



Open hardware air quality station for monitoring ozone in port area

Marco Massabo (1), Marco Lima (1,3), Adriano Fedi (2), Daniele Ferrari (2), Fabio Pintus (2), and Gabriele Bruzzone (3)

(1) CIMA Research Foundation, Savona, Italy (marco.massabo@cimafoundation.org), (2) ACROTEC s.r.l., (3) CNR ISSIA

Improve the quality of the air is one of the most important challenges we are facing especially in urban area. The open hardware paradigm can promote the positive connection of institution and scientific community with citizen.

The goal of this work is to describe how a well-known pollution sensing technology, such as the electro-chemical one, may be adopted in an open hardware paradigm in order to realize a ground level ozone sensor station. Our approach is to use this type of sensors to complement and empower traditional measuring networks in order to provide a better support to the models and to the identification of the pollution sources.

The calibration methodology is based on the online coupling of new sensor measurements and observations of official network. Several linear calibration and a linear error correction algorithm based on temperature are performed and evaluated. The new air quality station allows to increase the frequency of sampling up to minutes and, due to the low cost, can stimulate the utilization by no-professionals. We test the air quality station in port area and compare the results with traditional observations.