PROCLIAS

Process-based models for climate impact attribution across sectors

ISIMIP
Inter-Sectoral Impact Model Intercomparison Project

Welcome to the ISIMIP-PROCLIAS Cross-sectoral Workshop

22.-26.4.2024

Katja Frieler & Christopher Reyer

Leibniz Association

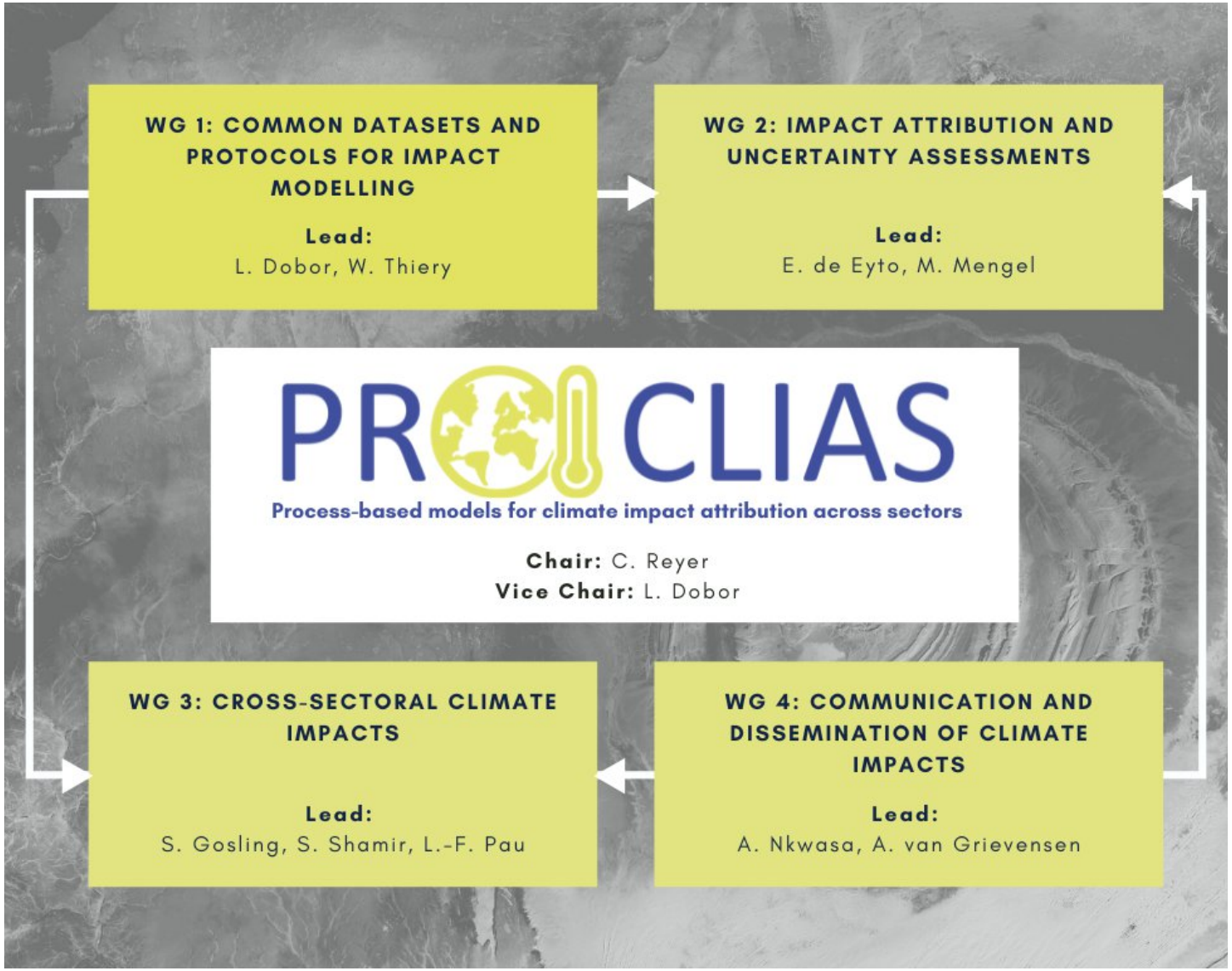
cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

Funded by the European Union

PROCLIAS aims and structure

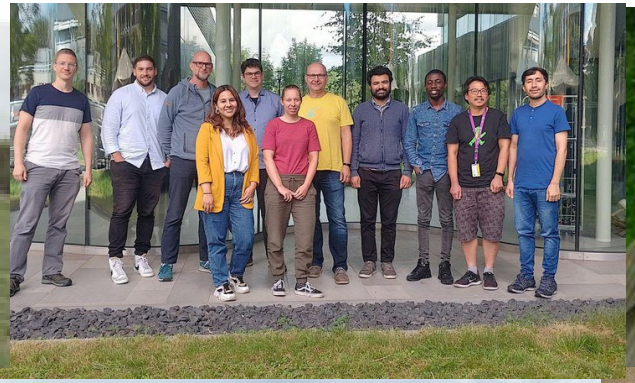
"*in close cooperation with ISIMIP, PROCLIAS aims to develop common protocols, harmonized datasets and a joint understanding of how to conduct cross-sectoral, multi-model climate impact studies at regional and global scales allowing for attribution of impacts of recent climatic changes and robust projections of future climate impacts.* "

⇒exchange and networking
⇒training
⇒dedicated products (papers, data, code)



Exchange and networking

- 3 physical large meetings
- 2+6+7+6 TG meetings
- plenty of online meetings in the TGs



Training: STSMs

- **2+10+7+X STSMs**
- **New open STSM Call:**
  Call open: **29th April - 24th May 2024**
  Final decision: **31st May 2024.**
  STSM period: **1st June 2024 -25th October 2024**

