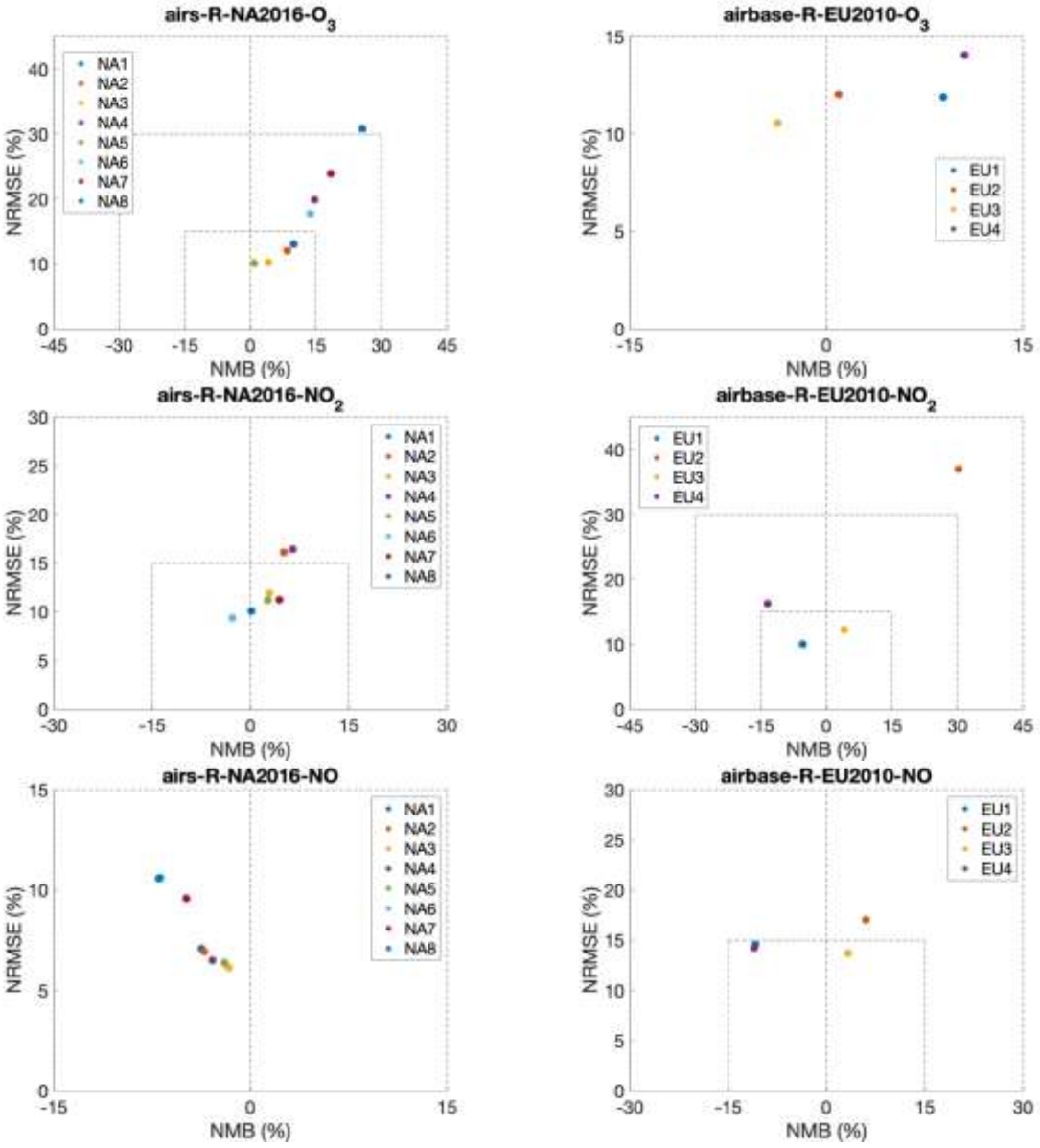


Figure S1: Soccer plot diagrams of NO, NO_2 and O_3. Left panels NA case, right panels EU case.

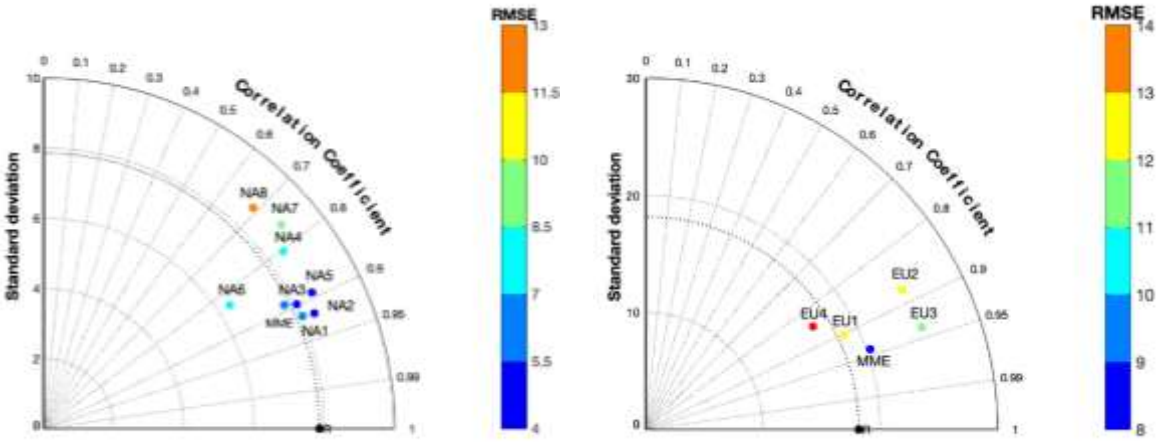


Figure S2: Taylor diagrams of Ozone simulation for 2016 in NA (left) and EU2010 (right).

