

Deep Earth Explorers

Sung by Matthew Kemp – Oxford PhD student in geophysics (tomography)

Lyrics by Matthew Kemp with contributions from Roberta Wilkinson

Song for IGC 2028 Canada bid

<https://www.youtube.com/watch?v=TxGKQvtZ-dU>

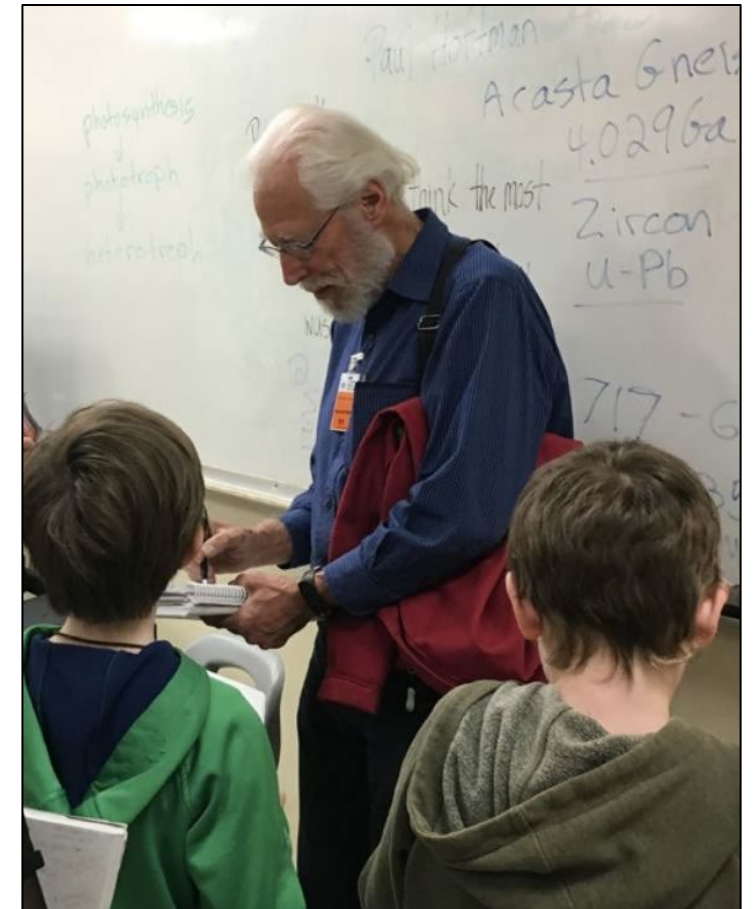
© Matthew Kemp 2023

Please fill out questionnaire

Does your department have a “Rock Star”?

How can we promote these “Rock Stars”?

