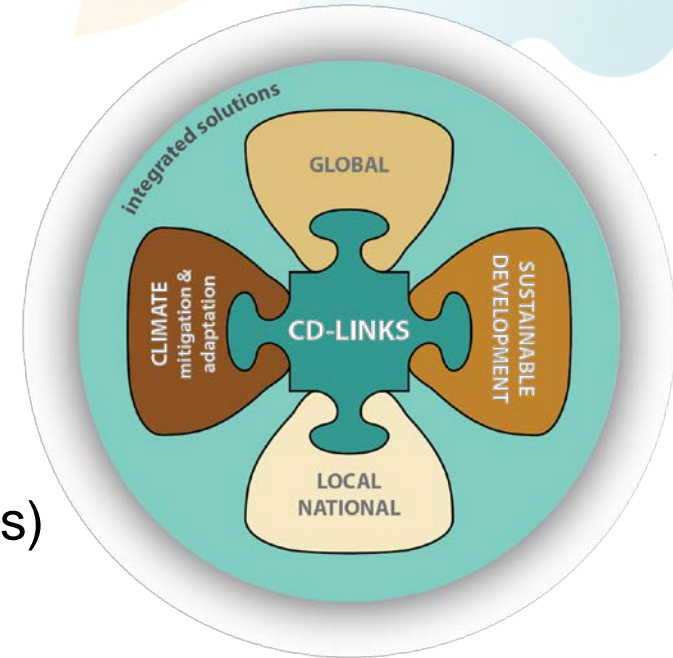


IAMC COMMUNITY ACTIVITIES

CD-LINKS



- 18 International Partners
- Identify solutions for Climate Change AND Sustainable Development
- Develop globally consistent, national low-carbon development pathways
- Broaden evidence base (policy case-studies)
- Establish capacity building platform



GTAP Release 9.0

- **3 base years: 2011, 2007, 2004**
- **140 (120) countries/ (20) regions (up from 129):**
 - Benin, Burkina Faso, Guinea, Togo, Rwanda, Brunei Darussalam, Jordan, Dominican Republic, Jamaica, Puerto Rico and Trinidad & Tobago
- **New power database—gwh (12 power activities):**
 - Coal (base & peak), gas (base & peak), oil, hydro (base & peak), nuclear, solar, wind & other, distribution & transmission
- **5 labor skills (up from 2):**
 - Unskilled (service, shop and market sales workers, agriculture and other low skilled workers), Skilled (Managers and professionals, Technicians and associate professionals, clerks)
- **Satellite accounts**
 - IEA energy balances—MTOE
 - CO₂ emissions (fossil fuels and industry)
 - Updated non-CO₂ emissions—FAO & EDGAR, mt & Ceq (CH₄, N₂O, F-gases)
 - International migration, including bilateral remittances
 - Cross-border flows of capital income
 - *Forthcoming*: land-use (18 AEZs)
 - *Forthcoming*: MRIO version of GTAP database
- **GTAP Network 13,000+, more at: www.gtap.org**

AVOID 2 (AVOIDing dangerous climate change)

- UK Government-funded research programme
 - Phase 1 (~£3m): 2009-2012
 - Phase 2 (~£1.5m): 2014-2016
- Objective is to provide independent, policy-relevant scientific advice and publications on the following research questions:
 - What levels of climate change are potentially “dangerous”?
 - What greenhouse gas emissions pathways avoid dangerous levels of climate change?
 - What is the feasibility of those greenhouse gas emissions pathways?
- Current phase has produced a number of reports, including:
 - Assessing the challenges of long-term global mitigation scenarios (Imperial College TIAM-Grantham, IIASA MESSAGE, CMCC WITCH models inter-compared)
 - The role of non-CO₂ GHGs in meeting stringent mitigation goals (TIAM-Grantham, IIASA GAINS)
 - Analysis of BECCS availability using an Earth Systems Model (Met Office Hadley Centre model)
 - Analysis of the avoided climate impacts resulting from INDCs
- Publications at www.avoid.uk.net including:
 - Full reports
 - 2-side policy notes
 - 1 or 2-side infographics
- Contact:
 - Jason Lowe (jason.lowe@metoffice.gov.uk)
 - Ajay Gambhir (a.gambhir@imperial.ac.uk)



AVOID 2

MILES project

This project is funded by the European Union.



