Supplement of

Modelling stratospheric composition for the Copernicus Atmosphere Monitoring Service. polar ozone depletion and sulfate aerosols in IFS-COMPO Cy49R1

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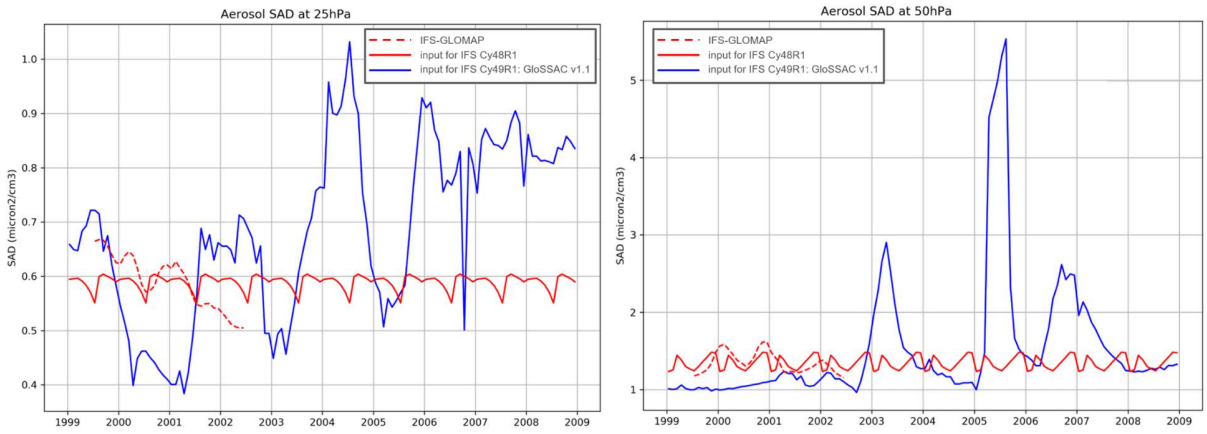


Figure S1. Surface Area Density of stratospheric aerosols in the Tropics (30°S-30°N) at pressure levels 25hPa (left) and 50hPa (right): output of the experimental IFS-GLOMAP configuration for years 1999-2002 (red dashed line); resulting input climatology for IFS-Compo Cy48R1 (red solid line); new input climatology GloSSAC for IFS-Compo Cy49R1 (blue solid line).

