Western

Institute for Earth & Space Exploration

2022 Annual Report

To launch Western into space and bring space down to Earth.

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List of Abbreviations

Western Space	The Institute for Earth and Space Exploration	CSA	Canadian Space Agency
BOG	Governing Board	NSERC	Natural Sciences and Engineering Research Council
PLANETSCI	Collaborative Training Program in Planetary Science and Exploration	RAC	Research Advisory Committee
CFI	Canadian Foundation for Innovation	Schulich	Schulich School of Medicine & Dentistry
CRC	Canadian Research Chairs Program	SGPS	School of Graduate and Postdoctoral Studies
EXEC	Executive Committee	NASA	National Aeronautics and Space Administration
ESA	European Space Agency	WRC	Western Research Chair
STEM	Science, Technology, Engineering, Math	EO	Earth Observation
		SNAC2022	Space as a National Asset Conference 2022

Section 1.0 – The Institute at a Glance

The Institute for Earth and Space Exploration at Western University is the leading organization for Earth and space exploration research and research training in Canada. The mission of the Institute is to collaboratively address the grand challenges faced by humanity and, through research and innovation, generate solutions using space technologies and breakthroughs.

Vision	To launch Western into space and bring space down to Earth.
Mission	To advance the scientific understanding of space from the Solar System to the Universe beyond and to address humanity's grand challenges using space systems and technologies.
Mandate	To support and develop an environment that fosters collaborative research, innovation, and capacity development in the space domain.

To learn about Western Space's past accomplishments and current strategic plan please visit: https://space.uwo.ca/.

Section 2.0: Acceleration of Research Success & Innovation

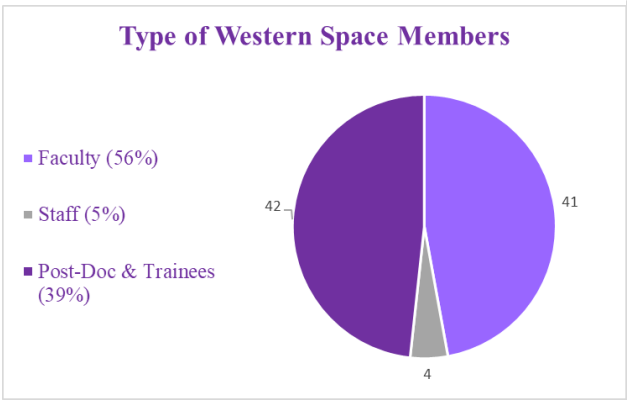
The 5-year strategic goals for acceleration of research success and innovation are to:

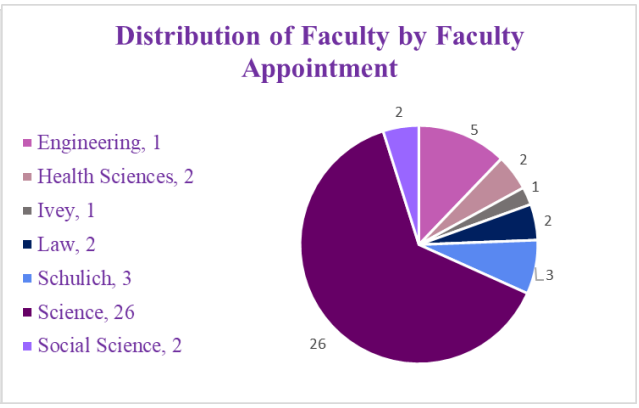
a) Remotely explore and characterize the Solar System and the Universe beyond.
b) Contribute to the sustainable human exploration of the Moon and beyond.
c) Bring the benefits of space science and technology down to Earth.
d) Ensure that the Canadian space program has the human capacity to deliver Canada's Space Strategy and expand opportunities in Canada for our trainees.
e) Inspire the next generation to develop their space science literacy and to pursue careers in STEM fields.

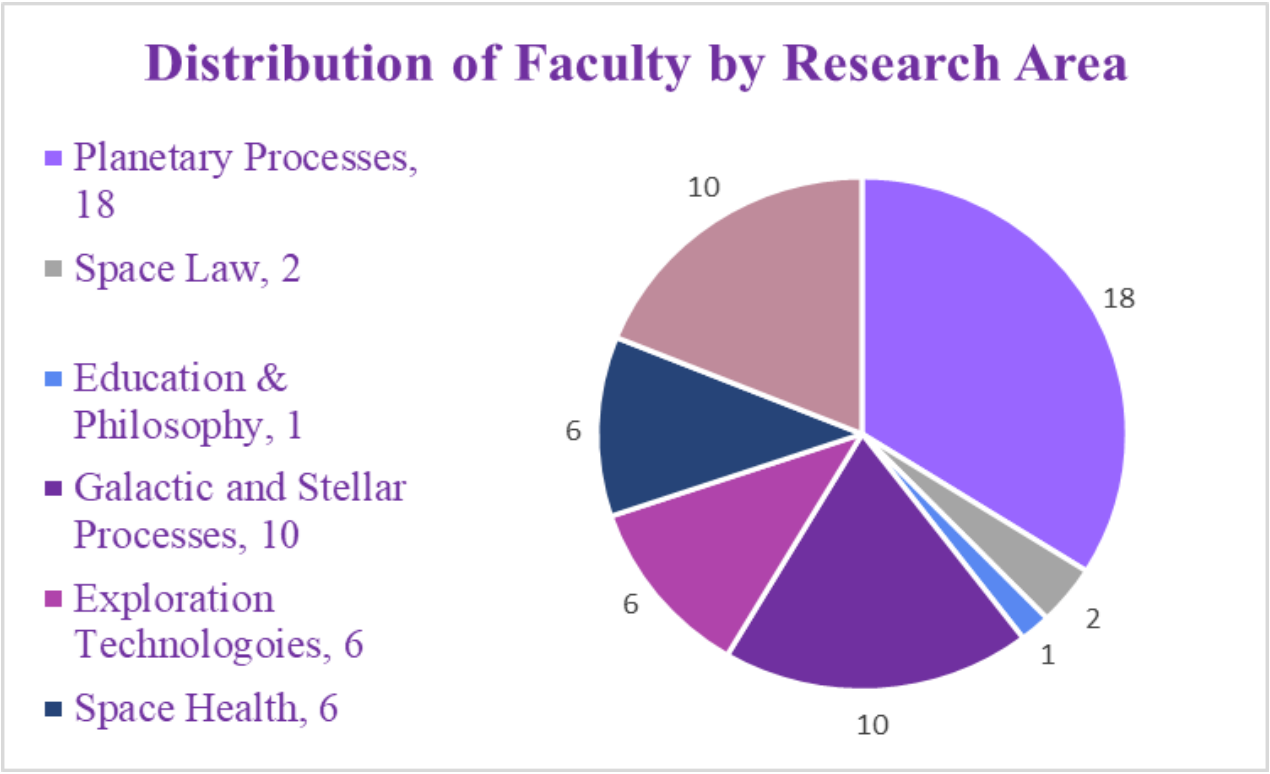
2.1 – Strength Through Interdisciplinarity - Our People

Membership Description

The Western Space membership decreased from 104 people in 2021 to 87 in 2022 including 41 faculty, 42 trainees, and 4 other members including: partners, collaborators, and staff (Appendix A;) https://space.uwo.ca/people/index.html. The graphics below display the types of members, distribution across partner Faculties, and alignment to Western Space research areas.







Prestigious Awards & Recognitions

Western Space members holding prestigious awards include: 8 Research Chairs (1 Endowed/Industry-funded), 2 Fellows of the Royal Society of Canada, 2 Distinguished University Professors, and 6 Faculty Scholars. * Past and Present

Research Chairs

- Peter Brown - Planetary Small Bodies
- Fred Longstaffe - Stable Isotope Science
- Stanimir Metchev - Extrasolar Planets
- Ana Luisa Trejos - Wearable Mechatronics
- Martin Houde, Department of Physics and Astronomy (past)
- Kevin Shoemaker, School of Kinesiology
- Sarah Gallagher, Department of Physics and Astronomy
- Maxwell Smith, Faculty of Health Sciences

Western University Awards for Excellence in Teaching

- Shauna Burke, Department of Health Studies

RSC College for New Scholars, Artists & Scientists

- Catherine Neish, Department of Earth Sciences

Faculty Scholars Award

- Danielle (Dani) Way, Biology
- Jan Cami, Department of Physics and Astronomy
- Sarah Gallagher, Department of Physics and Astronomy
- Isha DeCoito, Faculty of Education
- Shauna Burke, Department of Health Studies
- Martin Houde, Physics & Astronomy

Endowed/Industry Chairs

- Neil Banerjee, Department of Earth Sciences

Royal Society of Canada Fellows

- Wayne Hocking, Department of Physics & Astronomy
- Fred Longstaffe, Department of Earth Sciences

Department chairs

- Pauline Barmby, Department of Physics and Astronomy
- Shantanu Basu, Department of Physics and Astronomy (past)
- Lorie Donelle, Arthur Labatt Chair in Nursing
- Ken McIsaac, Department of Electrical and Computer Engineering
- Robert Sica, Department of Physics and Astronomy (past)
- James Voogt, Department of Geography (past)

Distinguished Professor

- Fred Longstaffe, Department of Earth Science
- Pauline Barmby, Department of Physics and Astronomy

Order of Canada

- Fred Longstaffe, Department of Earth Science

Recruitment of New Stakeholders/Experts

The Western Space research environment continues to support the recruitment of Earth and Space Exploration experts. In addition, we are building relationships with existing faculty members whose research activities are well aligned with space-enabled methodologies. We are developing new connections to research units within Western, including the Centre for Animals on the Move. Space systems and satellite Earth observations (remote sensing from space) are powerful tools for research challenges from many domains. We have submitted a Letter of Intent for a multi-disciplinary CREATE grant as well as a grant application to Environment and Climate Change Canada. The latter is to develop a collaborative methane emissions research project with researchers from three Faculties, the city of London, and two industrial partners. These grant applications represent over 2.6 million dollars of potential funding. The ECCC grant has been recommended for approval; the CREATE application is pending.

2.2 – Balancing Established & Emerging Priorities – Our Research Initiatives

Creating a Collaborative Networking Environment

In late October/ early November 2022, Western Space hosted the first Space as a National Resource Conference (SNAC22) at the Ivey-Spencer Leadership Centre. During this three-day conference, 83 participants from academia, industry, and government convened to engage and collaborate on grand societal challenges and collectively brainstorm on pathways to solutions. The program included:

- 5 Plenary Speakers including Lisa Campbell - President of the CSA, Jeremy Hanson - Astronaut CSA, Els Peeters - Professor at Western University, Kevin Whale - Sr. Director of Defense Strategy at MDA, and Tim Haltigin - Sr. Mission Scientist, CSA
- 39 Panelists on 10 panels

In order: Sarah Gallagher at the conference; students and conference participants from the CSA and Western at the poster session; plenary presentation by Artemis-II crew member and CSA astronaut Jeremy Hanson.


Western News

Western team achieves international holographic teleportation

Game-changing tech can have implications for health care, space work

Recognising the current gap in collaborative remote health research, in 2022 Western Space invested in the purchase of Microsoft HoloLens technology to support a joint summer research project by faculty members of Schulich School of Medicine and Western Engineering. This small but impactful investment has led to international recognition for Western participation in international holographic teleportation for the purpose of musculoskeletal evaluation – a key aspect of a medical physical examination, with significant real-world applications that hold great potential for both rural/ remote Earth-based health and near-Earth space-based health of future astronauts and space tourists. The project is continuing in summer of 2023 with publications expected in the coming year.

2.3 – Creating Opportunities Today for Tomorrow – Our Growth & Development

Interdisciplinary Research Training

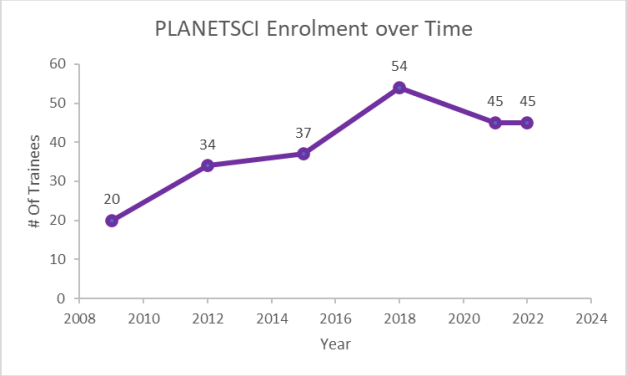
Western Spaces' mandate to support and develop an environment that fosters collaborative research, innovation, and capacity development in the space domain at the graduate level is accomplished primarily through Western's

Collaborative Specialization in Planetary Science and Exploration (PLANETSCI; https://space.uwo.ca/training/graduate_students/index.html). In 2022, PLANETSCI had 45 total active students with 14 successful defenses over 2022 at both the Masters and PhD level. Western Space continues to support the development of the next generation of interdisciplinary space researchers at the postdoctoral, graduate and undergraduate levels. Specific strategic goals identified in 2022 include redesigning student support models to enable experiential learning opportunities for students who would otherwise be unable to experience these research mission and training activities.

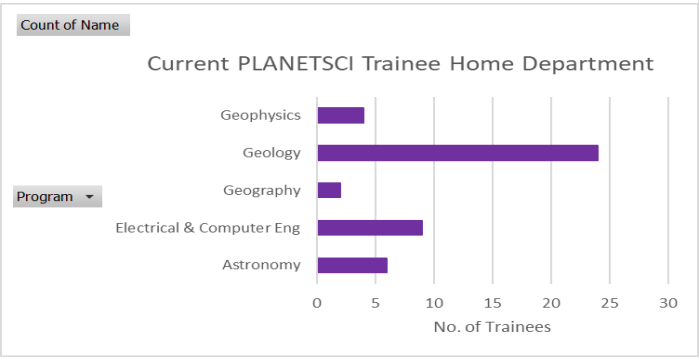
Building better Researchers

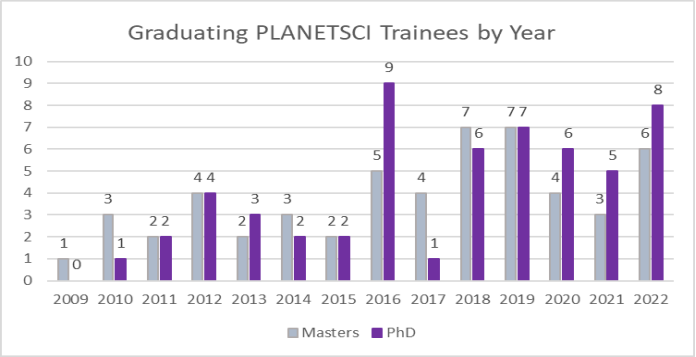
The fall of 2022 marked a new year of seminar for the trainees of the Collaborative Specialization and with it an opportunity to provide new and valuable experiences. Dr. Sarah Gallagher, instructor for the seminar course, launched new enrichment opportunities to support the development of more effective science communicators, EDI-D conscious global citizens, and leaders through a series of modules including an EDI-D session provided by the office of Human Rights, communication strategy sessions, and a Teams of Leaders training course administered to a subgroup of the trainees in preparation for them to facilitate the workshops for SNAC2022.

PLANETSCI Enrolment & Mentorship



Program enrolment for PLANETSCI remains at 45 trainees in 2022 (42 as of Fall 2022 and 3 additions in Winter 22), indicating continued success in both recruitment and program completion. Over half of the trainees are at the PhD level. Please refer to the graphics in this section for more details about the number and career levels of trainees enrolled in the program over time, as well as information about the location of their previous training and home Faculty. Trainees are enrolled in one of 4 participating home graduate departments. For more information on this specialization please visit the Graduate Student webpage at: https://space.uwo.ca/training/graduate_students/index.html





Planetary Science Courses

Western Space has partnered with the Department of Earth Sciences to offer two graduate courses that are mandatory for program completion: PLANETSC 9603 – Planetary Science Short course and PLANETSC 9600 – Planetary Science Graduate Seminar. For a more detailed description including all courses offered through department collaboration please visit: https://space.uwo.ca/training/graduate_students/index.html).

