

Supplemental Material:

Additional Figures

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1 Simulation S-SPE

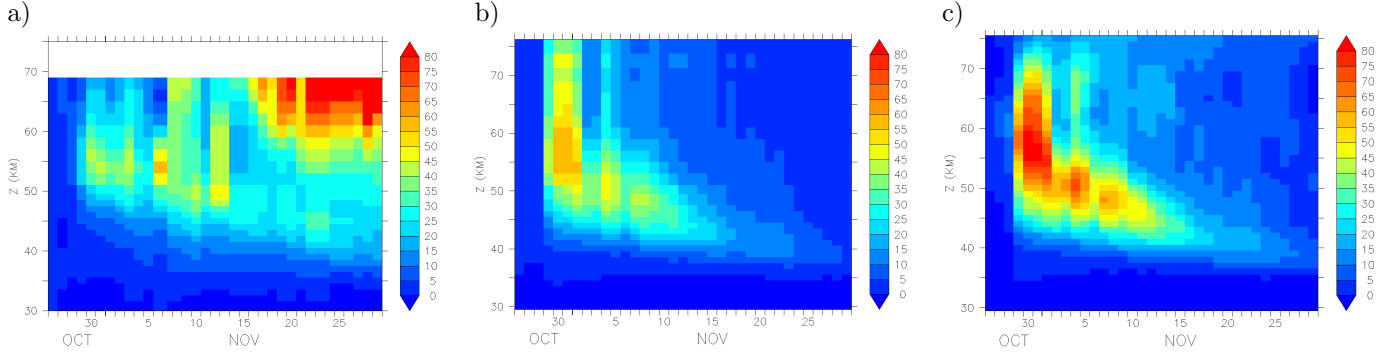


Figure 1: NO_2 change (ppbv) relative to 26 October for 70–90°N for a) MIPAS, b) EMAC simulation S-SPE with MIPAS averaging kernel (AK) applied, c) without MIPAS AK applied.

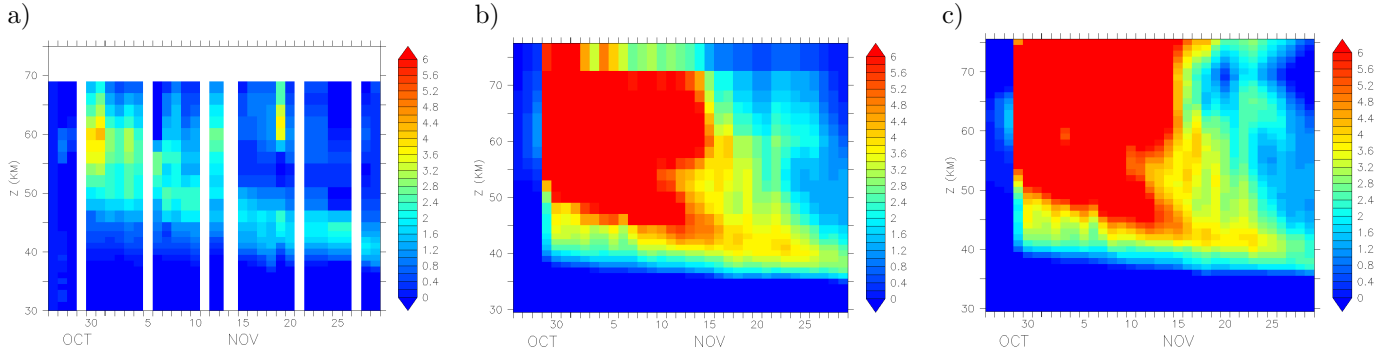


Figure 2: N_2O change (ppbv) relative to 26 October for 70–90°N for a) MIPAS, b) EMAC simulation S-SPE with MIPAS AK applied, c) without MIPAS AK applied.

