



# PIK Alumni Newsletter 06/2024

Photo: L. Lindenthal



## Dear PIK Alumni,

Welcome to the summer newsletter with a brief look at some of the scientific and policy highlights of the first half of the year.

Right at the beginning of the year, a PIK study published in *Nature* showed that even if greenhouse gas emissions were drastically reduced from today, the global economy would still have to reckon with a climate change induced 19% loss of income by 2050 compared to a baseline without climate impacts. [The paper by Maximilian Kotz et al.](#) highlighted the considerable inequality of climate impacts: although impacts occur almost everywhere, tropical countries (because already warmer) are the most affected.

In January, the European Commission's Scientific Advisory Board on Climate Change (ESABCC), chaired by Ottmar Edenhofer, presented its report 'Towards EU climate neutrality: progress, policy gaps and opportunities' to policymakers in Brussels. Based on a comprehensive assessment of 80 indicators, the report examines the extent to which current EU policy is suitable for reducing greenhouse gas emissions to achieve net-zero emissions by 2050 at the latest. The ESABCC concludes with key recommendations for action to improve the coherence between EU policy and European climate targets.

Early in 2024, protests in Germany and the EU by farmers coincided with the publication of the main report and a series of policy briefs by the Food System Economics Commission (FSEC), which is led by PIK together with the Food and Land Use Coalition. Its Global Policy Report shows that [comprehensively transforming agricultural and food systems](#) around the world would lead to socio-economic benefits of 5 to 10 trillion US dollars per year. The report, an ambitious and comprehensive study of food system economics, underlines that food systems are currently destroying more value than they create and that an overhaul of food system policies is urgently needed. The cost of achieving a transformation would be much lower than the

potential benefits, and would offer a better life to hundreds of millions of people.

A further *Nature* study (Flores et al., 2024) by a [large international team including a number of PIK scientists](#) examined critical transitions in the Amazon forest system and the possibility of its approaching a tipping point. The region is increasingly exposed to unprecedented stress from warming temperatures, extreme droughts, deforestation and fires, reducing the resilience of long existing feedbacks between the forest and environmental conditions. Up to the middle of the century, 10 to 47 percent of the Amazon forests may be affected and there is a risk that a tipping point will be passed. The researchers also identified critical thresholds for climate and land use change that should not be exceeded in order to maintain the Amazon's resilience.

A couple of updates on important developments at PIK: our new high-performance computer (HPC) has been installed (by Lenovo) and is coming into operation this summer. It will be more efficient, faster, and more sustainable than the previous HPC system, allowing faster simulations and better processing of large data streams. The old HPC already provided for the complete heating of PIK's 'Trefoil' building. The new system will enable more flexible use of waste heat and brings the possibility of using it to heat other buildings on the campus.

Last time we reported on the additional funding secured by PIK as part of its *Sondertatbestand* (STB) – the first time in PIK's 30-plus-year history that it received an increase in its core annual funding! Recently, the Board of Trustees approved the Directors' plans for the strategic expansion of the institute as of 2025. The STB comprises the integration of the Mercator Research Institute on Global Commons and Climate Change (MCC), the establishment of a PIK Policy Unit attached to the Board of Directors, and the development of additional capacities in three research topics (Earth Resilience, Machine Learning, and Social Transition and Well-

being). An overarching framework for pressing cross-cutting topics will be created in new Labs.

The integration of MCC as a fifth research department from 2025 onwards will enable PIK to strengthen and expand its interdisciplinary research. With enhanced capacities in the

social sciences, the institute will be able to provide evidence-based knowledge as orientation for politics and society and develop actionable options. This research field provides high-level economic and social science analyses with a structured approach at the interface of science and policy.

---

## Publication Highlights

In case you missed them, here are a few more publication highlights of recent months.

### Is the Atlantic Overturning Circulation Approaching a Tipping Point?

In April, Stefan Rahmstorf, head of research department Earth System Analysis and expert on the Atlantic Meridional Overturning Circulation (AMOC), outlined the current state of research on the AMOC in a [comprehensive overview in the journal \*Oceanography\*](#). Studies show that it has already weakened as a result of anthropogenic climate change and could possibly be moving towards a tipping point. [Read more ...](#)

### Hurricanes and power grids: Eliminating large-scale outages with a new approach

In a [study in \*Nature Energy\*](#), a group of researchers in Research Departments 3 and 4 found that large-scale power outages caused by tropical cyclones can be prevented almost entirely if a small but critical set of power lines is protected against storm damages. The scientists coupled a model of the evolution of the wind-fields of tropical cyclones with a dynamic model of the Texas power grid in an innovative spatio-temporal approach, enabling them to describe the evolution of storm-induced cascading power failures. They were able to identify the critical lines whose failure can trigger large blackouts which can affect whole regions or cities. Storm-proofing as little as 1 per cent of the power lines in an electricity grid could significantly reduce the risk of outages in major population centres. The paper by Frank

Hellmann and colleagues was also the [subject of an article in the \*New Scientist\*](#).

