

Plenary Talk PV IX Th 8:30 E 415 und E 214
Solar radiation management to limit climate change: An overview on proposed methods, their cooling potential, and possible side effects — ●HAUKE SCHMIDT — Max Planck Institute for Meteorology, Bundesstr. 53, 20146 Hamburg, Germany

There is increasing scientific evidence indicating that anthropogenic emissions of greenhouse gases (GHG) have a significant impact on Earth's climate, and that this climate change will be harmful for mankind. Consequently, there is a growing urgency to design new measures for limiting climate change to an acceptable level. To prepare for possible failure of emission reduction attempts through international agreements, currently there is an increasing debate in the public and

scientific communities on the possibility of “geoengineering”, or “the deliberate manipulation of the Earth system to manage the climatic consequences” (Schneider, 2001) of enhanced GHG concentrations. Two classes of proposed methods can be distinguished, such that aim on an actual removal of carbon dioxide from the atmosphere, and such that are frequently referred to as “solar radiation management”. This presentation tries to provide an overview on the status of scientific research concerning the latter class of methods, their physical basis, global cooling potential, and possible side effects. Among these methods a special emphasis will be put on the suggestion to inject sulfur into the stratosphere and the question to what extent past volcanic eruptions may serve as an analog. Ethical and economical aspects of the discussion on geoengineering will be touched briefly.