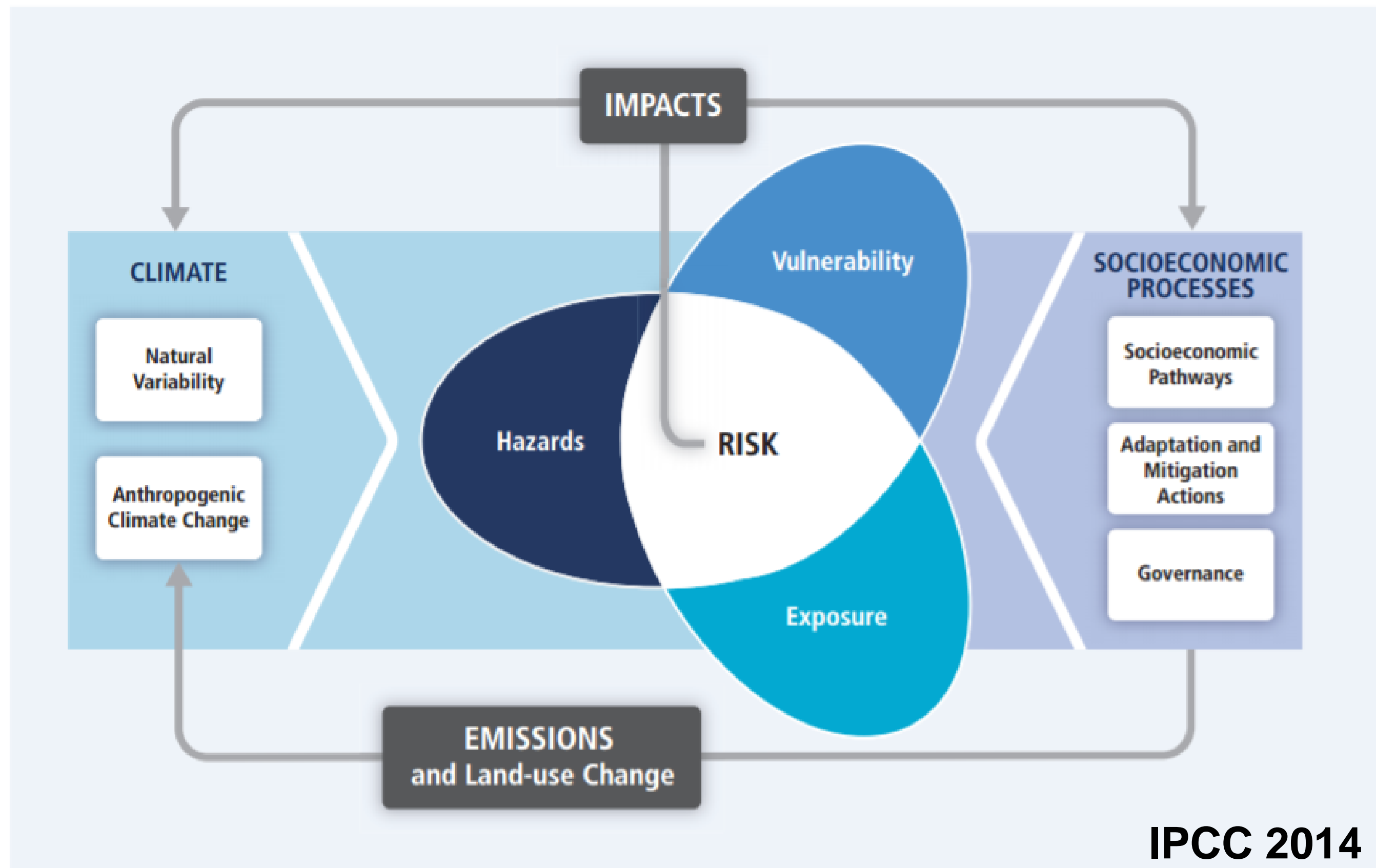


°CICERO

Overarching context

Workshop on **Indicators for climate extremes and socio-economic impacts**
under different emission targets, JRC, Ispra, Italy (October 4-6, 2017)