2 Simulation S-SPE-FUNKE

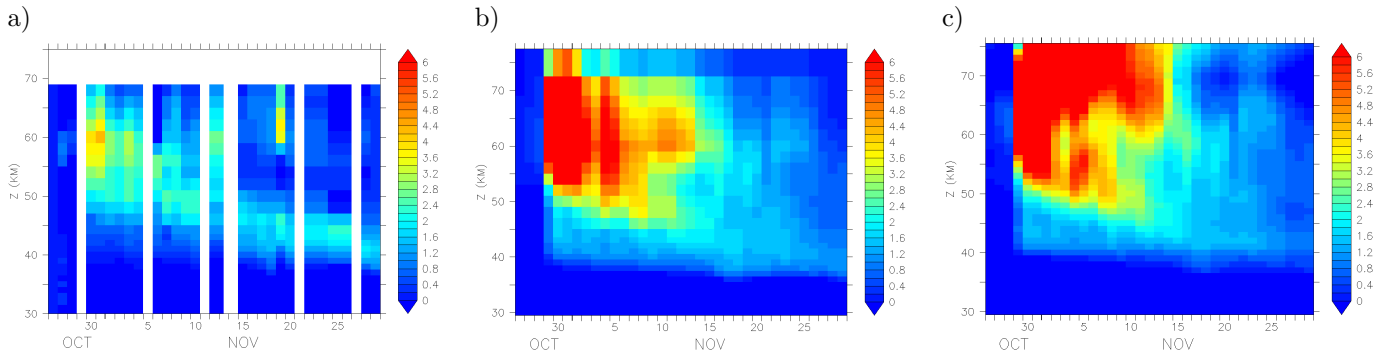


Figure 3: N_2O change (ppbv) relative to 26 October for 70–90°N for a) MIPAS, b) EMAC simulation S-SPE-FUNKE with MIPAS AK applied, c) without MIPAS AK applied.

3 Simulation S-SPE-NNOEFF

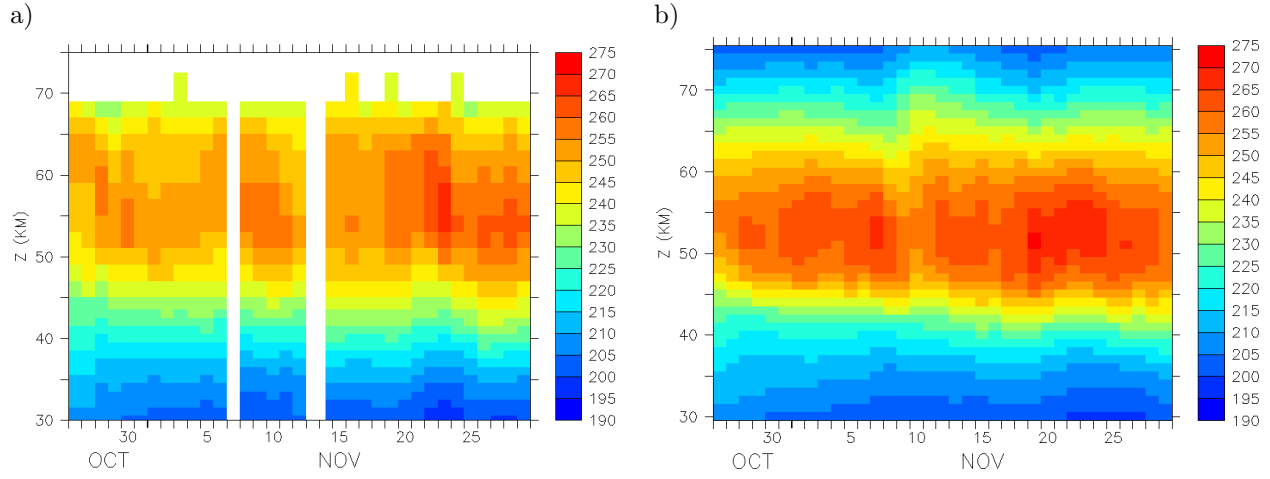


Figure 4: Temperature for 26 October to 30 November 2003 for 70–90°N for a) MIPAS, b) EMAC simulation S-SPE-NNOEFF.