Goal: Make geoscientists (“Rock Stars”) household names

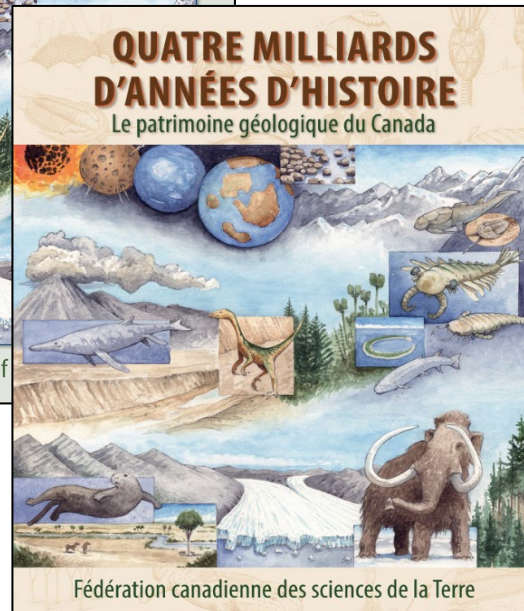
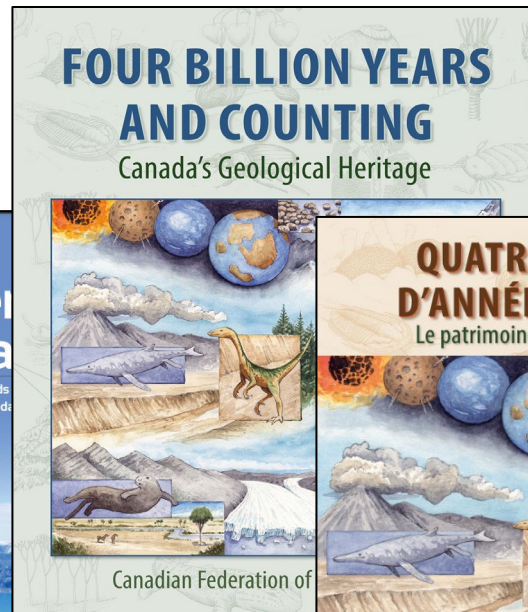
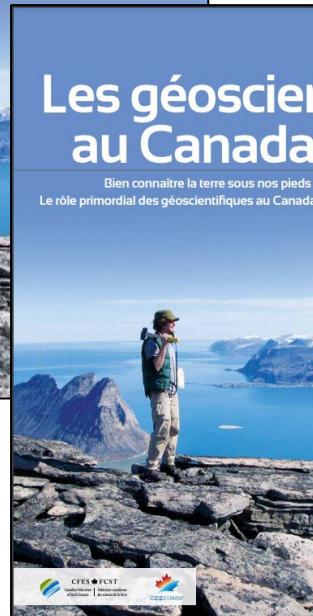
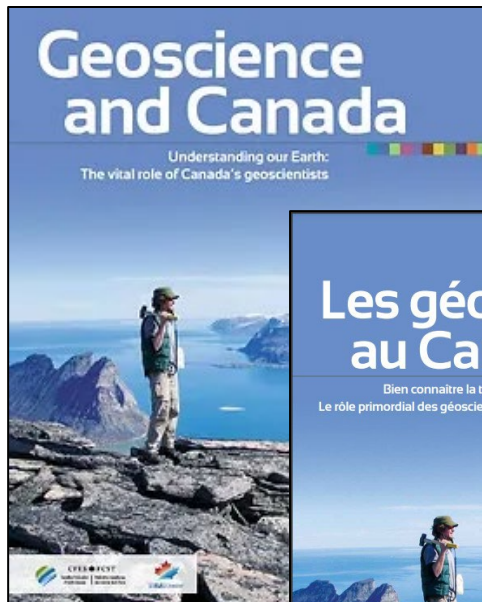




CFES FCST

Canadian Federation
of Earth Sciences

Fédération Canadienne
des sciences de la terre



CCCESD 2023, Ottawa
Katherine Boggs
kboggs@mtroyal.ca
CFES International Director

Beth McLarty Halfkenny
CFES Past President
cfes.pastpresident@gmail.com

Outline

1. CFES – What & Who we are
2. CFES programs
3. International Geoscience Congress (IGC) 2028 Canadian bid
4. National Geoscience Research Plan
5. Model – Control Narrative About Geosciences
e.g. Promote our “Rock Stars” = household names



CFES FCST

Canadian Federation
of Earth Sciences

Fédération canadienne
des sciences de la Terre

Membership



GEOLOGICAL
ASSOCIATION OF CANADA
ASSOCIATION
GÉOLOGIQUE DU CANADA



CANADIAN PERMAFROST ASSOCIATION
ASSOCIATION CANADIENNE DU PERGÉLISOL

CFES Member Organizations

Together we bring forward ideas, discuss common challenges, work towards common goals.



The Partnership Group for
Science and Engineering

Le Partenariat en faveur des
sciences et de la technologie



United Nations
Educational, Scientific and
Cultural Organization



International
Geoscience
Programme

CFES Observer Organizations

Alliance of Natural History Museums of Canada ([ANHMC](#))
Canadian Geological Foundation ([CGF](#))
Canadian Association of Science Centres ([CASC](#))
Geoscientists Canada ([GC](#))
Geological Survey of Canada ([GSC](#))
International Association for Promoting Geoethics ([AIPG](#))



CFES FCST

Canadian Federation
of Earth Sciences

Fédération canadienne
des sciences de la Terre

CFES Board – facilitates CFES objectives



Janice Zinck – President (Halifax)

Beth McLarty Halfkenny

- Outgoing President (Ottawa)

Imad Alainachi – Incoming President

Keith Delaney – Treasurer (Waterloo)

Lilian Navarro – Secretary (Sydney)

Fiona D'Arcy

– Communications (Ottawa/Montreal)

Katherine Boggs – International (Calgary)

Tom Sneddon – External Engagement (Calgary)

You? Next president should be an academic.
Any suggestions?

