

Time to turn the tide

PIK Alumni Newsletter No. 7 12/2022

Dear PIK Alumni,

This newsletter should reach you just before the Christmas and New Year break ... Let us take the time to look back at 2022 – it has been a year of mixed emotions.

The world is experiencing multiple crises, from the Russian war to the rise of populist governments in EU member states to the renewed wave of cruelty against freedom of speech and human rights in Iran to – and the list does not end here – climate change. In fact, we cannot preclude that 2022 will mark another record-high amount of greenhouse gas emissions. Climate policy is clearly not sufficiently effective.

At the same time, it's quite astounding to see that what Russia had anticipated to be a quick 'campaign' has become a war that has rapidly changed the geopolitical landscape. The energy transformation has become a security issue. The food crisis brought on by Russia's invasion might push a food system transformation. The US will stay at the climate negotiation table. And contributions from science to support mitigation are high on the agenda of policymakers.

In the midst of these multiple crises, PIK turned 30 this year. Our anniversary is a reason to celebrate. Because "PIK" is exactly what we can do to tackle these crises. PIK is our joint effort to make this

world a better place. And PIK is built, of course, on the efforts and achievements of our scientists and staff – present and past.

As a research institute, our contribution to turning the corner towards a more sustainable and just world is to provide sound science, and to have decisionmakers take note of the insights we thereby generate. This is not about mixed emotions, it's all about making a difference, about generating impact.

A lot of PIK Alumni in universities and research institutions in Germany and abroad are continuing to pour out sound science. But it's also pleasing to note the increasing number of Alumni who

are carrying the PIK spirit – the goal of a sustainable and just future – into other sectors, be it government departments, environmental NGOs, or in the private sector as energy, network, or insurance experts. This too is impact.

Turning the tides for energy, for tipping points, for justice, for our Planet is an ongoing endeavour. We are grateful for the successes of the past year and look forward to continuing our joint mission in 2023.

Our warmest regards,
and happy holidays to all of you,
**Ottmar Edenhofer, Johan Rockström
& Bettina Hörstrup**



Publication Highlights

In case you missed them, here are some of PIK's publication highlights of recent months. They include some reasons for optimism ... !

Risk of passing multiple climate tipping points escalates above 1.5°C global warming

A key analysis published this autumn in Science by an international author team including Johan Rockström, Ricarda Winkelmann and other PIK scientists showed that multiple climate tipping points could be triggered if global

temperature rises beyond 1.5°C above pre-industrial levels. The team synthesised evidence for tipping points, their temperature thresholds, timescales, and impacts from a comprehensive review of over 200 papers published since 2008. Even at today's temperatures, five of the sixteen tipping points may be triggered: the Greenland and West Antarctic ice

sheets, widespread abrupt permafrost thaw, collapse of convection in the Labrador Sea, and massive die-off of tropical coral reefs. As global temperatures rise further, crossing more tipping points becomes possible or likely. The chance of crossing tipping points can only be reduced by rapidly cutting greenhouse gas emissions: to have a 50% chance of achieving 1.5°C and thus limiting tipping point risks, global greenhouse gas emissions must be cut by half by 2030, reaching net-zero by 2050. [Read more here](#) or see [PIK's updated page on tipping points](#).

Climate Economics: Policies change People

A team of authors led by PIK's Linus Mattauch and including economist Nicolas Stern showed that abiding by climate-friendly policies actually changes the way people think about what they do. People's preferences are more malleable than textbook economics often assume. Preference changes resulting from policy changes are well documented – take smoking, for example. The researchers' advice to policy makers is to take changing preferences into account when tailoring policies like carbon taxes or building low-carbon infrastructure. [Read more ...](#)

Living in timber cities could avoid emissions – without using farmland for wood production

A new study by an interdisciplinary team at PIK shows that housing the growing

population in homes made out of wood instead of conventional steel and concrete could avoid more than 100 billion tons of CO₂ emissions by 2100. The study is the first to analyse the impacts of a large-scale transition to timber cities on land use, land-use change emissions, and long-term carbon storage in harvested wood products.



“Our study underlines that urban homes made out of wood could play a vital role in climate change mitigation due to their long-term carbon storage potential,” said, Abhijeet Mishra, lead author of the study in Nature Communications, said. However, “Strong governance and careful planning are required to limit negative impacts on biodiversity and to ensure a sustainable transition to timber cities.”

