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Large Ensembles for Attribution of Dynamically-driven Extremes (LEADER): revisiting the climate response to solar variability

Monday 16 September 2024 13:30 (20 minutes)

The long-predicted climate change signal is emerging outside the noise in many regions. These changes in climate are accompanied by changes in extreme events that impact society. While early warnings of such changes are now potentially possible through, e.g., operational decadal predictions, there are several challenges: there is a lack of understanding of the dynamical mechanisms that enable such projections, there is evidence that global models underestimate some predictable signals (including the solar signal), and these models suffer from biases. A better understanding of the causes of regional changes in climate is needed both to attribute recent events and to gain further confidence in forecasts. One of the phenomena that can lead to seasonal to decadal predictability of near-surface extremes is solar variability.

We will first introduce the Large Ensemble Single Forcing Model Intercomparison Project (LESFMIP), the dataset that forms the bedrock of attribution and prediction activities of the WCRP's EPESC lighthouse activity and the APARC LEADER activity. Next, we will present preliminary results from the hist-solar runs archived for the LESFMIP, so as to motivate future community efforts using this dataset. This community effort is motivated by the need to (1) ensure visibility of APARC science in WMO State of Climate and Global Annual to Decadal Climate Updates and IPCC reports; and also (2) to communicate with operational centres as to which diagnostics are required for future analysis.

Solicited or Contributed

Contributed

Author list and affiliations

Presenting author

Chaim Garfinkel

Primary author: GARFINKEL, Chaim (Hebrew University)

Co-authors: FUNKE, Bernd (Instituto de Astrofísica de Andalucía, CSIC); OSPREY, Scott (Oxford); HUO, Wenjuan

Presenter: GARFINKEL, Chaim (Hebrew University)

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