

## ***Interactive comment on “An overview of measurement comparisons from the INTEX-B/MILAGRO airborne field campaign” by M. M. Kleb et al.***

**J. Bange (Referee)**

j.bange@tu-bs.de

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Referee: Jens Bange, University of Tuebingen, Germany

\*\*\* General Comments (evaluating the overall quality of the discussion paper)

The abstract announces a wing-tip to wing-tip comparison of two large research aircraft in several atmospheric conditions (mainly polluted and non-polluted atmospheric flow

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in the marine boundary layer and the free atmosphere) in order to analyse and reduce measurement differences.

Also, the abstract (as well as the following sections) announces 'a comprehensive overview' of about 140 data comparisons, which arouse large interest in the reader. Expectations are even growing when at the end of section 2 it is pronounced 'to highlight the demonstrated instrument performance'.

But also the abstract recommends 'to consult with the instrument PI' 'for interpretation ... of these results', which is quite uncommon, since the reader usually expects such analysis to be main part of the manuscript.

Actually, this manuscript looks more like a building block system than a scientific publication that discusses the advances of measurement techniques. The reader is invited to visit certain websites and to collect and to analyse data of interest in a do-it-yourself manner. Actually, none of the announcements above was met.

The main subjects of AMT are 'development, intercomparison and validation of measurement instruments and techniques of data processing'. The manuscript misses these subjects since no technical information is given (besides the application of Orthogonal Distance Regression ODR). All relevant information is stored in certain web pages of unknown availability and was not further analysed.

The manuscript might be helpful for 1) participants of the flight campaign as an overview; 2) other researchers to find an internet link to the diagrams (measurement vs. altitude; scatter plot with regression; but then, this is not very helpful since any technical details are not published). But (in contrast to the other referee) I doubt that it contains relevant information for other readers.

I regret this negative review, possibly I did not understand the purpose of this manuscript. This is why I recommend a different referee than me for the revised version of this manuscript.

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\*\*\* Specific Comments (individual scientific questions/issues)

\* Section 2:

- It should be emphasised that only NASA performed its first two-aircraft comparison in 2001. Such comparisons were already performed by other institutions well before 2000.

- 'Wing-tip to wing-tip comparison' is a misleading expression when the aircraft are 1 km apart. I'd call it 'wing-tip to wing-tip' in case the aircraft would fly at identical altitude and on identical track only a few ten metres apart in order to meet identical air masses and flow. On a kilometre scale large differences in the atmospheric flow can be expected.

\* Section 3:

- Flight measurements were carried out on three days off the coasts of the Gulf of Mexico, California and Oregon. It is somewhat disproportionate to call this experimental frame 'a wide variety of conditions'.

- The measurement technique, the applied type of sensor, its time response or inertia, the corresponding calibration method, as well as the calculation and the source of the listed measurement uncertainties (in Table 2) are probably very interesting for the readers of AMT. Unfortunately, the authors refer to a website for this information, since nothing is written about these important topics in the manuscript. Besides, how long will this website be available?

- 'This overview paper does not attempt to describe the complexities of the various measurement techniques' - but what information gives the manuscript then? The only insight that was given in Section 3 is, that two ozone instruments and two water instruments agree well at low sampling frequencies and disagree at high frequencies. Which is not surprising since there were several hundred metres of distance between the measurements. Both instruments remain unknown, as do further technical details

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of the measurements.

\*\*\* Technical Corrections (in addition to the remarks of the other referee)

- What does 'LOD' mean?

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Interactive comment on Atmos. Meas. Tech. Discuss., 3, 2275, 2010.

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