

## **Forecasting Solar Forcing up to 2300: Why, and How?**

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The latest assessment report of the IPCC highlights the need for having better projections of future climate change at least up to 2100, including more realistic forecasts of solar activity on multi-decadal time scales. We cannot predict the level of solar activity on such time-scales. However, assessments of plausible scenarios are possible, though challenging.

The 9 members of this ISSI team are preparing a data set with two realistic scenarios up to 2300, including particle forcing, and solar radiative forcing. These scenarios will serve as inputs for the forthcoming SPARC-CCMI (Chemistry-Climate Model Intercomparison) and CMIP6 (Coupled Model Intercomparison Project) climate model experiments.

Here we shall concentrate on the building of these scenarios. We considered various reconstructions of past solar activity from cosmogenic isotopes, and subjected them to a series of forecasting methods. Most reveal a distinctive pattern for the 21st century. They also shed new light on the puzzling occurrence of decadal and centennial cycles in solar forcing.