

## Main Page



## Ice Sheet Model Intercomparison Project for CMIP6

Welcome to the Ice Sheet Model Intercomparison Project for CMIP6 (ISMIP6) wiki! You are encouraged to use the wiki pages to alter the formulation of numerical experiments, point out any inconsistencies or inaccuracies you find in the data sets, and post results and figures that you'd like others see and discuss. ISMIP6 also has a more official [homepage](#), kindly hosted by [CliC](#).

NEW: ISMIP6 Antarctic 2300 projections. These projections focus on simulations of the Antarctic Ice Sheet extended to year 2300. These new experiments were launched in February 2022 and more details are available [here](#).

### What is ISMIP6?

The overall framework for ISMIP6 is designed to deliver projections of the ice sheet contribution to sea level rise. ISMIP6 brings together for the first time a consortium of international ice sheet models and coupled ice sheet – climate models. This effort thoroughly explores the sea level contribution from the Greenland and Antarctic Ice Sheet in our changing climate and assess the impact of large ice sheets on the climate system. Together with the new glacier [CliC](#) (Climate and Cryosphere) targeted activity and projections of thermal expansion (that already sit within the [CMIP](#) Coupled Model Intercomparison Project framework), this allows sea level to become part of the family of variables for which CMIP can provide routine IPCC-style projections. ISMIP6 is explicitly designed to ensure that ice sheet (hence sea level) projections are fully compatible with the CMIP6 (Coupled Model Intercomparison Project-Phase 6) process. ISMIP6 also provides the basis for investigating the feedbacks, impacts, and sea level changes associated with dynamic ice sheets and for quantifying the uncertainty in ice-sheet-sourced global sea level change.

The proposed [experiments](#) both use and augment the CMIP6-DECK (Diagnostic Evaluation and Characterization of Klima), Historical and [ScenarioMIP](#) experiments. ISMIP6 uses the standard CMIP [AGCM](#) (Atmosphere General Circulation Models) and [AOGCM](#) (Atmosphere-Ocean General Circulation Models) experiments for analysis of the climate over and surrounding the ice sheets, and as forcing for the standalone ice sheet models (ISM) projections. Additional sensitivity experiments were performed with the ISM to investigate the uncertainty associated with these projections arising from ice sheet models. The key output is an ensemble of historical and future estimates of ice sheet contribution to sea level. To address the feedbacks introduced by interactive ice sheets, we proposed that a small number of selected DECK experiments are repeated with coupled AOGCM-ISM, where the ice sheet is an interactive component of the AOGCM. Our assessment of the state of existing AOGCMs is that coupled models including an interactive Greenland ice sheet can realistically be expected for CMIP6, however including the Antarctic ice sheet remains challenging (because of the greater complexity of its response to climate forcing, and the issues associated with simulations of the Southern Ocean). It is for these reasons that [ISMIP6](#) heavily relies on standalone ice sheet models driven offline by CMIP6 climate models for projections of sea level.

## ISMIP6 activities

### ISMIP6 Standalone Ice Sheet Experiments

These pages describe the experimental setup for the standalone ice sheet model simulations. ISMIP6 standalone ice sheet modeling focusses on gaining insight into the uncertainty in ice sheet evolution resulting from the choice of initialization methods (the initMIP efforts for the Greenland and Antarctic ice sheets), understanding the response of the Antarctic ice sheet to a total loss of the ice shelves (ABUMIP), as well as projections of ice sheet evolution for the 21st century.

#### Greenland

[initMIP-Greenland](#) focuses on detailed description of the ISMIP6 Standalone Ice Sheet experiments for the initialization for Greenland.

[ISMIP6-Projections-Greenland](#) focuses on detailed description of the ISMIP6 Standalone Ice Sheet experiments protocols for projections of the Greenland ice sheet evolution.

#### Antarctica

[initMIP-Antarctica](#) focuses on the more detailed description of the ISMIP6 Standalone Ice Sheet experiments for the initialization for Antarctica.

[ABUMIP-Antarctica](#) focuses on understanding the response of the Antarctic ice sheet to weakening and loss of the shelves.

[ISMIP6-Projections-Antarctica](#) focuses on detailed description of the ISMIP6 Standalone Ice

Sheet experiments protocols for projections of the Antarctic ice sheet evolution.

[ISMIP6-Projections2300-Antarctica](#) focuses on detailed description of the ISMIP6 2300 Projections experiments protocols for projections of the Antarctic ice sheet evolution extended to 2300.

## ISMIP6 Coupled Ice Sheet Climate Experiments

The [Coupled Ice Sheet Climate Experiments](#) page describes the experimental setup for the coupled ice sheet-climate model simulations.

## ISMIP6 Meetings

The [ISMIP6 Meetings](#) page indicates when and where our next meeting will be!

## ISMIP6 resources

### Datasets

The [Datasets for whole ice sheet models](#) page provides suggestions, but you can use different datasets and still participate in ISMIP6.

### ISMIP6 logos

Use this [page](#) to download ISMIP6 logos.

### ISMIP6 Publications

The [Publications](#) page list publications related to ISMIP6, as well as guidance for how to acknowledge the many different ISMIP6 participants in your own publications when using ISMIP6 datasets.

Please contact us if you would like your publication to be listed here too!

### ISMIP6 Participants

ISMIP6 is a community effort that involves scientists interested in the polar regions, ranging from experts in polar remote sensing to modeling. If you would like to be involved in ISMIP6, please email [ismip6-at-gmail.com](mailto:ismip6-at-gmail.com). The co-chairs of steering committee for ISMIP6 includes [Sophie Nowicki](#), [Eric Larour](#), and [Tony Payne](#). The steering committee members are [Helene Seroussi](#), [Heiko Goelzer](#), [Andrew Shepard](#), [William Lipscomb](#), [Jonathan Gregory](#), and [Ayako Abe Ouchi](#). A big thank you to our members contributing to the numerical simulations!

### Greenland Standalone Ice Sheet Modeling

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## Antarctica Standalone Ice Sheet Modeling

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## Climate Modeling Centers

Climate modeling centers that have expressed an interest in ISMIP6.

**Climate mode**

CanESM  
CESM2  
CNRM-CM  
EC-Earth  
GISS  
INMCM  
IPSL-CM6  
MIROC-ESM  
MPI-ESM  
UKESM

**Ice-sheet model**

None  
CISM  
GRISLI  
GrIS  
PISM  
VUB  
GRISLI  
IcIES  
PISM  
BISICLES

**Institute/country**

CCCma/CA  
NCAR-LANL/USA  
CNRM/FR  
DMI/DK  
NASA-GISS/USA  
INM/RU  
IPSL/FR  
AORI-UT-JAMSTEC-NIES/JP  
MPI/DE  
MetOffice/UK

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**What are wiki pages?**

Wiki pages are user-written articles on a range of subjects. Any contributor or a group of contributors can create (and own) new articles, and there can be multiple articles on the same wiki, each written by a different author.

**Who can make a wiki page?**

Any member of this group can create a new article. When creating a new article, the initial contributor can choose to have a defined list of authors, all of whom can edit the page, or have an open, wiki-like format where any group member can contribute.

**Getting started**

- [Create a new article](#)

**Finding Articles**

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- [A list of new articles](#)
- [Recently changed articles](#)

**Questions?**

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- [Wiki Macros](#)