

A conversation with Andy Parker on May 20, 2013

Participants

- Andy Parker – Research Fellow, Science, Technology, and Public Policy Program, Belfer Center, Harvard University
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Note: This set of notes was compiled by GiveWell and gives an overview of the major points made by Andy Parker.

Summary

GiveWell spoke with Andy Parker as a part of our investigation of opportunities to reduce the risk from catastrophic climate change through geoengineering. The main subjects of discussion were the existing research efforts around the world, and possible opportunities to find and fill gaps in the current research.

Background

GiveWell had previously spoken with Andy Parker in July 2012, just before he joined David Keith's research group at Harvard. Parker's fellowship is renewable on an annual basis, and he currently anticipates staying on for at least another year.

Types of Geoengineering

There are primarily two types of geoengineering projects being considered or researched today:

- *Solar geoengineering* refers to projects that would attempt to reflect solar energy back into space to reduce the earth's temperature.
- *Carbon geoengineering* removes carbon from the atmosphere to offset the impact of carbon released by human activities.

Geoengineering research efforts today

One of the biggest developments in the past year is a carbon geoengineering (specifically ocean fertilization) project that a Haida Nation village conducted last fall with businessman Russ George in an apparent attempt to spur salmon populations. Legally, the project is in a gray area and seems to break the spirit but not the letter of international law. For such a controversial project it would have been preferable to see an environmental impact assessment, public consultation, publicly available data and more general transparency. There was a big controversy in the media when the project was reported, although that appears to have died down, and proposals for a second round have not generated the same outcry.

Projects by country

United Kingdom

Geoengineering research in the United Kingdom has mostly focused on two multi-institution projects, though there are a number of smaller projects as well.

- Integrated Assessment of Geoengineering Proposals (IAGP) is a multi-university project to assess different techniques, both solar and carbon. It involves a strong social science element, not just natural sciences. They are also doing public engagement and thinking about what the public and interested stakeholders might want to be researched.
- The Stratospheric Particle Injection for Climate Engineering (SPICE) project is conducting an assessment of the likely benefits and costs of solar geoengineering. A small part of SPICE was a balloon project, which was cancelled but gets the most attention.

The Oxford Geoengineering Program also conducts research in this area, particularly on governance mechanisms, and is working with other UK institutions on the Climate Geoengineering Governance (CGG) project.

Germany

Germany has some similar programs to the ones in the United Kingdom. The largest program is at IASS in Potsdam, and they have a strong multi-year program looking at all different geoengineering techniques. They have modelers, social scientists, and lawyers looking at all aspects of geoengineering.

Japan

Japan has started a research program with a few million dollars over a few years.

United States

The U.S. remains very quiet on geoengineering, and whether that might change with the new administration remains to be seen. It is strange, given its overall academic strength, that the U.S. does not have any sort of formal public research program in this area. Most research that has been done has been run by academics with an interest in geoengineering but a 'day job' in a related subject.

Global applicability

Most of this science is looking at a global scale, so the country in which it is conducted is not particularly important. Opportunities for research that looks at local considerations are possible though. Parker knows an Ethiopian researcher who might take data from model runs that have already been done as part of the international GeoMIP project, and re-analyze them to look at the impacts of particular geoengineering scenarios in Africa. So it is possible to do localized research, but most research is global at this point.

Current and future funding

Current funding

Global public funding currently committed to geoengineering research appears to be roughly \$20-25 million. That includes multi-year funding commitments, so it is not an annual figure.

David Keith and Ken Caldeira and a couple of other people receive money for research from Bill Gates

through the Fund for Innovative Climate and Energy Research. They describe the terms of the donation they receive on their websites.

Even the most aggressive anti-geoengineering advocates don't think, when pressed, that research shouldn't happen, and yet the U.S. has still done nothing formally.

Potential funding opportunities

So little has been spent that a little money goes a long way. \$10 million, for example, if spent sensibly but exclusively on modeling, would quickly accelerate the amount of work done but not revolutionize the field.

What's going on underneath the surface is probably more important. If \$10 million was spent bringing new people into the discussion, it could change the way that geoengineering research is done. For example, it would not cost a lot to fund a proposed African Academy of Sciences research group, including young African scholars, which could broaden research and bring in voices not yet included. A funder could help create the conditions for strong governance programs that could ensure that safe and transparent research can proceed with public oversight and international cooperation, while discouraging riskier projects.

There are two main strategies a funder could pursue to further research:

- Funding projects geared towards creation of a governance framework to oversee research and accommodate public concerns, to avoid the controversy of, for example, the SPICE project.
- Just funding research. Funding for well run research programmes at reputable institutions could really help move geoengineering research forward, especially while there is no formal public research programme. However, more controversial research projects – whoever they are funded by – might eventually provoke a reaction from the governing system that will then make the rules hastily.

One of the biggest bottlenecks for further research continues to be concerns over public support, but if there were more research money, there'd likely be more people wanting to do research, such as by current PhDs moving into postdocs.

Landscaping the field

Having someone take a few months to figure out who was doing what research already and what funding opportunities still existed might come up with many interesting opportunities.

The best way to do that would not be through a highly formal institution, since this isn't a technical evaluation. Starting with connected individuals and the heads of relevant organizations, GiveWell could probably find an individual to landscape the field and identify major gaps in 3 months. There are plenty of candidates, including lots of young smart people who have been connected to more senior professors. For example, in August, Harvard is hosting a geoengineering summer school for 60 - 70 graduate students and post-docs, who might be well suited to the work.

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