Mats Mahnken @ **LESSEM**


Laura Dobor @ **ETH Zürich**


Johanna Malle @ **PIK**

Konstantin Gregor @ **UC Berkeley**

Doroteja Bitunjac @ **Slovak Academy of Sciences & CZU**


Rogert Sorí Gómez @ **Sofia University**

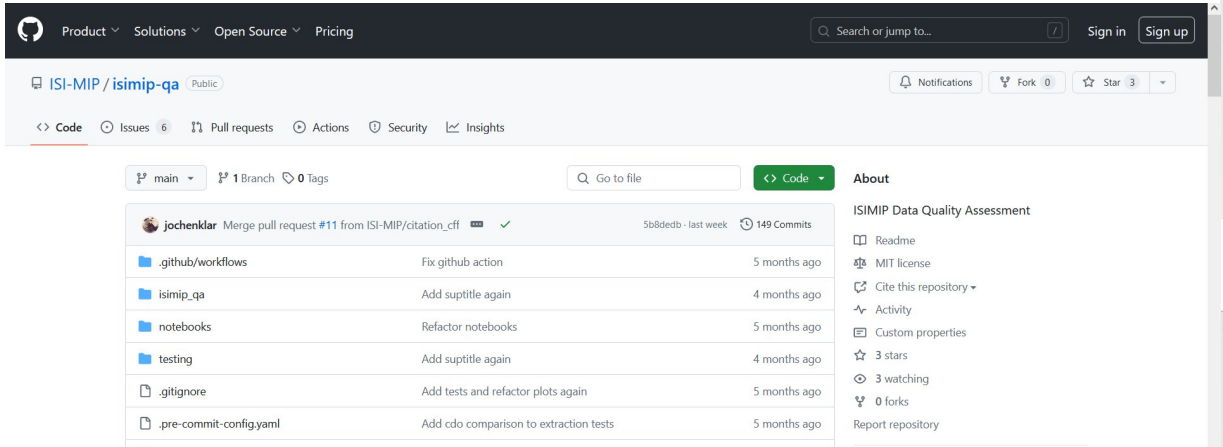
Training: Webinars and Training Schools

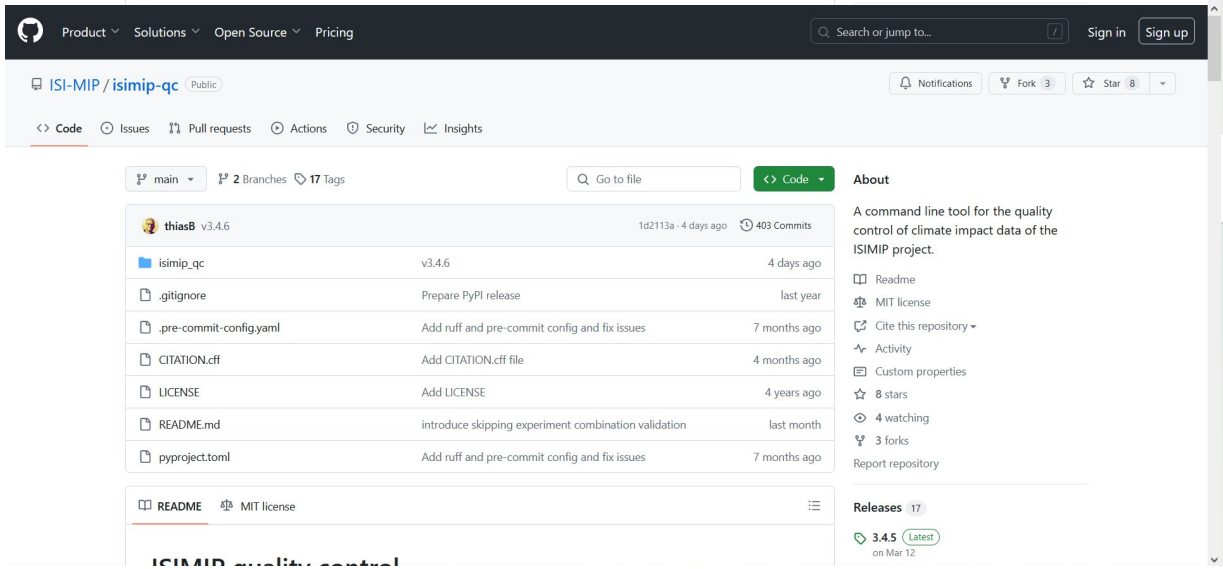
Event: Handling Climate Data

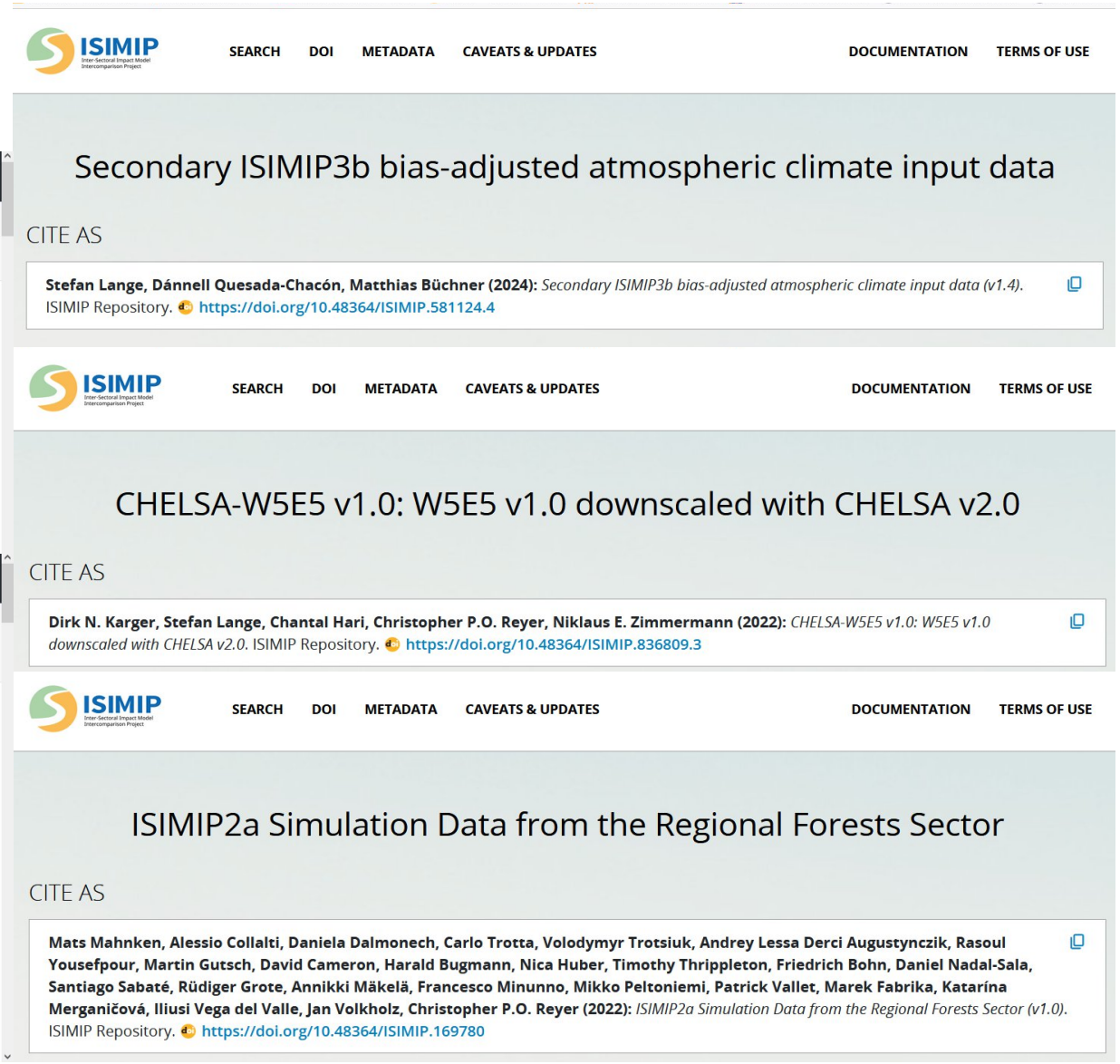
VUB (Online)

March 30, 2021, 10 a.m. - March 30, 2021, noon

Data and code







PROCLIAS papers

Scenario set-up and forcing data for impact model evaluation and impact attribution within the third round of the Inter-Sectoral Model Intercomparison Project (ISIMIP3a)

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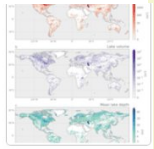
A framework for ensemble modelling of climate change impacts on lakes worldwide: the ISIMIP Lake Sector



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CHELSA-W5E5: Daily 1 km meteorological forcing data for climate impact studies

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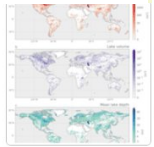

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ARTICLES | VOLUME 5, ISSUE 7, E455-E465, JULY 2021

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Open Access • Published: July, 2021 • DOI: https://doi.org/10.1016/S2542-5196(21)00170-4 • Check for updates

Accuracy, realism and general applicability of European forest models

Mats Mahnken, Maxime Cailleret, Alessio Collalti, Carlo Trotta, Corrado Biondo, Ettore D'Andrea, Daniela Dalmonech, Gina Marano, Annikki Mäkelä, Francesco Minunno, Mikko Peltoniemi, Volodymyr Trotsiuk, Daniel Nadal-Sala, Santiago Sabaté, Patrick Vallet, Raphaël Aussenac, David R. Cameron, Friedrich J. Bohn, Rüdiger Grote, Andrey L. D. Augustynczik, Rasoul Yousefpour, Nica Huber, Harald Bugmann, Katarina Merganičová, Jan Merganic, Peter Valent, Petra Lasch-Born, Florian Hartig, Iliusi D. Vega del Valle, Jan Volkholz, Martin Gutsch, Giorgio Matteucci, Jan Krejza, Andreas Ibrom, Henning Meesenburg, Thomas Rötzer, Marieke van der Maaten-Theunissen, Ernst van der Maaten, Christopher P. O. Reyer

First published: 12 August 2022 | https://doi.org/10.1111/gcb.16384 | Citations: 1

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Macrosystems Ecology

Tree regeneration in models of forest dynamics: A key priority for further research

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PROCLIAS papers

THE LANCET
Public Health
Volume 7, Issue 11, November 2022, Pages e942-e965

Countdown

The 2022 Europe report of the *Lancet* Countdown on health and climate change: towards a climate resilient future

Kim R van Daalen MPhil [a d], Marina Romanello PhD [a], Prof Joacim Rocklöv PhD [e f], Prof Jan C Semenza PhD [e], Cathryn Tonne ScD [a i j], Prof Anil Markandya PhD [k], Nilhee Dasandi PhD [l], Prof Slava Jankin PhD [m], Hicham Achebak PhD [b], Joan Ballester PhD [b], Hannah Bechara PhD [m], Max W Callaghan MPP [n o], Jonathan Chambers PhD [p], Shouro Dasgupta PhD [q r], Paul Drummond MSc [b], Zia Farooq MSc [f], Olga Gasparyan PhD [m], Nube Gonzalez-Reviriego PhD [s], Prof Ian Hamilton PhD [c], Risto Hänninen DSci [t] ... Prof Rachel Lowe PhD [a ab ac]

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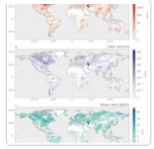

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ENVIRONMENTAL RESEARCH
LETTERS

LETTER • OPEN ACCESS

Inequality and growth impacts of climate change—insights from South Africa*

Shouro Dasgupta [5,1,2,3,4], Johannes Emmerling [1,2] and Soheil Shayegh [1,2]

The Australian Journal of Agricultural and Resource Economics

AARES
AUSTRALASIAN AGRICULTURAL & RESOURCE ECONOMICS SOCIETY

ORIGINAL ARTICLE | Open Access

Climate, weather and child health in Burkina Faso

Shouro Dasgupta, Elizabeth J. Z. Robinson

First published: 08 August 2023 | https://doi.org/10.1111/1467-8489.12530

OPINION

The labour force in a changing climate: Research and policy needs

Shouro Dasgupta [1,2]*, Elizabeth J. Z. Robinson [2]

1 Centro Euro-Mediterraneo sui Cambiamenti Climatici (CMCC), Venice, Italy, 2 Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science (LSE), London, United Kingdom

* shouro.dasgupta@cmcc.it

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PROCLIAS
Funded by the European Union

	Meeting	Training	Data & Code	Paper (published)	Paper (plan)
TG 1.1: Land-use pattern for ISIMIP3	online	STSM, VM	3 LU models		1
TG 1.2: Automatic QC / QA of impact model output	Utrecht		gitlab, report		3
TG 1.5: ISIMIP3 protocol and data paper	online			GMD, GMD	2
TG 1.6: Protocol for WG I-type D and A	online		ISIMIP secondary input data		
TG 1.7: High resolution climate data for ISIMIP3	online	STSM, Training session, VM	ISIMIP high-res data	ESSD	1
TG 1.11: Groundwater modeling protocol	Mainz		ISIMIP groundwater protocol		1
TG 2.1: Methods for climate impact attribution	Brussels, Copenhagen	Webinar, STSM?			2
TG 2.2: Use of science in climate litigation cases	online	Webinar			
TG 2.3: Novel approaches to model uncertainty assessments	Davos	STSM		Ecosphere	
TG 2.5: Country-scale forest modelling	Potsdam	STSM?	special issue planned, isimip forest model simulations	GCB	1
TG 3.2: Impact of heat on labour and mortality, incorporating adaptation effects	Venice (3 times)	Multiple STSM		ERL, PlosOne, AARES, Lancet Planetary Health, Lancet Public Health	2
TG 3.7: Cross-sectoral risk assessment	online	Webinar	report		
TG 3.9: Global water quality modelling protocol	Wageningen (3 times)	Webinar	protocol		
TG 3.11: Incorporating adaptation in heat-related mortality	Venice, Prague	VM			2
TG 4.1: Stakeholder engagement in climate impact attribution	Brussel, Laxenburg				1
TG 4.2: Stakeholder mapping	online			report	

Final PROCLIAS Steps

- finalise TGs and products (mostly papers)
- Open call for STSMs
- Training School In Bielowieza
- Check the homepage for jobs & products
- Get ready to help with the reporting

