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

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1 *ROS-Online* answer under semi-controlled environment

1.1 Atmospheric OP in near real conditions

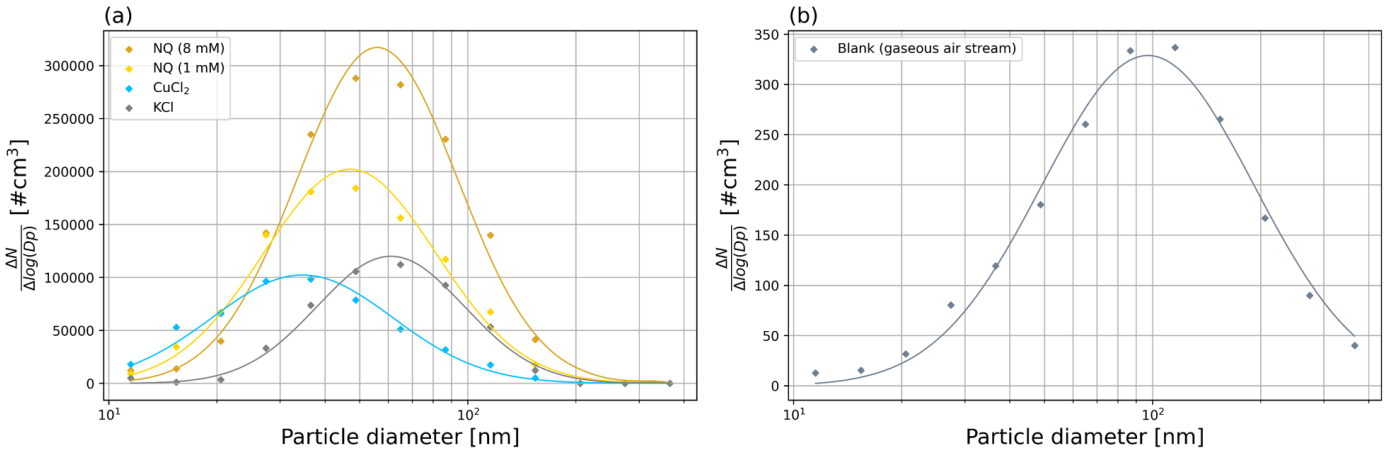

Figure S 1. particle size and distribution found in the pipe in (a) the four experiments generating respectively atomized KCl, $CuCl_2$, and NQ at 1mM and 8 mM and (b) the gaseous air stream blank

1.2 ROS-Online answer to gas

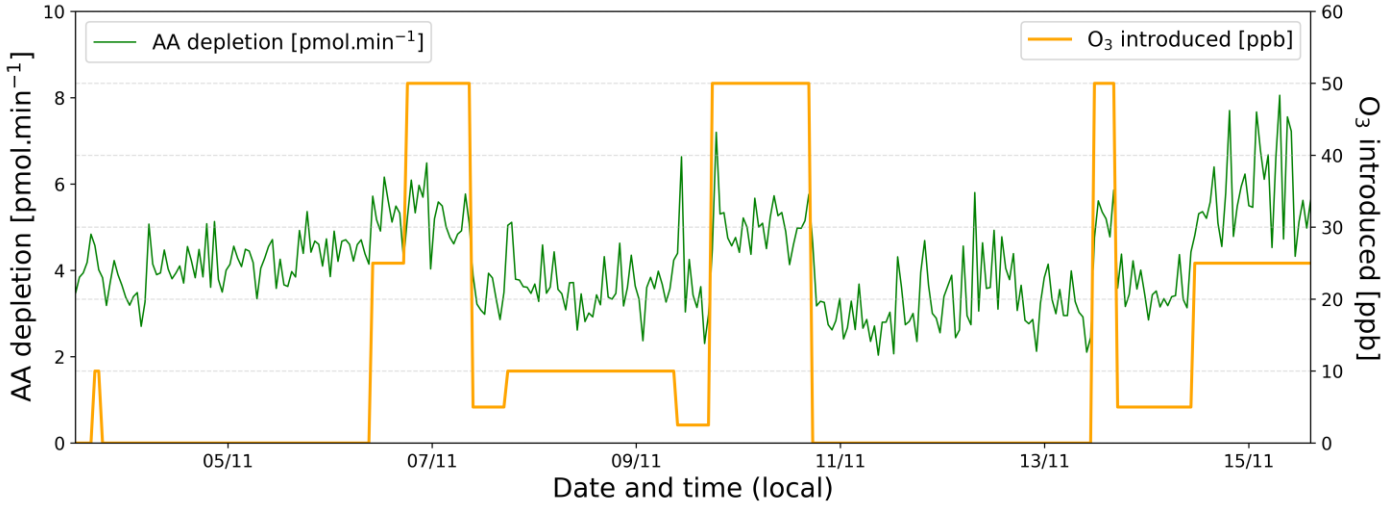

Figure S 2. Timeserie of AA depletion [pmol.min^{-1}] (green) measured at different O_3 (orange) concentrations [ppb] introduced in the sampling line of *ROS-Online*.

