

Complete figures set

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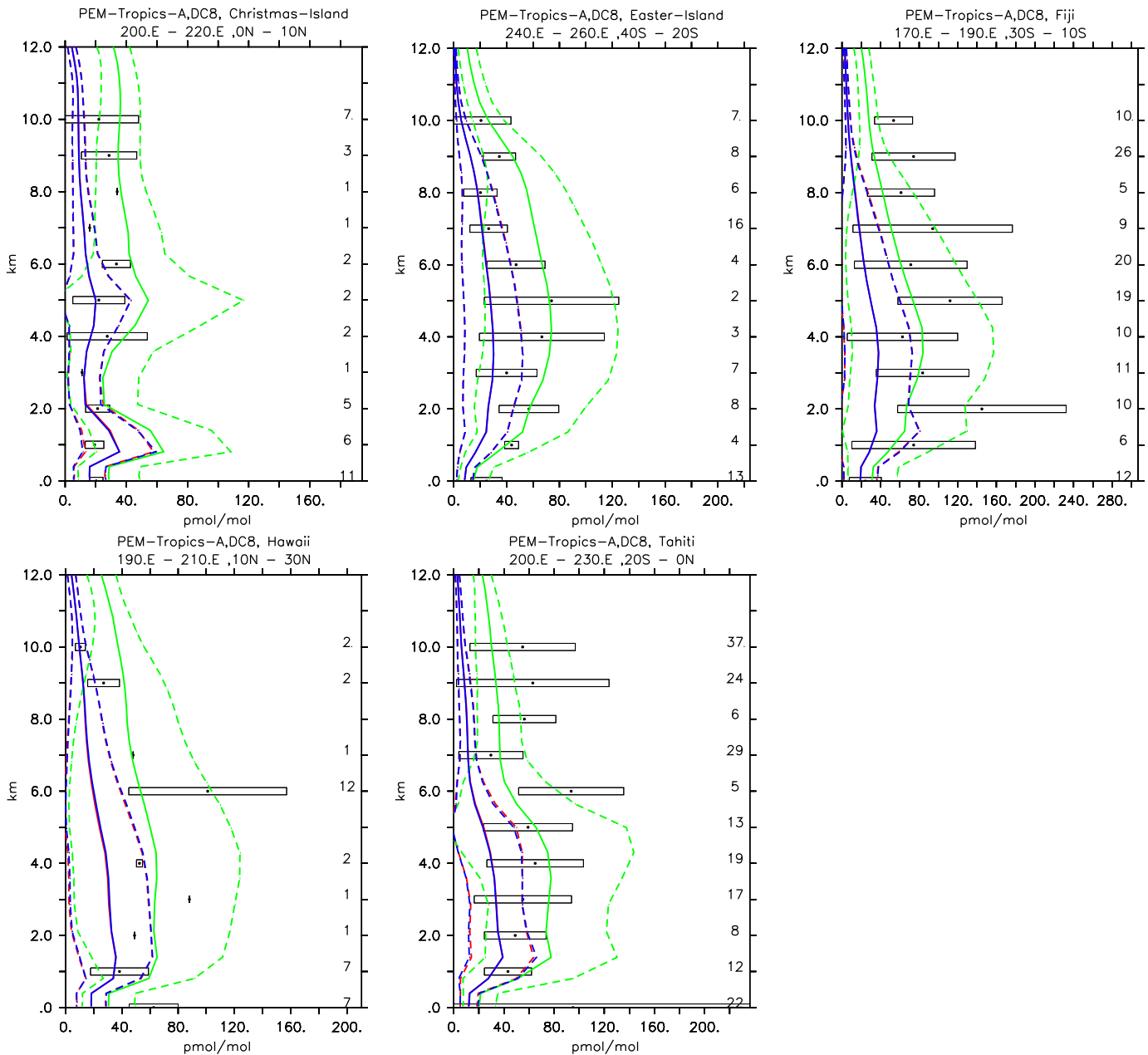
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Model-observation comparison

