



Supplement of

Uncertainties in recent tropical stratospheric and tropospheric ozone changes limit the use of observational constraints for assessing future ozone change

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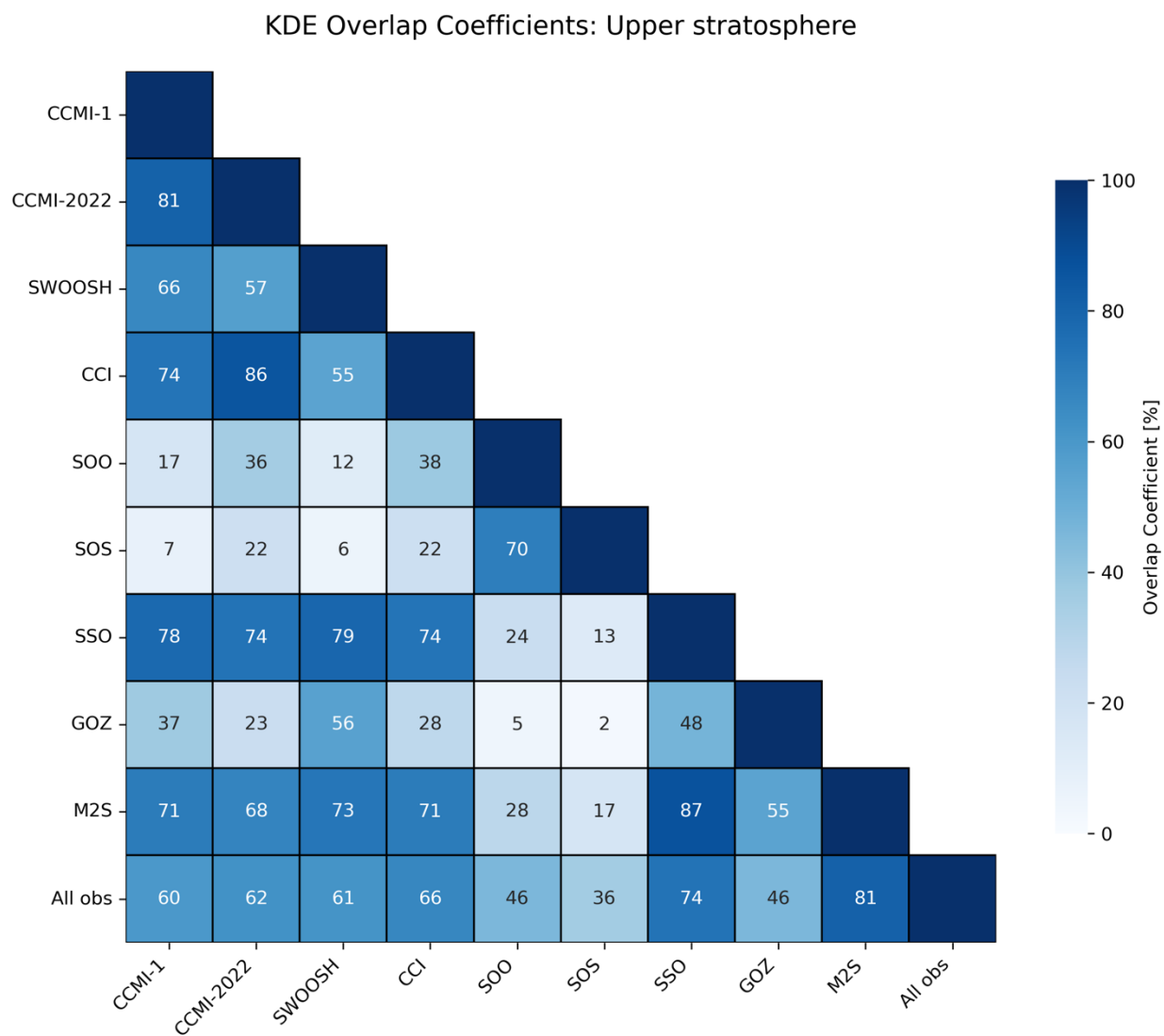


Figure S1. A heatmap of overlap coefficients between all combinations of models and observations for upper stratospheric partial column ozone (10–1 hPa).

