

Welcome

*Markus Reichstein & Dorothea Frank
(Max-Planck-Institute for Biogeochemistry)*

E³S Partners:



Urbanization and Global
Environmental Change
AN IHDP CORE PROJECT



Integrated Land Ecosystem -
Atmosphere Processes Study

Welcome to the Harnack-House of the Max-Planck Society



Bundesarchiv, Bild 102-07736
Foto: o. Ang. | Mai 1929



Max-Planck-Institut
für Biogeochemie



**Cross community workshop on Extreme Events and
Environments from Climate to Society (E³S)**
Berlin, February 14th to 16th 2016

Alexander von Humboldt
Stiftung/Foundation



Dr. Thorsten Kiefer
Future Earth Global Hub, Paris

<http://www.futureearth.org/secretariat>



Rebecca Oliver
Future Earth Global Hub, Stockholm

<http://www.futureearth.org/secretariat>

Prof. Dr. Ilan Chabay
IASS, Potsdam

<http://www.iass-potsdam.de/de/menschen/prof-dr-ilan-chabay>



Dr. Tanja Suni
European Alliance, Helsinki

<http://ea-globalchange.org/index.php/get-in-touch>

Dr. Dorothea Frank
Scientific office, MPI-BGC Jena



Birgitta Wiehl,
Secretary, MPI-BGC Jena

Prof. Dr. Dirk Brockmann
Humboldt University
Robert Koch-Institute, Berlin

<http://rocs.hu-berlin.de/page23/index.html>



Dr. Thorsten Kiefer
FE Global Hub, Paris

<http://www.futureearth.org/secretariat>



Prof. Dr.-Ing. Jörn Birkmann
University of Stuttgart, Germany

<http://www.uni-stuttgart.de/ireus/mitarbeiter/mitarbeiter/birkmann/index.en.html>



Jun.-Prof. Dr. Björn Vollen
Philipps-Universität Marburg

https://www.uni-marburg.de/fb02/macie/team/index_html/bvollen



Dr. Paul Vossen
EC Research & Innovation Directorate
General

<http://ea-globalchange.org/index.php/8-news/64-piecing-together-the-puzzle-of-future-earth>

Dr. Jana Sillmann (CICERO), Sebastian Sippel (MPI-BGC)



Dr. Jakob Zscheischler (ETH Zürich), Dr. Carl-Friedrich Schleussner (Climate Analytics)



**Dr. Kirsten Thonicke (PIK),
Prof. Dr. Michael Bahn (University Innsbruck)**



**Dr. Damià Gomis (IMEDEA),
Dr. Sathaporn Monprapussorn
(Srinakharinwirot University)**



Session leaders

Dr. Qian Ye (Beijing Normal University)



