CVAS + 2k + TSM PAGES Meeting

Report of Contributions

Contribution ID: **1** Type: **not specified**

Climate Variability Across Scales, Introduction

Monday 6 March 2023 13:40 (25 minutes)

(10’ min pres. + 5’ min disc.)

Presenter: LOVEJOY, Shaun

Session Classification: CVAS

Contribution ID: **2** Type: **not specified**

joint Postersession (incl. Snacks)

Monday 6 March 2023 17:00 (3 hours)

Contribution ID: **3** Type: **not specified**

Earth's Complexity Is Non-Computable: The Limits of Scaling Laws, Nonlinearity and Chaos

Monday 6 March 2023 14:05 (25 minutes)

Presenter: RUBIN, Sergio

Session Classification: CVAS

Contribution ID: **4** Type: **not specified**

Climate modelling and structural stability

Monday 6 March 2023 14:30 (25 minutes)

Presenter: LAM, Vincent

Session Classification: CVAS

Contribution ID: **5** Type: **not specified**

CVAS Outline of the day

Tuesday 7 March 2023 09:00 (5 minutes)

Presenter: LAEPPLE, Thomas

Session Classification: CVAS

Contribution ID: **6** Type: **not specified**

Intro Talks: Stochastic Modelling

Tuesday 7 March 2023 09:05 (15 minutes)

10min Talk + 5min Discussion

Presenter: LOVEJOY, Shaun

Session Classification: CVAS

Contribution ID: **7** Type: **not specified**

Intro Talks: Detuning Models

Tuesday 7 March 2023 09:20 (15 minutes)

10min Talk + 5min Discussion

Presenter: BAKKER, Pepijn

Session Classification: CVAS

Contribution ID: **8** Type: **not specified**

Intro Talks: Mapping Calibrated

Tuesday 7 March 2023 09:35 (15 minutes)

10min Talk + 5min Discussion

Presenter: MARA MCPARTLAND, ANDREW DOLMAN, Raphaël Hébert,

Session Classification: CVAS

Contribution ID: **9** Type: **not specified**

Intro Talks: Mapping Uncalibrated

Tuesday 7 March 2023 09:50 (15 minutes)

10min Talk + 5min Discussion

Presenter: FABRICE LAMBERT, Cécile Blanchet,

Session Classification: CVAS

Contribution ID: **10** Type: **not specified**

Breakout Group Formation

Tuesday 7 March 2023 10:05 (25 minutes)

People go to the corner of their choice to make 4 groups, bit of discussion to figure out who stays where

1.) Breakout groups on climate modeling
1.A) Alternative climate modelling approaches, i.e. outside of the usual general circulation models, such as energy-balance and stochastic models
Lead: S. Lovejoy

1.B) Model 'detuning', i.e. to explore a wider parameter space in climate models with a focus on identifying parameters that would be linked to low-frequency variability.
Lead: P.Bakker, T.Laepple

In both cases, we aim to achieve climate modelling in line with evidence derived from the palaeo-climate records, in particular with respect to variability at different timescales.

2) Breakout groups with the aim to produce global maps of climate-relevant variability at different time-scales

2.A) Using calibrated records (e.g. for surface temperature)
R.Hebert, A.Dolman

2.B) Using records that can't be directly calibrated to a physical climate parameter (such as XRF data)
C.Blanchet, F.Lambert
Content of the discussions will include the development of the research framework, as well as expected results and the associated hypotheses concerning the spatial structure, scaling and proxy dependency. Bringing experts together from different perspectives (theory, models and proxy) will allow to cover the full range of expectations and this will lead to a document accompanying the mapping project. The outcomes of this discussion will also directly feed into the TSM on centennial climate variability at regional scale in models and reconstructions.

Presenter: LAEPPLE, Thomas

Session Classification: CVAS

Contribution ID: **11** Type: **not specified**

Welcome and Outline of the Day

Wednesday 8 March 2023 09:00 (5 minutes)

Presenter: LAEPPLE, Thomas

Session Classification: CVAS

Contribution ID: **12** Type: **not specified**

Continuation of new breakout groups

Wednesday 8 March 2023 09:05 (1h 25m)

Group 1: GCM's & data; Tuning target for Holocene variability
Group 2: Theory and stochastic models & data

Please also think on implications/questions of this for the centennial variability workshop (slides are possible)

Session Classification: CVAS

Contribution ID: **13** Type: **not specified**

What is the Future of CVAS

Wednesday 8 March 2023 11:30 (1 hour)