Today's Climate Change Challenges



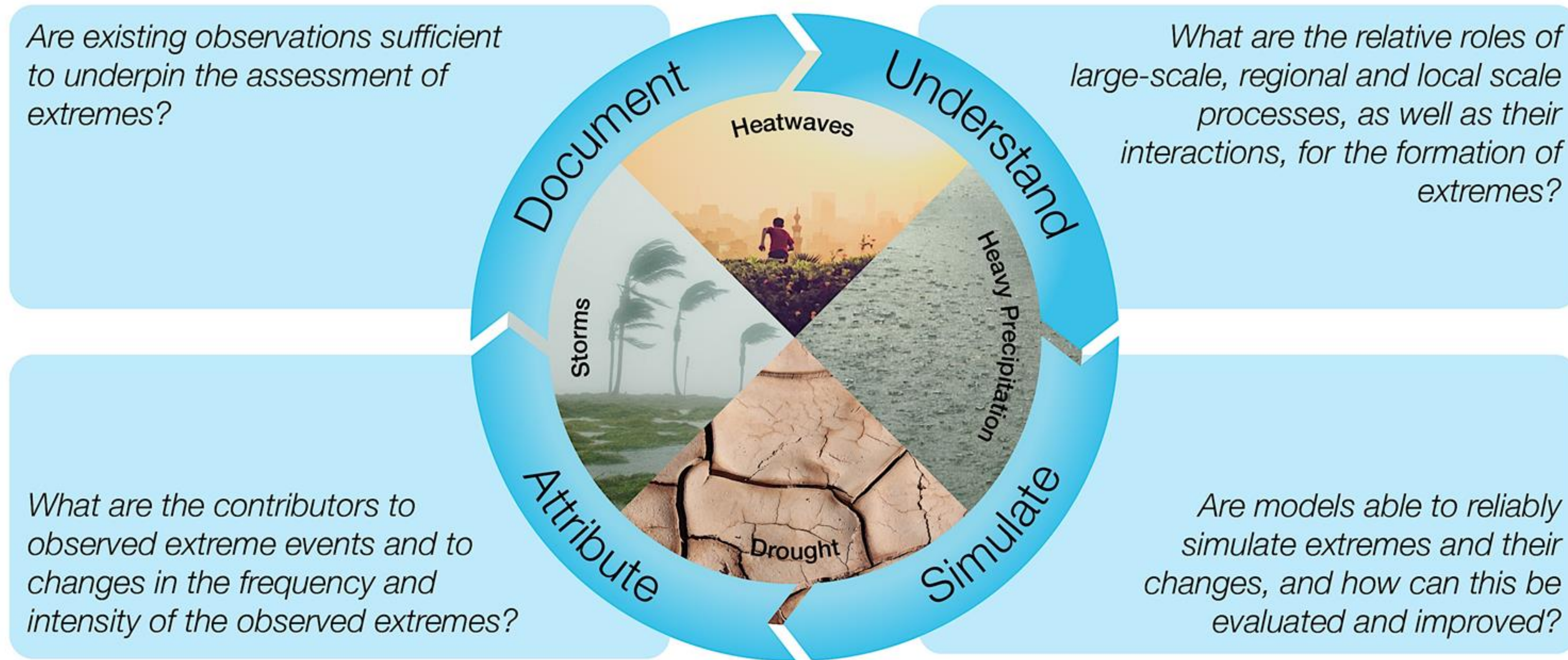
Intergovernmental Panel on Climate Change (IPCC) Chairman's vision paper for the 6th Assessment Report:

Climate risk needs to be assessed in relation to other economic and societal risks and associated uncertainties being most relevant to decision-making. This is also recognizing the fact that **scientific and technical information can guide better decisions, but they must be placed in the societal context.**

World Climate Research Programme- Grand Challenge on Weather and Climate Extremes

4 main extremes, 4 overarching themes

(Implementation plan Feb. 2016)



World Climate Research Programme- Grand Challenge on Extremes

Driven largely by service needs

- From ***service perspective***: What are frequency and magnitudes of various impact-causing extremes in the near and long term?
- From ***science perspective***: How can we better understand the causes and mechanisms of variability and change in extremes, and improve the prediction of changes in extremes?

Implementation needs to be focused: areas with opportunity for rapid progress



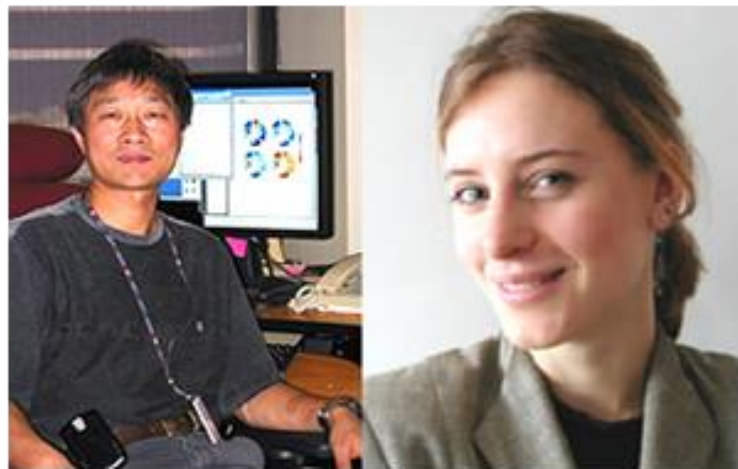
World Climate Research Programme- Grand Challenge on Weather and Climate Extremes