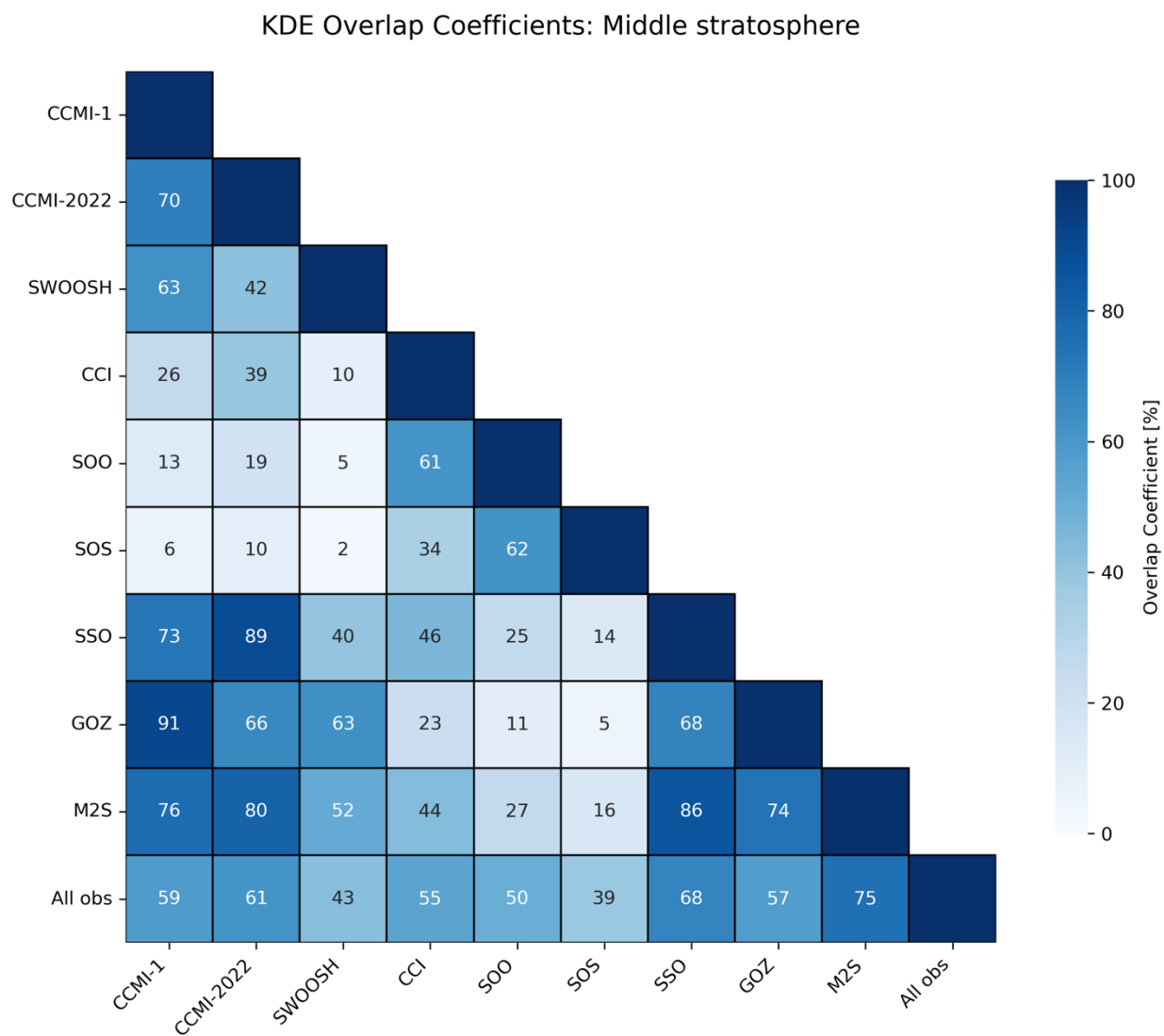


Figure S2. A heatmap of overlap coefficients between all combinations of models and observations for middle stratospheric partial column ozone (30–10 hPa).

