Supplemental material

Evolution of air quality in Santiago: the role of mobility and lessons from the science-policy interface

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Here we provide information regarding acquisition and handling of air quality data collected in downtown Santiago at station Parque O'Higgins, and shown in Table 4 in the manuscript.

We considered all data on gaseous pollutants available until December 2016 at http://sinca.mma.gob.cl, and downloaded on January 21st 2018. The publically available data base contains non-validated data, preliminary validated data and validated data, in Spanish "no validados", "preliminares" and "validados". Non-validated data have not been inspected by officials from the Ministry for the Environment. Preliminary validated data have been scanned by a person. Validated data are those subject to calibration and inspected by a responsible person. To assure consistently long time series of monthly averaged values among the different gaseous species available, we applied the following filtering criteria to all data, i.e., non-validated, preliminary validated and validated data:

- Eliminate negative values if any
- When calculating monthly averages, we considered days with 75% completeness of the diurnal cycle, i.e., days with at least 6 readings of hourly mixing ratios/concentrations every 8 hours, i.e., between 1-8, 9-16, 17-24 local time. Also, only months with 75% of the data.
- Eliminate data where the central value of the pollutant is 5 times higher than its neighbors
- Eliminate data whose concentrations are less than twice the nominal detection limit of the instrument.
- In the case of nitrogen oxides, we imposed $NO_x \geq NO+NO_2$

These are the detection limits considered for gaseous species in our procedure:

Species (unit)	**Detection Limit**	**Instrument**	**Measurement principle**
SO_2 (ppb)	0.5	Thermo 43 i	Fluorescence
CO (ppm)	0.04	Thermo 48 i	IR Absorption
NO(ppt)	50	Thermo 42 i	Chemiluminiscence
NO_2 (ppt)	50	Thermo 42 i	Chemiluminiscence
NO_x (ppt)	50	Thermo 42 i	Chemiluminiscence
O_3 (ppb)	1	Thermo 49i	UV Absorption

Particulate matter data were directly provided by Officials from the Ministry for the Environment (RMartinez.rm@mma.gob.cl) on November 2017. In this case, we only imposed positivity and PM25/PM10≤1. Copies of these datasets are available at: http://www.cr2.cl/recursos-y-publicaciones/AQ-Santiago/. Historic data previous to 1997 are also shown in this repository.