



Annual Report

2022

Shaped by Community

Welcome to H.R. MacMillan Space Centre Society's 2022 Annual Report. This collection of stories offer a glimpse into a year in the life of the Centre, and its ever-evolving role in our community. We hope you enjoy exploring these moments in time and reflecting on what the Centre means to you. When we launched a new Centre brand two years ago at the onset of the pandemic, our colours, functionality, and messaging were all shaped by what we heard and saw from our community. There was a message that became central to the brand, our values, and continues to this day:

Courage - we are always willing to try new things and fail!

Creativity - we use our resources and imagination to offer inclusive experiences that inspire curiosity!

WOW - we aim for everything we do to have a wow factor that blows your mind and makes you curious to learn more!

This year's report represents all these aspects of the Centre, and how they combine to make a whole. Belonging to everyone, founded for common good, constantly changing, always yours. From the improvements to our exhibitions and programs and behind-the-scenes work that creates seamless service, to the modern Space Centre's role in exploring human connection and understanding, to community voices ringing loud and true through the spaces of our buildings—please take a look back at a year in the life of our, your: Space Centre. It's something we can all be proud of.

OUR PURPOSE

Inspiring Exploration

We use the universal appeal and science of space as a cultural bridge, bringing people together to activate curiosity, creativity, and community.

OUR MISSION

Learning Without Frontiers

We create an accessible environment where people are encouraged to explore and take risks.

OUR VISION

Creating Experiences of Wonder

We dream of a world filled with inquisitive, open-minded individuals who embrace their differences, connected through discovery and united through a deeper sense of shared humanity.

OUR VALUES

Courageous

We are always willing to say yes to new things and fail – in our pursuit of wonder!

Creative

Inclusive, resourceful, curious and bold.
We are imagination explorers!

WOW

Our experiences external and internal are mind blowing and leave you saying AH-HA!

A Message From the Board Chair and Executive Director

As we look back on 2022, we are pleased with what the H.R. MacMillan Space Centre Society has accomplished in support of the residents of Vancouver, the Lower Mainland, the Province and beyond.

Courage is the foundation for excellent service. Our staff, our buildings, our infrastructure. From here, great things launch and grow.

Creativity and innovation is the merging and mingling of service and community. There is no distinct line between the two.

WOW is how you, our community members, our partners, our volunteers, our champions and changemakers; make this place and all its assets, your own.

The H.R. MacMillan Space Centre and Gordon Southam Observatory is not confined by the walls of its buildings.

We always strive to meet people where they are, and in this past year, as the world began to get back on its feet at varying paces, that intersection and adaptability was even more integral than ever.

We hope that you enjoy the many celebratory stories and photos of our staff, volunteers, neighbours and partners in this report. As we acknowledge the outstanding work of the Centre over the past year, it's also important to look to the future. Space Science Centres' and Museums play a pivotal role in community's access to information and one another. Whether it's building early literacy skills, helping newcomers settle in, or reducing social isolation, our organization offers a guided path to understanding the world around us, and connect us with one another.

Thank you to our entire community for your engagement with the H.R. MacMillan Space Centre Society. You're the reason we're here.



