

Anmeldung eines Themas für eine Bachelorarbeit

Thema Datum	Decadal-like solar imprint in recent climate models
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Kurzbeschreibung :	Recently, Chiodo et al. (2019) suggested that the 11-year solar cycle influence on the North Atlantic Oscillation (NAO) through stratosphere-troposphere coupling (STC) since the mid-1960s may have occurred due to internal variability. Ultimately, the magnitude of the energetic particle (EP) forcing signal in the STC may be equivalent to that arising from solar irradiance variations, in particular ultraviolet (Seppälä & Clilverd, 2014). Since state-of-the-art chemistry-climate models generally reproduce the observed EP indirect effect (Funke et al., 2017), in order to determine if the NAO signal correlating with solar variability is driven by the Sun or dominated by internal variability , we need to disentangle between the two main solar drivers that vary on the quasi-decadal timescale. The aim of this thesis is to apply various methods to disentangle between internally or forced solar variability on the decadal timescale. These techniques will be applied to recent climate-model intercomparison projects.
Literatur:	Chiodo, Gabriel, et al. "Insignificant influence of the 11-year solar cycle on the North Atlantic Oscillation." <i>Nature Geoscience</i> 12.2 (2019): 94. Funke, Bernd, et al. "HEPPA-II model-measurement intercomparison project: EPP indirect effects during the dynamically perturbed NH winter 2008/2009." <i>Atmospheric Chemistry and Physics</i> (2017). Seppälä, Annika, and Mark A. Clilverd. "Energetic particle forcing of the Northern Hemisphere winter stratosphere: comparison to solar irradiance forcing." <i>Frontiers in Physics</i> 2 (2014): 25.