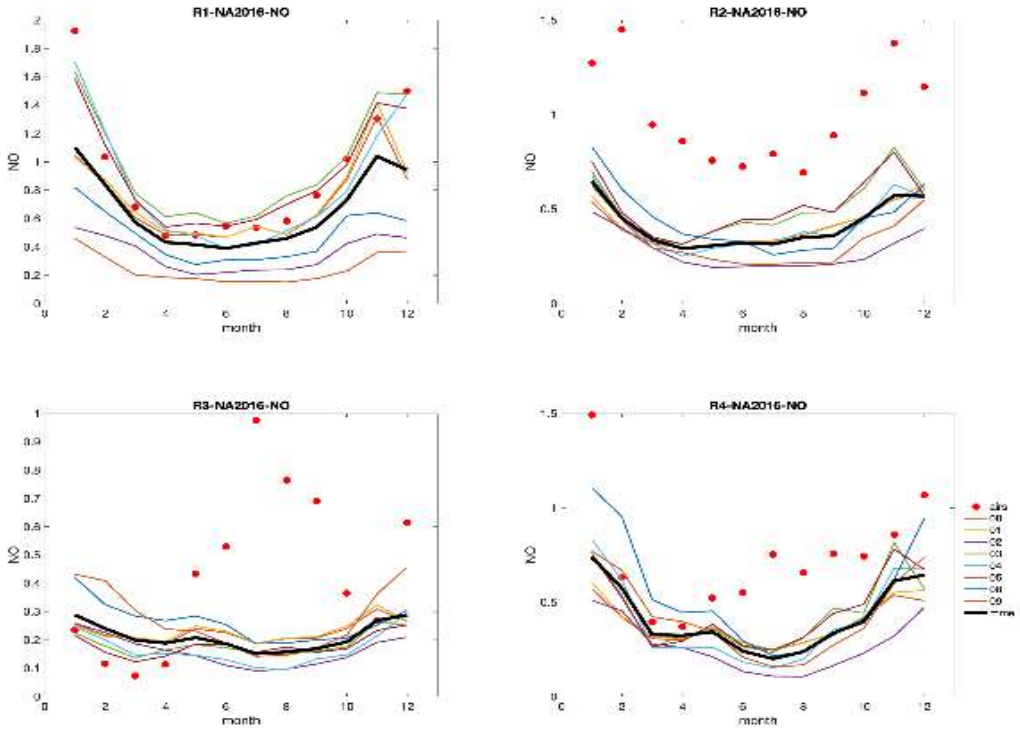
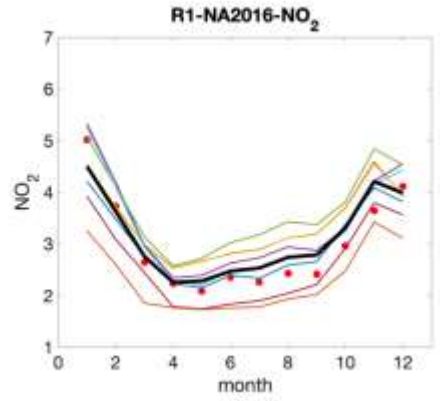
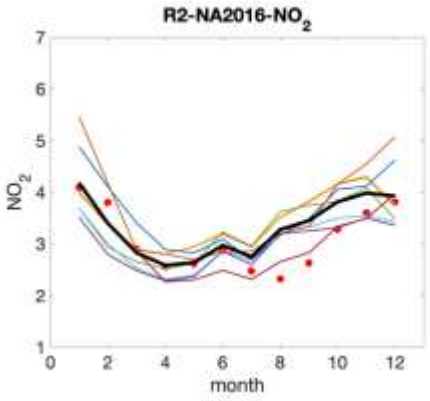
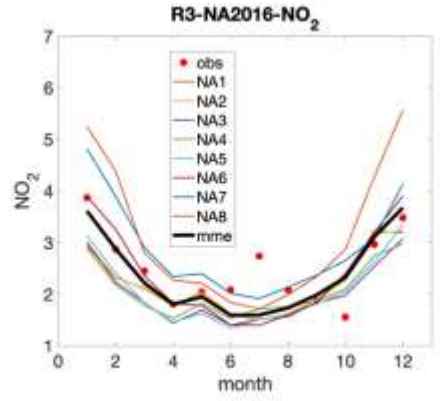
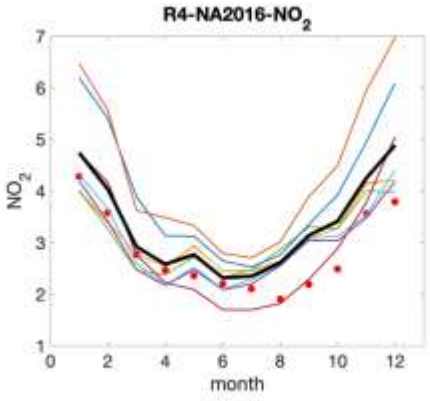