Larkin MacKenzie-Ast
Chair, Board of Directors



Raylene M. Marchand
Executive Director

Our Board



Keith Acton



Damineh Akhavan



Matt Anthony



Dr. Aaron Boley



Jonathan Burke
Past Chair



Wade Grant



George Hemeon



Rowena Laing



Derek Lew
Vice Chair



Dr. Allison Man



Paul Moore
Treasurer



Greg Stanway
Secretary



Roger Watts



Dr. Sara Weinstein

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Young Canada Works

Canadian Council of Archives

CEWS

Province of British Columbia

BC Tourism Anchor Attractions Program

Direct Access Gaming Program

City of Vancouver

Cultural Services Grant Program

Corporate Partners

Telus Optik

Program Partners

Alysha Collie, 3 Crows Productions

Anthony Casey, NASA

Continental Breakfast, Drag Artist

Carmelo Esterrich, Columbia College

Dallas Yellowfly, 3 Crows Productions

Dr. Aaron Rosengren, University of San Diego

Dr. Darren McKnight, Senior Technical Fellow, LeoLabs

Lilian Li, Tea artist/Cultural Specialist

Maiden China, Drag Artist

Maude Lariviere, Master's Student, UBC

Megan Russell, Planetary Science Institute

Milad Tangshir, Star Stuff Director

Nathalie Ouellette, JWST Outreach Scientist

Shanda Leer, Drag Artist

Rachel Wang, Master's Student, UBC

Shandin Pete, Assistant Professor, UBC

Organizations/Groups

501st Legion Outer Rim Garrison

Canadian Association of Science Centres

Canadian Museums Association

Canadian Space Agency

Chinese Canadian Museum

Dr. Sun Yat-Sen Chinese Garden

Joyful Learners

Metro Vancouver Parks

Simbi Foundation

Donors

Keith Acton

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Paul Moore

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Asher Zamluk

Glenn and Annetta Agnew Memorial Fund
(Vancouver Foundation)

Anonymous (4)

Dedicate a Star (104)

Media Sponsors

Destination Travel Network

Google

LAMAR

Members of Vancouver's 501st Legion Outer Rim Garrison, May the Fourth Be With You event



Our Space Centre

Our Centre is the foundation for program and service delivery to the community. Take a look behind the scenes.

Expanding Reach

Beam Us In!

Pass by the Centre and you'll see activity bustling beyond our walls.

Whether it's a group of children launching rockets at the Observatory, a family video calling in the park on the northside of the building, or a boat as it passes by on False Creek to gather weather information, we're sending signals and you're picking them up.

Over the past three years, in response to pandemic-related closures, the Space Centres' dedicated IT Team has been boosting our WiFi signal beyond the borders of our walls. By strengthening our existing signals we've seen improvements in digital access for our guests. Our production team has been working diligently to produce original content for online viewing.

Partner: Telus Optik

Program: *Virtual Cosmic Nights* and *Ask An Astronomer*

Telus Optik joined us again this year to help share our programming through British Columbia and Alberta. We stream our *Virtual Cosmic Nights* and *Ask An Astronomer* programming which is then accessible on our Telus Optik's community channel.

Partner: Simbi Foundation

Program: Online Global Literacy Program

Simbi Foundation is a research-driven non-profit organization seeking to enhance access to quality education in collaboration with remote and refugee school communities. We worked with the Simbi reading technology group who inspire people to read more books, more often! Simbi will pair your voice with the words of a book and shares it with readers around the world. This collaboration and partnership was one way for us to address our goal of access beyond our walls, supports under-represented groups, and addresses literacy on a global scale. You can find more if you search the database. You can also narrate one of the stories if you wish!

Bridging a gap through accessibility, reading, language, and books... it is all part of our commitment to learning and sharing our unique skill set with the community... wherever they are...



Click to watch *Ask an Astronomer*

From the Desk of Mily Mumford, Digital Media Producer

Stepping Into the Future

This year was busy and exciting as we worked to expand how we use video and media in supporting our programming and science communication at the Space Centre. Activities included updating the show manuals and visuals for our Groundstation Canada Shows, which I gave a "makeover" to as we recovered from COVID-19 closures; creating new videos for the planetarium star theatre dome for special events and show updates, including custom video for the *Drag Me to the Moon* event in July. I also worked with Telus Optik to edit and prepare our recorded online programming such as *Ask An Astronomer* and special editions of *Cosmic Nights* for their channels.

At the end of the year I started writing and production development on *Space Jams*, a monthly short documentary YouTube series we will introduce in 2023. This series is hosted by myself and Marley Leacock, our astronomer. It will focus on the ***WOW and Curiosity*** of space science and exploration with demos and science spotlights related to our monthly themes for 2023.

Finding Answers

Archive and Corporate Collection Development

The Space Centre has been working on our archives for several years. In the past year, we have planned and executed on creating a small archival and collection space to store our materials. Through grants and support from the Young Canada Works program and with the help of professional archivist, we have pulled together our collection so that it is catalogued and accessible.