2 Real-life case study in Chamonix

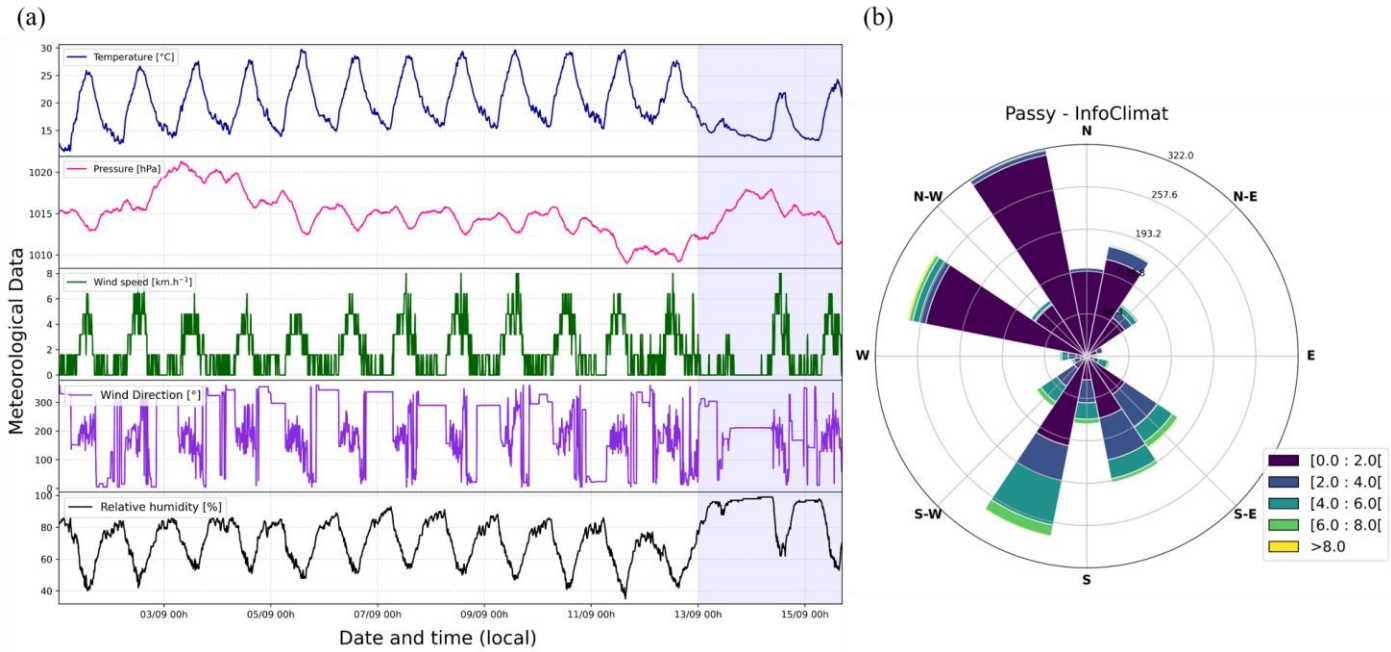

Figure S 3. Meteorological data at the air quality monitoring station of "Passy" during the ambient air OP sampling campaign (a) Temperature (°C - dark blue), Dew point (°C - dashed light blue), Pressure (hPa - pink), Wind speed (km.h^{-1} - green), Wind direction (° - purple) and Relative humidity (%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