Western Space Summer Internship Program

A full program description including goals, awards, and requirements is available at https://space.uwo.ca/training/past_internship_opportunities_.html. In 2022, the summer internship program was operated in a remote capacity due to the lingering effects of the COVID-19 pandemic. Eight students were chosen from over 70 applicants to participate in supervised individual projects with a focus on tackling grand challenges society currently faces in interdisciplinary projects. These students originated from the Earth Science, Law and Policy, Medical, and Engineering fields and brought unique perspectives that resulted in new research projects being developed that have continued into the coming summer of 2023's cohort of summer research interns. Support for Western Space summer interns will continue to be offered on an annual basis. For greater detail on these projects and researchers, please review Appendix C.

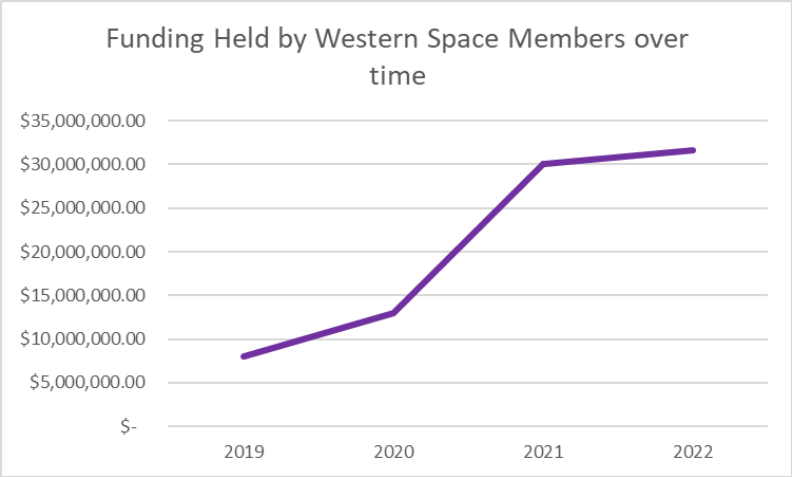
Section 3.0 – All About the Numbers & Reach

The 5-year strategic goal for knowledge translation is to inspire the next generation of Canadians to develop their space science literacy and to pursue careers in STEM fields. To accomplish this, Western Space has transitioned from a traditional "outreach activities" model toward a social media-driven engagement model while still engaging in high impact events, both as hosts and as partners with the community. In 2022, Western Space successfully partnered with Discovery Western to provide its summer " Space Explorers Program" and have re-signed the 2023 partnership agreement. For more information on this program please visit: https://www.eng.uwo.ca/outreach/pre-university-programs/summer-camp/index.html. In addition to local activities, Western Space has also engaged the wider Canadian community through 2 visits to Cochrane, in northern Ontario, one in February and the other for STEMFest in August 2022. While there, connections and new partnerships were made with Stardust inc, Avalon Space, and local Indigenous communities resulting in several recent trainee hires into industry, a greater connection and effort in reconciliation, and stronger academic and industry relationships.



3.1 – Funding

In 2022 Western Space members held over 436 external grants and over 212 internal grants totaling over 648 grants and increase from 530 grants in 2021 (Appendix B). These totaled nearly $31.6M in multi-year funding, with over $27.9 M in external funds and over $3.6 M in internal funds. *These data do not include grants located at or shared with other Institutions or Institutes*.



Tri-Agency Funding Overview

Institute members submitted a total of 42 external applications (15 Tri-Agency) in 2022 representing 2.9% of all external submissions at Western (2.6% of Western Tri-Agency applications). Not all applications are awarded within the calendar year; thus, the following results may reflect applications submitted in 2021 and some 2022 applications may still be pending. A total of 31 external applications were awarded (3.2% of all those awarded at Western) including 6 Tri-Agency awards (1.6% of all those awarded at Western). Institute members held an average of 0.78 grants/PI compared to 0.73 grants/PI for non-institute faculty. Overall, institute members were awarded over $3.3M in new funding during 2022 and have a number of pending applications in several major programs.

3.2 – Publications & Impact

All Member Publications

In 2022, the members in Western Institute for Earth & Space Exploration (Western Space) produced a total of 77 papers associated with the Institute. That equates to an average of 1.9 publications per Western Space member. All 77 publications are captured in InCites. The average category normalized citation impact of these 77 publications is 1.21 times the world average benchmark of 1.0, with citation counts higher than or equal to 40% of the publications published in 2022 in the Web of Science database in their respective research area and document type, on average. The contribution made by Western Space members through these scholarly works was evidenced by scholars across 32 different countries/regions around the world (Top 5: USA, UK, Canada, France, and mainland China) and 11 different research areas who have cited these publications. Of the 77 publications, 13 publications (16.9 %) are listed among the top 10% most cited publications in the Web of Science database for 2022 (is this correct?).

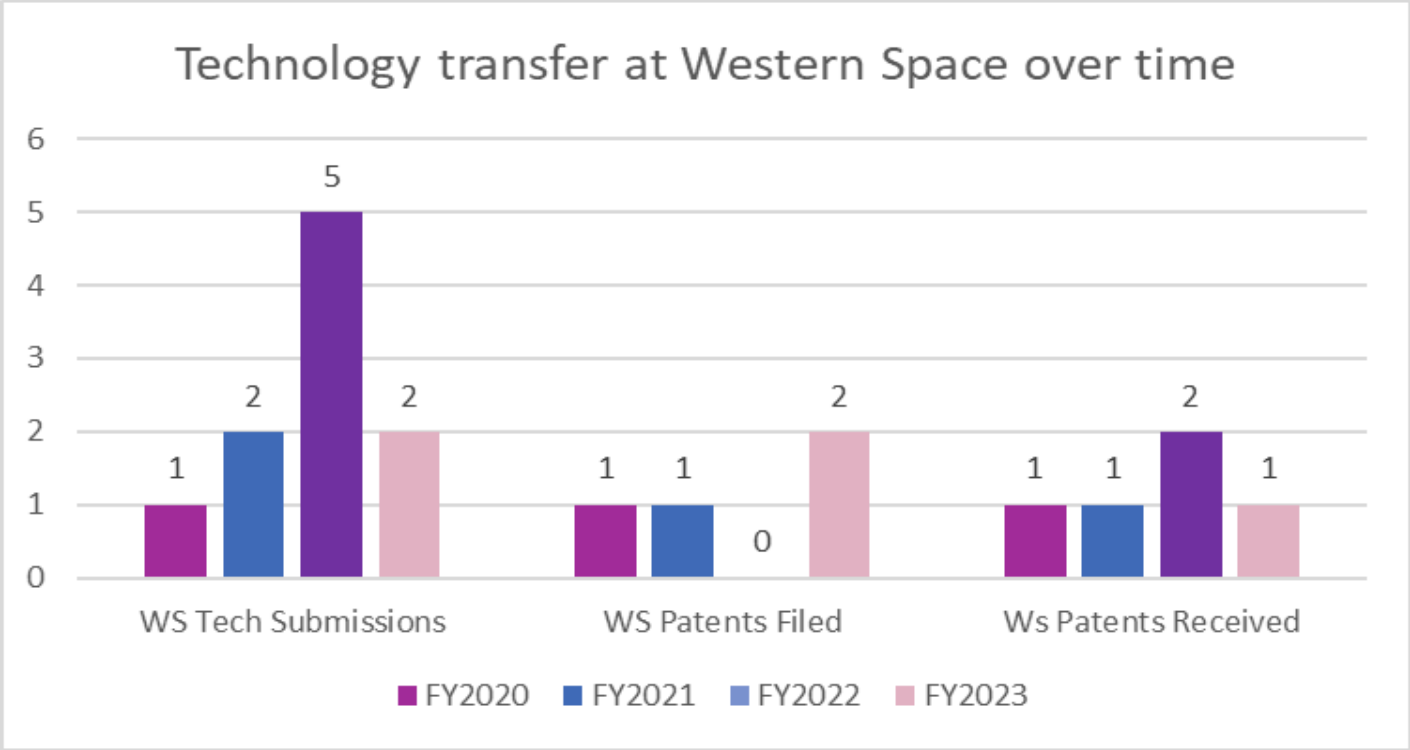
Of the publications produced, 64 publications (83.1%) were co-authored with one or more international scholars across 37 countries/regions (Top 5: USA, UK, France, Italy, Germany, Japan, and Switzerland[1]), with an average category-normalized citation impact well above the world average at 1.40. These 77 publications also showed evidence of internal collaborations with 13 publications (16.9%) being co-authored by 2 or more Western Space members. Similar to those internationally co-authored publications, Western Space internally co-authored publications have an average category-normalized citation impact fared higher than the world average at 1.31. With 63 publications (81.8%) identified as open access, the knowledge created by Western Space members in 2022 supported more equitable access and garnered citations, with an average category-normalized citation impact of 1.39 and citation counts higher than or equal to 42% of the 2022 publications in Web of Science database in their respective research area and document type, on average. A total of 64 publications produced by Western Space members in 2022 are tracked in Altmetric, 62 of which have attracted attention with a total of 638 mentions in social media, 207 references in news stories, 55 mentions in blogs, 7 references in Wikipedia and 1 mention in a video.

[1] Germany, Japan, and Switzerland are in a tie.

3.3. – Technology Transfer, Commercialization & Contracts

Technology Submissions, Patent Applications & Patents Issued

Based on fiscal reporting by the technology transfer office – WORLDiscoveries® at Western www.worldiscoveries.ca, the total number of technology submissions, patent applications filed, and patents issued by Western Space members has fluctuated annually. Since fiscal year (FY) 2020, there has been a total of 1, 2, 5, and 2 respectively. In (FY)2023, this represents 5.26% of all technology submissions and 7.14% of all patents issued via WORLDiscoveries® by Western/Robarts/Lawson faculty members. These data do not include submissions, applications or patents issued independently of Western (i.e., other Institutions and/or Agencies)



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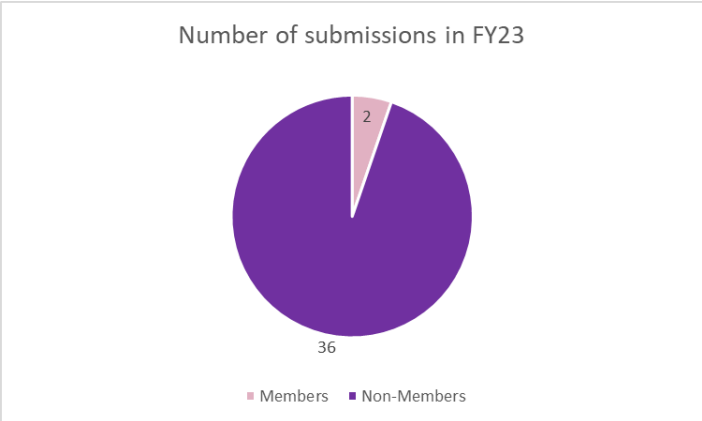
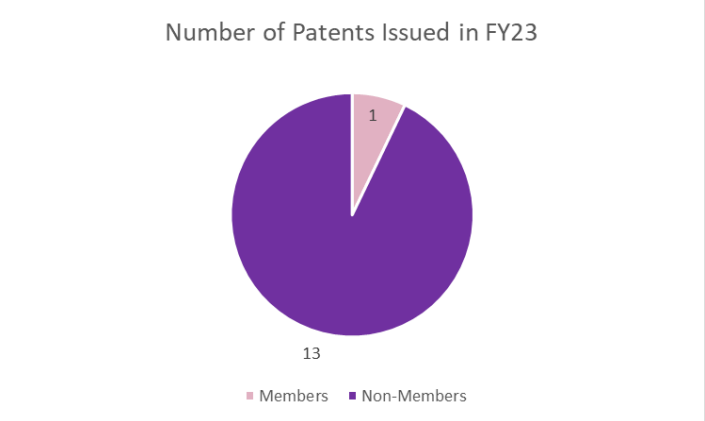




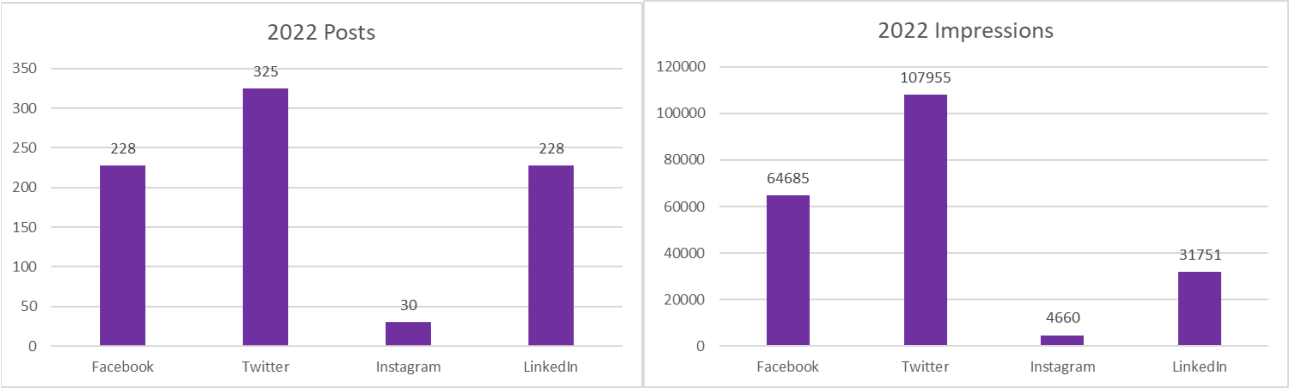
3.4 – Raising Our Profile

Western Space maintains an active presence on various social media platforms, including LinkedIn, Twitter, Facebook, and Instagram. In May 2022, Western Space launched our LinkedIn account to better connect with industry and government in the space sector and have since been actively engaging with professionals in the industry. These efforts on LinkedIn have resulted in a steady increase in reach, as we continue to connect Western Space research and activities with more industry professionals.

Twitter has proven to be a valuable platform for connecting with faculty members and providing live coverage of events such as the SNAC 2022 conference and our visits to Cochrane, ON. By leveraging Twitter, Western Space has delivered real-time updates/tweets to our audience, ensuring they stay informed about our activities and engagements. Instagram has also played a crucial role in our outreach to students, allowing us to share exciting stories of our activities and events.

Media & Communications (News Stories): 2022

Members of Western Space were featured in over 90 news stories in 2022, doubling the previous year's count of 45 in 2021. Many of these stories appeared in accredited national and international newspapers and reports from media outlets such as the Globe and Mail, Global News, CBC, People Magazine, and The New York Times. By engaging with journalists and media platforms (in partnership with central, Western research, and Faculty communications teams), Western Space is actively communicating the significance and impact of our researchers endeavors to a wider audience. As we move forward, we will continue to support the active engagements with media to amplify our reach and foster a greater understanding and appreciation for the incredible work conducted by our members. For a full listing of news stories please see Appendix H.



Social Media, Website & Newsletter Analytics

In 2022, Western Space created 325 Tweets resulting in 107,955 impressions. These tweets focused on amplifying researchers and trainee accomplishments as well as supporting the overarching research stories created by Western research and partnered faculties. Facebook and Instagram were also employed to support engagement activities and events that totalled 228 posts and 64685 Impressions. The Western Space newsletter is sent to an audience of over 224 subscribers with Institutional updates, space-related news, research, and trainee opportunities. In the 52-week period, 11 newsletters were published. Western Space's website features projects, researchers, news, events, and opportunities for collaboration and impact.

Section 5.0 – Financial Report

Western Space received written confirmation in June 2019 that Institute funding from central was awarded at 250K for FY (fiscal year) 2020-24 to sustain operations with the possibility of renewal for FY 2024-25 and beyond. Below is an updated summary table of the Western Space financials including actuals and projections of available funds and their sources as well as expenses from Year 3 (FY 2021-22) to Year 5 (FY 2023-24).