4 main extremes, 4 overarching themes

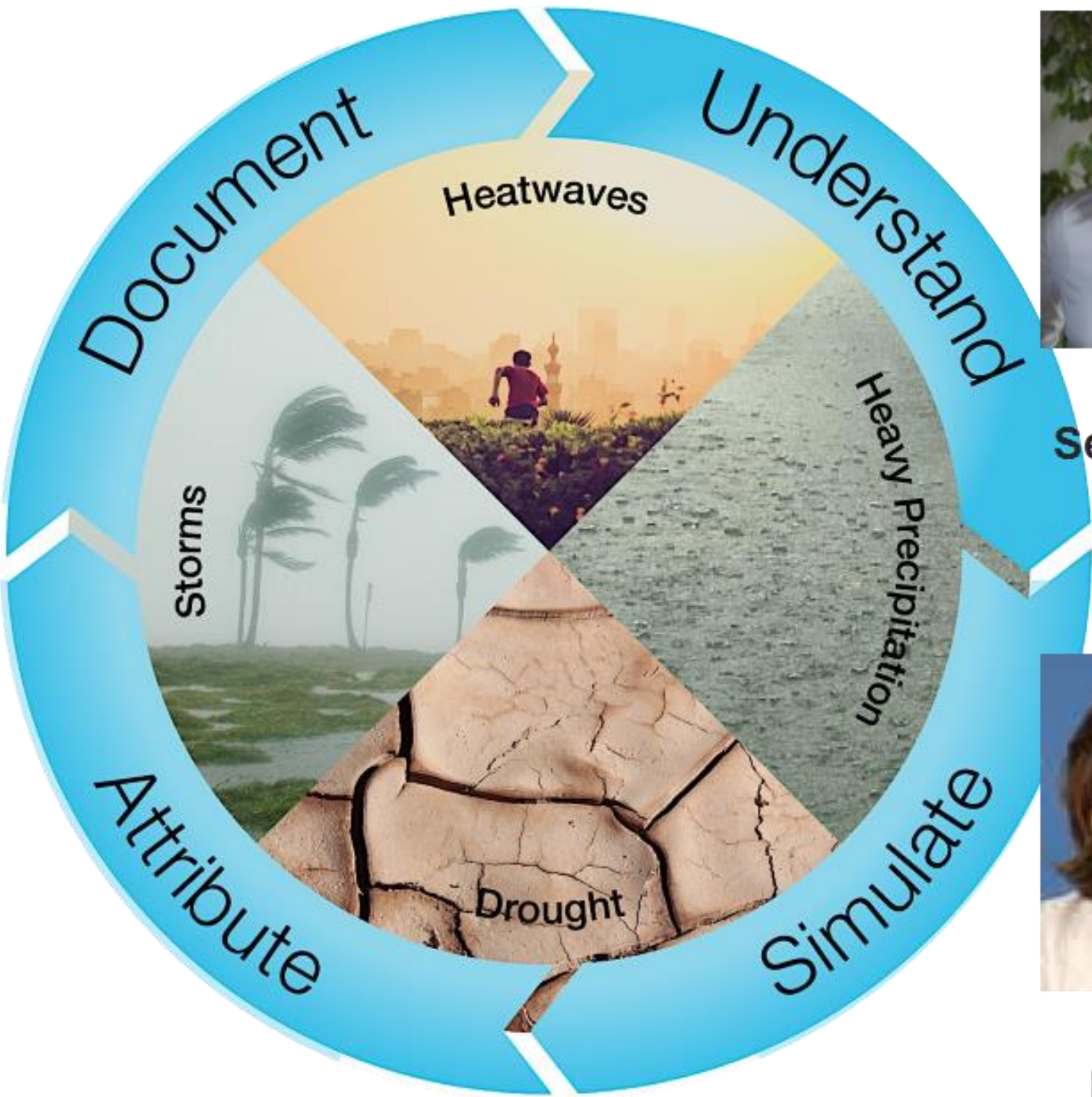
(Implementation plan Feb. 2016)