- Collaboration on global and national decarbonization pathways between global and national modeling teams
- Inform the INDC process before and after Paris → MILES report
- Compare and improve global and national models via collaborative work

STUDY

N°05/15 OCTOBER 2015 | CLIMATE

Beyond the Numbers: Understanding the Transformation Induced by INDCs

A Report of the MILES Project Consortium

www.iddri.org/Publications/Beyond-the-numbers-Understanding-the-transformation-induced-by-INDCs

Coordination: IDDRI

Global teams: FEEM, IIASA, PBL, PIK

National teams: COPPE (Brazil), ERI, Renmin U, Tsinghua (China), ICCS (EU), IIM, TERI (India), NIES, RITE (Japan), PNNL (USA), CCROM, CRE (Indonesia), INECC (Mexico)

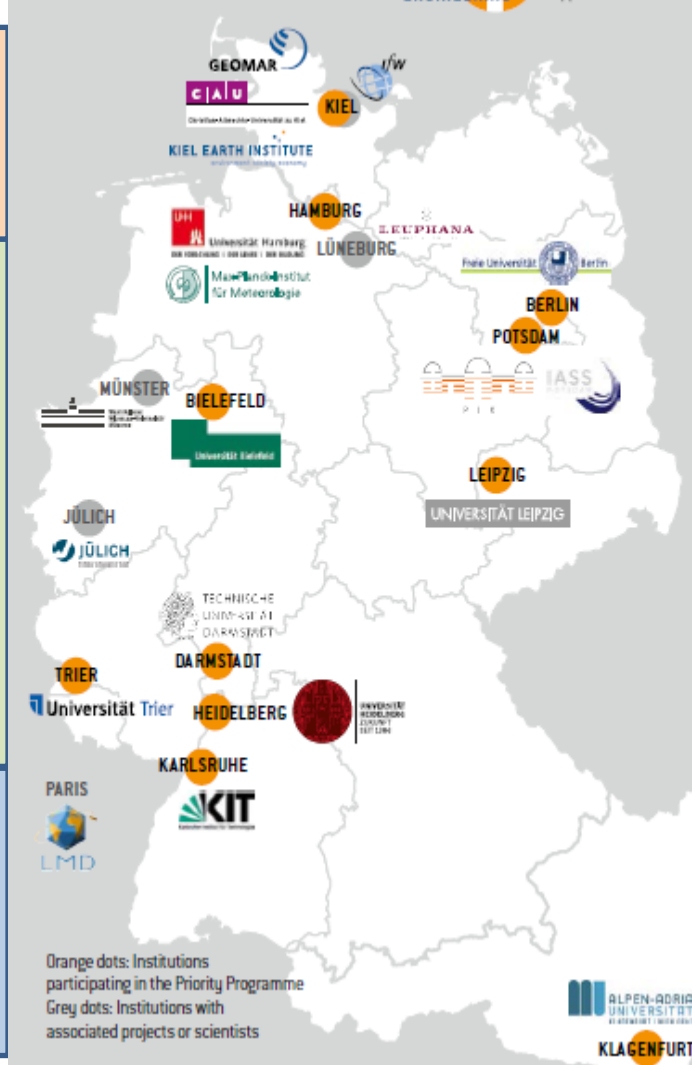
Climate Engineering – Risks, Challenges, Opportunities?



