

## ***Interactive comment on “MIPAS detects Antarctic stratospheric belt of NAT PSCs caused by mountain waves” by M. Höpfner et al.***

**M. Höpfner et al.**

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We thank referee 2 for his comments on the paper.

1. *The results demonstrate the possible importance of mountain wave activity to NAT formation, but, contrary to the first sentence of the conclusions, do not rule out other causes. It is possible that a low-pressure system in the Weddell Sea may have raised tropopause heights, forcing vortex air to rise as it passed over the storm, thus producing the NAT particles observed. In order to claim that mountain waves are the only plausible explanation for the observed NAT formation, the authors must present either meteorological data (e.g. tropopause heights) or satellite imagery of weather downwind of the Antarctic Peninsula*

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*around June 10, 2003. Such information should be available from the ECMWF meteorological analyses used in the model calculations for this study. If the authors cannot rule out weather-related disturbances, they should acknowledge such in the text.*

The actual synoptic situation (high pressure in the region between the Antarctic Peninsula and South America and low pressure extending from the Ross Sea over West Antarctica and the Ronne Ice Shelf towards New Schwabenland which lead to strong winds over the Antarctic Peninsula, and a cooling of the lower stratosphere by 2-4 K from June 8 to June 11) already was taken into account by the microphysical simulation. Nevertheless, the observed NAT formation could not be reproduced unless mountain wave activity was considered. Further, under similar synoptic stratospheric conditions during previous days (e.g. on June 6) no NAT PSCs have been detected by MIPAS. Thus, we are confident in our identification of mountain waves as reason for the sudden appearance of NAT.

## 2. *Technical corrections*

We have covered all suggested corrections in the revised manuscript.

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