

Reply to the editor's comments.

Thank you for coordinating the review process and for your comments. Our responses to your comments are as follows.

Comment;

In the abstract "The combined standard uncertainties ( $u_c(x)$ ) of time-averaged data.." should be improved with "The combined standard uncertainties ( $u_c(x)$ ) of time-averaged ambient air measurements.." - please check/agree.

Reply;

We have corrected it.

Comment;

Your new sections on Reproducibility and Summary of uncertainties:

Suggest "Full uncertainty estimates" rather than "Summary of uncertainties". 3.1 and 3.2 condition or conditions? Probably "conditions".

Reply;

We have replaced them with "Full uncertainty estimates" and "conditions".

Comment;

The new Table 3: What does "~" mean? Please use more words to make your calculations understandable. e.g. NDIR (SnO<sub>2</sub>) – CRDS: Does this mean the calculated difference between the measurements by these systems?

Reply;

The following corrections have been made.

*Table 3.* Summary of uncertainties.

	CO <sub>2</sub> (ppm)	CH <sub>4</sub> (ppb)	Method
Sensor repeatability	0.05	5	Combined standard uncertainty of SWS meas. in 3 min.
Reproducibility	<0.2	<5	SD of SWS measurements for one

(Time)			week.
		-2±3 (min.) to 2±2 (max.) as annual mean	Difference in NDIR (or SnO <sub>2</sub> sensor) values from CRDS values (Fig.6-7).
Reproducibility (Sensor, Time)	0.1 <sup>1</sup>	-10 (min.) to 5 (max.) as interval mean at every 10 ppb	
Scale uncertainty	0.02	3.2	See Section 2.4.2 and Supplement for CH <sub>4</sub> .

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<sup>1</sup> Isotope effect in the NDIR. We plan to apply this correction to the NDIR measurements.