Dear PIK Alumni,

"We made it". As the result of PIK's successful application for increased funding (*Sondertatsbestand*) we started 2025 with a bang. As of January 2025, the former MCC is part of PIK, the culmination of months of preparation by PIK's administration, IT staff and others, to ensure a smooth transition. The new research department's expertise expands the whole scope of PIK's research on managing the global commons within planetary boundaries. This development was accompanied by further structural changes, including the formation of five new Labs focusing on cross-cutting themes and the set-up of a Policy Unit. At the annual Research Days in February, colleagues old and new got together on Telegrafenberg and gain an insight into each others' work.

In the first half of 2025, PIK's expertise has again been sought by politicians and has flowed into high-level scientific reports. For instance, in March the institute was visited by political delegations from Chile, Japan and Baden-Württemberg. Director Johan Rockström gave a series of inputs at the World Economic Forum annual meeting in January, and keynote lectures at (among others) the Petersberg Climate Dialogue of the Federal Foreign Office (attended by international climate ministers) and the SOS Ocean Summit in Paris in March. In his capacity as Chair of the European Scientific Advisory Board on Climate Change, Director Ottmar Edenhofer presented a report on 'Scaling up carbon dioxide removals' to Ursula von der Leyen, President of the EU Parliament, and Wopke Hoekstra, Commissioner for Climate, Net Zero and Clean Growth (for a link to his presentation see here). A new report from Gunnar Luderer and colleagues from the Kopernikus Ariadne project explored cost-efficient pathways to achieve climate neutrality in Germany by 2045. The report shows that while the energy transformation in Germany has already made much progress, more rapid electrification of the building sector, transport and industry is still needed. The report lays out the options for policy makers and shows that the investment needed to transition from fossil fuels are still less than the costs of potential climate damages.

Germany's first National Interdisciplinary Climate Risk Assessment, co-authored by PIK and, among others, the Federal Intelligence Service, links climate change with national security risks up to 2040. The report, presented at the Munich Security Conference 2025, outlines cascading risks to health, infrastructure, the economy, and the broader security environment. Co-author is Fanny Thornton, who heads the GeoClimRisk project at PIK on the geopolitics of climate change. The assessment integrates climate risks with global conflicts, energy transition, and societal vulnerabilities, providing a foundation for informed policy decisions. Read more…

At PIK, around 85 climate impact modellers and scientists from the Earth system and integrated assessment modelling communities came together for the OptimESM-ISIMIP workshop in May, to discuss how future projections of risks from climate change can evolve in the coming decades and how best to integrate adaptation measures. Results will feed into the next cycle of IPCC reports (AR7), due to be released in 2028. Meanwhile, Gunnar Luderer and Felix Creutzig have been named as lead authors for chapters in the upcoming IPCC Special Report on Cities and Climate Change.

Publication Highlights

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

Climate fee on food could cut agricultural emissions and ensure social balance

A study by scientists from RD3 and RD5, published in *Food Policy*, shows that a climate fee on food, combined with climate dividends, could reduce Germany's agricultural greenhouse gas while ensuring social fairness. This climate fee could generate over 8.2 billion euros annually, which could be redistributed to households. "Emissions within this sector could be reduced by 22.5 percent or over 15 million tonnes of GHG annually, if the social cost of carbon were reflected in food prices," says Julian Schaper, guest scientist at PIK and lead author. PIK researcher Max Franks adds: "A climate fee would not only directly benefit climate protection, but could also encourage sustainable consumption." The study highlights how redistribution via climate dividends would particularly support lower-income households, fostering public acceptance. Read more…

A wealth of evidence: PIK compiles 85,000 studies on climate policy

A study published in *npj Climate Action* maps 85,000 studies on climate policy, revealing key research trends and gaps. Using machine learning, the team created a "living systematic map" to continuously guide science and policy. "Rather than directly providing answers to questions about the effects of climate policies, this study displays an overview of what has actually been scientifically studied so far," says PIK researcher and lead author Max Callaghan. Co-author and PIK researcher Jan Minx adds: "With this study and the associated interactive web tool, we take a critical step towards enabling rapid and accurate responses to the climate crisis." Read more…

Newly discovered mechanism for monsoon rainfall

A new study in *PNAS* looks at the mechanism of the monsoon and shows for the first time that the atmosphere can store moisture over extended periods, creating a physical memory effect. The onset of monsoon rains in spring and their cessation in autumn was previously mainly understood as a response to solar radiation. Anja Katzenberger and Anders Levermann of research department 'Complexity Science' showed that the atmosphere has a 'physical memory' – it stores physical information in the form of water vapour. Even if solar radiation increases or decreases over the course of the year, the atmosphere does not always react immediately. In spring, it accumulates water vapour over days and weeks and forms a water column. This reservoir determines the onset of monsoon rains and also maintains them when solar radiation slowly decreases in autumn. This allows the atmosphere to switch back and forth between two stable states. If this delicate balance were to be disrupted, it would have serious consequences for billions of people. This study was widely reported in the media and was subject of a podcast in the Indian media. Read more...