**Dr. Miguel Mahecha (MPI-BGC);
Dr. Ursula Geßner (DLR); Dr. Ilona Otto (PIK)**



Welcome, context and goals

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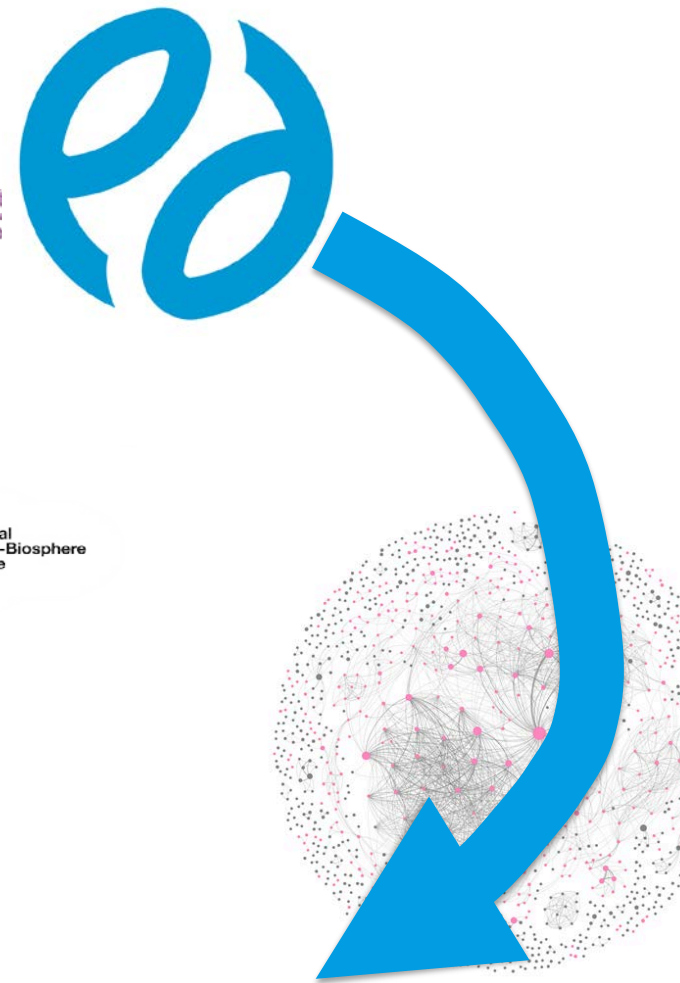
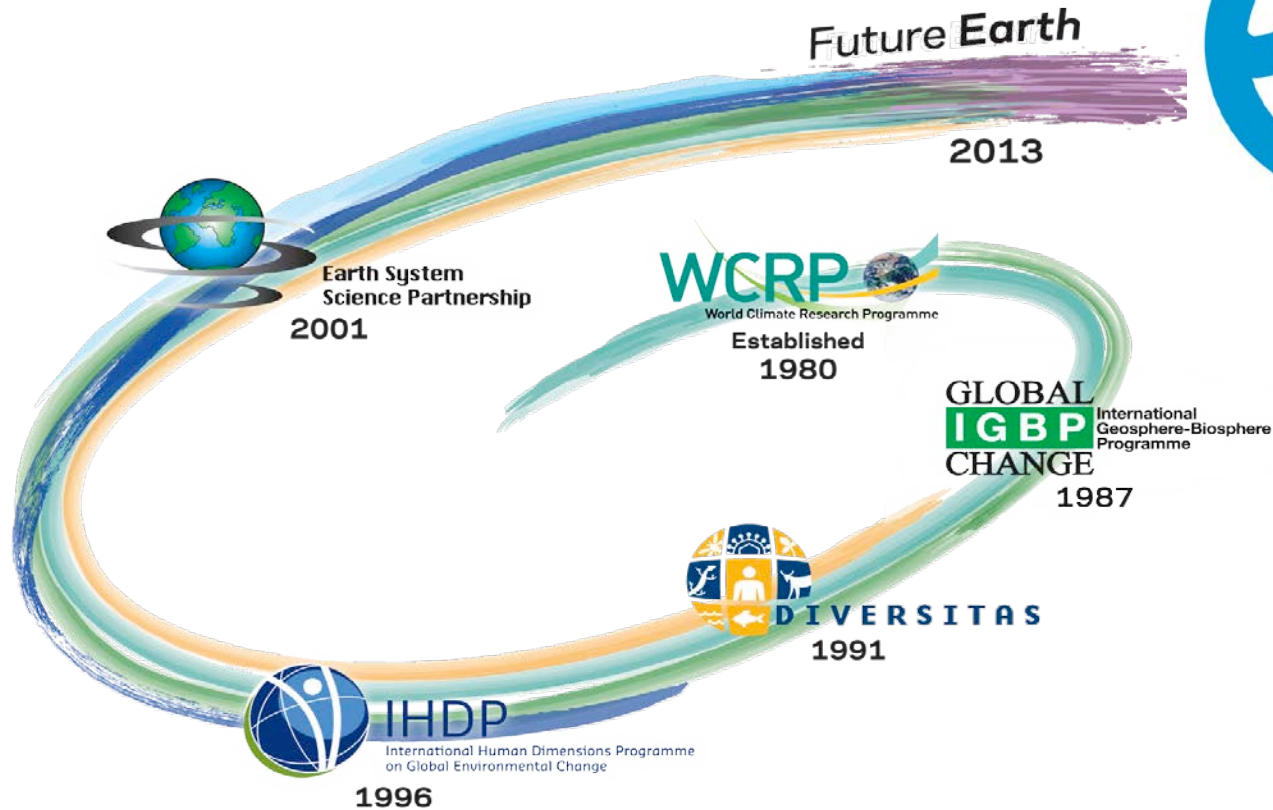
workshop on Extreme Events
from Climate to Society



