Interactive comment on “Coupling of HO\textsubscript{x}, NO\textsubscript{x} and halogen chemistry in the Antarctic boundary layer” by W. J. Bloss et al.

Anonymous Referee #2

Received and published: 9 September 2010

The paper describes the results of a modeling study of data obtained during the austral summer at the coastal Halley Research station. While the model reproduce halogen oxides, BrO, IO and NO\textsubscript{x} reasonably well, it overestimates at the same time the measured HO\textsubscript{x} concentrations.

Some minor questions:

- if the model underestimates HO\textsubscript{2}, but describes IO & BrO quite well, how does the measured NO/NO\textsubscript{2} ratio fit into the picture?
- how does the HO\textsubscript{x} model/obs ratio depend on NO?
- when the model overestimates OH, is the production of CH\textsubscript{3}O\textsubscript{2} overestimated?
as well, and how does this affect the NO/NO$_2$ ratio and the HO$_x$ sink via CH$_3$O$_2$+HO$_2$?

• is the temperature of the LIF instrument inlet biased by absorbed radiation or the temperature of the inside instrument towards higher temperatures and does this affect any reaction rates in the model?

• photolysis frequencies instead of rates?

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 15109, 2010.