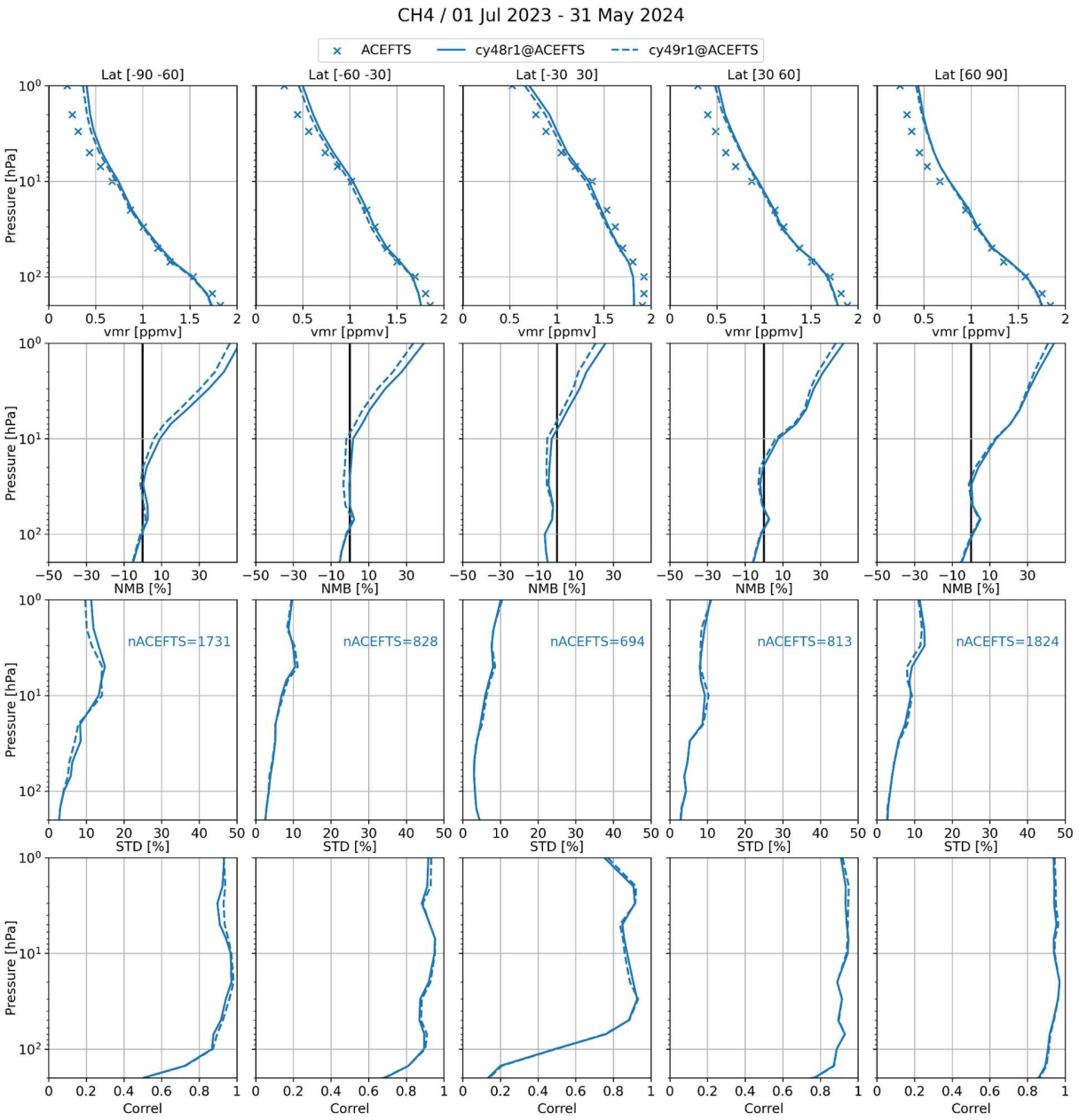


Figure S2. Same as Figure 4 but for CH_4 , using only ACE-FTS observations.

