



futureearth

Research. Innovation. Sustainability.

May 11th, 2022

Co-Chair Governing Council: Sirkku Juhola

Future Earth Secretariat: Sophie Hebden,
Giles Sioen, Judit Ungvari, Erica Key,
Wendy Broadgate

researchinnovation@futureearth.org

Our History

**GLOBAL
IGBP
CHANGE**
International
Geosphere-Biosphere
Programme

 **IHDP**
International Human Dimensions Programme
on Global Environmental Change

WCRP
World Climate Research Programme

1987

1996

futureearth

Research. Innovation. Sustainability.

June 2012

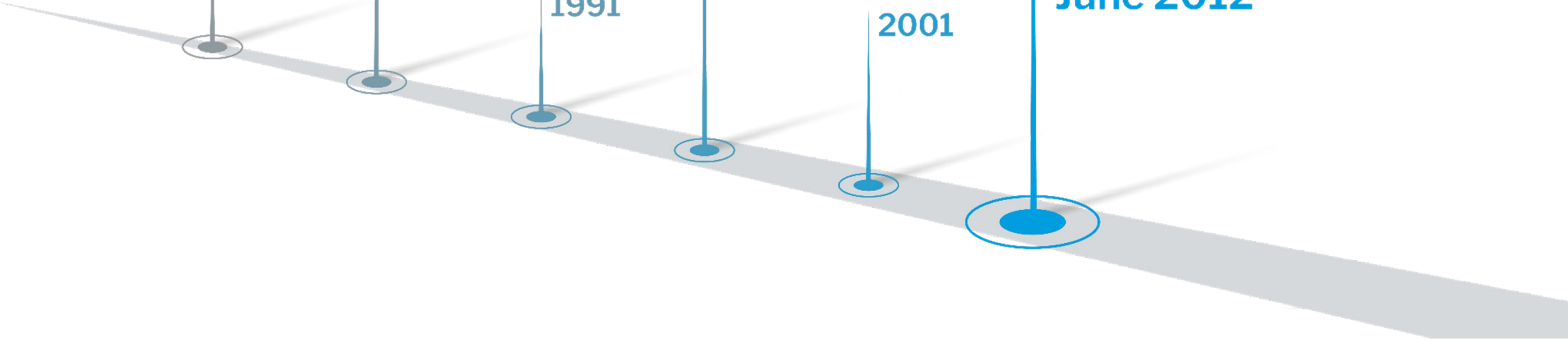
1980

 **DIVERSITAS**
an international programme
of biodiversity science

 **Earth System
Science Partnership**

1991

2001



Global Mission & Vision

- ◆ Future Earth is a **global network** of scientists, researchers, and innovators collaborating for a more sustainable planet.
- ◆ Our **mission** is to advance research in support of transformations to global sustainability.
- ◆ Our **vision** is of a sustainable and equitable world for all, where societal decisions are informed by openly-accessible and shared knowledge.



Future Earth's Integrated Activities

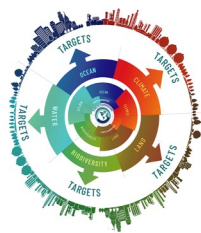


Facilitate Research & Innovation

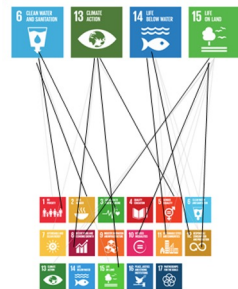


60+ Researchers annually

Earth Commission



Pathways



Build and Mobilize Networks



Sustainability Research & Innovation Congress 2022

20-24 June 2022

Online and onsite in Pretoria, South Africa

Transdisciplinarity for Early career Researchers in Asia School (TERRA School)

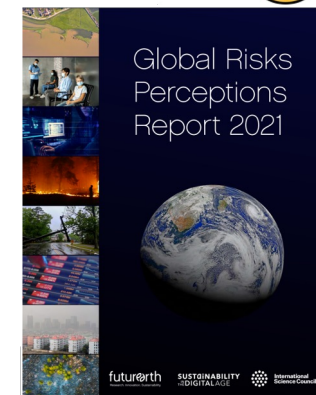
Earth Leadership Program

Embarking on our future:
Announcing the transition to
the Earth Leadership Program!

After 20 successful years, the Leopold Leadership Program has a new name and identity as the Earth Leadership Program. As a program of Future Earth, in collaboration with the Stanford Woods Institute for the Environment and the University of Colorado Boulder, the Earth Leadership Program will expand the reach of the Leopold Leadership Program - relaunching the North American Cohort and developing regional cohorts in other parts of the world. We also want to welcome our new Executive Director, Sharon Collings. Together, we are now embarking on a bold mission to scale the impact of academic researchers to solve sustainability challenges by co-designing and internationalizing our leadership training.



Shape the Global Narrative



futureearth
research. innovation. sustainability.

