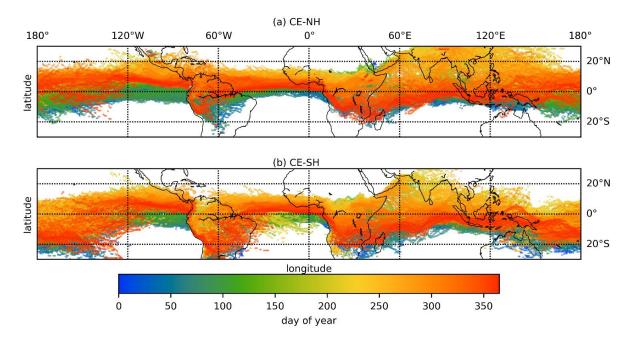
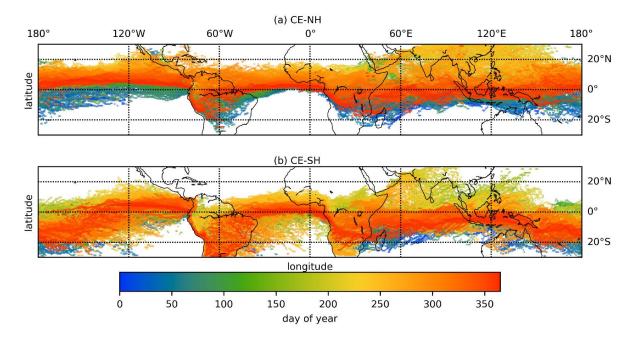


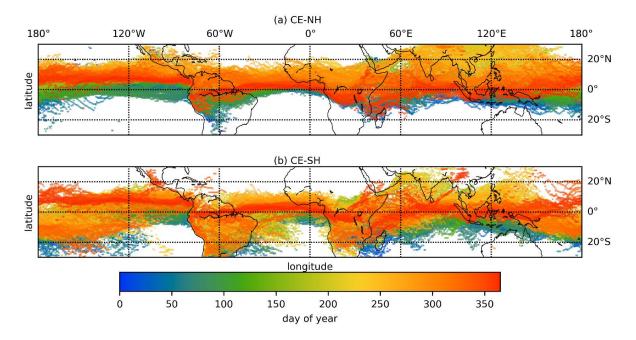
**Supplement Figure 1.** Daily CE-NH and CE-SH calculated from model simulations of (a) E1 (tracer released in NH) and (b) E2 (tracer released in SH) in 2016; the color shows the day of the year.



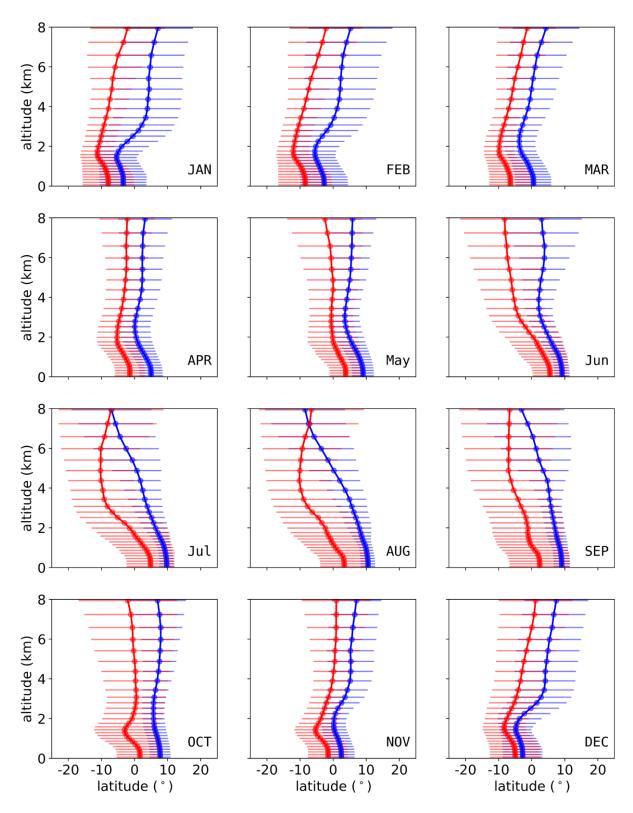
**Supplement Figure 2.** Daily CE-NH and CE-SH calculated from model simulations of (a) E1 (tracer released in NH) and (b) E2 (tracer released in SH) in 2017; the color shows the day of the year.



