

- **Filename:** the name of this file indicates that this PDF contains the documentation information of environmental air data (EAD) captured at a CAPTOR node identified as Node-ID 31, deployed in the Italian testbed in the 2017 campaign.
- **Project information:** CAPTOR project is funded by the European Union's Horizon 2020 Programme under the Grant Agreement No. 688110, [www.captor-project.eu](http://www.captor-project.eu)
- **Contact of the responsible of the dataset:**
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- **Description of the content of the data set:** the data set contains ozone calibrated data of a captor node located in a volunteer's house during the 2017 summer campaign.
- **Testbed location description:** The testbed was found in the Piemonte-Lombardia-Elilia Romagna-Veneto region, a rural/suburban region in the north of Italy, at the Pianura Padana Vally.
- **Node ID:** 17031
- **Location of the node:** Cuneo reference station (Piemonte)
- **Technical information of the node:** specific information of the node:
  - number and type of sensors in the CAPTOR node: 4 SGX Sensortech MICS 2614 metal-oxide O3 sensors, 1 MQ131 metal-oxide O3 sensor, 1 Temperature/Relative humidity sensor (DHT1) Grove - Temp&Humi sensor,
  - Information of calibration: the calibration of this node was performed applying a Multiple Linear Regression model to a training and validation set. The model consists of:  
 $y \sim b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3$ , where  $y$  is the reference station data,  $x_1$  the values measured by the O3 sensor,  $x_2$  the values measured by the temperature sensor and  $x_3$  the values measured by the relative humidity sensor.  
 The calibration coefficients  $\{b_0, b_1, b_2, b_3\}$  were calculated during a calibration period (03-18/08/2017) in the reference station of Cuneo. Additional information on the procedure to calibrate the node can be found in CAPTOR deliverable 2.3. "Software tool for Ozone Concentration Estimation Development",
  - Root Mean Square Error (RMSE) obtained in the calibrated process defined as the square of the Mean Square Error of the testing data set with respect the reference values.  $RMSE = 12.1351(\mu g/m^3)$   
 $R^2$  (Coefficient of Determination) measures the proportion of variability in  $Y$  that can be explained using  $X$  and it is bound between 0 and 1. When  $R^2$  is close to 1 it indicates that a large proportion of the variability in the response has been explained by the regression.  $R^2 = 0.7885$
- **Dates of the campaign:** this node was in a reference station from 03/08/2017 to 11/10/2017
- **Duration of the campaign:** 68 days
- **Length of the data size:** 1655 samples (rows) of the data set
- **Rights:** The results and methods in this dataset are property of the CAPTOR consortium. Any use of the data should be notified and acknowledged to the CAPTOR project.
- **Description of the data set file:** the data set file `DataSet_Italy_EAD_Node-ID31_2017.csv` contains (columns): `Start_local` (local date and time at which the sensors started monitoring), `End_local` (local date and time at which the sensors ended monitoring), and `Ozone` (averaged ozone concentration in  $\mu g/m^3$ ); (rows): samples.
- **Additional information (optional):** none