We have also been thankful for the support of a retired staff member who has been working with us to provide providence to many of our three dimensional objects.

FUN FACT: In 2022, the Archives responded to multiple search requests including details on the visit of Prince William and Prince Harry to the H.R. MacMillan Space Centre in 1998 for the Netflix Series *The Crown*.



Image of Abu Simbel temple in Egypt, *Charting the Cosmos* show, 1983



M. Koziniak at the Parthenon in Athens Greece, 1983

From the Desk of Michael Koziniak, Producer, Retired

Helping Document our Past

I started working at what was then called the H.R. MacMillan Planetarium in 1970 at the age of twenty four, and I'm still here! My work in our Archives rooms is focused on helping to add provenance to our vast, amazing and carefully-saved collection of photographic images and physical objects.

There are environments for our theatre from Egypt, Greece and around the world. Many have great stories which I can relate in detail. Some 40,000 slide transparencies were shot to fulfill the specific visual requirements of our over 100 original show productions. Many were shot under unusual lighting conditions and at unusual locations. Shows ranged from ancient theories of the cosmos to flying saucers to classic rock and roll. And many slides shot have yet to be groomed into environments that could still be used in our theatre today!

Physical objects in archives include over a dozen custom-made special effects projectors saved from about 150 we once had in our theatre. A collection of lenses, motors and micro switches make up the "projector" that produced a giant supernova explosion. And the waves of glass in a revolving Pepsi Cola bottle created a beautiful and convincing curtain Aurora Borealis effect.

It is a pleasure to help document our most interesting history.

Evolving Spaces

Exhibition and Website Development

We celebrated two major milestones this past year. We opened a new virtual reality exhibit and our website underwent a major renovation.

In the past year we have worked with John Desnoyers-Stewart, an interdisciplinary artist-researcher pursuing his PhD in Interactive Arts and Technology at Simon Fraser University. We supported his successful application for Canada Council for the Arts Research and Creation Grant funding to produce and beta test *Star Stuff*, a virtual reality and interactive program that has you floating through space and has you move the stars around you! Through these installations the hope is to encourage social connection and collaborative creativity, exploring positive social applications of virtual reality. From our side, we have witnessed the true meaning of collaboration and how spaces shaped by community influence our work and the work of others through the *Star Stuff* exhibition installation.

As well, we renovated our website to more closely connect it to our updated brand story. This work was months in preparation and development. We have more ideas in development about our online presence so stay tuned...



**Space Centre
Website Users
144,425**



**Volunteer Hours
1207**



Star Stuff exhibit



Click to watch *Star Stuff* trailer



From the Desk of Jennifer MacDonald, Marketing & Communications Coordinator

Getting to Know Our Community

In 2022 we did our first-ever comprehensive community survey to better understand the Lower Mainland's awareness, and familiarity with our organization. We also wanted to know what motivated people to visit us and take part in our special events and programming. We hired a local company to design and distribute the survey to a random selection of people living in the Lower Mainland. The survey results showed us where new opportunities exist in our community, and that people are really curious about space science! This important work has helped guide our marketing and programming initiatives for 2023. These findings will steer the way to better serve the public, and reach more people who love space.

2022 Headlines from Space

SpaceX to Launch 1st Saudi Woman to Space

Rayyanah Barnawi was part of the four-person Ax-2 mission to the International Space Station (ISS), making her the first Saudi Arabian woman to make it to the final frontier.