Our Community

◆ Custodian Organizations



◆ Partner Organizations



◆ Funders

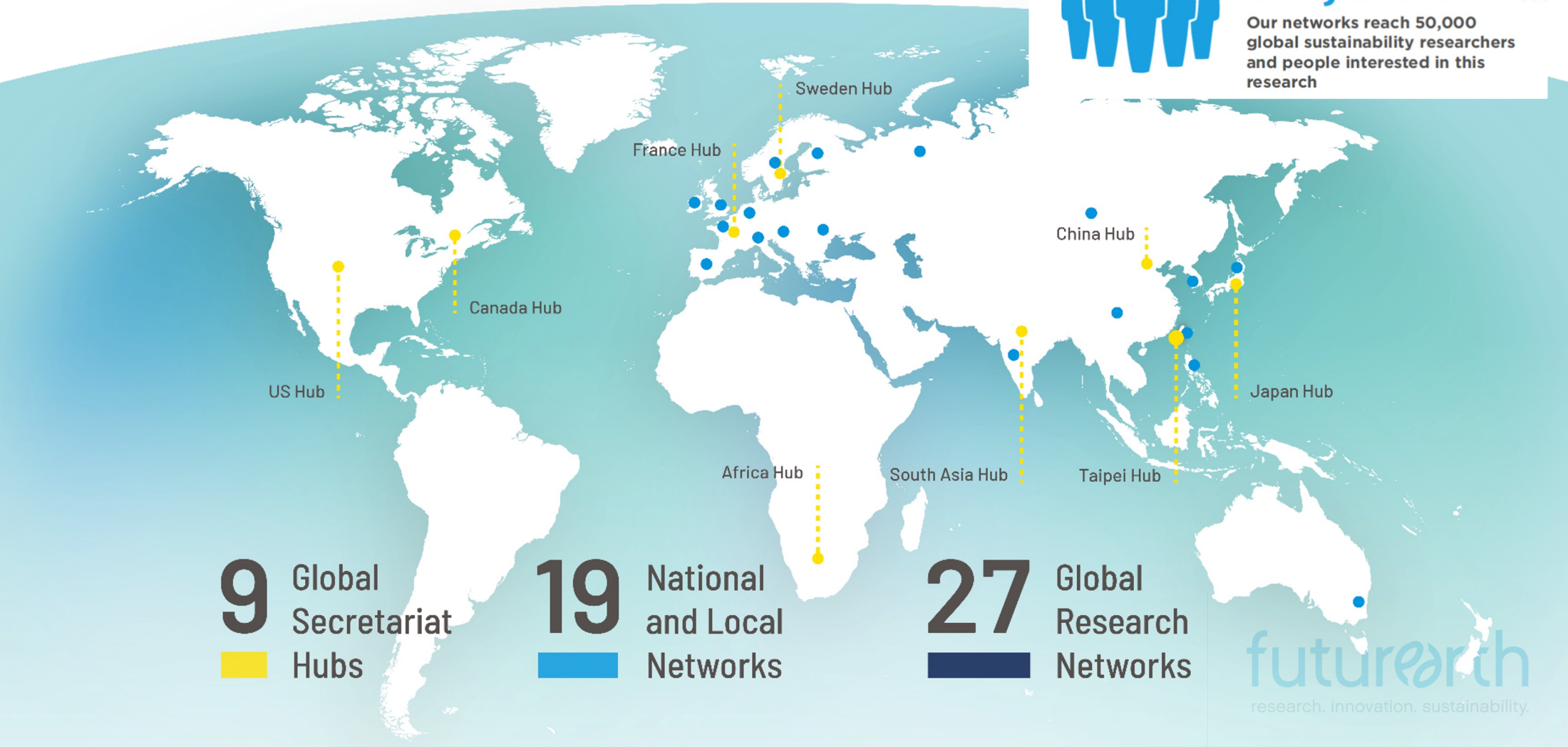


Global Reach



50,000+ ...

Our networks reach 50,000 global sustainability researchers and people interested in this research



9 Global Secretariat Hubs

19 National and Local Networks

27 Global Research Networks

WCRP partnership with Future Earth



Working together: Future Earth and WCRP announce partnership to jointly address major societal challenges

Published: 18 December 2020

The World Climate Research Programme (WCRP) and Future Earth are initiatives that are driven by visions of creating a more equitable, sustainable, and resilient world. WCRP coordinates international climate science to address key research areas that are either too large or too complex to be tackled by a single nation, agency, or scientific discipline. Future Earth develops the knowledge and tools that government, communities, and companies need to meet the United Nations' Sustainable Development Goals. There have long been areas of synergy between the two initiatives on many levels, but this has largely taken place organically and on an ad hoc basis.

As we enter the decade where climate action is of critical importance, both WCRP and Future Earth have taken a first step towards working together in a much more strategic way. The [Future Earth and WCRP Joint Statement](#) describes how the organizations will collaborate on joint activities, convening, and products and outlines plans of how to increase their combined global impact. This will include collaboration between the WCRP Core Projects¹ and the Global Research Projects of Future Earth,² as well as in the development of five new ambitious WCRP Lighthouse Activities. The timing for this effort aligns with efforts in both organizations to redesign their structures and activities to be more flexible and responsive to the challenges that society faces now and in the next decade.

WCRP/Future Earth Joint Statement – Appendix 1

Important synergies between programs of WCRP and FE include:

- AIMES collaborated with the WCRP [Working Group on Coupled Modelling \(WGCM\)](#) through joint scientific steering committee meetings to foster new experimental designs for CMIP5 and CMIP6 that incorporate societal and biogeochemical dimensions. Currently, the AIMES working group 'Modeling Earth Systems and Human Interactions' is working across ESM, IAM, and other human systems modeling groups to provide recommendations for CMIP7 scenario design. The [WCRP Advisory Board on Vulnerability, Impacts, Adaptation and Climate Services](#) was developed by an AIMES steering committee member. AIMES leadership are also involved in the WCRP Joint Scientific Committee, serve on the WGCM steering committee, and are involved in the new WCRP Lighthouse activities "Safe Landing Climates" and "Digital Earths." This engagement supports communication and synergistic activities between AIMES and WCRP to balance the biogeochemical/human/ecological focus of AIMES modeling and observation activities with WCRP's physical climate focus.
- GCP: In April 2017 WCRP and the [Global Carbon Project \(GCP\)](#) signed a [Scientific Partnership Agreement](#) that involves sustained communication and mutual research planning at several levels, starting from the director and steering committee level and extending as necessary and useful into the project and working group levels of both WCRP and the GCP. e.g. shared calendars, mutual representation on steering committees, coordinated activities and workshops ([News: WCRP and the Global Carbon Project sign scientific partnership](#)). WCRP sponsors GCP, and WCRP JSC member Pierre Friedlingstein is lead author for the long term trends section of the Global Carbon Budget.
- PAGES: In April 2015 WCRP and ([PAGES](#)) signed a [Scientific Partnership Agreement](#) to maintain a mutual collaboration and develop explicit activities of mutual interest on the enhancement of climate and paleoclimate research.
- SOLAS GRP is sponsored by WCRP and participates in the program "Integrated Ocean Carbon Research (IOC-R) Working Group" together with WCRP (and IMBeR & GCP). WCRP is advising, and funding, research actions of SOLAS and taking part in its SSC meetings. <https://www.solas-int.org/science/sponsored-science.html>. SOLAS is also involved in the WCRP Data Advisory Council's activities on air-sea fluxes and contributed significantly to a comprehensive report on the topic.
- The Urban Knowledge-Action network Development Team played a pivotal role in shaping a report together with the World Climate Research Programme named the "Global Research and Action Agenda on Cities and Climate Change Science" as an output from the Cities IPCC. More can be found in the following link: <https://www.wcrp->