Objective #1: Provide coordinating role and **common voice** for member organizations and the Earth Science community in Canada

Objective #2: Coordinate public policy **advocacy** on behalf of Earth Science in Canada

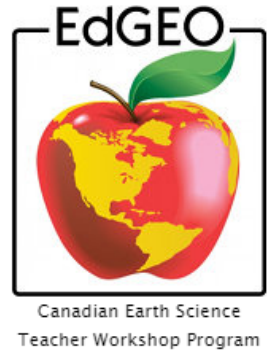
Objective #3: **Facilitate public awareness** of Earth Science and Earth Science literacy

Objective #4: **Represent and promote** Canadian Earth Science internationally

Objective #5: Provide **service to member organizations** in particular, and to the Earth Science community in general

Objective #6: **Coordinate support** for professional and academic organizations in Canada

EdGEO Canadian Earth Science Teacher Workshop Program



- Principal Activity of the Canadian Geoscience Education Network
- CGEN = education arm of CFES
- PD workshops for Canadian teachers seeking knowledge, resources, and confidence since the 1970's through:
 - grants up to \$3000
 - curriculum resources
 - facilitator support and participation of CGEN members

e.g. MRU – work with our Education Dept to include these in the BEd program??

https://www.edgeo.org/en_CA/





CFES FCST

Canadian Federation
of Earth Sciences

Fédération canadienne
des sciences de la Terre



CGEN RCEG

Canadian Geoscience Education Network
Réseau canadien d'éducation géoscientifique



Parks
Canada

Parcs
Canada



APGO
education
foundation



Photo credit: Parks Canada

Geoscientists in Canadian National Parks Geologist in Residence – Pukaskwa National Park

August 15 – 29, 2022 Dr. Victoria Stinson

August 14 – 27, 2023 Dr. Joana Hodge

Geologist-in-Residence Program



**BENEATH
YOUR FEET**
A GEOSCIENCE BLOG

Pukaskwa National Park: How 2.7 billion years of geological evolution informs the park's ecosystems

October 13, 2023

Joanna Hodge talks about her experience guiding tours and doing geoscience education as the Geologist in Residence at Pukaskwa National Park August 2023.

<https://geoscienceinfo.com/pukaskwa-national-park-how-2-7-billion-years-of-geological-evolution-informs-the-parks-ecosystems/>



CFES FCST

Canadian Federation
of Earth Sciences

Fédération Canadienne
des sciences de la terre

Explore a Career in Earth Sciences Website Refresh

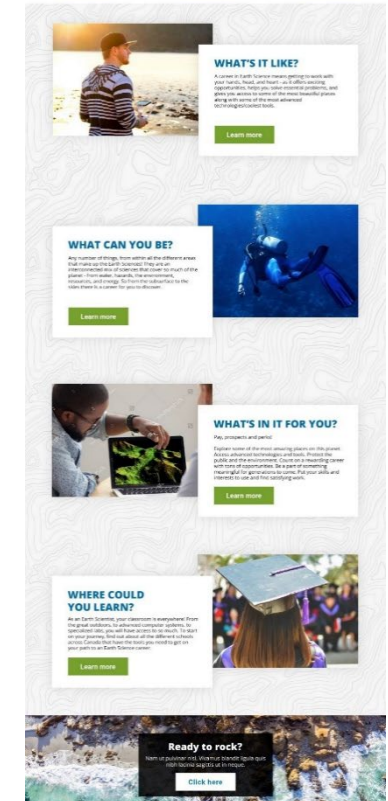
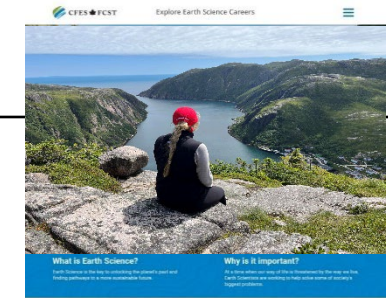
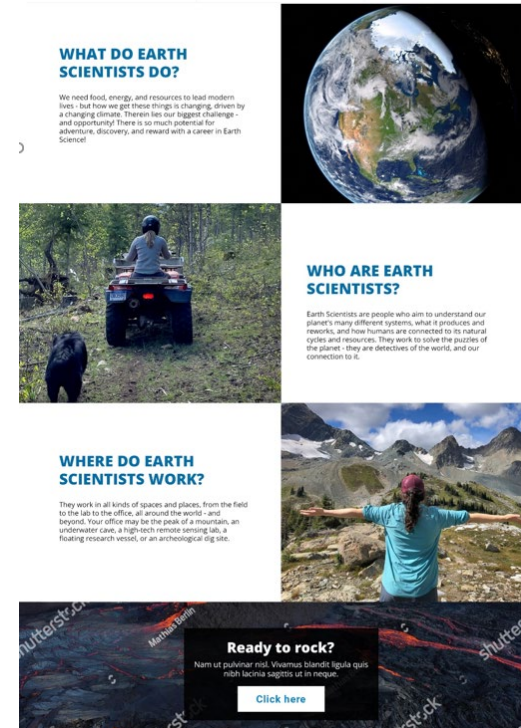
WE NEED YOU to inspire the next generation of geoscientists!