Image Credit: Axiom Space

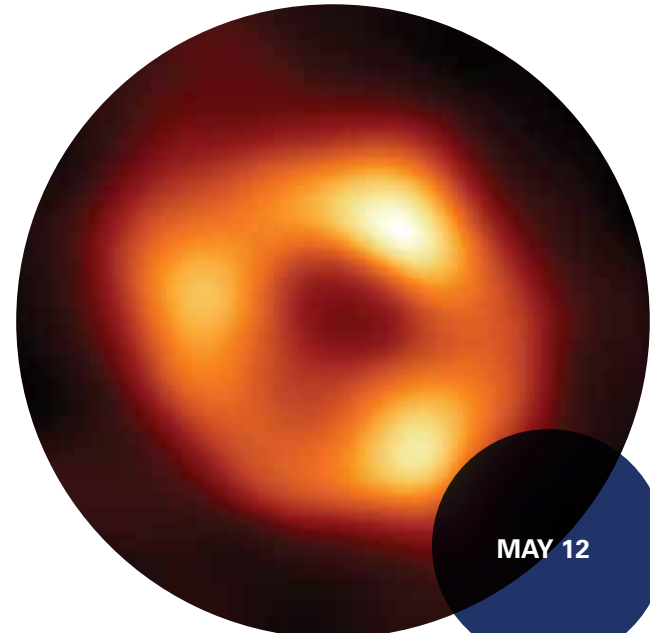


FEBRUARY 12

An Image of Our Own Black Hole

This is the first image of Sgr A*, the supermassive black hole at the center of our galaxy. It's the first direct visual evidence of the presence of this black hole. Scientists with the Event Horizon Telescope (EHT) created the image by combining data from eight radio observatories across the planet to form a single "Earth-sized" virtual telescope.

Image Credit: EHT Collaboration



MAY 12

NASA Announces Plans to Study UAPs

NASA is commissioning a study team to examine unidentified anomalous phenomena (UAPs) – that is, observations of events in the sky that cannot be identified as aircraft or known natural phenomena – from a scientific perspective. The study will focus on identifying available data, how best to collect future data, and how NASA can use that data to move the scientific understanding of UAPs forward.



JUNE 9

James Webb's First Images Released

After launching the James Webb Space Telescope (JWST) at the tail-end of 2021, NASA finally unveiled a highly anticipated series of some of the first galactic images captured by the powerful telescope. The gold-plated JWST, the largest optical telescope in space, easily put the capabilities of its predecessor the Hubble Space Telescope to shame, uncovering details about never-before-seen exoplanets, the earliest stars in the universe, and the farthest galaxies ever known to man.

Image Credit: NASA / ESA / CSA / J. DePasquale (STScI)

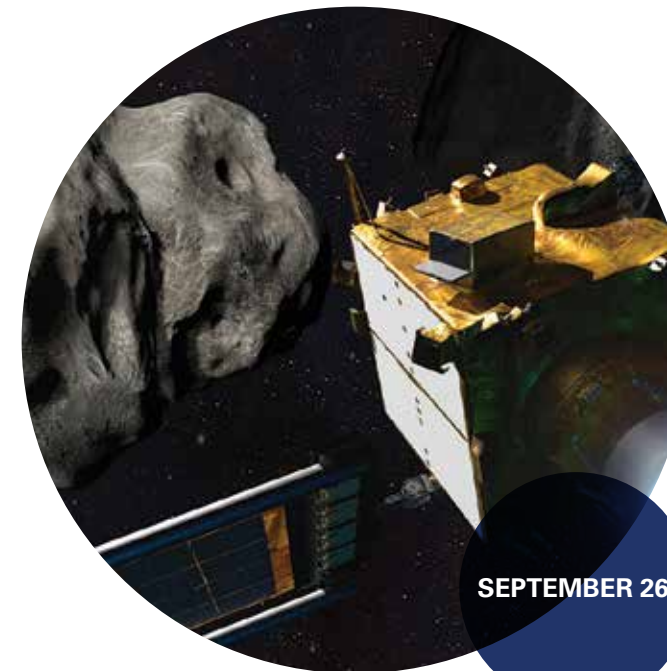


JULY 12

Shifting an Asteroid's Trajectory in Space

After launching in 2021, NASA's Double Asteroid Redirection Test (DART) spacecraft arrived at Dimorphos, a small planet moon of the asteroid Didymos, crashing at high speed into the moon's gray, surface. DART's crash-landing successfully altered the orbit of the space rock. The collision was the intended result of a mission years in the making and the goal of testing if mankind could shift the trajectory of traveling space debris in the name of planetary defense.

