



Supplement of

Qualification of an online device for the measurement of the oxidative potential of atmospheric particulate matter

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10 **S1 ROS-Online answer under semi-controlled environment**

S1.1 Atmospheric OP in near real conditions

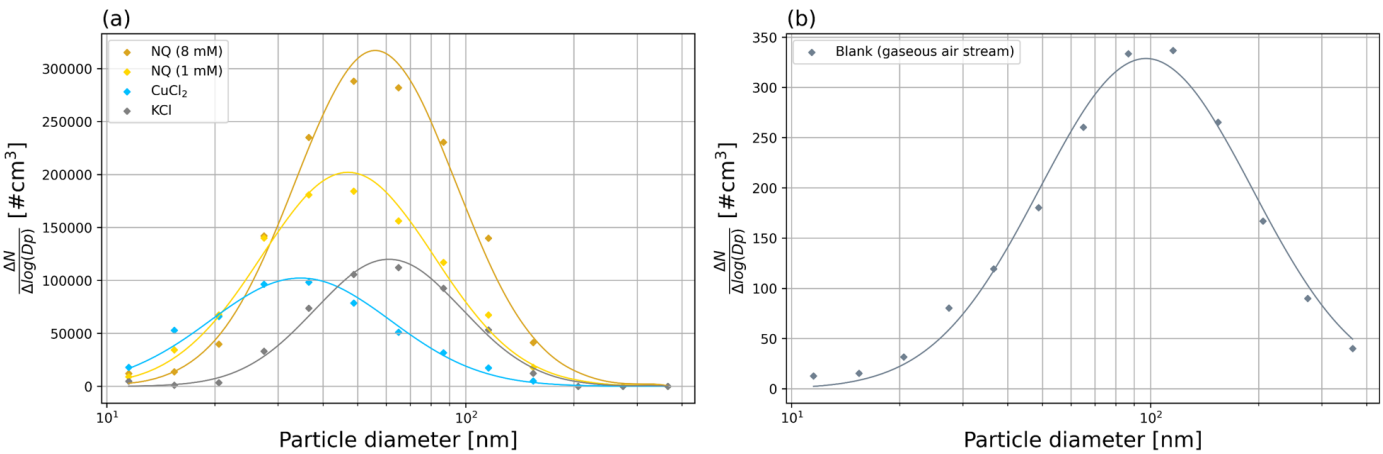


Figure S 1. particle size and distribution found in the pipe in (a) the four experiments generating respectively atomized KCl, CuCl₂, and NQ at 1mM and 8 mM and (b) the gaseous air stream blank (c) particle size distribution relative to the particle diameter.

15 **S1.2 ROS-Online answer to gas**

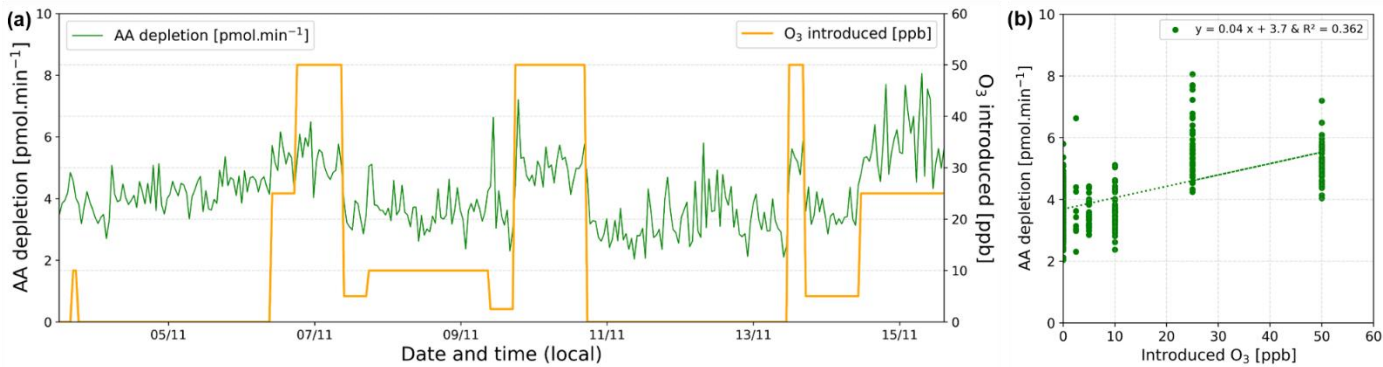


Figure S 2. (a) Timeserie of AA depletion [pmol.min⁻¹] (green) measured at different O₃ (orange) concentrations [ppb] introduced in the sampling line of ROS-Online and (b) summary of results.

