CASCADES EXPEDITION

INSTITUT NORDIQUE DU QUÉBEC
SWISS POLAR INSTITUTE
INSTITUT POLAIRE FRANÇAIS

CASCADES is a collaborative polar expedition uniting scientists from Canada, France, Greenland, and Switzerland to confront a critical climate challenge: the accelerating melt of Greenland's glaciers and its far-reaching impacts on the Atlantic Ocean and climate systems worldwide.

FEDERATING EXPERTISE

CASCADES is coordinated by the Institut Nordique du Québec, the Swiss Polar Institute, and the French Polar Institute, in collaboration with Greenlandic institutions. It is a rare opportunity for **comprehensive and interdisciplinary work** for the Swiss, Canadian, French, and Greenlandic research communities.

CRITICAL SCIENCE

CASCADES will explore how melting glaciers, sea ice, and ocean ecosystems interact and shape the environment and communities in the Arctic. This research is essential to better understand and **anticipate both global and local climate challenges.**

CRITICAL REGION

The Arctic, spanning over eight sovereign countries and the Arctic Ocean, is warming three to four times faster than the global average. It harbours **four critical climate tipping points**:

- the accelerated melt of the Greenland Ice Sheet,
- the thawing of boreal permafrost,
- the collapse of winter Arctic sea ice,
- and the weakening of the Labrador-Irminger Seas convector.

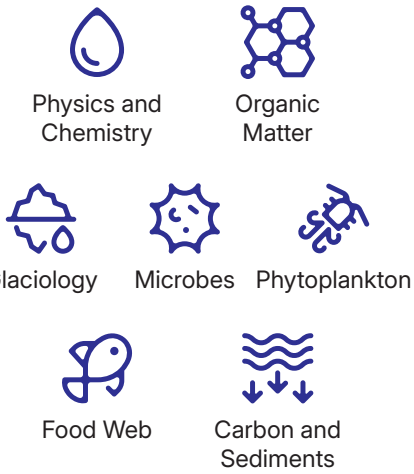
CRITICAL TIMING

CASCADES will take place in two legs, aligned with **two key Arctic phases**: the melt and the freeze-up of sea ice. Studying these dynamics will bring a better understanding of ongoing climate shifts in the Arctic that affect the entire world.

GLOBAL IMPLICATIONS

As **'vertical polar nations'**, France and Switzerland are affected by comparable mechanisms including fast glacier melt and permafrost degradation. Learning from the Arctic helps French and Swiss actors anticipate upcoming changes at home. By being 'Observers' in the Arctic Council, France and Switzerland actively support dialogue, science diplomacy, and the involvement of local communities.

RESEARCH CLUSTERS



RESEARCH INSTITUTIONS

- Dalhousie University (CA)
- École Normale Supérieure (FR)
- EPF Lausanne (CH)
- ETH Zurich (CH)
- Pinngortitaleriffik - Greenland Institute of Natural Resources (GL)
- Memorial University of Newfoundland (CA)
- Sorbonne Université (FR)
- Université de Genève (CH)
- Université de Lausanne (CH)
- Université du Québec (CA)
- Université du Québec à Rimouski (CA)
- Université Laval (CA)
- Université Paris-Saclay (FR)

Institut nordique du Québec
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AMUNDSEN SCIENCE
2021 2030 United Nations Decade of Ocean Science for Sustainable Development

www.cascades-expedition.science - cascades_expedition

FACTS & FIGURES

50+ researchers involved
20+ institutions grouped in
13 international scientific projects
4 countries involved
3 partner organisers
1 joint outreach programme

FUNDING

- Canada Foundation for Innovation (CA)
- Transforming Climate Action Program (CA)
- Swiss Polar Institute (CH)
- Fondation Albédo pour la Cryosphère (FR)
- Cryosphere Foundation (CH)
- Ferring Inc. (CA)

AMUNDSEN SCIENCE

CASCADES Expedition benefits from the infrastructure provided by Amundsen Science, which manages the Canadian research icebreaker CCGS *Amundsen*.