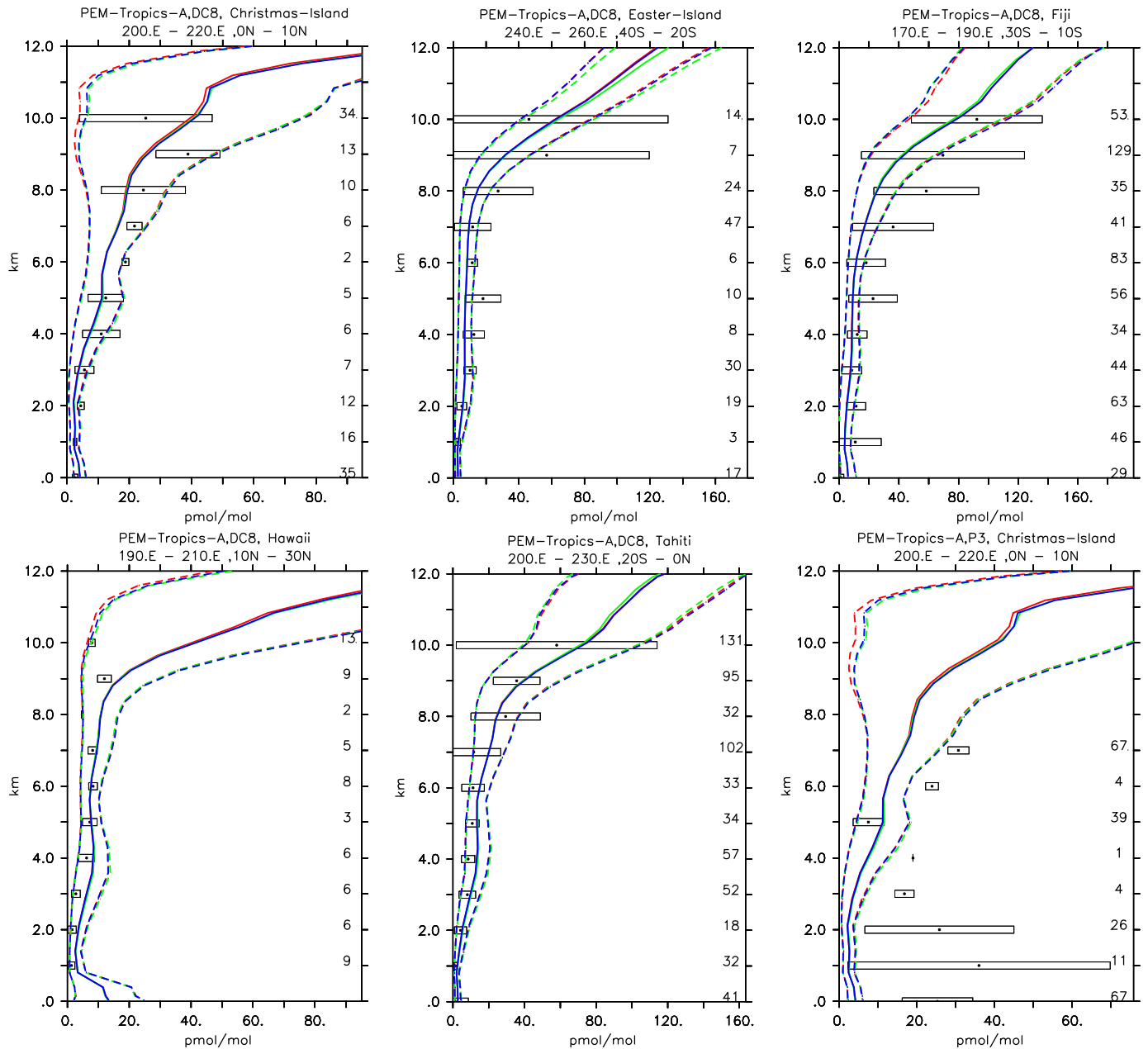
Acetic acid ($CH_3C(O)OH$)