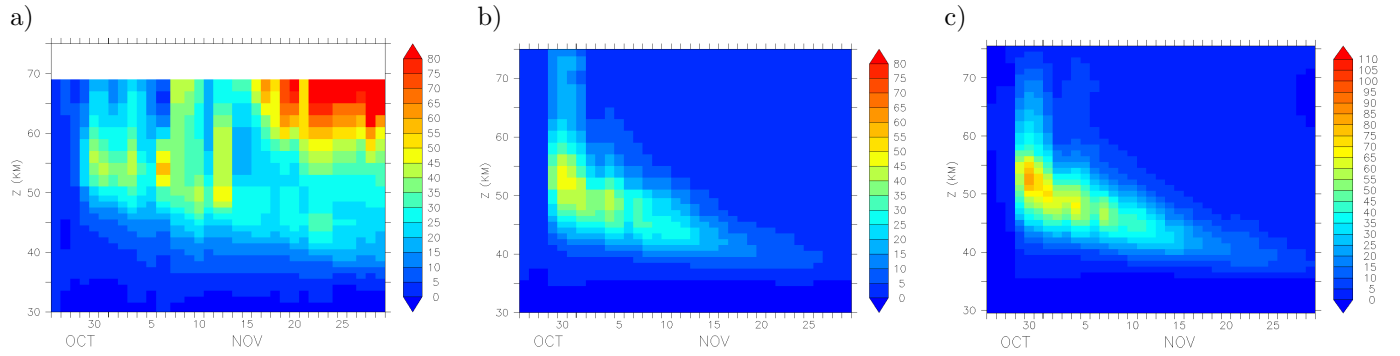


Figure 5: NO₂ change (ppbv) relative to 26 October for 70–90°N for a) MIPAS, b) EMAC simulation S-SPE-NNOEFF with MIPAS AK applied, c) without MIPAS AK applied.

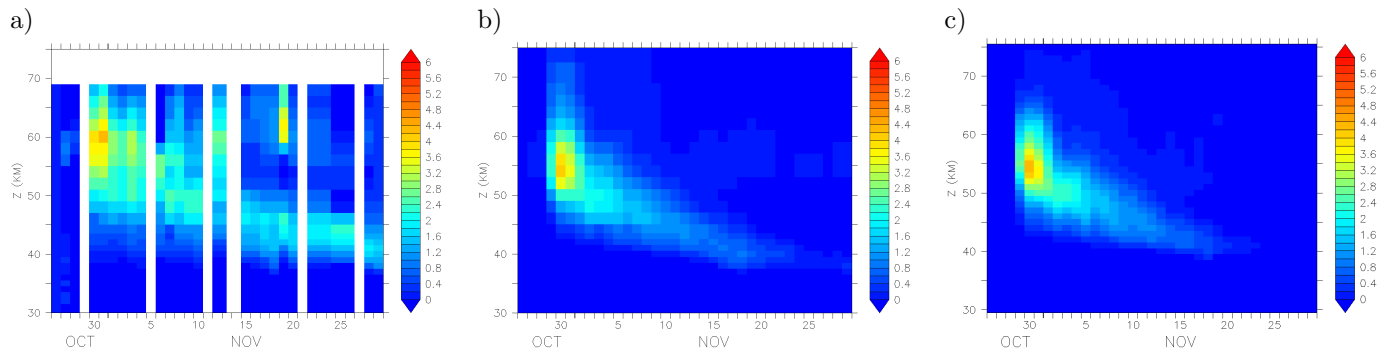


Figure 6: N₂O changes (ppbv) relative to 26 October for 70–90°N for a) MIPAS, b) EMAC simulation S-SPE-NNOEFF with MIPAS AK applied, c) without MIPAS AK applied.

