

International Cryosphere Climate Initiative

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SUBMISSION BY THE INTERNATIONAL CRYOSPHERE CLIMATE INITIATIVE

13 March 2026

Overshoot, Ocean Current Slowdown, Antarctic and Glacier Losses

Subject: Research and Systematic Observation (SBSTA):
Views on possible themes for the 18th Research Dialogues

We submit these views on three possible themes for the June 2026 meeting of the Research Dialogue, to be held in conjunction with SBSTA 64, and value this opportunity to inform the negotiations with the most recent, best available science.

Policies not informed by such science will comprise worse and less effective policies at national, regional and global levels.

I. Overshoot:

A. Impacts:

The implications of overshooting 1.5°C on key ecosystems, especially due to the impact of cryosphere loss from such overshoot such as inevitable sea-level rise or permafrost thaw emissions, has become increasingly important to policy makers in terms of adaptation, mitigation and climate finance; especially as AR7 takes form.

In May 2026, just prior to SB64 and ahead of Earth Day, UNEP plans to release its Spotlight Report on Overshoot. A presentation of this Report by one of its lead authors would be an important beginning to Research Dialogue discussions. (Note: ICCI is tasked with coordinating a "satellite report" to the main Spotlight, focused on Cryosphere and to be released in the fall; two other "satellites" will focus on Sea-level Rise and Boreal Forests, respectively.)

B. Correction from Overshoot to 1.5°C-consistent Pathways:

In response to growing evidence of some period of overshoot temperature and CO₂, several recent scientific studies, such as those by Climate Analytics and Potsdam have detailed how governments and other stakeholders might course-correct to 1.5°C despite overshoot. Explicating these pathways will also be important in light of certain recent objections to the validity of the lower 1.5°C Paris Agreement limit, alongside continually rising levels of atmospheric carbon.

II. Recent Findings on Ocean Current Disturbances

Antarctic Bottom Water (AABW) essentially drives the entire ocean current system as cold water drops to the ocean floor around Antarctica. Recent observed slowdown is anticipated to reverberate throughout global ocean currents for several centuries.

Despite its importance, AABW remains far less well-known than the North Atlantic component of the global ocean current system, the AMOC (Atlantic Meridional Overturning Circulation). This is because slowdown of AMOC below a certain level will result in a potentially rapid and extreme drop in average temperatures across much of the northern hemisphere, especially northern Europe, and weather disturbances elsewhere. In the UK, for example, some models show temperatures below levels that would allow continued cultivation of most major food crops.

III. Different Tipping Points in Over a Dozen Antarctic Sectors; Glacier Extinction

Studies on Antarctica and its future contribution to sea-level rise have begun to refine possible rates of ice loss. In particular, a 2026 study found that different sectors of Antarctica have highly varying thresholds or "tipping points" for total loss, with irreversible threshold temperatures ranging below today's up to 6-8°C above preindustrial levels. In this sense, Antarctica should not be considered one Earth system component, but several; together totaling around 58m sea-level rise.

In a similar vein, a study arising out of the glacier focus of the 2025 International Year of Glaciers' Preservation outlined the projected rate of "glacier extinction" -- eg, the total loss of individual glaciers -- under different emissions scenarios and timescales.

Conclusion: An exploration of the risks and research gaps of the above Earth elements can inform several negotiation tracks at SB64 and look ahead also to COP31. Relevant tracks include those focused on mitigation, adaptation and projections of loss and damage; as well as discussions around the Long-Term Temperature Goal (LTTG) in reference to a decision on any Third Periodic Review under the Framework Convention.

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