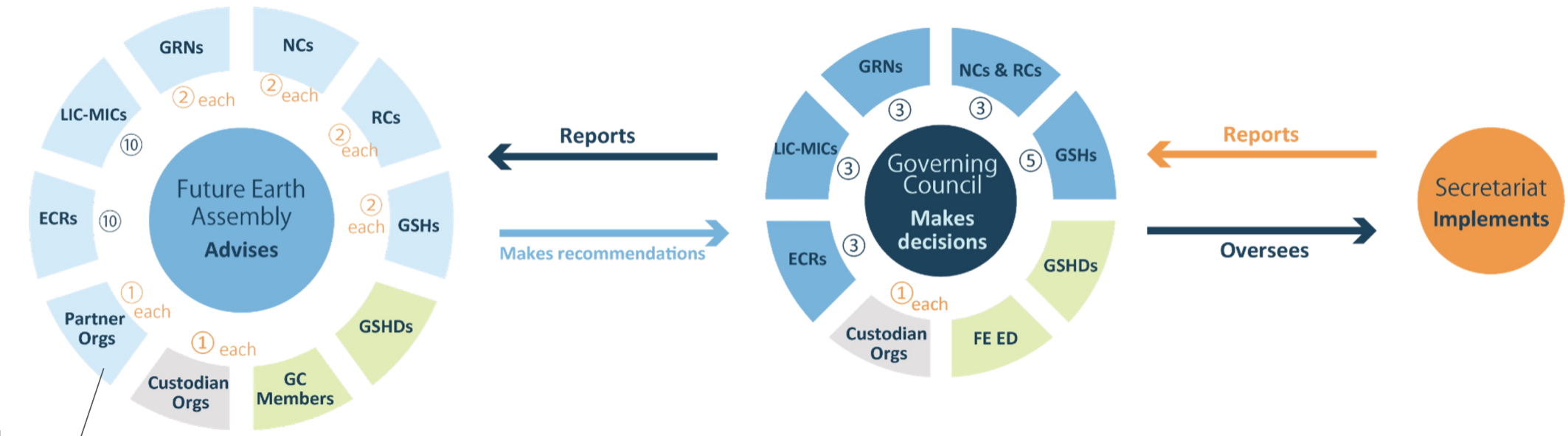
climate.org/WCRP-publications/2019/GRAA-Cities-and-Climate-Change-Science-Full.pdf

- WCRP worked with Future Earth and the Integrated Research on Disaster Risk (IRDR) to set up the Knowledge-Action Network on Emergent Risks and Extreme Events following a workshop in Tokyo in 2017 ([see video](#)). By collaborating through the KAN, WCRP and partner programmes are to provide integrative synthesis capacity across disciplines by a mix of inter/trans-disciplinary expertise, and share experiences and methodologies in research and stakeholder engagement with societal actors (business, administration, policy, NGOs).
- WCRP is one of the "sponsors" of the Ocean KAN. So far, no official document references this agreement and it is through a personal engagement (Mike Sparrow, Acting Head of the WCRP Secretariat and currently Mauricio Mata from WCRP's CLIVAR (Climate and Oceans) Core Project) that WCRP, like the other sponsors, is engaged in the KAN and advises it. Nevertheless, the KAN will be established soon (early 2021) and an agreement will be sought with WCRP to officialise a sponsorship. 1 WCRP representative will be in the "IPO host selection committee of the Ocean KAN"
- Two members of Future Earth's 10 New Insights in Climate Science 2020 Editorial Board are from WCRP's Joint Scientific Committee (JSC) 2019-2020 (Detlef Stammer and Helen Cleugh). A conversation is ongoing about WCRP becoming a formal partner to the publication.
- Future Earth partner, the European Space Agency's Climate Office, which [supports scientific activities of Future Earth research networks](#), works strategically with WCRP via its Climate Science Advisory Body of which the WCRP secretariat is a member.
- Future Earth is a co-lead in the development of the [Partnership of Resilience and Preparedness \(PREP\)](#), and the PREP team is working with WCRP to establish WCRP as a formal part of this partnership, and to work to establish data flow processes that would allow greater visibility and access to critical WCRP data-sources (e.g. CORDEX).
- WCRP, with additional partners, has repeatedly partnered with the Global Carbon Project in the development of the United in Science Report.
- Monsoon Asia Integrated Research for Sustainability (MAIRS-FE) is also collaborating with WCRP CORDEX on coordinated regional modelling initiatives.