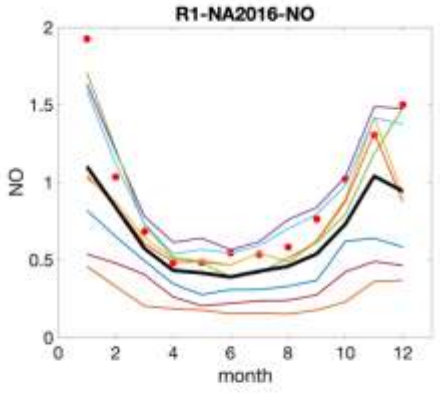
Figure S3: Subregional analysis of NO and NO2 for the NA case

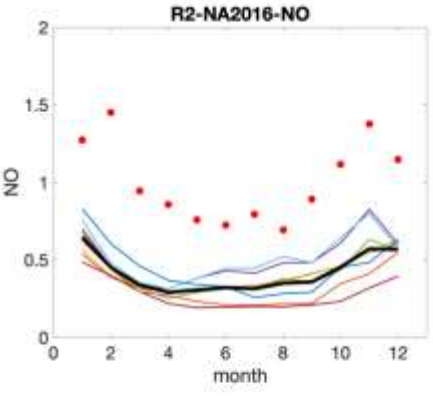

R1-NA2016-NO2
NO2
month

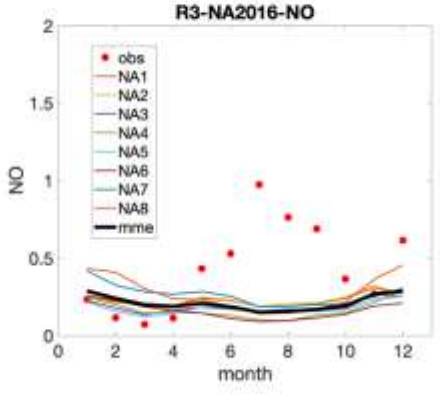

R2-NA2016-NO2
NO2
month

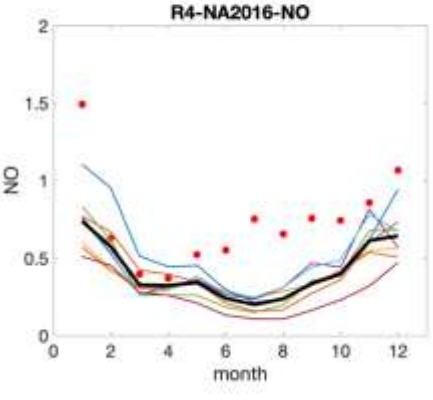

R3-NA2016-NO2
obs
NA1
NA2
NA3
NA4
