Canada–France–Chile Research Connections in Ocean and Mathematical Sciences

Pacific Institute for Mathematical Sciences & Bamfield Marine Sciences Centre
February 10 - 14, 2026

Remote Participation via Zoom

https://ubc.zoom.us/j/67535838058?pwd=urbXhUZOtrCyDbB73a6Afawp8OT4tF.1

Meeting ID: 675 3583 8058

Passcode: 144095

Workshop Objectives

- Define 2–3 tri-national pilot research projects at the interface of ocean and mathematical science
- Identify specific funding joint opportunities and draft project concepts and proposal text
- Propose specific student / researcher mobility plans (Canada - France - Chile)
- Formalize management / scientific leadership plans for a three-nation ocean / math research network

Day 1, Tues. Feb. 10 (PIMS):
Scientific foundations and strategic alignment

8:30–8:45 Welcome: PIMS, CNRS, French Consulate, UBC-VPRI, PMSA

8:45 - 9:15 Workshop Framing: (Tortell / Rogers / Yilmaz). Review of outcomes from 2024–2025 workshops and articulation of concrete goals, expected deliverables, and decision points for this meeting.

9:15–10:15 Plenary 1: Comparative Eastern Pacific Rim Systems. An overview of ocean challenges across the eastern Pacific Rim, and the relevant experience and interests of Canadian, French and Chilean researchers. Speakers from Canada / France / Chile (TBD). Focused presentations outlining shared scientific contexts, e.g. comparative fjord and upwelling systems, climate-driven extremes, and coupled hazard–ecosystem processes. The objective is to establish a shared conceptual research framework between Canada, France, and Chile.

10:15 - 11:00 Coffee Break and informal discussions

11:00–12:00 Plenary 2, From Ocean Questions to Mathematical Structure (TBD). Exploring ocean / math connections in different areas, such as:

- Deoxygenation, renewal, and residence time → inverse problems, PDE-based modeling, sampling theory,
- Biodiversity change & resilience → inverse modeling, dynamical systems, multiscale analysis, reduced-order computation
- Extreme events (MHWs, hazards) → probability, stochastic processes, rare events, data assimilation

12:00 - 12:30 Group discussion / synthesis of key emerging research opportunities

12:30–13:30 Lunch

13:30–15:15 Flagship Science Themes
Participants self-select into **three cross-disciplinary groups**. Each group to address key research opportunities and challenges, and what cannot be solved without new mathematics or data science. They will be asked to complete a template, addressing specific questions, including: Problem statement. Why trilateral? What math is missing? What data/observations are missing? Each group

must nominate **no more than two** candidate pilot concepts. Note: people will be able to move between groups, if desired.

1. **Physical–Biogeochemical Coupling**
   (e.g. oxygen, carbon, mixing, renewal)

2. **Ecosystems, Biodiversity & Resilience**
   (e.g. eco-evolutionary dynamics, restoration)

3. **Observing Systems, Data & AI**
   (e.g. sensors, interoperability, uncertainty, early warning)

15:15 - 15:45. Coffee Break

15:45 - 16:30 Group reports

16:30 - 17:00 Synthesis and summary

18:30 - 20:00 Reception hosted by French Consulate

Day 2, Wed. Feb. 11 (PIMS):
From ideas to pilot projects: Funding and capacity building

9:00–10:30 Infrastructure & Research Platforms (including field-based facilities and computational infrastructure).Map scientific questions to required instruments, platforms, and data streams, identifying existing assets, gaps, and near-term opportunities. (Speakers TBD)

10:30–11:00 Coffee Break

11:00 - 12:00 Funding Pathways & Strategy

Overview of relevant funding mechanisms (e.g. NSERC–ANID, Belmont Forum, Horizon Europe, etc.), with presentations from UBC, CNRS, French Consulate etc.. Discussion of proposal scope, timelines, and alignment with agency priorities. Outcome: agreement on primary and secondary funding targets.

12:00–13:30 Lunch and informal networking

13:30 - 14:15 Researcher mobility and training. Planning session focused on graduate student exchanges, postdoctoral mobility, technical staff training, and integration with field schools and short courses in Canada, France, and Chile.

14:15 - 15:00 frameworks / structure for joint international scientific leadership. (Speakers TBD)

15:00–15:30 Synthesis & Decisions

15:30 - 15:45 Bamfield Transition Briefing / Logistics

15:45 - 17:00 Guided tour of Beaty Biodiversity Museum

17:00 Free time / Networking.

18:00 Small group dinners.

Day 3, Thurs. Feb. 12:
Travel to Bamfield

11:05 Ferry from Horseshoe Bay to Nanaimo. Arrive at the ferry terminal by 10:15 at the latest. Various vehicles will depart from UBC and other points in the city.

Ferry arrives at 12:50 in Nanaimo. It is about a ~ 3 hour drive to Bamfield. We can make some touristic stops along the way, including Cathedral Grove).

Arrive at BMSC by 17:00. Station welcome, room check in.

18:00 Dinner

19:00 Plenary discussion - setting objectives for the writing workshop. Formation of writing teams, assignment of leads, and clarification of expected outputs.

20:00 Free time

Day 4, Fri. Feb. 13:
Bamfield Writing Workshop

7:30 - 8:00 Breakfast

8:15 - 9:15 BMSC Facilities Tour

9:15 - 9:30 Recap group writing instructions

9:30 - 12:30 Writing Groups I (coffee available at 10:45). Small-group writing focused on scientific rationale, hypotheses, and study design for selected pilot projects. The goal is to draft Belmont Forum proposals and develop 'concepts' for Horizons EU grants. Each project must specifically address the role of mathematics in advancing the research.

Pilot Project Design
Groups tasked to define:

- Scientific objective(s)
- Mathematical/data innovation
- Required infrastructure & data
- Expected outputs in 24–36 months
- Embedded training & mobility plan

12:30 - 13:30 Lunch

13:30 - 14:30 Recap of morning work (group reports), and guidance for the afternoon (potential change group composition)

14:30 - 17:00 Writing Groups II (coffee available at 15:30)

17:00 - 18:00 Group reports and discussion

18:00 - 19:00 Dinner

19:30 Drinks and reception at the BMSC Director's Residence

Day 5, Sat. Feb. 14:
Return to Vancouver / Victoria

7:30 - 8:00 Breakfast

8:30 - 10:30 Morning wrap up session: Agreement on submission timelines, leadership responsibilities, and follow-up meetings. Finalize proposal outlines, Identify gaps and overlaps, concept notes, and framework paper structure.

Outputs: signed-off action table, identifying pilot projects, science leads, funding call, submission timelines, public-facing product to boost visibility of the initiative.

10:30 - 11:00 Coffee Break

11:00 - 11:30 Check out and pick up bag lunch

11:30 Leave BMSC to arrive at Departure Bay ferry terminal (Nanaimo) no later than 15:15.

Take the **16:00 ferry to Horseshoe Bay** (arrives at 17:40)

Or possibly take the ferry to Tsawwassen for people going to the airport the next day

Sun. Feb. 15:

Return Travel (International and Domestic Participants)