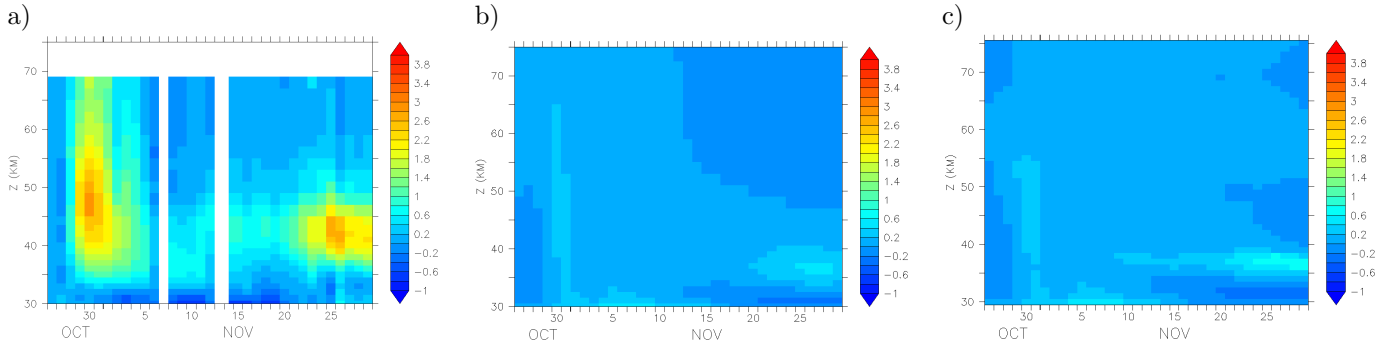


Figure 7: HNO_3 changes (ppbv) relative to 26 October for $70\text{--}90^\circ\text{N}$ for a) MIPAS, b) EMAC simulation S-SPE-NNOEFF with MIPAS AK applied, c) without MIPAS AK applied.

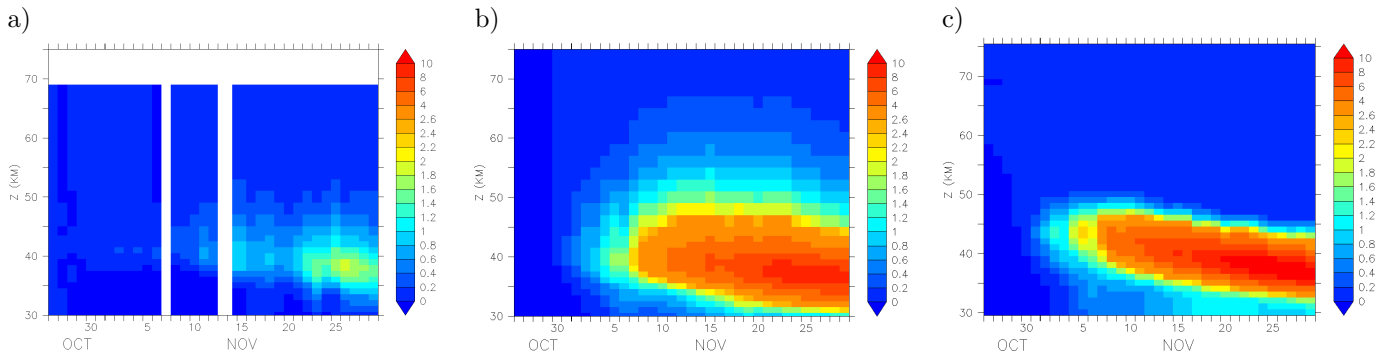


Figure 8: N_2O_5 changes (ppbv) relative to 26 October for $70\text{--}90^\circ\text{N}$ for a) MIPAS, b) EMAC simulation S-SPE-NNOEFF with MIPAS AK applied, c) without MIPAS AK applied.