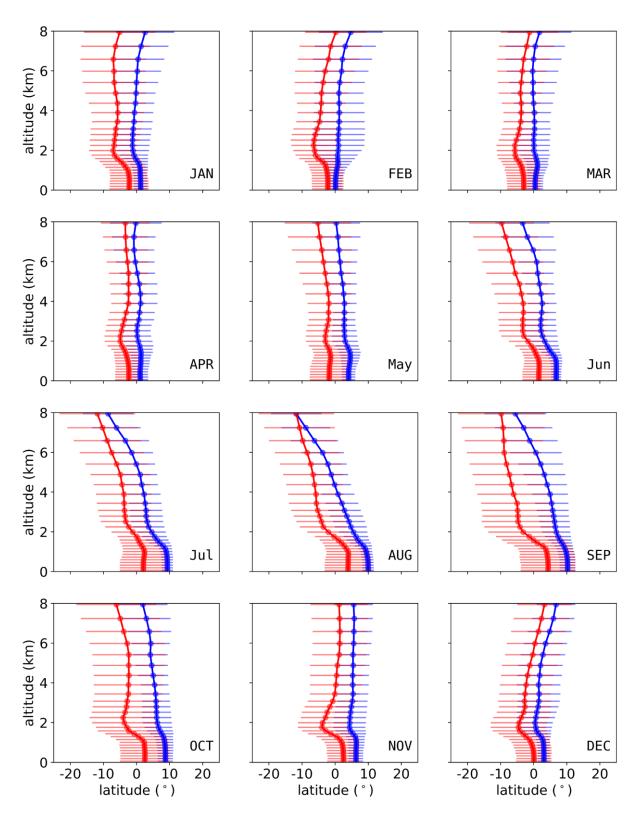
**Supplement Figure 3.** Daily CE-NH and CE-SH calculated from model simulations of (a) E1 (tracer released in NH) and (b) E2 (tracer released in SH) in 2018; the color shows the day of the year.



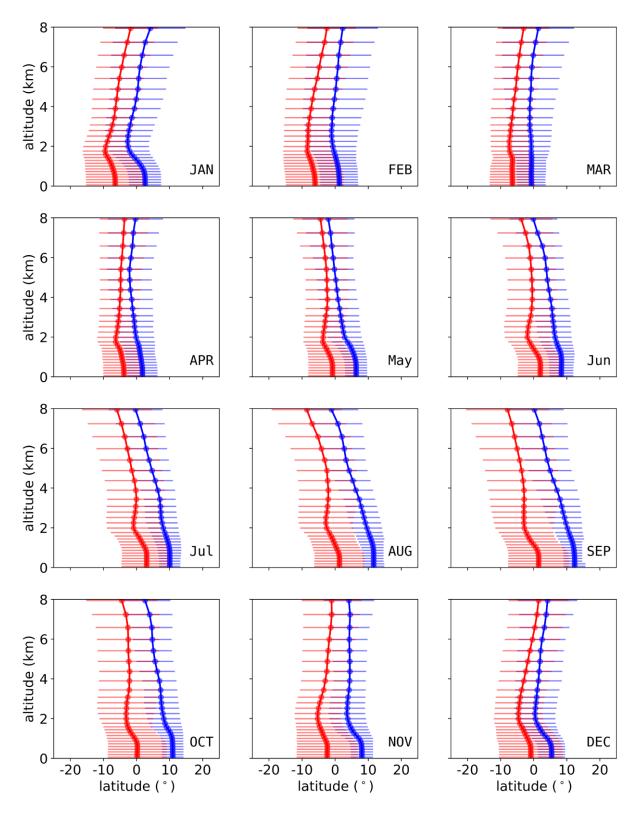
**Supplement Figure 4.** Daily CE-NH and CE-SH calculated from model simulations of (a) E1 (tracer released in NH) and (b) E2 (tracer released in SH) in 2019; the color shows the day of the year.



