

TRR 181 NEWSLETTER

August, 2026



Energy Inflow

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Dear project members of the TRR 181,

As the summer slowly comes to an end, many of us are returning from vacation, recharged and ready to dive back into our shared research. With the conference and seminar season picking up again, it's a great time to reconnect, share what we've learned over the summer, and look ahead to the exciting work planned for the coming months. Let's bring fresh ideas, renewed motivation, and plenty of inspiration for the next steps together.

Wishing you a smooth transition into a productive autumn!

Alicja J. Kucewicz
(Student assistant)



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NEWS You Shouldn't Miss



Spring School 2026: PhD Researchers Connect in Lauenburg



This year, 25 PhD students traveled to Lauenburg an der Elbe before Easter to share their research progress through poster and oral presentations, with keynote talks by Roland Welter and Han Wang. A workshop led by Karin Bodewits from Natural Sciences Careers strengthened their self-presentation and networking skills, and there was plenty of fun together despite the weather. Read more [here](#).

New Mural Brings TRR 181 Research into the Public Space



A new mural at Bundesstraße 32 in Hamburg brings TRR 181 climate research into public view. Measuring about 10 x 18 meters, it illustrates ocean-atmosphere energy flows and was created in collaboration with the Berlin artist collective Innerfields as part of TRR 181's "Art & Science" initiative. See more [here](#).

TRR 181 Welcomes New Professor



Friederike Pollmann started as professor at Universität Hamburg on 1 July 2026 in cooperation with the Alfred Wegener Institute (AWI). She has been closely connected to UHH for more than ten years, worked with TRR 181 since 2018, and has served as project leader since 2020. An oceanographer specializing in internal gravity waves and wave-driven mixing, she focuses particularly on the warming Arctic and its impact on sea ice and climate dynamics. View the full [article](#).

Changes in Project Leadership

Veronika Eyring has been appointed Professor for "AI for Climate and Physical Systems" at the University of Tübingen, effective September 1, 2026 and will also serve as a Founding Director of connAlx. [Details](#)

Nedjeljka Žagar has been appointed Professor of Meteorology at SMHI in Sweden, effective September 1, 2026. [Details](#)

We suggest to DFG that Sergiy Vasylykevych and Katja Weigel take over their roles as PIs in subprojects L2 and S1 respectively.

Congratulations to all and best wishes for a great start!



First TRR 181 Graduation Day & Summer Party

TRR celebrated its first Graduation Day on 26 June, honouring eight PhD graduates with certificates, talks, performances and a relaxed get-together. We warmly congratulate our graduates!



Recent defences:

- 09/04: Pablo Sebastia Saez *"Energy Pathways of the Internal Gravity Wave Field in the Ocean driven by Wave-Mean Flow and Wave-Wave Interactions"*
- 27/04: Marc Tiofack Kenfack: *"Towards an Optimal Separation of Dynamical Regimes of Geophysical Flows"*
- 19/06: Valentino Neduhai: *"Vertical Momentum Fluxes associated with the Rossby, mixed Rossby-gravity, inertia-gravity, and Kelvin waves on the sphere"*
- 30/06: Ole Pinner: *"Turbulence and its Drivers in the Weddell Sea Bottom Water gravity current"*
- 02/07: Jan Niklas Dettmer: *"Spectral and Vertical Decomposition of Oceanic Eddy Energy Pathways"*
- 17/07: Vijaya Esther Veeravalli: *"Air-flow and Aerosol Dynamics of Breathing and Coughing"*

Dissertations are available on our internal website.

Reports - Travel and Conferences

CMIP 2026 Workshop in Kyoto



In March 2026, Bettina Gier attended the CMIP 2026 Community Workshop in Kyoto, presented work as an ESMValTool developer (Rapid Evaluation Frame-work), and met colleagues from multiple communities while also engaging in ECR initiatives. Read the whole report [here](#).

Research Cruise on the Elisabeth Mann Borgese

In April 2026, Grete Boskamp embarked on a research cruise to the Skagerrak aboard the Elisabeth Mann Borgese. Here, she [shares](#) her experiences of her research and life on board the ship.





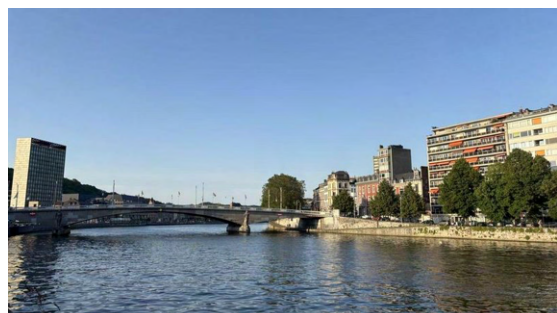
EGU General Assembly 2026 in Vienna



At the beginning of May 2026, Hao Liang travelled to Vienna to participate in the EGU General Assembly. Coming from a mathematical background and working on spectral recovery from sparse observations, he found it exciting to experience such a large and interdisciplinary conference environment. Learn more: [here](#).

Liège Colloquium on Submesoscale Ocean Processes

At the end of May Jabeen Safeer attended the 57th Liège Colloquium on Ocean Dynamics at the University of Liège, focusing on sub-mesoscale processes, including remote sensing and modelling, and sharing discussions around her own poster. Get the full details [here](#).