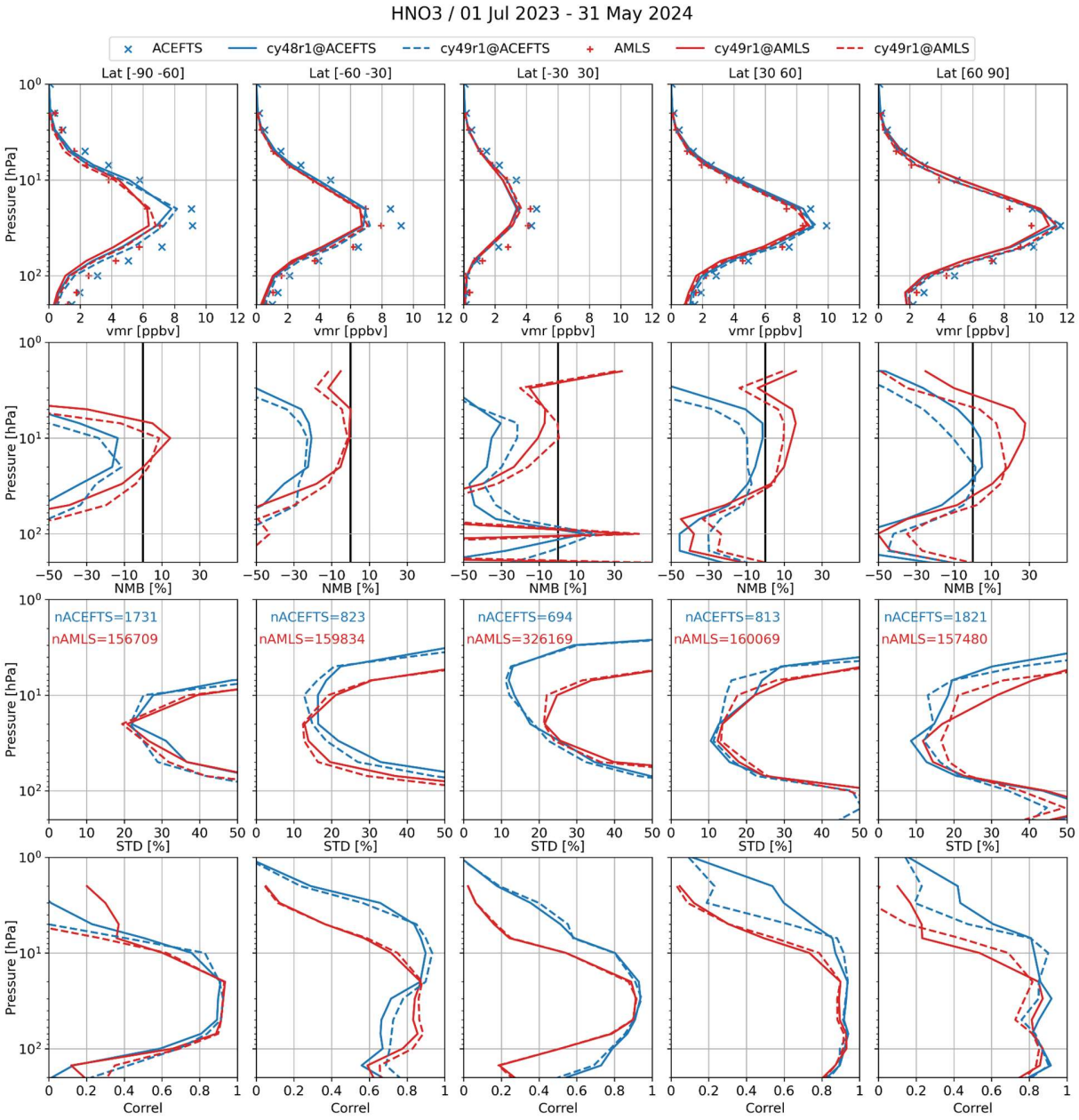


Figure S3. Same as Figure 4 but for HNO_3.