Integrated Land Ecosystem -
Atmosphere Processes Study
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Brief history and context



courtesy of Thorsten Kiefer and Rebecca Oliver

2025 Vision



1. Challenges

- Inspired and created ground-breaking interdisciplinary science relevant to major global sustainability challenges

2. Outputs

- Delivered products and services that our societal partners need to achieve these challenges

3. Approaches

- Pioneered approaches to co-design and co-produce solutions-oriented science, knowledge and innovation for global sustainable development

4. Capacities

- Enabled and mobilised capacities to co-produce knowledge, across cultural and social differences, geographies and generations

http://www.futureearth.org/sites/default/files/files/Future-Earth_10-year-vision_web.pdf

A brief history and context

futureearth

research for global sustainability

**Call for proposals for
fast track initiatives & clusters**

**Extreme Events and Environments
- from climate to Society (E³S) -**

 **ileaps**



 **Earth
System
Governance**

 **IRDR**
Integrated Research on Disaster Risk



PAGES
PAST GLOBAL CHANGES

WCRP
World Climate Research Programme



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Extreme Events and Environments – from climate to Society (E³S)



Natural systems



Connected systems



Social systems

Top left to top right : Craig Allen, USGS, Los Alamos, USA; http://allnewsaboutpakistan2.blogspot.de/2011/05/flood-in-pakistan-2010_6807.html ; http://www.angelfire.com/ult/hogeeheartoftheroach/2trackstudio/looters_will_be_killed.jpg
Bottom left to bottom right : <https://www.flickr.com/photos/lubasi/4909683043> (@ Luis Barreiros); <https://travel.com.vn/mien-bac/tour-ha-giang.aspx>; <http://jetzt.sueddeutsche.de/texte/anzeigen/572668/Fluthilfe-aus-dem-Netz>

- Which system properties yield resistance and resilience to extreme conditions?*
- How do social and natural systems interact at different time-scales (dir. reaction to adaptation)?*
- How does perception and moral valuation affect societal response to extreme events?*
- What are meaningful indices of impact-relevant climate extremes (including adaptation)?*

Exciting? Relevant? 10yr-Solvable?

Future Earth Cluster and Fast Track Initiatives

Our Initiatives

ArcticSTAR - Solution-oriented, transdisciplinary research for a sustainable Arctic

Exploring nitrogen in Future Earth

Extreme events and environments – from climate to society (E3S)

Global Biodiversity Monitoring, Prediction & Reporting

Linking Earth system and socio-economic models to predict and manage changes in land use and biodiversity

Liveable urban futures

Scientific Support for IPBES Knowledge Generation

Seeds of a Good Anthropocene

Sustainability for water, energy, and food through integrated water information and improved governance

CONNECT



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WCRP
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**Extreme Events and Environments
- from climate to Society (E³S) -**

1st workshop 2015

**Bottom-up call
for sessions**

**Cross community workshop on Extreme Events and
Environments from Climate to Society (E³S)**
Berlin, February 14th to 16th 2016



Cross-community workshop Berlin, February 14th to 16th 2016

Steering committee: Ilan Chabay, Markus Erhard, Sirkku Juhola, Markus Reichstein, Jana Sillmann, Tanja Suni, William Solecki

- Co-design workshop
- 1-2 page (research strategy) document
- Parallel workshop sessions
- 90+ participants from insurance companies, UNFCCC, EEA, funding bodies, universities... (Africa, Asia, Europe, The Americas) [oversubscribed]

Towards impact-relevant climate extremes metrics

Dr. Jana Sillmann (CICERO), Sebastian Sippel (MPI-BGC)

How to project climate extremes that really matter? A transdisciplinary approach for new narratives of climate extreme impacts in the future earth context

Dr. Jakob Zscheischler (ETH Zürich), Dr. Carl-Friedrich Schleussner (Climate Analytics)

