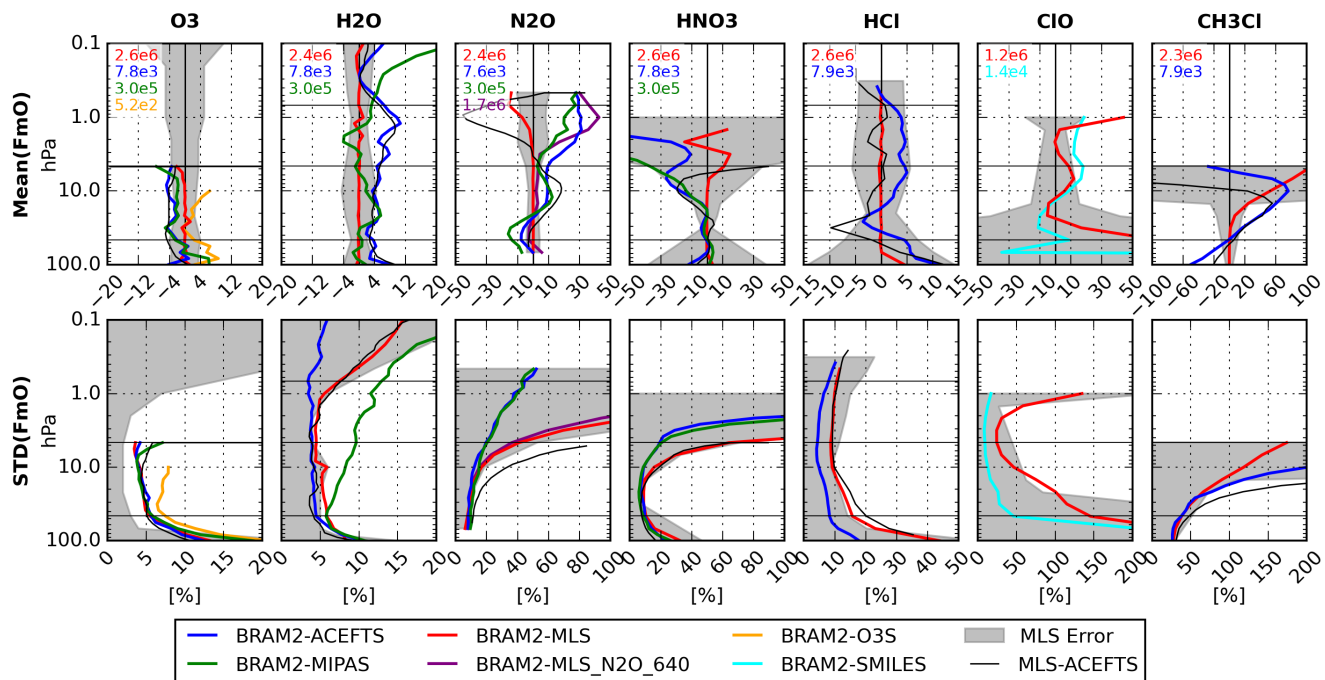Atmospheric
Chemistry
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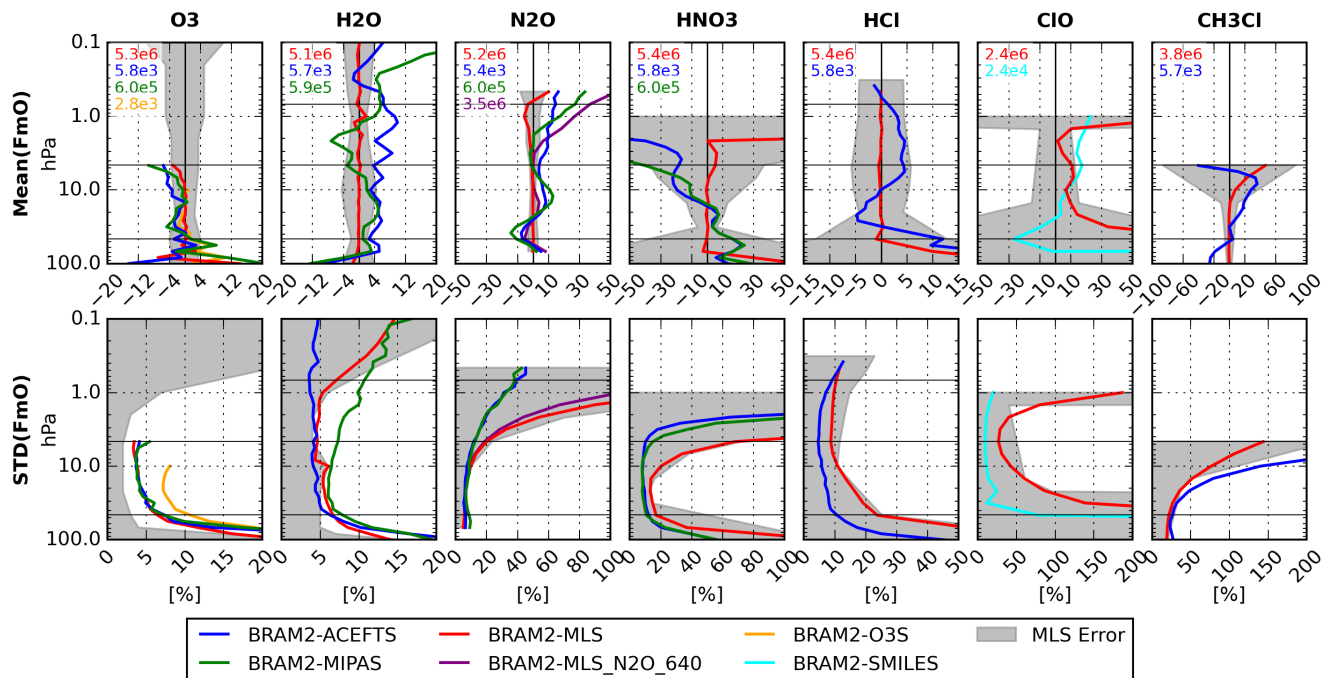# Technical note: Reanalysis