

**“AI for Earth System Science - Ocean & Cryosphere in Climate”
Workshop
23.03.2022, 9:00 - 13:00, Digital Format**

9:00 - 9:10 Welcome (Willi Rath)

09:10 - 11:00 Presentations methodical focal research topics & enablement
(each presentation 3-4 slides and 9 minutes max including Q/A and switch to next talk)

Classification (Chair: Stephan Frickenhaus)

- (9:10) *Yannick Wölker: Clustering high-resolution hydrographic data.* (GEOMAR)
- (9:19) *Willi Rath: Classifying Lagrangian trajectories — How to measure similarity in a cost-efficient way?* (GEOMAR)
- (9:28) *Hameed Moqadam, Olaf Eisen: Tracing Extended Internal Stratigraphy in Ice Sheets with Machine Learning Approaches - EISMAL* (AWI)
- (9:37) *Ingmar Nitze, Konrad Heidler, Sophia Barth, Guido Grosse: Deep Learning for mapping permafrost disturbances* (AWI)
- (9:46) *Mohamed Chouai: Automated flagging of a suspected temperature gradient error using supervised CNN architecture* (AWI)

Explainable AI (Chair: Willi Rath)

- (9:56) *Chris Irrgang, Jan Saynisch, Mike Sips, Daniel Eggert: “Explainability Explorer”* (GFZ)
- (10:05) *Marco Landt-Hayen: Predicting climate time series with echo state networks* (GEOMAR)

Parameterization (Chair: Willi Rath)

- (10:14) *Sweetie Mohanty: Towards modelling air-sea gas exchange in a data driven way* (GEOMAR)
- (10:23) *Helge Mohn: SWIFT-AI: Implicit Neural Representations for Stratospheric Ozone Chemistry* (AWI)
- (10:32) *Angelika Humbert, Julia Christmann, Veit Helm: AI and inverse modelling in glaciological applications* (AWI)

AI Enablement (Chair: Doris Dransch)

- (10:40) *Willi Rath: MarDATA lectures, Hacky Hour, Training, Digital Monday* (GEOMAR)
- (10:47) *Chris Irrgang: AI / ML-Interest Group @ GFZ* (GFZ)
- (10:54) *Stephan Frickenhaus, Stefan Pinkernell, Tilman Dinter: Infrastructure, User Support, Data Science Symposium* (AWI)

11:15 - 12:00 Breakout Sessions I

- A (to be defined from responses to talks)
- B

12:05 - 12:45 Breakout Sessions II

- C (to be defined from responses to talks and/or Breakouts A + B)
- D

12:45 - 13:00: Wrap Up from A - D

Participants

GFZ:

Chris Irrgang
Jan Saynisch
Mike Sips
Daniel Eggert
Doris Dransch

GEOMAR:

Yannick Wölker
Marco Landt-Hayen
Sweety Mohanty
Willi Rath

AWI:

Olaf Eisen, Hameed Moquadam
Ingmar Nitze, Guido Grosse
Helge Mohn, Daniel Kreyling
Stephan Frickenhaus, Stefan Pinkernell, Tilman Dinter
Sebastian Mieruch-Schnülle, Felix Reimers, Mohamed Chouai
Angelika Humbert, Veit Hel, Julia Christmann

overall 22 online participants