Revenues

Not all revenues listed in the projections are confirmed including decanal and partner support, conference fees, and event sponsorships. The amount entered for projection purposes in based on estimates from previous years or initial discussions. They are meant to serves as a demonstration of how funds would be used to support core programing. Due to the uncertainty with respect to fundraising, donations, and internal grants unconfirmed amounts were not included, though such support would be instrumental in growing and expanding Institute impact. Should any of the unconfirmed revenue sources included in these projections fail to materialize, we would be forced to cut programing. Network creation, innovation and training support could be reduced or put on hold temporarily to accomplish this until additional funding can be secured. It is important to note that advancement activities will be crucial to grow the success of the Institute and to, at minimum, maintain programs beyond Year 5 (2024-25).

Expenses

Expenses enable the Institute to implement supports and services that bring experts from different disciplines together to start to examine grand challenges from new perspectives. This includes: a) Member Initiatives & Events such as Think Tanks, Showcase Series, workshops, seminars, research retreats, other events; b) Strategic and Innovation Research Awards such as catalyst/seed grants for new early-stage and high risk research project ideas and a strategic funding program to enable timely action related to priority initiatives; c) a Young Investigator Program to develop the next generation of interdisciplinary space researchers using graduate research awards, and undergrad student research internships; d) Research Meetings and Conferences to expand our reach and profile via national/international planning meetings, hosting conference events, conference sponsorships, and trainee travel awards; d) Communications (website, advertisement, news items, outreach events) and Operating (equipment, services, supplies, governance meetings) to maintain necessary workflow and presence; and Staff Compensation to make it all possible to offer these support and services (associate director allowances, admin officer, research officer).

Institute Financial Projections					
	FY20	FY21	FY22	FY23	FY24
	Year 1	Year 2	Year 3	Year 4	Year 5
	2019-20	2020-21	2021-22	2022-23	2023-24
	Actuals Costs	Actuals Costs	Actuals Costs	Actuals Costs	Projected Costs
Summary					
Fund Balance	0	3,394	16,000	4,301	-44,512
In-year Fund Allocation	0	3,394	0	4,301	-44,512
In-Year Revenues	517,943	513,425	529,873	482,744	451,488
In-Year Expenses	514,550	496,271	541,572	531,557	404,707
In-year surplus deficit	3,393	17,154	-11,699	-48,813	46,782
FUND BALANCE	**3,393**	**17,154**	**4,301**	**-44,512**	**2,269**
AVAILABLE FUNDS					
In-Year Fund Allocation	0	0	0	4,301	-44,512
Central Support	250,000	300,000	250,000	306,450	250,000
Faculty/Decanal Support	77,500	27,500	85,000	25,000	25,000
Partner Support	190,443	120,000	22,590	126,976	100,000
Conference Revenues	0	0	9,577	14,845	0
Event Sponsorship Support	0	0	0	5,149	0
Donations/Internal Grants	0	0	72,330	0	25,000
Miscellaneous Revenues	0	65,925	90,376	23	96,000
TOTAL REVENUES	**517,943**	**513,425**	**529,873**	**482,744**	**451,488**
EXPENSES					
STAFF COMPENSATION	331,500	153,282	332,299	357,659	269,257
MEMBER INITIATIVES		1,500	0	9,184	16,700
RESEARCH PROGRAMS	21,000	213,025	41,787	0	30,000
FUTURE LEADERS PROGRAMS	133,000	94,100	115,920	63,414	27,500
NATIONAL & INTERNATIONAL INITIATIVES	18,600	6,795	14,554	73,634	25,000
COMMUNICATIONS	3,650	20,518	16,047	16,298	12,650
OPERATIONS	6,800	7,051	20,965	11,368	23,600
TOTAL EXPENSES	**514,550**	**496,271**	**541,572**	**531,557**	**404,707**

Appendix A – Western Space Membership

Western Space Faculty			Faculty	Western Space Research Area
1	Banerjee	Neil	Science	Planetary Processes; Earth Observation, Monitoring, and Protection
2	Barmby	Pauline	Science	Galactic and Stellar Processes
3	Basu	Shantanu	Science	Galactic and Stellar Processes; Planetary Processes
4	Battista	Jerry	Schulich	Space Health
5	Blamey	Nigel	Science	Planetary Processes
6	Brown	Peter	Science	Earth Observation, Monitoring, and Protection; Planetary Processes
7	Cami	Jan	Science	Galactic and Stellar Processes
8	Campbell-Brown	Margaret	Science	Earth Observation, Monitoring, and Protection; Planetary Processes; Galactic and Stellar Processes
9	DeCoito	Isha	Science	Education & Philosophy
10	Flemming	Roberta	Science	Planetary Processes
11	Gallagher	Sarah	Science	Galactic and Stellar Processes
12	Hocking	Wayne	Science	Earth Observation, Monitoring, and Protection
13	Houde	Martin	Science	Galactic and Stellar Processes
14	Knopf	George	Engineering	Exploration Technologies
15	Longstaffe	Fred	Science	Planetary Processes
16	McCausland	Phil	Science	Planetary Processes
17	Metchev	Stan	Science	Galactic and Stellar Processes; Planetary Processes
18	Neish	Catherine	Science	Planetary Processes; Earth Observation, Monitoring, and Protection
19	Oosterveld	Valerie	Law	Space Law
20	Patel	Rajni	Engineering	Exploration Technologies
21	Pearce	Joshua	Engineering	Exploration Technologies
22	Peeters	Els	Science	Galactic and Stellar Processes
23	Plummer	Larry	Ivey	Exploration Technologies
24	Sabarinathan	Jayshri	Engineering	Exploration Technologies
25	Shcherbakov	Robert	Science	Planetary Processes
26	Shieh	Sean	Science	Planetary Processes
27	Shoemaker	Kevin	Health Sciences	Space Health
28	Sica	Bob	Science	Planetary Processes; Earth Observation, Monitoring, and Protection
29	Sigut	Aaron	Science	Galactic and Stellar Processes

30	Sirek	Adam	Schulich	Space Health
31	Smith	Maxwell	Health Sciences	Space Health
32	Staroverov	Viktor	Science	Planetary Processes
33	Steyn	Elizabeth	Law	Space Law
34	Stooke	Phil	Science	Planetary Processes; Earth Observation, Monitoring, and Protection
35	Tait	Kim	Science	Planetary Processes
36	Thompson	Keith	Schulich	Space Health
37	Tornabene	Livio	Science	Planetary Processes; Earth Observation, Monitoring, and Protection
38	Trejos	Ana Luisa	Engineering	Exploration Technologies; Space Health
39	Voogt	James	Social Science	Earth Observation, Monitoring, and Protection
40	Wang	Jinfei	Social Science	Planetary Processes; Earth Observation, Monitoring, and Protection
41	Wiegert	Paul	Science	Galactic and Stellar Processes

	Current Western Space Trainees		Academic Program	Career Stage
1	Beaton	Dana	Electrical & Computer Eng	Masters
2	Brito	Ruthy	Electrical & Computer Eng	Masters
3	Hutton	Kaitlin	Electrical & Computer Eng	Masters
4	Nadeem	Hira	Electrical & Computer Eng	Masters
5	Sia	Jin Sing	Electrical & Computer Eng	Masters
6	Voege	Paul	Electrical & Computer Eng	Masters
7	Flanagan	Lauren	Electrical & Computer Eng	Masters
8	Amey	Stephen	Electrical & Computer Eng	Masters
9	Bhatt	Charmi	Astronomy	Masters
10	Schefter	Bethany	Astronomy	Masters
11	Kwik	Robin	Geography	Masters
12	Shaigec	Steffen	Geography	Masters
13	Bibas	Daliah	Geology	Masters
14	Dicecca	Anthony	Geology	Masters
15	Duncan	Taylor	Geology	Masters
16	Jaimes Bermudez	Juan	Geology	Masters
17	Thaker	Ashka	Geology	Masters
18	Dong	Elisa	Geophysics	Masters
19	Louwerse	Lukas	Geophysics	Masters
20	Khatu	Viraja	Astronomy	Doctoral
21	Kissi-Ameyaw	Jonathan	Electrical & Computer Eng	Doctoral
22	Pascual	Alexis	Electrical & Computer Eng	Doctoral
23	Burley	James	Geology	Doctoral
24	Cao	Fengke	Geology	Doctoral
25	Chinchalkar	Neeraja	Geology	Doctoral
26	Cincio	Paige	Geology	Doctoral
27	Garroni	Nicolas	Geology	Doctoral
28	Gonzalez Flores	Ana Laura	Geology	Doctoral
29	Graff	Jamie	Geology	Doctoral
30	Li	Yaozhu	Geology	Doctoral
31	Perkins	Reid	Geology	Doctoral
32	Rangarajan	Vidhya	Geology	Doctoral
33	Ruso	Simona	Geology	Doctoral
34	Ryan	Catheryn	Geology	Doctoral
35	Sacks	Leah	Geology	Doctoral
36	Siwabessy	Andrew	Geology	Doctoral
37	Stone	Lauren	Geology	Doctoral
38	Svensson	Matthew	Geology	Doctoral
39	Reger	Philip	Geology	Doctoral
40	Hedgepeth	Joshua	Geophysics	Doctoral
41	Shah	Jahnavi	Geophysics	Doctoral

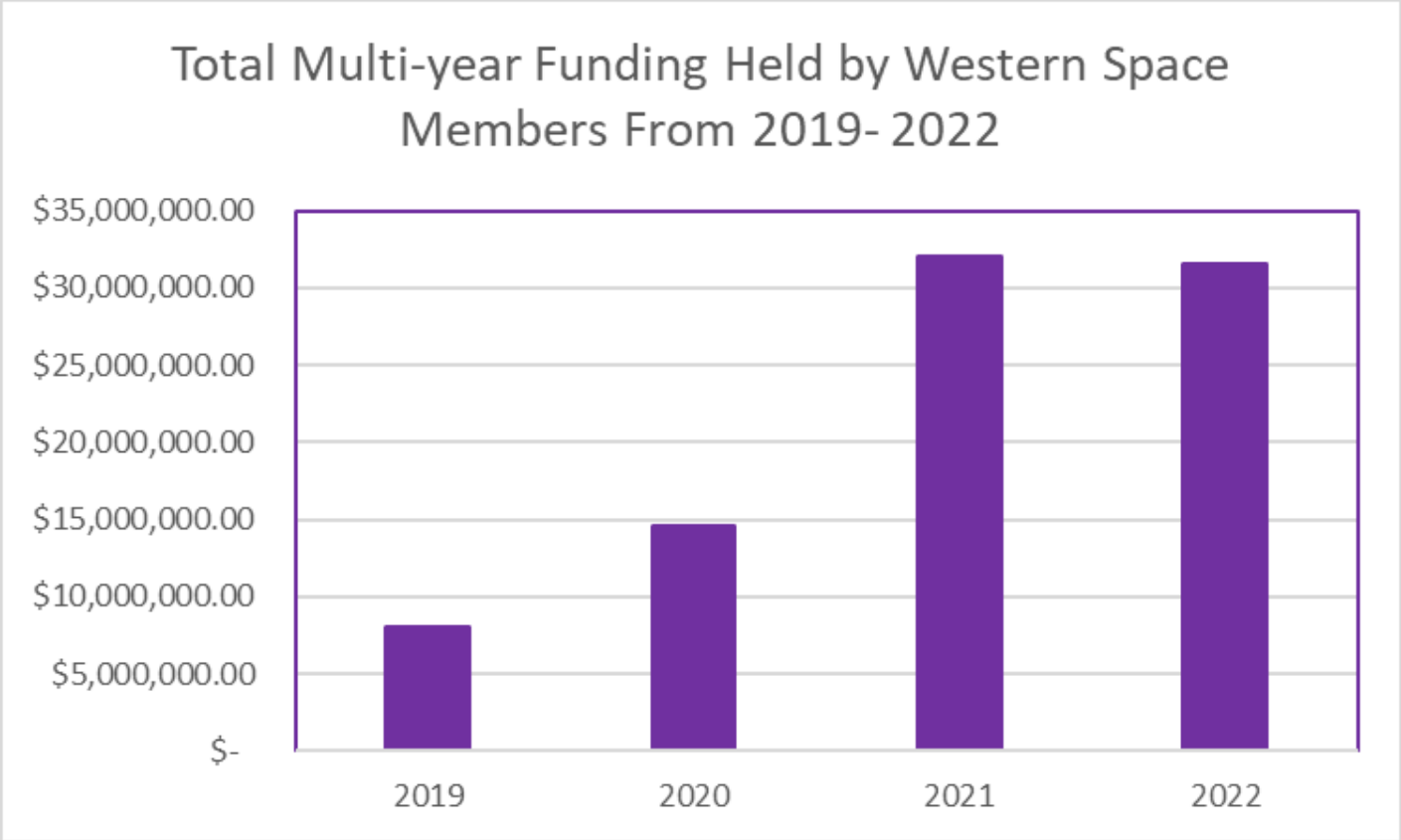
42	Sawyer	Ryan	Geophysics	Doctoral

Western Space Staff		
1	Swinden	Courtney
2	Pilles	Eric
3	Patel	Parshati
4	Mohamed	Sara

Appendix B – Research Funding

Grant Type	Number of Grants	Total Amount*
External Salary	53	$6,538,750
External Operating	319	$17,046,655
External Infrastructure	39	$2,932,338
External Training	25	$1,415,025
External Grant Sub-Total	436	$27,932,768
Internal Salary	105	$1,450,496
Internal Operating	97	$2,157,250
Internal Infrastructure	3	$32,470
Internal Training	7	$10,115
Internal Grant Sub-Total	212	$3,650,331
TOTAL	648	$31,583,099

* Multiyear funding total rounded to nearest thousand


Total Multi-year Funding Held by Western Space Members From 2019- 2022
$35,000,000.00
$30,000,000.00
$25,000,000.00
$20,000,000.00
$15,000,000.00
$10,000,000.00
$5,000,000.00
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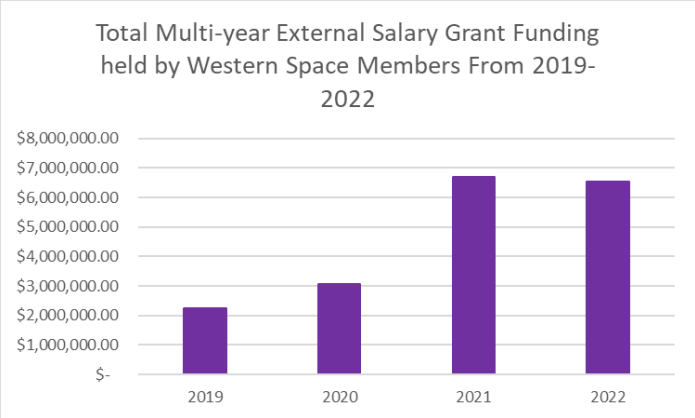
2019
2020
2021
2022


Total Multi-year External Salary Grant Funding held by Western Space Members From 2019-2022
$8,000,000.00
$7,000,000.00
$6,000,000.00
$5,000,000.00
$4,000,000.00
$3,000,000.00
$2,000,000.00
$1,000,000.00
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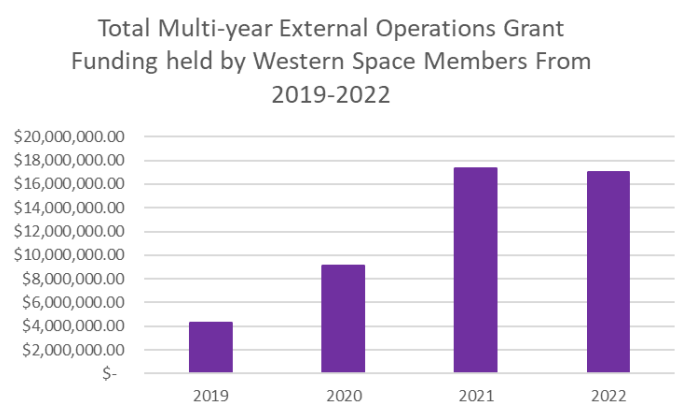
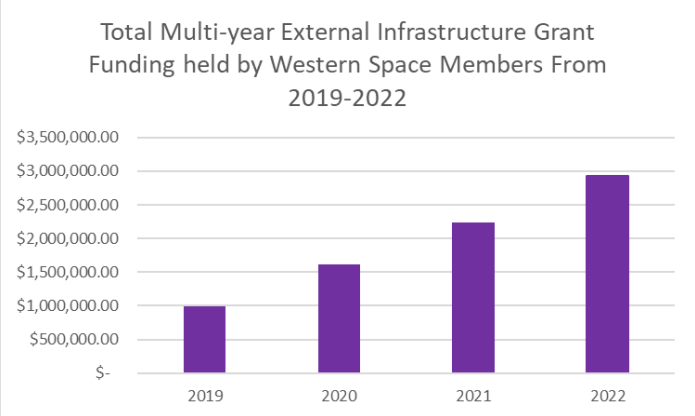
2019
2020
2021
2022


