

What is solar radiation modification (SRM)?

If climate change is not sufficiently controlled through reductions in greenhouse gas emissions or other current mitigation measures, more direct methods of control may be applied. One of these methods, solar radiation modification (SRM), is the act of reducing incoming solar radiation to reduce Earth's surface temperature.

How can the international community address the threat of unilateral solar radiation modification?

The international community needs to proactively address the threat of unilateral implementation of solar radiation modification by introducing robust global monitoring systems for such actions as well as a system of credible sanctions against regimes found to implement solar radiation modification.

How can solar radiation be modified?

Solar radiation modification includes an array of theoretically possible approaches (see de Coninck et al., 2018; Reynolds, 2019a). Among these, stratospheric aerosol injection (SAI) by planes or tethered balloons is seen as most relevant also given that the cooling mechanism is well known through large scale volcanic eruptions.

Can authoritarian regimes unilaterally modify solar radiation?

Given that unilateral implementation of solar radiation modification by authoritarian regimes could start relatively quickly, triggered by impacts of meteorological extreme events, the international response to discovery of preparations needs to be coordinated in an effective and rapid manner.

Can a consensus-oriented approach prevent unilateral solar radiation modification?

A consensus-oriented approach as required under the UN Framework Convention on Climate Change (UNFCCC) would not allow a timely reaction against unilateral solar radiation modification. Moreover, it can be blocked by a small number of authoritarian and populist regimes.

Is solar radiation modification a 'Pandora's Box' technology?

Conclusions Solar radiation modification through stratospheric aerosol injection or - to a lesser extent - marine cloud brightening - is a 'pandora's box technology'.

Data-driven study/optimization of a solar power and cooling generation system in a transient operation mode and proposing a novel multi-turbine modification concept to ...

In today's rapidly evolving world, characterized by the menace of global warming and the ever-pressing call for sustainable energy solutions, the trilogy of hydroelectric power generation, ...

Based on global distribution of solar energy and its feature, this paper discusses a review about solar energy's utilization techniques, mainly discusses the latest development of photo-thermal ...

Various initiatives have been carried out by the GoM in order to maximize solar energy harnesses (Hussin et al., 2012). In 2000, Fifth Fuel Policy 2000 which included renewable energy as the fifth ...

The efficiency (η_{PV}) of a solar PV system, indicating the ratio of converted solar energy into electrical energy, can be calculated using equation [10]:
$$\eta_{PV} = \frac{P_{max}}{P_{inc}} \dots$$

The mega-solar demonstration project named "Verification of Grid Stabilization with Large-scale PV Power Generation systems" had been completed in March 2011 at ...

Solar radiation modification (SRM) is increasingly being discussed as a potential tool to reduce global and regional temperatures to buy time for conventional carbon mitigation ...

Solar radiation modification, particularly stratospheric aerosol injection, holds the potential to reduce the impacts of climate change on sustainable development, yet could itself ...

Proposed methods of reflecting more sunlight to reduce Earth's temperature. Solar radiation modification (SRM), also known as solar radiation management, or solar geoengineering, refers to a range of approaches to limit global warming ...

Projects like the Jawaharlal Nehru National Solar Mission, which aims to generate 20,000 MW of solar power by 2022, are creating a positive environment among investors keen to exploit India's renewables ...

A single source of electric power delivery to the consumer, local load is a diverse generation strategy such as conventional fossil fuel generation like oil, coal, etc. or ...

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