Time (UTC+2)	Monday 22 April	Tuesday 23 April		Wednesday 24 April			Thursday 25 April			Friday 26 April	
9:00-9:30	*Registration*	*Registration*	Side event **FireMIP**	*Registration*	PROCLIAS WG **TG3.11**: Heat warning catalogue	Sector meetings **Fire/Peat; Water Quality; Forests (TG2.5)**	**PROCLIAS highlights** from WG's 1-4			**ISIMIP results** and closing remarks 10-15 min presentations	
9:30-10:00											
10:00-10:30		Sector meeting **Fisheries**		Opening session **ISIMIP/PROCLIAS updates and highlights**			PROCLIAS WG's **TG1.2** QC/QA **TG3.2** Impact of heat on labour **TG4.2** Stakeholder mapping	**Early Career Session** Perspectives on future research pathways	Sector meeting **Water regional**	PROCLIAS **TG2.1** State of the art and ways forward for impact attribution	PROCLIAS **WG4** Paper discussion
10:30-11:00											
11:00-11:30	Side event **FireMIP**	Sector meeting **Lakes**		**Coffee Break**			**Poster Session II** **Coffee Break**		**Global water** modelers side meeting		
11:30-12:00											
12:00-12:30				**ISIMIP results** 10-15 min presentations			**Cross-sectoral presentations** and panel discussion on **Study prospects**				
12:30-13:00											
13:00-13:30	**Lunch Break**			**Lunch Break**							
13:30-14:00											
14:00-14:30	Side events **FireMIP/ AgMIP-GGCMI**	Sector meetings **Biodiversity; Peat; Water quality**	Side event **FireMIP**	**ScenarioMIP/ISIMIP4** General Introduction			Keynote: Bart van den Hurk				
14:30-15:00				Keynote: Brian O'Neill			Cross-sectoral panel discussion **AR7 demands**				
15:00-15:30				**ScenarioMIP/ISIMIP4** Task force insights							
15:30-16:00			Sector meetings **Agriculture; Biomes/PF/Fire/ Peat**	**Coffee Break**			**Coffee Break**				
16:00-16:30				**ScenarioMIP/ISIMIP4** Data needs, IAM capacities, ISIMIP4-Scenarios			Cross-sectoral panel discussion **Impact monitoring**				
16:30-17:00											
17:00-17:30		Sector meeting **Energy**									
Evening				**Poster Session I** **Welcome reception**			**Joint dinner**				

ISIMIP Results

41

ISIMIP3a output data sets

Impact models with ISIMIP3a simulations submitted.

44

ISIMIP3b output data sets

Impact models with ISIMIP3b simulations submitted.

Heinicke, S., et al. (under review): Global hydrological models overestimate river discharge.

Rikani, A., Frieler, K., & Schewe, J. (2022). Climate change and international migration: Exploring the macroeconomic channel. *PLOS ONE*, *17*(11), e0276764. https://doi.org/10.1371/journal.pone.0276764

Rikani, A., Otto, C., Levermann, A., & Schewe, J. (2023). More people too poor to move: divergent effects of climate change on global migration patterns. *Environmental Research Letters*, *18*(2), 024006. https://doi.org/10.1088/1748-9326/aca6fe

Nandintsetseg B, J Chang, OL Sen, CPO Reyer, K Kong, O Yetemen, P Ciais, J Davaaladai (2024) *Future drought risk and adaptation of pastoralism in Eurasian rangelands*. npj Climate and Atmospheric Science 7:82 https://doi.org/10.1038/s41612-024-00624-2

Swaminathan R, J Schewe, J Walton, K Zimmermann, C Jones, RA Betts, C Burton, CD Jones, M Mengel, CPO Reyer, AG Turner, K Weigel (submitted) *Regional impacts poorly constrained by climate sensitivity*. PNAS

Pietroiusti, R., et al. Possible role of anthropogenic climate change in the record-breaking 2020 Lake Victoria levels and floods. Earth System Dynamics, 15, 225–264 (2024)

Erazo, D., et al. Contribution of climate change to the expansion of West Nile virus in Europe. Nature Communications, 15, 1196 (2024)

Simon Treu, et al. Reconstruction of hourly coastal water levels and counterfactuals without sea level rise for impact attribution. Earth System Science Data, 16, 1121–1136 (2024)

Albert Nkwasa, et al. Historical climate impact attribution of changes in river flow and sediment loads at selected gauging stations in the Nile basin. Climatic Change 177, 42 (2024)

Frieler, K., et al. Scenario setup and forcing data for impact model evaluation and impact attribution within the third round of the Inter-Sectoral Impact Model Intercomparison Project (ISIMIP3a). Geoscientific Model Development, 17, 1–51 (2024)

Anne Gädeke, et al. Climate impact emergence and flood peak synchronization projections in the Ganges, Brahmaputra and Meghna basins under CMIP5 and CMIP6 scenarios. Environ. Res. Lett. 17, 094036 (2022)

Busschaert, L., et al. Net irrigation requirement under different climate scenarios using AquaCrop over Europe. Hydrology and Earth System Sciences, 26, 3731-3752 (2022)

Veronika Huber, et al. Evidence of rapid adaptation integrated into projections of temperature-related excess mortality. Environmental Research Letters, Volume 17, Number 4 (2022)

Jonas Jägermeyr, et al. Climate impacts on global agriculture emerge earlier in new generation of climate and crop models. NatureFood (2021)

Tittensor, D.P., et al. Next-generation ensemble projections reveal higher climate risks for marine ecosystems. Nature Climate Change, 11, 973–981 (2021)

Matthias Mengel, et al. ATTRICI v1.1 – counterfactual climate for impact attribution. Geoscientific Model Development (2021)

Ana Casanueva, et al. Testing bias adjustment methods for regional climate change applications under observational uncertainty and resolution mismatch. Atmospheric Science Letters (2020)

Stefan Lange. Trend-preserving bias adjustment and statistical downscaling with ISIMIP3BASD (v1.0). Geosci. Model Dev., 12, 3055-3070, 2019 (2019)

Session on **ISIMIP3a results**: Directly after this one

Session on **ISIMIP3b results**: On Friday morning

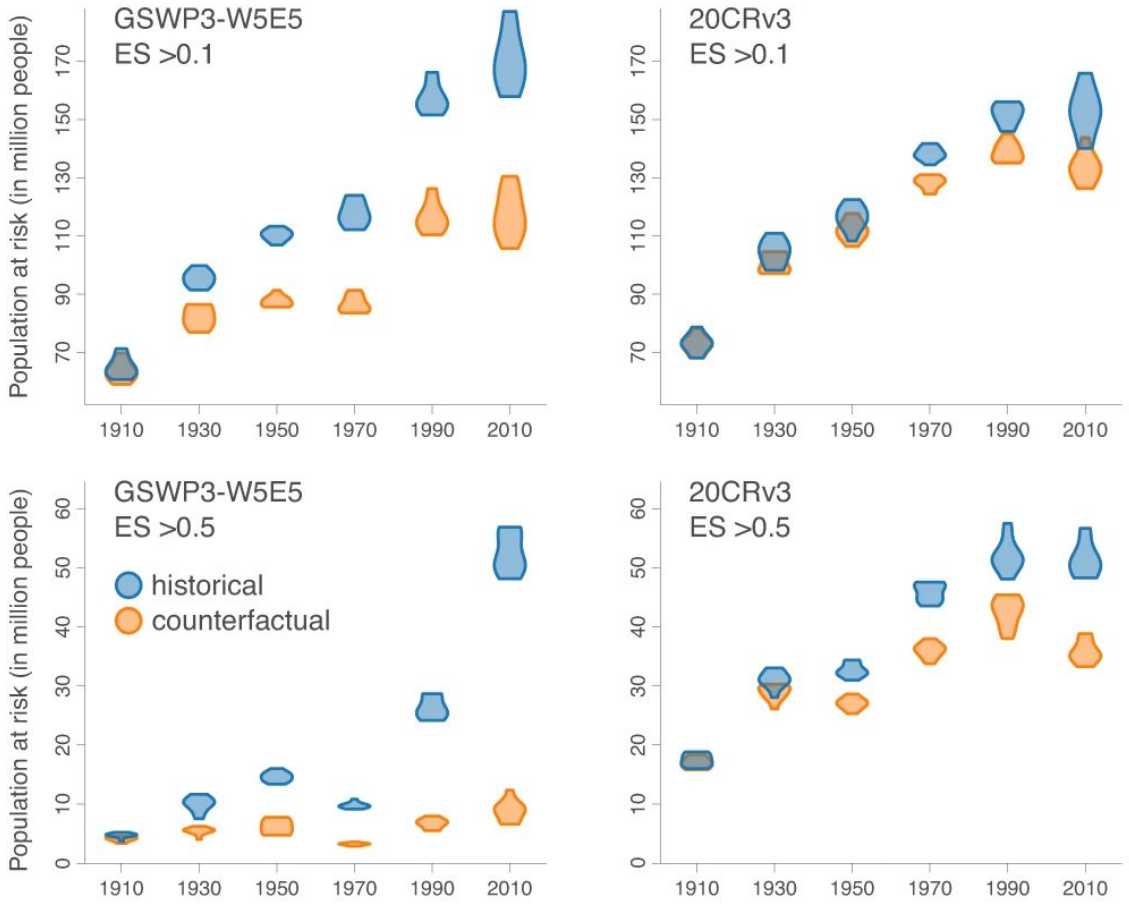
ISIMIP Results - Cross Nature journal collection on impact attribution

Planned cross-Nature journal collection:

- Contribution of climate change to the emergence of West Nile virus in Europe, Erazo et al., Ncomms 2024
- Global burned area increasingly explained by climate change, Burton et al., Nclim, in review
- Attributing human mortality from fire $PM_{2.5}$ to climate change, Park et al., Nclim, in review
- Temperature-related neonatal deaths attributable to climate change in 29 low- and middle-income countries, Dimitrova et al., Ncomms, in review

Additional contributions highly welcome!!!
Please contact Matthias Mengel

Population at risk of West Nile virus infection



Erazo et al., Ncomms 2024

ISIMIP Results - Impact Attribution data set for extreme events

ISIMIP3a simulations provide a unique opportunity to build up a openly accessible database where information about reported (EM-Dat, IDMC, reinsurance companies…)