NA5
NA6
NA7
NA8
mme
NO2
month


R4-NA2016-NO2
NO2
month


R1-NA2016-NO
NO
month


R2-NA2016-NO
NO
month


R3-NA2016-NO
obs
NA1
NA2
NA3
NA4
NA5
NA6
NA7
NA8
mme
NO
month


R4-NA2016-NO
NO
month

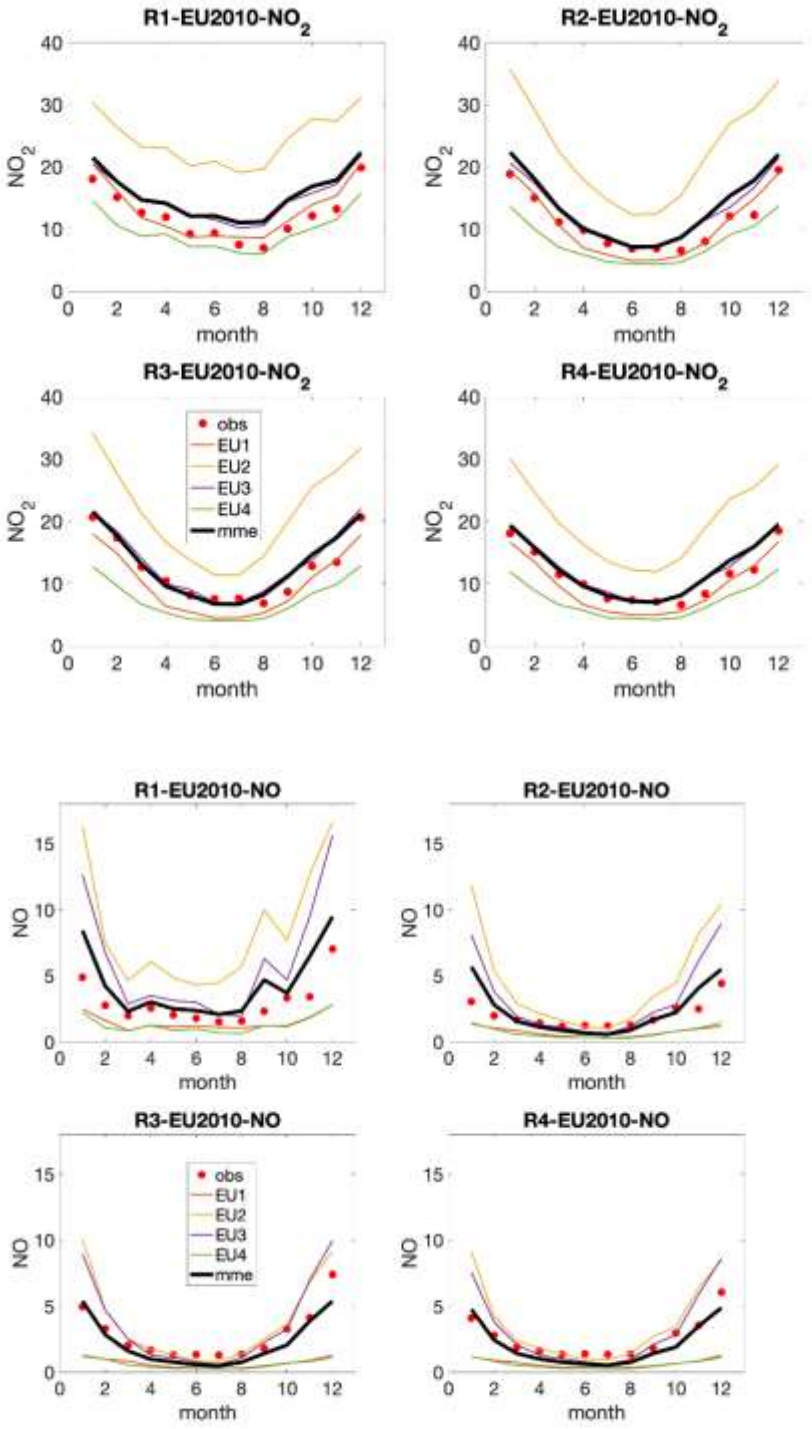
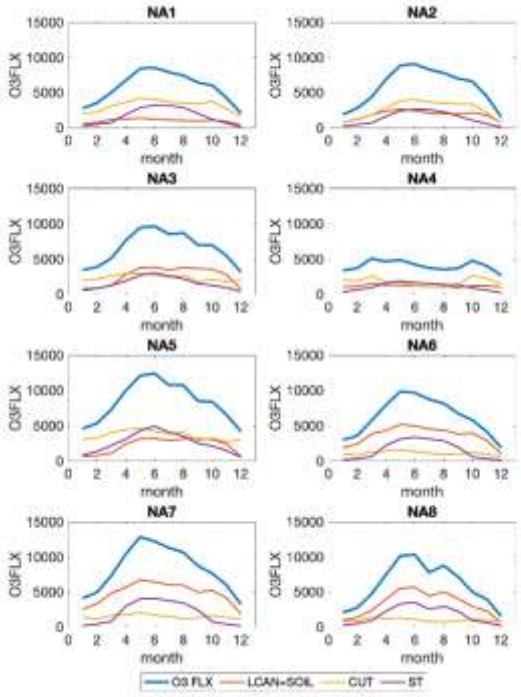
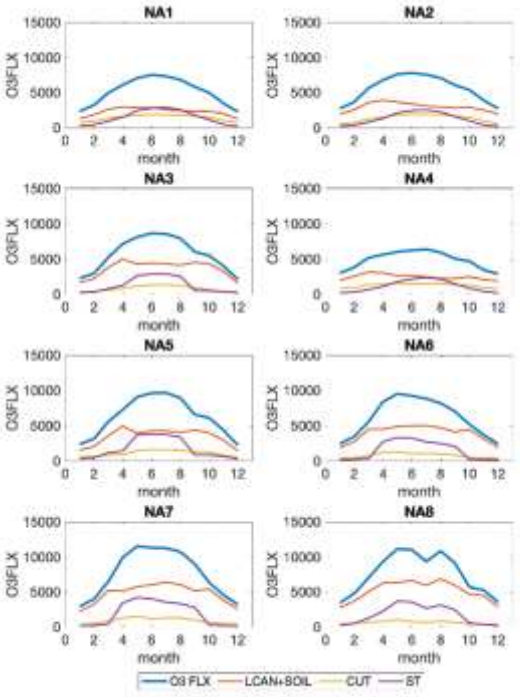


