

U.S. Politicians Warned Geo-Engineering Is Not a Magic Bullet for Climate Change

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Photo: Professor John Shepherd of the National Oceanography Centre, Southampton, UK, delivered a warning to the US House of Representatives. (NOCS)

Cut carbon emissions or our only hope to cool the planet will be relying on unproven geo-engineering ideas. This was the warning delivered to US House of Representatives by Professor John Shepherd of the National Oceanography Centre, Southampton, UK.

Professor Shepherd warned, "None of the geo-engineering technologies so far suggested is a magic bullet, and all have risks and uncertainties associated with them. It is essential that we strive to cut emissions now, but we must also face the very real possibility that we will fail."

Climate expert Professor Shepherd was invited to give evidence to the House of Representatives following the recent publication of a study he chaired for the Royal Society: *Geoengineering the climate: Science, governance and uncertainty*. This report examined a range of geo-engineering techniques that addressed the issues of carbon dioxide removal (CDR) and solar radiation management (SRM). The study was published on the 1st September 2009, by the Royal Society.

None of the techniques were considered to be without risk and significant cost. Geo-engineering technologies include methods that remove greenhouse gases from atmosphere, such as engineered air capture. These address the root cause of problem and would be generally preferred, but they only act slowly and are likely to be costly. Technologies that reflect sunlight - such as small particles in the upper atmosphere - act quickly, and are relatively cheap, but have to be maintained so may not be sustainable in the long term. They also do nothing for the related CO2 problem of ocean acidification.

"If 'Plan B' is to be an option in the future, considerable research and development of the different methods, their environmental impacts and governance issues must be undertaken now. Used irresponsibly or without regard for possible side effects, geo-engineering could have catastrophic consequences similar to those of climate change itself. We must ensure that a governance framework is in place to prevent this."

Professor John Shepherd was giving testimony at the US House of Representatives Committee on Science and Technology's hearing on geo-engineering, on the 5th November 2009. He is Professorial Research Fellow in Earth System Science, School of Ocean and Earth Science, National Oceanography Centre, University of Southampton, UK.

John Shepherd is also Deputy Director (External Science Coordination) of the Tyndall Centre for Climate Change Research, and a Fellow of the Institute of Mathematics and its Applications. He was elected a Fellow of the Royal Society in 1999. His current research interests include the natural variability of the climate system on long time-scales, and the development and use of intermediate complexity models (especially GENIE - Grid Enabled Integrated Earth system model) of the Earth

climate system, for the interpretation of the palaeo-climate record, and for long-term projections of climate change.

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