- damages,
- displacement,
- fatalities

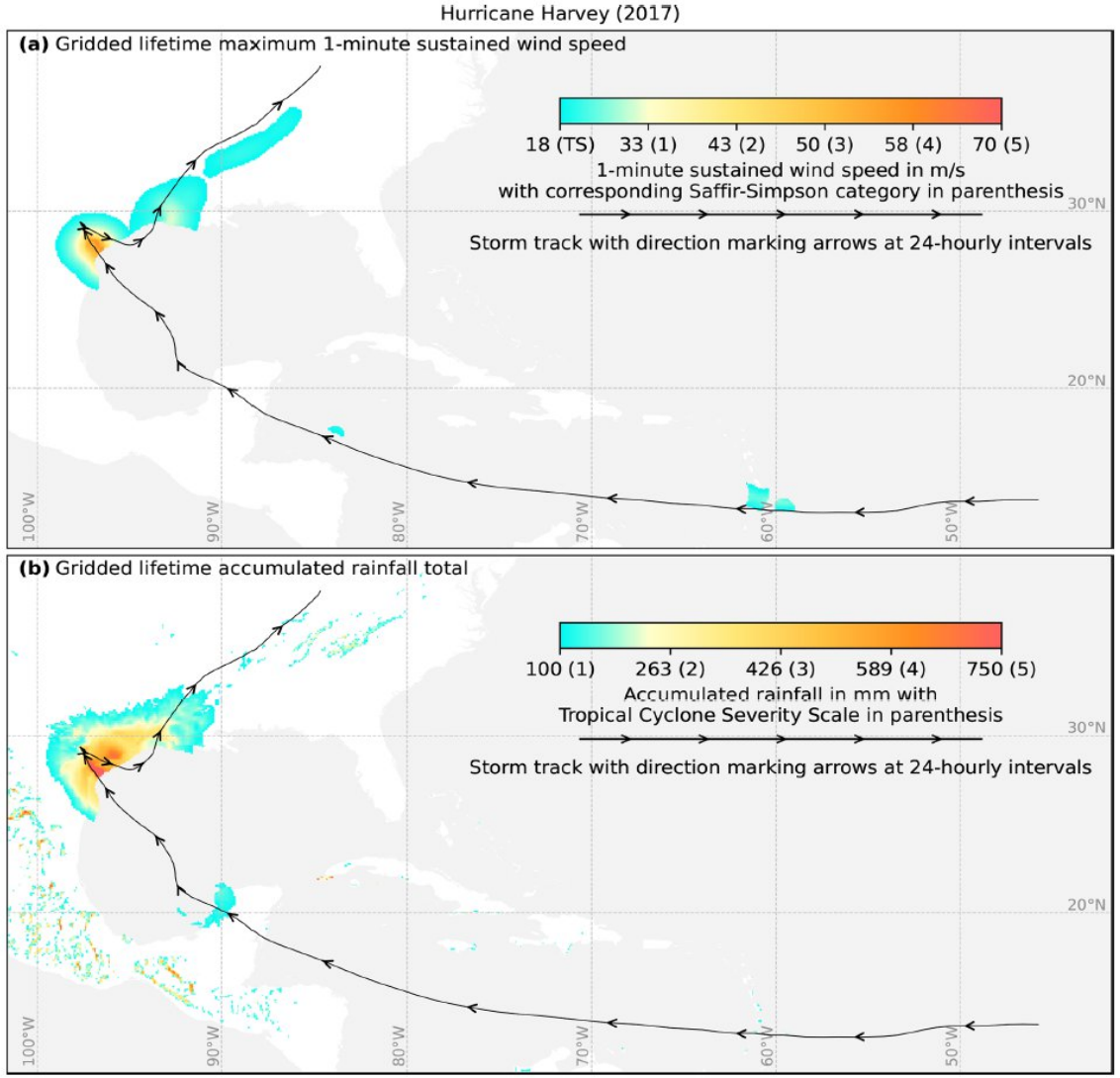
induced by weather extremes (tropical cyclones, river floods, droughts, wildfires, heat waves…) is extended by

- observed area / people / assets exposed
- simulated area / people / assets exposed
- counterfactuals area / people / assets exposed assuming no long-term trends in climate.

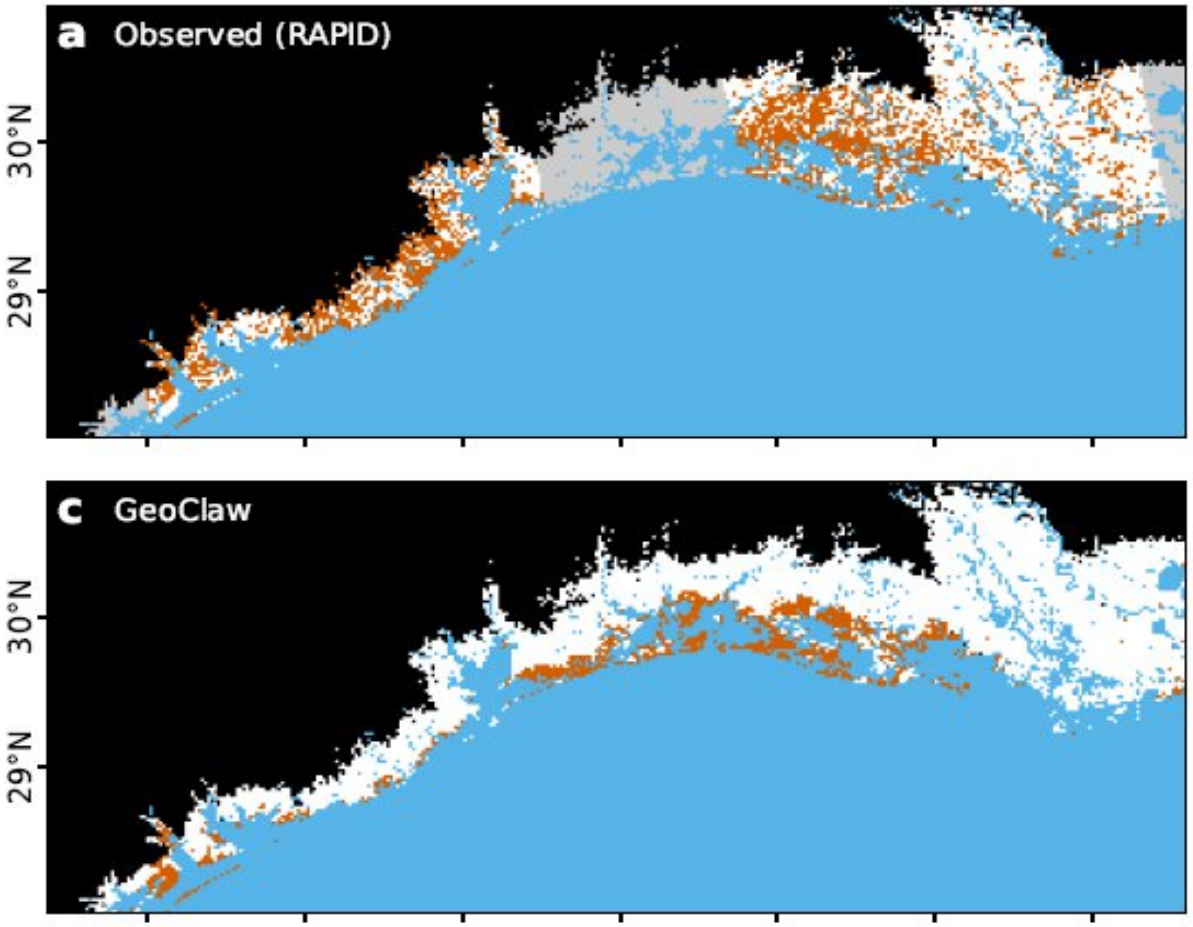
to facilitate associated impact attribution.

Ideas: Should we try to extend the factual / counterfactual climate-related forcings to always include the latest years?

Example: Hurricane Harvey



Frieler et al., 2024



Vogt et al., submitted

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ISIMIP3b, group III simulations - Available DHF dat sets

Direct Human Forcing ('ssp126-noadapt', 'ssp370-noadapt', 'ssp585-noadapt')				
Dataset	**mandatory or optional**	**noadapt**	**adapt**	**Comments**
Gross domestic product Int$ PPP 2005 and GDP in MER 2005	mandatory	ssp126 ssp370 ssp585	use 'noadapt' data	gridded data
Gross Value Added (GVA)		??	use 'noadapt' data	unclear
Human development index (0-1)		??	use 'noadapt' data	unclear
Population: total, urban, rural (people/yr)	mandatory	ssp126 ssp370 ssp585	use 'noadapt' data	gridded data
Protein uptake per capita (kg/cap/yr)	mandatory		use 'noadapt' data	Available from MagPIE and IMAGE (protein availability)

Land use (fraction of grid cell)	mandatory	ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	MagPIE, GLOBIOM, IMAGE
Irrigation (fraction of grid cell)	mandatory	ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	MagPIE, GLOBIOM, IMAGE
Peattypefrac Percentage of grid cell covered by the natural, drained, restored peat types or mineral (i.e. not peat) soils				IMAGE, unclear
Wood harvest	optional			unclear
Land transformation	mandatory	ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	MagPIE, GLOBIOM, IMAGE
Synthetic fertilizers (kg/ha), N, gridded	mandatory	ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	MagPIE, GLOBIOM, IMAGE IMAGE also provides N surplus grass N surplus arable
NH3		ssp126 ssp370 ssp585	use ‘noadapt’ data	IMAGE provides NH3 grass NH3 arable

Synthetic fertilizers (kg/ha), P	mandatory	ssp126 ssp370 ssp585	use 'noadapt' data	IMAGE provides P_2O_5 surplus grass P_2O_5 surplus crops P_2O_5 fertilizer crops P_2O_5 fertilizer grass
Animal manure (kg/ha), N, national averages	mandatory	ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	MagPIE, GLOBIOM, IMAGE (N manure crops, N manure crops) national average data that can be translated on the grid based on the land use patterns
Animal manure (kg/ha), P	mandatory	ssp126 ssp370 ssp585	use 'noadapt' data	IMAGE provides (Arthur Beusen) P_2O_5 manure grass P_2O_5 manure crops
Livestock numbers		ssp126 ssp370 ssp585	use 'noadapt' data	not available from MAgPIE, but from IMAGE (for 26 world regions)
Crop uptake, N		ssp126 ssp370 ssp585	use 'noadapt' data	MagPIE, IMAGE (N uptake arable)
Crop uptake, P		ssp126 ssp370 ssp585	use 'noadapt' data	IMAGE (P_2O_5 uptake crops)
Grassland uptake, N		ssp126 ssp370 ssp585	use 'noadapt' data	MAgPIE and IMAGE (N uptake grass)
Grassland uptake, P		ssp126 ssp370 ssp585	use 'noadapt' data	IMAGE (P_2O_5 uptake grass)

Atmospheric deposition, N	optional	ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	Agricultural emissions from MagPIE, IMAGE (N deposition)
Atmospheric deposition, P		ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	potentially from IMAGE (Arthur Beusen)
Biological fixation, N	optional	ssp126 ssp370 ssp585	use ‘noadapt’ data	MagPIE,IMAGE (grass / crops)
P pointsource		ssp126 ssp370 ssp585	use ‘noadapt’ data	IMAGE
N pointsource		ssp126 ssp370 ssp585	use ‘noadapt’ data	IMAGE
P aquaculture		ssp126 ssp370 ssp585	use ‘noadapt’ data	IMAGE
N aquaculture		ssp126 ssp370 ssp585	use ‘noadapt’ data	IMAGE
P delivery nat		ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	IMAGE
N delivery nat		ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	IMAGE