[Read more ...](#)

Towards food security despite climate crisis and war

A ‘Policy Brief’ by Lisa Pörtner, Benjamin Bodirsky and colleagues from PIK and other institutes explained that to secure the world’s food supply, a shift toward more plant-based and less animal-based

foods is needed. The Russian war of aggression on Ukraine has triggered a shortage of some agricultural products as well as gas-produced mineral fertilizers. As a result, food prices are rising. At the same time, droughts and flash floods threaten crops worldwide as the climate crisis intensifies. The researchers show the connections – and make concrete recommendations on how a food turnaround could be initiated. The key is in promoting plant-based diets and reducing production and consumption of animal-based foods. [Read more ...](#)

Green hydrogen: Short-term scarcity, long-term uncertainty

An analysis published in Nature Energy by Adrian Odenweller, Falko Ueckerdt and colleagues shows that green hydrogen from renewable electricity and derived e-fuels are uniquely valuable for achieving climate neutrality. They can replace fossil fuels in industry or long-distance transport where direct electrification is infeasible. However, even if production capacities grow as fast as wind and solar power, the growth-rate champions, green hydrogen supply remains scarce in the short-term and uncertain in the long term. Potentially, policy measures could help foster the breakthrough and increase the likelihood of future hydrogen availability, but for the foreseeable future, hydrogen supply will be much too scarce to substitute fossil fuel use on a broad scale. [Read more ...](#)

Other news

COP27 in Egypt



PIK Director Johan Rockström took part in the 27th *world climate summit COP* in Sharm el-Sheikh, Egypt. Besides attending high level panels on site and giving numerous interviews with high ranking media outlets like the New York Times, the Guardian and the Washington Post, Johan Rockström presented the 2022 edition of the *10 New Insights into Cli-*

mate Science, together with UNFCCC Executive Secretary Simon Stiell. He also pledged to strengthen the role of science at COP. Christoph Gornott from RD2's working group on Adaptation in Agricultural Systems took part in a panel at the German Pavilion on food security in a world of multiple crises.

ARIADNE and the energy transition

Much progress on the energy transition in Germany has been made in the PIK-MCC project ARIADNE, funded by the Federal Ministry of Education and Research. This year has seen the publication of several major studies charting the pathway towards climate neutrality, for instance a model and scenario comparison showing what room for adjustment and leeway are available in the gas crisis, and reports on transport, energy-saving behaviour, and the potential of hydrogen.



See the [ARIADNE homepage](#) for an overview (in German). Just in recent days, PIK Director *Ottmar Edenhofer welcomed the agreement* on the EU Emissions Trading System which by including transport and heating in buildings opens up a the way for reducing greenhouse gases in much larger parts of the economy.

New FutureLab at PIK: CERES



The Werner Siemens Foundation is funding a new FutureLab at PIK: *CERES – Political Economy for Inclusive Wealth Gov-*

ernance and Sustainability. Its central question is how states can contribute to a fair and sustainable management of the global commons. CERES takes stock of political realities in selected countries, using machine learning methods to identify effective sets of sustainable policies. It examines the interaction of state capacity and inclusive wealth and focuses on political economy approaches to international cooperation. A number of new colleagues took up their posts in autumn 2022.

have no less than five times the computing power of the current supercomputer, as well as being substantially more energy efficient. The new system will be built for the most part based on the very latest computer technologies. The support of Brandenburg in financing the supercomputer is evidence of how much the policymakers value PIK's scientific work.

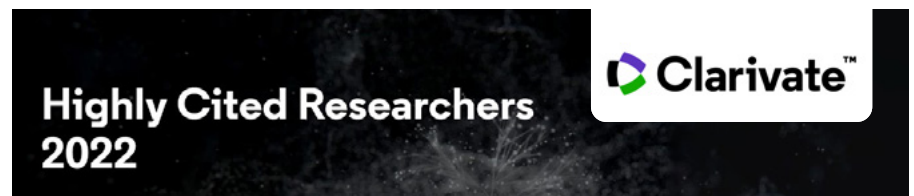
from PIK are among the top 1 percent of the globally most scientifically influential authors. The influential "Highly Cited" ranking is published once a year by *Clarivate Analytics*' science platform Web of Science. The ranking is based on the number of times researchers are cited in other academics' works – one of the most important indicators of scientific relevance. Twelve PIK researchers are listed, including the institute's directors and scientists from all research departments.