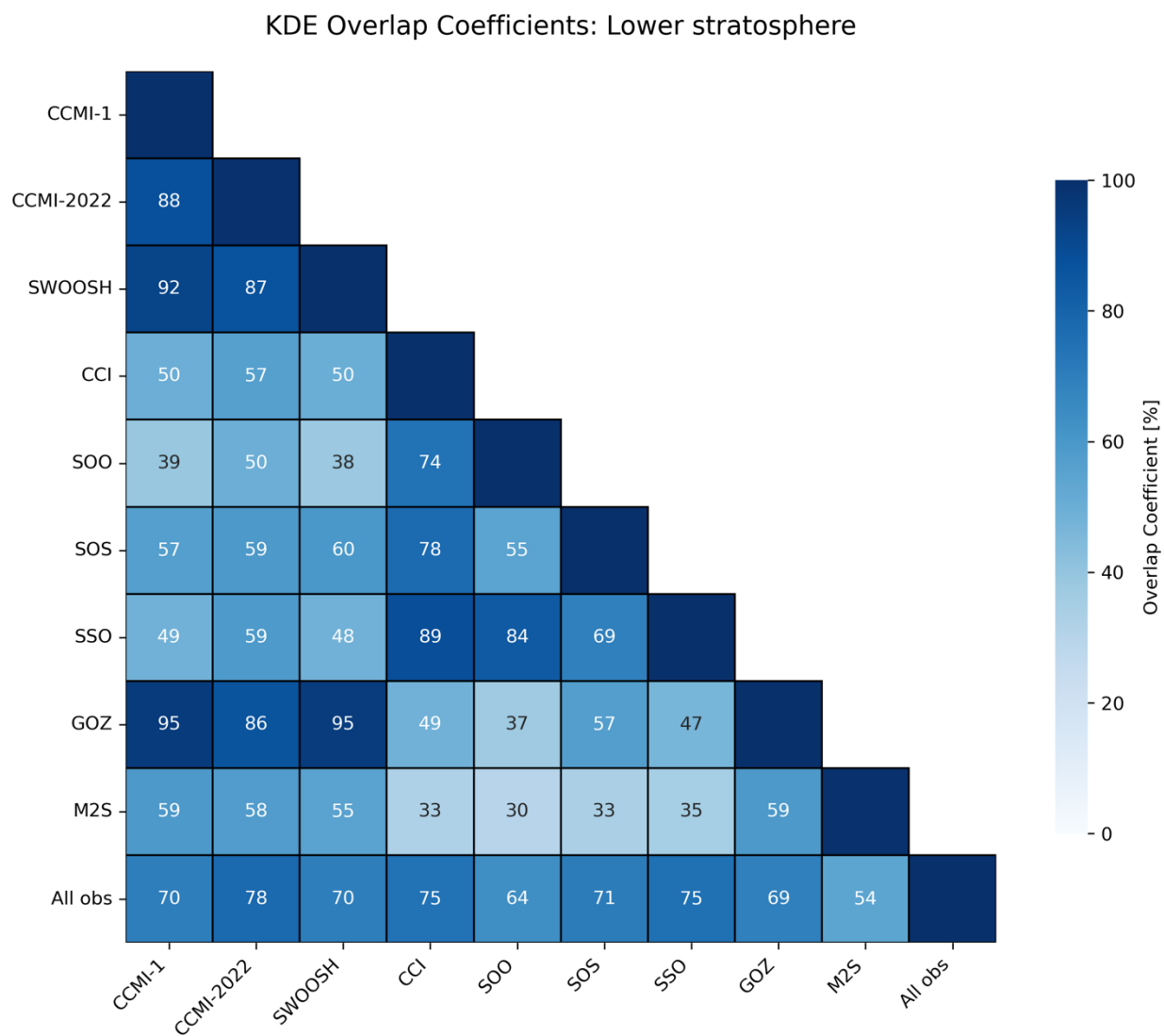


Figure S3. A heatmap of overlap coefficients between all combinations of models and observations for upper stratospheric partial column ozone (tropopause–30 hPa).