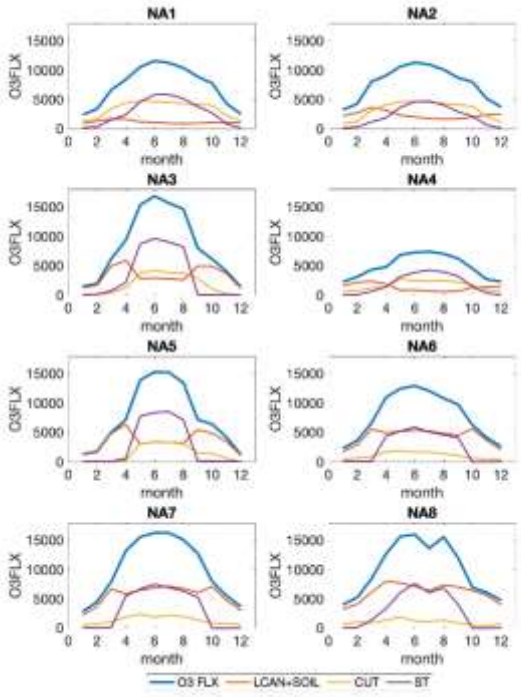
Figure S4: Subregional analysis of NO and NO2 for the EU case


NA1
NA2
NA3
NA4
NA5
NA6
NA7
NA8
O3FLX
month
O3 FLX
LCAN+SOIL
CUT
ST

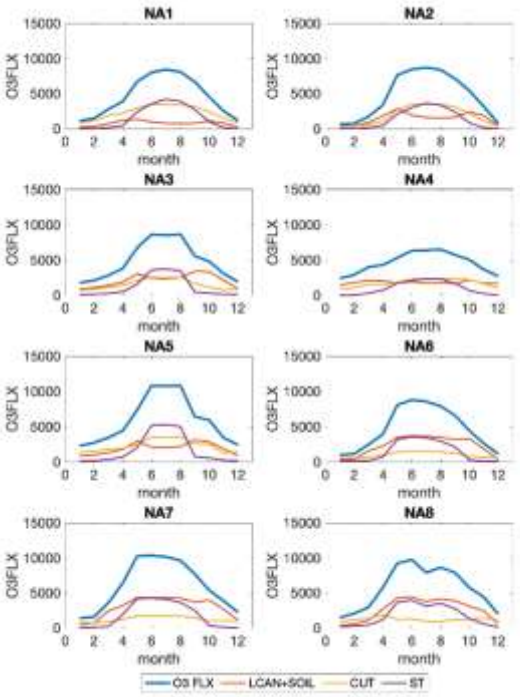
(a)


NA1
NA2
NA3
NA4
NA5
NA6
NA7
NA8
O3FLX
month
O3 FLX
LCAN+SOIL
CUT
ST

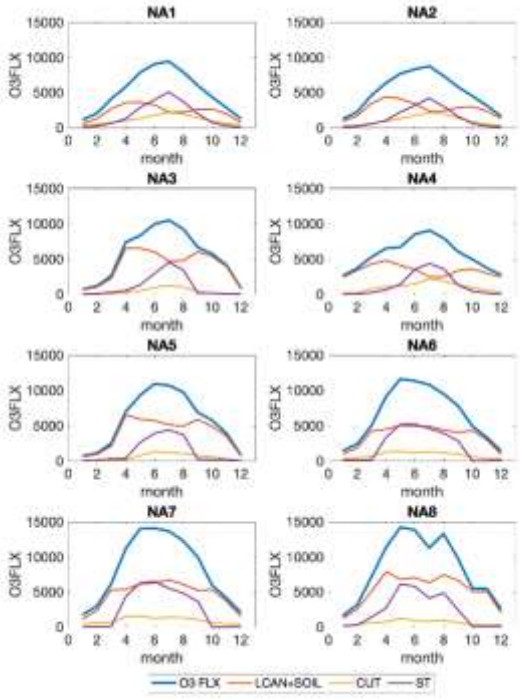
(b)


NA1
NA2
NA3
NA4
NA5
NA6
NA7
NA8
O3FLX
month
O3 FLX
LCAN+SOIL
CUT
ST

(c)