of Aura MLS chemical observations

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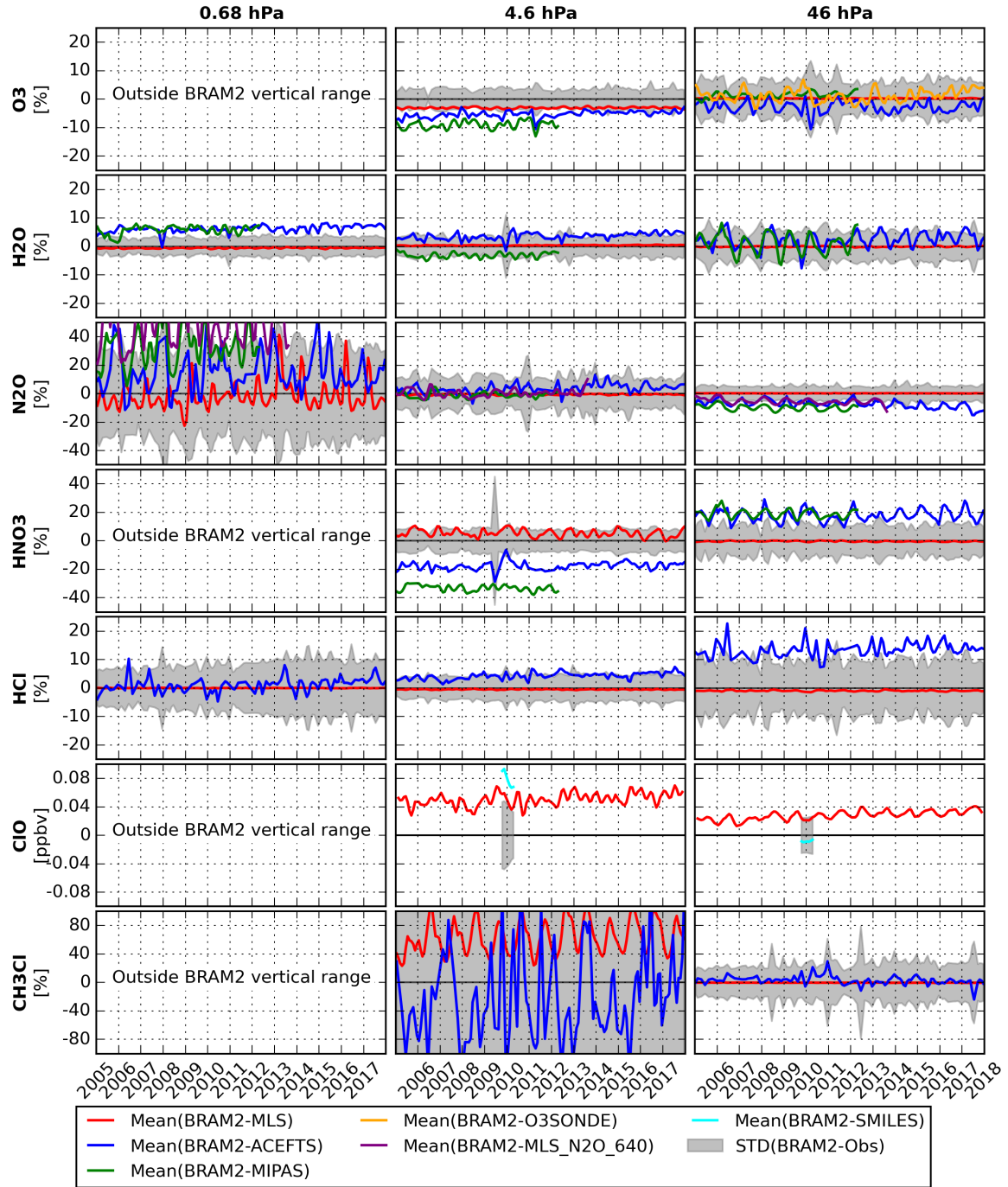*Correspondence to:* Quentin Errera (quentin.errera@aeronomie.be)

