Supplementary material to:

The application of the Modified Band Approach for the calculation of on-line photodissociation rate constants in TM5: implications for oxidative capacity

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Figure S1a: The horizontal distribution of the partial Liquid Water Path and the effective cloud droplet radius for 1st January (top) and 1st July (bottom) at 945hPa as calculated using ERA-Interim meteorological data. The $r_{\text{eff}}$ is calculated using the parameterization of McFarlane et al. (1992). The dark blue areas denote regions with insignificant cloud coverage.
Figure S1b: As for Figure S1a except at 500hPa.
Figure S2: Instantaneous SZA calculated in the MBA at 24:00 UTC for (top left) January 1st and (bottom left) July 1st. The corresponding absolute differences are shown on the right as calculated from the MBA-BA.
Figure S3: The seasonal distribution of surface albedo values calculated in TM5.
Figure S4a: Seasonal surface mixing ratios of O$_3$, NO$_x$, CO and OH for season DJF during 2006 as calculated by the MBA. The right panels show the corresponding percentage differences versus the BA, where the difference is calculated as $2(MBA-BA)/(MBA-BA)\times100$. 
Figure S4b: As for Figure S4a except for season JJA.
Figure S5: Seasonal zonal averages for $J_{\text{HNO}_3}$ and $J_{\text{PAN}}$ for seasons DJF (left) and JJA (right) as calculated online by the MBA. The corresponding percentage differences versus the BA, where the difference is calculated as $(\text{MBA-BA})/(\text{BA})\times100$ are also shown.
Figure S6: As for Figure S5 except for $J_{bCH2O}$ and $J_{H2O2}$.
Figure S7a: The zonally averaged distribution of HNO$_3$, PAN, CH$_2$O and H$_2$O$_2$ for season DJF during 2006 as calculated by the MBA. The right panels show the corresponding percentage differences against the BA, where the differences is calculated as $2(MBA-BA)/(BA+MBA)\times100$. 
Figure S7b: As for Figure S7a except for season JJA.