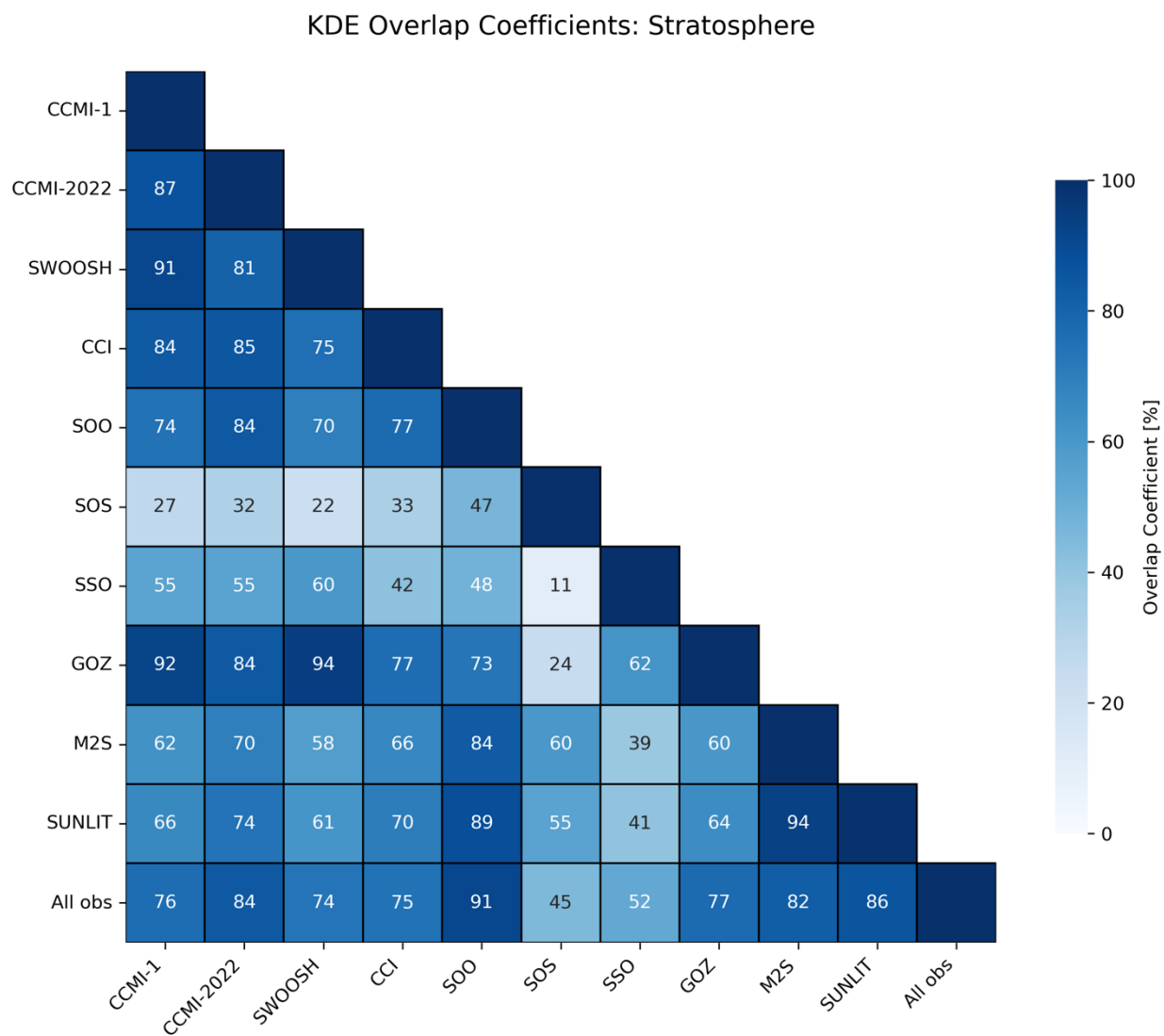


Figure S4. A heatmap of overlap coefficients between all combinations of models and observations for stratospheric partial column ozone.

