## Solar forcing of Northern Hemisphere winter climate variability

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Observational evidence indicates a link between the 11-year solar cycle and wintertime climate of the Northern Hemisphere. Low solar activity is associated with the negative phase of the North Atlantic Oscillation/Arctic Oscillation and cold conditions in northern Europe. Here we use the Hadley Centre coupled ocean-atmosphere climate model in idealized experiments which represent the impact of the change in the ultraviolet (UV) component of solar forcing only on the difference in climate response between the solar maximum and solar minimum. The UV perturbation is estimated from extrapolation of recent SIM/SORCE satellite data and is larger than that derived from earlier measurements. Our analysis supports a top-down pathway for the high latitude surface response, with an altered stratospheric westerly jet and subsequent poleward and downward propagation and amplification. The resulting surface climate anomalies are large enough to play an important role in decadal climate prediction.