P delivery agriculture		ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	IMAGE
N delivery agriculture		ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	IMAGE
P delivery		ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	IMAGE
N delivery		ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	IMAGE
P concentration mouth		ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	IMAGE
N concentration mouth		ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	IMAGE
P export		ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	IMAGE
N export		ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	IMAGE

Crop calendar	mandatory	fixed historical values, no ssp dependence	ssp126 ssp370 ssp585	for the no adaptation case the fixed 2015soc calendar should be used
Marine fishing effort	mandatory	-	ssp126 ssp370 ssp585	
Dams and reservoirs	mandatory	ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	hydropower dams only (no irrigation dams)
Non-irrigation water use (withdrawal and consumption)	optional	ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	domestic, industrial; multi-model average provided for models that do not have their own water use module
Sewage connections of urban population (fraction, 0-1), N		ssp126 ssp370 ssp585	use 'noadapt' data	potentially from IMAGE (Arthur Beusen)
Sewage connections of urban population (fraction, 0-1), P		ssp126 ssp370 ssp585	use 'noadapt' data	potentially from IMAGE (Arthur Beusen)
Sewage connections of rural population (fraction, 0-1), N		ssp126 ssp370 ssp585	use 'noadapt' data	potentially from IMAGE (Arthur Beusen)
Sewage connections of rural population (fraction, 0-1), P		ssp126 ssp370 ssp585	use 'noadapt' data	potentially from IMAGE (Arthur Beusen)

Treatment removal fractions (0-1)		ssp126 ssp370 ssp585	use ‘noadapt’ data	potentially from IMAGE (Arthur Beusen)
Waste water treatment		ssp126 ssp370 ssp585	use ‘noadapt’ data	potentially from IMAGE (Arthur Beusen)
Seawater desalination	optional	ssp126 ssp370 ssp585	ssp126 ssp370 ssp585	
Inter-basin water transfer	optional	??	??	
Irrigation techniques share	optional	??	ssp126 ssp370 ssp585	
Lake and reservoir surface area	optional			
Forest management	mandatory			

ISIMIP3b, group III simulations - Representation of DHF

Direct Human Forcing			
Forcing	**required (yes/no)**	**harmonised (yes/no)**	**Reference to data sets in Table 6 that are used for the harmonization**
Economic development	no	yes	'Gross domestic product', …. data from Table 6
Human development	no	no	
Population changes	no	yes	'Population: total, urban, rural' from Table 6 below
Dietary changes	yes	yes	'Protein uptake per capita' from Table 6
Land use changes	yes	yes	see 'land use' data set in Table 6
Fertilizer inputs	yes	yes	'Synthetic fertilizers N' from Table 6,…
Irrigation changes	yes	yes	'Irrigation' from Table 6, ….
Forest management	…	…	'Wood harvest' from Table 6
Nutrient uptake	…	…	
Changes in growing seasons	…	…	
Marine fishing efforts	…	…	
Water management	…	…	'dams and reservoirs' from Table 6
Atmospheric deposition	…	…	
Biological fixation	…	…	

ISIMIP3b, group III simulations - Core set of scenarios (Tier 1)

GCM	Scenario	LU Model	no-/adapt	Comment
GFDL-ESM4	585	IMAGE MAgPIE GLOBIOM	no	
GFDL-ESM4	585	IMAGE	adapt	
UKESM1-0-LL MPI-ESM1-2-HR IPSL-CM6A-LR MRI-ESM2-0	585	IMAGE	no	
GFDL-ESM4	126	IMAGE	no	
			adapt	
GFDL-ESM4	370	IMAGE	no	
			adapt	

Running order	GCM	SSP	LU Model	no-/adapt	Comment	
	1st prio GCM (GFDL-ESM4)	585	IMAGE	no		TIER1: Core Set
				adapt		
			MAgPIE	no		
5				adapt		
			GLOBIOM	no		
6				adapt		
		370	IMAGE	no		
				adapt		
51			MAgPIE	no	ganz ans Ende, von oben nach unten nach GCM	51-90: TIER8: Fill SSP370
52				adapt		
53			GLOBIOM	no		
54				adapt		
		126	IMAGE	no		
				adapt		
7			MAgPIE	no		7-10: TIER3: Fill LU models GCM1
8				adapt		
9			GLOBIOM	no		
10				adapt		
	2nd prio GCM (UKESM1-0-LL)	585	IMAGE	no		
1				adapt		1-6 TIER2: Fill adapt runs
13			MAgPIE	no		
14				adapt		
17			GLOBIOM	no		
18				adapt		
55		370	IMAGE	no		
56				adapt		
57			MAgPIE	no		
58				adapt		
59			GLOBIOM	no		
60				adapt		
11		126	IMAGE	no		11-20: TIER4: Fill LU models GCM:
12				adapt		
15			MAgPIE	no		
16				adapt		
19			GLOBIOM	no		
20				adapt		
	3rd prio GCM (MPI-ESM1-2-HR)	585	IMAGE	no		

ISIMIP3b, group III simulations - Further ranking of experiments

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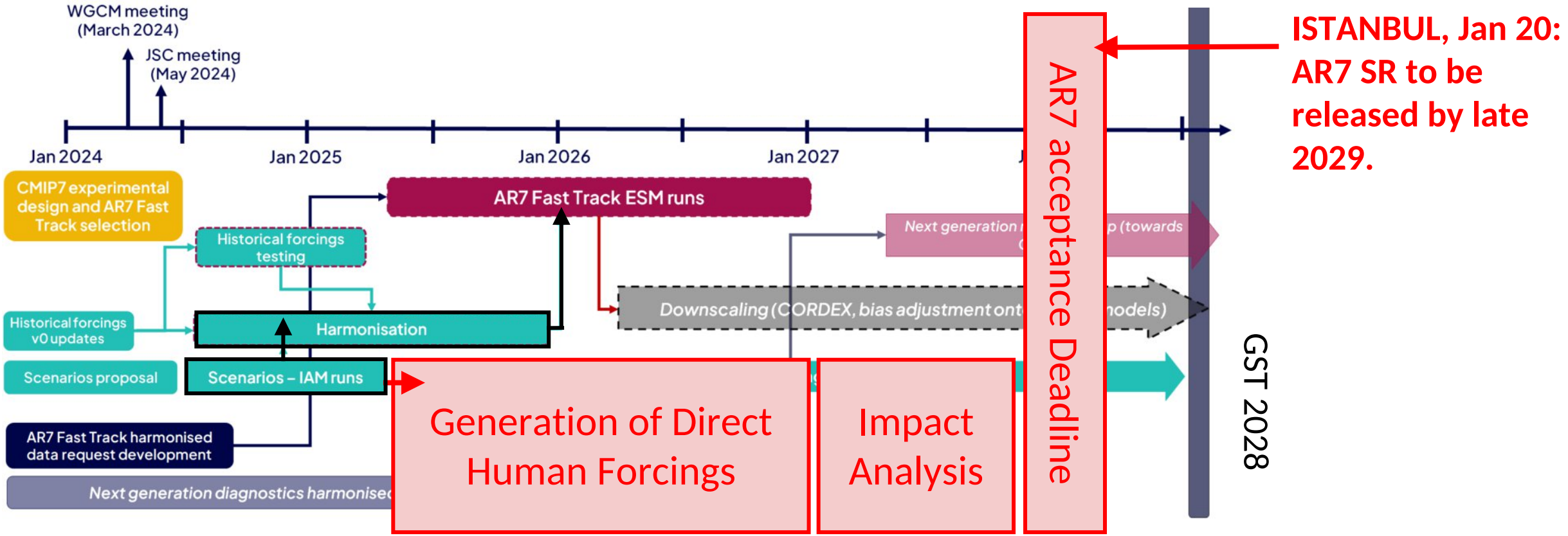
ScenarioMIP: Will we be able to provide CMP7-based impact simulations for the AR7?



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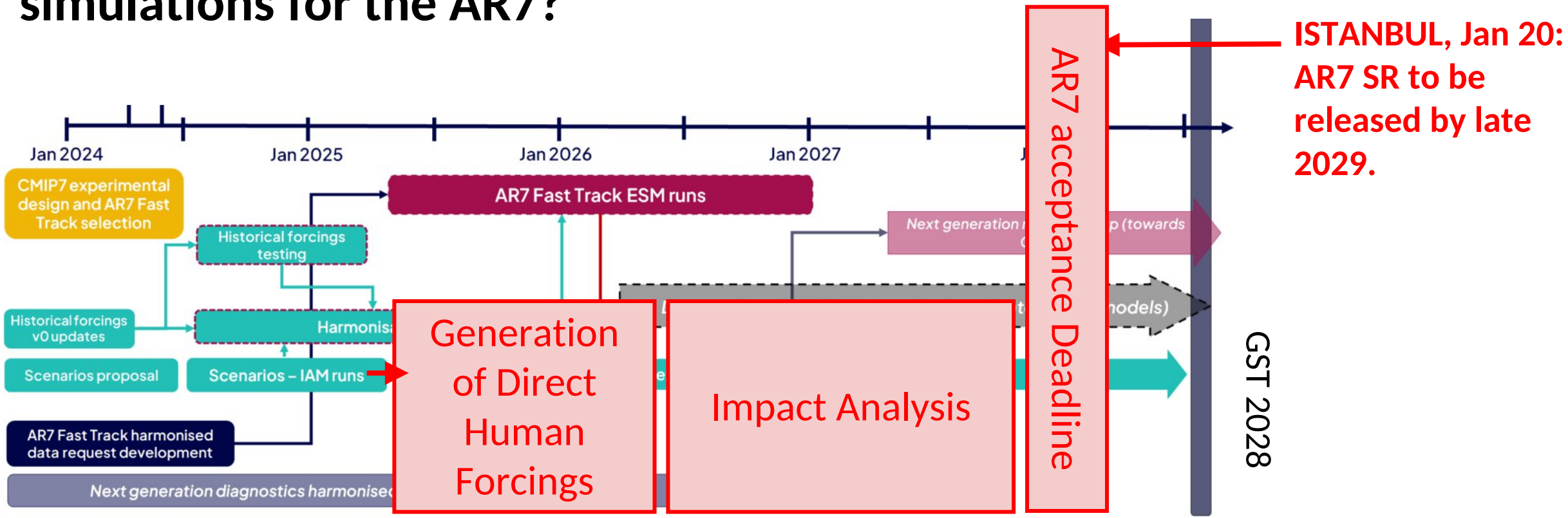

ISTANBUL, Jan 20: AR7 SR to be released by late 2029.