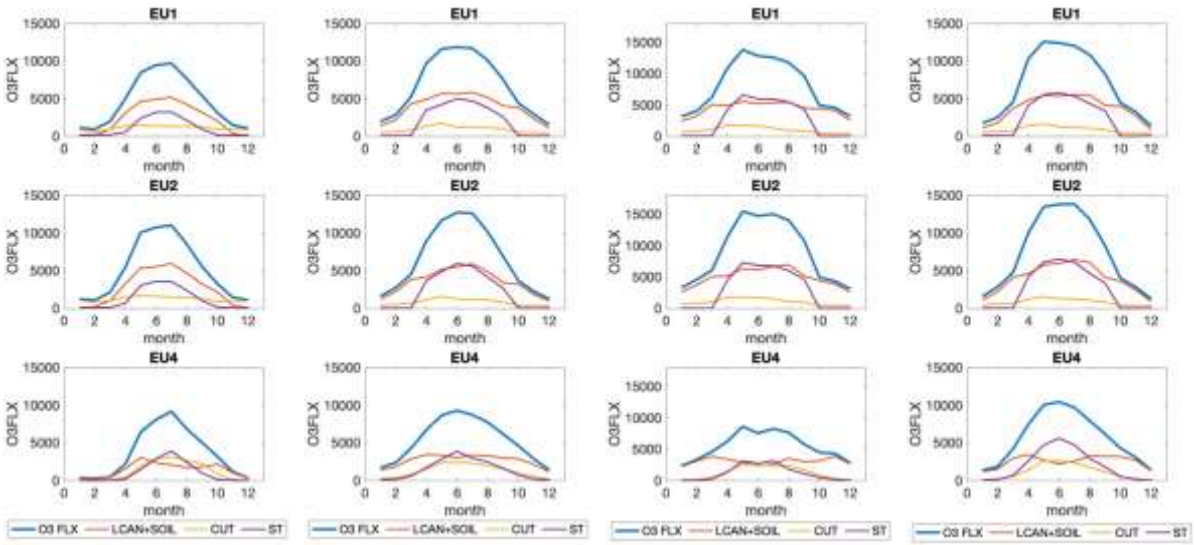

NA1
NA2
NA3
NA4
NA5
NA6
NA7
NA8
O3FLX
month
O3 FLX
LCAN+SOIL
CUT
ST

(d)



(e)

Figure S5 NA case study: Ozone dry deposition flux (O3FLX), lower canopy and soil effective fluxes combined in one factor (LCAN+SOIL), Cuticular effective flux (CUT) and Stomatal effective flux (ST) for shared grid cells covered by at least 85% of (a) needle-leaf forest, (b) O3 Receptors, (c) Deciduous Broadleaf Forest, (d) Mixed Forest, (e) Planted-Cultivated.



(a) (b) (c) (d)

Figure S6 EU case study: Ozone dry deposition flux (O3FLX), lower canopy and soil effective fluxes combined in one factor (LCAN+SOIL), Cuticular effective flux (CUT) and Stomatal effective flux (ST) for shared grid cells covered by at least 85% of (a) needle-leaf forest, (b) O3 Receptors, (c) Deciduous Broadleaf Forest, (d) Planted-Cultivated.

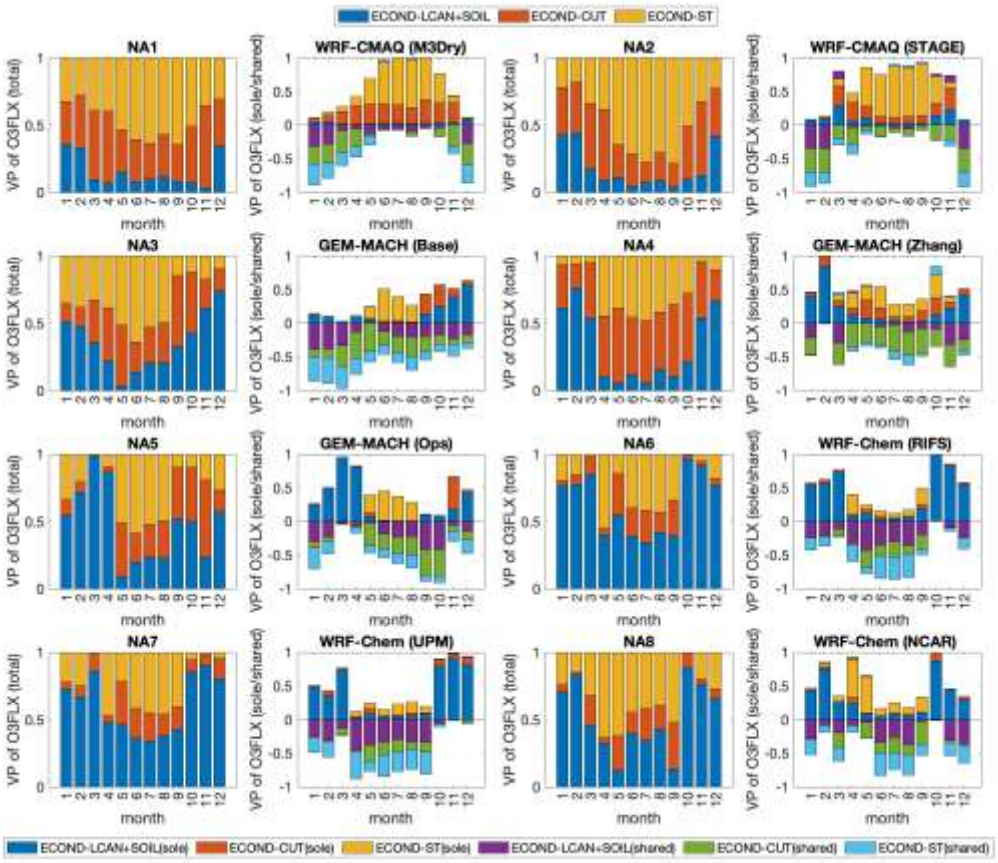


Figure S7: NA case study at 581 shared cells covered by at least 85% of Deciduous Broadleaf Forest. Panels in 1st and 3rd column: Variance Partition (VP) of ozone dry deposition flux into the individual importance (i.e. total effect) of (1) lower canopy and soil effective fluxes combined in one factor, (2) Cuticular effective flux and (3) Stomatal effective flux. Panels in 2nd and 4th column: Split of the individual importance of the effective fluxes into sole and shared contributions. The shared effects are displayed with negative numbers. For the sake of making the pictures easier to read, the explicit regional model and deposition module used are reported in the figure.

