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*Supplement of*

## **Stratospheric modulation of Arctic Oscillation extremes as represented by extended-range ensemble forecasts**

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## Supplement

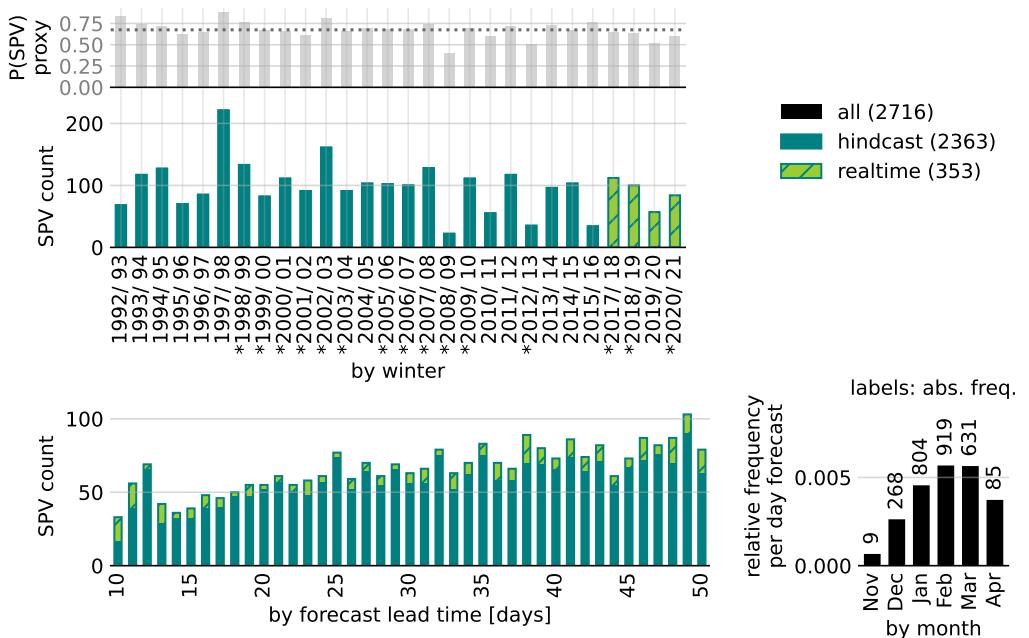


Figure S1: As in Fig. 1, for UKMO p-SSWs.

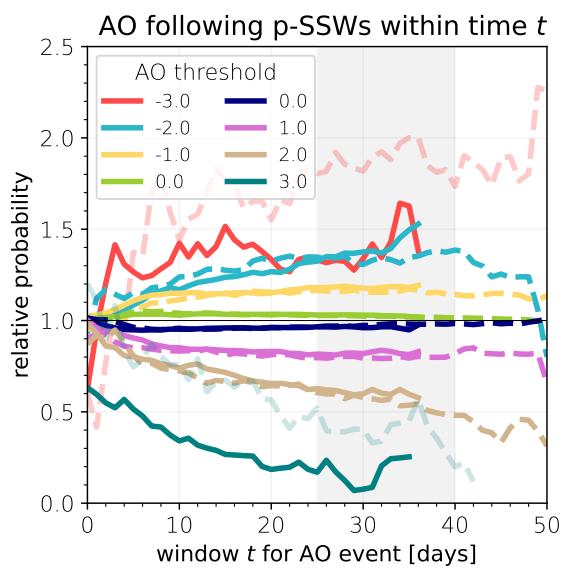


Figure S2: Relative probability of AO extremes following SSWs within time  $t$ . Values larger than 1 indicate that AO events occur more often compared to climatology. Windows of 25 to 40 days (gray shaded) are used to compute an average relative probability increase.