Appendix outlining collaborations https://futureearth.org/wp-content/uploads/2020/12/WCRP_Future-Earth-Joint-Statement-%E2%80%93-Appendix-1.pdf





WCRP in our decision making process



ECR: Early Career Researchers
 FE ED: Future Earth Executive Director
 GC: Governing Council
 GRN: Global Research Network

GSH: Global Secretariat Hub
 GSHD: Global Secretariat Hub Director
 LIC-MIC: Lower and Middle Income Countries
 NC: National and Subnational Committee/Entity
 RC: Regional Committee/Entity

 Voting members
 Non-voting members

② Number of seats per entity within the group
 ⑤ Number of seats per group

Future Earth covers wide range of Earth System Sciences and promotes interdisciplinary and transdisciplinary research

27 Global Research Networks

Biodiversity



Health



Modelling



Carbon emission



Atmosphere



Marine, water



Governance



Risk



Ecosystems



Consumption and Production



Water-Energy-Food Nexus KAN

Land use



Earth and human history



Monsoon Asia

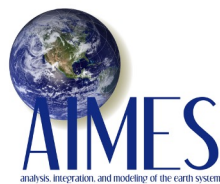


Urban



Finance & Economics





Analysis, Integration, and Modeling of the Earth System

Global Research Network of Future Earth

AIMES Working Group on Land Data Assimilation

WG Co-chairs: Natasha MacBean, Jana Kolassa, Andy Fox, Tristan Quaife

- Work closely with data providers to expand the number of **different types of observations** used to optimize land surface models within a DA framework
- Increase the number of modeling groups who are routinely using DA frameworks to better **estimate and reduce model uncertainty**
- Upcoming annual virtual workshop on “Recent Technical Developments in Land Data Assimilation” on June 19 - 21. Check for updates on aimesproject.org/lda_workshop_2023/
- Synergy with WCRP ESMO core project & Digital Earths lighthouse

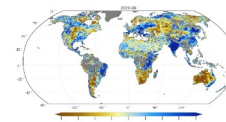
AIMES

Analysis, Integration, and Modeling of the Earth System
[Aimesproject.org](https://aimesproject.org)

June 19-21, 2023 | 10:00-1:00 EDT | Virtual Workshop



About: This workshop will bring together land DA scientists to address the technical challenges we face in implementing DA systems by exchanging knowledge across all groups working in land DA and building a community of practice and collaboration in land DA.



*Organized by the AIMES Land DA Working Group

MORE INFO
aimesproject.org/lda_workshop_2023/

QUESTIONS
aimes@futureearth.org

- **ABSTRACT CALL FOR TALKS AND POSTERS (19th April)**
- **PROPOSE A BREAKOUT GROUP**
- **REGISTER (1st June)**

For more information, contact
aimes@futureearth.org

Analysis, Integration, and Modeling of the Earth System

Global Research Network of Future Earth

AIMES Working Groups on Human-Environmental Interactions

Modeling Earth System and Human interactions (MESH)

WG Co-chairs: Brian O'Neill, Julia Pongratz, Ben Sanderson, Detlef van Vuuren

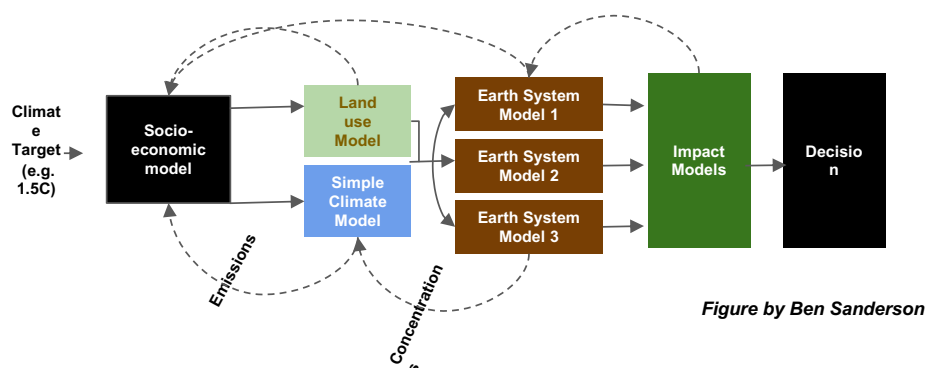
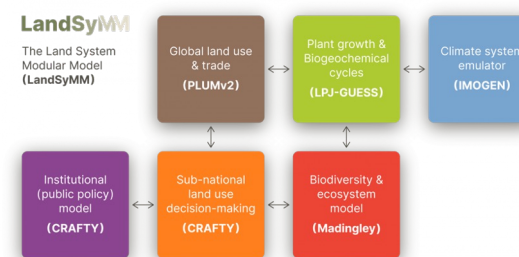


Figure by Ben Sanderson

- Evaluate and quantify bidirectional feedbacks between human and Earth systems.
- Assess methods of coupling human and Earth system models at a global scale.
- Assess the role of coupled human and Earth system modeling within research and in future assessments of climate change.

Behavioural Models of Land Systems (BeModels)

WG Co-chairs: James Millington, Calum Brown, Tatiana Filatova, Birgit Müller, Derek Robinson, Maja Schlüter, Mark Rounsevell



<https://landsymm.earth/>

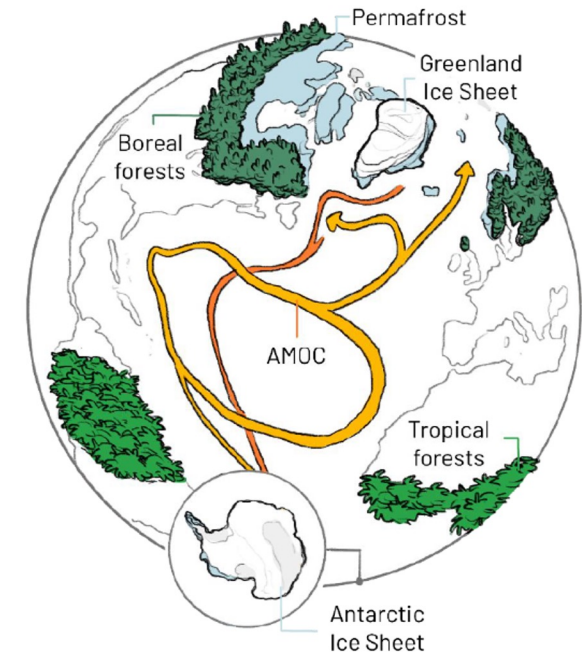
- Support development of a library of models and associated code of approaches and mechanisms for modelling human behaviour in land systems;
- Develop benchmarking datasets for human behaviour models and modelling approaches in land systems;
- Foster the use of social science theories and insights for building models of human individual and collective behaviour

