

Latest Highlights

New Publications and Preprints

"It is only through evaluation that value exists: and without evaluation the nut of existence would be hollow"

- Friedrich Nietzsche,
German philosopher
(1844-1900)

- J.* Woollam, J.* Münchmeyer, F. Tilmann, A. Rietbrock, D. Lange, T. Bornstein, T. Diehl, C. Giunchi, F. Haslinger, D. Jozinović, A. Michelini, J. Saul, and H. Soto (2022). **SeisBench - A Toolbox for Machine Learning in Seismology.** *Seismological Research Letters*, 93(3), 1695–1709. doi: <https://doi.org/10.1785/0220210324> *Equal contribution
- J. Münchmeyer, U. Lesera and F. Tilmann (2022). A probabilistic view on rupture predictability: All earthquakes evolve similarly. *Geophysical Research Letters*. <https://doi.org/10.1029/2022GL098344>
- H. Lilienkamp, S. von Specht, G. Weatherill, G. Caire, and F. Cotton (2022). **Ground-Motion Modeling as an Image Processing Task: Introducing a Neural Network Based, Fully Data-Driven, and Nonergodic Approach.** *Bull. Seismol. Soc. Am.* 112, 1565–1582. doi: <https://doi.org/10.1785/0120220008>
- P. Tillmann, K. Jäger, A. Karsenti, L. Kreinin, C. Becker (2022). **Model-Chain Validation for Estimating the Energy Yield of Bifacial Perovskite/Silicon Tandem Solar Cells.** *Sol. RRL*, 202200079. <https://doi.org/10.1002/solr.202200079>
- O. Kondrateva, B. Scheuermann and S. Dietzel (2022). **Scalable Flow Optimization for Small Satellite Networks using Benders Decomposition.** In *Proceedings of the IEEE WoWMoM 2022*.
- R. Shahan, CW. Hsu, T.M. Nolan, B.J. Cole, I.W. Taylor, A.H.C. Vlot, P.N. Benfey, and U. Ohler (2022). **A single cell *Arabidopsis* root atlas reveals developmental trajectories in wild type and cell identity mutants.** *Developmental Cell* 57(4), pp. 543-560.e9. <https://doi.org/10.1016/j.devcel.2022.01.008>
- A.H.C. Vlot, S. Maghsudi, and U. Ohler (2022). **Cluster-independent marker feature identification from single-cell omics data using SEMITONES.** *Nucleic Acids Research*, gkac639. <https://doi.org/10.1093/nar/gkac639>
- J.A. Fries, N. Seelam, G. Altay, L. Weber, M. Kang, D. Datta, R. Su, S. Garda, B. Wang, S. Ott, M. Samwald, W. Kusa (2022). **Dataset Debt in Biomedical Language Modeling.** In *Proceedings of the Workshop on Challenges & Perspectives in Creating Large Language Models*.
- X. Wang, U. Leser and L. Weber (2022). **BEEDS: Large-Scale Biomedical Event Extraction using Distant Supervision and Question Answering.** In *Proceedings of BioNLP 2022*.
- N. Miranda, J-C. Freytag, J. Nordin, R. Biswas, V. Brinnel, C. Fremling, ... and J. van Santen (2022). **SNGuess: A method for the selection of young extragalactic transients.** *Astronomy & Astrophysics*, Forthcoming article. DOI: <https://doi.org/10.1051/0004-6361/202243668>

- L. Weber, M. Sänger, S. Garda, F. Barth, C. Alt and U. Leser (2022). **Chemical-Protein Relation Extraction with Ensembles of Carefully Tuned Pretrained Language Models. Database**. (accepted)
- N. Veigel, H. Kreibich, and A. Cominola (2022). **A Gradient Boosting Approach to Identify Behavioral and Policy Determinants of Flood Resilience in the Continental US**. In *Proceedings of the 2nd IFAC Workshop on Control Methods for Water Resource Systems (CMWRS22)*.
- L. Nazaretyan, M. Kircher and M. Schubach. **The Regulatory Mendelian Mutation score for GRCh38**. bioRxiv 2022.03.14.484240. <https://doi.org/10.1101/2022.03.14.484240> [Preprint]
- B. Groenke, M. Langer, J. Nitzbon, S. Westermann, G. Gallego, and J. Boike (2022). **Investigating the thermal state of permafrost with Bayesian inverse modeling of heat transfer**. *EGUsphere*. <https://doi.org/10.5194/egusphere-2022-630> [Preprint]
- F. van Geffen, B. Heim, F. Brieger, R. Geng, I. Shevtsova, L. Schulte, S. Stuenzl, N. Bernhardt, E. Troeva, L. Pstryakova, E. Zakharov, B. Pflug, U. Herzschuh, and S. Kruse. **SiDroForest: A comprehensive forest inventory of Siberian boreal forest investigations including drone-based point clouds, individually labelled trees, synthetically generated tree crowns and Sentinel-2 labelled image patches**. <https://essd.copernicus.org/preprints/essd-2021-281/> [Preprint]
- J.A. Fries, L. Weber, N. Seelam, G. Altay, et al. (2022). **BigBIO: A Framework for Data-Centric Biomedical Natural Language Processing**. <https://arxiv.org/abs/2206.15076> [Preprint]
- H. Laurençon, L. Saulnier, T. Wang, C. Akik, A. V. del Moral, T. Le Scao, ..., L. Weber, ... et al. (2022). **The BigScience Corpus A 1.6 TB Composite Multilingual Dataset**. <https://openreview.net/forum?id=UoEw6KigkUn> [Preprint]

