

Supplementary material :

Parameter	Standard- deviation	decorrelation length	τ
Boundary conditions			
Top	30%	800 km	6 hours
lateral	30%	3km * 500km	6 hours
Dry deposition (9 land-use type)	25%	4000km	6 hours
Anthropogenic emissions	50%	800 km	6 hours
vertical diffusion coefficient	40%	800 km	6 hours
attenuation coefficient	20% to 100%	800 km	6 hours
Photolytic rate	20% (no clouds)		
Biogenic emissions	30%	800km	24 hours
Temperature	1%	800 km	6 hours

Table: Description of the model input field's perturbation. Uncertainties are modeled by a log-normal perturbation with a prescribed standard deviation and a fixed spatial/ temporal (τ) decorrelation length.