Help us create content for our brand new **Earth Science Careers Website!**

Scan the QR Code below and tell your story; send us photos of you doing your work in your workplace and beautiful Canadian landscapes.



Expected completion date: December 2023





Promoting Geoscience Group

Are you concerned with recruitment into post-secondary geoscience education programs? **Want to help?** Join us in brainstorming solutions.

Members: CCCESD, Geoscientists Canada, CFES, CGEN and other interested parties

Needs a lead to continue the work

- ▶ Geoscience faces a crisis in public perception
 - ▶ BUT
- ▶ Geoscientists and geoscience education are needed now more than ever to help solve global challenges
 - ▶ SO
 - ▶ Let's get to work!

GAC Geoscience Education and Communication Division

- A new GAC division to advance the research and practice of geoscience education and communication
- To raise the profile of these professionals in Canada
- of interest to those
 - engaged in scholarly geoscience education and communication
 - with an interest in the theory and practice of geoscience education and communication
 - including researchers, practicing educators and communicators, graduate students, teaching assistants and faculty
 - **Needs a treasurer**

Contact cfes.pastpresident@gmail.com



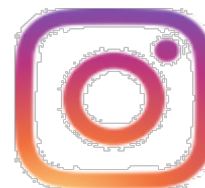
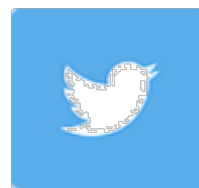
HOW YOU CAN HELP

- Volunteer with CFES
- Join CGEN or EdGEO
- Board of Directors
- Promote & Expand the Geologist in Residence Program
- Join the new GAC Ed and Comm Division

(needs a treasurer)

- Fill out the Careers Website questionnaire (QR code)

Follow us at www.cfes-fcst.ca
and on social media



Contact us: cfes.earthscience@gmail.com



IGC 2028 Bid

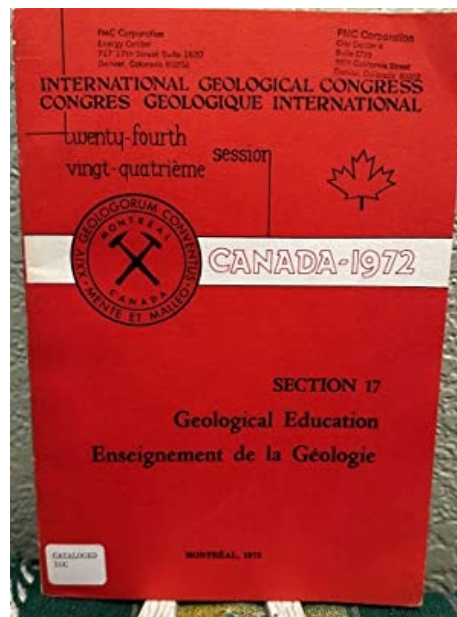


“Olympics” of geosciences – every 4 years, competitive bid process
Supposed to rotate geographically – last in North America 1989
Sponsored by International Union of Geological Sciences (IUGS)
Comprehensive geological sciences program and field excursions
Meetings in Europe and NA attract 8,000-10,000 geoscientists

Toronto, 1913



Montreal, 1972



1878	Paris
1991	Bologna
1885	Berlin
1888	London
1891	Washington
1894	Zurich
1897	St. Petersburg
1900	Paris
1903	Vienna
1906	Mexico City
1910	Stockholm
1913	Toronto
1922	Brussels
1926	Madrid
1929	Pretoria
1933	Washington
1937	Moscow
1948	London
1952	Algiers

1956	Mexico City
1960	Copenhagen
1964	New Delhi
1968	Prague
1972	Montreal
1976	Sydney
1980	Paris
1984	Moscow
1989	Washington
1992	Kyoto
1996	Beijing
2000	Rio de Janeiro
2004	Florence
2008	Oslo
2012	Brisbane
2016	Cape Town
2020 -	
2022	Delhi - Virtual
2024	Busan

(Competition)



