

# Tipping Points Cross-WG Session

**THE 29<sup>th</sup> ANNUAL CESM WORKSHOP**

*Gokhan Danabasoglu and Bette Otto-Bliesner*

**US National Science Foundation (NSF) National Center for Atmospheric Research (NCAR)**



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Interest in evaluating risks associated with crossing individual or compound tipping points within the Earth system in the presence of anthropogenic warming has significantly increased.

Such tipping points include both reversible and irreversible changes in, e.g., high-latitude permafrost, AMOC, Greenland and Antarctic ice sheets, and boreal and tropical forests.

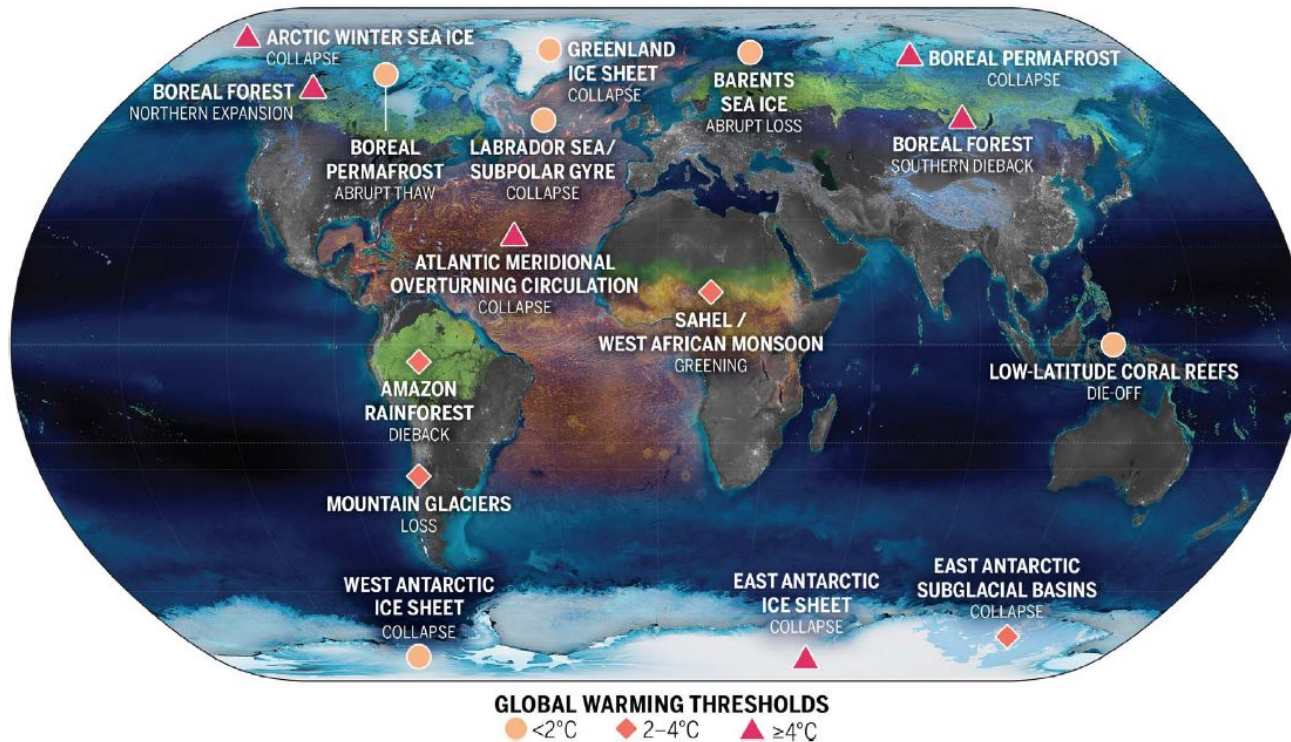
There are two proposed efforts within CMIP7:

**Tipping Point Model Intercomparison Project (TIPMIP):** obtain such events and assess any related uncertainties, reversibility / recovery aspects, etc.; and

**What If Modeling Intercomparison Project (WhatIfMIP):** investigate extreme outcomes, impacts, risks, etc. associated with such events, assuming that they have already happened.

The goals of this cross-WG session are to introduce these intercomparison projects along with several other related international (mostly European) efforts; review related national efforts; and gauge interest of the community regarding participation in these efforts.

The location of climate tipping elements in the cryosphere (blue), biosphere (green), and ocean/atmosphere (orange), and global warming levels at which their tipping points will likely be triggered. Pins are colored according to our central global warming threshold estimate being below 2°C, i.e., within the Paris Agreement range (light orange, circles); between 2 and 4°C, i.e., accessible with current policies (orange, diamonds); and 4°C and above (red, triangles).



Armstrong McKay et al. (2022, Science)

## Cross-WG Sessions

### Session I: Tipping Points

8:30am- Introduction to the Session  
Gokhan Danabasoglu & Bette Otto-Bliesner

8:35am  
Tipping Point Model Intercomparison Project (TipMIP)  
Sina Loriani (PIK) remote

8:55am- What If Model Intercomparison Project (WhatIfMIP)  
Bette Otto-Bliesner (NSF NCAR)

9:15am- North Atlantic Hosing Model Intercomparison Project (NAHoseMIP)  
Laura Jackson (UKMO) remote

9:35am- Project Overviews: OptimESM & TipESM  
Didier Swingedour (U. Bordeaux) remote

9:55am- Climate Interventions with CESM  
Peter Lawrence (NSF NCAR)

10:15am- Discussion

10:30am- Adjourn