2.1 Time series - OP^{AA}

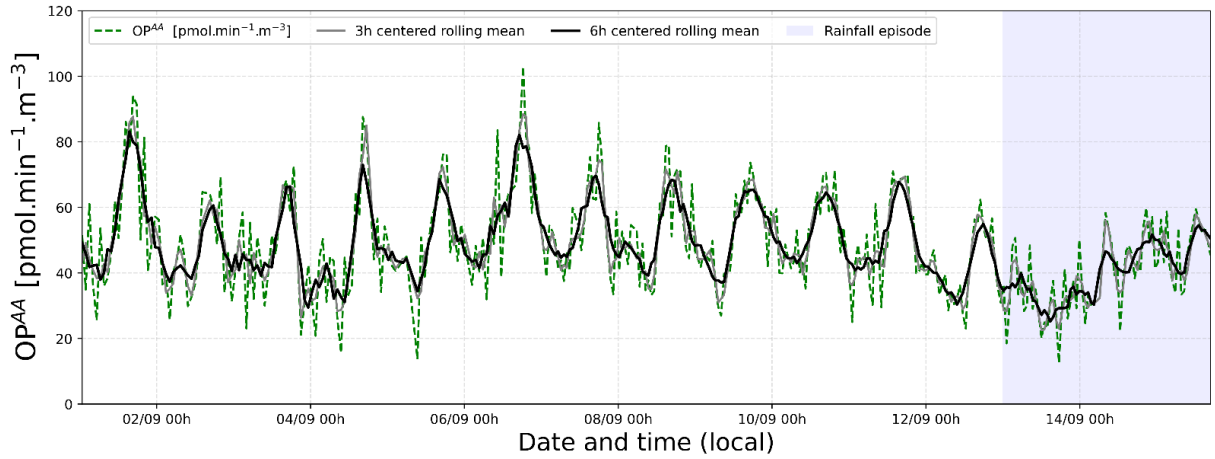

Figure S 4: Time series of OP^{AA} [pmol.min^{-1}.m^{-3}] measurements during the 15 days' field campaign in Chamonix.

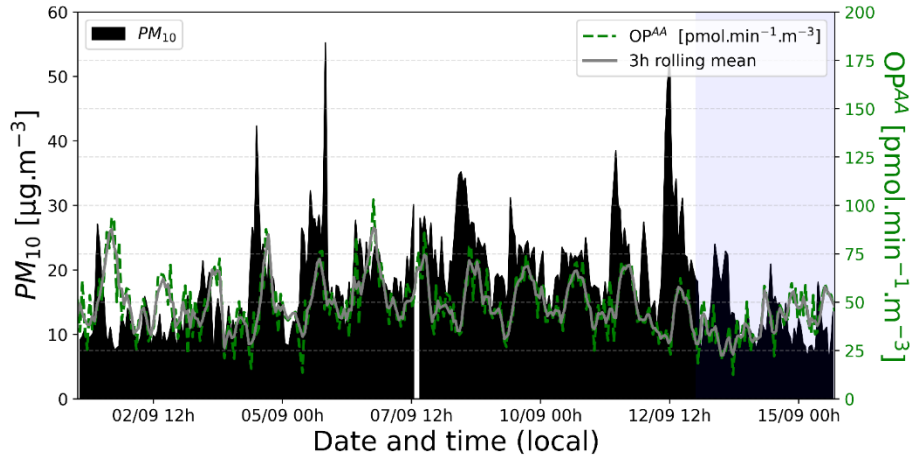

Figure S 5: Time series of PM_{10} [µg.m^{-3}] (left-hand side) and OP^{AA} [pmol.min^{-1}.m^{-3}] (right-hand side) measurements during the 15 days' field campaign in Chamonix.

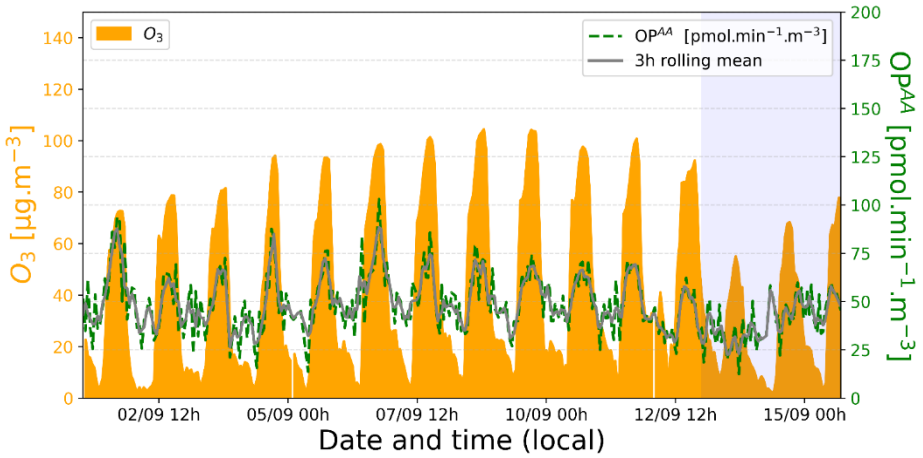

Figure S 6: Time series of O_3 [µg.m^{-3}] (left-hand side) and OP^{AA} [pmol.min^{-1}.m^{-3}] (right-hand side) measurements during the 15 days' field campaign in Chamonix

