POTSDAM INSTITUTE FOR
CLIMATE IMPACT RESEARCH

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Scenarios for Climate Research and Assessment: Insights on research questions & new scenarios from the short lived forcer session et al.

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Short lived forcer session

- SLCF emissions in RCPs do not span the range of air pollution futures. Important to control for this in future experiments

- Questions:
  - Role of CH4 and BC for short term mitigation. Are they offering an alternative strategy?
  - Climate impact on air quality

- SLCF vary systematically across SSPs. RCP-SSP IAM scenarios will offer an improvement

- Proposal by Detlef: SSP3-8.5, SSP2-6, SSP2-4.5, SSP1-2.6

- Granger: How do scenario approaches relate to uncertainty analysis?
  - Do we need funnels around scenarios?
  - Reduce model complexity as we go out in the future
  - Forecasting vs. Planning Tools

Continuity between CMIP5 and CMIP6

- Intriguing idea to allow compatibility of CMIP5 and CMIP6 projections for IAV analysis ➔ would allow to enlarge set of available GCM projections, e.g. explore overshoot, land use, and SLCF from existing RCP base.

- Challenge: Ensuring consistency between old RCP and new RCP-SSP scenarios to make scenarios useful for IAV as a set

- IAM community would need time to explore feasibility of this option

When is different too different?

- RCP-SSP scenarios will aim at RCP levels in 2100.

- How much can they deviate from original RCPs (in terms of emissions path over time, land use pattern, SLCF) to still make them useable for IAV, i.e. to allow a „roughly" consistent combination with CMIP5 results?

- SLCF can be controlled along SSP dimension ➜ It will differ between RCP-SSP and original RCP scenarios

- Land use will vary largely between models even for a given SSP ➜ may be controlled along another or combined dimension, but will also differ between RCP-SSP and original RCP scenarios

- **Given the need of IAV community to control for development dimension, it is important that they can move freely across SSPs for a given RCP. Needs pattern scaling methods to adapt a given CMIP5/6 run to variation of Land use and SLCF!**

When is close too close?

- Policy relevant scenarios for a global impact assessment (to match mitigation analysis. Key years – 2030, 2050, 2100, 2200)

- Judge „closeness" on global / hotspot level and until 2200