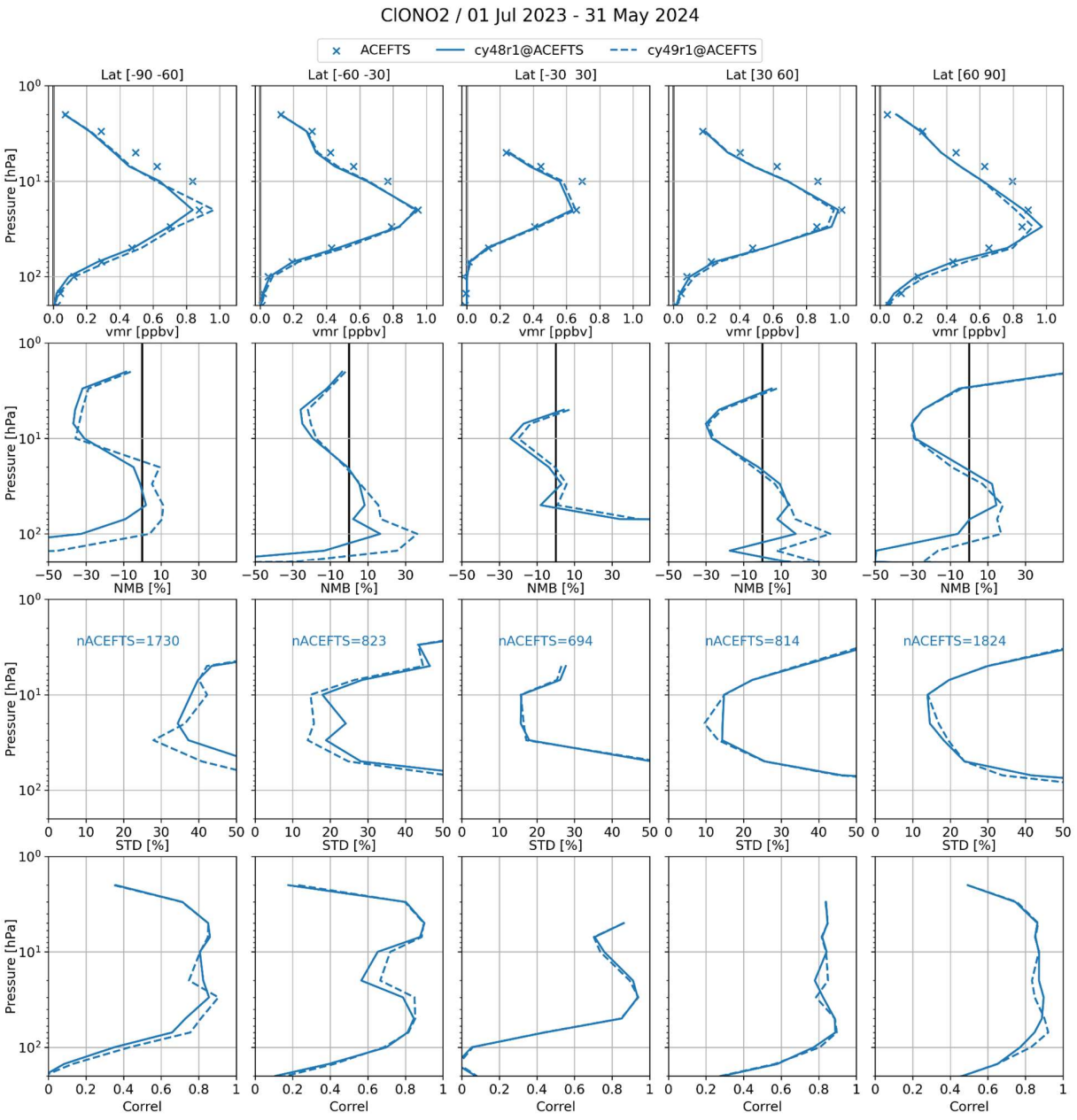


Figure S4. Same as Figure 4 but for $ClONO_2$, using only ACE-FTS observations.