Lisa Alexander Ali Behrangi



Xuebin Zhang Fredi Otto



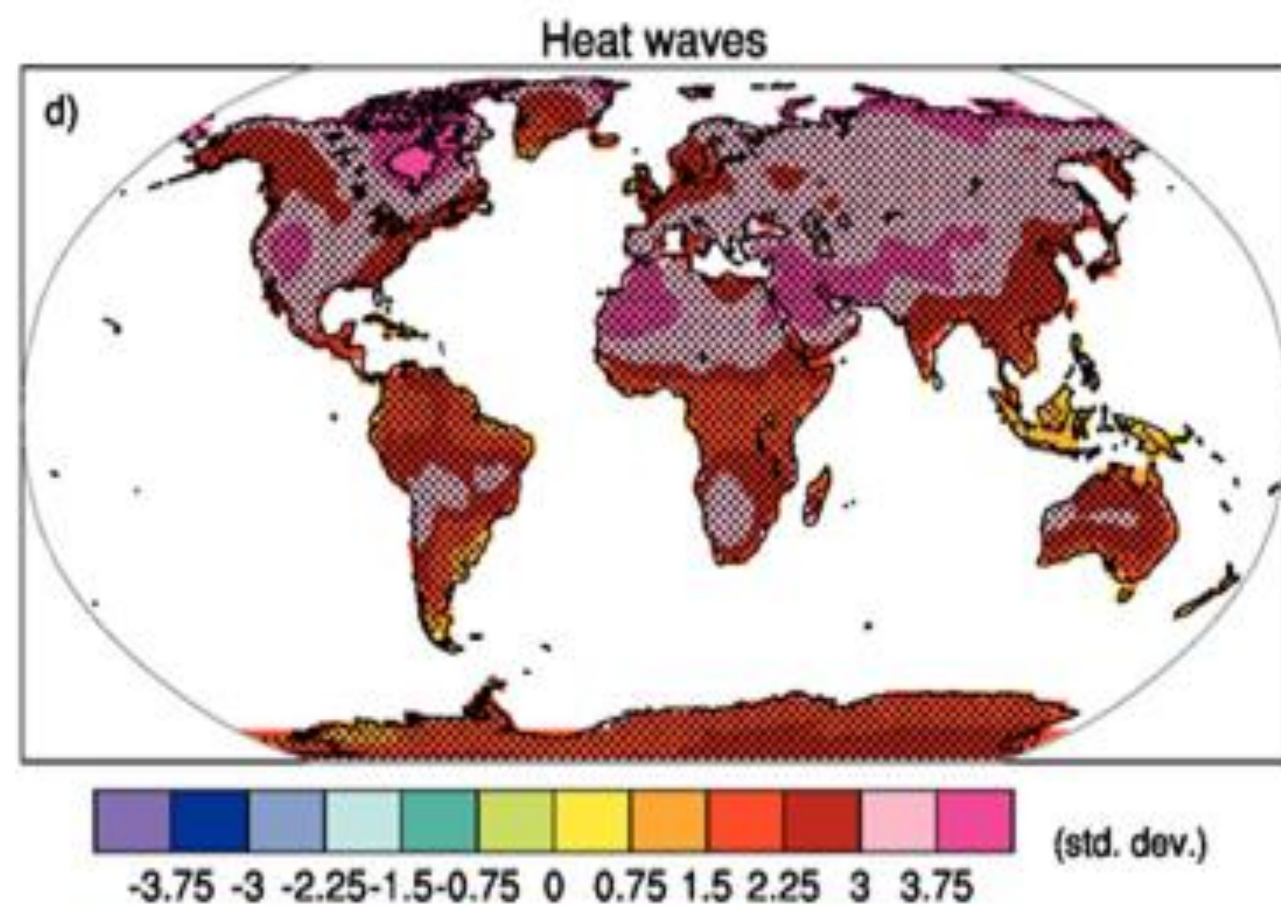
