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Atmospheric Measurement Techniques Discussions

Interactive comment on "Internal consistency of the IAGOS ozone and carbon monoxide measurements for the last 25 years" *by* Romain Blot et al.

Anonymous Referee #2

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Review of "Internal consistency of the IAGOS ozone and carbon monoxide measurements for the last 25 years" by Romain Blot et al., submitted to AMT

The paper presents good demonstration of an internal consistency of the IAGOS observation data since mid-1990s until now, for two chemical tracers - O3 and CO that are often used in the atmospheric chemistry research. The examined data are mainly from IAGOS-CORE and MOZAIC but also from CARIBIC as well.

The IAGOS data are often used in long-term trend analysis of tropospheric O3, and play a unique and critical role to fill the gap between ground-based and satellite observations. The authors tried to pick up co-located profiles, in both time and space,

and also put constraints on T, PV, and wind direction to assure that the instruments observed the same air masses, hence the differences in the observed mixing ratios can only be attributed to the instrumental differences. This is indeed a careful work, and they succeeded in demonstrating the stable operation of the entire observing system in such a long-term. The findings in this paper can act as a solid basis for the IAGOS data being used in long-term trends analysis of O3 and CO. Therefore, the paper is a great contribution not only to the data users but also to the wider atmospheric science community.

Overall, the paper is well written and nicely organized. In addition to the method, results and discussions, the paper includes a brief description of the IAGOS program, instrumentation, and standard operation procedure, which help the readers understand the basic components of the program. I have no major or minor critiques on the contents and agree that AMT is a good place for the authors to publish the paper as a good "interim (25 year's)" summary of the project to continue further.

Just a few technical comments are:

Page 13, Line 207: ...which fall within a maximum 1 hour time window... and other places. The authors say 1 hour as a time threshold. I guess this is <60 min, and if yes, perhaps good to clarify this somewhere. For example, the data pair of 01:10 vs. 02:50 is 1 hour difference, if we consider only "hour", but in fact the difference is 100 min.

Page 14, Line 221: even thought as... should be even though as... ? (typo)

Page 23, Line 331: space is needed before "IAGOS wishes..." (typo)

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