Image Credit: NASA/Johns Hopkins APL/Steve Gribben



SEPTEMBER 26

NASA Launches Historic Artemis 1 Mission to the Moon

NASA's Orion spacecraft launched atop the space agency's most powerful rocket yet, the Space Launch System (SLS), marking the first in a series of Moon missions that will ultimately see the first human landing on the Moon since Apollo 17, and to build a base to establish a long-term human presence on the lunar surface. NASA hopes to use lessons learned from the missions to aid in sending the first astronauts to Mars.

Image Credit: NASA



NOVEMBER 16

Your Space Centre

Your Space Centre is the merging and mingling of programs and service and community. The Space Centre is not confined to a single space or traditional idea. More than ever, we are moving beyond our walls, meeting people where they are, and playing a vital role in community wellbeing and human connection.



Science Communication

The Space Centre's Role in Community Wellbeing

The H.R. MacMillan Space Centre has always answered the call of community, by shaping programs, services, and exhibitions to needs and interests. So, when science centre's across Canada were approached to support public health initiatives throughout the COVID-19 pandemic, it was only natural we stepped up to the challenge.

Over the unpredictable course of the past two years, the Space Centre has ensured the conversation and literacy around science and factual information is shared and discussed in an open way. The Space Centre team has pivoted with each new change, providing a trusted public space for access and support.

"My favourite part of the whole evening was when in the live demo there was a disruptive audience member who (to oversimplify) didn't believe in science. The way that the presenter responded to him, with both understanding and thoughtfulness, but also with a lot of respect for everyone else in the room, was one of the most skillfully done things I've ever witnessed. I learned from the exchange. I felt connected to my community. I was impressed and inspired. It was very cool and I was glad I got to witness it (like, I'm sorry for the presenter - I'm sure it was very stressful for him, but it was a real gift for me)."

Cosmic Nights Attendee, November 2022

Space Centre
Visitors
98,207

Special Event
Attendees
22,988

New Content
Developed
49
new programs



Filling Gaps

The Space Centre's Role in Human Connection

Social occasions and events bring people together. Whether it is multiple generations participating in a program, youth learning coding skills, or sharing a fun moment with family, neighbours or new friends, social events connects and nourishes us all.

In 2022, the H.R. MacMillan Space Centre continued its popular science and arts literacy programs and saw opportunities to address social engagement in our community brought on by the COVID-19 pandemic. The Space Centre has transformed into multifunctional gathering places, where you can participate in classes, science-based skills workshops, social events, or take home an art project you completed at one of our programs. As people have returned to our spaces, there is a sense of common interest in the social aspects of organizations like ours, they get to share an experience with others, something people have missed doing for several years.

The Space Centre has really focused on filling gaps in the community, building skills to teach people to understand and explore science and art theory for themselves, to engage again in social activities, and to feel connected to the community they live in...

Welcome

The Space Centre's Role in Creating Community

The intersections of culture, science and society is one way our programming addresses the importance of understanding science within the context of our contemporary society and uses creative elements to help our audience think of the concepts in different ways. We also work to bring together members of our community to talk about their own cultural perspectives of the night sky and share their stories.

Partner: Chinese Canadian Museum

Program: *Pieces of the Moon: The Culture and Science of the Mid-Autumn Festival*

Co-presented by the Chinese Canadian Museum and the H.R. MacMillan Space Centre we celebrated the traditional Chinese Moon Festival with a unique show in the Planetarium Star Theatre. This immersive experience brought together unique Chinese folklore, customs, and lunar science.

During this program, the significance of the Mid-Autumn Festival was introduced along with narrated stories about the Moon goddess *Chang'e*, and her companion, the *Jade Rabbit*.

The Space Centre is YOUR place. It's for YOU, your kids, adults, and children. You can find everything at the Space Centre.