Adaptive capacity of coupled socio-ecological systems to absorb climate extremes

Dr. Kirsten Thonicke (PIK), Prof. Dr. Michael Bahn (University Innsbruck)

Impact of hydrological and marine extreme events on coastal ecosystems and infrastructures. Adaptation strategies and community resilience

Dr. Damià Gomis (IMEDEA), Dr. Sathaporn Monprapussorn (Srinakharinwirot University)

Integrated Governance of Disaster Risk and Financial Uncertainties for Sustainable Development

Dr. Qian Ye (Beijing Normal University)

Detecting, understanding and reacting to extreme environmental events: integrating the potential of societal data, citizen science, Earth observation, and novel data analytic approaches

Dr. Miguel Mahecha (MPI-BGC); Dr. Claudia Kuenzer, Dr. Ursula Geßner (DLR); Dr. Ilona Otto (PIK)

Dr. Jana Sillmann (CICERO), Sebastian Sippel (MPI-BGC)



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Thanks to session leaders!

Two goals of the workshop

1. Define key research questions and research strategy



Research strategy (1-2 page science plan)

Title	Please put your session title here, or an updated one, if the session discussions indicated this
 <u>Context,</u> <u>Motivation,</u> <u>Urgency</u>	Please shortly describe the context and motivation as concretely relevant to your topic as possible. Both the scientific and the societal motivations should be clear, as well as the timeliness/urgency (Why now, in the next five years?).
Key research questions	This is the main part. Please indicate 3- max. 5 research questions, if possible, logically arranged.
Expected methodologies and disciplines involved	Please indicate a guess of the methodologies and disciplines needed to make progress on the key research questions listed above.

Research strategy (1-2 page science plan)

Stakeholders involvement needed	Please indicate here the type of stakeholders needed to make progress on the respective research questions. This could be in terms of design, research tools including data and outreach. Please explain where you see the major contributions of the involvement of stakeholders and how to structure this involvement.
Relevant scale / regions	Please indicate at which scale the topic has implications on (local, national, supra-national (e.g. EU) or global scale), or if the topic does not necessarily address a specific scale. If applicable, indicate for which regions the relevance is particularly high.
Expected societal impact	Please describe here how your research idea will contribute to the relevant policies (on the appropriate scale, e.g. EU, global), to societal development, to the integration and implementation of new knowledge and the integration of existing initiatives and/or networks. Please also describe the expected difference in societal impact due to the co-design of the research questions.

E³S Extreme Events and Environments: from Climate to Society cross community workshop

February 14th to 16th 2016

agenda

E³S cross-community meeting day 1

Sunday, 14.02.2016

11:30 - 12:30	Arrival, registration, short welcome (plenary)	plenary
12:30 - 13:30	<i>lunch</i>	restaurant
13:30 - 14:00	Briefing and discussion about workshop topic, goals and early-career scientists involvement in session (protocol, summary etc.) and post-workshop publication	plenary
14:00 - 15:00	Within session discussion (workshop goals, methods etc.)	parallel sessions
15:00 - 16:30	Early career scientist's short presentations (cross-community topics in context of E ³ S) - of session 1 and 2	plenary
16:30 - 17:00	<i>Coffee break</i>	Planck-Lobby
17:00 - 19:00	Early career scientist's short presentations (cross-community topics in context of E ³ S) - of session 3 to 6	plenary
19:00 - 19:15	Closing	plenary
starting 19:30	<i>E³S working Dinner</i> for exchange session chairs and workshop participants	Planck-Lobby

E³S cross-community meeting day 2

Monday, 15.02.2016

9:00-9:30	Welcome & introduction; Briefing about sessions, expected outcome (1-2 page research strategy, foundation document for call for proposals preparation by funding organizations on Future Earth related research) and post-workshop publication	plenary
9:30 - 11:00	Independent parallel sessions: → identification and elaboration of scientific questions and associate research agenda under the respective E ³ S umbrella themes 1 Towards impact-relevant climate extremes metrics <i>Sillmann (CICERO), Sippel (MPI-BGC)</i>	parallel sessions rooms: Lynen

- 6 slots for session internal discussions (7.5 hrs)
- 2 plenary feedback sessions
- 5 Invited presentations + early career
- 1 plenary presentation of final session results
- 1 Feedback panel discussion
- 1 E³S/Future Earth internal discussion