Timeline: How we got here

- 2022 Mar - IUGS withdrew offer to St Petersburg & approached Canada
- 2022 Apr. - CFES approved motion to investigate interest and capacity to host
- 2022 Sep. - Vancouver, Calgary and Montreal submitted Expressions of Interest
- 2023 Jan. - Calgary selected as the host city
- 2023 Feb. - CFES Bid Investigation Committee (BIC) established
- 2023 Apr. - Motion to submit IGC bid approved at CFES AGM. EOI submitted to IGCC
- 2023 Jun. - NFP Foundation created. First meeting of Bid Development Cmt (BDC)
- Summer/Fall – sponsorship and partnership blitz; write first draft bid documents
- 2024 Jan. - Present draft bid to CFES MOs and IGC 2028 partners (e.g. CCCESD)
- 2024 Mar. - Full bid submission due to IGCC
- 2024 Aug. - Bid to be presented at 37th IGC in Busan, Korea



Why care about hosting an IGC??



BIC Jamboard exercise – pros and cons for pursuing bid and hosting IGC

Here pros for CFES; but applies to Canada too

1. Raise profiles of CFES (& MOs) nationally and internationally
2. Bridge across portfolio of all CFES MOs (strategic cohesion)
3. Promote CFES as leaders for mitigating impacts of climate change
4. Increase political and policy profile of geosciences (e.g. LOSs)
5. Promote all aspects of Canadian geosciences (e.g. new WCSB Atlas)
6. Build student connections across borders; diversify workforce
7. Potential financial windfall
8. Sense of pride – world coming to Canada



CFES supporting IGC 2028

BIC – jamboard exercise –cons
(and community consultation)

Major concern: Financial risk

Strategies:

- i) NFP Foundation assume financial risk
- ii) Partner with Professional Conference Organizer
- iii) Let partners and CFES MOs assume low or high risk

info@igc2028canada.org



- Legal entity that will submit the bid
- Incorporation date: 1 July 2023.
- Purpose: “The objectives of the Foundation shall be to encourage and promote a successful bid in 2024 to host the International Geological Congress in the City of Calgary in 2028, and to facilitate successful operation of the International Geological Congress at the BMO Centre in Calgary in 2028.”
- Directors will manage financial matters and agreements for the bid (and beyond)
- Sources of funds:
 - Advance (\$10K) from Tourism Calgary
 - Corporate sponsorship – ongoing blitz
 - Canadian Geological Foundation (application end of October)



Canada IGC 2028 Foundation Initial Directors



Fraser Abbott
Director of Business Dev.
Tourism Calgary



David Eaton
Co-chair BDC
Univ. of Calgary



Jauvonne Kitto
CEO and co-founder
Saa Dene Group



Brian Gray
Former ADM
(ECCC, NRCan, AAFC)



Andrea Waldie
CEO at
Geoscientists Canada



Katherine Boggs
Interim Chair
Co-chair BDC
Mount Royal U
CFES International
Director



Stephen Johnston
Former IUGS councillor
University of Alberta

Value - Professional Conference Organizer

Model Budget Scenarios for IGC 2028

Courtesy John Daugulis, Venue West
(Tourism Calgary estimate - \$18million to Calgary)

	Canadian Dollars			
	3000	6000	9000	12000
Registration Revenue	\$ 2,752,477	\$ 5,701,560	\$ 8,650,642	\$ 11,599,725
Sponsorship Revenue	\$ 550,000	\$ 550,000	\$ 550,000	\$ 550,000
Exhibit Revenue	\$ 462,000	\$ 462,000	\$ 462,000	\$ 440,000
Tourism Calgary and BMO Support	\$ 750,000	\$ 950,000	\$ 1,150,000	\$ 1,150,000
Total Revenue	\$ 4,514,477	\$ 7,663,560	\$ 10,812,642	\$ 13,739,725
Total Expenses	\$ 4,563,773	\$ 7,403,348	\$ 10,019,623	\$ 12,563,738
Surplus (with tax rebate)	\$ 32,794	\$ 384,209	\$ 948,773	\$ 1,382,217

- Assumes same registration structure/fees as IUGG 2023 (Berlin)
- Assumes field trips, banquets etc. will break even
- Includes provisions for net-zero conference
- IMO, highly conservative estimate of sponsorship and exhibit revenue



CFES  **FCST**
Canadian Federation
of Earth Sciences | Fédération canadienne
des sciences de la Terre

Website: <https://www.igc2028canada.org/>

Tagline: “Geosciences for Humanity”



[Home](#)

[IGC 2028 Committees](#)

[Partners](#)

[Sponsors & Prospectus](#)

[Field Trips](#)

[Sessions](#)



BDC Subcommittees – members on website (roll into LOC after IGC 2024)

