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ABSTRACT

CONTRIBUTIONS ON THE USE OF CITIZEN PANELISTS IN ODOUR STUDIES

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For more than 30 years, technical standards and criteria have been developed to quantify odour concentration and odour characteristics such as intensity and hedonic tone. Thanks to these considerable efforts, odours can nowadays be characterised with sufficient accuracy and reproducibility under laboratory conditions using human noses. The so-called "traditional methods" of metrology are based on independent human sensors whose response to a signal is subject to strict control and quality analysis.

On the other hand, citizen monitoring that collects data to represent real conditions in the community might also help understanding the impacts of odour pollution. It is argued that citizen monitoring is available at any time, giving a deeper insight and reducing significantly the cost of odour studies, while empowering them with knowledge and tools to address the problem.

Data quality is usually a primary concern for a "citizen science" approach. Specifically in odour affected communities, the volunteers might be biased individually or as a group because of different factors. Therefore, mechanisms to ensure data quality and appropriate levels of validation should be considered in community approaches.

The European Union Horizon 2020 funded Distributed Network for Odour Sensing, Empowerment and Sustainability (D-NOSES) project conducted ten pilot studies in different countries using a citizen science approach for tackling odour problems in affected communities. Odour observations were mainly reported by using a cell phone app, enabling to report types of odours, intensity, hedonic tone and the potential emitter.

As part of the D-NOSES project, a pilot study has been conducted during 2019 and 2020 in a Chilean community impacted by a waste water treatment facility. Different methods were used to describe the odour impact situation, such as an odour annoyance assessment described by VDI 3883 part 1. Field inspections were carried out by trained assessors to determine the impact frequency of recognizable odours in terms of odour hours, using the grid method described in VDI 3940 part 1 (EN 16841). A six month citizen data collection phase added around 3,000 individual observations.

The outcomes of the different methods will be compared on an assessment square level using odour frequencies and a novel annoyance index similar to VDI 3883 part 2 one. First results indicate significant differences of calculated odour frequencies that might indicate a higher sensitivity of the citizen panellists.

Furthermore, the aim of this study is to compare “intensity”-“hedonic tone” relations for certain odour types reported in different case studies in the participating countries, based on a universe of more than 6,000 individual observations.

Indicate preference of kind of presentation

√ Oral Communication

☐ Poster

Indicate topic of your work for the conference:

☐ Policy and associated regulations for odour and air quality.

☐ Odour/VOC measurement, monitoring&sensor technologies.

☐ Odour/VOC perception, impact, formation and dispersion.

☐ GHG emissions particulate matter and industrial emissions.

☐ Source characterization and odour/VOC mapping.

☐ Odour/VOC abatement, mitigation and neutralization.

☐ Odour/VOC from waste water, sewer systems and livestock.

☐ Air emissions and sustainable solutions for waste handling

√ Community engagement, social media and citizen action.

☐ Other (suggest a new topic):

The scientific committee may change the session where authors propose to include their works.