11:30 - 12:30	Independent parallel sessions (part 2)	parallel sessions
12:30 - 13:30	<i>lunch</i>	restaurant
13:30 - 14:30	E ³ S cross-community meeting <i>Cross-cutting discussion (amongst session topics /workshops)</i>	plenary
14:30 - 16:00	Independent parallel sessions N°1-6 → identification and elaboration of scientific questions and associate research agenda under the respective E ³ S umbrella themes → preparation summary and draft 1-2 page strategic science plan to be used for funding organizations to prepare call for proposals for Future Earth related research	parallel sessions
16:00 - 16:30	<i>Coffee break</i>	Planck-Lobby
16:30 - 17:30	Independent parallel sessions N°1-6 → preparation of session summary and draft 1-2 page strategic science plan to be used for funding organizations to prepare call for proposals for Future Earth related research; discussion and feedback	parallel sessions
17:30 - 19:00	E ³ S cross-community meeting Presentation and discussion session summaries (<i>per session 10 + 5 min</i>)	plenary
19:00 - 19:30	Invited scientific dinner speech: Prof. Dr.-Ing. Jörn Birkmann (University of Stuttgart) „ <i>Measuring core determinants of risks due to extreme events and human vulnerability in order to promote resilience building</i> “	plenary
starting 19:30	<i>E³S Conference Dinner</i>	Planck-Lobby