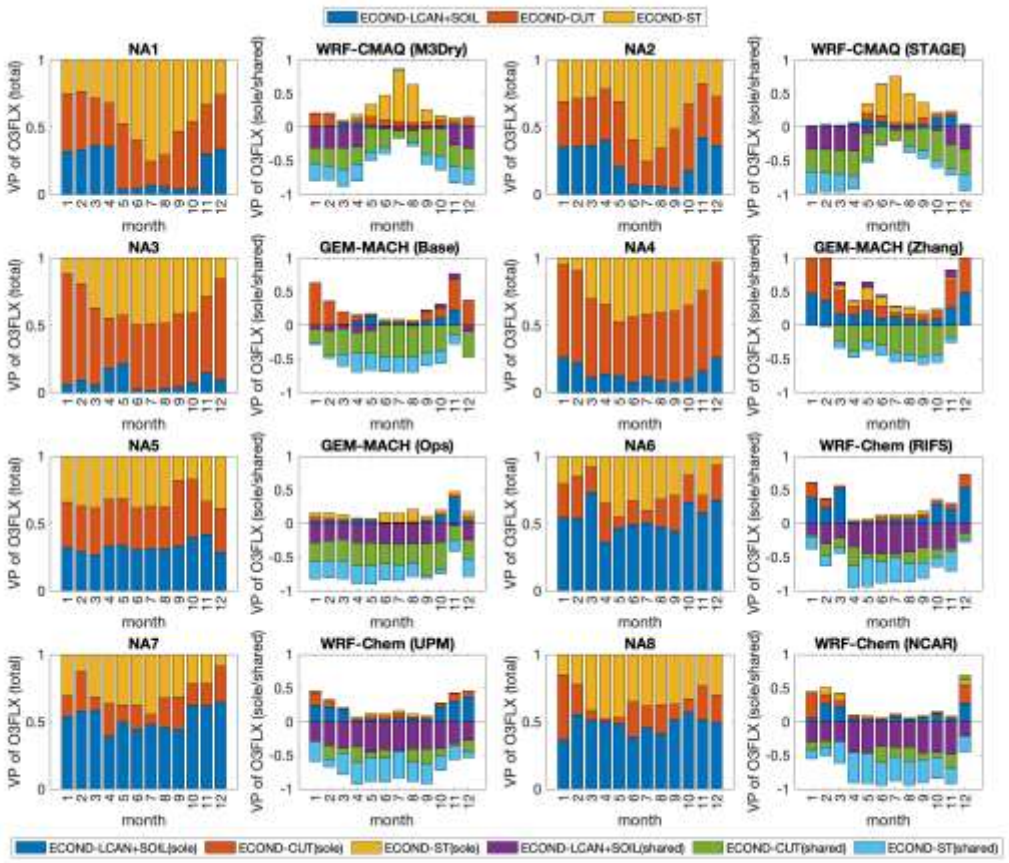


Figure S8: Same as S5 for Mixed Forest land use (705 shared cells)