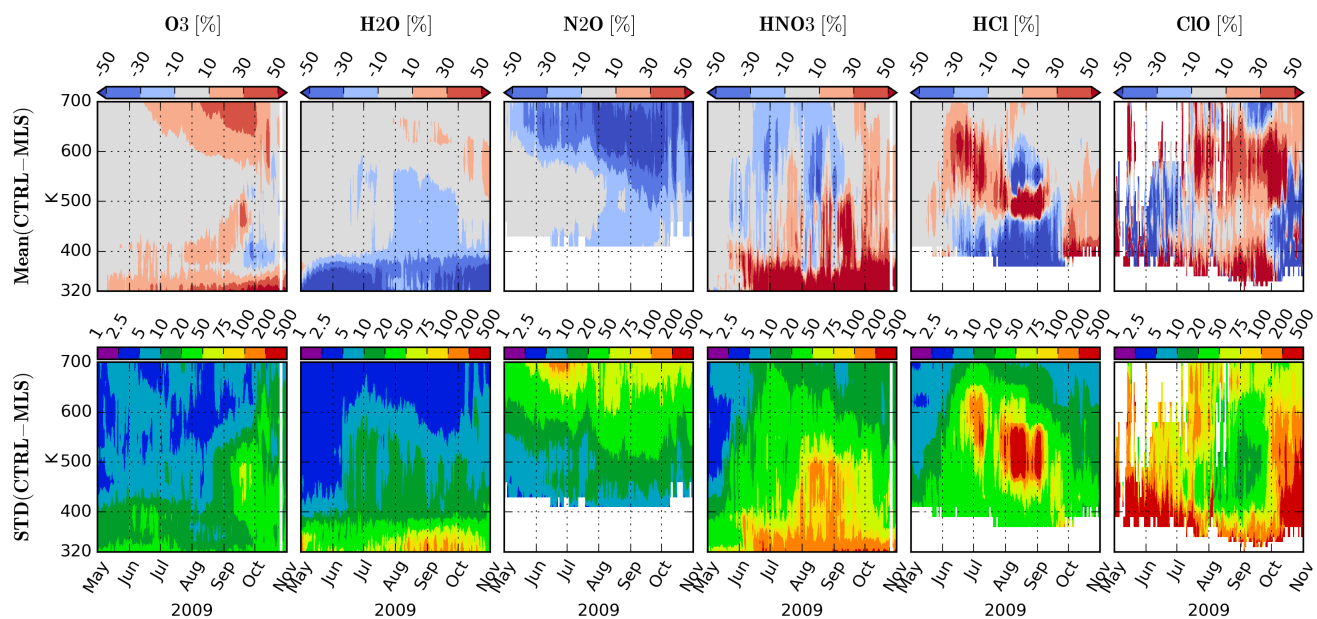**Figure S1.** As Fig. 5 but between 60°S-30°S.
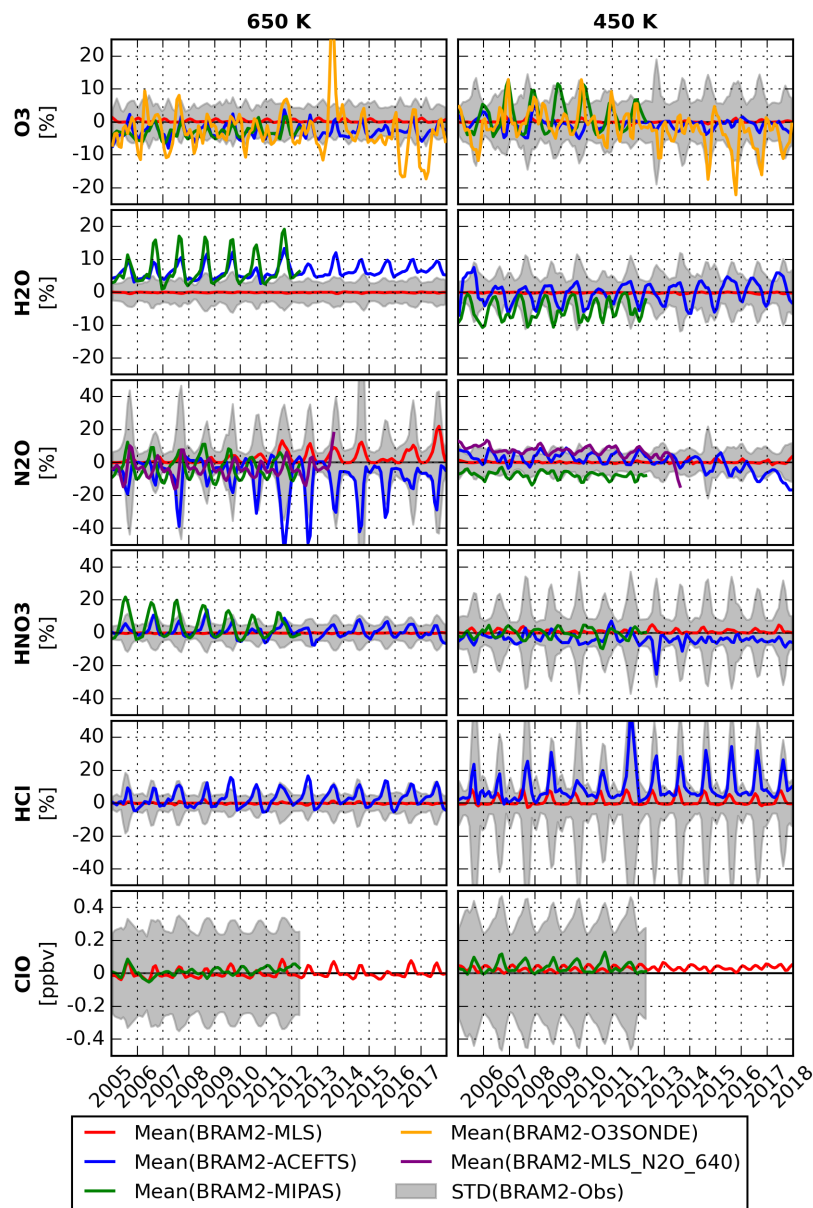

Figure S2. As Fig. 5 but between 30°S-30°N.