Total Multi-year External Operations Grant Funding held by Western Space Members From 2019-2022
$20,000,000.00
$18,000,000.00
$16,000,000.00
$14,000,000.00
$12,000,000.00
$10,000,000.00
$8,000,000.00
$6,000,000.00
$4,000,000.00
$2,000,000.00
$-
2019
2020
2021
2022


Total Multi-year External Infrastructure Grant Funding held by Western Space Members From 2019-2022
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$3,000,000.00
$2,500,000.00
$2,000,000.00
$1,500,000.00
$1,000,000.00
$500,000.00
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2019
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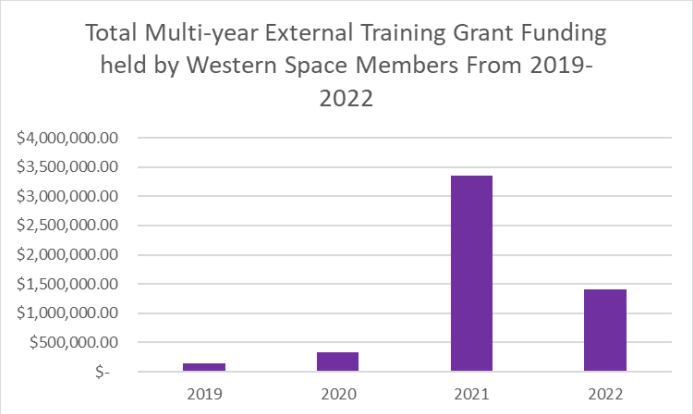
2021
2022


Total Multi-year External Training Grant Funding held by Western Space Members From 2019-2022
$4,000,000.00
$3,500,000.00
$3,000,000.00
$2,500,000.00
$2,000,000.00
$1,500,000.00
$1,000,000.00
$500,000.00
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2019
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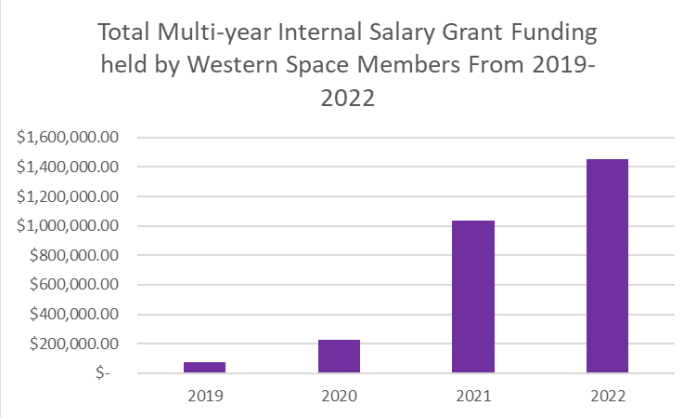
2021
2022


Total Multi-year Internal Salary Grant Funding held by Western Space Members From 2019-2022
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$1,400,000.00
$1,200,000.00
$1,000,000.00
$800,000.00
$600,000.00
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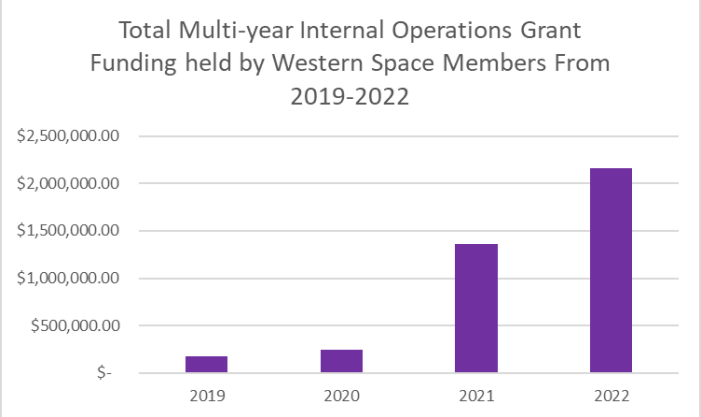
$200,000.00
$-
2019
2020
2021
2022


Total Multi-year Internal Operations Grant Funding held by Western Space Members From 2019-2022
$2,500,000.00
$2,000,000.00
$1,500,000.00
$1,000,000.00
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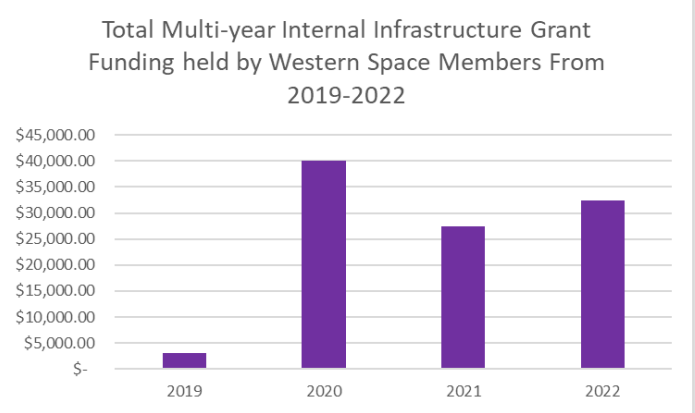
$-
2019
2020
2021
2022


Total Multi-year Internal Infrastructure Grant Funding held by Western Space Members From 2019-2022
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$40,000.00
$35,000.00
$30,000.00
$25,000.00
$20,000.00
$15,000.00
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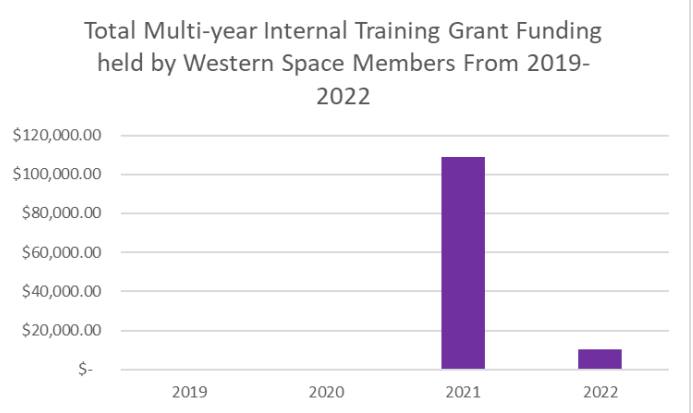

Total Multi-year Internal Training Grant Funding held by Western Space Members From 2019-2022
$120,000.00
$100,000.00
$80,000.00
$60,000.00
$40,000.00
$20,000.00
$-
2019
2020
2021
2022

Appendix C – Western Space Summer Internship Projects

2022 Summer Internship Opportunities- Projects

Medicine-Law

PI(s) **Dr. Adam Sirek and Dr. Valerie Oosterveld**

Space medicine transcends the borders and typical territorial policies that have traditionally defined medical licensing and medicolegal concerns. The COVID-19 pandemic has opened new discussions about scope of practice and abilities to practice medicine out of the normal geographical areas of licensing. Virtual care provided between provinces or by clinicians in cities disparate from their patients has resulted in new licensing approaches and malpractice coverage. There are currently no licensing bodies or formal certification methods to be "licensed" to practice medicine in space. Traditionally, astronauts have been government employees and their flight surgeons also approved and covered by the government. Commercial access to space will result in a review of the process and consideration to who is legally allowed (and insured) in their practice of medicine in low Earth orbit, the moon and beyond.

For this project, intern(s) [1 med, 1 law] will review current policy related to licensing and insurance for clinicians practicing outside their scope and region to provide a framework for medicolegal licensing and insurance for clinicians who may practice in cis-lunar space.

Med Intern Required Qualifications: UGME or PGME (medical student or resident)

Law Intern Required Qualifications: The student should be a current 1L or 2L Western University Law student with an interest in space and/or health-related issues. The student should have strong research, writing and communication skills.

Medicine-Engineering

PI(s) **Dr. Adam Sirek and Dr. Ana Luisa Trejos**

Novel technologies to monitor, support and maintain crew health are critical to human exploration in cis-lunar space. A major focus of monitoring crew health and performance will be decisions and technologies surrounding what measures will be important and how they will be collected. Vital signs are a commonly collected and important value for decision making by clinicians. While commonplace terrestrially, collecting vital signs in microgravity or variable gravity continues to be a challenge. Discussions about what vital signs are needed, on what frequency and how to collect them remain a topic of discussion in the biomedical engineering field.

For this project, intern(s) [1 med, 1 eng] will perform a tech watch style survey of available wearable bio-monitoring devices and propose a series of appropriate devices for potential cis-lunar missions. Furthermore, in the final report, the team will discuss the timescales and methods in which vitals will be collected and used by the crew medical officer and terrestrial based flight surgeons.

Engineering Intern Required Qualifications: Mechatronics (ideal), Mechanical or Electrical Engineering student who has completed at least 2nd year. A dual degree with BME would be a significant plus.

Med Intern Required Qualifications: UGME or PGME (medical student or resident)

Physics and Astronomy

PI(s) **Dr. Els Peeters and Dr. Jan Cami:**

The James Webb Space Telescope: Radiative feedback from massive star!

We have recently witnessed the successful launch and deployment of the James Webb Space Telescope (JWST). Hailed as the bigger and vastly more sensitive successor to the HST, JWST will similarly inspire the general public and have researchers develop the most innovative approaches to process and analyze observations of unprecedented quality to study the Universe near and far.

JWST observations will be dominated by infrared (IR) emission from large carbonaceous molecules (polycyclic aromatic hydrocarbons, PAHs). This emission encodes a large amount of information about the physical and chemical environments in which they reside and is a powerful messenger to study astrophysical processes such as star and planet formation and galaxy evolution. The best observations to date of astronomical PAH sources yield spectra averaged over regions with vastly different properties, thus greatly confusing their interpretation. JWST's incredible spatial resolution and sensitivity will disentangle these regions and allow us unprecedented views on PAH characteristics on small spatial scales.

The first few hundred hours of science time with JWST will be used to carry out 13 so-called Early Release Science (ERS) programs. The ERS programs represent a new category of scientific investigation, with two key pillars: their scientific merit on the one hand, and the delivery of so-called Highly- Processed Data Products and Science Enabling Products (SEPs) on the other hand - tools that will help other researchers to create better observing proposals, help to analyze, interpret, and disseminate the resulting data, and thus increase the scientific return of the entire mission. I am leading one of the 13 successful ERS programs: ID 1288 "Stellar Feedback of massive stars" (https://jwst-ism.org). We will observe a very popular astronomical object, the Orion Bar.

Two summer projects are available: 1) the student will participate in the development of these science enabling products (i.e. the scientific development, programming, and testing) and 2) the student will study infrared observations obtained with the Spitzer Space Telescope and analyze variations in the spectral features of PAHs to help us understand future JWST observations.

Intern Required Qualifications: The ideal candidate has a background in physics, astronomy, math or computer science, and extensive programming experience in Python. Experience with data analysis or collaborative software development (e.g. using GitHub) is an asset, and we also expect the interns to be team players.

Physics and Astronomy

PI **Dr. Peter Brown:**

Physical analysis and orbital correlations among faint meteors

This project will perform the first detailed reconnaissance of a recently developed database comprising multi-station measurements of the faintest meteors ever observed. The data were gathered using automated EMCCD cameras deployed near Western University. The purpose is to examine the physical behaviour of meteors as a function of their orbital characteristics, with emphasis on statistical correlations of meteoroid strength with orbit type. More broadly correlations will be examined of ablation behaviour (begin and end heights, light curve shape etc) as a function of mass, orbits and speed. The outcome of this project will be the first meta-analysis correlating physical properties of mm-sized meteoroids with their orbit types, providing insight into the broad physical properties of a large sample of asteroids and comets.

Intern Required Qualifications: The ideal candidate will have extensive programming experience in Python and a math/physics or computing background. Experience with analysis of large datasets and associated analysis tools an asset.

Electrical Engineering

PI: **Dr. Jayshri Sabarinathan**

Hyperspectral camera development for remote sensing from micro-satellites – involves embedded systems and circuit hardware expertise/interest and optical imaging instrumentation development; industry partners are involved in project.

Intern Required Qualifications: 1-2 students preferably Electrical Engineering or related area with interest/expertise in building circuit hardware and/or optical imaging instrumentation. The hardware will be early prototypes of space compatible instrumentation that for either satellites or lunar rover operation.

Geography and Environment

PI: **Dr. James Voogt**

Reconstructing the urban three-dimensional thermal environment

Dr. James Voogt is seeking a student with interests in remote sensing, Geographic Information Science and/or microclimate/micrometeorology to help construct and analyze a data set of coupled high resolution ground-based thermal imagery and lidar data for two suburban neighbourhood study sites in Salt Lake City, UT. This dataset provides high resolution urban structure and temperature information that will be used to re-construct a detailed three-dimensional surface of the thermal environment at these sites. Combined with other available measurements of air and surface temperature from the project it will provide a unique dataset for assessing heat loading on pedestrians in urban neighbourhoods, the impacts of tree shading on urban microclimates, and the relationship between the full three-dimensional temperature environment of urban neighbourhoods with that observed from airborne or satellite-based sensors.

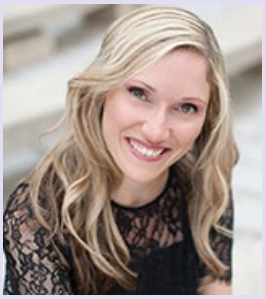
Intern Required Qualifications: The student should have some experience with use of remote sensing data analysis, ideally related to thermal infrared wavelengths, lidar data analysis and some skills in MATLAB or equivalent scripting/programming skills. The student will collaborate with other graduate students and scientists on the project from Canada and the US. Data from the project may be used as a basis for a student thesis if desired.

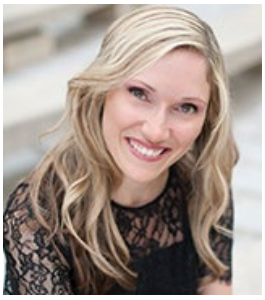
Appendix E: Prestigious Awards List

Name	Short Bio	Photo
Research Chairs		
Peter Brown	Peter Brown is a professor at the University of Western Ontario and a member of the Western Meteor Physics Group. Brown studies small bodies of the solar system with particular emphasis on meteors, meteorites, meteoroids, and asteroids.	
Fred Longstaffe	Appointed as Western's Provost and Vice-President (Academic) for a five-year term on July 1, 2005, Fred Longstaffe has a track record in leadership roles since coming to Western in 1987. Longstaffe was Science Dean from 1999 until his appointment as Provost and Chair of the Department of Earth Sciences from 1993 to 1999. He played an instrumental role in the merger of Geology and Geophysics to create the Earth Sciences department in 1993. In addition, he has been an active member of Senate and Board of Governors.	
Stanimir Metchev	Stanimir Metchev's research is on planetary systems around nearby stars and on the atmospheres of brown dwarfs and exoplanets. Images and spectra of extrasolar planets have recently offered direct probes of the physical extent of planetary systems and of the chemistry of exoplanetary atmospheres. Resolved imaging of tenuous circumstellar dust in nearby planetary systems has revealed the dynamical signatures of even more, yet to be seen planets. With high-contrast imaging technology coming of age, the number of directly imaged extrasolar planets will expand by more than an order of magnitude over the next decade.	
Ana Luisa Trejos	Ana Luisa Trejos is an Associate Professor with the Department of Electrical and Computer Engineering and the School of Biomedical Engineering at Western University, and the Tier-2 Canada Research Chair in Wearable Mechatronics. She has expertise in the design, development and testing of medical mechatronic systems, leading her to establish the Wearable Biomechatronics Laboratory in 2013. Her current research is dedicated to the design of wearable mechatronic devices for upper body rehabilitation and motion assistance, including wearable devices for tremor suppression and smart orthotic devices. The focus is on designing novel sensing/actuation components, creating models based on sensed biosignals, and developing intelligent control systems.	

