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Atmospheric Chemistry and Physics Discussions



# *Interactive comment on* "Geomagnetic activity related $NO_x$ enhancements and polar surface air temperature variability in a chemistry climate model: modulation of the NAM index" *by* A. J. G. Baumgaertner et al.

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We thank the referee for his valuable comment, which is addressed below.

*The statistical approach used by the authors is all right provided the data series for SAT and hi-low Ap (Fig 7) are not strongly trending series - could the authors perhaps insert one plot showing the two series against time - or just take a look for themselves and comment on this issue in the text?*

**From the S-EPP and S-noEPP simulations (Fig. 7), where fixed Ap values were applied, we have analysed the time series for trends. Since the trend of the time series depends on geographic position we show only the region north of 80N as an example (Fig. 1 of this reply). It is evident that neither the S-EPP nor the S-noEPP timeseries are strongly trending (year-to-year variability dominates). In fact, this is the expected result – otherwise we would have to conclude that the spin-up time was not long enough since all boundary conditions are the same from year to year. We have added the sentence "Also note that the trends of the timeseries (not shown) in this region are negligible as expected."**

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 30171, 2010.





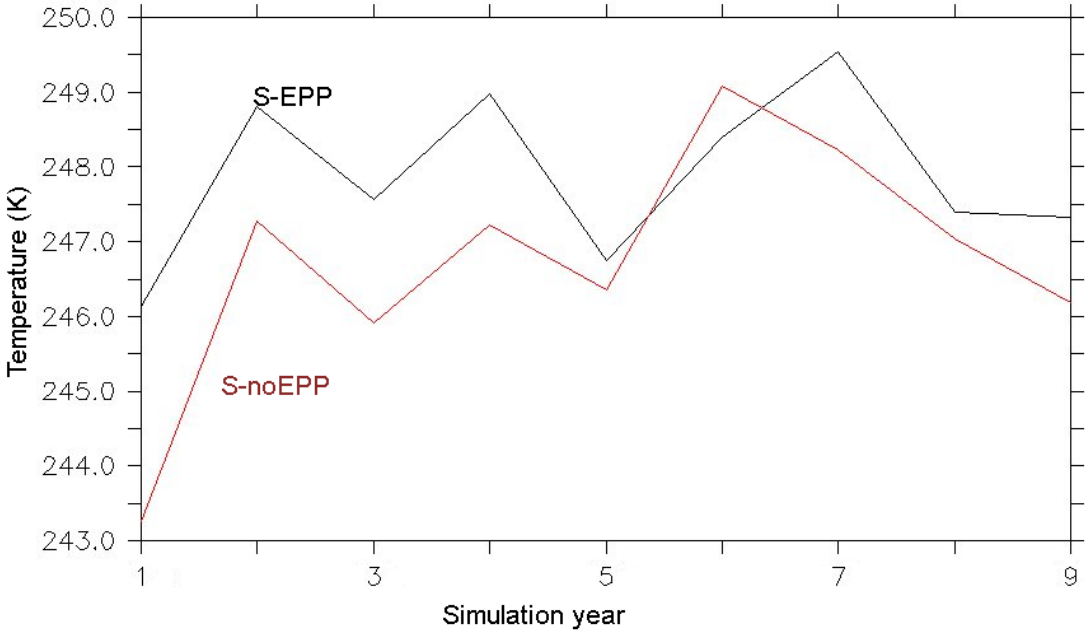


**Fig. 1.** Time series for temperature north of 80°N



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