Synergy with WCRP Safe Landing Climates 'Understanding High-Risk Events' Lighthouse

TIPing points Model Intercomparison Project



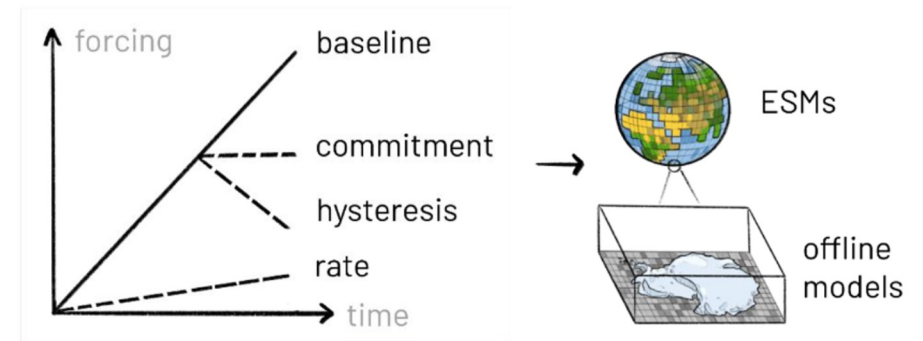
- Description paper in preparation
- Website (incl. newsletter signup): tipmip.pik-potsdam.de
- Workshop **5-8. Nov 2023** (details coming)
- Coordinator starting! Donovan Dennis, tipmip@pik-potsdam.de



Research questions

Risk of crossing TPs? 	Key feedback processes? 	Characteristics and scales?
Reversibility? 	Interactions? 	Uncertainties?

Experiments



Future Earth Membership Portal



futurearth

Search for people

Live feed People Events Forums Groups Opportunities Admin Panel

Kyoko, here's what's new

General My Groups

Write a post



Share your thoughts and plans...

Share a new...

Check-in

Trip

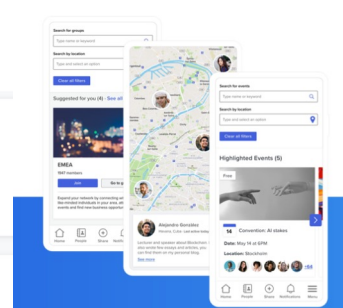
Event

Recently active users



Laurel Milliken

Upcoming events



Directory, profiles & networking

Filter | Easily maintain and access up-to-date profile information

Pinned event



Future Earth created an event **Future Earth Assembly** 6 days ago



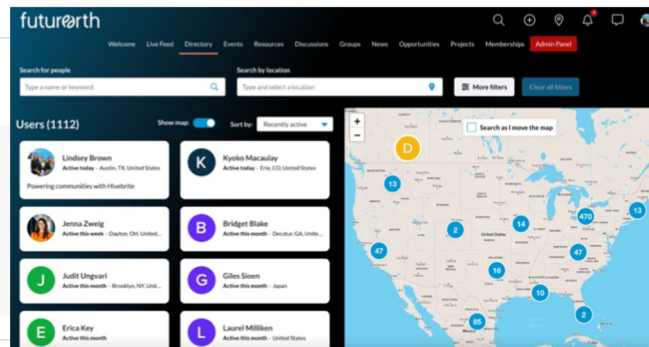
Future Earth Assembly

June 29, 2023 11:00 AM EST

Panama City, Panama

Find out more

Like Comment Share



- Launch: May 2023
- Functionalities include group Spaces: Group discussions, News, Events, Forum, Media Center; project work pages; a directory with map view to facilitate networking; and support for events (payment processing, integrated zoom)
- English, Spanish, French, and Chinese will be available.

Some projects we're working on

Science-policy activity with UN level events and reports

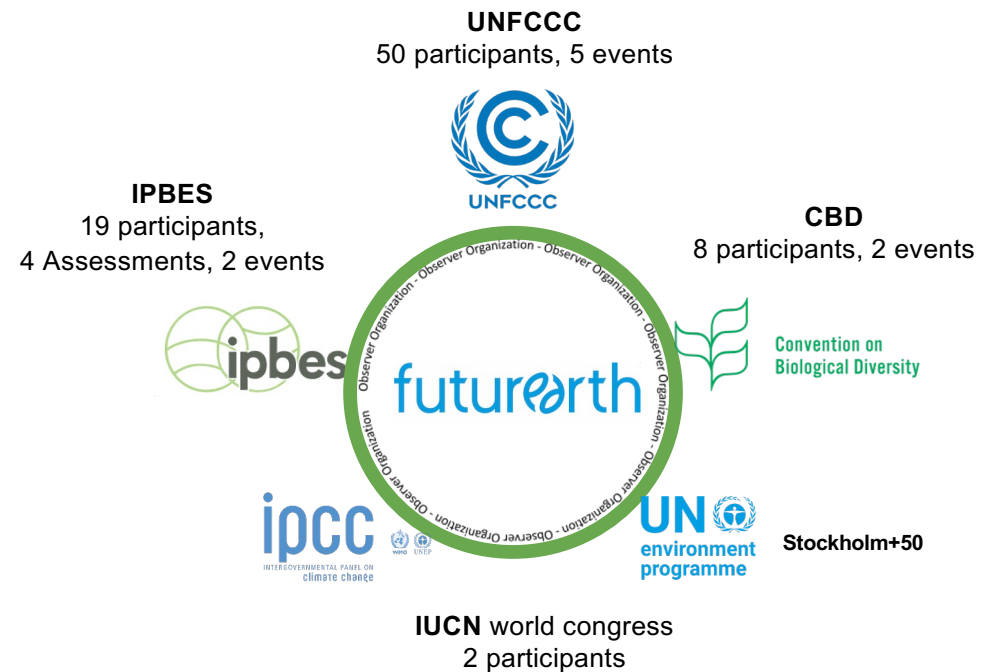


Future Earth has **observer status** in several UN processes.

