

WCRP - World Climate Research Programme

cliC - Climate and Cryosphere Project



Promoting and facilitating new collaborative research related to the cryosphere and climate.

Making links between cryospheric research and research in other disciplines

Communicating research results to policy and decision-makers and other non-scientific users.

James Renwick, Lawrence Hislop, Mike Sparrow



www.climate-cryosphere.org

Project Office Hosted by:



Governance

Scientific Steering Group:

James Renwick (Co-Chair, New Zealand)

Fiamma Straneo (Co-Chair, USA)

Hiroyuki Enomoto (Japan)

Stephen Hudson (Norway)

Alexandra Jahn (USA)

Shichang Kang (China)

Sebastian Mernild (Chile)

Lars H. Smedsrud (Norway)

Dario Trombotto Liaudat (Argentina)

Mauricio Mata (Brazil – WCRP JSC)



SSG 13, Wellington 2017



IPO – Norway

Lawrence Hislop

Gwen Hamon

Mike Sparrow (WCRP - Geneva)



CliC structure

WCRP Grand Challenge – Melting Ice and Global Consequences, Lead: CliC, Chair: Greg Flato

- Earth System Model-Snow MIP (ESM-SnowMIP) (tightly linked to Land Surface, Snow and Soil Moisture MIP (LS3MIP))*
- Ice Sheet MIP for CMIP6 (ISMIP6)*
- Marine Ice Sheet-Ocean MIP (MISOMIP)*
- Diagnostic Sea Ice MIP (SIMIP)*
- GlacierMIP
- Permafrost Carbon Network (*part of the Study of Environmental Arctic Change (SEARCH) project*)
- * Contributions to CMIP6, the 6th Phase of the Coupled Model Intercomparison Projects (MIP)

Groups, Panels, and Fora

- Polar Climate Predictability Initiative (PCPI) (*joint with SPARC*)
- Southern Ocean Region Panel (*joint with CLIVAR and SCAR*)
- Northern Oceans Region Panel (*joint with CLIVAR*)
- BEPSII - Biogeochemical exchange processes at Sea Ice Interfaces (*joint with SCOR and SOLAS*)
- Antarctic Sea Ice Processes & Climate (ASPeCt) (*joint with SCAR*)
- Technical Committee on Sea Ice Observations
- Arctic Sea Ice Working Group
- Sea Ice & Climate Modelling Forum
- Ice Sheet Mass Balance and Sea Level (ISMASS) (*joint with SCAR and IASC*)

Limited Lifetime Targeted Activities

- Polar Coordinated Regional Downscaling Experiment (Polar CORDEX)
- Earth Observations and Arctic Science Needs (with ESA)
- Linkage Between Arctic Climate Change and Mid-Latitude Weather Extremes