Steering committee / everybody interested to lead/support such an effort

Presenter: COMMITTEE, Steering

Contribution ID: **14** Type: **not specified**

Welcome

Wednesday 8 March 2023 13:30 (15 minutes)

Presenter: GOOSSE, Hugues

Session Classification: Topical Science Meeting

Contribution ID: **15** Type: **not specified**

The enigma of multidecadal to centennial temperature variability in climate simulations and reconstructions

Wednesday 8 March 2023 13:45 (20 minutes)

(outcome from the last workshop in Heidelberg concerning local and global variability in models and proxy data)

Presenter: PINGPONG TEAM, Thom Laepple &

Session Classification: Topical Science Meeting

Contribution ID: **16** Type: **not specified**

Workshop Reports: CVAS

Wednesday 8 March 2023 14:05 (25 minutes)

Presenter: LEADERS, Group

Session Classification: Topical Science Meeting

Contribution ID: **17** Type: **not specified**

Workshop Reports: PAGES 2k

Wednesday 8 March 2023 14:30 (25 minutes)

Presenter: LEADERS, Group

Session Classification: Topical Science Meeting

Contribution ID: **18** Type: **not specified**

Two case studies for understanding hydroclimate from different proxies, across temporal scales

Wednesday 8 March 2023 15:30 (1 hour)

Sloan Coats: Hydroclimate model-(paleo)data comparisons from gridded fields to single timeseries: Challenges and opportunities

Luke Parson: Hydroclimatic Variance in Climate Model Simulations and Paleoclimate Records of the Last Millennium

(each 20min Talk + 10min Discussion)

Organizers: Alyssa Atwood, Matt Jones

Presenter: SLOAN COATS, Luke Parsons,

Session Classification: Topical Science Meeting

Contribution ID: **19** Type: **not specified**

What are the main hydro-climatic signals

15min Talk + 15min Discussion

Session Classification: Topical Science Meeting

Contribution ID: **20** Type: **not specified**

What are the main signals from the polar region

Wednesday 8 March 2023 16:30 (30 minutes)

15min Talk + 15min Discussion

Presenter: LIZ THOMAS, Anais Orsi,

Session Classification: Topical Science Meeting

Contribution ID: **21** Type: **not specified**

From simple models and physics - What are the expectations from physics···. (e.g. can tropics have more variability than high latitudes···)

Wednesday 8 March 2023 17:00 (30 minutes)

15min Talk + 15min Discussion

Presenter: XU ZHANG, Anson Cheung, Raphaël Hébert,

Session Classification: Topical Science Meeting

Contribution ID: **22** Type: **not specified**

From complex models

Wednesday 8 March 2023 17:30 (30 minutes)

15min Talk + 15min Discussion

Presenter: QIONG ZHANG, Jürgen Bader, Hugues Goosse,

Session Classification: Topical Science Meeting

Contribution ID: **23** Type: **not specified**

Breakout Groups Formation

Wednesday 8 March 2023 18:00 (10 minutes)

Main signals from
1.) paleo-observations
2.) complex models
3.) physics

Session Classification: Topical Science Meeting

Contribution ID: **24** Type: **not specified**

Good Morning

Thursday 9 March 2023 09:00 (5 minutes)

Presenter: GOOSSE, Hugues

Session Classification: Topical Science Meeting

Contribution ID: **25** Type: **not specified**

Breakout Groups

Thursday 9 March 2023 09:05 (1h 25m)

Introducing yourself and your science

T1: Describe the main and most robust signals / expectations from your group topic
T2: What are the burning issue from your group topic?
T3: What input would you expect from the other groups?
T4: What do your findings imply for the other groups?

Session Classification: Topical Science Meeting

Contribution ID: **26** Type: **not specified**

Methods: Analysis of variability

Thursday 9 March 2023 11:00 (30 minutes)

20min Talk + 10min

Presenter: DONNER, Reik

Session Classification: Topical Science Meeting

Contribution ID: **27** Type: **not specified**

Methods: Data Assimilation and Variability

Thursday 9 March 2023 11:30 (30 minutes)

20min Talk + 10min Discussion

Presenter: STEIGER, Nathan

Session Classification: Topical Science Meeting

Contribution ID: **28** Type: **not specified**

Methods: Spatial Analyses (and methods to separate signal and noise using spatial information)

Thursday 9 March 2023 12:00 (30 minutes)

