Improvements in Coupled Ocean-Atmosphere Model Responses to Solar Activity

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The fidelity and capacity of coupled ocean atmosphere GCMs to respond to changes in solar activity has increased greatly in recent years. Results from the last round of international comparisons (CMIP5 ~2012-2016) showed that some GISS model configurations were able to better capture solar-cycle responses from the stratopause to the ocean surface as a function of interactive ozone and more realistic stratospheric circulation. CMIP6 will additionally feature model configurations that have an internal QBO mode, and sufficient aerosol and cloud microphysics to include hypothesized ion-nucleation mechanisms as well. We will discuss the implications this may have for recent attribution of decadal and longer-term variations in observed temperatures.