We register **delegations** of scientists to **participate** in major international meetings such as COP and support the development of **side-events** and **statements**.

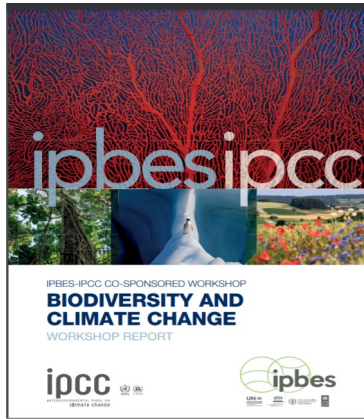
More here:

<https://futureearth.org/initiatives/other-initiatives/science-policy/>

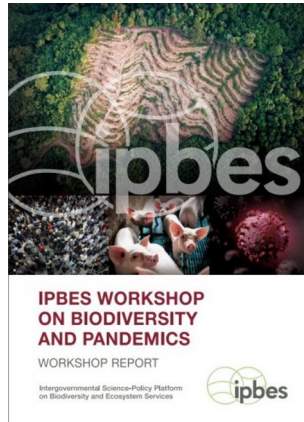


Science-policy activity with UN level events and reports

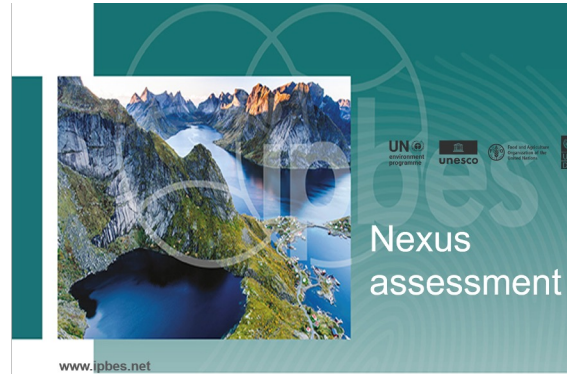
Integrated scientific messages delivered to global leaders



IPCC-IPBES 2021



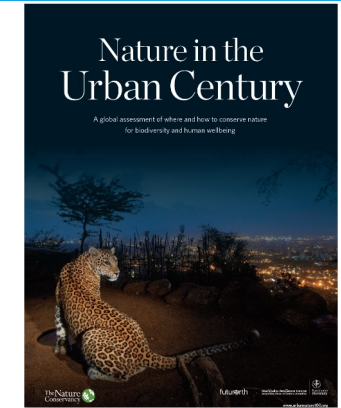
IPBES pandemics workshop report 2020



IPBES NEXUS assessment



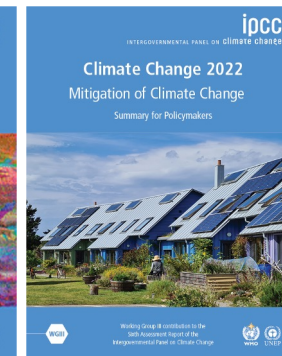
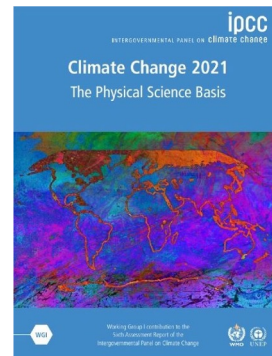
Innovate4Cities report 2022



Nature in the Urban Century book 2018



UNFCCC COP26



IPCC AR6

A global congress with Future Earth



Sustainability Research + Innovation
2023



REGISTER

Sustainability Research + Innovation Congress 2023

26-30 JUNE 2023 | ONLINE & PANAMA CONVENTION CENTER | PANAMA CITY, PANAMA

SRICongress.org



10 New Insights in Climate Science series



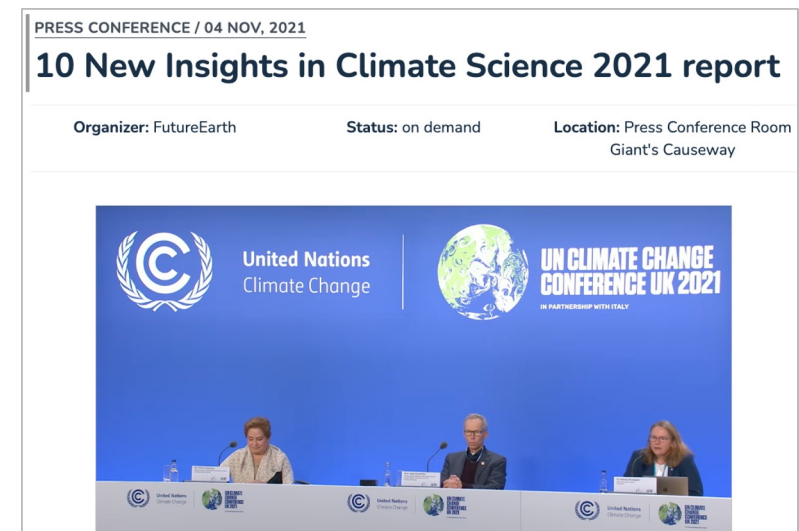
An annual synthesis that highlights **essential recent advances in climate change research**, from natural and social sciences, with high policy relevance.

Policy report: Geared toward climate policy negotiators and the general informed public, launched every year at the UNFCCC COP since 2017.