Recent Presentations at Conferences

- H. Stolte, J. Sinapius, I. Sadeh, E. Pueschel, D. Berge, M. Weidlich. **Detecting VHE blazar flares with deep learning**. (Oral presentation), *International Conference on Machine Learning for Astrophysics - ML4Astro*, Catania, Italy, 30 May - 2 June 2022.
- P. Tillmann, K. Jäger, A. Karsenti, L. Kreinin, C. Becker. **Validation of Energy Yield Model for Bifacial Solar Cells and Prediction of Perovskite/silicon Tandem Solar Cell Performance**. (Poster presentation), *TandemPV*, Freiburg, 30 May - 1 June 2022.
- J. Münchmeyer, J. Woollam, F. Tilmann, A. Rietbrock, D. Lange, T. Bornstein, T. Diehl, C. Giunchi, F. Haslinger, D. Jozinović, A. Michelini, J. Saul, and H. Soto. (2022). **SeisBench: A toolbox for machine learning in seismology**. *Helmholtz AI Conference*, Dresden, Germany, 2-3 June 2022.
- B. Ghosh, S. Garg, M. Motagh. **Automatic flood detection from Sentinel-1 data using Deep learning architectures**. (Oral presentation), *ISPRS Congress*, Nice, France, 6-11 June 2022.
- T. Rettelbach, M. Langer, I. Nitze, B. Jones, V. Helm, J-C. Freytag, and G. Grosse. **From images to hydrologic networks - Understanding the Arctic landscape with graphs**. (Oral presentation), *34th International Conference on Scientific and Statistical Database Management, Copenhagen, Denmark*, 6-8 July 2022.
- T. Kirschbaum, B. von Seggern, J. Dzubiella, A. Bande and F. Noé. **Machine Learning Frontier Orbital Energies of Nanodiamonds**. (Poster presentation), *58th Symposium of Theoretical Chemistry*, Heidelberg, 18-22 September 2022.

Announcements

HEIBRiDS PhD defense



Jannes Münchmeyer successfully defended his PhD thesis on August 16 at HU Berlin. He is now on his way to Grenoble, France, where he will be employed as postdoctoral researcher at [ISTerre](#).

We wish him all the best in his next career steps!

New HEIBRiDS faces

- Since August 2022, **Sandra Pravica** is supporting HEIBRiDS as coordinator from the ECDF side. You can contact Sandra [here](#).
- **Ekin Celikkan** joined HEIBRiDS as a PhD student on September 1. She will be working on the project “Bayesian Machine Learning with Uncertainty Quantification for Detecting Weeds in Crop Lands from Low Attitude Remote Sensing” supervised by [Martin Herold](#) (GFZ) and [Nadja Klein](#) (HU).

Old HEIBRiDS faces in new roles

- As of August 2022, [Guillermo Gallego](#) has replaced Christoph Freytag as the HEIBRiDS spokesperson from the ECDF side. Guillermo has been HEIBRiDS PI since 2020 and already actively involved in many HEIBRiDS events (PhD recruitment, retreat, etc.).
- HEIBRiDS PhD student **Oleksii Martynchuk** has replaced Gregor Pfalz in his role as PhD representative. **Elizabeth Robertson** will continue in this role for one more period.

HEIBRiDS midterm evaluation

On September 1 we submitted the HEIBRiDS mid-term evaluation report to HIDA and the external review panel. A big thanks to all of you for your contributions! Now we are in full speed with the planning of the on-site evaluation, which will be taking place on **October 12-14, 2022**. You are all invited to come to the reception that will close the event **on October 14, starting at 17:00**. If you have not done so already, please indicate in the poll below whether you are planning to come: <https://terminplaner4.dfn.de/2iJgwcMxCL8MMEqb>

HEIBRiDS PhD Seminar and Lecture Series

The HEIBRiDS PhD Seminar and Lecture Series are back after the summer break. The dates for the winter semester 2022/23 can be found [here](#) and [here](#). The PhD Seminar will be taking place onsite (either in ECDF or in BIMSB), unless COVID-19 restrictions are put again in effect.

The Lecture Series will be taking place in hybrid format, with the invited speaker being either onsite (ECDF/BIMSB) or in Zoom.

Training offers from our partners

- Training offers from the **Humboldt Graduate School** and the **Dahlem Research School** can be found [here](#) and [here](#). For registration, please follow the registration link for each individual workshop.
- Training offers from **HIDA**, our sister-schools **HIDSS** and **HIFIS** can be found [here](#), [here](#) and [here](#).
- The Lecture Series of our partner [FONDA](#) is taking place every **Tuesday from 14:00 to 15:00**. You can find the schedule [here](#).

Postdoctoral position

HEIBRiDS PI Annika Bande is looking for a postdoctoral researcher to work on the project: “Artificial Intelligence for X-ray Absorption Spectroscopy”, which is a cooperation between HEREON (Geesthacht), TUHH (Hamburg) and HZB (Berlin). Apply by **October 16, 2022** via the [HZB job page](#) or contact [Annika Bande](#) for more information.