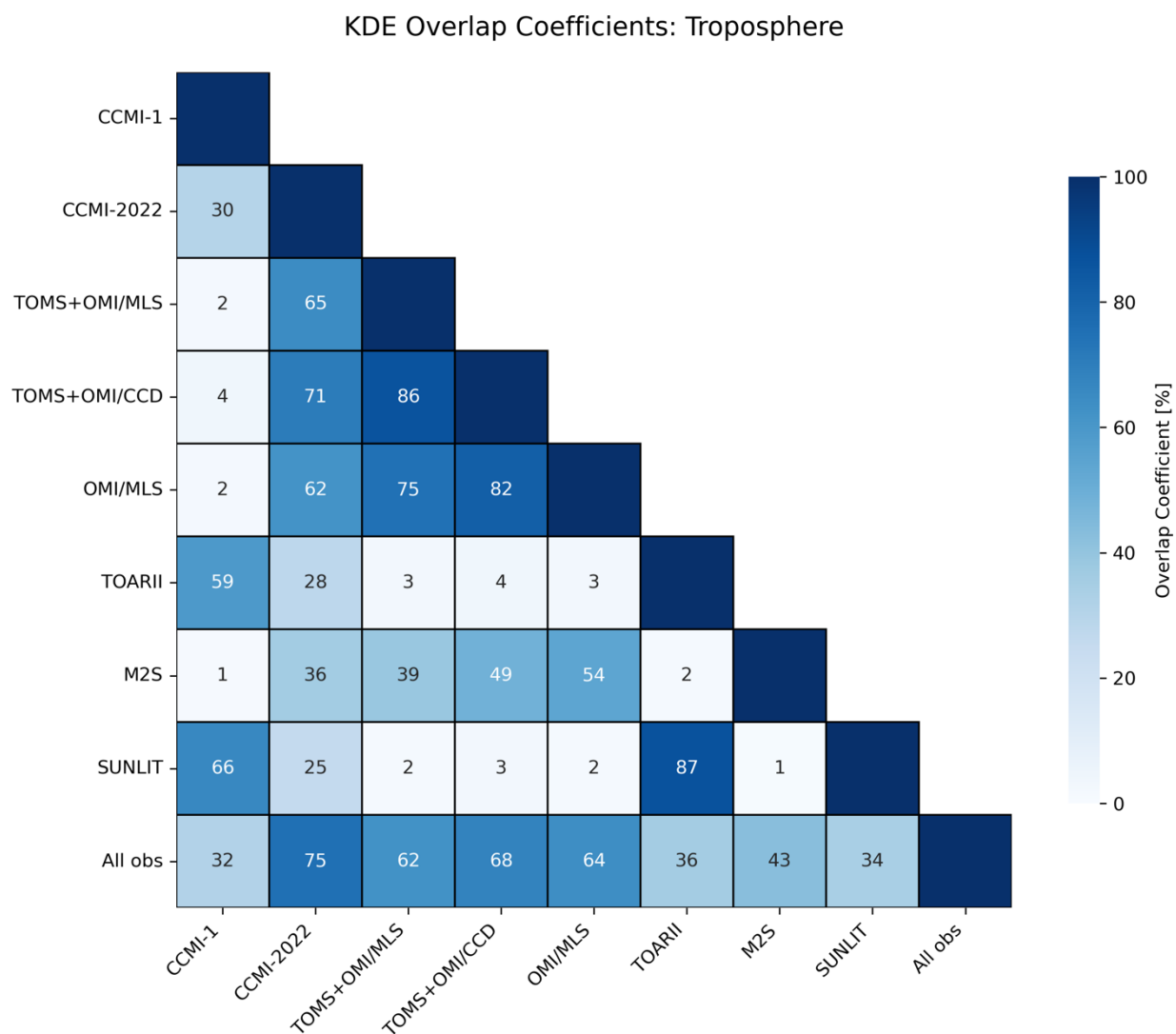


Figure S5. A heatmap of overlap coefficients between all combinations of models and observations for tropospheric partial column ozone.