Social Media Engagement

722,200
Facebook reach

106,300
Twitter impressions

51,100
YouTube impressions



Faces of the H.R. MacMillan Space Centre Society

Management

Raylene M. Marchand
Executive Director

Samaneh Badiei
Director of Finance

Lisa McIntosh / Leanne Jung
Director of Learning Services

Lindsay Jang / Daniel Vaughan
Director of Human Resources and Operations

Administration

Virginia Fawkes / Taylor Paulik
Marketing Interns

Ella Guzman / Thereza Paulo-Koo
Accounting and Finance Clerks

Jennifer MacDonald
Marketing and Communications Coordinator

Cheryl Sweeney / Gemma Raines
Bookings and Administration Assistants

Brian Wood
Archives Intern

Guest and Rental Services

Patrick Fergusson
Guest and Rental Services Supervisor

Crystal Lai
Guest Services Supervisor

Dicle Kolukisa
Guest Services Supervisor

Claire Ou
Guest Services Supervisor

Yaashna Chawla
Guest Services Supervisor

Guest Services Staff

Jasmine Coble
Mackenzie Fong
Jonathan Fung
Mars Johnson
Shelley Preston
Ian Serbanescu
Allan Soone
Terry Soone

Learning Services

Matthew Cimone
Head Interpreter

Indira Janzen
Programming Intern

Marley Leacock
Astronomer

Mily Mumford
Multi-Media Producer

Jonathan Teague
Head Interpreter

Michael Unger
Programs Coordinator

Interpretive Staff

Bryce Allen
Matthew Beaudoin
Stephane Bernard
Colleen Bignell
Andrew Ferreira
Shannon Gilchrist
Raphael Kepinski
Kynan Lo
Mark Moraes
Maia Palka
Zachery Podrebersek
Hikari Rachmat
John Reid
Nathalie Richard
Jawad Sakarchi
Najat Zaidan

Technical Services

Neil Chung
Gallery Technician

Craig Hudson
Electronics Technician

Jordon Randall
IT Consultant

Dave Sale
IT Consultant

Volunteers

Serena Chi
Alexander Smyth

My Space Centre

You make the Space Centre better, every day.
The essence of My Space Centre is the essence of you and how you use the Space Centre to improve your life and your community. My Space Centre is creative, has courage and creates WOW experiences for everyone.

We Shine Together

Our (humanity's) sense of place is changing and our programming and partnerships profiles the impact of new scientific discovery on humanity's understanding of our world. This is another primary way we communicate change and its possible impact on our communities and us as individuals.

Award-Winning Iranian Director Milad Tangshir
Vancouver Premiere of *Star Stuff*

Star Stuff is a journey to three important astronomical observatories located in three remote corners of the planet: Atacama Desert in Chile, Grand Karoo in South Africa and La Palma island in the Atlantic Ocean. Three privileged points of observation of the cosmos where, thanks to sophisticated technologies, the international scientific community has achieved brilliant discoveries about the origins of the universe and life on Earth. Near each of these huge telescopes live indigenous communities. Tiny villages of farmers, fishermen and people who have a strong connection to these remote places. Two worlds at the antipodes, which share the same attention to the sky above them and thanks to their visions and interpretations, as different as they are fascinating, help us turn our gaze upwards, towards the stars of which we are made and are part of.



Still from *Star Stuff* film

Our Stories, Our Experiences

Through the Eyes of Indigenous Communities

The H.R. MacMillan Space Centre Society works to spread awareness on various social issues impacting the community in which we live and work. Through engaging sit-down conversations with groups on topics ranging from the impact of residential schools and healing to Indigenous ways of learning and knowledge, the concept of our stories, our experiences empowers community members to use their voices and share their stories.

It is important that we remember that to truly see through someone else’s eyes is to allow them to tell their own stories and not to tell the stories for them.



Community
Event
Participants
8662



Online Program
Participants
7935

Partner: Dallas Yellowfly, Alysha Collie, and 3 Crows Productions
Program: *Qwalena: The Wild Woman That Steals Children*

The purpose of this performance was to create awareness of the intergenerational impact of Indian Residential Schools. Indigenous storyteller Dallas Yellowfly brought *Qwalena: The Wild Woman Who Steals Children* to life in this unique theatrical presentation that was presented in our planetarium star theatre.