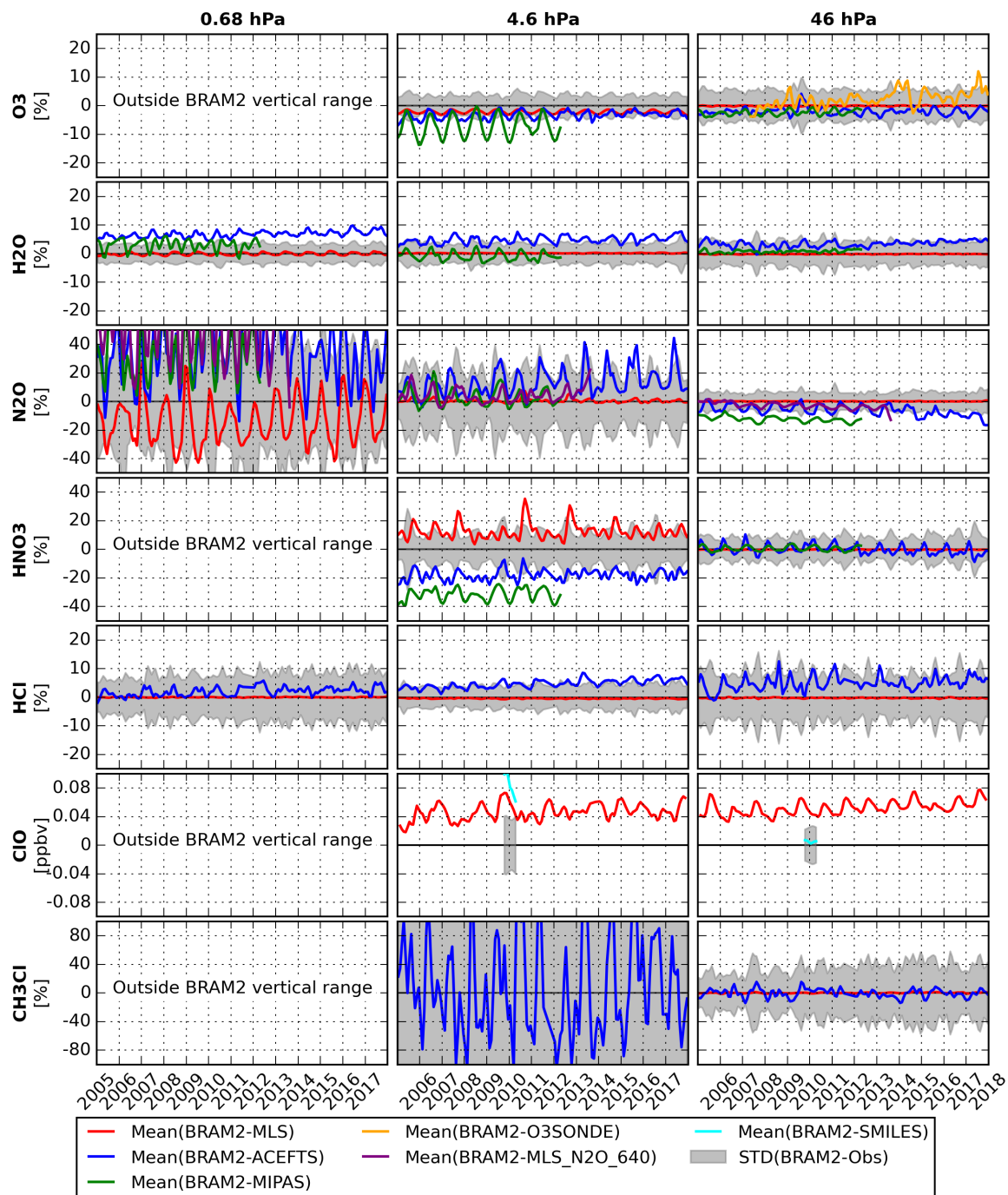
Figure S3. As Fig. 6 but between $60°$S-$30°$S.
