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Interactive comment on "The Arctic vortex in March 2011: a dynamical perspective" *by* M. M. Hurwitz et al.

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We thank Dr. Orsolini for his comments. In a revised version of our manuscript, we will incorporate the papers that are mentioned, and extend our discussion of the impact of North Pacific meteorological variability on the Arctic stratosphere.

As we show in Figure 3e, positive SST anomalies in the North Pacific are associated with negative temperature anomalies in the Arctic lower stratosphere in March. This suggests that positive SST anomalies in the North Pacific may have contributed to the unusually cold conditions in the Arctic lower stratosphere in March 2011. We hypothesise that these positive SST anomalies weaken the North Pacific low and thus the Pacific-North American (PNA) pattern, reducing the planetary wave energy entering the stratosphere in mid- to late winter. We plan to examine this idea in a future study.

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