Partner: Shandin Pete and the University of British Columbia
Program: *Stories in the Sky: Exploring Indigenous Astronomy*

When you look at the night sky what stories do you see? We learned what the night sky means to various Indigenous communities, we explored perspectives that reflect how they live, and how they understand the universe. Our special guest was Shandin Pete, assistant professor, hydrogeologist and science educator at the University of British Columbia. Professor Pete has an interest and expertise in Indigenous research methodologies, geoscientific ethnography, Indigenous astronomy, culturally congruent instructional strategies,

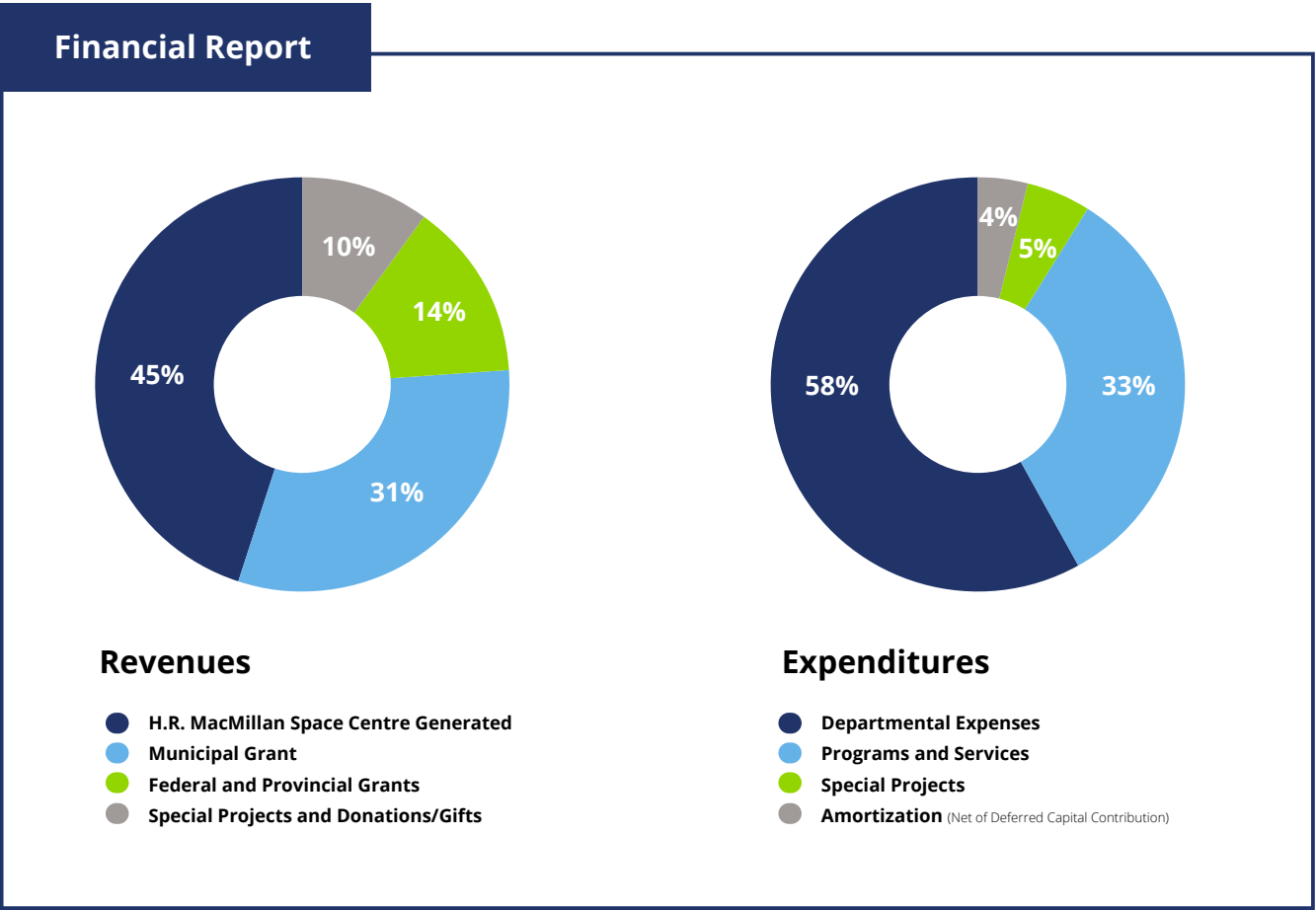
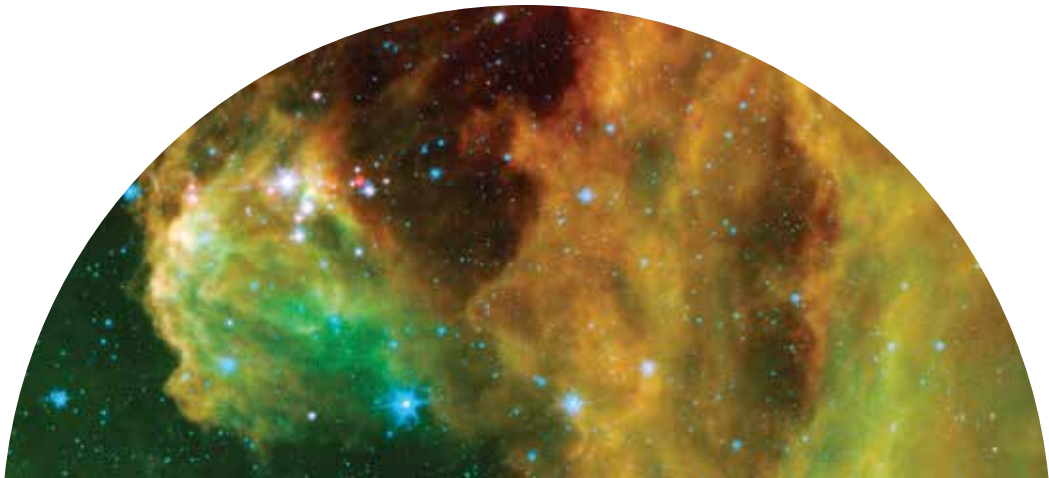