20min Talk + 10min Discussion

Session Classification: Topical Science Meeting

Contribution ID: **29** Type: **not specified**

Breakout Groups

Contribution ID: **30** Type: **not specified**

Good Morning

Friday 10 March 2023 09:05 (10 minutes)

possibility to readjust the groups (if somebody wants to switch or some expert is needed)

Presenter: GOOSSE, Hugues

Session Classification: Topical Science Meeting

Contribution ID: **31** Type: **not specified**

Work in breakout groups defined on the previous day

Friday 10 March 2023 09:20 (1h 5m)

Session Classification: Topical Science Meeting

Contribution ID: **32** Type: **not specified**

Statistical mechanics in climate emulation: Challenges and perspectives

Monday 6 March 2023 15:30 (25 minutes)

Presenter: SUDAKOW, Ivan

Session Classification: CVAS

Contribution ID: **33** Type: **not specified**

Millennial-scale land variability

Monday 6 March 2023 16:00 (25 minutes)

Presenter: HEBERT, Raphael

Session Classification: CVAS

Contribution ID: **34** Type: **not specified**

Climate Variability Diagnostics

Monday 6 March 2023 16:30 (25 minutes)

Presenter: DESER (VIRTUAL), Clara

Session Classification: CVAS

Contribution ID: **35** Type: **not specified**

Welcome and getting started

Monday 6 March 2023 13:30 (30 minutes)

Welcome, workshop outline, brief overview of Phase 4, including outline of existing databases that we can draw on & their features

Presenter: COORDINATORS, PAGES 2k

Session Classification: 2k Network - Welcome and Introduction

Contribution ID: **36** Type: **not specified**

Seminar

Monday 6 March 2023 14:00 (1 hour)

Insights from the previous Hydro2k effort. This seminar will act as a 'kick-off' for the meeting, outlining challenges/successes/general thoughts from the last time a global hydroclimate synthesis was attempted

Presenter: FELIS, Thomas

Session Classification: 2k Network - Welcome and Introduction

Contribution ID: **37** Type: **not specified**

Seminar

Monday 6 March 2023 15:30 (45 minutes)

Present upcoming Holocene hydroclimate proxy database & reconstruction. Insights from collation of this dataset, and how he went about combining information from the various proxies.

Presenter: HANCOCK (VIRTUAL), Chris

Session Classification: 2k Network - Welcome and Introduction

Contribution ID: **38** Type: **not specified**

Seminar

Monday 6 March 2023 16:15 (45 minutes)

Insights from the development and creation of Iso2k, a multi-proxy database with all the metadata required for analysis across different proxy and archive types

Presenter: KONECKY (VIRTUAL), Bronwen

Session Classification: 2k Network - Welcome and Introduction

Contribution ID: **39** Type: **not specified**

Welcome & outline of the day

Tuesday 7 March 2023 09:00 (30 minutes)

Presenter: COORDINATORS, PAGES 2k

Session Classification: 2k Network

Contribution ID: **40** Type: **not specified**

Seminar

Tuesday 7 March 2023 09:30 (1 hour)

paleoproxies, PSMs, and models, including
- data-model gaps
- temperature to precipitation correlations
- model biases
- new directions (e.g. machine learning)

Presenter: REHFELD, Kira

Session Classification: 2k Network

Contribution ID: **41** Type: **not specified**

Seminar

Tuesday 7 March 2023 11:00 (1 hour)

Update on next PHYDA version, metadata required to assimilate hydroclimate data, what data types are currently feasible for DA, what data types may become feasible, and how exactly integrations happen

Presenter: STEIGER, Nathan

Session Classification: 2k Network

Contribution ID: **42** Type: **not specified**

Questions & discussions

Tuesday 7 March 2023 12:00 (30 minutes)

Everyone

Session Classification: 2k Network

Contribution ID: **43** Type: **not specified**

Intro to focus topics

Tuesday 7 March 2023 14:00 (30 minutes)

Intro to focus topics (NAO / ENSO / Southern latitudes) & open discussion on big picture hydroclimate questions

Presenter: COORDINATORS, PAGES 2k

Session Classification: 2k Network

Contribution ID: **44** Type: **not specified**

Breakout 1

Tuesday 7 March 2023 14:30 (45 minutes)

Everyone
in subgroups, discuss Phase 4 Objective 1 (what are suitable hydroclimate reconstruction targets):
North Atlantic
ENSO/monsoon
Southern high latitudes
All other regions of interest
(convene ~3:10 to distill main points from discussion)

Session Classification: 2k Network

Contribution ID: **45** Type: **not specified**

Breakout 2

Tuesday 7 March 2023 15:15 (15 minutes)

