

## Extreme Temperature Response to Solar Radiation Management in Southeast Asia

**Authors :** Heri Kuswanto, Brina Miftahurrohmah, Fatkhurokhman Fauzi

**Abstract :** Southeast Asia has experienced rising temperatures and is predicted to reach a 1.5°C increase by 2030, which is earlier than the Paris Agreement target. Solar Radiation Management (SRM) has been proposed as an alternative to combat global warming. This research investigates changes in the annual maximum temperature (TXx) with and without SRM over southeast Asia. We examined outputs from three ensemble members of the Geoengineering Large Ensemble Project (GLENS) experiment for the period 2051 to 2080. One ensemble member generated outputs that significantly deviated from the others, leading to the removal of ensemble 3 from the impact analysis. Our observations indicate that the magnitude of TXx changes with SRM is heterogeneous across countries. We found that SRM significantly reduces TXx levels compared to historical periods. Furthermore, SRM can reduce temperatures by up to 5°C compared to scenarios without SRM, with even more pronounced effects in Thailand, Cambodia, Laos, and Myanmar. This indicates that SRM can mitigate climate change by lowering future TXx levels.

**Keywords :** solar radiation management, GLENS, extreme, temperature, ensemble

**Conference Title :** ICMCAP 2024 : International Conference on Meteorology, Climatology and Atmospheric Physics

**Conference Location :** Tokyo, Japan

**Conference Dates :** December 02-03, 2024