

## Impact of halogen chemistry on air quality in coastal and continental Europe: application of CMAQ model and implication for regulation

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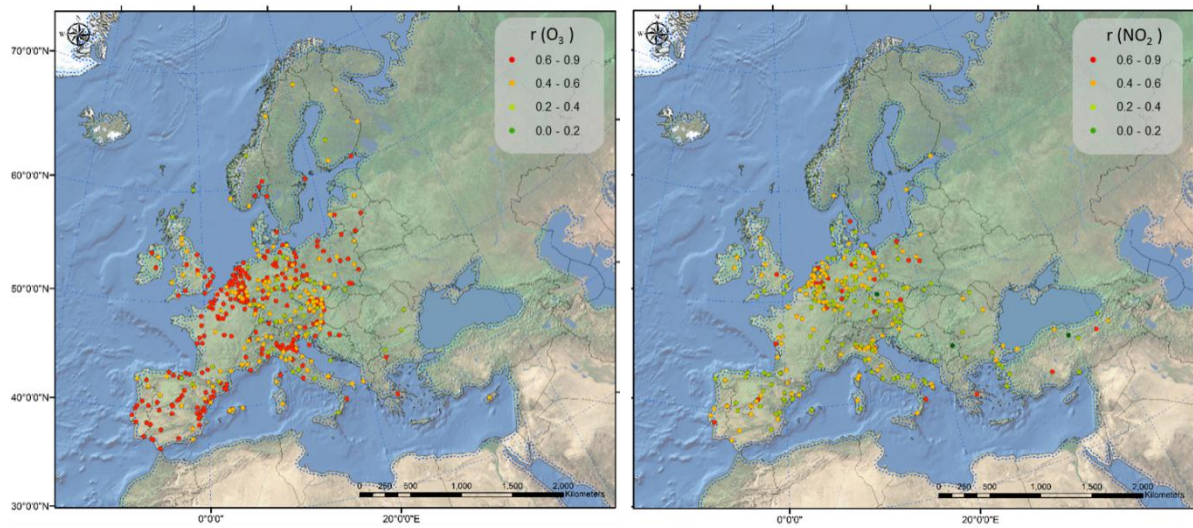
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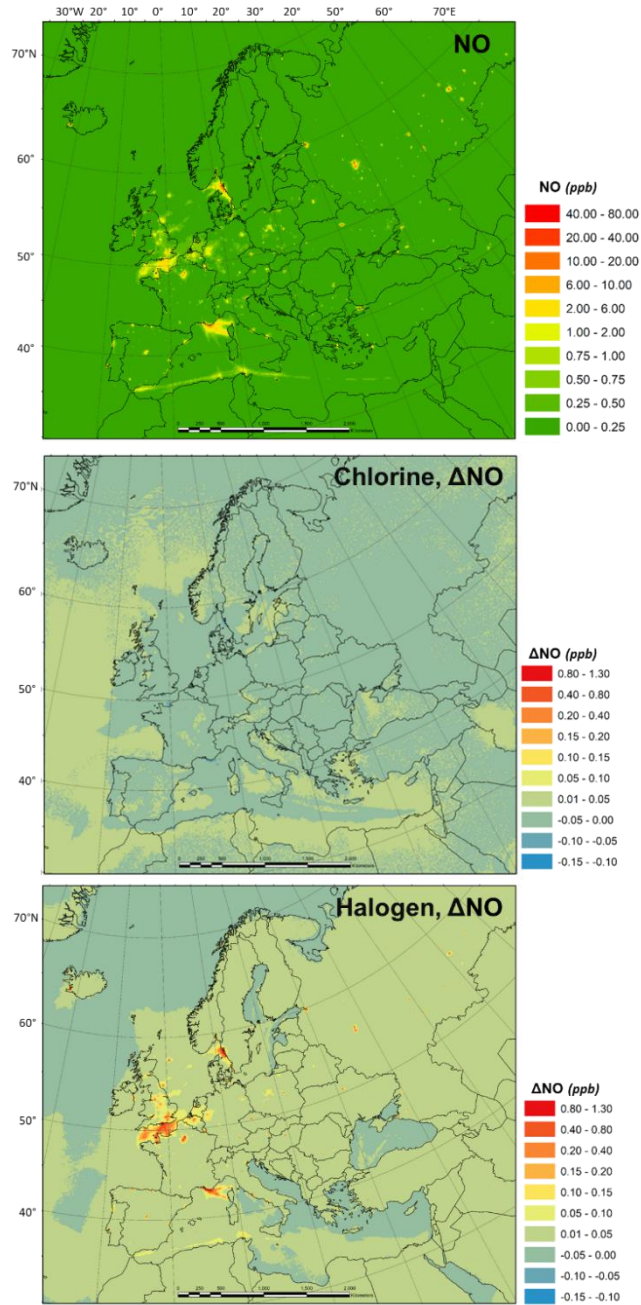
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Table S1. Setup for the model simulations.