First Phase: 2013-2016. 2nd Phase: 2016- 2019

- **CEMICS** – Contextualizing CE and Mitigation
- **ComparCE** – Comparative Assessment of Impacts, Side Effects & Uncertainties of CE and Emissions Reductions
- **CE-Land** – CE on Land: Potentials and Side-Effects of Afforestation and Biomass Plantations
- **RADMAN** – Limitations to CE Efficacy by Different Types of Radiation Management
- **FASSI** – Fingerprint Analysis of Extreme Events Caused by Stratospheric Sulfur Injections
- **LEAC** – Learning about Cloud Brightening under Risk and Uncertainty
- **CEIBRAL** – CE Impacts: Between Reliability and Liability
- **CE-SciPol** – CE at the Science-Policy Nexus
- **C-E-THICS** – Arguing about CE: Towards a Comprehensive Ethical Analysis of CE Debate

PRIORITY PROGRAMME 1689 CLIMATE ENGINEERING Risks, Challenges, Opportunities?





- **Overall objective:** Promote the state-of-the-art in Integrated Assessment Modeling of climate change mitigation strategies
- Focus areas: (1) **energy demand modeling**, (2) **behavioral aspects**, (3) **technical change and uncertainty**, (4) **supply side bottlenecks**.
- **Sharing of methodologies** and **input data sets** as a central element.
- Transparency: Community activities on **model documentation** and **diagnostics**

Forthcoming scientific outcomes:

- **Transport and climate change mitigation**
- **Integration of variable renewable energy**
- **Climate policies under uncertainties**
- **The impact of subsidy removal on climate policy**
- ...

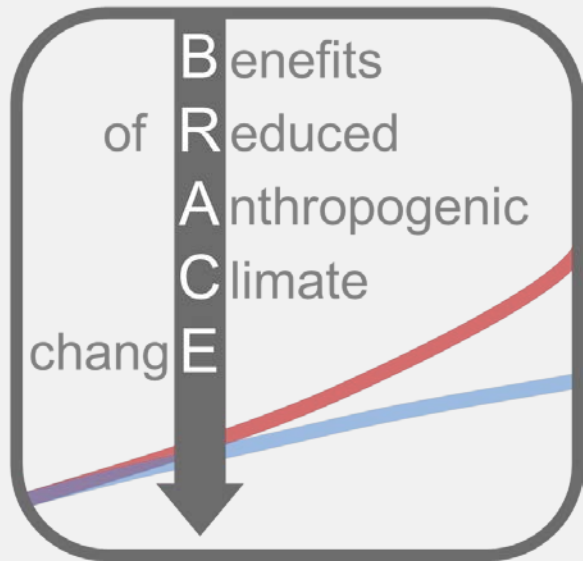
Project partners: PIK (coordination), FEEM, IIASA, JRC-IPTS, PBL, CIRED, NTUA, UCL, UPMF-EDDEN, Enerdata, DLR, NTNU, UEA