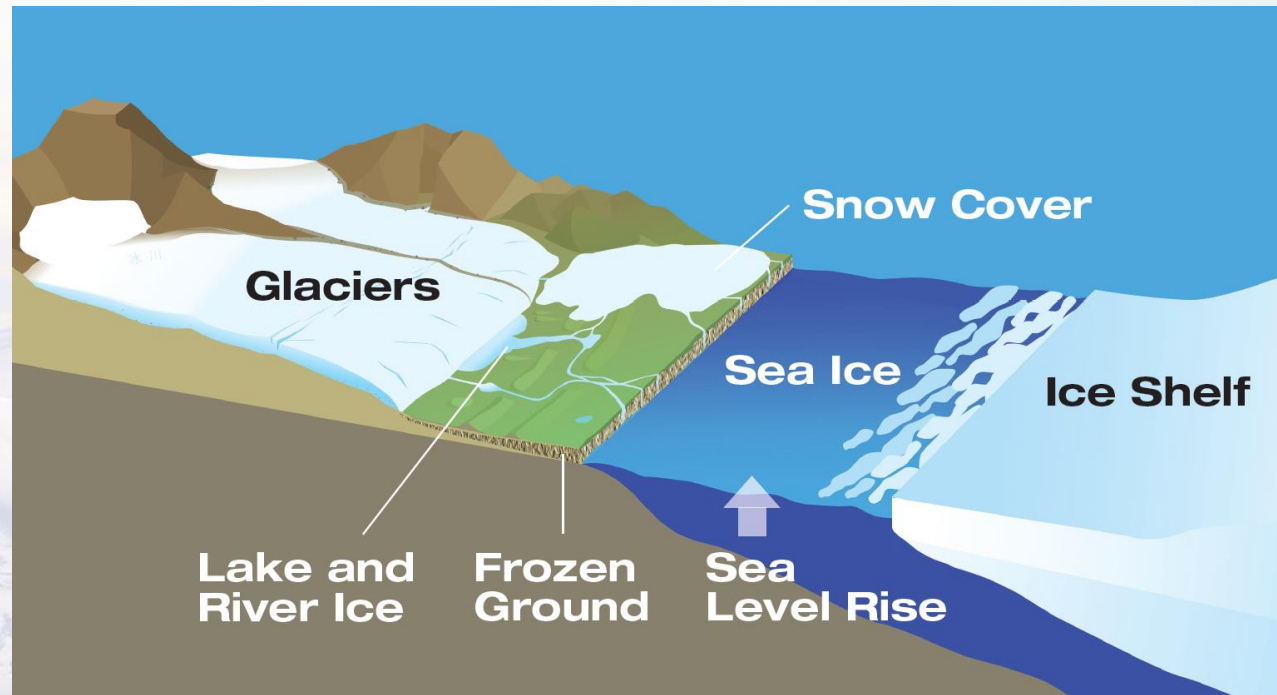
What we do

- Improve understanding of the cryosphere and its interactions with the global climate system
- Improve the ability to make quantitative predictions and projections of the cryosphere in a changing climate
- Link observation and modelling communities



Domains...

- Sea Ice
- Ice Sheets
- Glaciers
- Permafrost
- Snow cover
- Freshwater



Highlights



IACS



International Symposium on
The Cryosphere in a Changing Climate

- Held in Wellington, NZ, February 2017
- Over 300 delegates
- 2017 CliC SSG meeting held in conjunction



Highlights

Modelling work for CMIP6 and support for the Grand Challenge on Melting Ice & Global Consequences

- **ESM-SnowMIP** - Earth System Model-Snow Model Intercomparison Project
- **SIMIP** - Sea Ice Model Intercomparison Project
- **ISMIP6** - Ice Sheet Model Intercomparison Project
- **GlacierMIP** - Glacier Model Intercomparison Project
- **PCN** – Permafrost Carbon Network



Arctic Sea Ice Prediction Stakeholders Workshop

Arctic Frontiers, Tromso, January 2018



This workshop brought together sea ice stakeholders and forecasters to:

- 1) Assess the value of forecasts by the user community.
- 2) Determine if and how ice forecasts are currently being used in decision making.
- 3) Communicate the relevant metrics needed by various stakeholders.
- 4) Identify where improvements in sea ice forecasts would help stakeholders make decisions.
- 5) Communicate the limits and opportunities of current forecasting systems.

Organisers / Sponsors



Supported by



Arctic Sea Ice Prediction Stakeholders Workshop

Arctic Frontiers, Tromso, January 2018



Outcome

A stakeholder-targeted guidance document or roadmap, where sea ice forecasters can draw on the expertise of users (e.g. policy makers, planners, community leaders) to better understand how different stakeholder groups factor sea ice forecast information into their decision-making processes.

The outcomes will result in an article intended for publication in a journal such as Eos (Earth & Space Science News).

Organisers / Sponsors



Supported by



Science issues

- Improved understanding and quantification of the role of the cryosphere in the global climate system, its variability and change.
- Improved utilization of cryospheric observations as indicators of global and regional climate change.
- Improved understanding of the physical, chemical and other processes that govern behaviour of the cryosphere, and the representation of these processes in Earth System Models.
- Improved ability to make quantitative predictions and projections of the cryosphere in a changing climate.



Infrastructure issues

- Cryosphere community has expanded rapidly → CliC's network has expanded across
 - All cryosphere domains
 - Geographically throughout the Polar Regions and high mountain areas
- Important that CliC continues to partner and work with wider community
 - Many complimentary research activities led in other organisations
- CliC to stay focused on leading climate and cryosphere research
 - Find synergies with other related programs
 - Avoid duplicating efforts of others



International Project Office

- Currently based at Norwegian Polar Institute
- NPI support ends in June (December) 2018
- No confirmed new home for CliC IPO
 - Though some interest
- May need temporary arrangement
 - Depending on changes to WCRP structure



CliC and WCRP strategic plan

- Strong need for underlying observations
 - Glacier mass balance, sea ice thickness,...
- E-4: Ensure snow remains prominent
- Integration with modelling
 - CORDEX, WGSIP, S2S(?)
- Important for societal linkages
 - Regional variability & change
 - Glaciers and water availability
 - Ice sheets and sea level rise
 - Cryospheric tipping points



Questions?