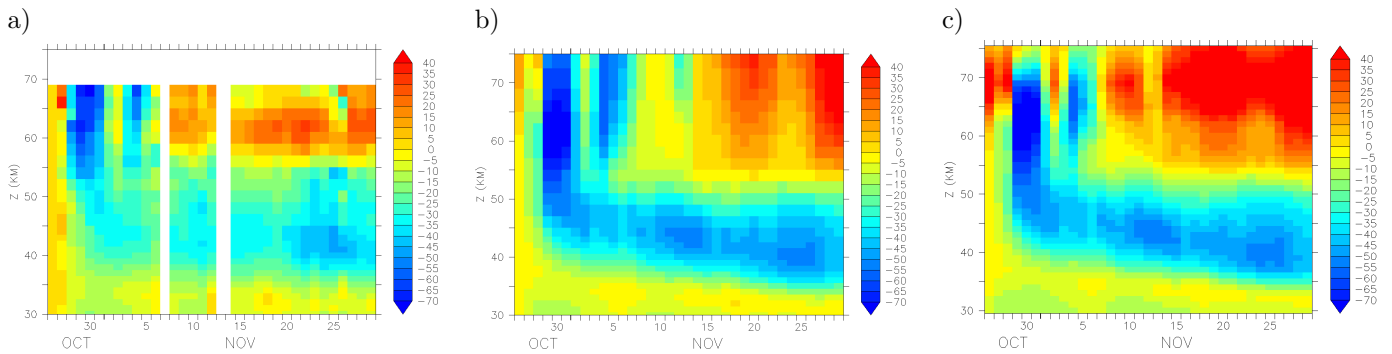


Figure 9: Ozone mixing ratio percentage change relative to 26 October for $70\text{--}90^\circ\text{N}$; a) MIPAS, b) EMAC simulation S-SPE-NNOEFF with MIPAS AK applied, c) without MIPAS AK applied.

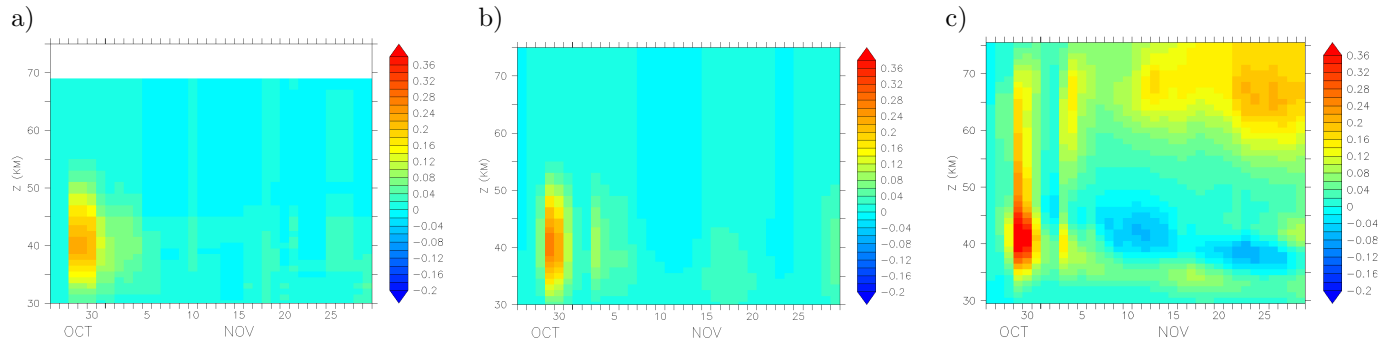


Figure 10: HOCl changes (ppbv) relative to 26 October for 70–90°N for a) MIPAS, b) EMAC simulation S-SPE-NNOEFF with MIPAS AK applied, c) without MIPAS AK applied.

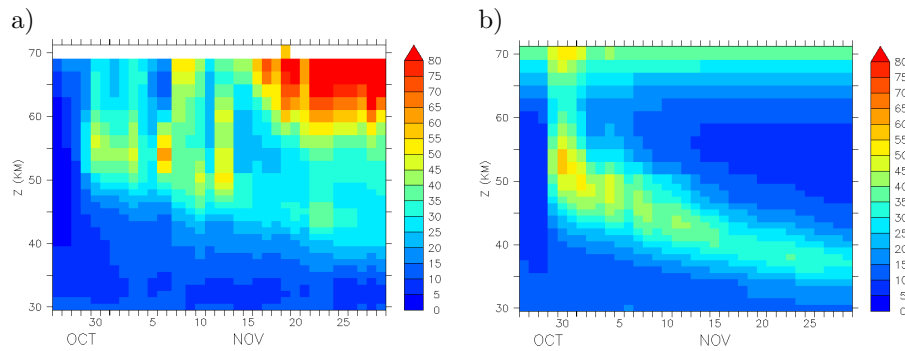


Figure 11: NO_y (here: $\text{NO}_2 + 2\text{xN}_2\text{O}_5 + \text{HNO}_3 + \text{ClONO}_2$) changes (ppbv) relative to 26 October for 70–90°N for a) MIPAS, b) EMAC simulation S-SPE-NNOEFF with MIPAS AK applied.