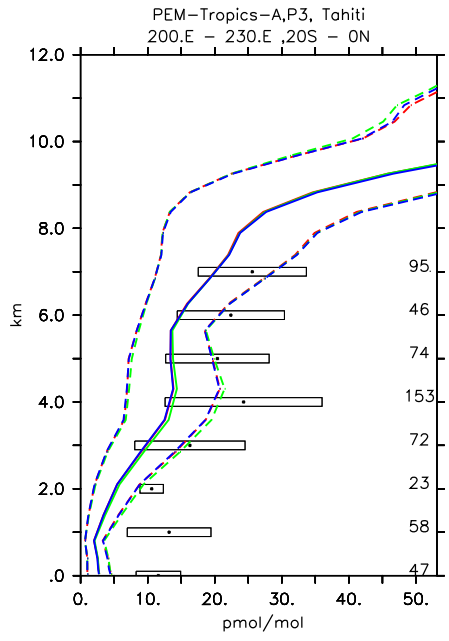
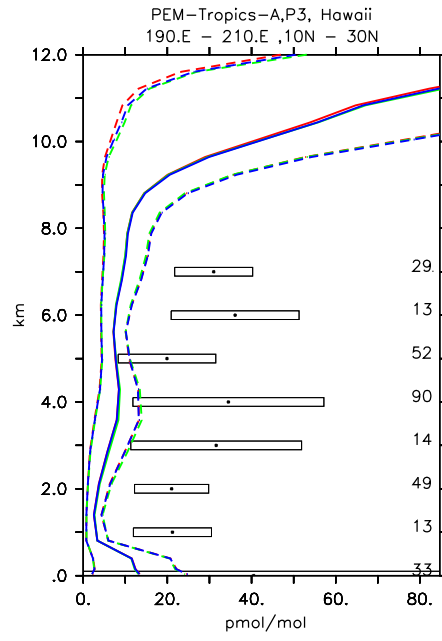
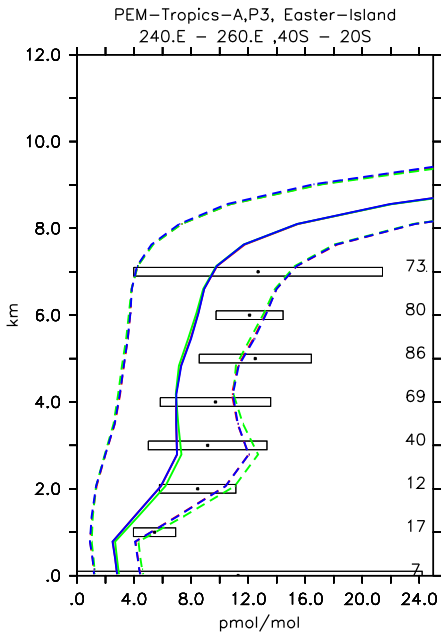
Vertical profiles of $CH_3C(O)OH$ (in pmol/mol) for PEM-Tropic-A campaign from Emmons et al. (2000). Asterisks and boxes represent the average and the standard deviation (with respect to space and time) of the measurements in the region, respectively. The simulated average is indicated by the solid line and the corresponding simulated standard deviation with respect to time and space by the dashed lines. On the right axis the numbers of measurements are listed. The red lines represent results from simulation *SR1*, the blue lines from simulation *SR2* and the magenta lines from simulation *S1*. Note that no real differences are present between model results from simulation *SR1* and simulation *SR2*.



Nitrogen Oxide (NO)