E³S cross-community meeting day 3

Tuesday, 16.02.2016

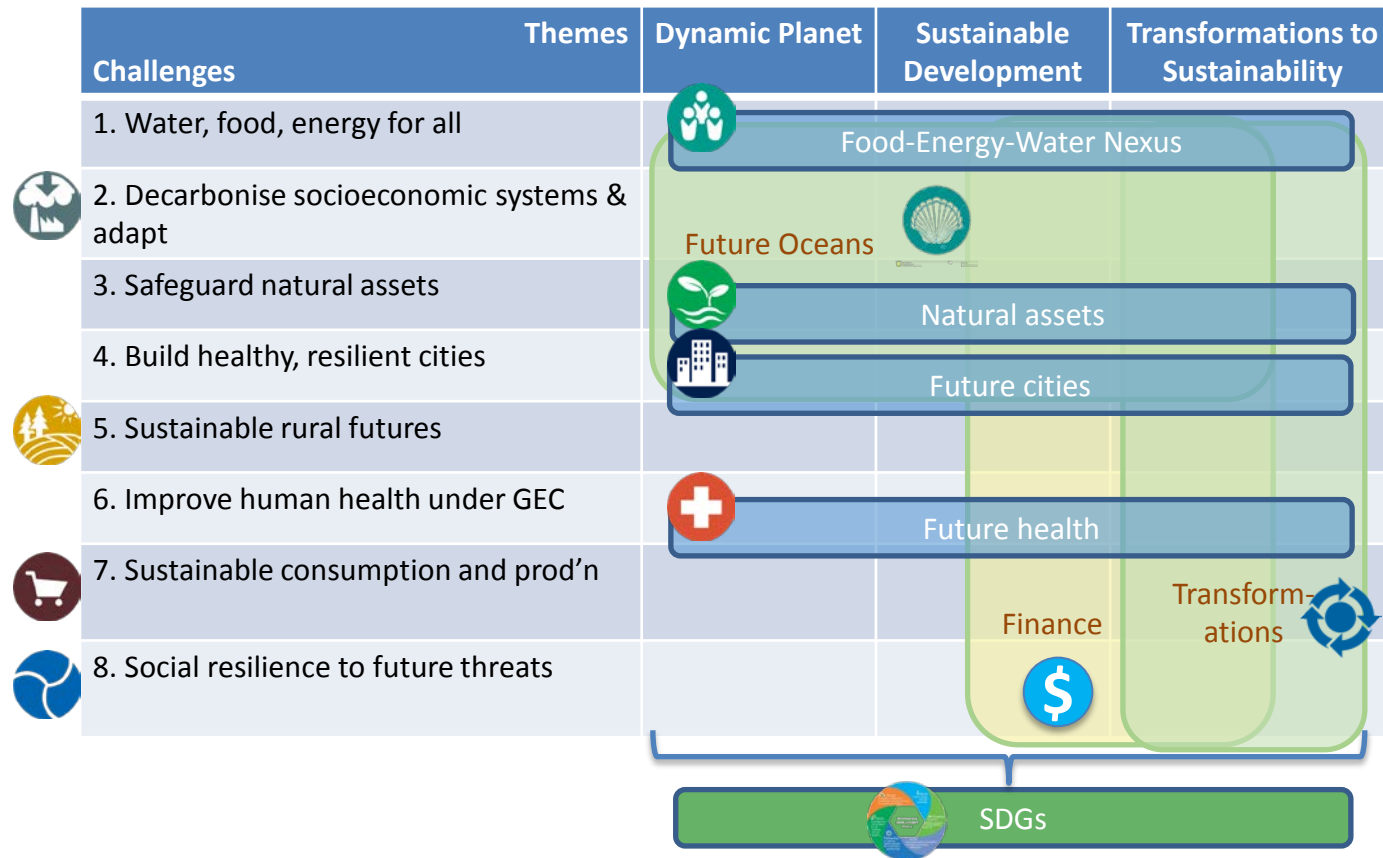
8:30 - 10:00	Preparation of science plans (within sessions)	parallel sessions
10:00 - 10:30	<i>Coffee break</i>	Planck-Lobby
10:30 - 12:00	Invited talks by Dr. Thorsten Kiefer (Future Earth Global Hub Director, Paris) "How to spin up research activity on sustainability issues in Future Earth?" Prof. Dr. Dirk Brockmann (Institute for Theoretical Biology, Humboldt University Berlin; Project Group Epidemiological Modeling of Infectious diseases, Robert Koch-Institute, Berlin) "The hidden geometry of global, network-driven contagion phenomena" Dr. Björn Vollen (Robert Bosch Junior Professor for Sustainable Use of Natural Resources, Philipps-Universität Marburg) "The shadow of the past and the shadow of the future: Studying the impact of climate change on human behavior" Dr. Paul Vossen (EC Research & Innovation Directorate General, Liaison officer for the Belmont Forum chairmanship) "How to leverage Horizon 2020, Future Earth and the Belmont Forum for ST&I Actions targeting sustainable development?"	plenary
12:00 - 13:00	<i>lunch</i>	restaurant
13:00 - 15:00	Presentation science plans (15 min presentation + 5 minutes discussion per session)	plenary
15:00 - 15:45	Feedback round / panel discussion [Dr. Thorsten Kiefer, Dr. Paul Vossen, Dr. Juliane Mossinger, Prof. Dr. Markus Reichstein, Dr. Eberhard Faust; moderation: Dr. Tanja Sutti]	plenary
15:45 - 16:00	Closing by E ³ S coordination	plenary
16:00 - 16:45	<i>Adjourn / Coffee break</i>	Planck-Lobby
16:15 - 16:45	Sessions leaders internal meeting (with coffee available)	
16:45 - 18:30	E ³ S / Future Earth internal discussion	

Two goals of the workshop

1. Define key research questions and research strategy
2. Build community & evaluate development of E³S topic within Future Earth landscape



Knowledge-Action Network initial set



Integrate into existing KANs?

Merge with other planned KANs?

Propose a new KAN? ➔ What aspects are missing?