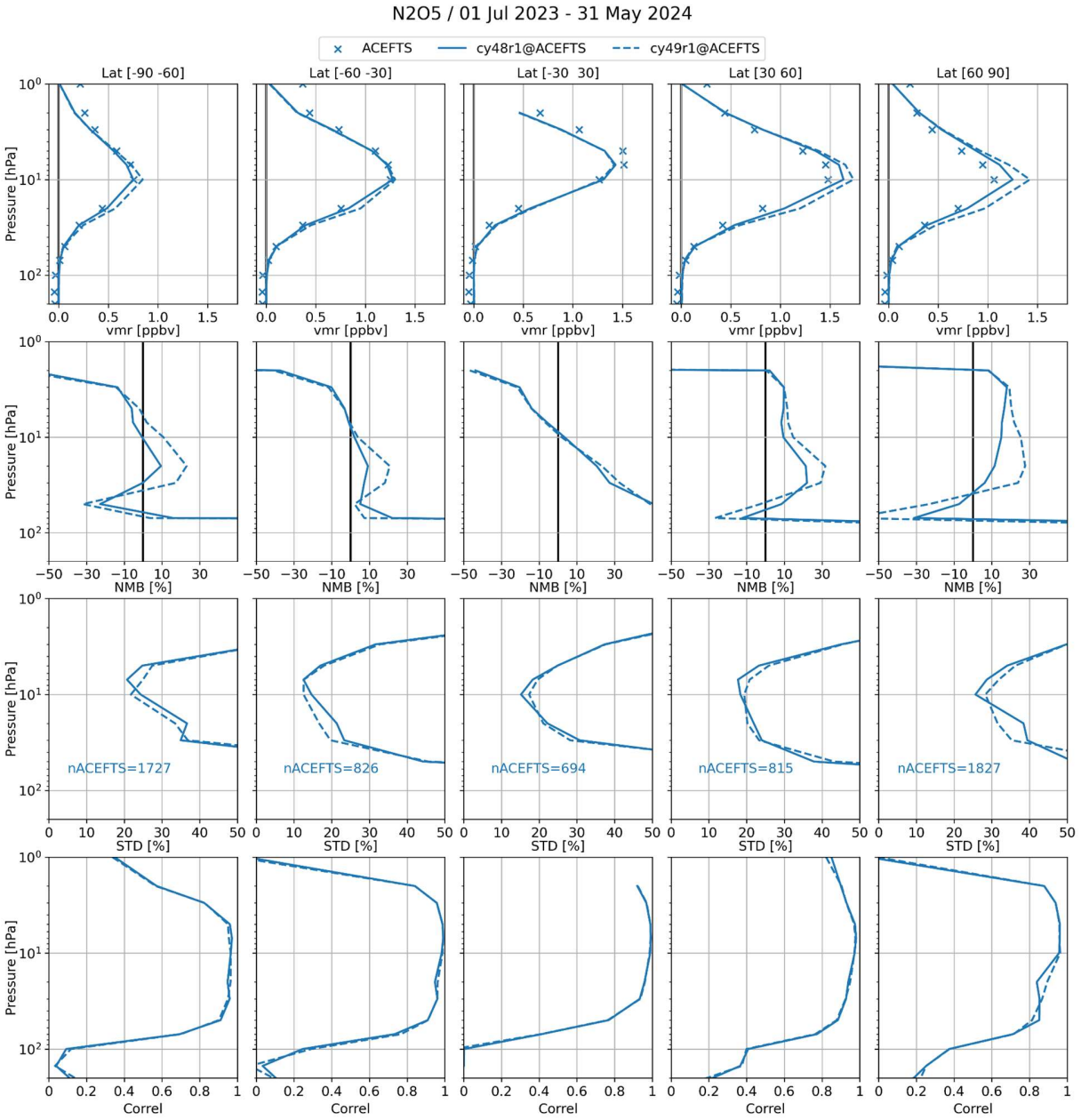
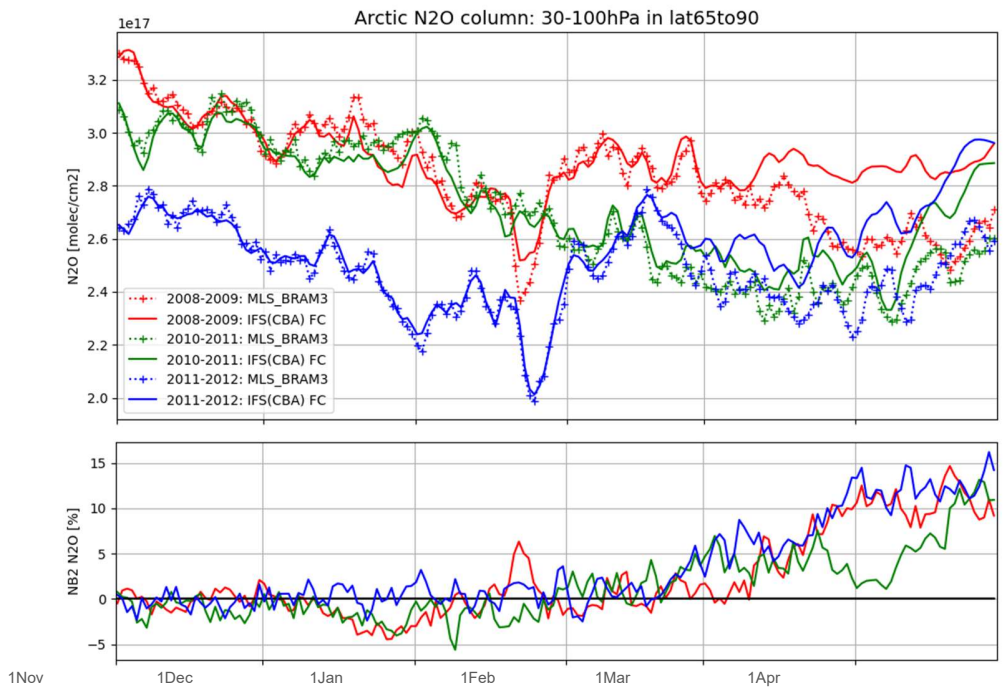


Figure S5. Same as Figure 4 but for N_2O_5, using only ACE-FTS observations.



