We thank reviewer for insightful comments. Our responses to the comments are provided below, with the reviewer's comments italicized.

Reviewer #3

*This article is a major breakthrough in the understanding OH chemistry in forested environments. This achievement boils down to the bravery of the authors. They are openly asking the question "What if all our measurements are wrong?" This type of action is exactly, how scientific knowledge should be improved over time.*

**Response**: We greatly appreciate the reviewer's comment and agree with the reviewer's last sentence. However, we would like to make one small but important point: we are confident that our measurements in most environments are right but that they are wrong in environments where alkene chemistry dominates, such as in forests. In the middle troposphere and remote clean locations, our measurements generally agree well with measurements by CIMS, at last below 6 km altitude, where CIMS works well. It is in these environments with simpler chemistry that our measurements are also generally consistent with models. Thus, to the end of the sentence "An alternate explanation is that our OH measurements are wrong", we have added the words "in forests".

*The vertical profile of OH seems to be minor. This is surprising. Please elaborate this point. What was the canopy structure around the tower?*

**Response**: This little vertical variability was also confirmed by a model study. We attribute this to the concurrent decrease of OH sources and sinks with height. The canopy around the observation tower was relatively homogenous with a mean height of 8.9m during 2009 (Choi et al., 2011), but is rather sparse so that the sun can penetrates deep within the canopy, sometimes to the ground..

*2) OH Chem seems to be weakly correlated with temperature also. Any insights into this?*

**Response**: The weak temperature dependence of OHchem is likely driven by some temperature-dependent $HO_x$ sources. This is also supported by several indirect evidence, including $NO_2/HNO_3$ ratio (Day et al., 2008), MVK/MACR ratio (Mao et al., (2008), HOx chemistry in and above a forest canopy in seasonal transition, Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract A32C-03) and glyoxal/glycolaldehyde ratio (Henry et al., in prep).

Reference

Choi, W., Faloona, I. C., McKay, M., Goldstein, A. H., and Baker, B.: Estimating the atmospheric boundary layer height over sloped, forested terrain from surface spectral analysis during BEARPEX, Atmos. Chem. Phys., 11, 6837-6853, 10.5194/acp-11-6837-2011, 2011.

Day, D. A., Wooldridge, P. J., and Cohen, R. C.: Observations of the effects of temperature on atmospheric HNO3, Sigma ANs, Sigma PNs, and NOx: evidence for a temperature-dependent HOx source, Atmos. Chem. Phys., 8, 1867-1879, 2008.