1. **Scientific Programme** – cover all aspects of geosciences, North American geology, daily themes, promote tagline “Geosciences for Humanity”
2. **Field Excursions** – North American footprint (9 themes on website)
3. **Host City/Venue/Hotels** – Tourism Calgary/Alberta
4. **Sponsorship & Budget** – prospectus out to >200 companies
Geohost – support students & 3rd world country delegates
5. **Partnerships** – 8 official on website; more in works
6. **Writing** - build on 2020 bid documents (also have 3 other bid documents)
7. **Communication and events** - promote geosciences like never before
 - two years of national geosciences 2027 (GSA and Decadal MinEx) & 2028
 - would like to network geoscience students across Canada – social media blitzes
8. **Video** – team at Tourism Calgary (CGF funding)

Cost of Bid??

Video (CGF/Tourism Calgary)	-\$25,000
Promotional Materials	-\$5,000
Travel – Conferences – Lobbying Support	-\$20,000
IGC 2024 Bid Delivery:	
Booth/Display/Swag	-\$35,000
Reception/White Hat/Catering	-\$47,000
White Hat Ceremony + gift bag with ammolite (iniskim)	
Travel to IGC 2024 (6):	-\$50,000
Total:	\$182,000

Questions??

Request from CCCESD??

1. **Volunteers** – excellent opportunity for ECRs to build network
Create legacy for leading these events in the future
2. **Build “Team Canada”** presence at IGC 2024
Who from your departments plan to attend IGC 2024 in South Korea?
(please contact me or Dave Eaton)
3. **Ideas for promoting the geosciences** like never before??
Connect outreach coordinators in departments across Canada



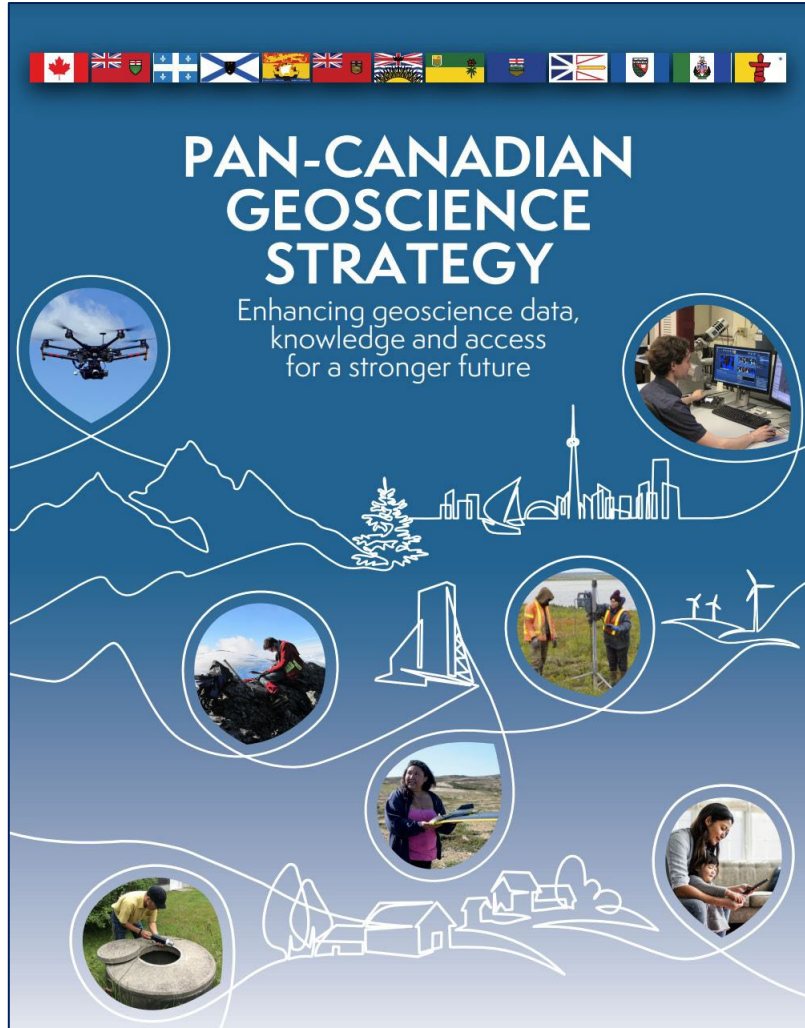
CFES  FCST

Canadian Federation
of Earth Sciences

Fédération canadienne
des sciences de la Terre

National Geoscience Research Plan (NGRP)

First for Canadian Academic Research Community
“Templates”, in Canadian context



Started: Mostafa Fayek (previous International Director CFES)
CCCESD 2022 – presentation; team built primarily from CCCESD
Thanks to everyone for your participation over past year(s)!!