Academic synthesis: Underpinning the policy report, and providing scientific rigour and credibility, an is prepared and submitted for publication in *Global sustainability* journal.



<https://10insightsclimate.science/>

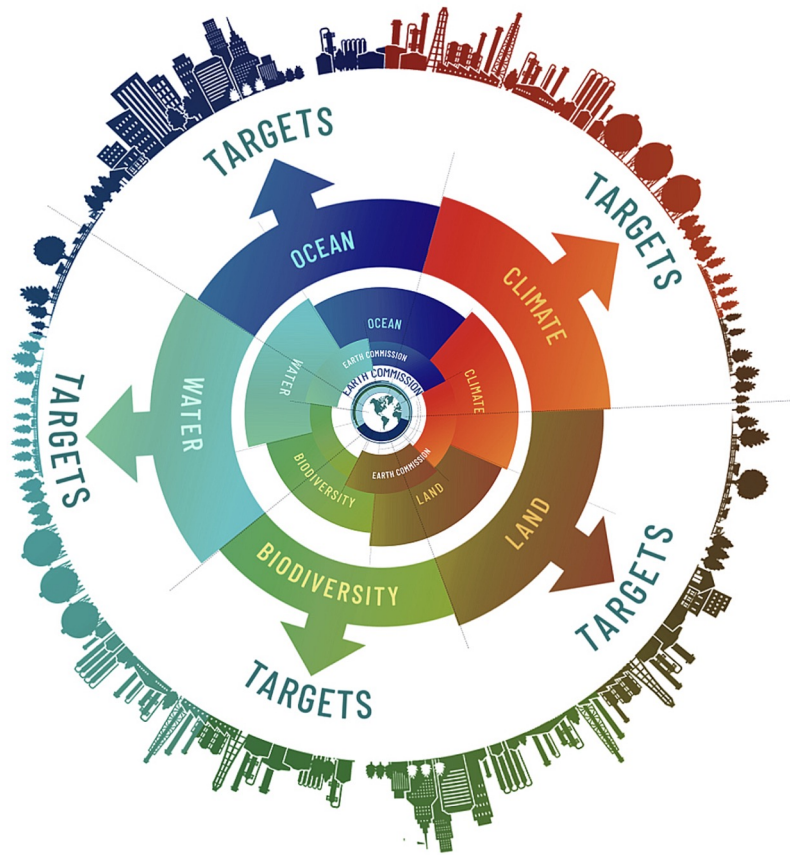


The Earth Commission



The Earth Commission:
Finding a safe operating space

Science-Based Targets Network:
Building on a proven model



Future Earth Special Issue as cross-cutting initiative



Charting the course for the next decade of Sustainability Research and Innovation

Full paper submissions to the collection are open between 1 November 2022 - 14 July 2023



The age of the Anthropocene places societies in a position where urgent changes are required. The Special Issue will include cross-cutting questions regarding new methods of data collection and analysis critical to understanding socio-economic and environmental dynamics and interactions. This Special Issue will present state of the art knowledge and a forward-looking view on the most pressing research questions for the next decade of Future Earth and beyond.

Special Issue editors

Sirkku Juhola, University of Helsinki

Steven McGreevy, University of Twente

Faten Attig-Bahar, University of Carthage

Giles B. Sioen, Future Earth Global Secretariat Hub Japan

Judit Ungvari, Future Earth Global Secretariat Hub USA

<https://futureearth.org/2022/10/27/open-call-charting-the-course-for-the-next-decade-of-sustainability-research-and-innovation/>



Building and Mobilizing Networks



Early-Career Activities

- Liaising with the Early Career Researchers Network of Networks (ECR NoN)
- Supporting ECR participation in:
 - Future Earth governance bodies (Assembly and Governing Council, GRNs SSC)
 - Future Earth activities and events (SRI, science-policy interface, Pathways, etc.)
- Fostering synergies between the various ECR activities developed by the Hubs (increasing number of capacity building activities with the new Hubs)



Thank you

- <https://futureearth.org/>
- <https://twitter.com/FutureEarth>
- <https://www.facebook.com/futureearth.org>

Questions?

- Can WCRP and Future Earth leverage any flexibility in their core funds for any high-impact collaborative ideas (we are working together on synthesis projects like 10NICS, Risk KANs climate-related high level reports, tipping points webinars...any trainings or leadership programmes?), calls open, possibility of joint funding proposals on specific projects, e.g. biodiversity-climate interactions? Example: Latin America and Caribbean Initiative - My Climate Risk
- Lots of cross-over in our communities: important to acknowledge one another's organisations & demonstrate value to funders.
- We mapped some specific synergies of activities in 2020 - this has since evolved (e.g. work on cities (Urban KAN); relationships with Ocean KAN, GEWEX-iLEAPS, SOLAS- Climate intervention task team?). To articulate further – suggest a co-working space or WCRP - FE contact points for the partnership?
- SRI as an annual convening meeting: possible way to foster the connections between our communities AND lower carbon footprint by co-convening side-event meetings here?



