qwalena: The Wild Woman Who Steals Children* for our planetarium star theatre. The performance integrates multimedia and storytelling to create awareness of the intergenerational impact of Indian Residential Schools.

UNIVERSE OF THE BRAIN

We continued our partnership with the Djavad Mowafaghian Centre for Brain Health as we explored the research into wellbeing and the brain. This unique partnership always introduces new and exciting experiences into our programming and this year was no exception. The *Build a Better Brain* event modelled ways we can all have better brain health by exposing us to live music and a sing along with a student choir from University Hill Secondary School, an exercise session for all of our guests, and a great chance to learn from our experts, Dr. Lara Boyd and Dr. Silke Cresswell.

IMPACT AT A GLANCE

142,873
annual visitors

24,160
school group participants

3230
starry night sleepover
participants

18,647
special event program attendees

6716
portable planetarium visitors





Image: Astronauts Complete 2nd Phase to Repair Alpha Magnetic Spectrometer
Credit: NASA
Image Source: www.nasa.gov

"What everyone in the astronaut corps shares in common is not gender or ethnic background, but motivation, perseverance, and desire — the desire to participate in a voyage of discovery."

- Ellen Ochoa, Engineer
Former NASA Astronaut
First Hispanic Woman in Space

VIBRANT SPACES

We updated content, images, design, and graphics as well as refreshed the infrastructure in our exhibition spaces. A few highlights from 2019...

ALIEN ENCOUNTERS

Working with NGX Interactive, a local digital design firm known for storytelling experiences, we re-developed our very popular *Alien Encounter* exhibit and invited visitors to take the helm as an exobiologist to find alien life on exoplanets.

TOUR OF THE SOLAR SYSTEM

Working with local company, Tap Media Labs, an interactive video company, we developed an interactive tour of the solar system allowing visitors to take a deep dive into the current discoveries of the science of our solar system.

INSPIRING EXPLORATION

We reconfigured our rocket technology space and created a new small exhibit to pair model making and the history and future of lunar exploration.

KNOWLEDGE NETWORK SPACE SUITES

We continued to partner with Knowledge Network to showcase their beautifully produced video shorts celebrating the Apollo 11 lunar landing and *Space Suites IV*.

APOLLO 11 50TH ANNIVERSARY

We installed a temporary exhibit celebrating the *50th Anniversary of Apollo 11* landing on the Moon. The exhibit showcased original documents from NASA, newspaper front pages from around the world and models from our collection.



OUR STAFF AND VOLUNTEERS

MANAGEMENT

Raylene M. Marchand
Executive Director

Samaneh Badiei
Director of Finance

Lisa McIntosh
Director of Learning

Annika Penner
Director of Human Resources and Operations

VOLUNTEERS

Arman Athwal
Kieran Duffy
Bryon Elliot
Karen Lee
Rob Lo
Vida Morkuna
Nicole-Ann Poitras

ADMINISTRATION

Ella Guzman
Accounting and Finance Clerk

Jennifer MacDonald
Marketing and Communications Coordinator

Cheryl Sweeney
Bookings and Administration Assistant

GUEST AND RENTAL SERVICES

Jasmine Coble
Guest and Rental Services Supervisor

Therese Edwards
Guest Services Supervisor

Patrick Fergusson
Guest Services Supervisor

Crystal Lai
Guest Services Supervisor

Grant Malo
Guest Services Supervisor

GUEST SERVICES STAFF

Jonathan Fung
Jessica Gerlach
Maeve Knittel
Dicle Kolukisa
Meg Pinto
Shelley Preston
Olga Sokolovska
Allan Soone
Terry Soone
Daniel Vera

LEARNING SERVICES

Christine Henderson
Head Interpreter

Mike Koziniak
Digital Media Producer

Mily Mumford
Multi-Media Producer

Trish Pattison
Programs Coordinator

Jonathan Teague
Head Interpreter

Rachel Wang
Astronomer

Michael Unger
Programs Coordinator

INTERPRETIVE STAFF

Simran Badial
Matthew Beaudoin
Stephane Bernard
Colleen Bignell
Matthew Cimone
Fennie Easton van der Graaf
Pablo Finkel
Mackenzie Fleming
Shannon Gilchrist
Erin Green
Raphael Kepinski
Kenneth Lui
Casey Mok
Mark Moraes
Jamie Purves
Hikari Rachmat
John Reid
Jawad Sakarchi
Michelle Sz
Sophie Yamauchi

TECHNICAL SERVICES

Jason McRae
Chief Technician

Dave Sale
IT Consultant





Image: Bombetoka Bay, Madagascar
Credit: U.S./Japan ASTER Science Team, NASA/GSFC/METI/ERSDAC/JAROS
Image Source: www.nasa.gov

"To fly in space is to see
the reality of Earth, alone.
The experience changed
my life and my attitude
toward life itself."