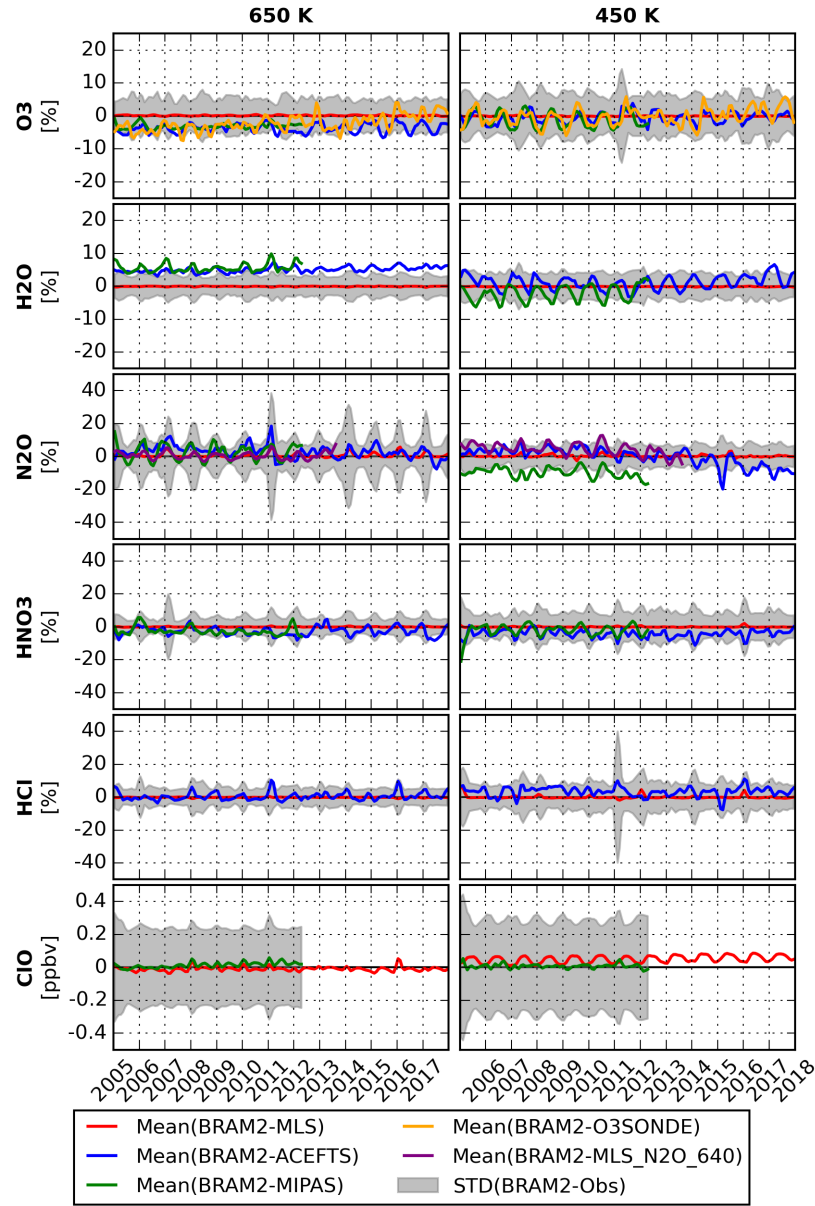
Figure S4. As Fig. 6 but between 30°S-30°N.

Figure S5. Mean (top) and standard deviations (bottom) of the difference (CTRL-MLS) for the conditions shown in Fig. 7.
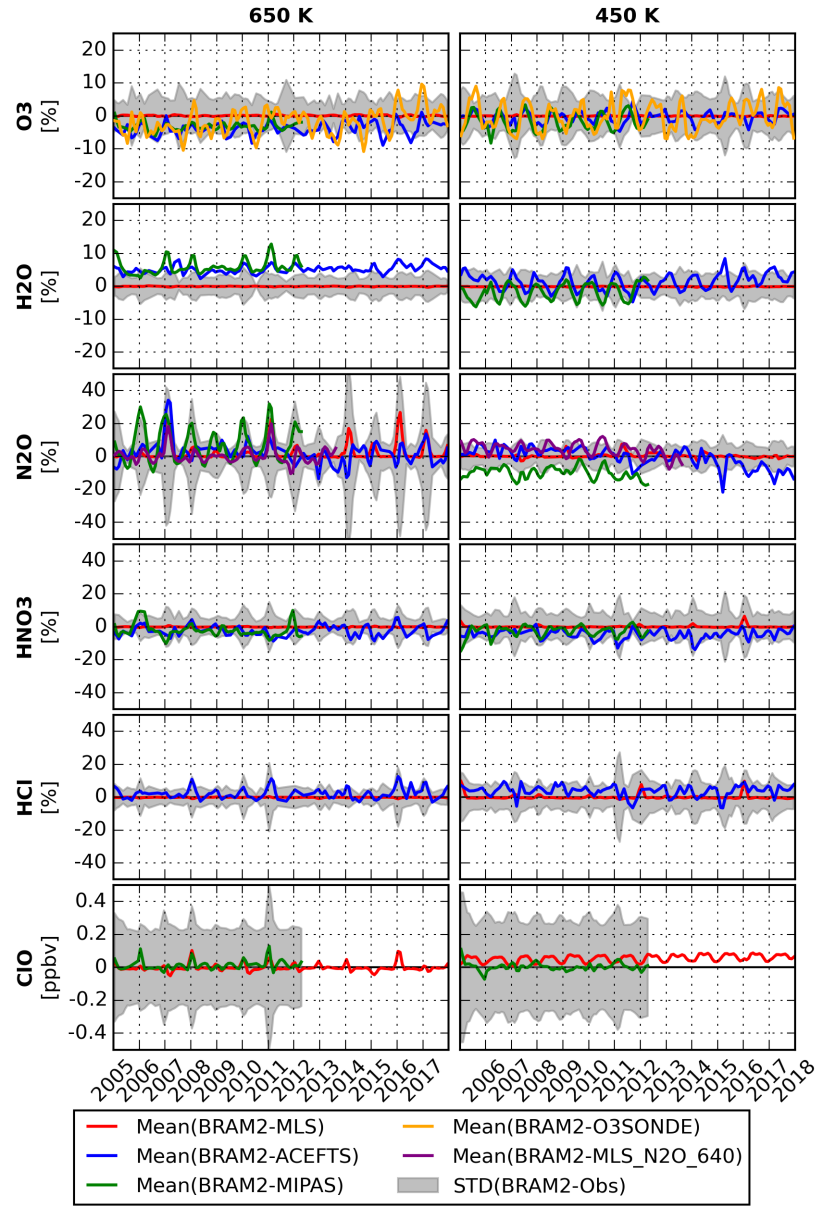
Figure S6. As Fig. 8 but in the outer Antarctic polar vortex between (75°S-60°S of equivalent latitude).