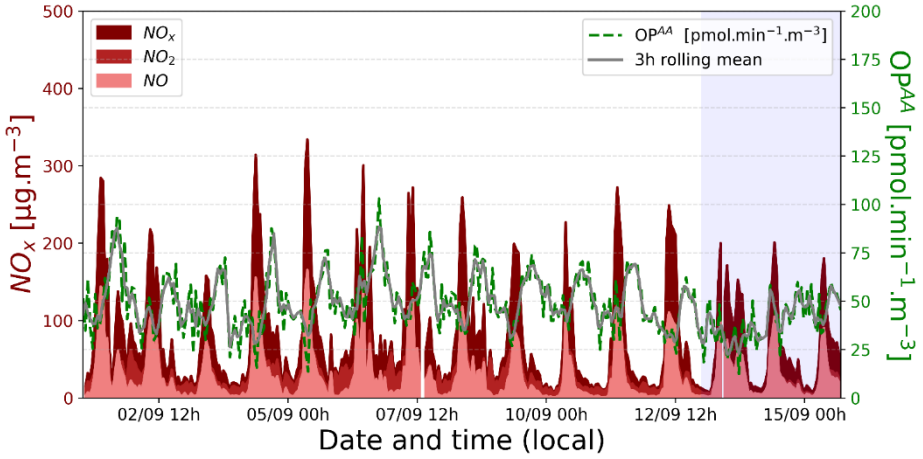

Figure S 7: Time series of NO_x [µg.m^{-3}] (left-hand side) and OP^{AA} [pmol.min^{-1}.m^{-3}] (right-hand side) measurements during the 15 days' field campaign in Chamonix.

2.2 Time series – OP^{DTT}

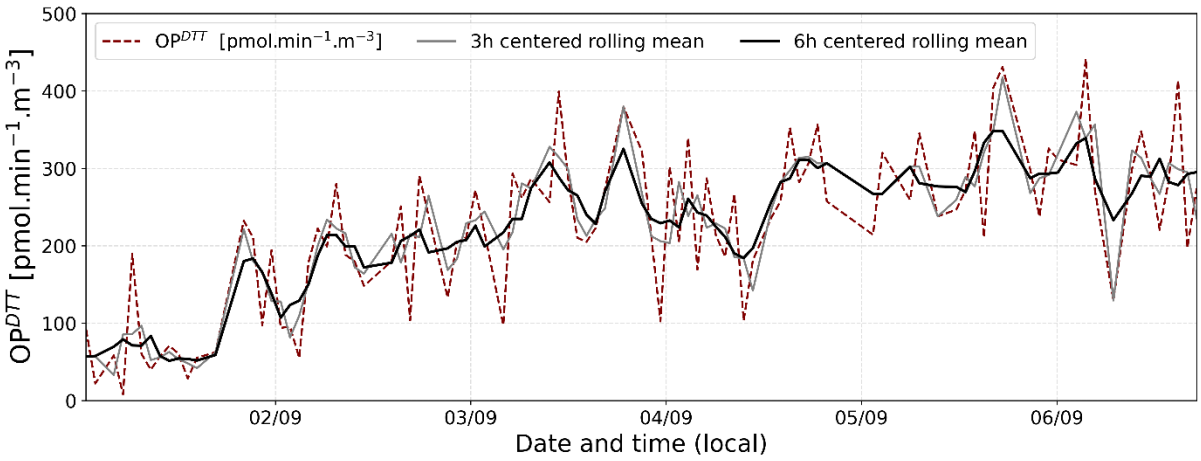

Figure S 8: Time series of OP^{DTT} [pmol.min^{-1}.m^{-3}] measurements during the 6 days' field campaign in Chamonix.