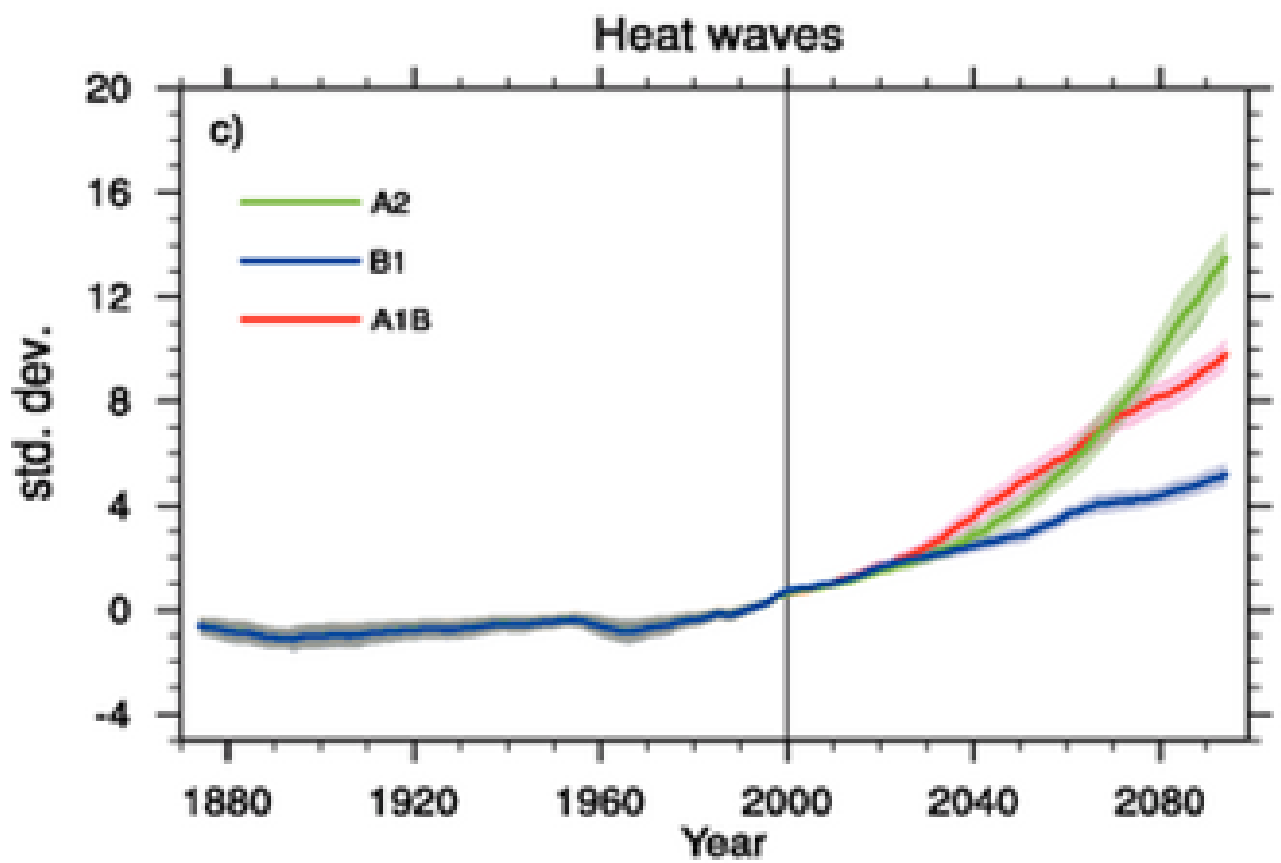
Sonia Seneviratne Olivia Martius Robert Vautard