- Roberta Bondar, Neurologist
Former CSA Astronaut
First Canadian Woman in Space



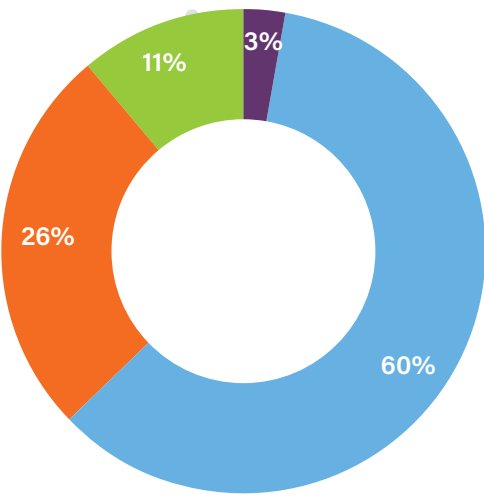
2019 FINANCIAL SUMMARY

The H.R. MacMillan Space Centre Society is proud to be funded in part by the City of Vancouver and the Province of British Columbia. Additional funding is received to support special activities including outreach programming, student hiring grants, and Vancouver Foundation Endowment interest support. The society also generates revenues through admissions and programs, special events, facility rentals and services, and fundraising.

REVENUES	\$
H.R. MacMillan Space Centre Generated	\$ 1,203,315
Municipal Grant	\$519,400
Special Projects and Donations/Gifts	\$220,058
Provincial Grant	\$75,000
TOTAL	\$2,017,773

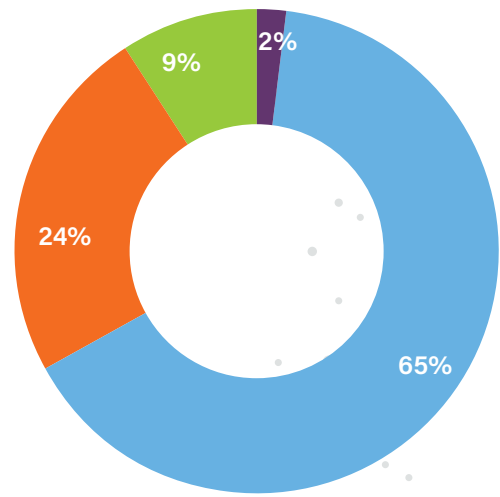
EXPENDITURES	\$
Departmental Expenses	\$1,245,939
Programs and Services	\$449,736
Special Projects	\$168,923
Amortization (Net of Deferred Capital Contribution)	\$41,583
TOTAL	\$1,906,181
SURPLUS	\$111,592

Revenues



- H.R. MacMillan Space Centre Generated
- Municipal Grant
- Special Projects and Donations/Gifts
- Provincial Grant

Expenditures



- Departmental Expenses
- Programs and Services
- Special Projects
- Amortization (Net of Deferred Capital Contribution)



Image: NASA's Juno Spacecraft Has a Close Encounter with Jupiter
Credit: Enhanced image by Gerald Eichstädt and Sean Doran (CC BY-NC-SA)
based on images provided courtesy of NASA/JPL-Caltech/SwRI/MSSSI
Source: www.nasa.gov



Image: ISS
Credit: NASA
Image Source: www.nasa.gov

"On the edge of the Space Station, watching the Earth beneath us, hanging on by a thumb and a forefinger. It was a life-changing moment. When you see the thinness of the atmosphere, you appreciate how fortunate you are to live in such a remarkable place, and really how delicate [nature] is from that perspective."

- John Herrington, Naval Aviator
Former NASA Astronaut
First Member of Chickasaw Nation in Space



**H.R. MACMILLAN
SPACE
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