Facilitate Research and Innovation - bioDISCOVERY



Convening the community



Next World Biodiversity Forum:
16-21 June 2024

www.worldbiodiversityforum.org



Advancing & Synthesizing Knowledge

(Co-)organisation of workshops, conference sessions and input talks

e.g. Monitoring Workshop at WBF, 26 June 2022

[10.32942/osf.io/hy7a2](https://doi.org/10.32942/osf.io/hy7a2)



Expert Input at Science-Policy Interface

Synthesis and assessment of current knowledge for CBD processes, e.g. post-2020 global biodiversity framework

Expert Input to the Post-2020 Global Biodiversity Framework

Transformative actions on all drivers of biodiversity loss are urgently required to achieve the global goals by 2050



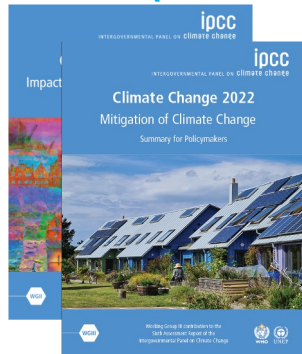
Future Earth **Urban Knowledge-Action Network**



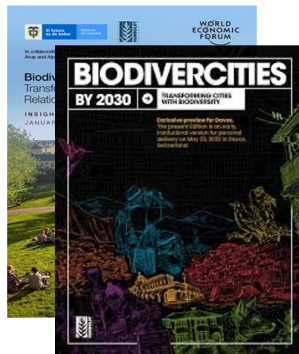
- **Urban KAN** aims to contribute to the transition toward sustainable urban futures where cities are more livable, equitable and resilient through transdisciplinary collaboration and solutions-oriented research.
- **Governance:** Prof. Xuemei Bai and Prof. Kensuke Fukushi
- **Main objective:**
 - Building a community of practice and mobilising capacity among innovators
 - Facilitating, co-designing, synthesizing and amplifying research
 - Turning Knowledge into action

Contact:
urban@futureearth.org

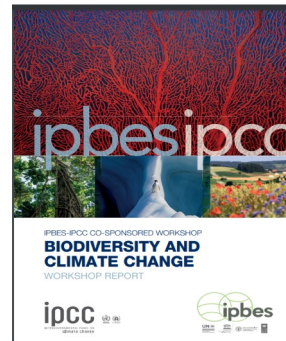
Major outputs and contribution:



Contribution to AR6 IPCC



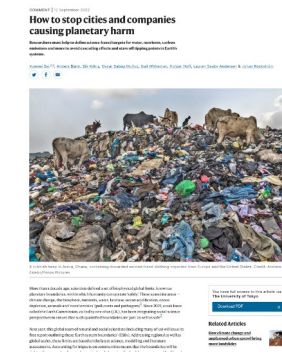
BiodiverCities by 2030 (1st and 2nd Output)



IPCC-IPBES 2021



Pascual et al., (2022)



Bai et al., (2022)



Kilis (2022)



Contact: langley@igacproject.org

- **IGAC's** mission is to **facilitate atmospheric chemistry research towards a sustainable world**. This is achieved through IGAC's four focal activities: advancing knowledge, fostering community, building capacity, and engaging society.
- **Governance:** just wrapped up SSC meeting
- **Major outputs and contribution:**



Joint International Atmospheric Chemistry Conference 2022



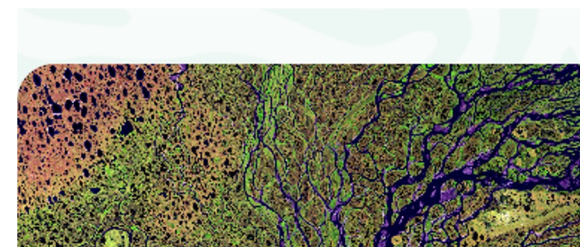
17th Science Conference
IGAC

15th Quadrennial Symposium
iCACGP

Contact: a.bhaduri@waterfuture.org



- **Water Future** is a global platform facilitating international scientific collaboration to drive solutions to the world's water problems.
- **Governance:** secretariat, planning committee, scientific steering committee, core groups, country nodes, working groups
- **Major outputs and contribution:** water science research agenda will be one of the key guiding documents to be presented and discussed with different stakeholders at the UN 2023 Water Conference to be held in March 2023 in New York.



Science to accelerate the implementation of SDG6

Risk KAN

(Knowledge Action Network on Emergent Risks and Extreme Events)



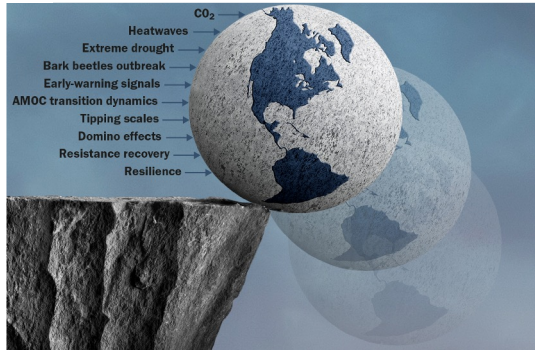
Goal: To serve as open platform for scientific communities from across science disciplines and engineering working on extreme events, disaster risk reduction and governance to exchange information, knowledge and data and engage in collaborative research activities.



- To engage with societal actors to **co-create new knowledge for effectively reducing disaster risks...**
- To stimulate groundbreaking and solution-oriented scientific research for risk reduction process...
- To address systemic, complex and cascading risks by synthesis of various scientific approaches and products

Workshops: Risk KAN Compound Extremes Working Group (Series) & Risk KAN Early Warning Working Group (Series)

- E.g
- Advancing complex systems approaches toward equity, actionable knowledge, and principles for governance (2022-10-27)
 - Effective communication of disaster response information (2022-09-29)



Institute for Advanced Sustainability Studies



ERL Focus Issue co-lead by Risk KAN co-chair Jana Sillmann "Focus on Earth System Resilience and Tipping Behavior - Environmental Research Letters – IOPscience (https://iopscience.iop.org/journal/1748-9326/page/Focus_on_earth_system_resilience_and_tipping_behavior)

Nature commentary: Reichstein, M., Riede, F., Frank, D. (2021). More floods, fires and cyclones — plan for domino effects on sustainability goals. *Nature*, 592, 347-349. doi:10.1038/d41586-021-00927-x

Briefing note: Sillmann, et al.S. 2022. ISC-UNDRR-RISK KAN Briefing note on systemic risk, Paris, France, International Science Council, doi: 10.24948/2022.01 (March 10, 2022)

Golding, B. (edit.) 2022 <https://doi.org/10.1007/978-3-030-98989-7>