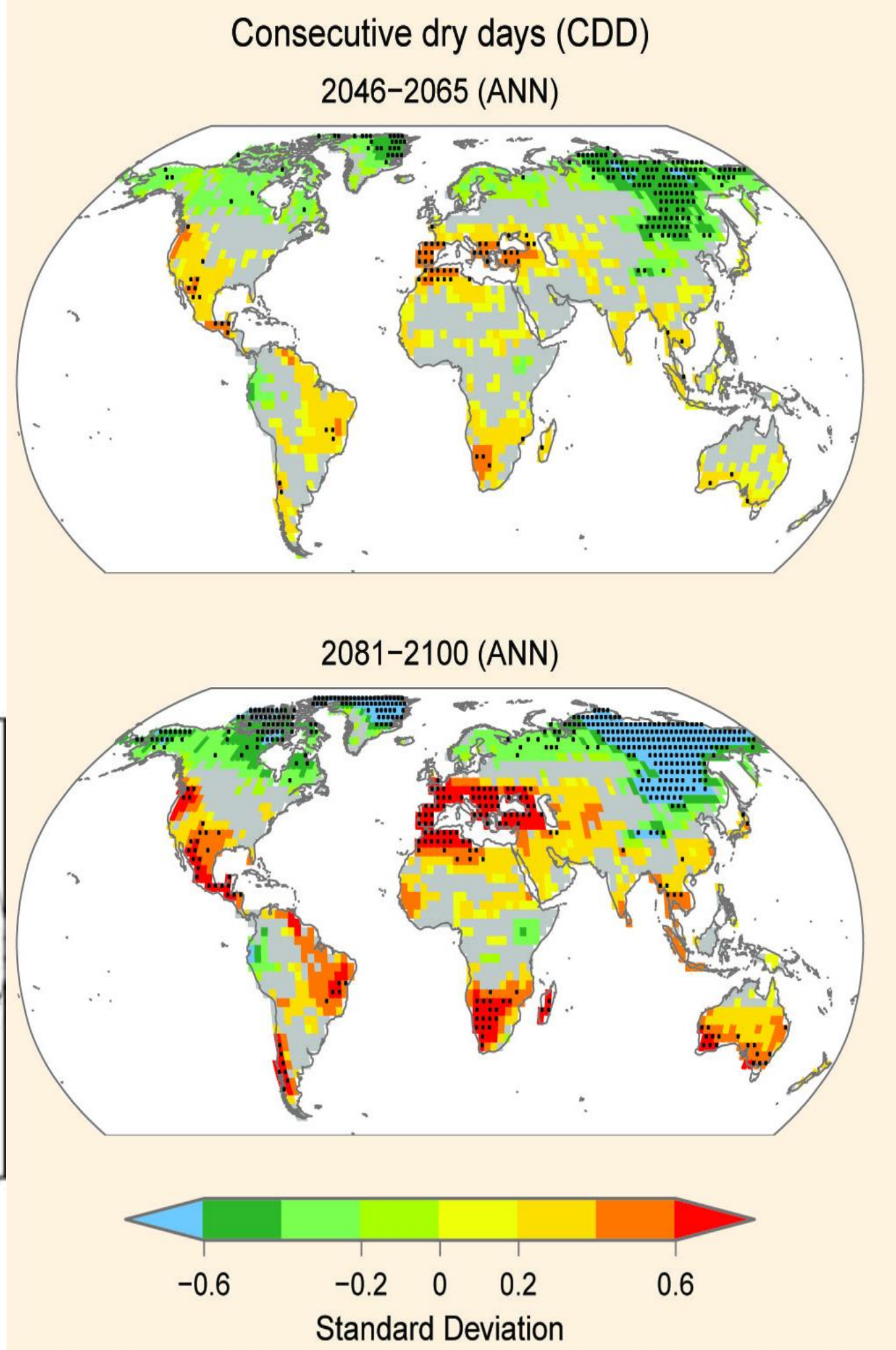
Gabi Hegerl Jana Sillmann Erich Fischer

Climate extremes indices in IPCC ARs

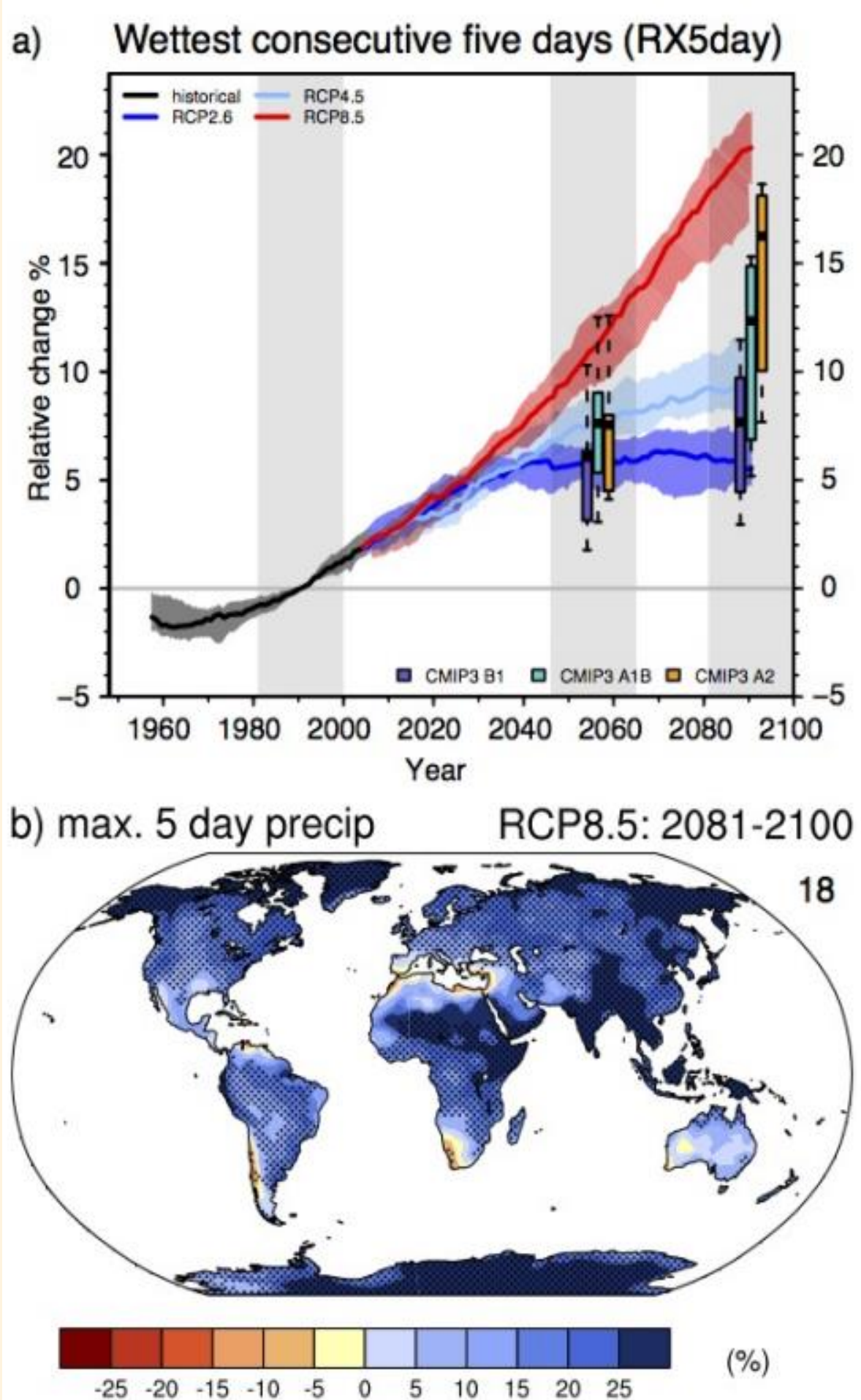
IPCC AR4 (2007)
CMIP3 models



IPCC SREX (2012)
CMIP3 models



IPCC AR5 (2013)
CMIP3/CMIP5



World Meteorological Organization (WMO)



WORLD
METEOROLOGICAL
ORGANIZATION

WEATHER CLIMATE WATER

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Programmes > WCP > CCI > Structure > OPACE 4 > ET-SCI

Expert Team on Sector-specific Climate Indices (ET-SCI)

Terms of Reference

- a. Further develop the standardized software ClimPACT built during the fifteenth intersessional period, to generate sector-specific climate indices, including their time series based on historical data and methodologies to define simple and complex climate risks;
- b. Promote the use of globally consistent, sector-specific climate indices to bring out variability and trends in climate (e.g. droughts) of particular interest to socio-economic sectors, and to help characterize the climate sensitivity of various sectors;
- c. Develop the training materials needed to raise capacity and promote uniform approaches around the world in applying these techniques;
- d. Coordinate and lead regional workshops building on the experience gained with the initial workshop (Western South America, 2013);
- e. Extend ClimPACT set to include indices derived from other climate variables that are relevant for sector impacts.

Related items

Commission for Climatology

Expert and Task Teams

Meetings & Events

Link to other OPACES



[Click here to search with Google](#)

Extreme Events and Environments from Climate to Society (E3S)

Cross-Community Workshop held in Berlin, February 2016 as part of a Future Earth Initiative

<http://www.e3s-future-earth.eu/index.php/ConferencesEvents/ConferencesAmpEvents>

Workshop sessions

[Towards impact-relevant climate extremes metrics](#)

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

Science plan elaborated in this session is available for [download](#)

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

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

Science plan elaborated in this session is available for [download](#)

[Adaptive capacity of coupled socio-ecological systems to absorb climate extremes](#)

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

[Integrated Governance of Disaster Risk and Financial Uncertainties for Sustainable Development](#)

Session lead: Dr. Qian Ye (Beijing Normal University)

Science plan elaborated in this session is available for [download](#)

[Impact of hydrological and marine extreme events on coastal ecosystems and infrastructures. Adaptation strategies and community resilience](#)

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

Science plan elaborated in this session is available for [download](#)