S2 Real-life case study in Chamonix

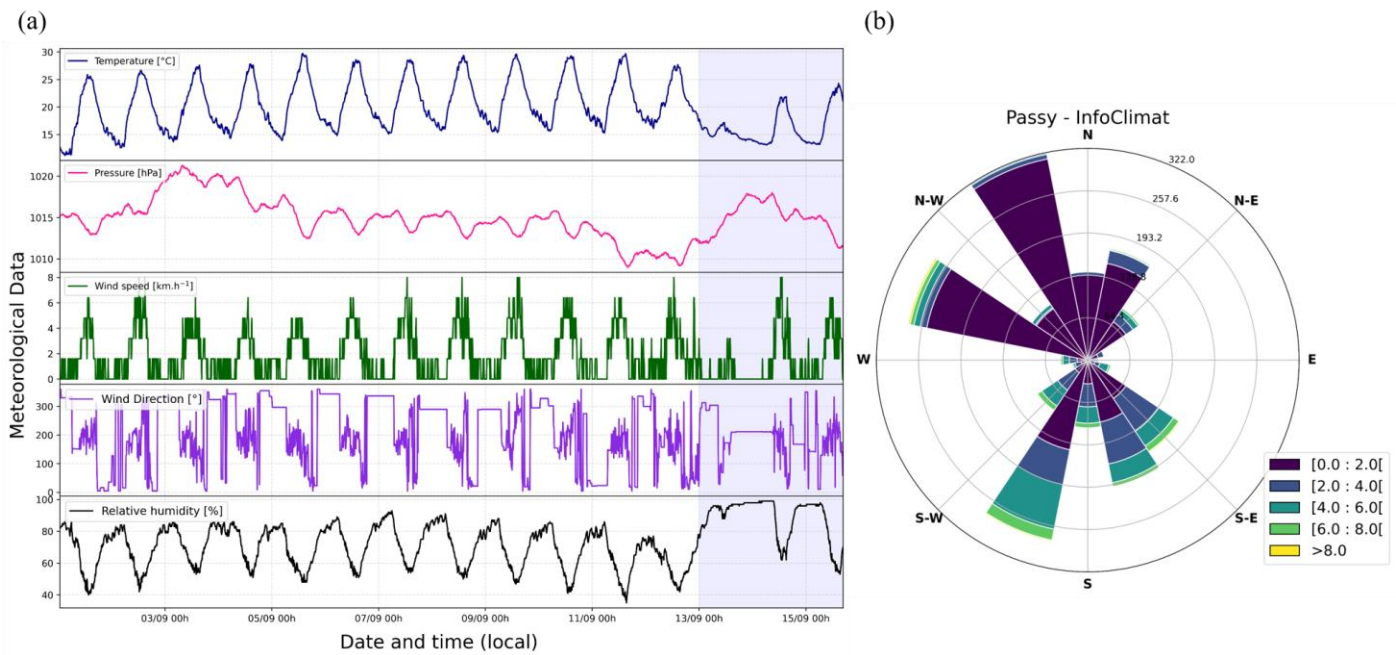


Figure S 3. Meteorological data at the air quality monitoring station of “Passy” during the ambient air OP sampling campaign (a) Temperature (°C - dark blue), Dew point (°C - dashed light blue), Pressure (hPa - pink), Wind speed (km.h⁻¹ - green), Wind direction (° - purple) and Relative humidity (%) - black). (b) The associated Wind Rose.