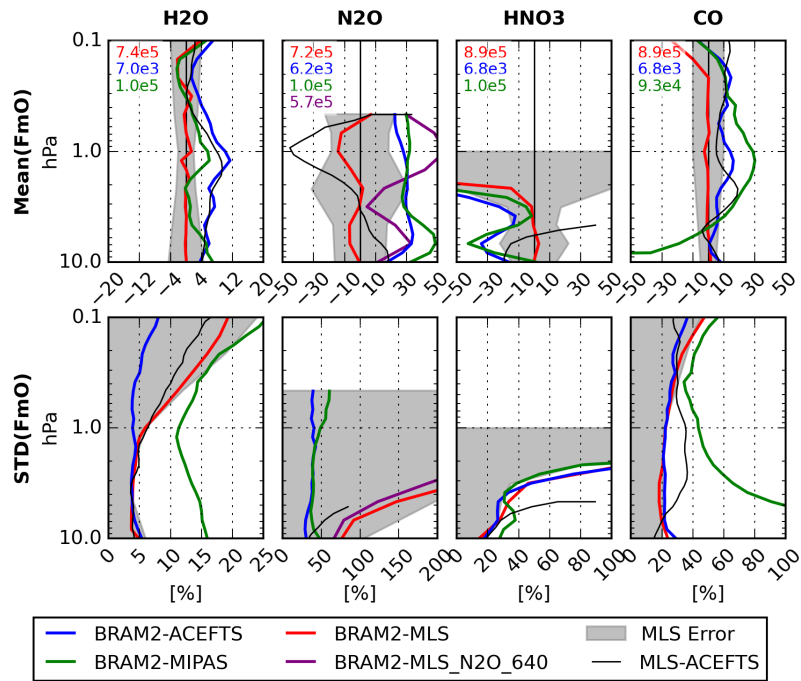
Figure S7. As Fig. 8 but in the outer Arctic polar vortex between (60°N-75°N of equivalent latitude).
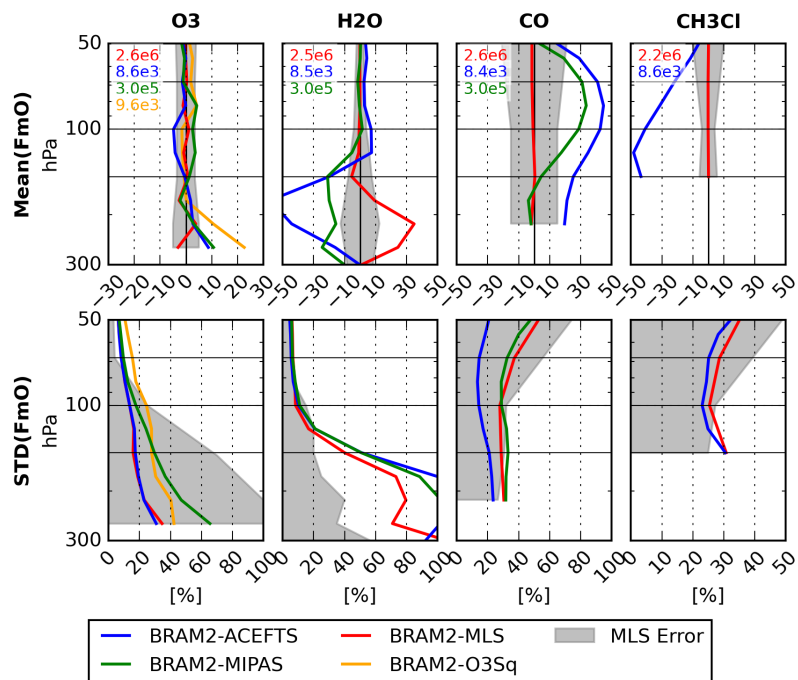