Financial Summary

The Finance Committee of the H.R. MacMillan Space Centre Society Board oversees the financial health of the organization to ensure its spending is aligned with the values and priorities in our strategic plan. Management and the Space Centre Board monitored the financials throughout the year and reallocated funds as areas of need emerged during the recovery phase of the pandemic.

The H.R. MacMillan Space Centre Society received funding from the Government of Canada, the Province of British Columbia, and the Vancouver Municipality. In 2022, we did receive additional Provincial and Federal funding under the BC Anchor Attractions Program and the CEWS Program.

In addition to this core funding, we received funding from donors and corporate funders. The balance of funds comes from our own admission revenue – our public visitors who joined us once again in person! We are incredibly grateful for the support of our generous community members. Each year, donors share stories about learning, growth and connection, and give back by making a gift. 100% of donations support our programs and services—taking it from operational to extraordinary.



REVENUES	\$	EXPENDITURES	\$
H.R. MacMillan Space Centre Generated	\$754,585	Departmental Expenses	\$903,946
Municipal Grant	\$519,400	Programs and Services	\$516,893
Provincial / Federal Grants	\$233,550	Special Projects	\$82,878
Special Projects and Donations/Gifts	\$169,384	Amortization	\$55,698
		(Net of Deferred Capital Contribution)	
TOTAL	\$1,676,919	TOTAL	\$1,559,416
		SURPLUS	\$117,503

Join our Space

The H.R. MacMillan Space Centre Society staff and board are dedicated to providing access, to being inclusive, to committing to diversity in our programs and our services, in our spaces...in everything we do...

Donations make our work possible. You can find out more information and make an online donation by visiting spacecentre.ca/donations.

FOUNDER

H.R. MacMillan

PATRON

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

ENDOWMENT FUND

Vancouver Foundation





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