S2.1 Time series - OP^{AA}

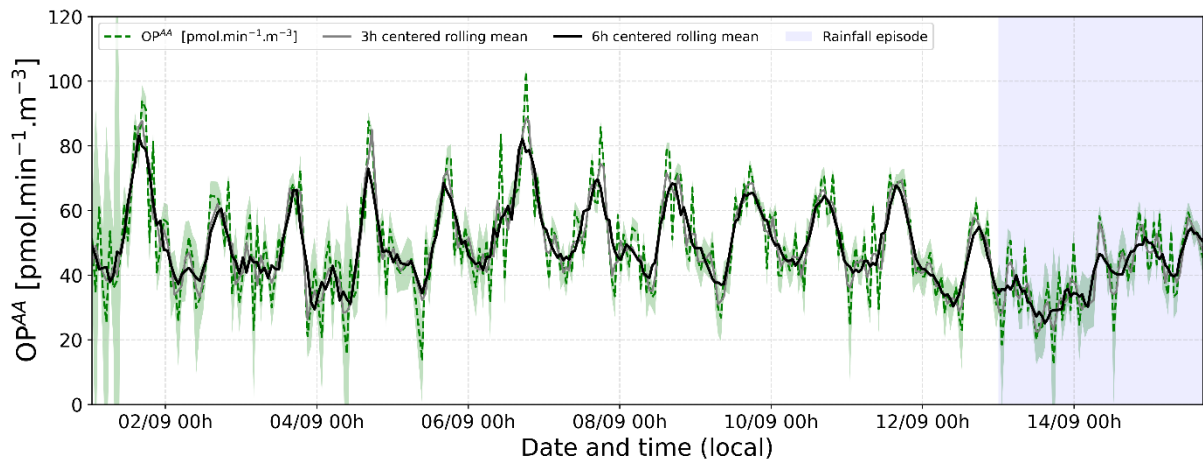


Figure S 4: Time series of OP^{AA} [pmol.min⁻¹.m⁻³] measurements during the 15 days’ field campaign in Chamonix. Confidence intervals correspond to measurement error.

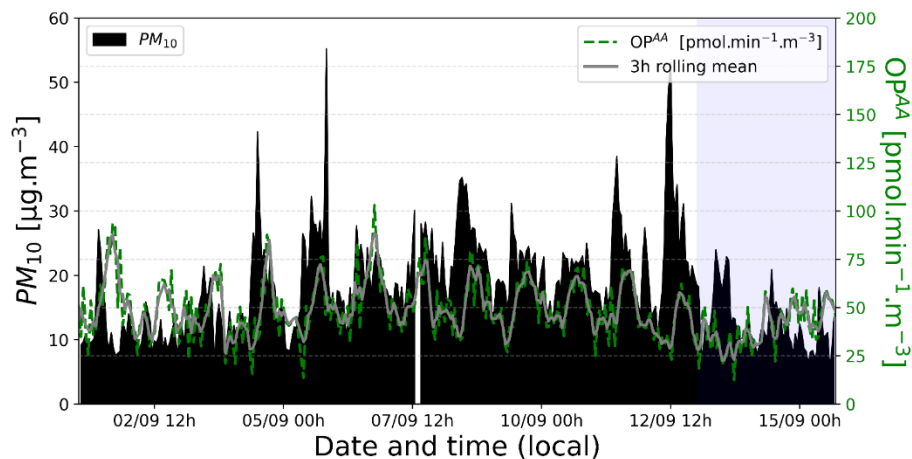


Figure S 5: Time series of PM₁₀ [$\mu\text{g.m}^{-3}$] (left-hand side) and OP^{AA} [$\text{pmol.min}^{-1}.\text{m}^{-3}$] (right-hand side) measurements during the 15 days' field campaign in Chamonix.

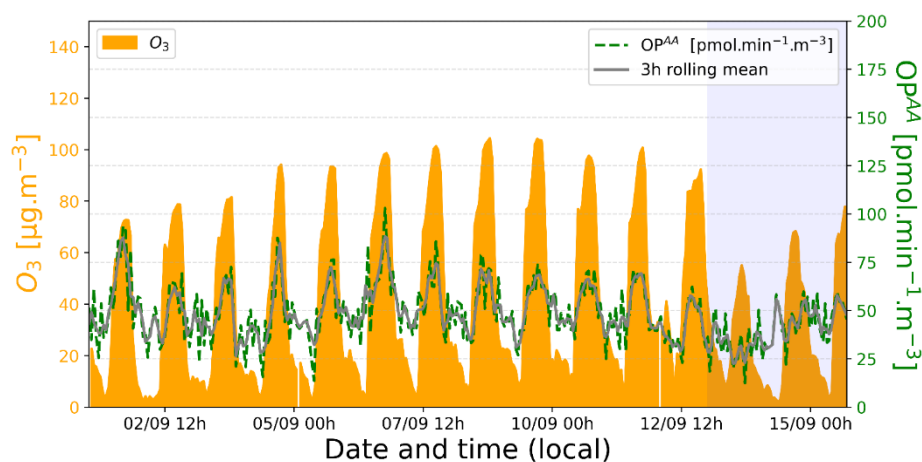


Figure S 6: Time series of O₃ [$\mu\text{g.m}^{-3}$] (left-hand side) and OP^{AA} [$\text{pmol.min}^{-1}.\text{m}^{-3}$] (right-hand side) measurements during the 15 days' field campaign in Chamonix