Martin Houde	I am an astrophysicist who is mostly concerned with understanding the basic physical processes involved in the formation of stars. The areas of research I cover lean strongly towards observational studies, and the development of new generations of instrumentation that allow for the discovery of important results that bring us closer to a more complete picture of the star formation process. My work, however, either past or current, is not limited to simple presentations of observational data, but often leads to important new physical interpretations and models that significantly contribute to our understanding of star formation.	
Kevin Shoemaker	Kevin Shoemaker is a Distinguished University Professor at Western, professor in the School of Kinesiology, and Canada Research Chair in the Integrative Physiology of Exercise and Health. Dr Shoemaker is a Principal investigator with the Bone and Joint Institute, and an Associate investigator at the Brain and Mind Institute and the Lawson Health Research Institute. In 2017, he was elected a Fellow in the Canadian Academy of Health Sciences. Kevin is a Physiologist by training with emphases on neural control of the circulation, organ blood flow regulation, and neural strategies of communication within the sympathetic nervous system. His studies focus on human health and disease prevention with emphasis on the impact of physical activity on neurovascular coupling, and the associated mechanisms. He also has taken an active role in advancing student mental health at Western. Holding funding from each of the tri-agencies, Kevin's research is uniquely interdisciplinary and team-based, with many international partners.	
Sarah Gallagher	Dr. Sarah Gallagher is a professor of Physics and Astronomy at Western University and the Science Advisor to the President of the Canadian Space Agency. Her research focuses on studying growing supermassive black holes at the centres of distant galaxies and the interactions between galaxies in crowded environments. She has over 100 refereed papers that include data from 10 different space observatories, and her research has been recognized with an Ontario Early Career Researcher Award and a Western University Faculty Scholar Award. As a Departmental Science Advisor, she advised the CSA Executive Committee on space science investments and capacity development and sat on the Departmental Science Advisor Network. She regularly speaks to the public of all ages about black holes and space.	
Maxwell Smith	Dr. Maxwell Smith is a bioethicist and Assistant Professor in the Faculty of Health Sciences. Professor Smith is also an Associate Director of the Rotman Institute of Philosophy and has appointments in the Department of Philosophy, Schulich Interfaculty Program in Public Health, Department of Epidemiology and Biostatistics, and Institute for Earth and Space Exploration. His research is primarily in the area of public health ethics, with a focus on infectious disease ethics and the ethical requirements of health equity and social justice for public health policy, practice, and research.	

Western University Awards for Excellence in Teaching

Shauna Burke	Shauna M. Burke, PhD, is an Associate Professor and Faculty Scholar (2020-2022) in the School of Health Studies at Western University. Broadly speaking, her research area is child and family health, with a specific focus on group dynamics/social connectedness, childhood obesity, and health behaviours (e.g., physical activity, sedentary behaviour). In addition to over 100 presentations, workshops, and invited lectures at national and international scientific conferences, Shauna has published several book chapters and ~70 peer-reviewed articles in reputable journals in the areas of group dynamics, physical activity, health behaviour, and public health. Shauna is also co-author of a widely used Canadian health textbook entitled "Core Concepts in Health", now in its 3rd edition (with a 4th in progress). In the context of the COVID-19 pandemic, Shauna is the Principal Investigator of the "iBelong" program of research, investigating young people's perceptions of social connectedness and wellbeing, as well as their adherence to public health guidelines and engagement in health behaviours. Shauna has also received numerous prestigious awards in recognition of her excellence in mentorship and teaching.	
Faculty Scholars Award		
Danielle Way	Her research focuses on physiological responses to high temperatures, drought stress and changes in CO2 concentration, with the goal of determining the mechanisms underpinning plant responses to global change at molecular and biochemical scales and the implications of these responses for the larger community and ecosystem scales.	
Jan Cami	Jan Cami is Professor at Western University (Ontario, Canada) where he also serves as Director of the Hume Cronyn Memorial Observatory and as Associate Director (Research & Outreach) of the Institute for Earth and Space Exploration. He is also a Research Associate at the SETI Institute (Mountain View, California).	
Sarah Gallagher	Dr. Sarah Gallagher is a professor of Physics and Astronomy at Western University and the Science Advisor to the President of the Canadian Space Agency. Her research focuses on studying growing supermassive black holes at the centres of distant galaxies and the interactions between galaxies in crowded environments. She has over 100 refereed papers that include data from 10 different space observatories, and her research has been recognized with an Ontario Early Career Researcher Award and a Western University Faculty Scholar Award. As a Departmental Science Advisor, she advised the CSA Executive Committee on space science investments and capacity development and sat on the Departmental	

	Science Advisor Network. She regularly speaks to the public of all ages about black holes and space.	
Isha DeCoito	Isha is a highly accomplished educator and researcher in STEM/science education. With a focus on equity and inclusion, she has secured over $3.5 million in funding for her research. Her work centers around EDID in STEM education, leveraging digital technologies for scientific literacy, and mentoring and professional development. Isha's expertise in curriculum development and program design, along with her dedication to improving teaching and learning, has made her a leader in the field. She is currently a STEM educator and Editor for Science at the Canadian Journal of Science, Mathematics, and Technology Education.	
Martin Houde	I am an astrophysicist who is mostly concerned with understanding the basic physical processes involved in the formation of stars. The areas of research I cover lean strongly towards observational studies, and the development of new generations of instrumentation that allow for the discovery of important results that bring us closer to a more complete picture of the star formation process. My work, however, either past or current, is not limited to simple presentations of observational data, but often leads to important new physical interpretations and models that significantly contribute to our understanding of star formation.	
Shauna Burke	Shauna M. Burke, PhD, is an Associate Professor and Faculty Scholar (2020-2022) in the School of Health Studies at Western University. Broadly speaking, her research area is child and family health, with a specific focus on group dynamics/social connectedness, childhood obesity, and health behaviours (e.g., physical activity, sedentary behaviour). In addition to over 100 presentations, workshops, and invited lectures at national and international scientific conferences, Shauna has published several book chapters and ~70 peer-reviewed articles in reputable journals in the areas of group dynamics, physical activity, health behaviour, and public health. Shauna is also co-author of a widely used Canadian health textbook entitled “Core Concepts in Health”, now in its 3rd edition (with a 4th in progress). In the context of the COVID-19 pandemic, Shauna is the Principal Investigator of the “iBelong” program of research, investigating young people’s perceptions of social connectedness and wellbeing, as well as their adherence to public health guidelines and engagement in health behaviours. Shauna has also received numerous prestigious awards in recognition of her excellence in mentorship and teaching.	
Endowed/Industry Chairs		

Neil Banerjee	Banerjee studies stable isotope biogeochemistry and astrobiology. Banerjee is particularly interested in microbial alteration of modern and ancient oceanic crust, evidence for early life on Earth. Their research interests also include formation and evolution of oceanic crust, geochemical cycling at mid-ocean ridges formation of massive sulfide deposits at mid-ocean ridges, and the origin and emplacement of ophiolites.	
Royal Society of Canada Fellows		
Wayne Hocking	The Atmospheric Dynamics Group studies dynamical motions in the atmosphere at heights from ground level to 100 km altitude. They use a variety of instruments, including radar, radiosonde balloons, high resolution turbulence probes and theoretical modeling. They are especially interested in motions at small scales, such as turbulence and internal buoyancy (gravity) waves, but also study longer term motions like atmospheric tides and planetary waves.	
Fred Longstaffe	Appointed as Western's Provost and Vice-President (Academic) for a five-year term on July 1, 2005, Fred Longstaffe has a track record in leadership roles since coming to Western in 1987. Longstaffe was Science Dean from 1999 until his appointment as Provost and Chair of the Department of Earth Sciences from 1993 to 1999. He played an instrumental role in the merger of Geology and Geophysics to create the Earth Sciences department in 1993. In addition, he has been an active member of Senate and Board of Governors.	
Department Chairs		
Pauline Barmby	Barmby is an observational astrophysicist, studying stellar populations and star formation in nearby galaxies and their star clusters. With her team she develops new tools and techniques to combine data from ground-and space-based telescopes to understand how the many pieces of galaxies fit together. Barmby is the PI of CANFAR's ComputeCanada Resource Allocation and was the co-chair of the Canadian Astronomical Society's 2020 Long Range Plan.	

Shantanu Basu	Shantanu is known as an expert in studies of the early stages of star formation and protoplanetary disk formation and evolution. He has made contributions to understanding fragmentation of interstellar molecular clouds, the role of magnetic fields and angular momentum in gravitational collapse and star formation, the origin of luminosity bursts from young stellar objects, and the origin of power-laws in the mass distribution of stars. Shantanu has also contributed to understanding the luminosity function of supermassive black holes seen in the high redshift universe. He is one of the originators of the Migrating Embryo Model for protoplanetary disk evolution, which is a unified scenario for angular momentum transport, binary star and giant planet formation, and the formation of ejected freely floating low mass objects. Shantanu has published over 100 research papers, mostly as first or second author, and has given over 100 invited lectures and colloquia, spanning 16 different countries.	
Lorie Donelle	Donelle has interests and research relating to digital health with emphasis on technology enabled models of health care, and the impact on clients, clinicians, & organizations. Donelle's research interests also include health and digital health literacy, as well as health promotion.	
Ken McIsaac	Dr. K. McIsaac received the M.Sc. and Ph.D. degrees in electrical engineering from the University of Pennsylvania, Philadelphia in 1998, 2001, respectively. Dr. McIsaac joined ECE as Assistant Professor in January 2001 and was promoted to Associate Professor in July 2007. He served as Associate Chair (Undergraduate) from 2007-2010 and 2011-2012. He served as Director of Mechatronics from 2011-2012. Since January 2013, he has been Chair of Electrical and Computer Engineering. Dr. McIsaac is the Associate Director (Acting) of the Center for Planetary Science and Exploration, and is a Registered Professional Engineer in Ontario.	
Robert Sica	Robert (Bob) Sica is an atmospheric scientist who studied physics as an undergraduate at Columbia University. He earned his PhD from the Geophysical Institute of the University of Alaska in 1985, where he made some of the first measurements of atmospheric coupling between the aurora (Northern Lights) and winds in the upper atmosphere. He came to Western as an Assistant Professor of Physics in 1988 and in the subsequent years expanded his studies of atmospheric coupling from the upper atmosphere to the surface. At Western, Professor Sica and his group built one of the world's most powerful lidars to measure dynamics, thermodynamics and composition of the atmosphere from the surface to the edge of space. He has also advanced lidar analysis by, with Dr. A. Haefele and students, developed several new retrievals for atmospheric properties from lidar measurements using the Optimal Estimation Method. Dr. Sica's currently is the PI of MPLCAN (https://www.uwo.ca/sci/mplcan/), a network of automated lidars	

	that is capable of measuring cloud and aerosol properties relevant to issues like air quality and transport of wildfire smoke.	
James Voogt	James Voogt is Professor in the Department of Geography and Environment at the University of Western Ontario, in London, Canada. He is an urban climatologist who specializes in the measurement and modelling of urban surface temperatures. He received his BSc in 1986 from Queen's University and MSc (1989) and PhD (1995) from the University of British Columbia. He has contributed to research projects on understanding the three-dimensional surface temperature of cities, thermal anisotropy over urban areas, the use of remotely sensed surface temperatures in urban climate model evaluation, the climate performance of green roofs, and spatial variations in the heat impacts on urban residents. Dr. Voogt is an Editorial Board member for the journals Remote Sensing of Environment and Anthropocene. He is past president of the International Association for Urban Climate and a co-author of the text 'Urban Climates' published by Cambridge University Press.	
Distinguished Professor		
Fred Longstaffe	Appointed as Western's Provost and Vice-President (Academic) for a five-year term on July 1, 2005, Fred Longstaffe has a track record in leadership roles since coming to Western in 1987. Longstaffe was Science Dean from 1999 until his appointment as Provost and Chair of the Department of Earth Sciences from 1993 to 1999. He played an instrumental role in the merger of Geology and Geophysics to create the Earth Sciences department in 1993. In addition, he has been an active member of Senate and Board of Governors.	
Pauline Barmby	Barmby is an observational astrophysicist, studying stellar populations and star formation in nearby galaxies and their star clusters. With her team she develops new tools and techniques to combine data from ground-and space-based telescopes to understand how the many pieces of galaxies fit together. Barmby is the PI of CANFAR's ComputeCanada Resource Allocation and was the co-chair of the Canadian Astronomical Society's 2020 Long Range Plan.	
Order of Canada		

Fred Longstaffe	Appointed as Western's Provost and Vice-President (Academic) for a five-year term on July 1, 2005, Fred Longstaffe has a track record in leadership roles since coming to Western in 1987. Longstaffe was Science Dean from 1999 until his appointment as Provost and Chair of the Department of Earth Sciences from 1993 to 1999. He played an instrumental role in the merger of Geology and Geophysics to create the Earth Sciences department in 1993. In addition, he has been an active member of Senate and Board of Governors.	