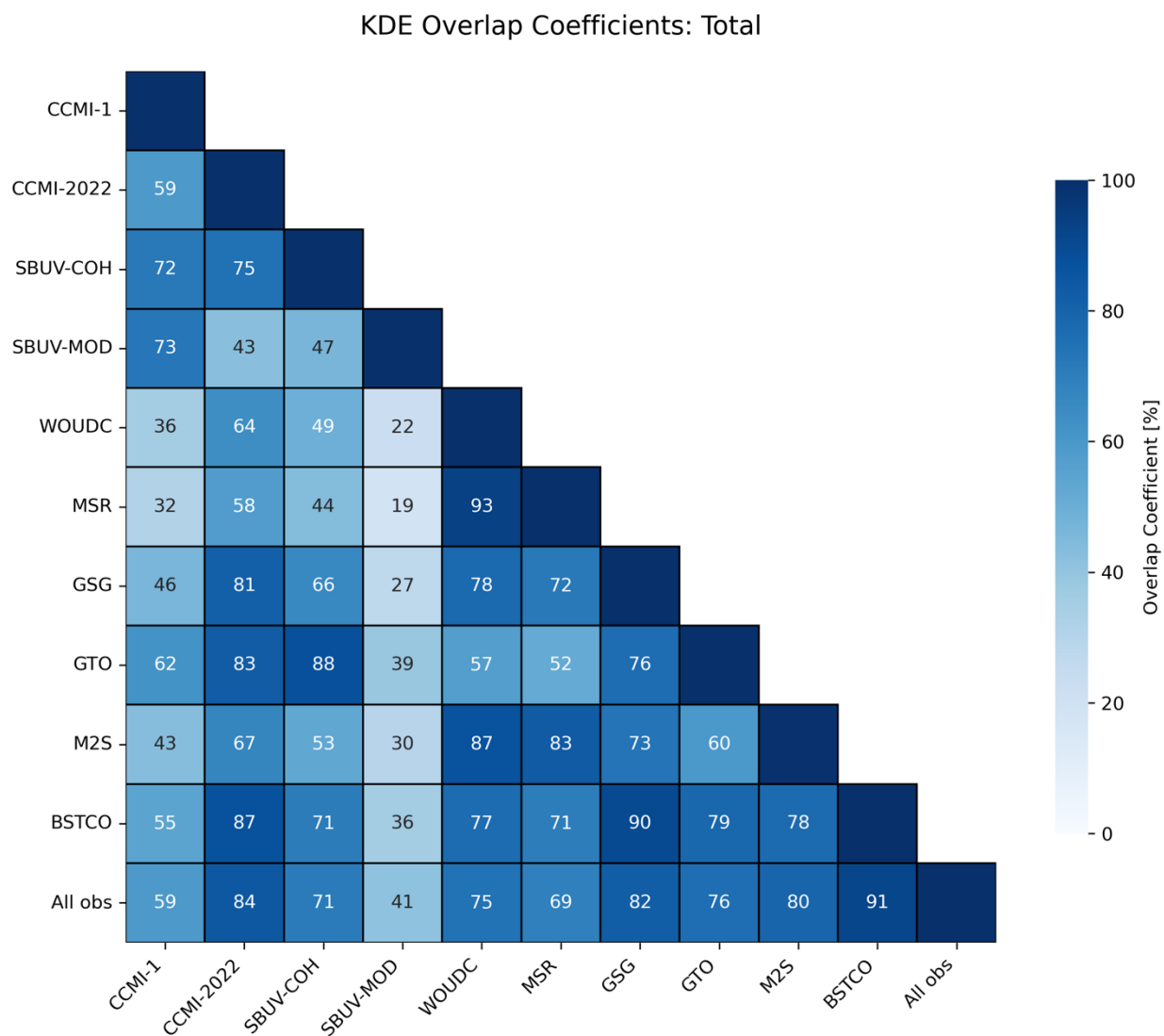


Figure S6. A heatmap of overlap coefficients between all combinations of models and observations for total column ozone.

Table S1: Mean ozone change (2000-2021) $\pm$ 1 standard deviation for models and observational datasets across different atmospheric layers [DU].

Dataset	Upper stratosphere	Middle stratosphere	Lower stratosphere	Stratosphere	Troposphere	Total
REF-C2	1.2 ± 0.47	0.56 ± 0.5	-0.61 ± 1.1	1.2 ± 1.3	0.3 ± 0.35	1.6 ± 1.4
REF-D2	1.5 ± 0.43	0.74 ± 0.73	-1.1 ± 1.5	1.1 ± 1.8	1.6 ± 0.9	2.5 ± 2
All obs	1.5 ± 0.83	1.3 ± 1.1	-1.3 ± 1.7	1.7 ± 2.1	1.4 ± 1.1	3.3 ± 2
SWO	1 ± 0.4	0.059 ± 0.44	-0.68 ± 1	0.91 ± 1.2	-	-
CCI	1.5 ± 0.48	1.7 ± 0.55	-2 ± 0.93	1.6 ± 1.2	-	-
SOO	2.3 ± 0.42	2.3 ± 0.6	-2.6 ± 1.2	1.7 ± 2	-	-
SOS	2.6 ± 0.39	2.8 ± 0.67	-1.6 ± 0.76	3.9 ± 1.3	-	-
SSO	1.2 ± 0.54	0.92 ± 0.69	-2.2 ± 1.2	-0.39 ± 1.4	-	-
GOZ	0.55 ± 0.45	0.49 ± 0.5	-0.59 ± 1.1	0.91 ± 1.4	-	-
M2S	1.2 ± 0.68	0.77 ± 0.77	0.67 ± 2.2	2.6 ± 2.3	1.7 ± 0.22	4.3 ± 2.4
TOMS+OMI/MLS	-	-	-	-	2.4 ± 0.59	-
TOMS+OMI/CCD	-	-	-	-	2.2 ± 0.58	-
OMI/MLS	-	-	-	-	2.1 ± 0.42	-
TOARII	-	-	-	-	-0.076 ± 0.6	-
SUN	-	-	-	2.3 ± 2.6	0.029 ± 0.4	-
SBUV-COH	-	-	-	-	-	2.5 ± 1.2
SBUV-MOD	-	-	-	-	-	0.69 ± 1.3
WOUDC	-	-	-	-	-	4.3 ± 1.7
MSR	-	-	-	-	-	4.6 ± 1.7
GSG	-	-	-	-	-	3.6 ± 1.5
GTO	-	-	-	-	-	2.8 ± 1.3
BSTCO	-	-	-	-	-	3.3 ± 1.7