

CLIC links to GEWEX: Core Project & Grand Challenge

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www.climate-cryosphere.org

Project
Office
Hosted by:



CliC Structure

Scientific Steering Group

G. Flato and G. Krinner,
Co-Chairs

Int'l CliC Project Office

L. Hislop, Director
Gwen Hamon, Exec. Officer
Hosted by Norwegian Polar Institute

Limited Lifetime Targeted Activities

Core

- Arctic Freshwater Synthesis (*Finalized*)
- Marine Ice Sheet/Ocean Model Intercomparison
- Polar CORDEX Analysis / Arctic Regional Climate Scenarios
- Polar Jet Stream Variability and Extremes
- Permafrost Research Priorities (with IPA)
- Southern Ocean Satellite Requirements

Cryosphere GC: Melting Ice – Global Consequences

- Carbon cycle feedbacks in a changing Arctic
- Sea-ice, Snow, and Ice Sheets in CMIP6
- Global Glacier Mass Balance

ASPeCt

Joint with SCAR

Arctic Sea Ice Working Group

ISMASS*

Joint with SCAR and IASC

Permafrost Carbon Network

Joint with IASC

Sea Ice and Climate Modelling Forum

Polar Climate Predictability Initiative (PCPI)

Joint with SPARC

Permafrost and Climate Modelling Forum



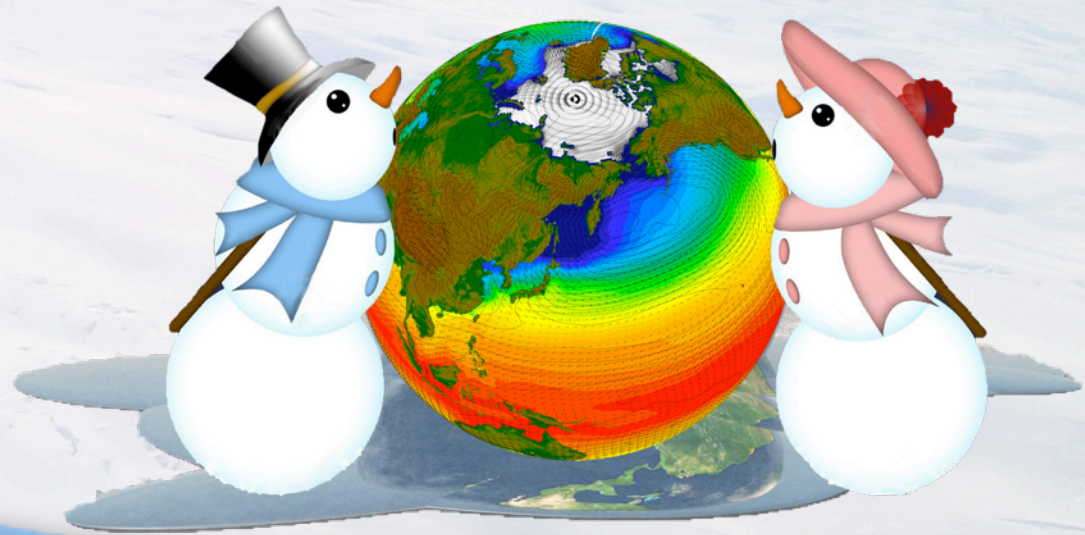
Backdrop: Climate modeling strategy

CliC engaging more strongly with the climate modelling community:
3 new activities connected to CMIP6 under the Grand Challenge banner

- Ice Sheet MIP (ISMIP6)
- Snow in ESMs (integrated into LS3MIP)
- Diagnostic Sea Ice MIP (SIMIP)

Aims

- Focused analyses of model performance
- Improved representation of cold processes
- New couplings



LS3MIP

- Land surface snow soil moisture MIP
- Coordination : B. van den Hurk, S. Seneviratne, T. Oki, H. Kim, C. Derksen, G. Krinner
- Aims:
 - ESM Land surface module evaluation (strong link to GSWP3)
 - Land surface feedbacks (building on GLACE-CMIP)
 - Land-related predictability
- CMIP6 subproject, endorsed

<http://www.climate-cryosphere.org/activities/targeted/ls3mip>



ESM-SnowMIP

- **Follow-up to SnowMIP1&2, more specifically for ESMs**
- **Tightly linked LS3MIP**
- **Additional snow-specific analyses**
 - **Site simulations (larger community)**
 - **Global offline experiments (e.g. snow thermal isolation etc.)**
 - **Coupled experiments to isolate snow feedbacks (staggered in time wrt. LS3MIP)**
- **Coordination with SnowGLACE/WGSIP & GEWEX GLASS required**

<http://www.climate-cryosphere.org/activities/targeted/esm-snowmip>



Permafrost

- **Permafrost carbon Network: NSF, SEARCH. Global extension: CliC, IASC.**
- **Permafrost Modeling Forum**
- **Permafrost-carbon feedback**
 - **C4MIP**
 - **2 Grand Challenges: Cryosphere & Biogeochemistry**
- **Obvious GEWEX links - cold region hydrology**
 - **Formalize?**
 - **Link through Grand Challenge enough?**

<http://www.permafrostcarbon.org/>



Other potential links

- **GABLS4: Stable atmospheric boundary layer at Dome C, Antarctica: link to surface processes (snow)**
- **Mountain precipitation issues: snow and glaciers**