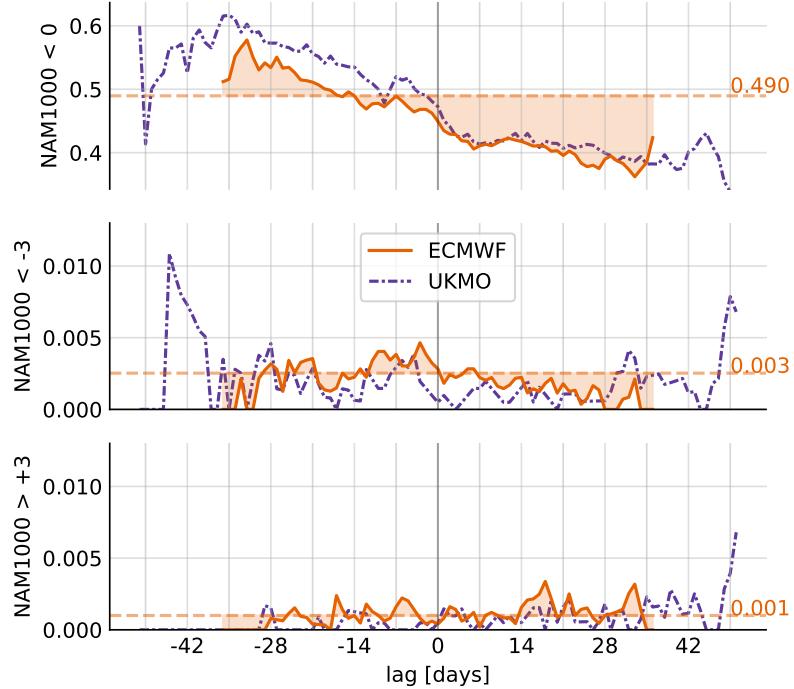


Figure S3: As in Fig. 4, for p-SPVs. Consistent with the average positive AO shift (see Fig. 9), the daily probabilities for  $\text{AO} < 0$  and  $\text{AO} < -3$  reduce, whereas the probability for  $\text{AO} > +3$  slightly increases following p-SPVs, compared to the respective climatological baselines (horizontally dashed).

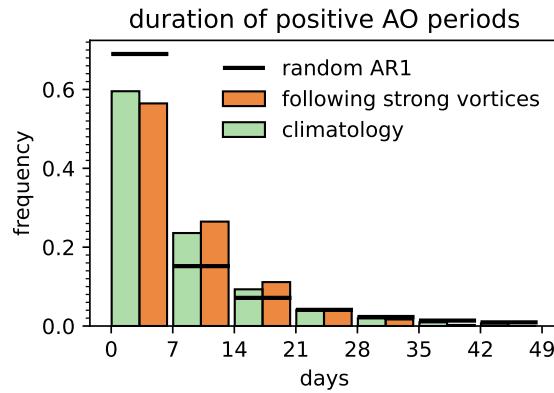


Figure S4: As in Fig. 3, for the duration of positive AO phases following p-SPVs. Compared to climatology, positive AO phases that are longer than 7 days are more likely following p-SPVs. Data from ECMWF.

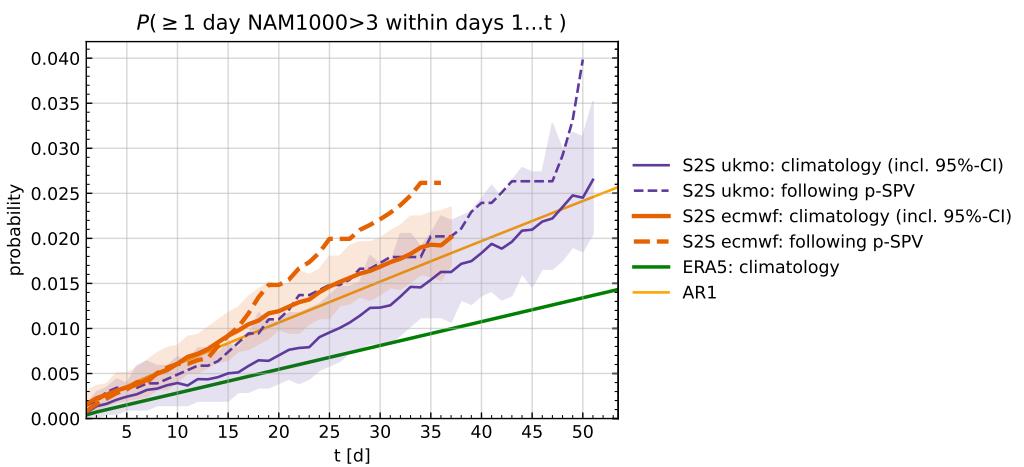


Figure S5: As in Fig. 5, for at least one day  $\text{AO} > +3$  within days 1 to  $t$ , following p-SPVs. For both, ECMWF and UKMO forecasts, the probability relative to climatology is increased following p-SPVs, however, the probabilities are generally lower in the UKMO model.