International partners: NCAR, NIES, NREL, PNNL, RITE

Project duration: 2013-2016



Schematic workflow of ADVANCE modeling innovations



BRACE: Benefits of Reduced Anthropogenic Climate change

NCAR + participants from 18 institutions

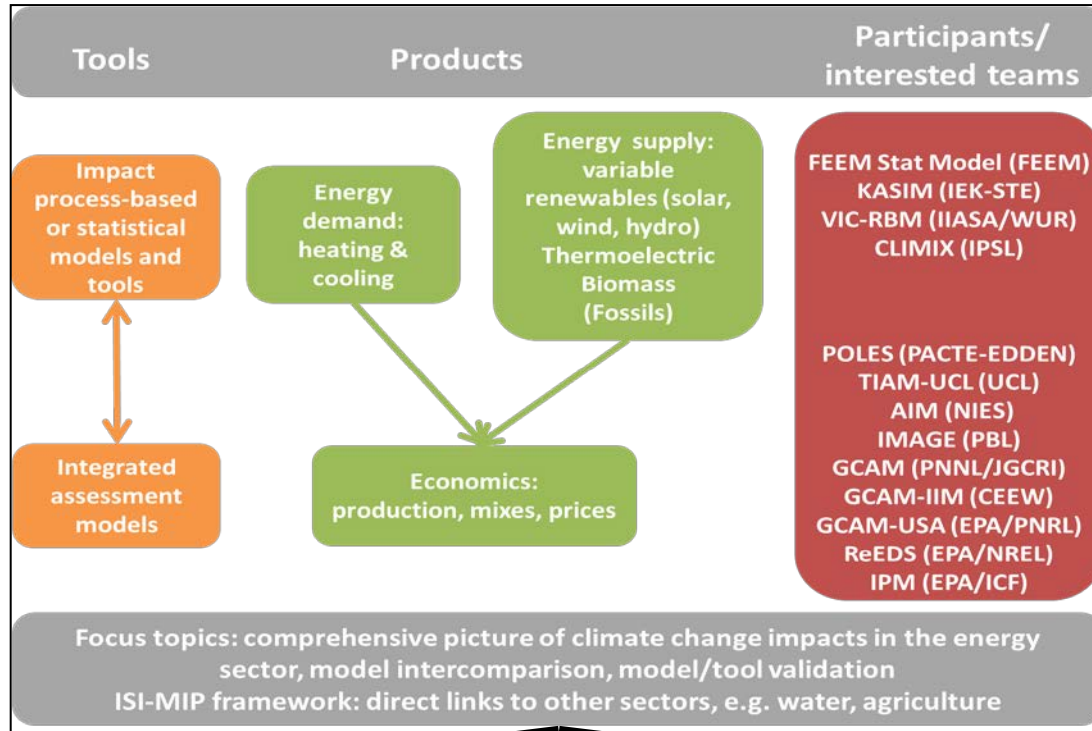
Impact difference between RCP8.5 and RCP4.5

Heat extremes, health, agriculture, tropical cyclones, drought, sea level rise

Special issue *Climatic Change*

ISI-MIP Energy

Contacts: Franziska Piontek (PIK), Ioanna Mouratiadou (PIK), Robert Vautard (IPSL), Michelle van Vliet (WUR) [isi-mip_energy@pik-potsdam.de]



Validation on supply and demand

How well do models reproduce past energy production based on historical climate data?
 How sensitive are IAMs to renewable potentials?

Timeline: Spring 2016 (ISI-MIP Special Issue)

Impact projections in the energy system

Model intercomparison
 Data transfer from process-based level to IAMs
 Impact/mitigation interplay

Timeline: Long-term

EMF 30-SLCF:

Short-Lived Climate Forcers

(Klimont, S. Smith, Drouet, Luderer, Drouet, Riahi, Rose, van Vuuren)

Motivation

- SLCFs are a major determinant of “short run” gap between GHG radiative forcing and temperature change.
- Hansen, et al. proposal to selectively control aerosols – reduce air pollution/health impacts as well as climate change (now as a side benefit).

EMF 31:

U.S. Shale Gas, Inc. Export Potential (Huntington, et al.)

Motivation

- What would a large increase in low cost gas mean for the evolution of the U.S. energy system.
- How much gas could the U.S. export and what would the impacts of that be on domestic markets.

EMF 32: Inter-model comparison of U.S. greenhouse gas reduction policy options (de la Chesnaye, Fawcett, Morris, Murray)

Motivation

- Political saliency of GHG tax revenue recycling
- Search for U.S. power sector GHG control policies
- Proposed EPA Section 111 approach to utility GHG regulation
- Obama International GHG Pledges (INDC)

EMF 33-BioE:

Bio-Energy and Land Use

(Popp, Rose, Fujimori, Havlik, Krey, van Vuuren, Wise,)

Motivation

- Most very low temperature change scenarios rely heavily on massive deployments of advanced bio-energy technologies. How feasible is this?
- Massive bio-energy expansion could have many large negative side effects on land, water, food,