Appendix G: PLANETSCI student Index – 2022 current and recent Graduates

Name	Graduate Program	Academic Degree	Completion Year	Status at May 2023
Beaton, Dana Michael	Electrical & Computer Eng	M.E.Sc. ECE, DSP, PlnSci	2023	completed degree
Bhatt, Charmi	Astronomy	M.Sc. Astronomy, PlnSci	2022	completed degree
Brown, Rachel Anne	Astronomy	M.Sc. Astronomy, PlnSci	2022	completed degree
Burley, James	Geology	MSc Geol Course Based	2020	completed degree
Garroni, Nicolas Dylan	Geology	Ph.D. Geology, PlnSci	2023	completed degree
Gonzalez Flores, Ana Laura	Geology	MSc Geol Course Based	2017	completed degree
Gonzalez Flores ,Ana Laura	Geology	Ph.D. Geology, PlnSci	2022	completed degree
Gregg, Cole Riley	Astronomy	M.Sc. Astronomy, PlnSci	2021	completed degree
Hedgepeth, Joshua Everett	Geophysics	M.Sc. Geophysics, PlnSci	2018	completed degree
Hedgepeth, Joshua Everett	Geophysics	Ph.D. Geophysics, PlnSci	2022	completed degree
Hutton, Kaitlin Tara	Electrical & Computer Eng	M.E.Sc. ECE, Robotics, PlnSci	2023	completed degree
Jaimes Bermudez, Juan Pablo	Geology	M.Sc. Geology, PlnSci	2023	completed degree
Khatu, Viraja Chandrashekhar	Astronomy	Ph.D. Astronomy, PlnSci	2022	completed degree
Kissi-Ameyaw, Jonathan	Electrical & Computer Eng	M.E.Sc. ECE, Robotics, PlnSci	2016	completed degree
Kwik, Robin	Geography	M.Sc. Geography PlnSci	2022	completed degree
Li,Yaozhu	Geology	M.Sc. Geology, PlnSci	2018	completed degree
Pascual, Alexis Portugal	Electrical & Computer Eng	M.E.Sc. ECE, Robotics, PlnSci	2019	completed degree
Pascual, Alexis Portugal	Electrical & Computer Eng	Ph.D. ECE, Software, PlnSci	2023	completed degree
Reger, Philip Michael	Geology	Ph.D. Geology, PlnSci	2022	completed degree
Sacks, Leah	Geology	M.Sc. Geology, PlnSci	2020	completed degree
Sawyer, Ryan	Geophysics	Ph.D. Geophysics, PlnSci	2022	completed degree
Schefter, Bethany Reid	Astronomy	M.Sc. Astronomy, PlnSci	2022	completed degree
Svensson, Matthew James Osborn	Geology	Ph.D. Geology, PlnSci	2022	completed degree
Amey, Stephen	Electrical & Computer Eng	M.E.Sc. ECE, Software, PlnSci		in progress
Bibas, Daliah Raquel	Geology	M.Sc. Geology, PlnSci		in progress
Brito, Ruthy Sarah	Electrical & Computer Eng	M.E.Sc. ECE, Robotics, PlnSci		in progress
Burley, James	Geology	Ph.D. Geology, PlnSci		in progress
Cao, Fengke	Geology	Ph.D. Geology, PlnSci		in progress
Chinchalkar, Neeraja Satish	Geology	Ph.D. Geology, PlnSci		in progress

Dicecca, Anthony	Geology	M.Sc. Geology, PlnSci		in progress
Duncan, Taylor Marie	Geology	M.Sc. Geology, PlnSci		in progress
Graff, Jamie	Geology	Ph.D. Geology, PlnSci		in progress
Gregg, Cole Riley	Astronomy	Ph.D. Astronomy, PlnSci		in progress
Hussain, Sakina	Astronomy	M.Sc. Astronomy, PlnSci		in progress
Kissi-Ameyaw, Jonathan	Electrical & Computer Eng	Ph.D. ECE, Robotic, PlnSci		in progress
Li, Yaozhu	Geology	Ph.D. Geology, PlnSci		in progress
Louwerse, Lukas Kendrik	Geophysics	M.Sc. Geophysics, PlnSci		in progress
Nadeem, Hira Sarah	Electrical & Computer Eng	M.E.Sc. ECE, Robotics, PlnSci		in progress
Noblet, Axel	Geology	Ph.D. Geology, PlnSci		in progress
Perkins, Reid Patrick	Geology	Ph.D. Geology, PlnSci		in progress
Rangarajan, Vidhya Ganesh	Geology	Ph.D. Geology, PlnSci		in progress
Ruso, Simona	Geology	Ph.D. Geology, PlnSci		in progress
Ryan, Catheryn Helena	Geology	Ph.D. Geology, PlnSci		in progress
Sacks, Leah	Geology	Ph.D. Geology, PlnSci		in progress
Schefter, Bethany Reid	Astronomy	Ph.D. Astronomy, PlnSci		in progress
Shah, Jahnavi	Geophysics	Ph.D. Geophysics, PlnSci		in progress
Shaigec, Steffen	Geography	M.Sc. Geography PlnSci		in progress
Sia, Jin Sing	Electrical & Computer Eng	M.E.Sc. ECE, Robotics, PlnSci		in progress
Stone, Lauren	Geology	Ph.D. Geology, PlnSci		in progress
THAKER, ASHKA	Geology	Ph.D. Geology, PlnSci		in progress
Vanga, Sashank	Geology	Ph.D. Geology, PlnSci		in progress
Voege, Paul Andrew	Electrical & Computer Eng	M.E.Sc. ECE, Robotics, PlnSci		in progress
Cincio, Paige Julianna	Geology	Ph.D. Geology, PlnSci		withdrawn
Siwabessy, Andrew	Geology	Ph.D. Geology, PlnSci		withdrawn

2009-2021 Alumni

Western Space Alumni	Academic Program	Masters/Doctoral	Completion Date
Abedin, Abedin	Astronomy	Doctoral	Oct 2016
Anders, Denise	Geology	Doctoral	Nov 2016
Andres, Chimira	Geophysics	Masters	Nov 2020
Armitage, Taylor	Astronomy	Masters	Aug 2019
Auclair, Simon	Geology	Masters	Feb 2011
August, Tyler	Astronomy	Masters	Aug 2012
Battler, Melissa	Geology	Doctoral	Jan 2013
Berger, Jeffrey	Geology	Doctoral	Aug 2017
Bina, Arya	Geology	Doctoral	Oct 2018
Bruzzone Rama, Juan	Astronomy	Doctoral	Aug 2014
Burford, Marie	Geophysics	Masters	Oct 2012
Caudill, Christy	Geology	Doctoral	Apr 2020
Choe, Byung-Hun	Geology	Doctoral	Dec 2017
Christoffersen, Peter	Geology	Masters	Jan 2018
Cross, Matthew	Electrical & Computer Eng	Doctoral	Dec 2016
Cupelli, Carmela	Geology	Doctoral	Dec 2016
Dammeier, Rodney	Geology	Masters	Oct 2011
Daniels, Jeffrey	Geology	Doctoral	Aug 2018
D'Aoust, Bianca	Geology	Masters	Jan 2016
Doerksen, Kelsey	Electrical & Computer Eng	Masters	Dec 2019
Dong, Elisa	Geophysics	Masters	Apr 2022
Flanagan, Lauren	Electrical & Computer Eng	Masters	Mar 2022
Froncisz, Mark	Astronomy	Masters	Aug 2019
George, Benjamin	Astronomy	Masters	Aug 2019
Gregg, Cole	Astronomy	Masters	Aug 2021
Guo, Zhiguo	Geology	Masters	Oct 2019
Haid, Taylor	Geology	Masters	Nov 2016
Harrington, Elise	Geology	Masters	Apr 2018
Harrison, Tanya	Geology	Doctoral	Aug 2016
Hawkswell, Jordan	Geology	Masters	Dec 2018
Hedgepeth, Joshua	Geophysics	Masters	Aug 2018
Hibbard, Shannon	Geology	Doctoral	Aug 2021

Hicks, Shannon	Astronomy	Masters	Aug 2015
Hicks, Shannon	Astronomy	Doctoral	Aug 2019
Hill, Patrick	Geology	Doctoral	June 2019
Houde, Victoria	Geology	Masters	Aug 2018
Innis, Liam	Geology	Masters	Nov 2018
Izawa, Matthew	Geology	Doctoral	Aug 2012
Jenkins, Laura	Geology	Doctoral	Sep 2019
Karpiak, Michael	Astronomy	Doctoral	Apr 2016
King, Derek	Geology	Masters	Apr 2019
Kissi-Ameyaw, Jonathan	Electrical & Computer Eng	Masters	Nov 2016
Lenhart, Eric	Geophysics	Masters	Aug 2021
Li, Yaozhu	Geology	Masters	Aug 2018
Loiselle, Liane	Geology	Masters	Oct 2012
MacIsaac, Heather	Astronomy	Masters	Aug 2021
Mader, Marianne	Geology	Doctoral	Fen 2016
Maloney, Michael	Geology	Masters	Apr 2018
Marion, Cassandra	Geology	Doctoral	May 2020
McCraig, Michael	Geology	Masters	Nov 2010
McCraig, Michael	Geology	Doctoral	Dec 2015
McCullough, Emily	Astronomy	Masters	Aug 2009
McCullough, Emily	Astronomy	Doctoral	Dec 2015
Mitchell, Nicholas	Electrical & Computer Eng	Masters	Dec 2020
Morse, Zachary	Geology	Doctoral	Dec 2018
Newman, Jennifer	Geology	Doctoral	Apr 2020
Nuhn, Anna	Geology	Masters	Jun 2014
Oswald, Wayne	Astronomy	Masters	Aug 2014
Papadimos, Amanda	Astronomy	Doctoral	Aug 2010
Pascual, Alexis	Electrical & Computer Eng	Masters	Apr 2019
Patel, Parshati	Astronomy	Masters	Apr 2012
Patel, Parshati	Astronomy	Doctoral	Apri 2016
Pearce, Geoffrey	Geology	Masters	Oct 2010
Pickersgill, Annemarie	Geology	Masters	June 2014
Pilles, Eric	Geology	Doctoral	Oct 2016
Pontefract, Alexandra	Geology	Doctoral	Oct 2013
Posnov, Nikol	Geology	Masters	Aug 2021

Pritchard, Ian	GGEOG	Masters	Aug 2016
Reger, Philip	Geology	Masters	Apr 2022
Rodriguez, Carolina	Geology	Masters	Dec 2019
Rudyk, Theodore	Astronomy	Masters	Aug 2014
Sacks, Leah	Geology	Masters	Dec 2020
Sapers, Haley	Geology	Doctoral	Dec 2012
Schwegman, Ryan	Geology	Masters	Aug 2015
Shankar, Bhairavi	Geology	Doctoral	Mar 2013
Shannon, Matthew	Astronomy	Doctoral	Aug 2012
Shivak, Jared	Geology	Doctoral	Aug 2013
Shu, Lei	Electrical & Computer Eng	Doctoral	Aug 2018
Sidhu, Ameek	Astronomy	Doctoral	Sept 2021
Silber, Reynold	Geophysics	Doctoral	Aug 2011
Simpson, Sarah	Geology	Doctoral	Nov 2020
Singleton, Alaura	Geology	Masters	June 2010
Singleton, Alaura	Geology	Doctoral	Aug 2019
Southwell, Bryan	Electrical & Computer Eng	Masters	Aug 2020
Stromberg, Jessica	Geology	Doctoral	Dec 2017
Subasinghe, Dilini	Astronomy	Doctoral	Dec 2012
Thomson, Laura	Geophysics	Masters	Aug 2011
Tolometti, Gavin	Geology	Doctoral	Aug 2021
Uribe Lozano, Diego	Geology	Masters	Aug 2017
Vida, Denis	Geophysics	Doctoral	Apr 2020
Werynski, Alyssa	Geophysics	Masters	Aug 2018
Wilks, Rebecca	Geology	Masters	Oct 2016
Ye, Quanzhi	Astronomy	Doctoral	Aug 2013
Yingling, William	Geology	Masters	Aug 2020
Zhang, Bidong	Geology	Doctoral	Nov 2019
Zhang, Xiao	Geology	Doctoral	Dec 2021
Zhu, Congxi	Geology	Masters	Oct 2019
Zylberman, William	Geophysics	Doctoral	Dec 2017

Appendix H: Media Engagements: 2022

Date	Researcher	Source	Medium/ Platform	Title	Links
11-Jan-22	Philip McCausland & Peter Brown	Maclean's	Online news article	A meteorite nearly killed this B.C. woman in her sleep. Scientists say it could be 470 million years old	https://www.macleans.ca/society/science/a-meteorite-nearly-killed-this-b-c-woman-in-her-sleep-scientists-say-it-could-be-470-million-years-old/
Jan. 17, 2022	Philip McCausland	The Globe and Mail	Online news article	Scientists study trajectory of meteorite that landed on a B.C. woman's pillow in October	https://www.theglobeandmail.com/canada/article-scientists-study-trajectory-of-meteorite-that-landed-in-bc-in-october/
Jan. 19, 2022	Philip McCausland	Alberta Prime Times	Online news article	Scientists study trajectory of meteorite that landed in B.C. in October	https://www.albertaprimetimes.com/beyond-local/scientists-study-trajectory-of-meteorite-that-landed-in-bc-in-october-4969765
Jan. 19, 2022	Philip McCausland	The Weather Network	Online news article	Meteorite that nearly hit B.C. woman may be 470 million years old	https://www.theweathernetwork.com/ca/news/article/meteorite-that-nearly-hit-bc-woman-may-be-470-million-years-old
Jan. 25, 2022	Els Peeters	CBC News	Online news article	Webb telescope arrives safely. Now, Canadian astronomers are ready to unravel the mysteries of the universe	https://www.cbc.ca/news/science/jwst-canadians-1.6319289
Jan. 25, 2022	Els Peeters	The Tom McConnell Show	Broadcast news: Radio	The Tom McConnell Show on 610 CKTB interviewed Physics and Astronomy professor Els Peeters about the James Webb Space telescope.	https://www.iheartradio.ca/610cktb/audio/western-university-prof-els-peeters-re-webb-telescope-1.17014530?mode=Article
Jan.28, 2022	Pauline Barmby	The Globe and Mail	Online news article	Future dreams in view as Canadian instruments power up aboard James Webb Space Telescope	https://www.theglobeandmail.com/canada/article-future-dreams-in-view-as-canadian-instruments-power-up-aboard-james/
Feb. 18, 2022	Western Researchers	The Guardian UK	Online news article	Experience: a meteorite crashed on to my bed	https://www.theguardian.com/lifeandstyle/2022/feb/18/experience-a-meteorite-crashed-on-to-my-bed
Feb. 21, 2022,	Els Peeters	The Tom McConnell Show	Broadcast news: Radio	Els Peeters joined the Tom McConnell show on 610 CKTB to discuss what can be seen through the James Webb Telescope.	http://mms.tveyes.com/MediaView/?c3RhdGlvbj0xNDU0NSZTdGFydERhdGVUaW1lPTAyJTJmMjElMmYyMDIyKzE1JTNhMDQlM2ExNyZFbmREYXRlVGltZT0wMiUyZjIxJTJmMjAyMisxNSUzYTEyJTNhMjgmJiZkdXJhdGlvbj0yOTc0NTAmcGFydG5lcmlkPTczMTMmJmhpZ2hsaWdodHJlZ2V4PSU1Y2JXZXN0ZXJuK1VuaXZlcnNpdHklNWNiJm1vZGVkaXRvcmVuYWJsZT10cnVlJm1vZGVkaXRvcmlc3RpbmF0aW9ucz00JiZleHBpcmF0aW9uPTAzJTJmMjMlMmYyMDIyKzE1JTNhMDQlM2ExNy4wMDAmaW5zdGFudFBsYXk9VHJ1ZSZzaWduYXR1cmU9NWQzYjA2YWI3MGM3NmQ4ZTA2ODgwMDUwZTZkZGIyZWI=
Feb. 22, 2022	Western University	CTV News	Online news article	Space centre' coming to the north to train astronauts, inspire youth in STEM	https://northernontario.ctvnews.ca/space-centre-coming-to-the-north-to-train-astronauts-inspire-youth-in-stem-1.5789155
Feb. 27, 2022	Western University	CBC News	Online news article	Space centre planned for Cochrane, Ont., aims to train future astronauts	https://www.cbc.ca/news/canada/sudbury/stardust-space-centre-cochrane-1.6363013

