

Draft Prospectus 3.4 “Abrupt Climate Change”

Collated Public Comments
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General Comments:

Your lead authors (section 3) do not have anyone representative of the oceanographic observing community working on the MOC - in the USA you could co-opt Prof. Bill Johns of RSMAS, Miami University, who is heavily involved in observing the N. Atlantic MOC.

[Meric Srokosz]

---This issue will be addressed by inviting at least one member of the oceanographic observing community to attend/speak at the SAP workshops and participate in the writing process as contributing author.

In the section regarding the meridional overturning circulation (MOC), the report authors should be aware of the science coming out of the UK RAPID program, in which the US is a participant. There have been several recent advances in our understanding of MOC variability from this effort. Further, the UK RAPID effort seems to be much more up-to-date with respect to the attack on the problem - when contrasted with this report. For instance, it seems that it would be very important to ask the question "What is the present state of the MOC?"

I would suggest that the following individuals be considered part of the writing team:

Jeff Severinghaus (Scripps)
David Battisti (Univ. Washington)
Bill Johns (RSMAS)
Peter Schlosser (LDEO)
Ray Pierrehumbert (Univ. Chicago)

[James F. Todd]

---We added the following as a primary question to be addressed in the SAP prospectus: "What is the present state of the MOC?" The oceanographic observing community will be involved in both the workshops and the writing process (see response to comment above). We will consider the individuals mentioned in this comment.

SAP 3.4 seems to reflect some of the information that was in the NASA presentation on the polar ice caps given at the September "blue-box" meeting. This prospectus does not seem to reflect any coordination with this work. We suggest coordination with NASA.

[Brigid DeCoursey or Camille Mittelholtz]

---The coordination team for SAP 3.4 will investigate the ways in which NASA may become involved in this process. We will make sure that there is representation at the workshops and on the writing team.

How is 1.2 related to 3.4? 1.2 will look at Abrupt Climate Change in the Arctic; 3.4 deals solely with Abrupt Climate Change. So will both deal with Abrupt Climate

Change. It is not clear where climate processes will be dealt, under 1.2 or 3.4? Given these assessment products in the same stage of evolution, there needs to be some cross-talk so redundancy is reduced.

[Jerry Elwood]

--- The members of the Organizing Committees for SAP 1.2 (*Past Climate Variability and Change in the Arctic and at High Latitudes*) and 3.4 (*Abrupt Climate Change*) have met to address the issue raised in several reviewers' comments regarding the potential for overlap between these two products. The members have agreed on the following process in order to ensure that a large-scale duplication of effort does not occur and that the two synthesis and assessment products achieve maximum impact.

Based on the individual scopes identified in the respective prospectuses of the two products, the Organizing Committees will issue guidance to the writing teams regarding the potential for overlap and suggest a logical separation of emphasis. Examples of these areas of emphasis are given below.

Communication between the two writing teams will be established through joint representation from the respective SAP's organizing committees at each others' workshops.

As the outlines for the individual products are developed, the coordinating lead authors for both SAPs will be asked to review each others' outlines to identify and resolve potential redundancies before major sections of the reports are written.

Areas of Emphasis – Examples

SAP 1.2	SAP 3.4
Evidence for past abrupt changes in the Arctic paleoclimate record.	Evidence for past abrupt changes in the global record.
Extent of impacts as evidenced in Arctic paleo-records.	Factors controlling abrupt change events and evaluation of global impacts
No emphasis	Evaluation of models in simulating or predicting abrupt change events
Steady-state inputs into the paleoclimate record	No emphasis
Evidence for rapid ice melt in past arctic records	Mechanisms for rapid ice melt

First General Comment: This prospectus describes an interesting, excellent and very important effort. It should certainly go forward and be well supported.

[Michael MacCracken]

---No action necessary.

Second General Comment: In the discussion of Question iv that the report will consider, a particularly important instance of apparently rapid ice sheet melting that should be presented and evaluated is the lead-in to the Eemian interglacial, when there are some indications that melting of the Greenland and/or Antarctic ice sheets could have been contributing to a rate of sea level rise of order 1 meter/century.

[Michael MacCracken]

---We thank the author for this advice. The Committee will consider the Eemian interglacial period while dealing with question #1 in Section iv: "What is the paleoclimate evidence regarding rates of rapid ice sheet melting?"

Third General Comment: In addressing each of the four questions, the report should make clear the limitations of the analyses done to date (e.g., as reported on in the IPCC assessments), and compare the potential magnitude and rate of what is found in these studies with the magnitudes and rates of the estimates contained in the IPCC assessments. This would greatly help in making clear that the findings reported by the IPCC and agreed to unanimously by roughly 150 countries over the past two decades have necessarily not included a full characterization of the risks posed by human-induced climate change, meaning that the published IPCC estimates are actually conservative rather than worst case.

[Michael MacCracken]

---This advice will be presented to the Committee at the first workshop for their consideration.

One quick comment on the prospectus: It is disappointing that, although the report aims to investigate the Atlantic MOC, among other phenomena, there is no expertise on or even real mention of measuring its current state. In that, the report, from its basic design, is not even up to date with the RAPID programme, which as one of its great successes has brought together observations of the modern ocean and climate modelling (plus strengthening ties with palaeo). It would be important to remedy that problem, lest the report be marred by being obsolete before it's written. The easiest (?) would be to add Bill Johns (Univ. Miami) to the list of authors.

Info on the NERC UK funded RAPID, with significant additional funding from NOAA and NSF:

<http://www.soc.soton.ac.uk/rapid/>

[Jochem Marotzke]

---See responses to general comments #1 and #2 above.

Specific Comments:

Page 6, lines 5-6: It should be noted whether this comparison is on a per molecule or per mass basis.

[Michael MacCracken]

---The author of this comment refers to this sentence from the draft prospectus: “Methane is a powerful greenhouse gas, and is about 24 times more effective at absorbing long wave radiation than is carbon dioxide.” The sentence was change to read: “Methane is a powerful greenhouse gas, and is about 24 times more effective on a mass basis at absorbing long wave radiation than is carbon dioxide.”

Page 9, lines 26: I was very pleased to see that “[a]ll comments and responses,” presumably to all stages of the review process described in section 6 of the Prospectus, “will be documented and made publicly available.” This will be an important step in contributing to the credibility of the report, and this should be the case for all CCSP products.

[Michael MacCracken]

---No action necessary.