Interactive comment on “Vertical profiles of lightning-produced NO$_2$ enhancements in the upper troposphere observed by OSIRIS” by C. E. Sioris et al.

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p5015 line 15 The 9-12km resolution for MIPAS NO2 refers to the averaging kernels of the IMK processor. The ESA processor only retrieves NO2 down to 24km in order avoid instabilities in the retrieval. In both cases these standard "operational" algorithms rather than NO2-specific.

MIPAS itself made upper-troposphere measurements with 3km spacing in its original full resolution mode, and 1.5km spacing in its current nominal operating mode. In principle, in terms of S/N, using the entire 1580-1610cm$^{-1}$ region of the spectrum it should be possible to retrieve NO2 at 12km tangent height with a vertical resolution of 3km with
a precision of the order of 20%, but it would require a specialised retrieval algorithm and, in particular, good knowledge of H2O as the principle spectral contaminant.