New Title: Geoscience Pathways: Canada’s vision for a sustainable, equitable and prosperous future (Legacy NGRP)

Audience for main document:

Federal Chief Scientists and Assistant Deputy Ministers (these are the people that influence NSERC budgets, policies, programs)

“Elevator pitches” to:

- i) High school guidance & career counsellors,
- ii) Upper university administrators,
- iii) Indigenous communities,
- iv) General public, and
- v) Municipal, provincial, territorial, and federal politicians and policy-makers.

Goals for this strategic plan??

1. Research funding

Keep (increase) funding proportions consistent for geosciences

2. Protect and promote university geoscience programs

Increase enrollment into university programs

Promote geosciences as a valid career in Canadian high schools

3. Improve narrative around geosciences

Raise profile of geosciences across Canadian communities

Outline importance of geosciences for addressing major challenges
facing humanity

Example: Indigenous pathway

Suggested at CCCESD 2022 meeting

No indigenous geoscientists in CCCESD

Develop Indigenous Inclusion and Involvement in Geosciences (I³G) Team

Two professors, three graduate students, PGEOL, 3 GITs

??Others in your departments??

Concern voiced about representing voices of all indigenous communities across Turtle Island

Outline completed; first draft for November

Also: Translate “elevator pitches” into representative indigenous languages + indigenous case studies for all pathways

Status other pathways (questionnaire)

Pathway Name	Status
Earth Resources – Critical Minerals, Energy, Water, Soil, Aggregate	First Draft by previous group
Environment and Global Change	Case Study (Crawford Lake) Outline
Structural Geology, Tectonics and Earthquakes	Outline (First Draft November)
Deep crustal/mantle processes and volcanoes	Outline (First Draft November)
Education, outreach and communications	Outline (First Draft November)
Large Igneous Provinces, Lunar and Planetary Geology	Outline (First Draft November)
Waste Management and Life Cycles	Outline for November
Land Management and Mass Wasting	Needs Team Lead – Suggestions??

Timeline

Fall 2023 – please give briefs to your departments (two pager to be posted on CCCESD website) – feedback to me (email on two pager)

- team complete first draft of main document

Jan/Feb 2024 – edit and translate

March/April 2024 – regional townhalls request feedback for main document

May/June 2024 – complete final edit main document

- compose “elevator pitches”
- deliver main document to Chief Scientists/ADMs
- community visits to deliver “elevator pitches”

Budget

Graphics Design	\$1000
Copy/Desktop Top Editing	\$2500
Translation to French	\$2000
Translation to 10 Indigenous Languages	\$4500
Printing & Distribution	\$7200
Travel: 6 regional – Indigenous Communities	\$3900
Total:	\$21,100 (\$15, 100 ask from CGF)

Other Funds?

CFES

\$1000 (passed AGM)

Request from CCCESD

\$5000

To cover costs that CGF won't cover such as:

- gifts/honorariums to elders (critical for connecting)
- travel to Indigenous communities (face-to-face critical)

