



## **Final Meeting**

**Centro de Ciencias de Benasque Pedro Pascual**

**Benasque, Spain**

**September 3-8 2023**

**Agenda 01/09/2023**

## **Monday September 4th: Theme 1 – Tipping elements in data and models**

Conveners: Denis-Didier Rousseau, Peter Ditlevsen

8:30-9:00 Registration

9:00-9:20 Overview: Denis-Didier Rousseau

9:20-10:00 Ayako Abe-Ouchi: Millennial scale Glacial Climate Variability and Stability of the AMOC under various background conditions

Invited talks (20 ' + questions)

10:00-10:30 Helle Kjaer - Greenland spatial DO signatures

10:30-11:00 Victor Couplet: Investigating tipping cascades and the hothouse narrative in the model of reduced complexity SURFER

11:00 -11:30 Coffee break

11:30-13:30 PICO talks (10' including questions)

1. Frerk Pöppelmeier: The stability of the Atlantic Meridional Overturning Circulation during the last deglaciation
2. Clara Hummel: Early warning signals for Dansgaard-Oeschger events in multiple ice core records
3. Keno Riechers: The signature of discontinuous noise in Greenland ice core records
4. Irene Malmierca-Vallet: Atmospheric CO<sub>2</sub> impact on spontaneous Dansgaard–Oeschger type oscillations: oscillatory sweet-spot for three climate models
5. Jonathan Baker: Overturning Pathways Control AMOC weakening in CMIP6 models
6. Virna Loana Meccia: The impact of a weakened AMOC on the European climate simulated by the EC-Earth climate model
7. Sebastian Bathiany: Amazon forest resilience in dynamic vegetation models
8. Lana Blaschke: Remotely sensed Vegetation Indices for resilience analyses of Tropical rainforests

13:30-15:00 Lunch at Hotel Sommos Aneto (not Sommos Benasque, where we stay)

15:00-16:30 Free time for scientific discussion

16:30-17:00 Coffee break

17:00-18:00 Keynote talk: Paul Valdes - title TBD

20:30: Dinner

## **Tuesday September 5th: Theme 2 – Climate response theory**

Conveners: Anna von der Heydt, Marisa Montoya

9:00-10:00 Overview: Anna von der Heydt

Invited talks (20 ' + questions)

10:00-10:30 Simon Michel: Deep learning reconstruction of the AMOC strength from SST fields

10:30-11:00 Reyk Börner: Tracking the edge of the Atlantic Meridional Overturning Circulation

11:00 -11:30 Coffee break

11:30-13:30 PICO talks (10' including question)

1. Matteo Cini: AMOC spontaneous collapses in response to an evolutionary atmosphere with a Rare Event Algorithm
2. Andreas Morr: A holistic approach to the assessment of critical slowing down via the Kramers-Moyal expansion.
3. Sacha Sinet: rate and noise induced tipping in a conceptual AMOC model
4. Daniel Moreno-Parada: Is the Marine Ice-Sheet Instability predictable by using Transition Indicators on a Flowline Model?
5. Jan-Christophe Swierczek-Jereczek: FastIsostasy -- A regional model for accelerated computation of laterally-variable isostatic adjustment
6. Alison McLaren: Water Tracers/Isotopes in the UK Earth System Model 2
7. Antonio Juarez-Martinez: Antarctic ice-sheet stability under high-emission scenarios

13:30-15:00 Lunch at Hotel Sommos Aneto (not Sommos Benasque, where we stay)

15:00-16:30 Free time for scientific discussion

16:30-17:00 Coffee break

17:00-18:00 Keynote talk: Valerio Lucarini - Climate response and fluctuations across multiple scales.

19:00 Reception

## **Wednesday September 6th: Mathematics of tipping points**

Conveners: Pete Ashwin, Jorge Álvarez Solas

9:00-10:00 Overview and Discussion: Pete Ashwin

Invited talks (20' + questions)

10:00-10:30 Oliver Mehling: The role of nonattracting chaotic sets for tipping of the Atlantic Meridional Overturning Circulation

10:30-11:00 Julian Newman: Statistical dynamics of deterministic chaotic systems with forcing

11:00 -11:30 Coffee break

11:30-13:30 PICO talks (10' including questions)

1. Ignacio del Amo: An extreme value theory method to compute dimensions
2. Oisín Hamilton: Using symbolic python (sympy) to extend a python climate model to AUTO
3. Raphael Roemer: Characterising Edge States: Measures on Chaotic Saddles
4. Javier Blasco. Antarctic tipping points crossed during the mid-Pliocene warm period
5. Sergio Pérez-Montero: An Adimensional perspective on the Mid-Pleistocene Transition
6. Nils Bochow: Overshooting the critical threshold for the Greenland ice sheet
7. Lucía Gutiérrez González: Critical thresholds of the Greenland ice sheet
8. Valérian Jacques-Dumas. Temporary title: Estimating the collapse probability of the AMOC using Machine Learning in a hierarchy of models

13:30-15:00 Lunch at Hotel Sommos Aneto (not Sommos Benasque, where we stay)

15:00-16:30 Free time for scientific discussion

16:30-17:00 Coffee break

17:00-18:00 Keynote talk. Peter Ditlevsen: Climate predictability of different kinds

20:30: Dinner

## **Thursday September 7th: Theme 4 – Data and decisions**

Conveners: Thomas Stocker, Helle Kjaer

9:00-10:00 Overview. Thomas Stocker: Tipping Points: Lessons learnt from communicating a high-attention topic

Invited talks (20' + questions)

10:00-10:30 Marina Martínez-Montero: Are EWS useful for mitigation policy?

10:30-11:00 Marcello Petitta: Discussing tipping points in climate with the private sector: misunderstandings and advancements.

11:00 -11:30 Coffee break

11:30-13:30 Helle Kjaer: TiPES management-update on final reporting

13:30-15:00 Lunch at Hotel Sommos Aneto (not Sommos Benasque, where we stay)

15:00-16:30 Free time for scientific discussion

16:30-17:00 Coffee break

17:00-18:00 Everything you always wanted to ask about writing proposals and never dared to. Discussion led by Henk Dijkstra and Thomas Stocker.

20:30: Dinner

## **Friday September 8th: Departure from Benasque at 8:30**