### Food matters: Healthy diets increase the economic and physical feasibility of 1.5°C

A transition to healthy diets could considerably reduce greenhouse gas emissions. In a recent study in *Science Advances*, a big team of PIK authors around lead authors Florian Humpeöder and Alexander Popp used the integrated assessment modelling framework REMIND-MAgPIE to compare 1.5°C pathways with and without dietary shifts. They showed that a global dietary shift towards a healthier, more sustainable diet could be a key lever to limit global warming to 1.5 degrees Celsius. The results suggest that globally coordinated efforts for an agricultural and nutritional transition can make a significant difference. [Read more ...](#)

### Emerging mosquito-borne disease in Europe: The West Nile virus

A [recent attributional study in \*Nature Communications\*](#) with Matthias Mengel and Katja Frieler used ecological niche models to investigate the contribution of climate change on the spread of West Nile virus in Europe. In a climate change scenario the resulting ecologically suitable area increased significantly when compared to a counterfactual situation without climate change, where there was no notable increase. While the risk of exposure is partly due to the drastic increase in human population, the team was able to show that climate change has also been a critical driver behind the heightened risk of West Nile virus circulation in Europe.

---

## International projects

### Strengthening climate resilience of the water-energy-food-ecosystem nexus in Central Asia – workshop in Ashgabat.

The [Green Vision Central Asia team at PIK](#) recently hosted their final [workshop in Turkmenistan](#), marking a significant milestone in their collaborative efforts with stakeholders, such as the United Nations Development Programme (UNDP). PIK experts Qaisar Saddique, Bijan Fallah, Lulii Didovets, and Stefanie Wesch presented their findings to Turkmen civil servants from various sectors, including the

Ministry of Education and the Turkmen Foreign Ministry. This workshop employed interactive formats that facilitated a two-way exchange of knowledge, enriching both the participants and the organizing institutions, UNDP and PIK, through a dynamic process of mutual learning.

The Green Vision Central Asia Project at PIK is a key component of the broader [Green Central Asia](#) initiative, which has featured a plethora of capacity enhancement activities. Launched by the German Federal Foreign Office in 2020 and now fully embraced by the German government, this initiative aims to enhance transboundary dialogue on





climate, environment and security among Central Asian states by addressing the shared challenges posed by climate change.



Text / photo: Stefanie Wesch

In April, the **research project KARO** - Climate-resilient cultivation methods for risk optimisation with special

consideration of the objectives of the arable farming strategy and its regional requirements was launched, funded by the Federal Ministry of Food and Agriculture. The main objective of KARO is the region-specific further development of existing production systems in crop cultivation in their regional context in order to make them more resilient to climate change phenomena. [Read more ...](#)

In February, PIK scientists travelled to Rwanda to kick off the new project "**High Resolution Climate and Agricultural Projections for Rwanda (HiCIAP)**". The project is implemented on behalf of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Rwanda in collaboration with the Rwanda Meteorological Agency (MeteoRwanda). As part of the larger GIZ Rwanda NDC-Capacity Development project, this project aims to strengthen and support research cooperation in climate change science in order to provide evidence-based policy advice in Rwanda. [Read more ...](#)

## Other news



### 10 Must Knows from Biodiversity Science 2024

In March, 64 authors - among them PIK's Kirsten Thonicke, Eva Rahner, Mats Nieberg and Christopher Reyer - published the "10 Must Knows from Biodiversity Science 2024". In the policy report they have further developed their well-founded and diverse findings and recommendations from the "10MustKnows22". The content of the ten selected key areas of the Earth-human system is supplemented by relevant publications from 2022 and 2023 and linked to the 23 global goals of the Kunming-Montreal Global Biodiversity Framework (GBF) adopted in December 2022. The authors show that the next six years until 2030 are essential for achieving an ecologically sustainable and socially just life on

our planet in the medium and long term. With the "10MustKnows24", they want to actively contribute to accelerating the socio-ecological transformation by providing scientifically sound recommendations for politics and society. [Read more...](#)

### PhD Days at PIK

Doctoral researchers from both PIK and the Mercator Research Institute on Global Commons and Climate Change (MCC) came together in May to spend a full day with informative workshops concerning working in academia and getting involved whilst working at PIK as well as smaller creative or active activities.



