Topic 2 Annual Meeting - 2024

Report of Contributions

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

Opening & scope of the meeting

Thursday 12 September 2024 13:00 (15 minutes)

Presenter: DOBSLAW, Henryk (GFZ)

Session Classification: Plenary: Welcome and highlight talks by early career & senior scientists

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

Plenary: Introduction to poster session

Thursday 12 September 2024 15:00 (30 minutes)

Convener: Martin Frank (GEOMAR)

Teaser Talks in 60 seconds for each poster.

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

Subtopic 2.1: Evolution of the sediment provenance in the North Sea and Skagerrak region based on radiogenic isotopes

Thursday 12 September 2024 13:15 (15 minutes)

(12'min pres. + 3' min disc.)

Presenter: LENZ, Nina (GEOMAR)

Session Classification: Plenary: Welcome and highlight talks by early career & senior scientists

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

Subtopic 2.2: Climatic pacing of extreme Nile floods during the North African Humid Period

Thursday 12 September 2024 13:30 (15 minutes)

(12'min pres. + 3' min disc.)

Presenter: BLANCHET, Cécile (GFZ)

Session Classification: Plenary: Welcome and highlight talks by early career & senior scientists

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

Subtopic 2.3: Atlantic Water warming increases melt below Northeast Greenland's last floating ice tongue

Thursday 12 September 2024 13:45 (15 minutes)

(12'min pres. + 3' min disc.)

Presenter: WEKERLE, Claudia (AWI)

Session Classification: Plenary: Welcome and highlight talks by early career & senior scientists

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

Subtopic 2.4: AI for climate science applications

Thursday 12 September 2024 14:00 (15 minutes)

(12'min pres. + 3' min disc.)

Presenter: KOLDUNOV, Nikolay (AWI)

Session Classification: Plenary: Welcome and highlight talks by early career & senior scientists

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

Poster session

Thursday 12 September 2024 15:30 (1h 20m)

Subtopic 2.1
1) Evolution of grounding-line retreat along the mac. Robertson shelf (East Antarctica) over the past 30,000 years: Creating reliable spatiotemporal benchmarks for validating ice-sheet simulations - Janina Güntzel (AWI)
2) Redox Evolution on the Peruvian Margin since the Pliocene: Insights from Geochemical Proxies - Paula Luiza Fraga Ferreira (GEOMAR)
3) Warming on the East Antarctic Plateau based on Borehole Thermometry Measurements - Nora Hirsch (AWI)
4) Impacts of Global Warming on Regional Hydro-Climates in the Eastern Mediterranean - Anais Urban (GFZ)
5) Reconstructing Ethiopian Hydroclimate from a Varved Lake Sediment Core - Björn Hohmeier (GFZ)
6) Effect of Regional Polar Refinements in Global Atmosphere Model Simulations - Raphael Köhler (AWI)
7) Organic carbon dynamics in extreme environments - Pamela E. Rossel (GFZ)
8) Warm moist air intrusions and their impact on the surface energy budget in the Arctic - Sofie Tiedeck (AWI)
9) Natural gas hydrates: the hidden climate risk factor in polar regions -Judith Schicks (GFZ)

Subtopic 2.2
10) Salinity effects on surface currents and ENSO in simplified ocean and coupled models - Lu Chen (GEOMAR)
11) Subpolar eddies from a high-resolution, multi-platform experiments in the Labrador Sea - Fehmi Dilmahamod (GEOMAR)
12) Provenance of detrital sediments in the North Sea and the Skagerrak based on radiogenic Nd-Sr-Hf isotopes and clay mineral compositions: Assessing the impact of coastal and seabed erosion - Nina Lenz (GEOMAR)
13) Is polar amplification in low-frequency temperature variability exaggerated in climate models? - Vanessa Skiba (AWI)
14) Dynamical processes and future development of eastern boundary upwelling systems - Marco Schulz (GEOMAR)

Subtopic 2.3
15) The 2023 Baltic inflow event as observed by SWOT altimetry - Saskia Esselborn (GFZ)
16) The improvement of ITRF through ESA's GENESIS Mission - Robert Henkelmann (GFZ)
17) Astrogeodesy by VLBI Global Observing System for improving the Terrestrial Reference Frame - Minghui Xu (GFZ)
18) Forward Gravity Modelling to Augment High Resolution Combined Global Gravity Field Models - Sinem Ince (GFZ)
19) Connecting NADW transports to ocean bottom pressure - Linus Shihora (GFZ)
20) Treatment of Modern Global Ocean and Atmospheric Tide Atlases in Precise Orbit Determination - Roman Sulzbach (GFZ)
21) Tidal and non-tidal ocean loading signals from a superconducting gravimeter on the North Sea island of Helgoland –Christian Voigt (GFZ)

Subtopic 2.4
22) Gravity field recovery using co-estimation of background model errors to improve de-aliasing capabilities of the MAGIC double-pair constellation - Josefine Wilms (GFZ)
23) Constraining the Equatorial Pacific barium cycle with stable barium isotope - Bianca Liguori, Zhouling Zhang, Christopher Siebert, Martin Frank (GEOMAR)

24) Next Generation Gravity Mission design: will new satellite constellations be able to resolve sub-monthly mass change events in Greenland? Ingo Sasgen (AWI)

others:

25) Unlocking soil organic carbon dynamics in degrading Himalayan Permafrost and Alpine Meadows - Sarwar Nizam (GFZ)
26) Important findings from the TephroMed project I: The cryptotephras of the ICDP Dead Sea deep core during the last 30-130kya - Rebecca Kearney (GFZ)

=> Please also see the attached pdf with the abstracts of all posters!