MILESTONES

2025

March
Expedition announcement & Launch of the call for projects

October
Scientific programme confirmed

November
Presentation at the *Greenland Science Week*, Nuuk (GL)

2026

February
Pre-expedition scientific and logistic in-person workshop, Québec City (CA)

18 March
Press conference & Launch of CASCADES Expedition, Bern (CH)

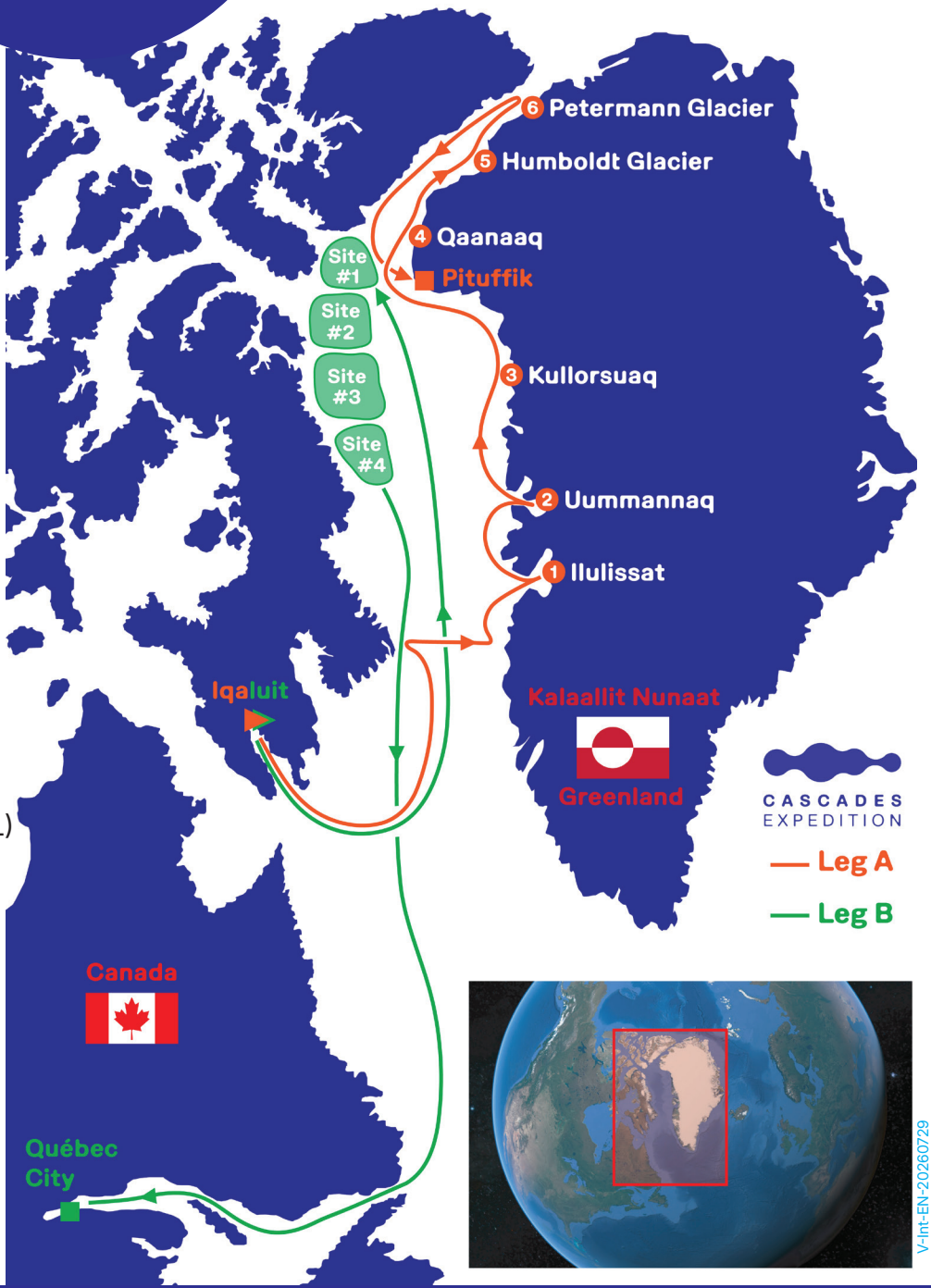
August-September
CASCADES Expedition **Leg A**
Iqaluit (CA) - Pituffik Space Base (GL)

9 September
SPI 10th Anniversary celebration in the presence of partner institutions, Sion (CH)

October-November
CASCADES Expedition **Leg B**
Iqaluit (CA) - Québec City (CA)

2027

February
Post-expedition scientific workshop



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