

# CE Research Statements

**Gregor Betz | Karlsruhe Institute of Technology (KIT)**



Let me first of all say that I aspire to keep my moral and political convictions out of my philosophical research. However, I do have strong personal opinions on climate change and climate engineering. In a nutshell, engineering the climate seems to me a morally corrupt idea, and any discussion of it is clearly premature. Rather than deliberating CE, we should meet our moral duty and reduce GHG emissions: both on a collective as well as on a personal and individual level.

While in the best of all possible worlds we wouldn't seriously consider CE at all, this world is at most second best and CE is, as a matter of fact, more and more reckoned to be a potential policy option. I hope that the Priority Programme will make a substantial contribution to this discussion in providing independent, unbiased and critical assessments of CE options.

**Dieter Gerten | Potsdam Institute for Climate Impact Research (PIK)**

CE research is needed to assess and evaluate potential impacts of technological emergency solutions from multiple perspectives. That said, all efforts need to be taken to mitigate climate change rather than enter a world in which Climate Engineering has to be discussed as a serious option.

**Nina Janich | Technische Universität (TU) Darmstadt**



Climate Engineering interessiert uns als exemplarischer Prüfstein für eine verantwortungsbewusste und verantwortungsvolle Wissenschaft, die VOR jedem Feldexperiment nicht nur naturwissenschaftlich modellierbare Folgen und Nebenwirkungen diskutiert, sondern auch die ethischen, juristischen und ökonomischen Implikationen von Forschung prüft. Die Programmatik des Schwerpunktprogramms geht von einem Bewusstsein des (partiellen) Nichtwissens und der Unsicherheit auch der Experten aus und erklärt die sich daraus ergebenden Meta-Fragen zur Legitimität von CE-Forschung zum eigenen Forschungsgegenstand. Aus sprachwissenschaftlicher Perspektive ist es in diesem Kontext wichtig zu beobachten, 1) wie sich aus einer solchen Programmatik einer verantwortungsbewussten Wissenschaft neue und interdisziplinäre Diskursgemeinschaften bilden, 2) ob es einen generellen wissenschaftlichen Verantwortungsbegriff oder disziplinäre Unterschiede gibt und 3) wie Verantwortungsbewusstsein – als Forderung wie als Versprechen – im Austausch mit der Öffentlichkeit transparent kommuniziert werden kann.

## **Andreas Oschlies | GEOMAR**



Climate Engineering has entered the political and scientific stage, and a wide variety of opinions and arguments are being put forward by the proponents and opponents of climate engineering, sometimes with vested political and economical interests. Since altering the climate, whether unintentionally by emitting CO<sub>2</sub> or intentionally by Climate Engineering, has the potential to affect every person on Earth now and in the future, I find it is timely and in our scientific responsibility to carefully examine the potential impacts and side effects of climate engineering.

I believe that we need, for a comprehensive assessment, a highly interdisciplinary approach to appropriately consider the various environmental, societal, political, legal and ethical aspects. My aim is to carry out this assessment in an unbiased and transparent way, well before one might think of, and decide about, possible field trials. I hope that our DFG (i.e. tax-payer) funded research will inform the public debate and thereby help society to arrive at sensible and responsible decisions about climate engineering.

## **Johannes Quaas | Leipzig University**



There is a broad consensus that geoengineering should not be implemented soon. As for research on geoengineering, both opinions are valid: Some argue that even research opens the door for society to reduce efforts for mitigation. Others believe that it is necessary to gain insights into potential benefits, side-effects and implications for climate and socio-economy either to have it as an option available should climate change become intolerable, or to be able to understand what is happening if single parties should decide to actually implement it.

In LEAC, we start very carefully with research on geoengineering: We analyse whether research in form of a field experiment should be performed at all (mainly a socio-economic question), and, if so, how large an experiment has to be in order to allow for useful learning (both a meteorological and economic question). In my opinion, the argument given against research on geo-engineering is one which undervalues the abilities of societies to rationally decide on options. The personal decision on whether I should not prefer using my time on other problems in case of LEAC is easy to take: Understanding of efficacy and side-effects of marine cloud-brightening at the same time helps understanding of the climate change forcing by anthropogenic aerosols in general ("aerosol indirect effects").

## Martin F. Quaas | Kiel University



It does not make sense to think about climate engineering without putting the main focus on uncertainties. Uncertainties matter in three respects. Firstly it is ambiguous how climate change will develop. We do not know, for example, whether tipping points exist, beyond which the consequences of climate change would be much more severe than expected. If the climate system would approach such a tipping point, climate engineering could help mitigating catastrophic consequences of the greenhouse effect. Indeed, this uncertainty is a major argument in favor of including climate engineering in climate policy scenarios. Secondly it is also uncertain, what exactly are the effects of the proposed measures of climate engineering and which side effects may exist. This uncertainty provides an argument against the deployment of climate engineering. In-depth research on climate engineering, in particular field experiments, could help to learn more about the functioning of climate engineering measures. Thirdly, however, it is uncertain what amount of knowledge will be obtained by a field experiment. Before conducting a field experiment, this uncertainty should be minimized and the benefit of potential, but uncertain, information should be weighted against the damages an experiment could cause.

Today's global society faces the question, whether such experiments should be conducted, and if so, when and how. The answer to this question mainly depends on the social willingness to take risks. It has to be kept in mind that a relatively sure alternative is to mitigate the emission of greenhouse gases – thus it is also important to weigh today's abatement costs against mitigated uncertain future damages of climate change or climate engineering. Our research aims at finding rational answers to these questions and to

inform the global society before a decision is made on whether, when and how to do field experiments on climate engineering.