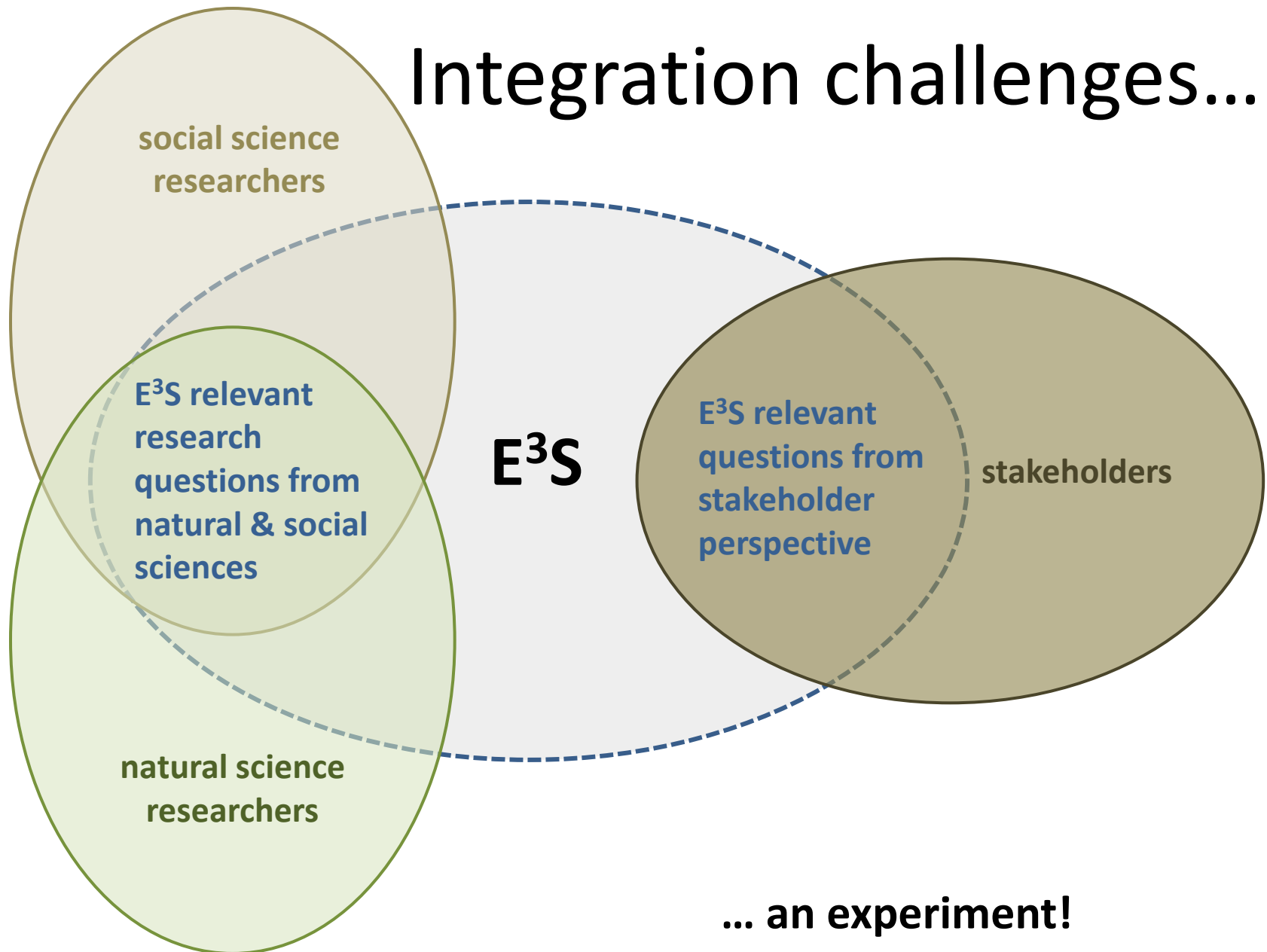
courtesy of Thorsten Kiefer and Rebecca Oliver

Extreme Events and Environments - from climate to Society (E³S) -



(top left) Catedral Verde – Floresta Amazonica; <https://www.flickr.com/photos/lubasi/4909683043> (@ Luis Barreiros); (top middle): Craig Allen, USGS, Los Alamos, USA; (top right): U.S. Fish and Wildlife Service (2011); (bottom left) <https://travel.com.vn/mien-bac/tour-ha-giang.aspx>; (bottom middle): Jay Janner, The Statesman; (bottom right): Dr. Bernd Gross

Integration challenges...



... an experiment!



To be successful:

- Not the current day-to-day challenges
- Not your current research or next proposal
- Beyond your discipline
- Leave your comfort zone!
- Listen to other perspectives without prejudice!

Co-design and co-production of knowledge

<http://www.education4sustainability.org/2013/03/page/2/>

Extreme Events and Environments - from climate to Society (E³S) -



Thanks!

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