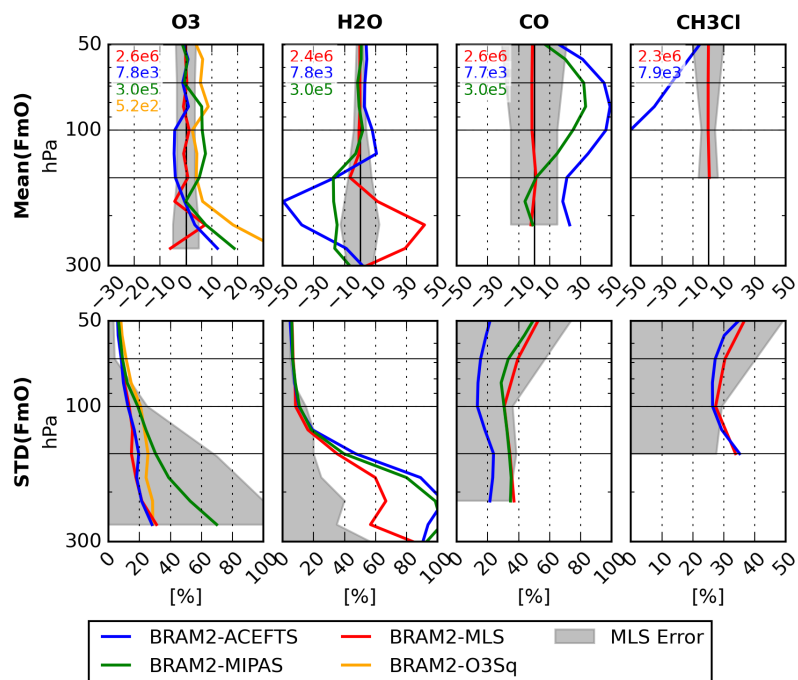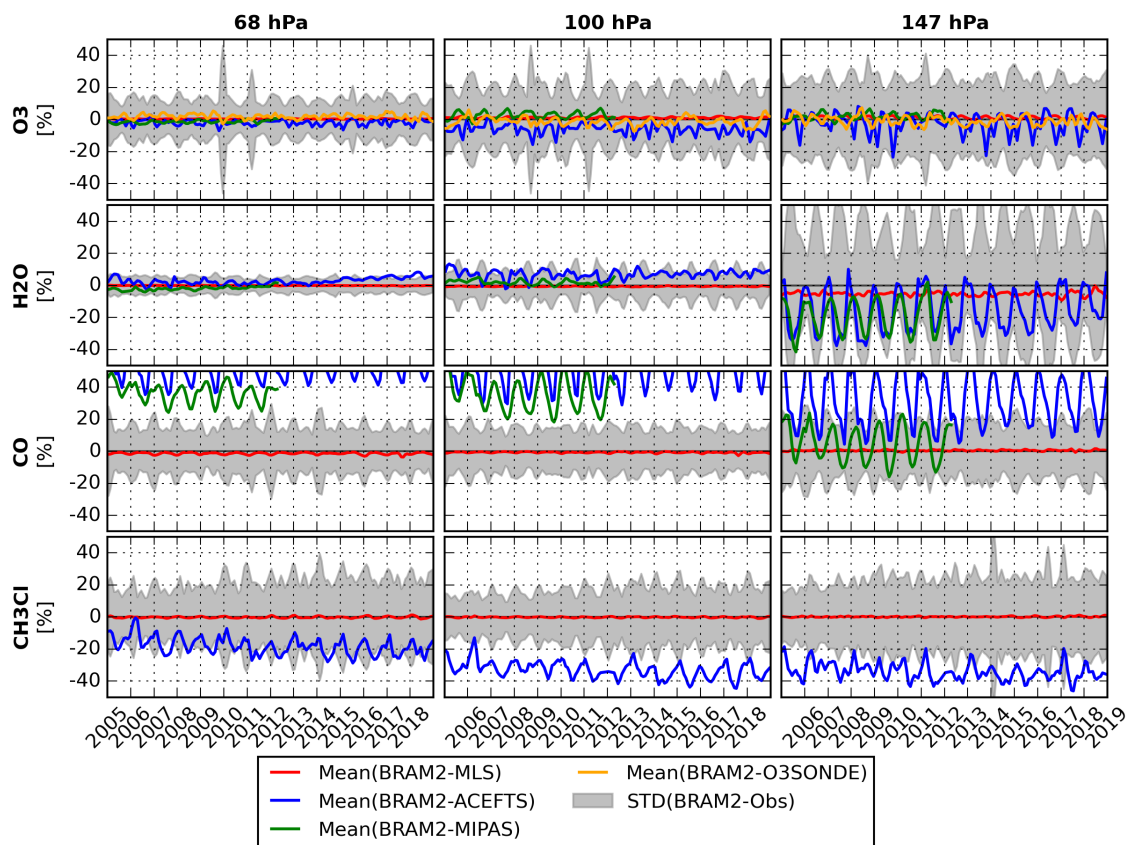**Figure S8.** As Fig. 8 but in the outer Arctic polar vortex between (75°N-90°N of equivalent latitude).