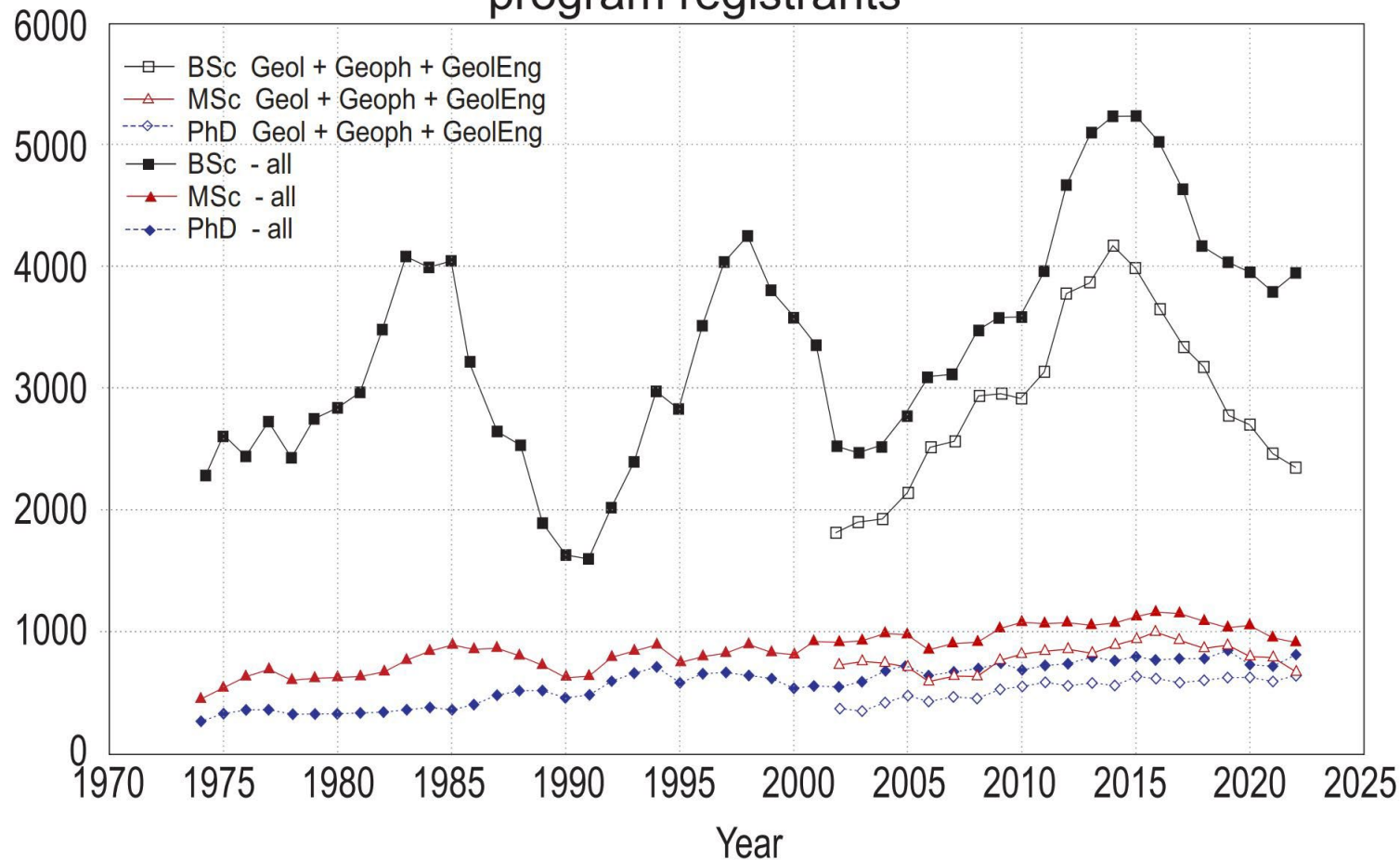
Request motioner, seconder
Discussion?



Need to Change Narrative

“stabilize the curve”

Fig. 1. Number of BSc (> year 1), MSc and PhD program registrants



**1. Professional Development;
Bridges to Education & Public
Conferences (geoscience & education)**

National & International
Symposiums, Sessions, Panel Discussions
Action Items
Embed and work with K-12 teachers
(not limited to teacher workshops)
e.g. IGC 2028

3. Strategic Plans
PanCanadian Geoscience Strategy
National Geosciences Research Plan
Canadian Minerals and Metals Plan
Canada's Critical Minerals Strategy

**4. Community Education
& Outreach Programs**

GeoParks
GeoHeritage Sites
Geologists in Parks
Museum Displays
Museum Activities
Municipal & Provincial/
Territorial Park Programs

2. Engage Politicians & Policy Makers

Lobby & Work with
Politicians, Policy Makers, &
Assistant Deputy Ministers
Invite these folks to conferences, events
e.g. IGC 2028

**Change Narrative:
Geosciences
Important for
Humanity**

5. Post Secondary Education
University Programs
Education & Outreach
(general public & K-12)
Professional Accreditation Bodies
Community Programs
Improve Digital Resources
Communication Strategies (Geologize)
Scientific Theatre Performances
Summer Geoscience Camps
Geology as Teachable
Promote our "Rock Stars"

Geoscience Public Service outputs

Critical Minerals, Water and Soils
Mitigate Natural Disasters
Use Rock Record to Predict Earth Responses to Climate Change
Understanding Earth Beneath our Feet for Waste Disposal
(Waste Water, CCS, Nuclear Waste)

1. Volunteer opportunities

Excellent opportunities for ECR to expand national and international networks

e.g. President for CFES (from academia)

Treasurer for new Education & Communication GAC

Lead Promoting Geoscience Group

IGC 2028 teams

Join NGRP team – help with brainstorming, editing & production

2. “Build Team Canada”

Who is going to IGC 2024?

3. NGRP Briefs to Departments

Feedback to Katherine or your representative on NGRP