PIK's new supercomputer approved

PIK's next-generation supercomputer, approved and funded by our Brandenburg Ministry of Science, Research and Culture, is about to be installed. It will

Potsdam researchers amongst top 1% most cited worldwide

For the fifth year in a row, researchers

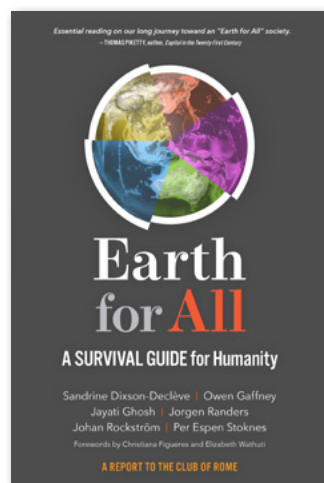


Christmas reading

You might like to treat yourself to one of these books to read over the end-of-year break!

Earth for All: A survival guide for humanity.

The team of authors includes PIK's Director Johan Rockström. The book originated as a report to the Club of Rome and is described as "a survival guide to help steer humanity away from ecological and social catastrophe."



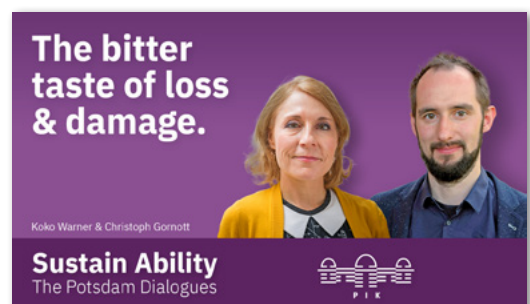
Over 100 scientists and experts contributed short chapters to **The Climate Book** by Greta Thunberg (translated into German as *Das Klima Buch*). They included Johan Rockström, Ricarda Winkelmann, Alexander Popp and Stefan Rahmstorf from PIK. Could be a present for relatives if you don't want to read it yourself!



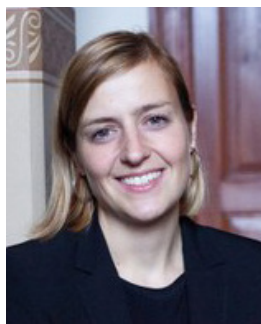
Klaus Wiegandt: 3 Grad Mehr:

Ein Blick in die drohende Heizeit und wie uns die Natur helfen kann, sie zu verhindern. Leonie Wenz contributed a chapter on the economic risks of a climate catastrophe, Stefan Rahmstorf one on climate and weather at 3 degrees more, and Hans Joachim Schellnhuber on the sustainable use of wood in the construction sector to this

And some Christmas listening: There is a new episode of PIK's podcast "**Sustain Ability. The Potsdam Dialogues**". Featuring Christoph Gornott from research department Climate Resilience and Koko Warner from the UNFCCC Secretariat. This episode examines "The bitter taste of loss & damage".



Congratulations to ...



Kati Krähnert, head of PIK's FutureLab on Inequality, Human Well-Being and Development, has been appointed to a professorship in Climate Change and Development at Ruhr University Bochum (together the Leibniz Institute for Economic Research, RWI).

Nico Wunderling from research department Earth System Analysis won the Young Scientist Prize of the city of Potsdam for his research on tipping points in the Earth system. His doctoral dissertation on "Nonlinear dynamics and interactions of tipping elements in the Earth system" is socially and scientifically relevant and was cited by media channels around the world. A recent important *article of his in PNAS* dealt with the increased risk of cascading tipping in the Amazon rainforest.



PIK Director **Ottmar Edenhofer** was recently awarded the Bavarian Order of the Constitution 2022 at an award ceremony in Munich. The order honours citizens who have shown outstanding commitment to the common good. Edenhofer was also appointed as Mercator Professor 2022 at the University of Duisburg-Essen for his pioneering research.



Hauke Krämer, who completed his doctorate "Towards a robust Framework for recurrence analysis" in research department Complexity Science in 2021, was awarded the Michelson Prize of the Faculty of Mathematics and Natural Sciences at Potsdam University. Hauke has since taken up a position as Data-science Manager at Ernst & Young.

Anna Büttner was awarded the physics prize of the Physikalische Gesellschaft zu Berlin for her masters thesis, which she also wrote in PIK's Complexity Science department. She is now a doctoral researcher there.



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

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

Follow us on Twitter: https://twitter.com/PIK_Climate and https://twitter.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
www.pik-potsdam.de/en/impressum

NEWSLETTER

Alumni Officer: Alison Schlums . Tel.: +49 (0)331 288-2504
Email: alumni@pik-potsdam.de
PIK Alumni website: www.pik-potsdam.de/en/people/alumni

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.

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.

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.