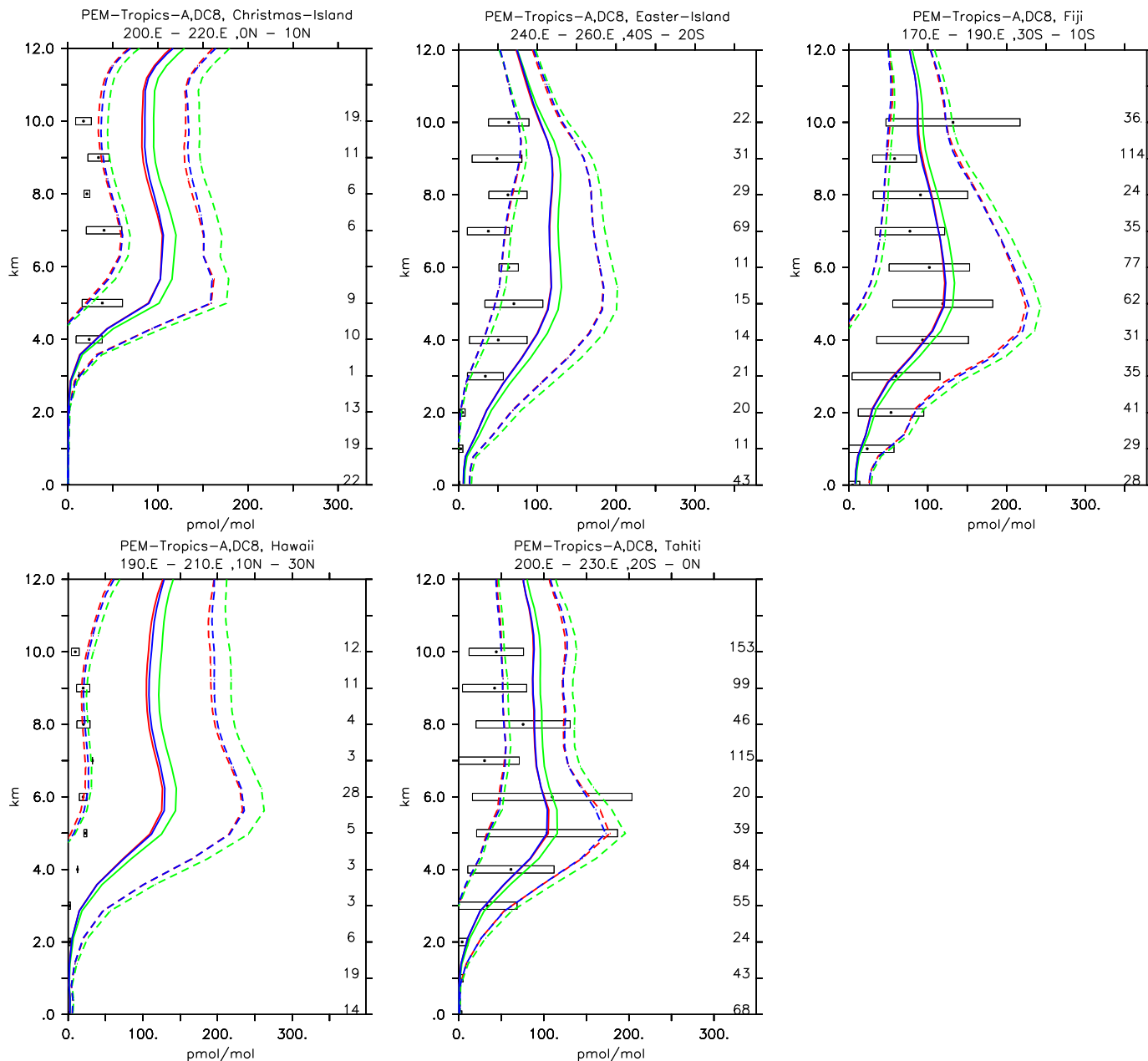
Vertical profiles of NO (in pmol/mol) for PEM-Tropic-A campaign from Emmons et al. (2000). Asterisks and boxes represent the average and the standard deviation (with respect to space and time) of the measurements in the region, respectively. The simulated average is indicated by the solid line and the corresponding simulated standard deviation with respect to time and space by the dashed lines. On the right axis the numbers of measurements are listed. The red lines represent results from simulation $SR1$, the blue lines from simulation $SR2$ and the magenta lines from simulation $S1$.





Peroxyacyl nitrates (*PAN*)

Vertical profiles of *PAN* (in pmol/mol) for PEM-Tropic-A campaign from Emmons et al. (2000). Asterisks and boxes represent the average and the standard deviation (with respect to space and time) of the measurements in the region, respectively. The simulated average is indicated by the solid line and the corresponding simulated standard deviation with respect to time and space by the dashed lines. On the right axis the numbers of measurements are listed. The red lines represent results from simulation *SR1*, the blue lines from simulation *SR2* and the magenta lines from simulation *S1*.



References

Emmons, L. K., Hauglustaine, D. A., Müller, J.-F., Carroll, M. A., Brasseur, G. P., Brunner, D., Staehelin, J., Thouret, V., and Marenco, A.: Data composites of airborne observations of tropospheric ozone and its precursors, *J. Geophys. Res.*, 105, 20 497–20 538, 2000.