Type: Talk

Summer ozone loss under geoengineering conditions

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The occurrence of heterogeneous chlorine activation through the presence of aerosol particles could cause stratospheric ozone destruction in summer. This chemical process requires low temperatures and is accelerated by an enhancement of the stratospheric water vapour and sulphate amount. We report on these processes based on the results of the Geoengineering Large Ensemble Simulations (GLENS) and the Chemical Lagrangian Model of the Stratosphere (CLaMS). Geoengineering will enhance the sulphate aerosol abundance in the stratosphere. The sulphate abundance is furthermore strongly dependent on the sulphate injection strategy. In the GLENS simulations, the lowermost stratospheric mixing layer will warm and moisten in future scenarios with a larger effect when a potential geoengineering scenario is considered. However, the ozone loss has a minor impact on the midlatitude ozone column for both today's conditions and future geoengineering conditions.

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