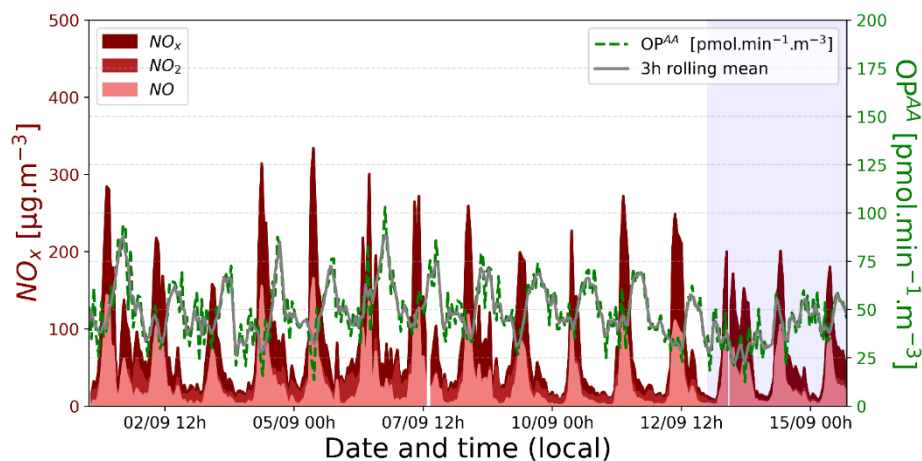
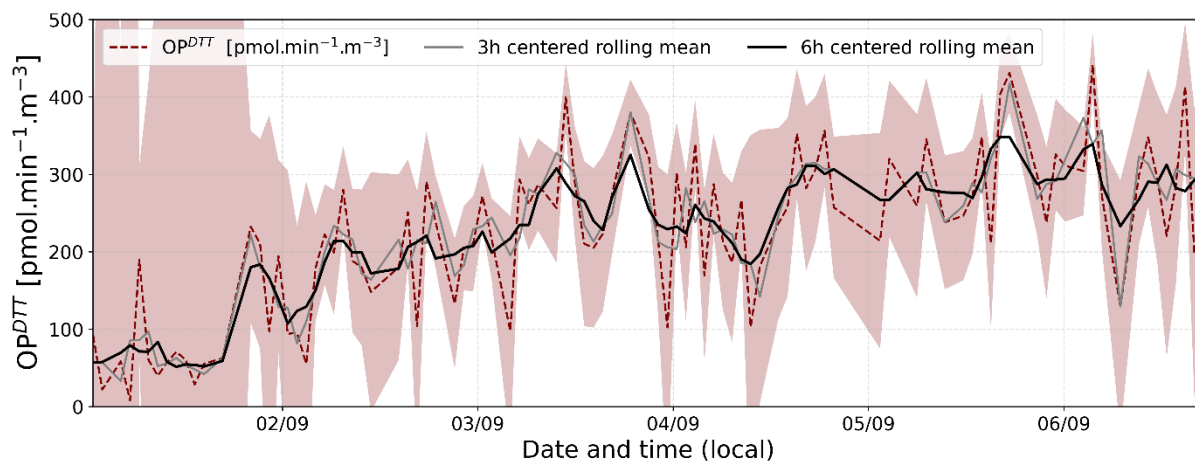


Figure S 7: Time series of NO_x [$\mu\text{g.m}^{-3}$] (left-hand side) and OP^{AA} [$\text{pmol.min}^{-1}.\text{m}^{-3}$] (right-hand side) measurements during the 15 days' field campaign in Chamonix.

S2.2 Time series – OP^{DTT}



45 **Figure S 8:** Time series of OP^{DTT} [$\text{pmol} \cdot \text{min}^{-1} \cdot \text{m}^{-3}$] measurements during the 6 days' field campaign in Chamonix. Confidence intervals correspond to measurement error.

