

Interactive comment on “Ambient sesquiterpene concentration and its link to air ion measurements” by B. Bonn et al.

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General Comments The paper is very relevant and within the scope of ACP. The title, “Ambient sesquiterpene concentration and its link to air ion measurements,” the abstract and the presentation are all very clear. The paper presents new ion measurements made in a Finnish boreal forest. The authors provide a detailed derivation of novel concepts that link ion measurements with the mixing ratios and emission rates of sesquiterpenes and their apparent production of stabilized Criegee biradicals. The authors’ scientific methods and assumptions were clearly described and are sufficiently complete and precise to allow their work to be reproduced by others. The paper is very well and appropriately referenced.

Specific Comments The conclusions and their implications are substantial. The re-

sults of Bonn et al. show that a very significant amount of chemistry occurs in forest canopies. The chemistry is sufficiently intense to make the lifetime of sesquiterpenes very short. The major implication is that it's very incorrect to measure sesquiterpene emissions at the branch level and use them in global or regional air quality models without preprocessing. Clearly Bonn et al. have shown that chemistry of biologically emitted compounds in forest canopies has significant effects over spatial scales ranging from local to regional to global.

Technical Corrections The paper was extremely well written and no typos were found.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 13165, 2006.

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Interactive Discussion

Discussion Paper