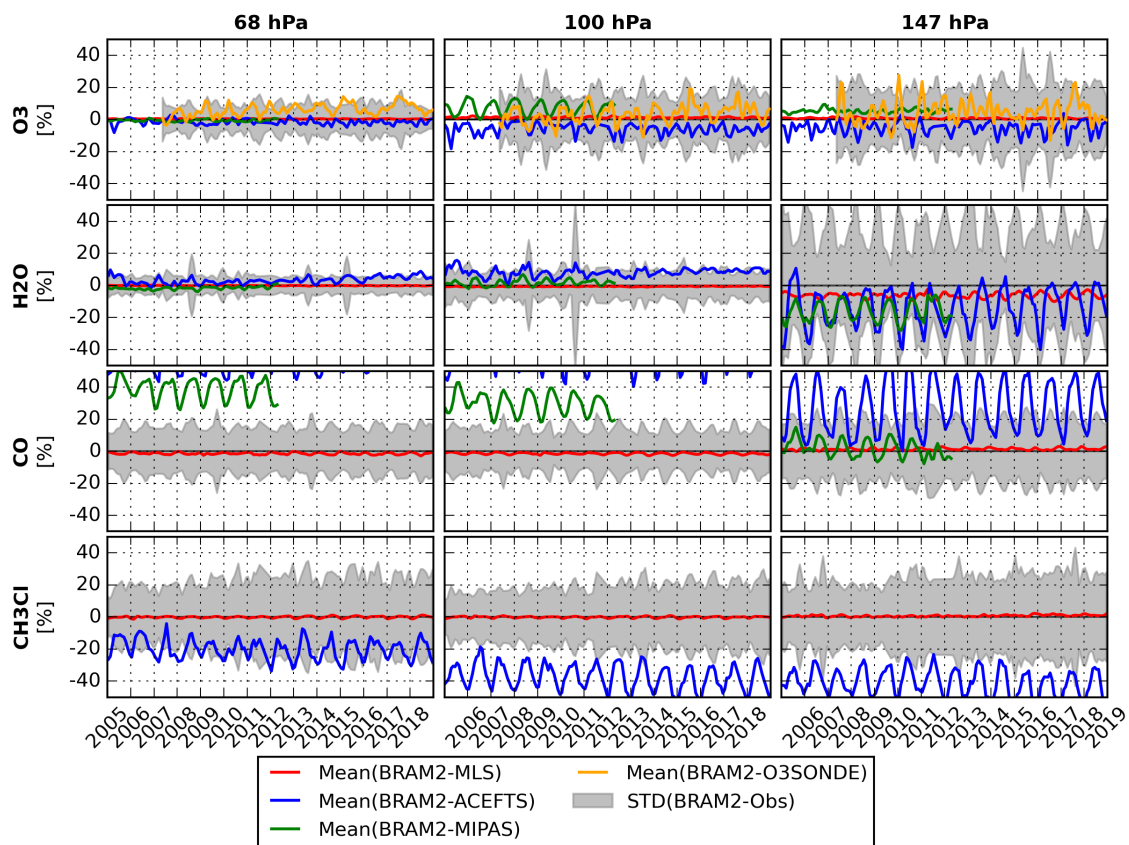**Figure S9.** As Fig. 10 but between 90°S-60°S.

Figure S10. As Fig. 12 but between $30°N$-$60°N$.

Figure S11. As Fig. 12 but between $60°S$-$30°S$.

Figure S12. As Fig. 12 but between 30°N-60°N.

Figure S13. As Fig. 13 but between 60°S-30°S.

Table S1. Mean difference and standard deviation between BRAM2 and observations for the 2005-2017 period at three typical levels in the ex-UTLS: 68, 100 and 147 hPa. Values are in %, normalized by BRAM2. Abbreviations: Not Assimilated (N. A.).

Species	Instruments	68 hPa	100hPa	147 hPa
O_3	MLS	0 ± 8 %	1 ± 13 %	1 ± 16 %
	ACE-FTS	-2 ± 8 %	-5 ± 13 %	-1 ± 17 %
	MIPAS	-1 ± 9 %	4 ± 17 %	1 ± 30 %
	O3sondes	2 ± 15 %	-2 ± 25 %	-1 ± 28 %
H_2O	MLS	0 ± 7 %	-1 ± 8 %	-5 ± 40 %
	ACE-FTS	2 ± 6 %	7 ± 10 %	-20 ± 50 %
	MIPAS	-2 ± 6 %	1 ± 11 %	-20 ± 50 %
CO	MLS	-1 ± 35 %	-1 ± 28 %	0 ± 29 %
	ACE-FTS	40 ± 14 %	42 ± 14 %	25 ± 22 %
	MIPAS	30 ± 33 %	30 ± 28 %	5 ± 33 %
CH_3Cl	MLS	0 ± 30 %	0 ± 25 %	0 ± 30 %
	ACE-FTS	-20 ± 25 %	-40 ± 23 %	-45 ± 30 %