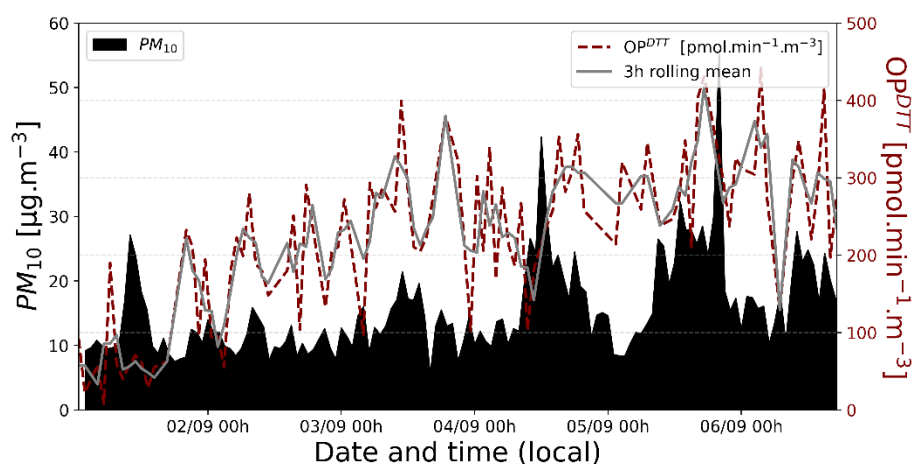


Figure S 9: Time series of PM_{10} [$\mu\text{g} \cdot \text{m}^{-3}$] (left-hand side) and OP^{DTT} [$\text{pmol} \cdot \text{min}^{-1} \cdot \text{m}^{-3}$] (right-hand side) measurements during the 6 days' field campaign in Chamonix.

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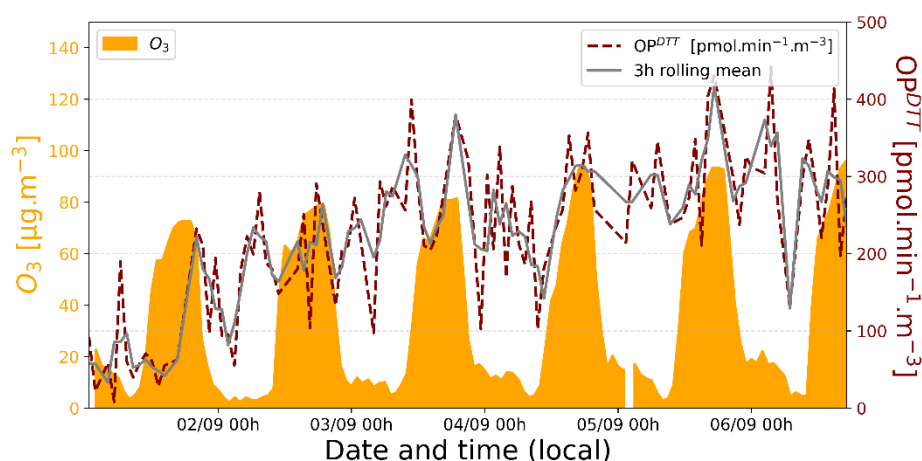


Figure S 10: Time series of O_3 [$\mu\text{g} \cdot \text{m}^{-3}$] (left-hand side) and OP^{DTT} [$\text{pmol} \cdot \text{min}^{-1} \cdot \text{m}^{-3}$] (right-hand side) measurements during the 6 days' field campaign in Chamonix.

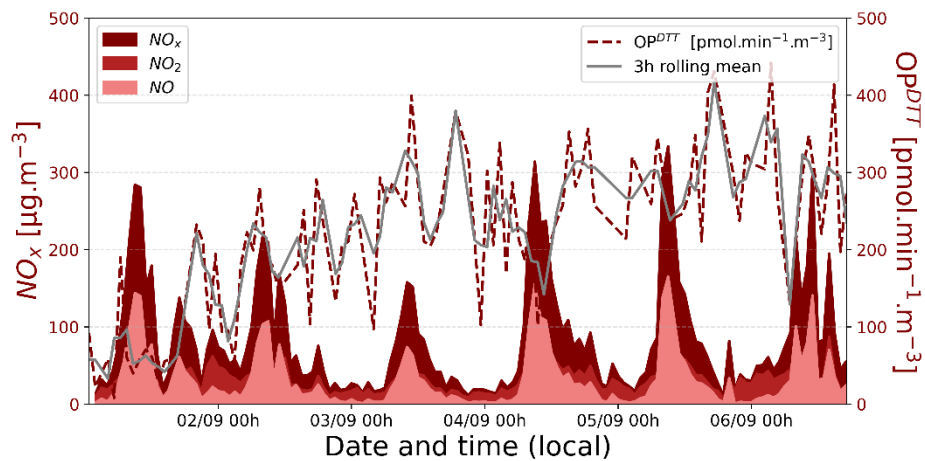


Figure S 11: Time series of NO_x [$\mu g \cdot m^{-3}$] (left-hand side) and OP^{DTT} [$pmol \cdot min^{-1} \cdot m^{-3}$] (right-hand side) measurements during the 6 days' field campaign in Chamonix.