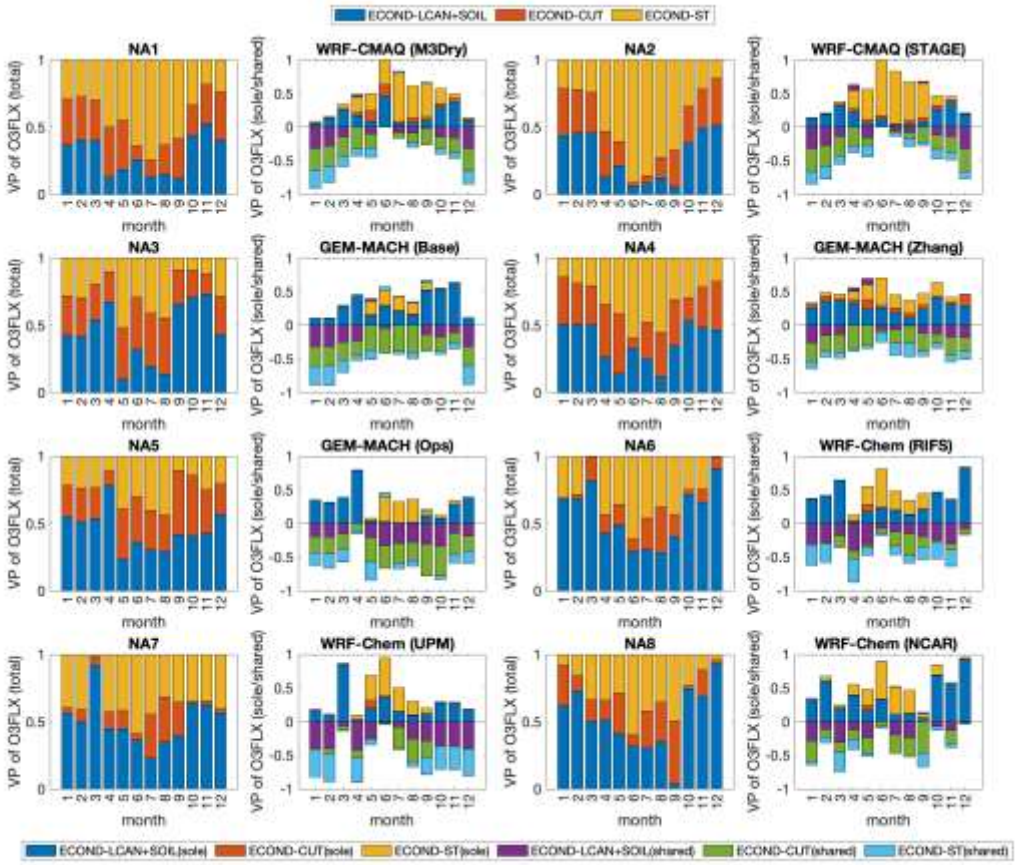


Figure S9: Same as S5 for Planted-Cultivated land use (6130 shared cells)

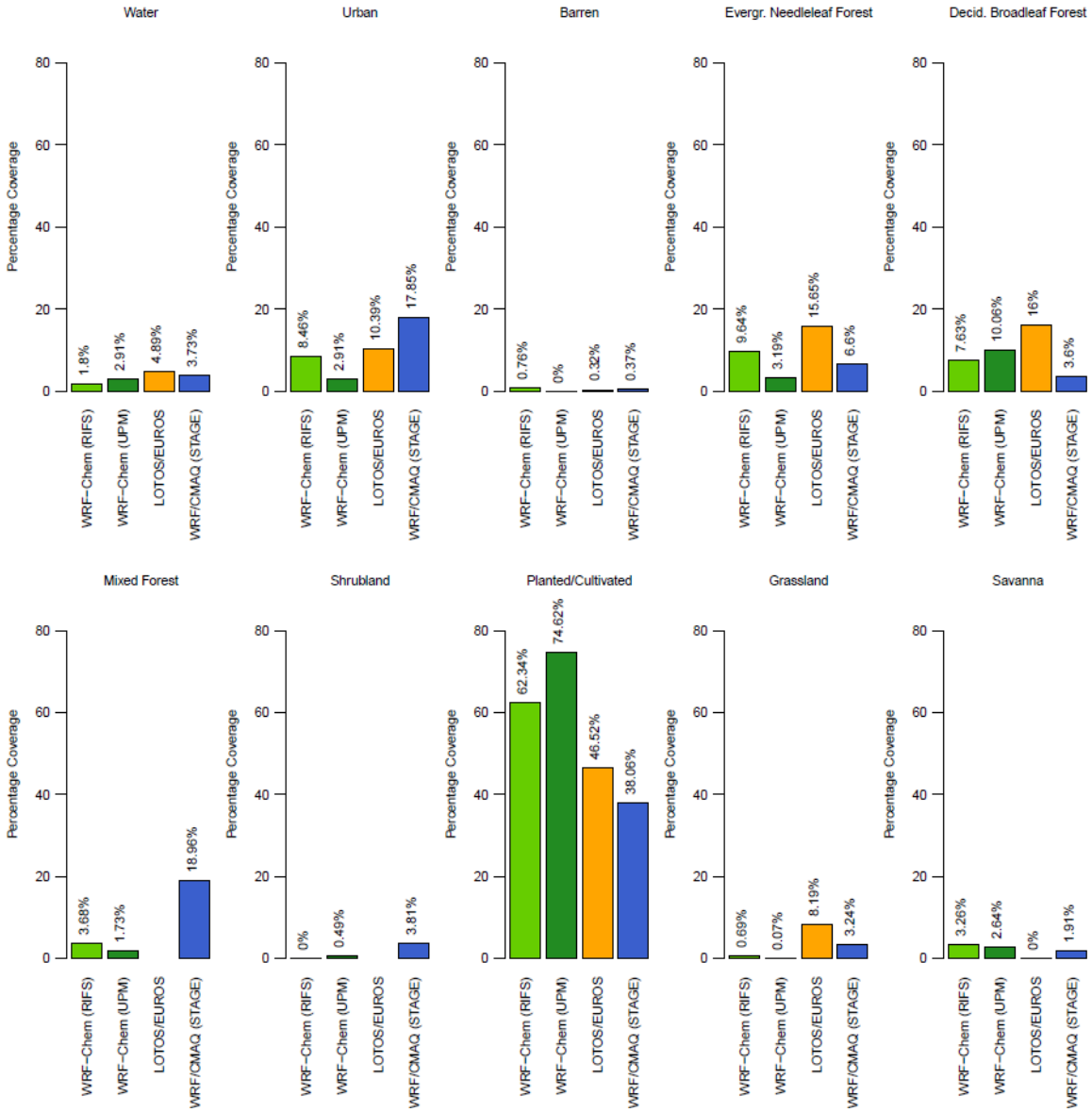


Figure S10 (top) Fraction of entire EU common domain (excl. grid cells dominated by water, i.e. water fraction > 0.5) covered by each LU type. (bottom) Fraction of all grid cells corresponding to O3 receptor locations covered by each LU type