March 2nd, 2022,	Els Peeters	Space.com	Online news article	James Webb Space Telescope plans probe of massive star radiation	https://www.space.com/james-webb-space-telescope-massive-star-radiation-probe
8-Mar-22	Western University	Times Post	Online news article	There is no limit to the sky for local entrepreneur	https://www.cochranetimespost.ca/news/local-news/there-is-not-limit-to-the-sky-for-local-entrepreneur?fbclid=IwAR0j2eVOvSzmS4SX13yqA4thXU4JT0U9ZadJgloKVkdEmdaCwJREfjbz-Bs
10-Mar-22	Western Space	News Ontario	Press Release	Ontario Invests in Cutting-Edge Space and Robotics Technologies in Brampton	https://news.ontario.ca/en/release/1001743/ontario-invests-in-cutting-edge-space-and-robotics-technologies-in-brampton
10-Mar-22	Parshati Patel & Western Space	Western News	Online news article	Student-led STEM conference to feature Prime Minister address	https://news.westernu.ca/2022/03/student-led-stem-conference-to-feature-prime-minister-address/
13-Mar-22	Peter Brown	Forbes	Online news article	Astronomer Spotted An Asteroid Just Hours Before It Impacted Earth	https://www.forbes.com/sites/ericmack/2022/03/13/astronomer-spotted-an-asteroid-just-hours-before-it-impacted-earth/?sh=773c3ca358fc
15-Mar-22	Peter Brown	New Scientist	Online news article	Small asteroid hits Earth just hours after astronomers detect it	https://www.newscientist.com/article/2312418-small-asteroid-hits-earth-just-hours-after-astronomers-detect-it/#ixzz7Ni0yb471
March 30th, 2022,	Catherine Neish	CBC News	Online news article	Ice volcanoes on Pluto suggest dwarf planet may not be so cold after all	https://www.cbc.ca/news/science/ice-volcanoes-pluto-1.6401011
4-Apr-22	Livio Tornabene	Space Q	Online news article/blog	The Canadian Space Agency funds four space exploration investigations	https://spaceq.ca/the-canadian-space-agency-funds-four-space-exploration-investigations/
6-Apr-22	Western Space Researchers	Western News	Online news article	Western crew preps Space Station-bound astronaut for Ax-1 mission	https://news.westernu.ca/2022/04/ax-1-mission/
7-Apr-22	Adam Sirek & Western Space	The Globe and Mail	Online news article	Canadian Mark Pathy set to make history in commercial flight to space station	https://www.theglobeandmail.com/canada/article-canadian-mark-pathy-set-to-make-history-in-commercial-flight-to-space/
7-Apr-22	Adam Sirek	AM980	Radio Interview	AX1 Mission	http://mms.tveyes.com/MediaView/?c3RhdGlvbj0xNDc5NSZTdGFydERhdGVUaW1lPTA0JTJmMDclMmYyMDIyKzA3JTNhMjElM2EwNiZFbmREYXRlVGltZT0wNCUyZjA3JTJmMjAyMiswNyUzYTI4JTNhMjUmJiZkdXJhdGlvbj0yOTgwNDAmcGFydG5lcmlkPTczMTMmJmhpZ2hsaWdodHJlZ2V4PSU1Y2JwZXJzcGVjdGl2ZStpbit0ZXJtcytqdXN0K3BoeXNpY2FsbHkrbG9va2luZytkb3duK3RoZStFYXJ0aCt3aGljaCU1Y2ImbW9kZWRpdG9yZW5hYmxlPXRydWUmbW9kZWRpdG9yZGVzdGluYXRpb25zPTQmJmV4cGlyYXRpb249MDUlMmYwNyUyZjIwMjIrMDclM2EyMSUzYTA2LjAwMCZpbnN0YW50UGxheT1UcnVlJnNpZ25hdHVyZT0zM2YwZWExMzllODNlNGVhMzAzMTFkZTQ3NGVkMGVkZQ==
7-Apr-22	Adam Sirek & Eric Pilles	London Free Press	Online news article	CEO in space: Entrepreneur heads to orbit with Western University boost	https://lfpress.com/news/local-news/ceo-in-space-entrepreneur-heads-to-orbit-with-western-university-boost
8-Apr-22	Western University	SpaceQ	Online news article	Stardust Technologies launches Stardust Alliance with over 20 partners	https://spaceq.ca/stardust-technologies-launches-stardust-alliance-with-over-20-partners/

11-Apr-22	Peter Brown	Sky & Telescope	Online news article	U.S. SPACE FORCE RELEASES DATA ON BRIGHT FIREBALLS	https://skyandtelescope.org/astronomy-news/u-s-space-force-releases-data-on-bright-fireballs/
14-Apr-22	Peter Brown	New York Times	Online news article	'It's Super Spectacular.' See How the Tonga Volcano Unleashed a Once-in-a-Century Shockwave.	https://www.nytimes.com/interactive/2022/04/14/upshot/tonga-pressure-wave.html
14-Apr-22	Adam Sirek	CTV News London	Online news article	Grade six students chat with the International Space Station	https://london.ctvnews.ca/grade-six-students-chat-with-the-international-space-station-1.5862641?cid=sm%3Atrueanthem%3Actvlondon%3Apost&utm_campaign=trueAnthem%3A%20Trending%20Content&utm_medium=trueAnthem&utm_source=facebook&fbclid=IwAR2MKfcXjVJhBK2VMIF3ojI9dDu4uqIzWC-R-1mCuorcGej_Zjdp5EXM0wM
14-Apr-22	Adam Sirek & Eric Pilles	CBC London	Online news article	London students over the moon after chat with astronaut aboard the ISS	https://www.cbc.ca/news/canada/london/london-students-over-the-moon-after-chat-with-astronaut-aboard-the-iss-1.6420312
14-Apr-22	Adam Sirek	CTV News London	TV Broadcast	Grade six students chat with the International Space Station	https://london.ctvnews.ca/video?clipId=2423218&jwsource=cl
14-Apr-22	Western Space Researchers	London Free Press	Online News Article	Space time: London schoolkids chat with Canadian on private mission	https://lfpress.com/news/local-news/space-time-london-schoolkids-chat-with-canadian-on-private-mission
16-Apr-22	Western Space Researchers	Globe and Mail	Online news article	Where the sun rises and sets 16 times a day. What's it's like being aboard the International Space Station	https://www.theglobeandmail.com/canada/article-mark-pathy-international-space-station-interview/
18-Apr-22	Denis Vida	CTV News London	Online news article	Western University's all-sky camera network captures large fireball near Lake Simcoe	https://london.ctvnews.ca/western-university-s-all-sky-camera-network-captures-large-fireball-near-lake-simcoe-1.5866067
19-Apr-22	Denis Vida	BlackburnNews	Online news article & video	Fireball across Southern Ontario sky of interest to Western researchers (Video)	https://blackburnnews.com/london/london-news/2022/04/19/fireball-across-southern-ontario-sky-interest-western-researchers-video/
18-Apr-22	Denis Vida	CNET	Online news article & video	See the Fireball That Likely Dropped a Bounty of Meteorites on Canada	https://www.cnet.com/science/space/see-the-fireball-that-likely-dropped-a-bounty-of-meteorites-on-canada/
18-Apr-22	Denis Vida	London Free Press	Online news article	Fireball may have scattered meteorites near Lake Simcoe: Western researcher	https://lfpress.com/news/local-news/fireball-may-have-scatted-meteorites-near-lake-simcoe-western-researcher
18-Apr-22	Gavin Tolometti	Live Science	Online news article	Massive meteorite impact created the hottest mantle rock ever	https://www.livescience.com/hottest-rock-on-earth-mantle
18-Apr-22	Sarah Gallagher	Macleans	Online news article	What the world's most powerful telescope is teaching us about the universe	https://www.macleans.ca/society/science/james-webb-telescope-history-of-the-universe/
19-Apr-22	Denis Vida	Forbes	Online news article	Bright Fireball Likely Littered Lakeside Region With Meteorites	https://www.forbes.com/sites/ericmack/2022/04/19/bright-fireball-likely-littered-lakeside-region-with-meteorites/?sh=35dd9c881b1a

19-Apr-22	Denis Vida	The Weather Network	Online news article	After a bright fireball, meteorites may have hit the ground east of Lake Simcoe	https://www.theweathernetwork.com/ca/news/article/after-bright-fireball-meteorites-may-have-hit-the-ground-near-lake-simcoe-sunday-night
19-Apr-22	Denis Vida	Tech Times	Online news article	All-Sky Camera Network Captures Fireball Moving at an Unusual Speed	https://www.techtimes.com/articles/274493/20220419/sky-camera-network-captures-fireball-moving-unusual-speed.htm
19-Apr-22	Denis Vida	Global News	Online news article	Meteorite fragments likely near east shore of Lake Simcoe after shooting star seen Sunday	https://globalnews.ca/news/8768864/meteorite-lake-simcoe-ontario/
19-Apr-22	Gavin Tolometti	Canaltech	Online news article	Hottest Earth Rock coverage	https://canaltech.com.br/espaco/choque-de-meteorito-no-canada-formou-rochas-superquentes-214268/
19-Apr-22	Gavin Tolometti	Kompas News	Online news article	Hottest Earth Rock coverage	https://www.kompas.com/sains/read/2022/04/19/200500223/studi-baru-ungkap-batu-terpanas-di-bumi-bersuhu-2370-derajat-celsius
19-Apr-22	Gavin Tolometti	UK Daily Mail	Online news article	The hottest ROCK on Earth is confirmed: Fist-sized piece of black glass was formed 36 million years ago in at least 4,298°F heat	https://www.dailymail.co.uk/sciencetech/article-10732143/Hottest-rock-Earth-formed-temperatures-reached-4-298-F.html
19-Apr-22	Gavin Tolometti	The Saxon	Online news article	The temperature is higher than in the mantle. Hottest rock on earth found	https://thesaxon.org/the-temperature-is-higher-than-in-the-mantle-hottest-rock-on-earth-found/
20-Apr-22	Denis Vida	Toronto Star	Online news article	VIDEO: 'Fireball' in sky over Lake Simcoe area was a meteorite, Western University says	https://www.thestar.com/local-barrie/news/2022/04/20/video-fireball-in-sky-over-lake-simcoe-area-was-a-meteorite-western-university-says.html
20-Apr-22	Denis Vida	UPI	Online news article	Bright fireball over Ontario likely left several small meteorites on the ground	https://www.upi.com/Odd_News/2022/04/20/canada-Western-University-fireball-Ontario/5271650482178/
20-Apr-22	Gavin Tolometti	Wonderful Engineering	Online news article	Scientists Have Confirmed The Hottest Rock Ever Recorded On Earth – With A Temperature Of Over 2370°C	https://wonderfulengineering.com/scientists-have-confirmed-the-hottest-rock-ever-recorded-on-earth-with-a-temperature-of-over-2370c/
25-Apr-22	Western University	AM980	Radio Coverage	AX1 Mission Return	http://mms.tveyes.com/MediaView/?c3RhdGlvbj0xNDc5NSZTdGFydERhdGVUaW1lPTA0JTJmMjUlMmYyMDIyKzExJTNhMDUlM2EzNyZFbmREYXRlVGltZT0wNCUyZjI1JTJmMjAyMisxMSUzYTA2JTNhMDYmJiZkdXJhdGlvbj0yOTc3NzAmcGFydG5lcmlkPTczMTMmJmhpZ2hsaWdodHJlZ2V4PSU1Y2JXZXN0ZXJuK1VuaXZlcnNpdHklNWNiJm1vZGVkaXRvcmVuYWJsZT10cnVlJm1vZGVkaXRvcmlc3RpbmF0aW9ucz00JiZleHBpcmF0aW9uPTA1JTJmMjUlMmYyMDIyKzExJTNhMDUlM2EzNy4wMDAmaW5zdGFudFBsYXk9VHJ1ZSZzaWduYXR1cmU9ZGQ1YjcxYjllODgxMmE5Y2E5NGY3Yjc4ZjIxZDAyN2I=
9-May-22	Els Peeters	The Globe and Mail	Online news article	James Webb Space Telescope captures sharpest ever views of universe in ‘extraordinary	https://www.theglobeandmail.com/canada/article-james-webb-space-telescope-dazzles-following-mirror-alignment/

				milestone for humanity'	
11-May-22	Els Peeters	CBC As it Happens	Radio Interview	James Webb's first images	https://www.cbc.ca/listen/live-radio/1-2-as-it-happens/clip/15911744-when-look-abyss
12-May-22	Sarah Gallagher	Quanta Magazine	Online news article	Black Hole Image Reveals the Beast Inside the Milky Way's Heart	
16-May-22	Els Peeters	CHED Mid-Morning with Shaye Ganam	Radio Interview	Frst images captured by the James Webb Space Telescope.	https://omny.fm/shows/ched-mid-morning/new-images-from-james-webb-telescope
27-May-22	Jayshri Sabarinathan	Wyvern.space	Online news article	Wyvern secures CAD $380K to provide smart agriculture solutions from space	https://wyvern.space/wyvern-secures-cad-380k-to-provide-smart-agriculture-solutions/
June 7th, 2022	Jan Cami	CTV News	Online news article	You can see five planets aligned in the sky this month	https://www.ctvnews.ca/sci-tech/you-can-see-five-planets-aligned-in-the-sky-this-month-1.5937462
June 8th, 2022	Jan Cami	Narcity	Online news article	5 Planets Are Aligning In The Sky & You Can See The Rare Show In Canada Without A Telescope	https://www.narcity.com/5-planets-align-in-the-sky-see-in-canada-without-telescope
14-Jun-22	Western Space	Western News	Online news article	Astronaut launches grads to next, new adventures	https://news.westernu.ca/2022/06/astronaut-saint-jacques-launches-grads-adventures/
21-Jun-22	Paul Wiegert	EarthSky	Online news article	Kejimkujik: Asteroid named for Mi'kmaw ancestral site	https://earthsky.org/human-world/kejimkujik-asteroid-named-for-mikmaw-ancestral-site/
July 7th, 2022	Stanimir Metchev & Genaro Suárez	NASA	Press Release	NASA Helps Decipher How Some Distant Planets Have Clouds of Sand	https://www.jpl.nasa.gov/news/nasa-helps-decipher-how-some-distant-planets-have-clouds-of-sand
18-Jul-22	Stanimir Metchev & Genaro Suárez	NASA Space Flight	Online news article	As Webb begins observing exoplanets, scientists use Spitzer data & brown dwarfs to reveal how silicate clouds form	https://www.nasaspaceflight.com/2022/07/spitzer-brown-dwarfs-silicate-clouds/
Jul-22	Stanimir Metchev & Genaro Suárez	Space.com	Online news article	On bizarre brown dwarf worlds, astronomers spot hot, sandy clouds	https://www.space.com/brown-dwarf-clouds-of-sand
12-Jul-22	Stanimir Metchev & Genaro Suárez	India Today	Online news article	Clouds on these planets are made up of sand	https://www.indiatoday.in/science/story/exoplanet-clouds-sand-brown-dwarf-spitzer-james-webb-telescope-nasa-1974575-2022-07-12
July 7th, 2022	Stanimir Metchev & Genaro Suárez	Phys.org	Online news article	NASA helps decipher how some distant planets have clouds of sand	https://phys.org/news/2022-07-nasa-decipher-distant-planets-clouds.html
July 7th, 2022	Stanimir Metchev & Genaro Suárez	SpaceRef	Online news article	"Western Space team uses NASA data to decipher clouds of sand on distant planets "	https://spaceref.com/press-release/western-space-team-uses-nasa-data-to-decipher-clouds-of-sand-on-distant-planets/
July 8th, 2022	Stanimir Metchev & Genaro Suárez	Interesting Engineering	Online news article	New NASA study explains why some planets have clouds of sand	https://interestingengineering.com/science/some-planets-clouds-sand

