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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The summertime Boreal forest field measurement intensive (HUMPPA-COPEC-2010): an overview of meteorological and chemical influences" *by* J. Williams et al.

Anonymous Referee #3

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The paper by Williams et al. presents a comprehensive overview of the HUMPPA-COPEC-2010 intensive field campaign. It is very well written and clearly organized: it details at first the objectives of the campaign, then reviews thoroughly the instruments deployed on the field and finally examines the meteorological and chemical influences observed during the measurements period. This paper is thus a good introduction for several papers which will be published in the same special issue and therefore deserves publication in ACP, once a few issues detailed below have been examined.

Main comments In the abstract, it is stated that the paper aims to describe "the back-

ground, instrumentation, goals and regional influence". The background and regional influences are well described in the present manuscript but the instrumentation and the goal sections would deserve to be completed as suggested below.

Goals section The objectives of the campaign are clearly described one after the other but this whole section could have been written before the campaign took place as no results and no conclusions are presented. Each section/ objective (or at least the main important ones) should give highlights of the corresponding result(s) referring thus to the associated paper (which can be still in preparation). As an example, objective 1 (volatile organic compound characterization) could give the main species which were measured with the range of observed concentration as well as the range of the measured reactivity. One of the objectives was also to determine "the extent to which VOCs are being quantified" and the authors could mention if the measured total reactivity was somehow explained by the measured species or if a missing reactivity has been pointed out. For objective 2, the most important oxidant during the campaign could be mentioned.

Instrumental section A huge amount of instruments was deployed on site with several techniques measuring the same compounds as shown by Table 1. Intercomparison exercises have probably been made for all the compounds which were measured by different instruments/techniques. Some of these comparisons (for OH measurements for example) will certainly be described in detail in the corresponding papers but the overview paper could already mention the main results/ conclusions of these comparisons (and refer to the associated papers for more details). For the other compounds, some details could already be given in this introduction paper. For example, have the instruments been compared before the field campaign or directly on field? Do the comparisons rely on atmospheric measurements performed at the same place or also on calibration gases measured by the different instruments?

Technical comments

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Table 1: - be consistent with notation and use either m or M for the masses measured by PTR-MS

-By C10H16 and C15H24, numbers must be underscored

-Ozone time resolution and detection limit are missing

-CO detection limit is missing, and was probably measured by IR (UV is in the Table)

-Terpenes time resolution and detection limits are missing

-EC/OC time resolution and detection limits are missing

-Headings of Table 1 must be proofed (on pages 15955 and 15956 there is still the heading “Gas phase measurement” although aerosols measurements are here described)

-The footnote c was not found in the table

-Units should be somehow consistent (if ppb/ppt are chosen, then use ppm for CO2 measurements for example)

-The legend of table 3 does not precise if the percentage distribution given was only for summer months

-Figure 1 is difficult to read (too small)

-Figure 2a: All other parameters are given at 16.8m and also in the text temperature are given at 16.8 m (page 15934, line 17)

-Figures 10 are too small

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 15921, 2011.