Little potential for "Climate Plantations" within Planetary Boundaries

A study by PIK in *Nature Communications Earth & Environment* quantifies the limited potential of bioenergy with carbon capture and storage (BECCS) beyond existing agriculture. Considering planetary boundaries, the removal potential is less than 200 million tonnes of CO_2 by 2050, much less than assumed in many climate scenarios. "In our response to the climate crisis, we must not only look at the CO_2 balance of public policies, but also keep an eye on other planetary boundaries," explained Wolfgang Lucht, head of research department 'Earth Systems Analysis'. Lead author Johanna Braun emphasized: "The most important climate protection strategy of all remains to rapidly reduce emissions towards zero." Shifting to plant-based diets could further ease land pressures and protect the Earth system. Read more…

Meet RD5

Starting in January this year, the Mercator Research Institute on Global Commons and Climate Change joined PIK as our new Research Department 5 'Climate Economics and Policy – MCC Berlin'. Following a year of preparation (with all the associated legal, administrative, organizational and IT-related challenges), 62 new colleagues became part of PIK, bringing the total staff number up to about 470.

RD5 performs excellent and methodologically rigorous research in economics and the social sciences, focusing in particular on concrete policy options for climate change mitigation and for sustaining the global commons – both natural resources such as atmosphere, land and forests, and social commons like education, health and transport. RD5 builds on a wealth of experience at the science-policy interface (for an overview of pre-2025 studies see the MCC News Archive); the continued presence of the department in Berlin will facilitate exchange with stakeholders in policy and politics in Germany's capital and enable closer contact with Berlin's research landscape.

RD5 is jointly led by Prof. Sabine Fuss and Prof. Matthias Kalkuhl. Sabine holds a professorship in Sustainable Resource Management and Global Change at Humboldt University Berlin, and she also leads the working group 'Sustainable Carbon Management' in RD5. Her expertise is in sustainable development, tropical rainforest conservation, and climate change mitigation, with a particular focus on Carbon Dioxide Removal. Matthias heads the working group 'Welfare and Policy Design' and is Professor on Climate Change, Development and Economic Growth at the University of Potsdam. Sabine and Matthias were previously Co-Chairs of MCC.

Sabine Fuss
Photo: Matti Hillig

Matthias Kalkuhl
Photo: Tobias Hopfgarten

Integration of the new department brings an additional suite of economic research methods to PIK's existing portfolio. Its work on governance, city level transitions, as well as systematic reviews expand the overall research portfolio of PIK in important new areas. Several other working groups contribute to the overall research agenda: 'Climate Policy and Development' led by Prof. Jan Steckel who holds a professorship in Climate and Development Economics at the BTU Cottbus-Senftenberg, conducts research on low carbon development, focusing on developing and newly-industrializing economies and political economy aspects; 'Cities: Data Science and Sustainable Planning' led by Prof. Felix Creutzig uses methods like machine learning to study the sustainablilty of cities and infrastructure. Felix Creutzig also holds professorships in Sustainability Economics of Human Settlements at TU Berlin and in Innovation and Policy Acceleration & Bennett Institute Chair at the University of Sussex. The 'Evidence for Climate Solutions' group under Jan Minx addresses a critical gap in the fight against climate change: the lack of robust, decision-relevant evidence on what solutions work, under what conditions, and why. The team on 'Public Economics and Climate Finance' led by Kai Lessmann has moved from RD3 to RD5, while the former FutureLab CERES is now incorporated in the working group on 'Governance'.

Last but not least, the Policy Evaluation Lab combines methodologies for causal impact and welfare analysis with big data and machine learning to evaluate the actual impact of environmental policies improve public policy making. The lab is headed by Hannah Klauber and Nicolas Koch.

More news

From research to action: PIK's AAS group

The Adaptation in Agricultural Systems (AAS) group in RD2 conducts numerous projects focusing on climate change adaptation, impact attribution, and future risk anticipation. These initiatives address both ecological and social dimensions of adaptation, aiming to develop practical solutions for a just transformation of global food and agricultural systems. A highlight of the group's applied research is the recent German-African Innovation Incentive Award (GAIIA), awarded in December 2024 to PIK's Christoph Gornott, head of the AAS group, and researcher Sophie von Loeben, together with Anthony Mugoya from the Uganda Coffee Farmers Alliance (UCFA). Their joint research on the climate resilience potential of Liberica coffee will now be translated into practice through the "ProLiCo" project, supporting smallholder farmers in Uganda. By connecting global-scale research with locally grounded solutions, the AAS group exemplifies how scientific insights can drive effective and socially equitable climate adaptation.

Another recently started project of the group is ClimaKid, which aims to develop an open-source tool (MILK) integrating climate, agricultural, and health data to analyse how climate change affects child health. Children in low- and middle-income countries are among the most vulnerable to health impacts of climate change, particularly through under-nutrition. The tool will be co-designed by the interdisciplinary project team with support from scientists and stakeholders in West Africa, Central/Eastern Africa, and South Asia, and aims to provide a digital solution for attributing climate change impacts on child nutrition and health. The attribution results will be set into the context of mitigation and adaptation options and complemented with an intergenerational justice perspective.