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

Guided Tours

Thursday 12 September 2024 17:00 (1 hour)

Please sign up for one of the three guided tours when you register online to facilitate our planning.

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

Breakout 1: Paleoceanographic research

Friday 13 September 2024 09:30 (1h 45m)

One “paleo session” with topics such as paleo-climate, southern ocean, arctic chronologies and reference cores.

Presenters: FRANK, Martin (GEOMAR); LAMY, Frank (AWI); ADOLPHI, Florian (AWI); BLANCHET, Cecile (GFZ); TJALLINGII, Rik (GFZ)

Session Classification: Discussion: Scientific breakout sessions

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

Breakout 2: Sea level: bridging the scales between remote forcing and coastal impacts

Friday 13 September 2024 09:30 (1h 45m)

We would like to take a look at fingerprints of sea level change (e.g. related to ice sheets, AMOC, etc) and their manifestation along the ocean margins.

Presenter: KANZOW, Torsten (AWI)

Session Classification: Discussion: Scientific breakout sessions

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

Breakout 3: From data to products - needs & barriers

Friday 13 September 2024 09:30 (1h 45m)

Scientists often produce data products as part of their research, e.g. ocean state indicators from time series data or via gridded fields.
It is of interest in Topic 2 to discuss how disclosure and access to such data products is achieved, what limitations exist and how access can be improved. The discussions are linked to milestones and results of PoF IV.

Presenters: KARSTENSEN, Johannes (GEOMAR); VON APPEN, Wilken (AWI)

Session Classification: Discussion: Scientific breakout sessions

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

Breakout 4: Changing surface accumulation in Antarctica

Friday 13 September 2024 09:30 (1h 45m)

Surface mass balance in Antarctica has been changing. The East Antarctic Ice Sheet became a mitigator of sea level rise. The beakout session will discuss our state of knowledge from observations and models, identify needs and present eventually where research efforts should be focused on for the remainder of the PoV IV period.

Presenter: EISEN, Olaf (AWI)

Session Classification: Discussion: Scientific breakout sessions

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

Plenary: Wrap up and farewell

Friday 13 September 2024 12:45 (15 minutes)

- Outlook for PoF V
- Upcoming events and meetings

Contribution ID: **58** Type: **not specified**

Turquoise Transitions: Sustainable Ocean Use and Blue-Green Innovation

Thursday 12 September 2024 19:00 (45 minutes)

How can we advance sustainable ocean use that contributes to climate mitigation, adaptation and ecological conservation?
How can we transfer findings from ocean science into transformative application?
What transition pathways can we identify for current, often unsustainable, ocean use by sectors such as tourism, fisheries, energy, water and transport?
How can coastal regions provide for long term sustainable development, decarbonise marine transport and infrastructure and scale marine renewable energy?
Can sector-coupling and technological innovation help accelerate required transitions?
The session will discuss potential innovation strategies for a sustainable blue-green economy.

Presenter: LENNERT, Florian (RIFS)

Session Classification: Evening lecture

Contribution ID: **59** Type: **not specified**

Breakout 5: Harnessing AI for Climate Science

Friday 13 September 2024 09:30 (1h 45m)

Recent years have seen significant advancements in climate science through the use of AI, including machine learning models that outperform traditional weather forecasting methods, automated analysis of vast amounts of satellite data, and the exploration of data-driven insights into climate processes. In this breakout group, we will discuss the current applications of AI in climate science within Topic 2, explore new directions, and foster interdisciplinary collaborations.

Presenters: KOLDUNOV, Nikolay (AWI); HUTTER, Nils (GEOMAR)

Session Classification: Discussion: Scientific breakout sessions

Contribution ID: **60** Type: **not specified**

Breakout Session 6: Picturing our Future in a 2.5 degree world

Friday 13 September 2024 09:30 (1h 45m)

While we are all familiar with physical maps projecting temperature changes by 2100, imagining the possible implications of these changes is challenging. Do they signal a significant risk for civilization, or a future where challenges that already exist, like heatwaves, become more intense or frequent but yet manageable through adaptation?
Climate science struggles not only with estimating probabilities but also with effectively communicating them, especially when it comes to low-probability, high-impact events or slow-moving yet inevitable processes. Equally important is moving beyond the current one-way communication. What kind of information is actually needed for society to understand and relate to the problem? What kind of information is needed for decision-makers to take action, why is taking action and decision making in itself a complex field? How can there be better "integration" and effectiveness of climate science for society?
"Picturing Our Future"seeks to establish a scientific approach that goes beyond one-way communication and includes diverse stakeholders, forming evidence-based images and communication strategies to support decision making in the climate crisis.

Presenters: HÖRHOLD, Maria (AWI); LAEPPLE, Thom (AWI); NEUMANN, Barbara (RIFS)

Session Classification: Discussion: Scientific breakout sessions