AIMES/PAGES workshop

Abrupt changes, thresholds, and tipping points in Earth history and future implications

14-16 November 2018; MPI-M, Hamburg, Germany

Agenda

Wednesday 14 November 2018
Day 1: Plenary Talks on Tipping points in the Earth system and social systems. Talks are limited to 15 minutes with 15 minutes for discussion.

Key Questions
(i) How to define, identify, and anticipate tipping points from paleoclimate records and models?
(ii) What are key examples of abrupt changes, thresholds and tipping points in the paleorecord?
(iii) How can the paleo science influence our understanding of the tipping point problem?

12:00 – 13:10	**Welcome Coffee**
13:10 – 13:30	Welcome (Victor Brovkin and Ed Brook) - Objective of the Workshop - Workshop strategy and logistics - Address paper structure
13:30 – 14:00	*Implications of past tipping points for the Anthropocene* Speaker: Tim Lenton
14:00 – 14:30	*Past and future tipping points of the Greenland and Antarctic ice sheets* Speaker: Rob DeConto
14:30 – 15:00	*Critical transitions in the terrestrial biosphere - atmosphere system* Speaker: Martin Claussen
15:00 – 15:30	*Abrupt ocean changes: modeling results and paleoclimate constraints* Speaker: Andrey Ganopolski
15:30 – 16:00	**Coffee Break**
16:00 – 16:30	*Rapid changes in atmospheric carbon dioxide and the carbon cycle in the ice core record* Speaker: Ed Brook
16:30 – 17:00	*Responses of Terrestrial Ecosystems to Environmental Change: Fast, Slow or Abrupt?* Speaker: Jack Williams
17:00 – 17:30	*Tipping points, instability and modes of variability in marine environments as documented from paleo-records of mid-high latitudes of the Northern Hemisphere* Speaker: Anne de Vernal
17:30 – 18:00	*Tipping points in early human history, and some lessons we can learn from them* Speaker: Sander van der Leeuw

18:00 – 18:30	*Social and climatic tipping dynamics and their interactions in past, present and future* Speaker: Jonathan Donges
18:30 – 19:00	Synthesis Discussion Chairs/Panel: Tim Lenton and Michel Crucifix

Evening Free

Thursday 15 November 2018
Day 2: Breakout group discussion and synthesis to summarize our state of knowledge and identify future research objectives

9:00 – 10:30	Breakout Groups - Physical climate system (Leads: David McGee and Andrey Ganopolski) - Ecosystems (Leads: Anne de Vernal and Jack Williams) - Biogeochemical cycles (Leads: Rachael Rhodes and Thomas Kleinen) - Social systems (Lead: Sander van der Leeuw)
10:30 – 11:00	**Coffee Break**
11:00 – 12:30	Breakout Groups – continuation - Physical climate system - Ecosystems - Biogeochemical cycles - Social systems
12:30 – 14:00	**Lunch**
14:00 – 14:20	Synthesis Discussion/Summary Prep
14:20 – 14:40 14:40 – 15:00	Reports from Breakout Groups and discussion I. Physical climate system II. Ecosystems
15:00 – 15:30	**Coffee Break**
15:30 – 15:50 15:50 – 16:10	Reports from Breakout Groups and discussion III. Biogeochemical cycles IV. Social Systems

16:10 – 17:00	Synthesis Discussion - Revisit paper structure outline - Determine breakout group writing tasks for tomorrow - Identify writing team and leads for sections
17:00 – 18:00	Questions and Answers Chairs: Ayako Abe-Ouchi and Jerry McManus

19:00 – 22:30 Workshop Dinner

Friday 15 November 2018
Day 3: Breakout writing groups; Plenary on future plans and action items and contribution to IPCC AR6.

9:00 – 10:30	Planning and writing session in breakout groups
10:30 – 11:00	**Coffee Break – return to plenary room**
11:00 – 11:30	Future plans, action items, deadlines Leads: Ed Brook and Victor Brovkin
11:30 – 12:00	Contributions to IPCC AR6 Speaker: Darrell Kaufman
12:00 – 13:30	**Lunch**
13:30 – 16:00	Writing session for remaining participants

Goal: Summary report of the breakout groups and synthesis, plan review paper summarizing the state of our knowledge and identifying future research objectives.

Participants

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