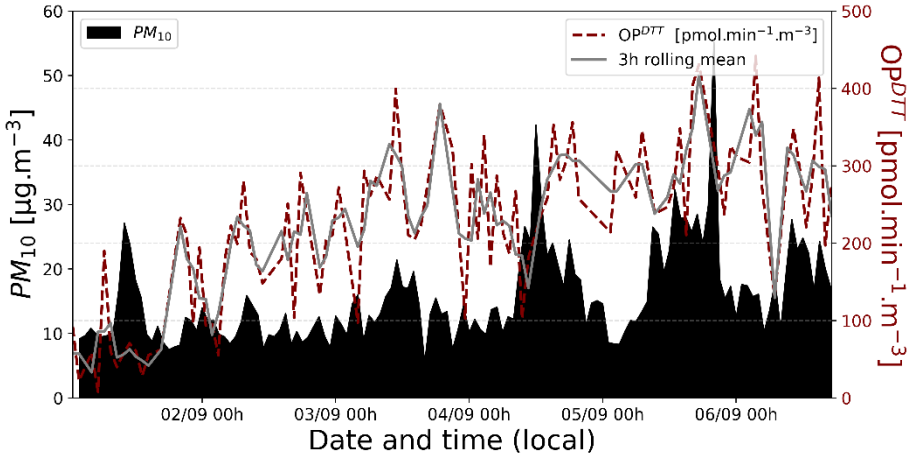

Figure S 9: Time series of PM_{10} [µg.m^{-3}] (left-hand side) and OP^{DTT} [pmol.min^{-1}.m^{-3}] (right-hand side) measurements during the 6 days' field campaign in Chamonix.

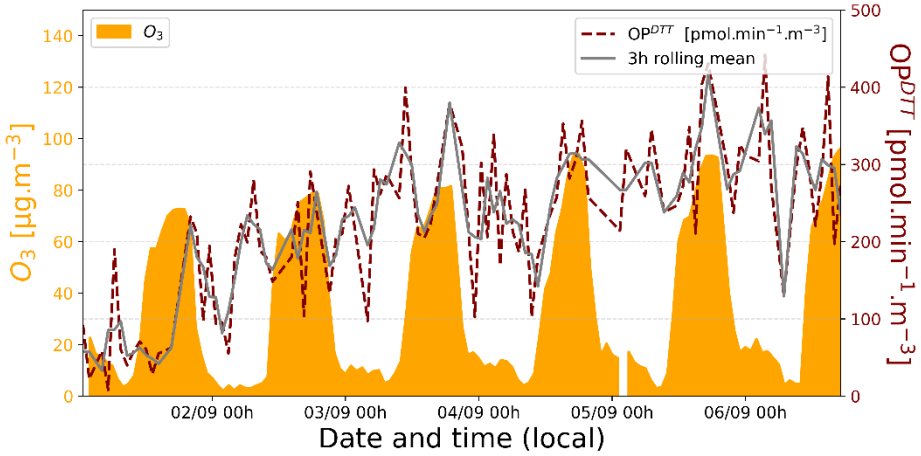

Figure S 10: Time series of O_3 [µg.m^{-3}] (left-hand side) and OP^{DTT} [pmol.min^{-1}.m^{-3}] (right-hand side) measurements during the 6 days' field campaign in Chamonix.

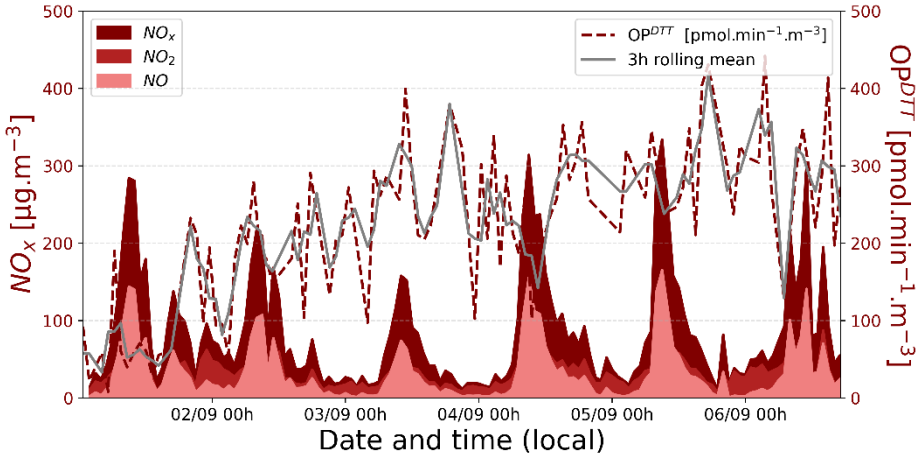

Figure S 11: Time series of NO_x [µg.m^{-3}] (left-hand side) and OP^{DTT} [pmol.min^{-1}.m^{-3}] (right-hand side) measurements during the 6 days' field campaign in Chamonix.