Atmos. Chem. Phys. Discuss., 7, S2225–S2227, 2007
www.atmos-chem-phys-discuss.net/7/S2225/2007/
© Author(s) 2007. This work is licensed
under a Creative Commons License.

Atmospheric Chemistry and Physics Discussions



# *Interactive comment on* "Application of the Aventech AIMMS20AQ airborne probe for turbulence measurements during the Convective Storm Initiation Project" *by* K. M. Beswick et al.

**K. M. Beswick et al.**

Received and published: 1 June 2007

Whilst we feel that the reviewer makes useful general comments on the paper, we feel that the reviewer has not fully appreciated the context of the measurements. This paper was not intended as an overtly technical paper, since we only had access to data up to 5Hz. Also, although many of the field measurements are from the CSIP campaign, the paper was not intended specifically as a means to present preliminary results from that campaign, with full details of the CSIP campaign being reported elsewhere, as indicated in the paper.

The results from CSIP were used firstly because they formed the first significant dataset measured using this instrument, and secondly because they provided two contrasting

meteorological case studies. Furthermore, data from other flights outside CSIP were used in the paper. As such, we feel that we have given sufficient description of CSIP to give an adequate context for the measurements.

The primary purpose of the paper was to give a first look at data from this new-to-market probe, given that it is likely to have a growing market because of it's relatively low cost. We make clear in the paper that we intend to present a far more technical paper in the future, featuring higher frequency data. The future data will also include an intercomparison with another aircraft, as suggested by the reviewer. Although we accept that the lack of an airborne intercomparison could be seen as a possible weakness with the current paper, given the intention of the paper as explained above, we do not believe it detracts from the usefulness of the paper to potential users of the new instrument. On the contrary, we believe that the comparison with a ground-based, remote-sensing instrument may be of more use to the scientific community, indicating that airborne and ground-based measurements may be considered to be comparable. Indeed, this may be seen as one of the notable achievements of CSIP in terms of validating field measurements.

The reviewer makes only one specific comment on the quality of the data, saying that "few of the comparisons between the profiler and the aircraft agree within the error bounds" referring to the figures given in Table 4. In fact, in Table 4, of the 24 comparisons of data, only 4 disagree within the error bounds. For flights 6 and 7, we make it clear that the presence of a convergence zone crossing the measurement area, and the lateral separation of the AIMMS and profiler, made it unlikely to expect a good comparison between the two. In contrast, earlier in the paper we present the Flight 8 case study, where steady conditions were expected across the whole of the measurement area. For this case study, the AIMMS-profiler comparison is remarkably good. Indeed, this case study was used as a means to give confidence in the data from Flights 6 and 7, rather than using flights 6 and 7 as direct comparison data, and scarcely suggests that there are "major problems with the measurements".



ACPD

7, S2225–S2227, 2007

Given the above, we do not agree that the manuscript needs to be significantly rewritten, but point out that we intend to fully address the issues raised by the reviewer in a more technical future paper.

---

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 3519, 2007.