HYEL 2026 Conference in Trondheim, Norway

Mansi Singh attended HYEL 2026 in Trondheim, Norway, from 16 to 18 June 2026. She gave an oral presentation on energy dissipation in capillary gravity wave scattering by porous and poro-elastic plates. The conference programme spanned hydroelasticity, marine technology and wave energy. Read more about Mansi's experience on our [webpage](#).



Paris Geophysical Fluid Dynamics Workshop



End of June Philomène Dufour attended the third workshop of Mathematical Developments in Geophysical Fluid Dynamics at the Institut Henri Poincaré in Paris. The workshop focused on idealised mathematical models for geophysical flows and presenting a poster on deriving the α modified Craik Leibovich equations using geometric GLM theory. Get the full details [here](#).

Researcher Spotlight

Bharat Krishnan



Role: PhD student

Institution: Leibniz Institute of Atmospheric Physics; Kühlungsborn

Subproject: W6

Description: Bharath studies how wave modes, turbulence, and background winds transfer energy across atmospheric scales. In the interview he details his diagnostics using regional high resolution data to identify where energy transfers occur and how this can improve climate model parameterizations.

Read the full interview [here](#).

@Tom Fisk, Pexels

Prof. Dr. Nils Brüggemann



Role: Professor

Institution: Leibniz Centre for Tropical Marine Research, Bremen

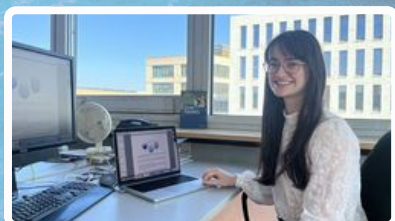
Subproject: T2, L4, S2

Description: Nils investigates ocean turbulence and its role in ocean heat and carbon storage. In the interview he explains how he improves climate models with oceanography, atmospheric physics, and biogeochemistry to reduce uncertainties and support adaptation for tropical and coastal regions.

Read the full interview [here](#).

@Robert Clark, Pexels

Philomène Dufour



Role: PhD student

Institution: University of Hamburg

Subproject: T2

Description: Philomène explores how ocean surface waves influence energy budgets using Generalized Lagrangian Mean theory. In the interview she discusses applying this framework to surface waves and incorporating turbulence through parameterization to improve physical consistency in climate models.

Read the full interview [here](#).

@Francesco Ungaro, Pexels

Dr. Roland Welter



Role: Postdoctoral researcher

Institution: University of Hamburg

Subproject: M2 and T5

Description: Roland studies the mathematical foundations of climate modelling, focusing on how approximations and parameterisations influence the reliability of predictions. In the interview he explains how he also develops rigorous ways to analyze AI and neural networks instead of treating them as black boxes.

Read the full interview [here](#).

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Erfan Mahmoudi



Role: PhD student

Institution: Goethe University Frankfurt am Main

Subproject: W1

Description: Erfan develops improved representations of atmospheric gravity waves in climate models, combining machine learning with fluid dynamical insight. In the interview he explains how he builds parameterisations for gravity wave sources.

Read the full interview [here](#).

@Landiva Weber, Pexels

Simon Schäfers



Role: PhD student

Institution: GEOMAR Helmholtz Centre for Ocean Research in Kiel

Subproject: L4

Description: Simon works on ocean atmosphere coupling in climate models, diagnosing how well models capture key exchange processes across scales. In the interview he talks about uncertainty, non linear interactions, and how this shapes climate predictability.

Read the full interview [here](#).

@Nihar Manyalli, Pexels

Genevieve Beauregard



Role: PhD student

Institution: University of Hamburg

Subproject: L5

Description: Genevieve investigates how large scale ocean circulation in climate models depends on ocean mixing and overturning. She develops diagnostic methods to determine whether these processes in the models behave as they should, helping improve model consistency and trustworthiness for climate policy and future scenario planning.

Read the full interview [here](#).

@Gül İşik, Pexels

Prof. Dr. Stephan Juricke



Role: Project Leader

Institution: GEOMAR Helmholtz Centre for Ocean Research and Kiel University

Subproject: M3 and L4

Description: Stephan works on theoretical ocean modelling and multiscale ocean atmosphere coupling to improve regional climate predictions. In the interview he discusses climate risk uncertainties and how his work helps simulate and communicate extreme events and climate tipping elements.

Read the full interview [here](#).

@Muffin Creatives, Pexels

Dr. Henning Franke



Role: Postdoctoral researcher

Institution: Max Planck Institute for Meteorology, Hamburg

Subject: L4

Description: Henning studies what drives tropical deep convection and precipitation, and how this uncertainty limits climate model projections. He uses a bottom up, process oriented approach rooted in classical meteorology and works with high resolution climate models to understand the key atmosphere sea coupling processes. *Read the full interview [here](#).*

@Orhan Namli, Pexels

The series features short interviews and photos to highlight the diverse roles and contributions of our project members.

We would like to interview all project members to share insights into their work and contributions within our interdisciplinary research.

We welcome anyone who would like to participate in the Research Spotlight Series.

Please contact Alicja!

Publications



Knop, I., Dolaptchiev, S. & Achatz, U. (2026): Impact of small-scale gravity waves on tracer transport. Quarterly Journal of the Royal Meteorological Society, 152 (776), e70091. <https://doi.org/10.1002/qj.70091>



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