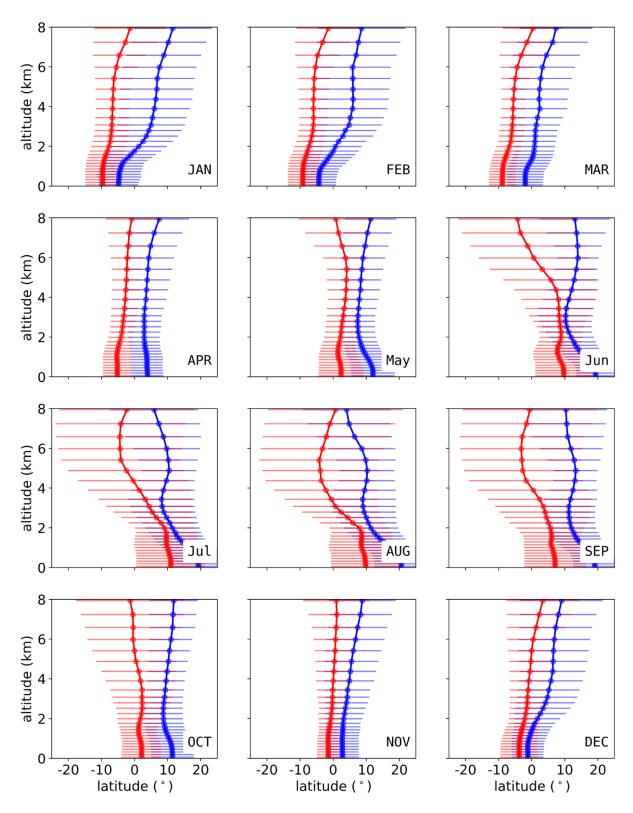
**Supplement Figure 5.** Monthly averaged (2015-2019) CE by altitude. The CE-NH / CE-SH are zonally (15° W - 50° E) averaged over the AF region see Fig. 5. The blue lines show the CE-NH and the red lines show the CE-SH. Only CE-NH / CE-SH below 8 km are shown here because of the large uncertainty in the higher model level. - $\sigma$  of the CE-NH and CE-SH are given in the plots.



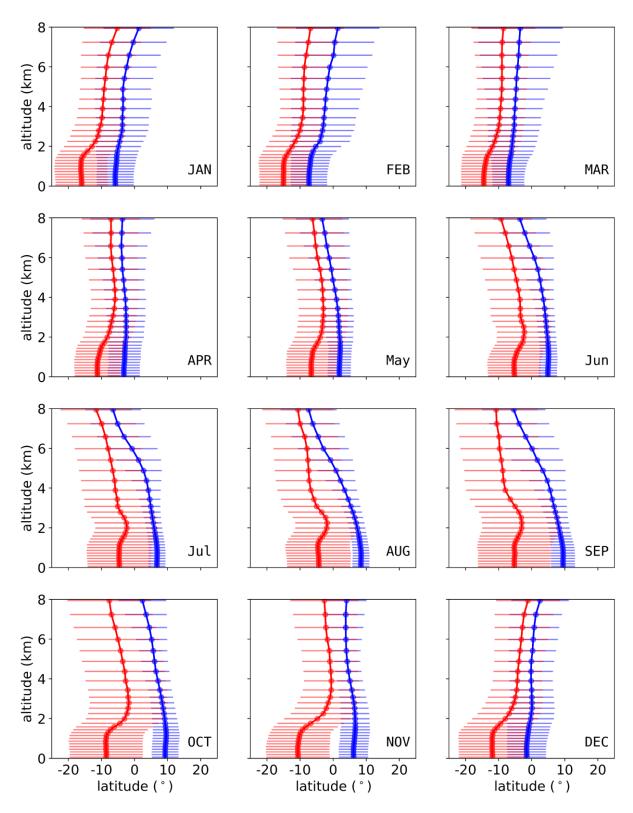
**Supplement Figure 6.** Monthly averaged (2015-2019) CE by altitude. The CE-NH / CE-SH are zonally (40° W - 15° W) averaged over the AT region see Fig. 5. The blue lines show the CE-NH and the red lines show the CE-SH. Only CE-NH / CE-SH below 8 km are shown here because of the large uncertainty in the higher model level.  $1-\sigma$  of the CE-NH and CE-SH are given in the plots.



**Supplement Figure 7.** Monthly averaged (2015-2019) CE by altitude. The CE-NH / CE-SH are zonally (180 $^{\circ}$  - 80 $^{\circ}$  W) averaged over the CEP region see Fig. 5. The blue lines show the CE-NH and the red lines show the CE-SH. Only CE-NH / CE-SH below 8 km are shown here because of the large uncertainty in the higher model level. 1- $\sigma$  of the CE-NH and CE-SH are given in the plots.



**Supplement Figure 8.** Monthly averaged (2015-2019) CE by altitude. The CE-NH / CE-SH are zonally (50° E – 100 ° E) averaged over the IO region see Fig. 5. The blue lines show the CE-NH and the red lines show the CE-SH. Only CE-NH / CE-SH below 8 km are shown here because of the large uncertainty in the higher model level. 1- $\sigma$  of the CE-NH and CE-SH are given in the plots.



**Supplement Figure 9.** Monthly averaged (2015-2019) CE by altitude. The CE-NH / CE-SH are zonally (80° W - 40° W) averaged over the SA region see Fig. 5. The blue lines show the CE-NH and the red lines show the CE-SH. Only CE-NH / CE-SH below 8 km are shown here because of the large uncertainty in the higher model level.  $1-\sigma$  of the CE-NH and CE-SH are given in the plots.