**Atmospheric
Measurement
Techniques
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Interactive comment on "An aircraft-borne chemical ionization – ion trap mass spectrometer (CI-ITMS) for fast PAN and PPN measurements" *by* A. Roiger et al.

Anonymous Referee #2

Received and published: 13 December 2010

The manuscript by Roiger and coauthors is an impressive piece of work describing the development, properties and first application of a new CI ion trap mass spectrometer for PAN and PPN quantification. These measurements are notoriously difficult to make, in particular the precise calibration throughout flight campaigns is a rich source of challenges, which the authors have elegantly solved by their method of in-flight calibration using an isotopic PAN calibration source. The on-line calibration involves production of suitable amounts of PAN from 13C labeled acetone. The PAN mass spectrum then contained a calibration ion two mass units above the regular mass of the major acetate anion (m/z 59). While this approach has its own issues to address, it allows quantifica-

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Interactive Discussion

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tion under conditions of varying moisture, as encountered during the flight campaigns. The method is straightforward and the results are convincing and unambiguous. Most of the instrumental artifacts cancel except for some mass spectrometric cross talk and interfering ions (with m/z 62, NO3-) which has been addressed. For even higher precision work the unavoidable mass bias effect originating in the transfer region between the high pressure ion source and the low pressure detection region would also have to be studied and corrected for. Fast publication of the manuscript is recommended.

Interactive comment on Atmos. Meas. Tech. Discuss., 3, 4313, 2010.