Contribution ID: **53** Type: **Oral Presentations**

Enhancing air pollution level assessment with community-based air quality monitoring network data –case study for Brasov City, Romania

Air pollution in Brasov city is a subject of high interest for authorities and researchers due to its impact on human activities as well as due to the specific conditions found in this region –from geographical conditions affecting the pollutant dispersion to the sustained high air pollution levels. Of particular concern were the infringement procedures from the European Commission against Romania for not assuring a proper level of air quality for the population –in particular with respect to PM10 and NO2 pollutants - not only in Brasov, but also in other major cities (e.g., Bucharest, Iasi) (Iorga, 2021), especially during the period 2007-2020. Among the response measures, the City Hall in collaboration with community-based UradMonitor network (www.uradmonitor.com) (Velea et al, 2023) started to provide, from 2022, a real-time information service to citizen on air quality status. The present analysis investigates the added-value of these measurements in assessing the air pollution level at yearly and monthly scale, as well as with respect to high-pollution events. To this end, community-based PM10 and PM2.5 measurements, covering the period 2022-2023, are used to build three indicators recommended by the European Environment Agency (EEA), namely the annual mean (P1Y), monthly mean (P1M) and 3-consecutive days exceeding concentration thresholds (P1Y-3daysAbove). Data from the national monitoring network (www.calitateaer.ro) is used as reference. The results highlight the increased capability of higher-density community-based network to characterize the spatial distribution of pollution level within the city and to identify high-pollution events. These features open opportunities for a spatially detailed characterization of air pollution hazard, which, combined with socio-economic data, may provide the basis for an air-pollution risk assessment. Preliminary results of this approach are also presented.
The results are partly obtained in the project Climate-Resilient Development Pathways in Metropolitan Regions of Europe (CARMINE), funded by the European Union under the Horizon Europe Programme (Grant agreement 101137851).
Keywords: air pollution, PM10, PM2.5, hazard, risk assessment, Brasov city
References
Velea, L., Udriștioiu, M.T., Puiu, S., Motișan, R., Amarie, D. (2023): A Community-Based Sensor Network for Monitoring the Air Quality in Urban Romania. Atmosphere, 14, 840. https://doi.org/10.3390/atmos14050840 (Q3)
Iorga, G. (2021). Air Pollution and Environmental Policies, EU and Romania: Where We Stand, What the Data Reveals, What Should Be Done in the Future?. In: Todor, A., Helepciuc, F.E. (eds) Europeanization of Environmental Policies and their Limitations. Springer, Cham. https://doi.org/10.1007/978-3-030-68586-7_4

Primary author: VELEA, Liliana (Administratia Nationala de Metorologie, Romania)

Co-authors: MOTISAN, Radu (MAGNASCI SRL, Timisoara, Romania); CHITU, Zenaida (Administratia Nationala de Meteorologie, Romania)

Presenter: VELEA, Liliana (Administratia Nationala de Metorologie, Romania)