Alternatives:

Use CMP7-like climate-related forcings from running ESM projects?

Combine CMIP6 climate model simulations with new DHF from CMIP7-ScenarioMIP?

Focus ISIMIP3a/b outputs as main contribution to the AR7

Funding situation

DFG call: Scientific Library Services and Information Systems (LIS) / Information Infrastructures for Research Data

- Automatization of the Quality Assurance Tool applying ML-algorithms
- Editing of Model Validation Results and publication in ISIPEDIA
- Development of a database for impacts of historical weather extremes

Next ISIMIP workshop:

- Basic funding from OptimESM (catering)
- Any ideas regarding the generation of travel funding highly welcome!

The next three talks

- ISIMIP QA/QC Tool (Hannes Müller Schmied, Jochen Klar) (TG1.2)
- ISIMIP3b group III land use patterns (Edna Molina Bacca) (TG1.1)
- EUCRA viewer (Jose Manuel Gutierrez) (virtual)

Meeting etiquette and housekeeping issues

- mandatory to **sign participants lists** every day
- lunch in the cafeteria at own costs
- keep your badge, recycle at the end
- we have physical only, hybrid and “online only” sessions ⇒ behave accordingly…
- Zoom links are only available upon registration and should not be further shared
- all presenters are welcome to make their slides available on the ISIMIP and PROCLIAS website (Martin will follow-up after the event)
- the book of abstracts will be updated and published
- in case of any organisational questions refer to martin.park@pik-potsdam.de
- for questions regarding the PROCLIAS funding ask Della Padinjaremury (della.padinjaremury@pik-potsdam.de)
- group picture

ISIMIP Community Awards

Rec.

New Sector coordinators

- Fire: **Matthew Forrest,** Research Group Biogeography and Ecosystem Ecology, Quantitative Biogeography, Senckenberg Society for Nature Research, Germany
- Energy Fluctuations and Extremes: **Francesco Colelli**, Department of economics, Ca' Foscari University of Venice, Italy
- Lakes: **Ana Ayala-Zamora**, Department of Ecology and Genetics, Limnology, Uppsala University, Sweden; **Robert Ladwig**, Department of Ecoscience, Aarhus University, Denmark
- Water Quality: **Rohini Kumar**, Department Computational Hydrosystems (CHS) Helmholtz Centre for Environmental Research, Germany
- Groundwater: **Inge de Graaf**, Water Systems and Global Change group, Wageningen University and Research, Netherlands

⇒New in the ISIMIP data team: **Lisa Novak**

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Awards ceremony: Sector coordination

Sector coordinators leaving or having left:

- Lakes: Rafa Marcé
- Biodiversity: Christian Hof
- Water global: Hannes Müller-Schmied

THANK YOU FOR SUPPORTING ISIMIP

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Maillot jaune - the most complete ISIMIP3 data submission:

- Yusuke Satoh (MIROC-INTEG-LAND/MATSIRO, water global)
- Naota Hanasaki (H08, water global)
- Sebastian Ostberg (LPJmL, biomes, fire, agriculture, water-global, permafrost)

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Maillot vert - fastest quality check

- Zeli Tan (ALBM, lake global and local)

Maillot blanc - Young researchers

- Jorrit Mesman (Simstrat-LER, GOTM-LER, GLM-LER, FLake-LER, Lakes-local)
- Johannes Feldbauer (Simstrat-LER, GOTM-LER, GLM-LER, FLake-LER, Lakes-local)
- Sian Kou-Giesbrecht (CLASSIC, biomes, fire)
- Qing Zhu (ELM-ECA, biomes, fire, permafrost, water-global)
- Amit Kumar (drought in water-regional and water-global)

Maillot à pois rouges - Solving the adaptation problem

- All of you!
- Jan Volkholz (ISIMIP data team)

The next hours… until the party…

12:00-13:30	**ISIMIP3a results ("from too dry to too wet")** **10 min presentations + 5 min Q&A** • The fingerprint of climate change in crop losses during recent heatwaves and droughts (Jonas Jägermeyr) • Attribution clarifies the complex impacts of climate change on vegetation biomass change (*Akihiko Ito, virtual*) • Impacts of past and future climate change on northern peatland hydrology: first results from the ISIMIP peatland sector (Michel Bechtold) • Changing flood processes under future climate scenarios (Lina Stein) • *Towards validating reservoir operations in global hydrological models using satellite remote sensing – A case study in the CONUS* (Naota Hanasaki, virtual) • Summary of results on climate impact attribution on river discharge at the regional scale (from Topical Collection of papers in Climatic Change) (Valentina Krysanova)	Simon Gosling	A56 Hasselmann Hall Zoom - Hasselmann Hall
13:30-14:45	**Lunch break** (to be continued)		
14:45-16:00	**ScenarioMIP/ISIMIP4** General introduction (Katja Frieler) **Keynote: Brian O'Neill** "Scenarios for CMIP7: Status and Next Steps" **ScenarioMIP/ISIMIP4** ScenarioMIP task force insights (Nico Bauer) ESM perspectives (Chris Jones, Colin Jones)	Christian Otto	A56 Hasselmann Hall Zoom - Hasselmann Hall
16:00-16:30	**Coffee break**		
16:30-17:30	**ScenarioMIP/ISIMIP4** Recap (Katja Frieler) Open discussion with expert panel (Brian O'Neill, Nico Bauer, Bart van den Hurk, Colin Jones/Chris Jones): ISIMIP data needs, IAM capacities, ISIMIP4-Scenarios	Franziska Piontek, Katja Frieler	A56 Hasselmann Hall Zoom - Hasselmann Hall
17:30-21:00	**Poster Session I** • Examining the contribution of human induced climate change on global soil moisture drought characteristics (Aris Koutroulis) • Graphical representation of global water models participating in the Inter-Sectoral Impact Model Intercomparison Project (ISIMIP2b) (Hannes Müller Schmied) • Thirsty sectors: a layered model for managing scarce water resources (Ioan Sabin Taranu) • (TBD) John Kim • Assessing the impact of climate change on erosion processes near bridges over rivers – data and methodological challenges (Kristina Poločki) • Global warming is projected to lead to increased freshwater growth potential and changes in pace of life in Atlantic salmon Salmo salar (Adrian Rinaldo) • How multi-sectoral climate-related risks could cumulate and affect livestock in West Africa (Audrey Brouillet) • Biosphere destabilization in ISIMIP3b scenarios (Fabian Stenzel) • Climate impacts on crop losses: Using satellite data and spatial models to foster food security (Shannon de Roos)		A56 Hasselmann Hall
	Welcome reception		

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Group Picture

List of planned and ongoing ISIMIP special issues

- ISIMIP Special Issue on Impact Attribution (some more info on Tuesday)
- cross-sectoral Special Issue by Julia Blanchard/FishMIP-Team - interest?
- Regional Water Special Issue by Fred Hattermann/Valentina Krysanova (Climatic Change)
- more ongoing? please let us know

ISIMIP data updates

- new attribution counterfactuals (20CRv3-W5E5, 20CRv3-ERA5, 20CRv3)
- high resolution historical climate data in 0.5', 1.5', 5', and 30' resolution
- gridded population data
- land-use data progresses well (check plenary talk and BOG later today)
- additional, secondary climate forcing: ISIMIP GCMs for hist-nat, ssp119, ssp245, ssp460; additional GCMs for ISIMIP3b scenarios (piControl, historical, SSP126, SSP370, SSP585)

Why PROCLIAS & ISIMIP

- Cross-sectoral climate impacts more relevant than ever
- Aggregation of impacts across sectors: risk of multiple bread-basket failures! ⇒COVID & Ukraine war,
- Heatwave India, forest fires in Siberia/California…

- compound events & cascading risks ⇒ e.g. EU Adaptation strategy acknowledges international action for resilience
- Impacts as basis for adaptation and mitigation
- uncertainties and robustness of results!

- Financial sector: inclusion of physical risks

PROCLIAS status

WG 1: Common datasets and protocols for climate impact modelling

TG 1.1: Land-use pattern for ISIMIP3

TG 1.2: Automatic QC / QA of impact model output

TG 1.3: Using new data sources for climate change impact models

TG 1.5: ISIMIP3 protocol and data paper

TG 1.6: Protocol for WG I-type D and A

TG 1.7: High resolution climate data for ISIMIP3

TG 1.11: Groundwater modeling protocol

Müller Schmied, H. & Schiebener, L.: Assessing the suitability of streamflow station observations for consistent evaluation of simulated river discharge data of the ISIMIP global water sector (Report)
Nyenah, E.: Using ISIMIP model output with ILAMB and ESMVal Tool (Presentation)
Nyenah, E. et al.: Using ISIMIP model output with ILAMB and ESMVal Tool (Report)
Nyenah, E.: Reviewing model evaluation tools and their potential use for assessing climate impact model outputs (Virtual Mobility Report)
Koutroulis, A. & Müller Schmied, H.: QA tools of impact model output. An assessment of existing evaluation frameworks. (Review)
Code for impact model quality control and evaluation (ISIMIP Data Quality Assessment)

Malgorzata Golub et al.: A framework for ensemble modelling of climate change impacts on lakes worldwide: the ISIMIP Lake Sector

Lange, S. / Büchner, B.: Secondary ISIMIP3b bias-adjusted atmospheric climate input data (v1.1). ISIMIP Repository.

