

## ***Interactive comment on “Quality assessment of Automatic Dependent Surveillance Contract (ADS-C) wind and temperature observation from commercial aircraft” by S. de Haan et al.***

### **Anonymous Referee #2**

Received and published: 19 October 2012

The manuscript provides an assessment of ADS-C data vs. AMDAR, Mode-S EHS and ECMWF NWP data. The potential of ADS-C data is substantial; if the data is proved to be of sufficient quality for operational assimilation, the volume of observations available to National Met Services could increase dramatically and at very limited cost. As such, the topic of the paper is very relevant and worthy of publication.

There are a number of minor corrections necessary prior to publication:

p5619 line3 - met messages are transferred to the ground via ACARS

p5619, lines 9-20 - this whole paragraph is quite confusing - consider rewriting to ex-

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plan the different observation techniques more clearly and in a more methodical and simplified order.

p5620, line 8 - specify exactly when this 76day period was

p5621 - Title should be 'Mode-S EHS' to be consistent with references to Mode-S earlier in manuscript

p5621, line 16 - 'these' observations should be reworded - specify exactly which observations

p5621, line 19 - 'background winds' don't understand this - which winds - explain...

p5621, line 20-21 - Sentence 'Below.....period' is unnecessary - consider removing

p5621, line 26 - Consider removing the word 'vertical' as also the horizontal coverage is also limited by the curvature of the earth

p5622, line 14-15 - need to explain what these 'additional streams' are, otherwise consider removing sentence from ', and streams....'

p5622, line 23 - sentence '4934 messages contained both types' - need to specify what 'both types' are - clarify that air vector is Block C whereas met info is Block E

p5623, line 2 - consider rewording first sentence to make it more readable, or at least capitalize Meteorology Group.

p5623, line 14 - reword, there is no 'Earth-reference' ADS-C Group, say 'Ground Vector and Air Vector Groups'

p5624, line 9 - 'form' should be 'from'

p5624, ECMWF title should be something about the data, not just the ECMWF, revise such as 'ECMWF NWP Data'

p5624, line 12 - starts with 'The observations' - which observations? - define...

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p5624, line 13 - NWP has been references already - no need to explain it again - so has ECMWF on line 14

p5624, lines 14 to 16, from 'This model..... all the way to.....air analysis' - combine these two sentences

p5625, lines 4/5 - the fact that the data has to be corrected according to de Haan (2011)has been stated already

p5626, line 22 - after '10 degrees' reference Table 4

p5627, line 25 - title 'Profile of wind and temperature' - I cannot find any profiles of temperature in Fig 3. Either add to Fig 3 or remove from title 3.3

p5628, line3 - From Fig 4 I would not say that Mach number and aircraft heading 'match closely' - they differ widely in some instances, revise sentence to say ~'in some instances Mach number and heading compare well'

p2658, line 11 - consider using a different expression than 'realistic' - define it better

p5628, line 12 - remove 's' at end of small scales and possible add the word 'variability' (i.e. '.....wind speed shows more small scale variability.')

p5628, lines 21 and 22 - consider using numerics rather than words for 'thousand' etc

p5628, lines 25 and 26 - Need to define 'good quality' and 'better quality'

p5628, lines 27 - would say that 'ADS-C reports have similar quality' rather than 'the same quality'. Also define thess statements (bias, stdev etc)

p5629, line 3 - need to add 'ADS-C' in there soemwhere to make sure the reader knows exactly which observations we are talking about.

p5629, line9 - 'warmer then radiosondes' needs to be warmer than radiosondes'

p5629, line 10 - add the word 'radar' after 'wind profiler'

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p5629, line 15 - consider changing the word 'needed' to 'neccessary'

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Interactive comment on Atmos. Meas. Tech. Discuss., 5, 5617, 2012.

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