Photo: Anja Kliese de Souza

## Congratulations to ...

**PIK Director Johan Rockström** was honoured with the Tyler Prize for Environmental Achievement at a ceremony in Potsdam in May. Rockström received the world's most prestigious environmental prize for his [pioneering work on](#)

[Planetary Boundaries science](#) and its importance and reach across the world.

First published in 2009, the Planetary Boundaries framework (developed by Rockström and his co-authors) determines the limits in which humanity can safely operate within the



natural world, integrating the nine systems that determine the functioning and the state of the planet. They provide life-support to humans, and include systems we all rely upon, such as clean water, a stable climate, and vibrant biodiversity. This framework has helped shape public response to climate change and sustainable development, including the United Nations' Sustainable Development Goals.



Photo: Jadranko Marjanovic

Established in 1973, the [Tyler Prize](#) for Environmental Achievement recognizes global leaders in environment and sustainability.

Additionally, a recent analysis in the scientific journal *Nature* listed three papers authored or co-authored by Rockström among those articles that have gained the [most attention from policymakers](#).

**Stefan Rahmstorf**, Head of PIK's Earth System Analysis Department, was awarded the prestigious Alfred Wegener Medal and Honorary Membership of the European Geosciences Union at this year's EGU General Assembly in Vienna in April.

The Alfred Wegener Medal & honorary membership is bestowed on scientists who have achieved exceptional international standing in atmospheric, hydrological or ocean sciences, defined in their widest senses, for their merit and their scientific achievements. [Read more ...](#)

**Leonie Wenz** was awarded the prestigious Piers Seller Prize for her world leading contribution to climate solutions, especially for her excellent research on the economic impacts of climate change.



Photo: Leonie Wenz

Young scientists at PIK have also been chosen for honours:

- Doctoral researcher Anja Katzenberger from RD4 won the Outstanding Student and PhD candidate Presentation (OSPP) award for her contribution at the EGU General Assembly.
- Annika Stechemesser completed her doctorate in research department Complexity Science in 2023. She will receive the Michelson Prize for the best PhD at the Faculty of Mathematics and Natural Sciences at the University of Potsdam at the end of June.



## PIK's Alumni programme

Please keep us up to date: Send an update to [alumni@pik-potsdam.de](mailto:alumni@pik-potsdam.de) if you have changed your job or want to update your details in our Alumni database. We'd also welcome news about *your recent publications, personal achievements, or research activities*. Best wishes to all! **Alison Schlums**, Alumni Officer.

### KEEPING IN TOUCH

Find PIK on Facebook: <https://de-de.facebook.com/PIKPotsdam/>

Follow us on X (Twitter): [https://x.com/PIK\\_climate](https://x.com/PIK_climate) and [https://x.com/PIK\\_Klima](https://x.com/PIK_Klima)

See PIK research on Youtube: <https://www.youtube.com/user/PotsdamInstitute>

Follow PIK on LinkedIn: <https://www.linkedin.com/company/pik-potsdam-institute-for-climate-impact-research/mycompany/>

### IMPRESSUM

Potsdam Institute for Climate Impact Research (PIK) e. V.

Telegraphenberg A 31 14473 Potsdam Germany

<https://www.pik-potsdam.de/en/impressum>

### DATA PROTECTION STATEMENT

We use your data to keep in touch with you as Alumni, to provide you with occasional news about the Potsdam Institute and its activities, and to send targeted information about scientific and other events. PIK's full [privacy policy](#) can be found on the PIK website (Section 7.2. relates to Alumni). If you have any concerns or queries about the use of your personal data, please contact us.

### KEEP US UPDATED

If you have moved to a new job or your contact details have changed, please let us know by sending an email to [alumni@pik-potsdam.de](mailto:alumni@pik-potsdam.de).

### NEWSLETTER

Alumni Officer: Alison Schlums Tel.: +49 (0)331 288-2504

Email: [alumni@pik-potsdam.de](mailto:alumni@pik-potsdam.de)

PIK Alumni website: <https://www.pik-potsdam.de/en/people/alumni>

### UNSUBSCRIBE

You can unsubscribe from the PIK Alumni newsletter by sending an email with the subject "Unsubscribe PIK Alumni newsletter" to [alumni@pik-potsdam.de](mailto:alumni@pik-potsdam.de).