Karger, D. N. et al.: CHELSA-W5E5 v1.0: W5E5 v1.0 downscaled with CHELSA v2.0. ISIMIP Repository.
Karger, D. N.: Coordinating efforts to create kilometer scale climate forcing data for impact models (Virtual Mobility Report)

PROCLIAS status

WG 2: Impact attribution and uncertainty assessments

TG 2.1: Methods for climate impact attribution

TG 2.2: Use of science in climate litigation cases

TG 2.3: Novel approaches to model uncertainty assessments

TG 2.4: Using model performance indicators in uncertainty assessments

TG 2.5: Country-scale forest modelling

Webinar Series on Climate Impact Attribution (Recordings)

Mahnken, M. et al.: ISIMIP2a Simulation Data from the Regional Forests Sector (v1.0). ISIMIP Repository.
Mahnken, M. et al.: Accuracy, realism and general applicability of European forest models

PROCLIAS status

WG 3: Common datasets and protocols for climate impact modelling

TG 3.2: Impact of heat on labour and mortality, incorporating adaptation effects

Shouro Dasgupta et al.: Effects of climate change on combined labour productivity and supply: an empirical, multi-model study
K. R. van Daalen et al.: The 2022 Europe report of the Lancet Countdown on health and climate change: towards a climate resilient future
Workshop in Venice (Report)

TG 3.3: Risk assessment of habitat used by Atlantic salmon in freshwater and marine

TG 3.5: Advancing socio-economic cross-sectoral climate impact characterization

TG 3.7: Cross-sectoral risk assessment

TG3.7 Summary Report

TG 3.9: Global water quality modelling protocol

Webinar Series on Water Quality (Recording and Material)
Workshop on global water quality modelling protocol in Wageningen (Report)

TG 3.11: Incorporating adaptation in heat-related mortality

PROCLIAS status

WG 4: Communication and dissemination of climate impacts

TG 4.1: Generally interested in the work of WG4

TG 4.2: Stakeholder mapping

TG 4.3: Communication

TG 4.4: ISIpedia

Old slides

ISIMIP - more than the sum of its pieces

Aggregation of impacts across sectors

- Economic damages: To what degree is climate change increasing poverty undermining the ‘No poverty’ SDG1?
- Health: To what degree will climate-driven biomes shift affect malaria distribution?
- Water quality: To what degree will climate change amplify water quality degradation along the entire chain from fertilizer input along the rivers to coastal ecosystems?

Uncertainty assessment and model improvement within sectors

- Where does the spread in projected areas burned by wildfires come from?
- Do crop models systematically underestimate the impacts of drought and heatwaves?

ISIMIP - more than the sum of its pieces

Impact attribution (tomorrow morning's session)

- What impacts of climate change on natural and human systems do we already observe?

Integration of mitigation measures and remaining impacts (next session)

- What is the combined effect of mitigation measures and remaining climate change on biodiversity?
- Will a renewable energy supply be more sensitive to weather fluctuations than the current one?
- What is the combined effect of mitigation measures and remaining impacts of climate change on global inequality?

ISIMIP and its potential for adaptation planning

Adaptation is still framed as a predominantly national or local issue…

… and it certainly is a national or local issue. So let's try to provide high resolution regional impacts projections (see next session on high resolution climate forcings)

… but it not only is. It also needs a global perspective as the impacts of climate change will propagate along trade networks, affect global financial markets and require international cooperation to ensure food security or manage shifting species distributions

Cross-Chapter Box INTEREG | Inter-regional Flows of Risks and Responses to Risk

Authors: Birgit Bednar-Friedl (Austria, Chapter 13), Christopher Trisos (South Africa, Chapter 9), Laura Astigarraga (Uruguay, Chapter 12), Magnus Benzie (Sweden/UK), Aditi Mukherji (India, Chapter 4), Maarten Van Aalst (the Netherlands, Chapter 16)

ISIMIP2 very successful and data still being used a lot

- 25 ISIMIP2b papers in 2021 (2x Science, 1x Nature, 1x PNAS, 6x Nat CC/Geosci/Comm)
- Still 4 ISIMIP2a in 2021

Globally observed trends in mean and extreme river flow attributed to climate change

LUKAS GUDMUNDSSON, JULIEN BOULANGE, HONG X. DO, SIMON N. GOSLING, MANOLIS G. GRILLAKIS, ARISTEIDIS G. KOUTROULIS, MICHAEL LEONARD, JUNGUO LIU, HANNES MÜLLER SCHMIED, LAMPRINI PAPADIMITRIOU, YADU POKHREL, SONIA I. SENEVIRATNE, YUSUKE SATOH, WIM THIERY, SETH WESTRA, XUEBIN ZHANG, AND FANG ZHAO fewer Authors Info & Affiliations

Understanding each other's models: an introduction and a standard representation of 16 global water models to support intercomparison, improvement, and communication

Camelia-Eliza Telteu[1], Hannes Müller Schmied[1,2], Wim Thiery[3], Guoyong Leng[4], Peter Burek[5], Xingcai Liu[4], Julien Eric Stanislas Boulange[6], Lauren Seaby Andersen[7], Manolis Grillakis[8], Simon Newland Gosling[9], Yusuke Satoh[10], Oldrich Rakovec[11,12], Tobias Stacke[13], Jinfeng Chang[14,15], Niko Wanders[16], Harsh Lovekumar Shah[17], Tim Trautmann[1], Ganquan Mao[18], Naota Hanasaki[6], Aristeidis Koutroulis[19], Yadu Pokhrel[20], Luis Samaniego[11], Yoshihide Wada[21], Vimal Mishra[17], Junguo Liu[18], Petra Döll[1,2], Fang Zhao[22,23], Anne Gädeke[24], Sam S. Rabin[25], and Florian Herz[1]

nature climate change — ARTICLES — https://doi.org/10.1038/s41558-021-01157-9

Double benefit of limiting global warming for tropical cyclone exposure

Tobias Geiger[1,2], Johannes Gütschow[1], David N. Bresch[3,4], Kerry Emanuel[5] and Katja Frieler[1]

Terrestrial biodiversity threatened by increasing global aridity velocity under high-level warming

Hao Shi[a,b], Hanqin Tian[a,1], Stefan Lange[c], Jia Yang[a,d], Shufen Pan[a], Bojie Fu[b], and Christopher P. O. Reyer[c]

Article

Lake heatwaves under climate change

https://doi.org/10.1038/s41586-020-03119-1 — R. Iestyn Woolway[1,2], Eleanor Jennings[1], Tom Shatwell[3], Malgorzata Golub[4], Don C. Pierson[4] & Stephen C. Maberly[5]

Received: 15 April 2020

Effects of climate change on combined labour productivity and supply: an empirical, multi-model study

Shouro Dasgupta, Nicole van Maanen, Simon N Gosling, Franziska Piontek, Christian Otto, Carl-Friedrich Schleussner

Strong representation of ISIMIP in IPCC AR6

Climate change reduces winter overland travel across the Pan-Arctic even under low-end global warming scenarios

Anne Gädeke[1], Moritz Langer[2,3], Julia Boike[2,3], Eleanor J Burke[4], Jinfeng Chang[5,6], Melissa Head[7], Christopher P O Reyer[1], Sibyll Schaphoff[1], Wim Thiery[8,9] and Kirsten Thonicke[1]

⇒ cited in Chapter 13 and CCP6.2.4.3

Projecting Exposure to Extreme Climate Impact Events Across Six Event Categories and Three Spatial Scales

Stefan Lange[1], Jan Volkholz[1], Tobias Geiger[1,2], Fang Zhao[3], Iliusi Vega[1], Ted Veldkamp[4,5], Christopher P. O. Reyer[1], Lila Warszawski[1], Veronika Huber[6], Jonas Jägermeyr[1,7,8], Jacob Schewe[1], David N. Bresch[9,10], Matthias Büchner[1], Jinfeng Chang[5,11], Philippe Ciais[11], Marie Dury[12], Kerry Emanuel[13], Christian Folberth[5], Dieter Gerten[1,14], Simon N. Gosling[15], Manolis Grillakis[16], Naota Hanasaki[17], Alexandra-Jane Henrot[12], Thomas Hickler[18,19], Yasushi Honda[20], Akihiko Ito[17], Nikolay Khabarov[5], Aristeidis Koutroulis[21], Wenfeng Liu[11,22], Christoph Müller[1], Kazuya Nishina[17], Sebastian Ostberg[1], Hannes Müller Schmied[18,19], Sonia I. Seneviratne[23], Tobias Stacke[24], Jörg Steinkamp[19,25], Wim Thiery[23,26], Yoshihide Wada[5], Sven Willner[1], Hong Yang[22,27], Minoru Yoshikawa[28], Chao Yue[11,29], and Katja Frieler[1]

⇒cited in Chapter 2 (3x), 4 and 16

Intergenerational inequities in exposure to climate extremes

Young generations are severely threatened by climate change

By Wim Thiery, Stefan Lange, Joeri Rogelj, Carl-Friedrich Schleussner, Lukas Gudmundsson, Sonia I. Seneviratne, Marina Andrijevic, Katja Frieler, Kerry Emanuel, Tobias Geiger, David N. Bresch, Fang Zhao, Sven N. Willner, Matthias Büchner, Jan Volkholz, Nico Bauer, Jinfeng Chang, Philippe Ciais, Marie Dury, Louis François, Manolis Grillakis, Simon N. Gosling, Naota Hanasaki, Thomas Hickler, Veronika Huber, Akihiko Ito, Jonas Jägermeyr, Nikolay Khabarov, Aristeidis Koutroulis, Wenfeng Liu, Wolfgang Lutz, Matthias Mengel, Christoph Müller, Sebastian Ostberg, Christopher P. O. Reyer, Tobias Stacke, Yoshihide Wada

⇒cited in Chapter 7 (2x), 9 (7x) and 13

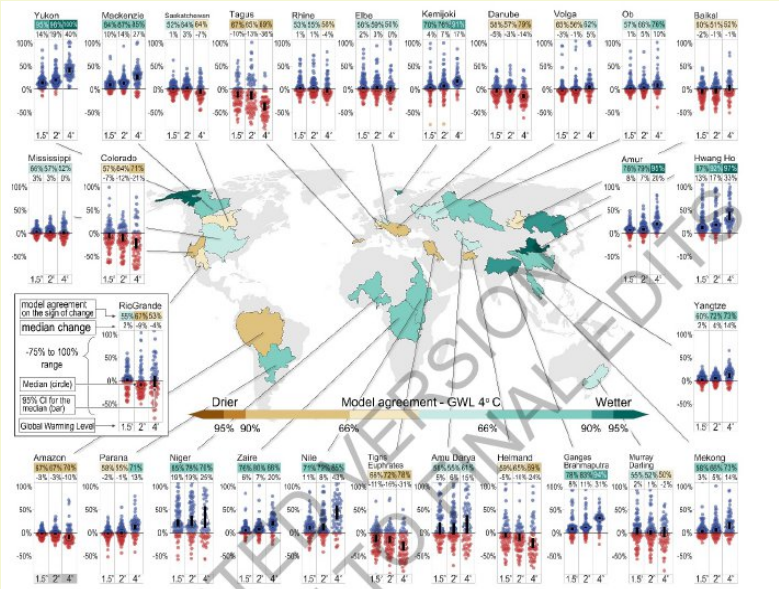


Figure 4.16: Projected changes in the annual mean run-off in selected river basins at Global Warming Levels (GWLs) of 1.5°C, 2°C and 4°C in a combined ensemble. For each named basin, the sinaplot dots show individual model outcomes for percentage increased flows (blue) and decreased flows (red) at each GWL. Black circles show the ensemble median, and black bars show the 95% confidence range in the median. See inset with the Rio Grande sinaplot for additional guidance on interpretation. In the map, the colours in the basins show the percentage model agreement on the sign of the projected change in streamflow at the 4°C GWL. The combined ensemble is comprised of 4 multi-model ensembles; the CMIP5 multi-model ensemble of GCMs driven with RCP8.5; the CMIP6 multi-model ensemble of GCMs driven with SSP5-85; varying combinations of hydrological models with 5 GCMs in the Inter-Sectoral Impacts Model Intercomparison Project (ISIMIP), and; the JULES land ecosystems and hydrology model driven by GCMs from the HELIX study (Betts et al., 2018; Koutroulis et al., 2019). In CMIP5 and CMIP6, the projected run-off changes are directly from the GCM land surface schemes without bias correction. In ISIMIP and HELIX, bias-corrected climate model outputs were used to drive the hydrology models. A comparison of the projected changes at the 4°C GWL for the four individual ensembles is shown in Figure Cross-Chapter Box CLIMATE.1 in Chapter 1.