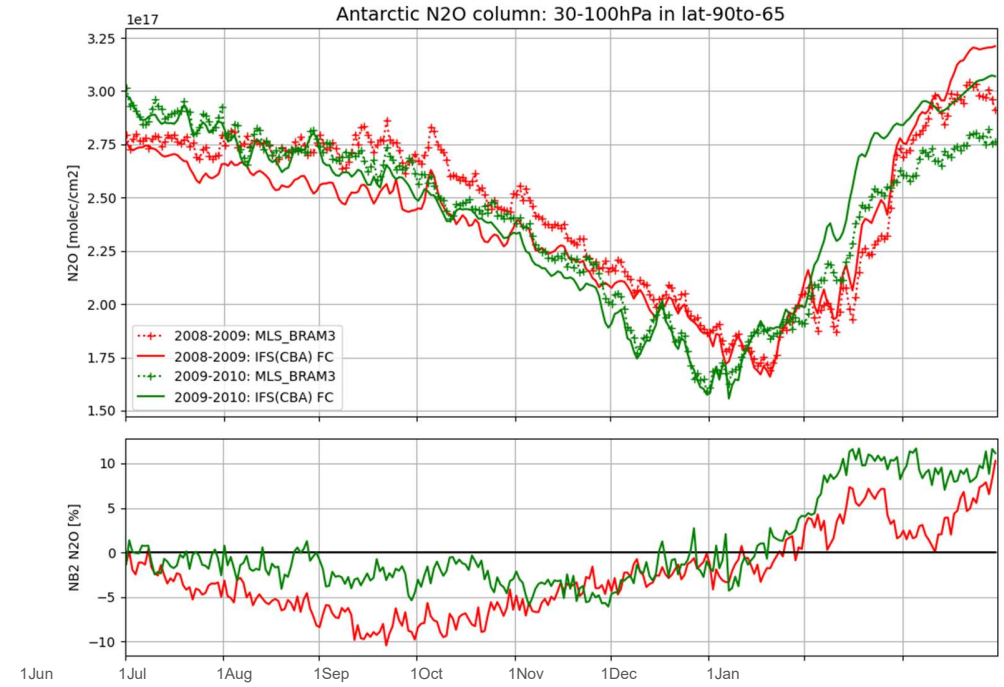


Figure S6. Same as Figure 11 but for N_2O, using only the modelling experiments until 2012.

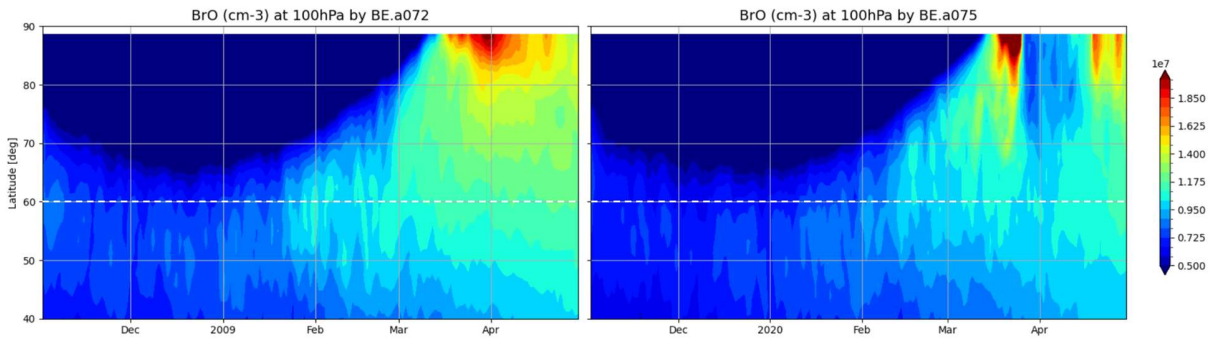


Figure S7. Daily zonal means of the BrO number density at 100 hPa, as a function of time and latitude, by IFS-COMPO Cy49R1 in winter-spring 2008-2009 (left) and 2019-2020 (right). The dashed white line indicates the latitude of Harestua.

Table S1. Criteria used to derive scores in five regions of the global stratosphere (see Table 3) from the Normalized Mean Bias (NMB), Standard Deviations of differences between model and observations (STD), and corresponding correlations (Correl.).

++	|MNB| ≤ 10%	and	STD ≤ 30%	and	Correl. ≥ 0.7
+	|MNB| ≤ 15%	and	(STD ≤ 30%	or	Correl. ≥ 0.7)
n	|MNB| ≤ 30%	and	(STD ≤ 50%	or	Correl. ≥ 0.4)
-	|MNB| > 30%	or	STD > 50%	or	Correl < 0.4
--	|MNB| > 30%	and	STD > 50%	and	Correl < 0.4