Everyone
in subgroups, discuss Phase 4 Objective 2 (model integration and data/model comparison targets - details below)

Evaluate and constrain Earth system models using hydroclimate proxy data, whilst using models to inform process-level understanding of Common Era hydroclimate. This will deepen our understanding of the drivers of hydroclimate changes reconstructed in Objective 1. Objective 2 includes close integration with the PMIP4-Past2k community and use of their recently finished simulations, and will benefit from new developments in modeling, for example in water isotope-enabled simulations.
(convene ~3:25 to distill main points from discussion)

Session Classification: 2k Network

Contribution ID: **46** Type: **not specified**

Continue Breakout 2

Tuesday 7 March 2023 16:00 (30 minutes)

Session Classification: 2k Network

Contribution ID: **47** Type: **not specified**

Breakout 3

Tuesday 7 March 2023 16:30 (45 minutes)

Everyone
in subgroups, discuss Phase 4 Objective 3 (practicalities of hydroclimate proxy collation & database management - details below)

Develop tools and practices to maximize interoperability of 2k data products, including data sets from earlier phases. PAGES 2k has built data products with both temperature- and hydroclimate-sensitive datasets (e.g., Iso2k, CoralHydro2k) but tools are needed to screen, query, and synthesize across databases. We aim to develop these tools, to extend the interoperability of these databases and ensure that they are available for ongoing use within and beyond the paleoclimate scientific community. We will also perform intercomparison of existing paleoclimate reanalysis products.
(convene ~4:25 to distill main points from discussion)

Session Classification: 2k Network

Contribution ID: **48** Type: **not specified**

Conclusions Breakout Rooms

Tuesday 7 March 2023 17:15 (45 minutes)

All groups to report conclusions from breakout rooms; whole-group discussion

Session Classification: 2k Network

Contribution ID: **49** Type: **not specified**

Welcome & outline of the day

Wednesday 8 March 2023 09:00 (15 minutes)

Presenter: COORDINATORS, PAGES 2k

Session Classification: 2k Network

Contribution ID: **50** Type: **not specified**

Breakout rooms

Wednesday 8 March 2023 09:15 (1h 15m)

Everyone

Session Classification: 2k Network

Contribution ID: **51** Type: **not specified**

Report & discuss conclusions from breakout discussions

Wednesday 8 March 2023 11:30 (30 minutes)

Report & discuss conclusions from breakout discussions; discuss who is going to do what going forward (i.e., plans for future work)

Session Classification: 2k Network

Contribution ID: **52** Type: **not specified**

Breakout rooms

Wednesday 8 March 2023 11:00 (30 minutes)

Session Classification: 2k Network

Contribution ID: **53** Type: **not specified**

Final summary wrap-up

Wednesday 8 March 2023 12:00 (30 minutes)

Presenter: COORDINATORS, PAGES 2k

Session Classification: 2k Network

Contribution ID: **54** Type: **not specified**

Welcome and overview

Monday 6 March 2023 13:30 (10 minutes)

Presenter: LAEPPLE, Thomas

Session Classification: CVAS

Contribution ID: **55** Type: **not specified**

Breakout group contiuation

Thursday 9 March 2023 13:30 (30 minutes)

30min Continuation of the breakout groups of main signals in paleo-observations complex models physics

to prepare (e.g. slides) for the presentation of the questions

Than back to the auditorium at 2pm

Session Classification: Topical Science Meeting

Contribution ID: **56** Type: **not specified**

Breakout groups

Thursday 9 March 2023 16:30 (1 hour)

1. Oscillations vs. Continuum spectra; can it inform us on the mechanism? stats (how to do it) ; models; proxies; theory (what does it mean)

2.Temperature vs. Hydroclimate; What do we expect in the models and what do we have in the data; spatial structure⋯

Enhancing/Fudging/Rescaling/perturbing/ the models; Develop designs together⋯/ new model experiments?

4 Volcanic vs. AMOC⋯develop a fingerprint and test for it⋯includes latitude (includes potentially a synthesis of quantitative variability estimates against latitude⋯(need to extract it in the model) ⋯

1. Southern Ocean ⋯Are there coherent signals in the region; Antarctica/South America ⋯ Cause / links tropics⋯

6.) Sweet spot of PSM

Session Classification: Topical Science Meeting

Contribution ID: **57** Type: **not specified**

Wrapup in the auditorium and formation of new groups

Thursday 9 March 2023 14:00 (1h 30m)

Session Classification: Topical Science Meeting