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

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

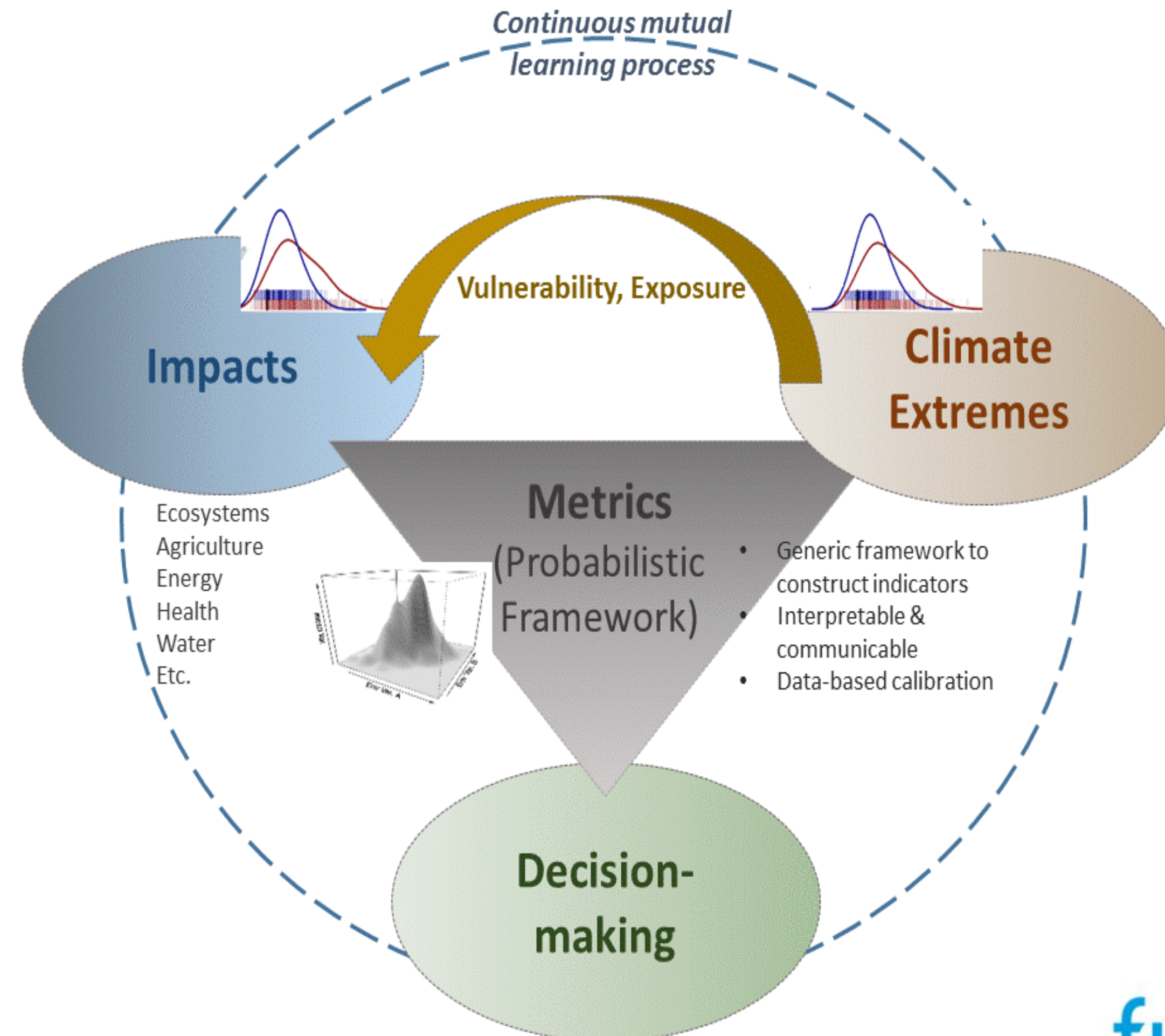
Science plan elaborated in this session is available for [download](#)



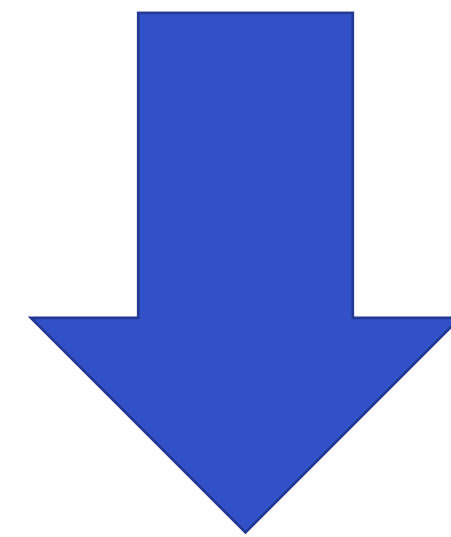
Extreme Events and Environments from Climate to Society (E3S)

Towards society-relevant metrics for climate extremes and their impacts

Session organizers: *Jana Sillmann, Sebastian Sippel, Erlend Andre Tveiten Hermansen*



Extreme Events and Environments from Climate to Society (E3S)



Future Earth Knowledge Action Network (KAN) on **Emergent Risks and Extreme Events**

Joint initiative of Future Earth (E3S), WCRP and Integrated Research on Disaster Risk (IRDR)

Overarching questions for this workshop

Session 2: Climate Change and Human Health

(Moderator: Jakob Zscheischler, ETH)

(20 min talks + 10min discussion)

Session 3: Climate Change and Agriculture

(Moderator: Van Der Velde Marijn, JRC)

(20 min talks + 10min discussion)

Session 4: Climate Change, Economic and Finance

(Moderator: Ian Vollbracht, JRC)

(20 min talks + 10min discussion)

Focus Group Discussions (1.5 hours)

Overarching questions for this workshop

- 1) What are the **measurable assets in socio-economic systems** exposed to climate extreme impacts? Is data related to these assets available?
- 2) What are the **most important socio-economics variables accounting for vulnerability** of a specific country (location) to climate extremes? Is data related to these variable available?
- 3) Can we **aggregate variables from different sectors** into a single number or probability distribution measuring exposure and vulnerability to climate extremes?
- 4) Can we develop a **generic continuously updated probabilistic framework and toolbox** for society-relevant extremes metrics across various sectors and what are the desirable requirements of such a framework?