⇒ISIMIP-related Figures in chap 4 and 5, e.g. 4.16

Strong representation of ISIMIP in IPCC AR6

Understanding the weather signal in national crop-yield variability

Katja Frieler[1], Bernhard Schauberger[1], Almut Arneth[2], Juraj Balkovič[3,4], James Chryssanthacopoulos[5,6], Delphine Deryng[5,7], Joshua Elliott[5,6], Christian Folberth[3], Nikolay Khabarov[3], Christoph Müller[1], Stefan Olin[8], Thomas A. M. Pugh[2,9], Sibyll Schaphoff[1], Jacob Schewe[1], Erwin Schmid[10], Lila Warszawski[1], and Anders Levermann[1,11,12]

⇒ cited in Chapter 4

ARTICLE

https://doi.org/10.1038/s41467-019-08745-6 OPEN

State-of-the-art global models underestimate impacts from climate extremes

Jacob Schewe[1], Simon N. Gosling[2], Christopher Reyer[1], Fang Zhao[3], Philippe Ciais[4], Joshua Elliott[5], Louis Francois[6], Veronika Huber[7], Heike K. Lotze[8], Sonia I. Seneviratne[9], Michelle T.H. van Vliet[10], Robert Vautard[4], Yoshihide Wada[11], Lutz Breuer[12,13], Matthias Büchner[1], David A. Carozza[14,43], Jinfeng Chang[4], Marta Coll[15], Delphine Deryng[16,17], Allard de Wit[18], Tyler D. Eddy[8,19,20], Christian Folberth[11], Katja Frieler[1], Andrew D. Friend[21], Dieter Gerten[1,22], Lukas Gudmundsson[9], Naota Hanasaki[23], Akihiko Ito[23], Nikolay Khabarov[11], Hyungjun Kim[24], Peter Lawrence[25], Catherine Morfopoulos[26], Christoph Müller[1], Hannes Müller Schmied[27,28], René Orth[29,30], Sebastian Ostberg[1], Yadu Pokhrel[31], Thomas A.M. Pugh[32,33], Gen Sakurai[34], Yusuke Satoh[10,23], Erwin Schmid[35], Tobias Stacke[36], Jeroen Steenbeek[37], Jörg Steinkamp[28,44], Qiuhong Tang[38], Hanqin Tian[39], Derek P. Tittensor[8,40], Jan Volkholz[1], Xuhui Wang[4,41,42] & Lila Warszawski[1]

⇒ cited in Chapter 4 (2x) and 5

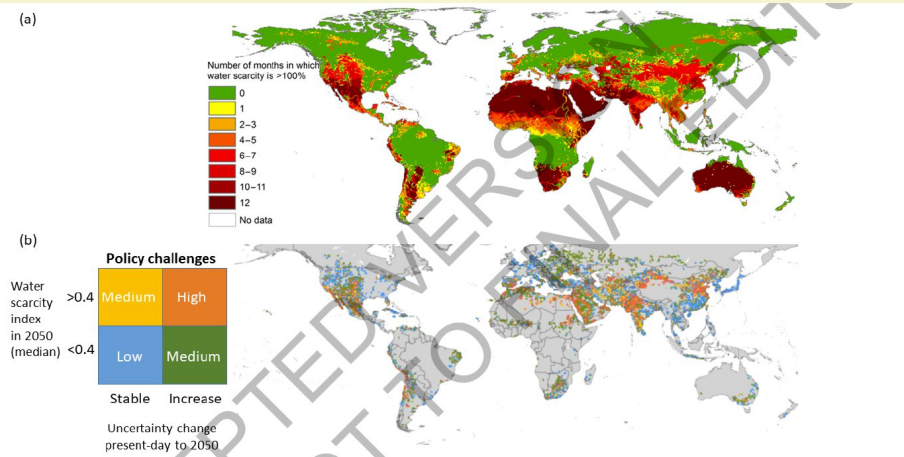
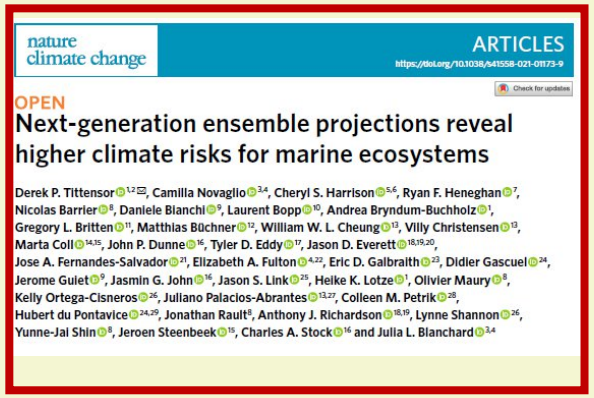
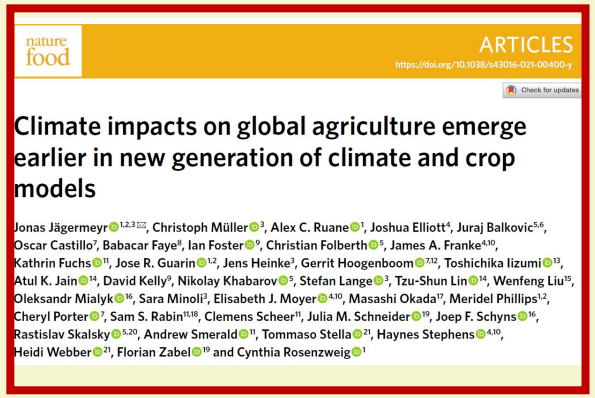


Figure Box 4.1.1: Geographical distributions of current water scarcity and levels of challenge for policies addressing future change. (a) The number of months per year with severe water scarcity (ratio of water demand to availability > 1.0). Reproduced from (Mekonnen and Hoekstra, 2016). (b) Local levels of policy challenges for addressing water scarcity by 2050, considering both the central estimate (median) and the change uncertainty in projections of a Water Scarcity Index (WSI) from the present day to 2050 (Greve et al., 2018). Projections used five CMIP5 climate models, three global hydrological models from ISIMIP, and three Shared Socioeconomic Pathways (SSPs). Levels of policy challenges refer to the scale and nature of policies to address water scarcity and range from monitoring and reviewing risks ('low') through transitional changes in water systems ('medium') to transformational changes ('high'). Low policy challenges arise when the projected water scarcity in 2050 is lower (< 0.4), and the level of uncertainty remains relatively stable in future projections. Medium policy challenge arises when either the central estimate of water scarcity remains low, but uncertainty increases or the uncertainty is stable, but the central estimate of water scarcity for 2050 is higher (>0.4). High policy challenges arise when the central estimate of water scarcity is higher and the uncertainty increases. Grey areas show gridpoints defined as non-water scarce (75th quantile of the WSI < 0.1 at all times) or very low average water demand. Hatched areas show countries with no data for at least one component. Reproduced from (Greve et al., 2018).

ISIMIP3 in full swing

- data from 17 (3a) and 31 (3b) models uploaded
- first papers published
- several Special issues planned (marine fisheries, regional water, impact attribution, ...)
- generation of future Direct Human Forcing (DHF) almost complete





⇒cited in Chapter 3 (7x)

⇒cited in Chapter 5

Progress regarding ISIMIP outreach

- **New repository (data.isimip.org/):** Highly convenient access to ISIMIP data
- **Interactive protocol:** combine sectors, print out pdf, save permalinks, quality check for data submission
- **ISIpedia launched:** peer-reviewed papers translated into 17 ISIpedia articles.
- **First step towards a continuous collection of impacts attribution studies:** ISIpedia article to access reference tables behind Ch16 observed impacts
- **Visualisation of ISIMIP data:** Could we use the WGI-Atlas technology to also provide access ISIMIP data? Hans-Martin Füssel (EEA) in context of the EU Climate Risk Assessment within the EU adaptation strategy? (outreach session on Wednesday afternoon)

PROCLIAS - Process-based models for climate impact attribution across sectors

- Support ISIMIP networking
- Allow new scientists to join the network and contribute to ISIMIP
- Allow new scientists to learn how to use climate impact models and the data they produce
- Go beyond ISIMIP

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
PROCLIAS
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Your ta
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- Discuss resu
- Call for PRO
- Engage in ex

Key links PROCLIAS & ISIMIP homepages & data portal

- https://www.isimip.org/
- https://data.isimip.org/
- https://www.isipedia.org/
- https://twitter.com/ISIMIPImpacts
- https://proclias.eu/
- https://twitter.com/climateimpacts_
- join PROCLIAS WGs here: https://www.cost.eu/cost-action/process-based-models-for-climate-impact-attribution-across-sectors/#tabs+Name:Working%20Groups%20and%20Membership

Database for impacts of historical weather extreme events

- provision of hazard simulations (obsclim, counterclim) for individual recorded extreme events
- complemented by observational records on event magnitude and extension
- linked with socio-economic records from various disaster databases
  - Tropical Cyclones
  - Floods
  - Wildfires
  - Forest dieback
  - …

Attribution of reported damages and displacement induced by extreme events,

Perrette & Mengel, submitted; Vogt et al., under revision CommsEnv