Category	Setup WRF simulation
Shortwave radiation	MM5 Shortwave radiation scheme (Dudhia, 1988)
Longwave radiation	Eta Geophysical Fluid Dynamics Laboratory (GFDL) (Schwarzkopf and Fels, 1991)
Land-surface model	Noah LSM (Chen and Dudhia, 2001)
Microphysics scheme	WSM6 (Hong and Lim, 2006)
PBL scheme	BULK: Yonsei University (YSU) (Hong et al., 2006)
Horizontal resolution	12 km 35 sigma levels (Lowest level $\approx$ 20 m).
Vertical resolution	Sigma ( $\sigma$ ) levels: 1.000, 0.998, 0.995, 0.990, 0.985, 0.980, 0.970, 0.960, 0.950, 0.940, 0.930, 0.920, 0.910, 0.900, 0.880, 0.860, 0.840, 0.820, 0.800, 0.770, 0.740, 0.700, 0.650, 0.600, 0.550, 0.500, 0.450, 0.400, 0.350, 0.300, 0.250, 0.200, 0.150, 0.100, 0.050, 0.000.

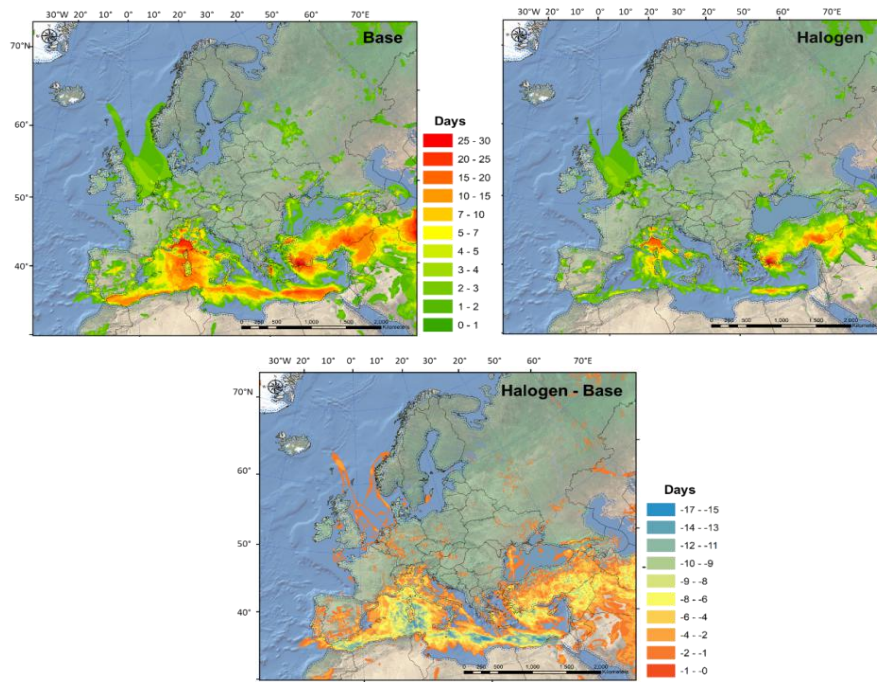


20 Figure S1. Correlation coefficient of observed and predicted (HAL simulation) hourly O<sub>3</sub> and NO<sub>2</sub>

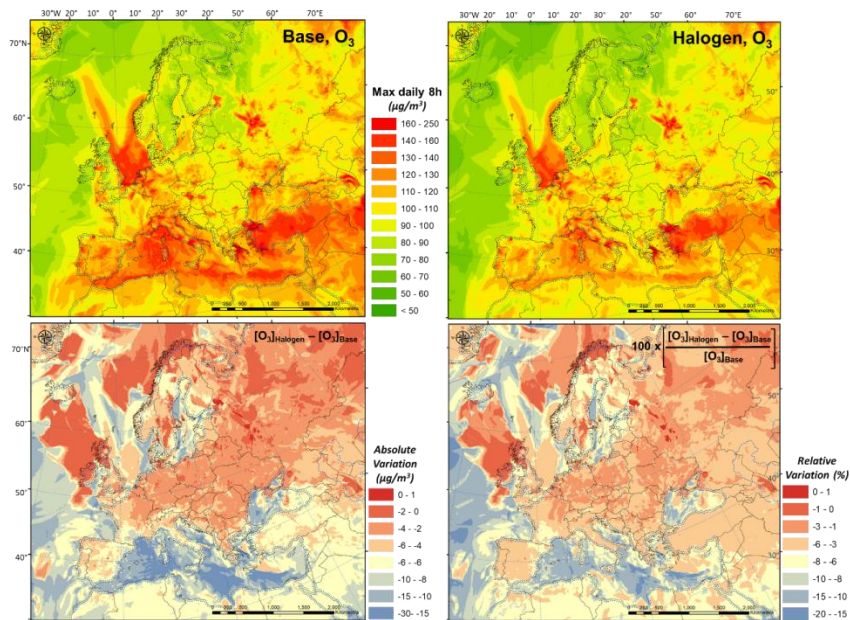


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Figure S2. Monthly average NO concentration in the BASE simulation, and changes induced by chlorine (CHL) and full halogen chemistry (HAL).



30 Figure S3. Number of days with daily maximum 8 h  $O_3$  concentration over  $120 \mu\text{g}\cdot\text{m}^{-3}$  in BASE and HAL simulations, and the absolute variation between the two simulations.



35 Figure S4. Monthly average of daily maximum 8 h  $O_3$  concentrations in BASE and HAL simulations, and the absolute and relative changes between the two simulations.

## Reference:

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