

Integrated Assessment of Geoengineering Proposals

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Previous assessments

- **Boyd (2008)**

Ranked five different geoengineering ideas. From a more physical science perspective.

- **Lenton & Vaughan (2009)**

Calculated the cooling potential of a number of geoengineering ideas, purely physical science perspective.

- **The Royal Society (2009)**

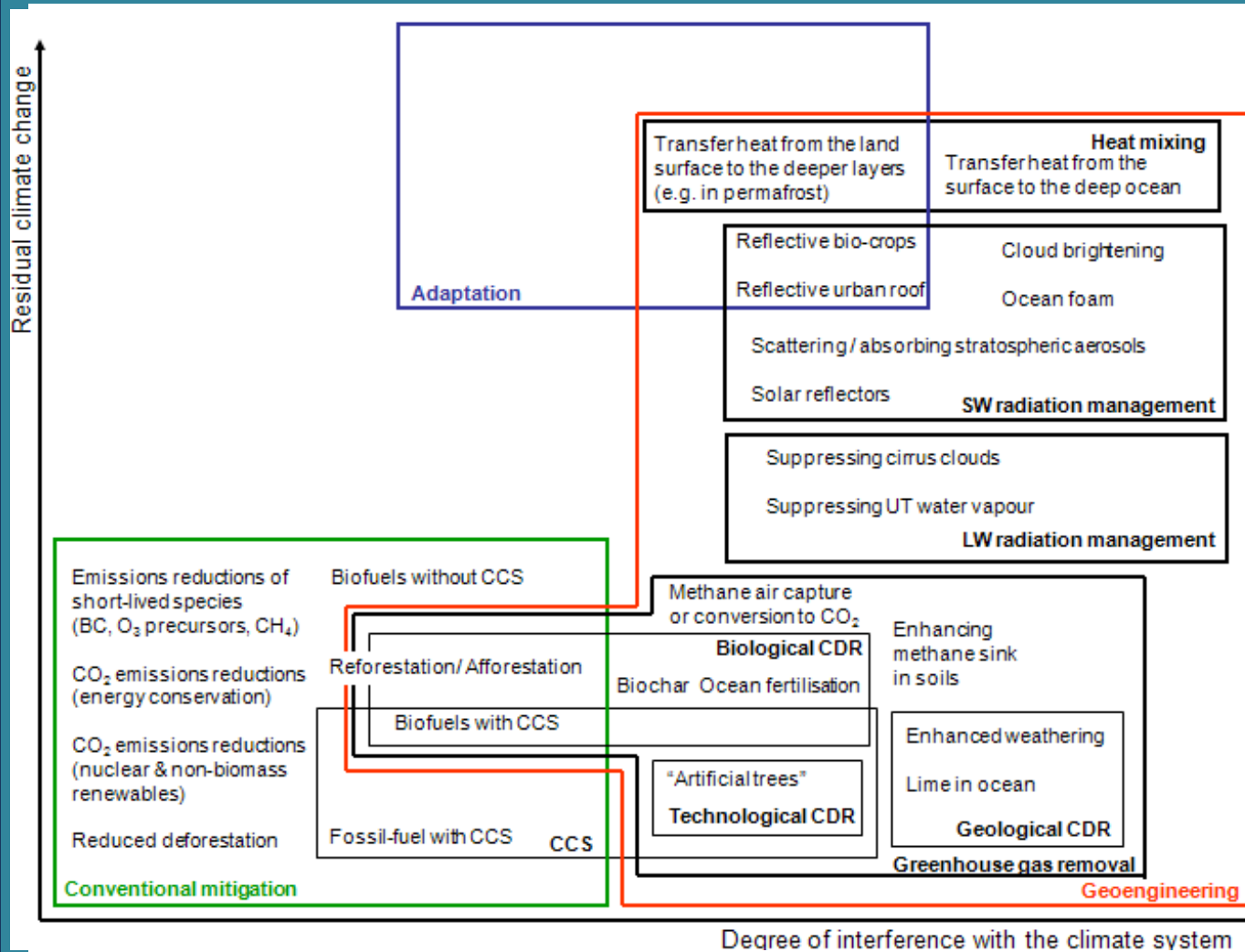
Geoengineering the climate: science, uncertainty and governance. Worked with a broader range of academics, including social sciences.

IAGP objectives

- To evaluate the **effectiveness** and **side-effects** of a broad range of geoengineering proposals
- To evaluate the **controllability** of global climate using these proposals
- To elicit and include **stakeholder** and **public values** into the evaluation

IAGP context

Olivier Boucher



Multicriteria assessment

Physical

Social

e.g. climate

Technology

Economics

e.g. ethics

	e.g. climate				Technology				Economics				e.g. ethics			
solar																
carbon																
combined																

IAGP Climate Modelling

- HadGEM2CC L60 Model (RCP8.5 and 4.5 already run)
 - Runs on HECTOR and Met Office computers
 - 2000-2100 baseline
 - Geo Engineer in 2020 from RCP 8.5 and stop in 2070
 - Large forcing for small ensemble size required
- UVIC model for longer term carbon cycle response and Control
- WRF-CHEM for marine stratocumulus studies

Experiments in order of priority :

Stratospheric SO₂ injection, marine SC, space sun shade, cirrus cloud, ocean bubbles, afforestation, ocean pipes, methane ...

IAGP Connections

- ~8 other PhD students /PDRAs at partner universities
- Met Office Geoengineering work
- GEOMIP
- SPICE Stagegate
- IPCC Special Report on Geoengineering
- NERC Dialogue
- Oxford Geoengineering Program