

# **The Increasing Need for Research on Geoengineering Approaches to Reducing Potential Global Cooling**

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There is mounting evidence of the Sun's increasing inactivity. This indicates a significantly increased probability that Earth may well cool rather than warm in coming decades. Although long discussed by some Russian experts, new evidence significantly increases the urgency to undertake serious research on geoengineering approaches to increase global temperatures should that prove necessary to avoid the very adverse effects of greatly decreased temperatures, particularly in countries located in northern latitudes.

In considering various geoengineering approaches to stabilizing global temperatures it is therefore important to examine particularly those that are capable of increasing rather than only decreasing temperatures. One of the best-known ones that have this capability is what some have called Solar Radiation Management (SRM) using specialized particles placed in the stratosphere, possibly on a regional basis based on latitude. Available information suggests that this would be much more effective and vastly less expensive than attempts to vary CO<sub>2</sub> emissions to achieve the same effects, and could be carried out in a timely way when and if circumstances should actually warrant it rather than far in advance when temperature trends would be likely to be much less certain. There is a need, then, to do the following:

1. Detailed laboratory/computer studies to determine the best means, environmental effects, and detailed costs to implement an optimum SRM approach.
2. Very limited testing of the optimum approach to verify its key parameters without endangering the Earth's environment.
3. Development of an international understanding and mechanism for quickly implementing the optimum approach when and if actually needed.

The laboratory/computer effort need not be expensive by the standards of current climate research. The most difficult part is (3), particularly since the United Nations appears to be oriented exclusively towards CO<sub>2</sub> solutions to decreasing temperatures, and against geoengineering approaches.