Seeing Earth through AI: New Sustainability Initiative

Scientists from PIK, together with the Stockholm Resilience Centre (SRC) and Google DeepMind have launched Seeing Earth through AI, an initiative to explore how artificial intelligence can address global sustainability challenges. The project will begin with an open-access report guiding AI's application in sustainability science. Led by Victor Galaz (SRC)

and Jonathan Donges, deputy lead of ERSU, PIK's Earth Systems Science Unit, the team will examine how AI can improve monitoring, modelling, and decision-making for climate tipping points, extreme weather impacts, and global assessments like the Planetary Health Check. Responsible AI development, including ethical considerations and energy use, is a key focus. Read more…

What Works Climate Solutions

What Works Climate Solutions is a community-driven initiative by climate change researchers, decision-makers and evidence synthesis specialists. It promotes and catalyses rigorous evidence on what climate solutions work for evidence-based climate policy and for upcoming climate change assessments such as the IPCC's 7th Assessment Report.

Following the success of the What Works Climate Solutions Summit in 2024, the next summit is being planned for 2026 by the Evidence for Climate Solutions working group, headed by Jan Minx, in PIK's new RD5. The summit will offer a vital platform to inform international negotiations, including the Global Stocktake, and support the IPCC with robust scientific insights. If you're interested in contributing to the initiative or in updates on the 2026 summit, sign up on the WWCS website.

Zukunftswerkstatt Biodiversität

Leibniz Biodiversity has launched 'Zukunftswerkstatt Biodiversität' (Future Workshop on Biodiversity) to bring together stakeholders in biodiversity science and practice. The project aims to pool knowledge and experience to identify key levers that can be boosted by concrete measures – effective, implementable, and transferable to different levels and stakeholder groups.

In a first step, an online survey will help identify key topics, methods, and stakeholders to feed into online workshops starting in autumn 2025. The process will culminate in mid-2026 in a two-day Future Workshop on Biodiversity, which will work to jointly develop viable solutions to be presented in a policy paper and various events.

If you work in the field of biodiversity in Germany, either full-time or part-time, or are involved in it on a voluntary basis, we you are warmly invited to take part in the initial online survey until 14 July 2025.

Congratulations to …

……. several members of PIK, who have been appointed to professorships:

Leonie Wenz, deputy head of research department 'Complexity Science' and leader of the Lab 'Societal Transition and Well-being' was appointed Professor of Environmental Economics at Technische Universität Berlin in March. This is a joint appointment of PIK with the TU Berlin. Leonie's research aims to quantify the effects of climate change on economic development and human well-being and to identify adaptation measures at an individual, regional and international level. One focus is on the so-called social costs of climate change ('Social Cost of Carbon').

Nico Wunderling has been appointed to a professorship in Computational Earth System Sciences at Goethe University Frankfurt. The professorship is part of the newly established Center for Critical Computational Studies (C3S) at Goethe-Universität Frankfurt. Nico is a member of the Earth Resilience Science Unit at PIK and his research focuses on interacting tipping elements in the Earth system.

Georg Feulner, deputy head of RD1 'Earth System Analysis' and head of working group 'Past and Future Earth' has been awarded an extraordinary professorship in climate physics at the Faculty of Mathematics and Natural Sciences at the University of Potsdam, honouring his long association with the university. Georg is an expert on Earth's climate history, as well as present and future climate change, and coordinates the development of PIK's POEM model.

Karim Zantout moved from a postdoctoral position in department 'Transformation Pathways' to become Professor for Data Science and IT at the University of Applied Science Karlsruhe in February. "At PIK, I was able to develop my own ideas in a wonderful green surrounding with many opportunities for exchange and outreach," wrote Karim, who also served as one PIK's Diversity officers.

In addition to these appointments, a PIK scientist was recently honoured with a major award: Prof. **Linus Mattauch**, co-lead of the Lab 'Societal Transition and Well-being' and professor in Sustainable Use of Natural Resources at Tecnhische Universität Berlin was awarded the "European Award for Researchers in Environmental Economics under the Age of Forty" by the European Association of Environmental and Resource Economists (EAERE) in recognition of the breadth and impact of his research.

Alumni near and far

Every now and then, we like to share some more personal stories of PIK Alumni, showing where they are now and what they are doing. First up for someone far from Potsdam, **Dr. Jonas Jägermeyer**, currently at Columbia University:

I worked at PIK from 2012 to 2018, first as a HU Diploma student and then pursuing my PhD in Dieter Gerten's group in RD1. After a stint at the University of Chicago as a postdoc (while sitting at NASA Goddard Institute for Space Studies in New York), I became a faculty member at Columbia University and NASA GISS in 2020. My research focuses on climate change impacts in global agriculture and we use ensembles of process-based crop modeling to evaluate future climatic challenges and adaptation strategies. Fun fact — while on a climbing expedition in Nepal in April this year, the federal government terminated the lease of the NASA building where I have been sitting for the last 7 years and I came back to a vacated office. Interesting times.

PIK's Alumni programme

Please keep us up to date: Send an update to 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
Keep up to date on PIK's social media channels:
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