10-Jul-22	Shantanu Basu	Daily Galaxy	Online news article	Massive Black Holes Existed Before the First Stars of the Universe	https://dailygalaxy.com/2022/07/collapse-ancient-redshift-black-holes-a-billion-times-more-massive-than-the-sun/
10-Jul-22	Stanimir Metchev & Genaro Suárez	The Galaxy Reporters	Online news article	NASA Investigates Why Some Distant Planets Have Clouds of Sand	https://galaxyreporters.com/nasa-investigates-why-some-distant-planets-have-clouds-of-sand/
9-Jul-22	Stanimir Metchev & Genaro Suárez	Black Burn News	Online news article	Nasa data helping Western researchers to better understand planetary atmospheres	https://blackburnnews.com/london/london-news/2022/07/09/nasa-data-helping-western-researchers-better-understand-planetary-atmospheres/
Jul-22	Stanimir Metchev & Genaro Suárez	The Tom McConnell Show	Radio Show	New NASA study explains why some planets have clouds of sand	The Tom McConnell Show on 610 CKTB Niagara
12-Jul-22	Sarah Gallagher	CBC Radio One	Radio Show	JWST New Images	http://mms.tveyes.com/MediaView/?c3RhdGlvbj0xNDg3NSZTdGFydERhdGVUaW1lPTA3JTJmMTIlMmYyMDIyKzE2JTNhMDglM2EzNyZFbmREYXRlVGltZT0wNyUyZjEyJTJmMjAyMisxNiUzYTE2JTNhNTEmJiZkdXJhdGlvbj0yOTgyNzkmcGFydG5lcmlkPTczMTMmJmhpZ2hsaWdodHJlZ2V4PSU1Y2JoYXZlK2FkdmFuY2VkK3NpZ25pZmljYW50bHkuK0l0JTI3cythbHNvK2l0JTI3cythK2xvdCtiaWdnZXIrdGhhbiU1Y2ImbW9kZWRpdG9yZW5hYmxlPXRydWUmbW9kZWRpdG9yZGVzdGluYXRpb25zPTQmJmV4cGlyYXRpb249MDglMmYxMSUyZjIwMjIrMTYlM2EwOCUzYTM3LjAwMCZpbnN0YW50UGxheT1UcnVlJnNpZ25hdHVyZT03Y2I5YWI5MGNmZDNkNzZhNjliYzE4ODBlZmE0ZjU1Yw==
11-Jul-22	Sarah Gallagher	The Epoch Times	News Article	JWST New Images	https://www.theepochtimes.com/first-images-from-james-webb-space-telescope-to-be-unveiled_4590621.html
13-Jul-22	Sarah Gallagher	Global National	Radio Show	JWST New Images	http://mms.tveyes.com/MediaView/?c3RhdGlvbj0xNDEwNSZTdGFydERhdGVUaW1lPTA3JTJmMTMlMmYyMDIyKzAyJTNhMzQlM2EwNCZFbmREYXRlVGltZT0wNyUyZjEzJTJmMjAyMiswMiUzYTM2JTNhNDcmJiZkdXJhdGlvbj0xNzE2NzImcGFydG5lcmlkPTczMTMmJmhpZ2hsaWdodHJlZ2V4PSU1Y2JzYXJhaCU1Y2llN2MlNWNiamFtZXMrd2ViYiU1Y2ImbW9kZWRpdG9yZW5hYmxlPXRydWUmbW9kZWRpdG9yZGVzdGluYXRpb25zPTQmJmV4cGlyYXRpb249MDglMmYxMiUyZjIwMjIrMDIlM2EzNCUzYTA0LjAwMCZpbnN0YW50UGxheT1UcnVlJnNpZ25hdHVyZT1mOTZlZmU1YmRhODk2NWQ5YjBiODFiNmIwNTgxYzMxNQ==
14-Jul-22	Sarah Gallagher	The World This Hour	Radio Show	JWST New Images	https://my.tvey.es/MissingUrl.aspx
12-Jul-22	Sarah Gallagher	CityNews	News Article	JWST New Images	https://ottawa.citynews.ca/local-news/nasa-reveals-deepest-images-of-universe-ever-from-new-telescope-5575848
12-Jul-22	Sarah Gallagher	National Post	News Article	JWST New Images	https://nationalpost.com/pmn/news-pmn/canada-news-pmn/canadian-made-tools-on-webb-space-telescope-help-provide-spectacular-views-of-space
12-Jul-22	Sarah Gallagher	National Observer	News Article	JWST New Images	https://www.nationalobserver.com/2022/07/12/news/canadian-connection-those-awesome-images-space
12-Jul-22	Sarah Gallagher	The Globe and Mail	News Article	JWST New Images	https://www.theglobeandmail.com/canada/article-james-webb-space-telescope-photos/
14-Jul-22	Sarah Gallagher	Toronto Star	News Article	JWST New Images	https://www.thestar.com/news/canada/2022/07/11/james-webb-telescopes-first-stunning-science-images-set-to-be-revealed.html

25-Jul-22	Western Space	Canadensys	Online article	Space cameras	https://www.canadensys.com/canadensys-aerospace-ships-space-cameras-to-canadian-universities-participating-in-the-canadian-cubesat-project/
7-Jul-22	Post-doc Genaro Suárez and Dr. Stanimir Metchev	NASA Press Release	Press Release	NASA Helps Decipher How Some Distant Planets Have Clouds of Sand	https://www.jpl.nasa.gov/news/nasa-helps-decipher-how-some-distant-planets-have-clouds-of-sand
8-Jul-22	Post-doc Genaro Suárez and Dr. Stanimir Metchev	The Tom McConnell Show on 610 CKTB Niagara	Radio Show	Conditions under which silicate clouds form on distant exoplanets outside of our solar system.	http://mms.tveyes.com/MediaView/?c3RhdGlvbj0xNDU0NSZTdGFydERhdGVUaW1lPTA3JTJmMDglMmYyMDIyKzE2JTNhNTIlM2EyMCZFbmREYXRlVGltZT0wNyUyZjA4JTJmMjAyMisxNiUzYTU1JTNhMDMmJiZkdXJhdGlvbj0yOTkxODAmcGFydG5lcmlkPTczMTMmJmhpZ2hsaWdodHJlZ2V4PSU1Y2JXZXN0ZXJuK1VuaXZlcnNpdHklNWNiJm1vZGVkaXRvcmVuYWJsZT10cnVlJm1vZGVkaXRvcmRlc3RpbmF0aW9ucz00JiZleHBpcmF0aW9uPTA4JTJmMDclMmYyMDIyKzE2JTNhNTIlM2EyMC4wMDAmaW5zdGFudFBsYXk9VHJ1ZSZzaWduYXR1cmU9NDBmZDhiYjFhY2JkMWVkYTZmNWQ1ZDc5MzE5NjlkMjk=
18-Jul-22	Post-doc Genaro Suárez and Dr. Stanimir Metchev	NASA Space Flight	News Article	As Webb begins observing exoplanets, scientists use Spitzer data & brown dwarfs to reveal how silicate clouds form	https://www.nasaspaceflight.com/2022/07/spitzer-brown-dwarfs-silicate-clouds/
14-Jul-22	Post-doc Genaro Suárez and Dr. Stanimir Metchev	Space.com	News Article	On bizarre brown dwarf worlds, astronomers spot hot, sandy clouds	https://www.space.com/brown-dwarf-clouds-of-sand
12-Jul-22	Post-doc Genaro Suárez and Dr. Stanimir Metchev	India Today	News Article	Clouds on these planets are made up of sand	https://www.indiatoday.in/science/story/exoplanet-clouds-sand-brown-dwarf-spitzer-james-webb-telescope-nasa-1974575-2022-07-12
July 7th, 2022	Post-doc Genaro Suárez and Dr. Stanimir Metchev	Phys.org	News Article	NASA helps decipher how some distant planets have clouds of sand	https://phys.org/news/2022-07-nasa-decipher-distant-planets-clouds.html
11-Jul-22	Post-doc Genaro Suárez and Dr. Stanimir Metchev	Space Daily	News Article	NASA Helps Decipher How Some Distant Planets Have Clouds of Sand	https://www.spacedaily.com/reports/NASA_Helps_Decipher_How_Some_Distant_Planets_Have_Clouds_of_Sand_999.html
July 7th, 2022	Post-doc Genaro Suárez and Dr. Stanimir Metchev	Space Ref	News Article	Western Space team uses NASA data to decipher clouds of sand on distant planets	https://spaceref.com/press-release/western-space-team-uses-nasa-data-to-decipher-clouds-of-sand-on-distant-planets/
July 8th, 2022	Post-doc Genaro Suárez and Dr. Stanimir Metchev	Interesting Engineering	News Article	New NASA study explains why some planets have clouds of sand	https://interestingengineering.com/science/some-planets-clouds-sand
July 9th, 2022	Post-doc Genaro Suárez and Dr. Stanimir Metchev	London News Today	News Article	Nasa data helping Western researchers to better understand planetary atmospheres	https://blackburnnews.com/london/london-news/2022/07/09/nasa-data-helping-western-researchers-better-understand-planetary-atmospheres/
August 2022	Adam Sirek and Team	International and National Media Coverage	International and National Media Coverage	World's first international two-way holographic teleportation	Western News, Global News , 630 CHED Afternoons in Edmonton, Afternoons with Rob Breakenridge on 770 CHQR in Calgary (Part 1) (Part 2), The Morning Show with Devon Peacock on AM980, TweakTown, TechXplore, CBC Fresh Air, CBC London Morning, Tom McConnell Show, Sputnik News, Inceptive Mind, Interesting Engineering, The London Free Press,CBC London, CBC Up North, CBC London Morning, London

					Free Press, Tomorrow's World Today, Tudocelular, UOL.
11-Aug-22	Jan Cami	CBC News Network	Radio Show	Last super moon of the year	http://mms.tveyes.com/MediaView/?c3RhdGlvbj0xOTk1MCZTdGFydERhdGVUaW1lPTA4JTJmMTElMmYyMDIyKzE5JTNhNTAlM2EwMCZFbmREYXRlVGltZT0wOCUyZjExJTJmMjAyMisxOSUzYTU1JTNhMzMmJiZkdXJhdGlvbj0yODI0NTQmcGFydG5lcmlkPTczMTMmJmhpZ2hsaWdodHJlZ2V4PSU1Y2JieSt0aGUrbW9ybmluZyt0aGUrbW9vbit3aWxsK2JlK3NldHRpbmcraW4rdGhlK3dlc3QuJTVjYiZtb2RlZGl0b3JlbmFibGU9dHJ1ZSZtb2RlZGl0b3JkZXN0aW5hdGlvbnM9NCYmZXhwaXJhdGlvbj0wOSUyZjEwJTJmMjAyMisxOSUzYTUwJTNhMDAuMDAwJmluc3RhbnRQbGF5PVRydWUmc2lnbmF0dXJlPWZkNGViMjA5ZDg1NzBkMzRiZGJmODViMDYwZDJjN2E1
11-Aug-22	Peter Brown	CBC up North	Radio Show	the Perseids meteor shower which peaks in mid-August	http://mms.tveyes.com/MediaView/?c3RhdGlvbj0xNDQ5NSZTdGFydERhdGVUaW1lPTA4JTJmMTElMmYyMDIyKzE3JTNhMTklM2E0NiZFbmREYXRlVGltZT0wOCUyZjExJTJmMjAyMisxNyUzYTIzJTNhMTgmJiZkdXJhdGlvbj0yOTk0MDUmcGFydG5lcmlkPTczMTMmJmhpZ2hsaWdodHJlZ2V4PSU1Y2JXZXN0ZXJuK1VuaXZlcnNpdHklNWNiJm1vZGVkaXRvcmVuYWJsZT10cnVlJm1vZGVkaXRvcmRlc3RpbmF0aW9ucz00JiZleHBpcmF0aW9uPTA5JTJmMTAlMmYyMDIyKzE3JTNhMTklM2E0Ni4wMDAmaW5zdGFudFBsYXk9VHJ1ZSZzaWduYXR1cmU9ZGI1ZDgyNWM0MjFhZDc2MzQ2MjUxYTQzMzgxN2ViZjU=
Aug-22	Sarah Gallagher	CBC Quirks & Quarks	Radio Show	New JWST Images	https://www.cbc.ca/listen/live-radio/1-51-quirks-and-quarks
September 2022	Els Peeters	International and National Media Coverage	International and National Media Coverage	Orion Nebula as seen by JWST	The Tom McConnell Show, CBC as it happens, CHED Mid-Morning with Shaye Ganam, De wereld vandaag on Radio 1 Belgium and The Tom McConnell Show on Newstalk 610 CKTB , Daryl McIntyre, 630 CHED (radio, Edmonton) CNN, CNN (Spanish), New York Post, Le Monde (France), El MUNDO, The Daily Beast, El Universal (Colombia) and La Nacion (Argentina), ABC de Sevilla (Spain), El Comercio (Peru), La Patilla(Venezuala), TechJuice (Pakistan), VRT News (Netherlands) Pulzo (Colombia), Indiatimes , Stern (Germany), El Universal (Colombia), La Nacion (Argentina), The US Sun, USA Today, Olhar Digital(Brazil), France 24, Times Now (India), MSN, Yahoo! News (UK) and Le Devoir. Several online blogs including INSIDER, Science Alert, Interesting Engineering, Business Insider, Chemistry World, Comic Book.com posted stories about JWST new images and quoted Dr. Els Peeters.
16-Sep-22	Denis Vida	New Scientist	News Article	Major fireball seen over UK was caused by chunk of space rock	https://www.newscientist.com/article/2338307-major-fireball-seen-over-uk-was-caused-by-chunk-of-space-rock/
16-Sep-22	Denis Vida	The Register	News Article	Queen's shooting star was meteor, not SpaceX junk	https://www.theregister.com/2022/09/16/uk_meteor_spacex/
22-Sep-22	Sarah Gallagher	SpaceQ	News Article	New Western Conference Builds on Canadian Space Strategy Experience	https://spaceq.ca/new-western-conference-builds-on-canadian-space-strategy-experience/

October 31st, 2022	Sarah Gallagher	Western News	News Article	Western hosts national conference to tap space as asset	https://news.westernu.ca/2022/10/snac2022/#:~:text=Space%20as%20a%20National%20Asset%20for%20Canada%20(SNAC)%202022%2C,holistically%2C%20Canadian%20ambitions%20for%20space.
October 30th, 2022	Sarah Gallagher	CBC News	News Article	Western University-led conference to discuss how Canada can lead space technology	https://www.cbc.ca/news/canada/london/western-university-led-conference-to-discuss-how-canada-can-lead-space-technology-1.6632387
October 31st, 2022	Sarah Gallagher	CTV News	News Article	Canada's space minds meet in London, Ont.	https://london.ctvnews.ca/canada-s-space-minds-meet-in-london-ont-1.6132422
October 28th, 2022	Sarah Gallagher	London Live with Mike Stubbs on AM980	Radio Show	SNAC 2022	http://mms.tveyes.com/MediaView/?c3RhdGlvbj0xNDc5NSZTdGFydERhdGVUaW1lPTEwJTJmMjglMmYyMDIyKzE2JTNhMTMlM2E0MCZFbmREYXRlVGltZT0xMCUyZjI4JTJmMjAyMisxNiUzYTE5JTNhMTYmJiZkdXJhdGlvbj0yOTU1NjAmcGFydG5lcmlkPTczMTMmJmhpZ2hsaWdodHJlZ2V4PSU1Y2JXZXN0ZXJuK1VuaXZlcnNpdHklNWNiJm1vZGVkaXRvcmVuYWJsZT10cnVlJm1vZGVkaXRvcmlc3RpbmF0aW9ucz00JiZleHBpcmF0aW9uPTExJTJmMjclMmYyMDIyKzE2JTNhMTMlM2E0MC4wMDAmaW5zdGFudFBsYXk9VHJ1ZSZzaWduYXR1cmU9NWZkZjc1YTU3ZGNlYTNiYjc4MzRhMzg0M2ZlOWZlNDQ=
16-Nov-22	Denis Vida	Western News	News Article	New observation method helps unlock secrets of U.K. meteorite	https://news.westernu.ca/2022/11/winchcombe-origin/
22-Nov-22	Denis Vida	CTV News	News Article	Meteorite that hit U.K. driveway contains extraterrestrial water	https://www.ctvnews.ca/sci-tech/meteorite-that-hit-u-k-driveway-contains-extraterrestrial-water-1.6163050
November 2022	Peter Brown and Paul Wiegert	National Media Coverage	National Media Coverage	Meteorites in Niagara Region	Western News, Ottawa CityNews, CTV News, The Weather Network, CNET, CBC News, London News Today, Globe and Mail, Toronto Star, City News Everywhere, Global News, CHCH, BlogTO, CP24, Radio Interviews with Dr. Peter Brown: CBC Radio One, Newstalk 610, Afternoon Drive with Allison Devereaux, AM900 Hamilton's News.
6-Dec-22	Western University/ Holoportation	Maclean's	News Article	"The Year Ahead: Health in 2023 The future of ER's, the next viral pathogen and COVID long-haulers shape healthcare in the year to come"	https://www.macleans.ca/year-ahead/year-ahead-health-care-doctors-covid/
6-Dec-22	Western University/Cochrane	Maclean's	News Article	"The Year Ahead: Health in 2023 The future of ER's, the next viral pathogen and COVID long-haulers shape healthcare in the year to come"	https://www.macleans.ca/year-ahead/year-ahead-health-care-doctors-covid/
8-Dec-22	Els Peeters & Jan Cami	Webb Space Telescope	Press Release	NASA's Webb Indicates Several Stars 'Stirred Up' Southern Ring Nebula	https://webbtelescope.org/contents/news-releases/2022/news-2022-059
12-Dec-22	Peter Brown	CBC News	News Article	The year's 'most dependable' meteor shower peaks this week. Here's how and when to watch	https://www.cbc.ca/news/science/2022-geminids-1.6679409?cmp=rss