matrix effects at μRaman. Ongoing analyses on active and passive samples from the summer campaign will allow to compare MP deposition rates and abundances at the two sites and time periods. Findings from the MP dispersion modelling will inform strategies to reduce MP emissions in urban environments.

3.14.P-Mo212 Transfer of Micro- and Nanoplastics via Sea Spray Aerosols and Estimate of Human Exposure

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Little information is available on the possibilities of micro- and nanoplastics (MNPs) to be introduced in the atmosphere via sea spray aerosols (SSAs) and more specifically about the effects plastic characteristics have on this aerosolization process. Currently, the importance of the transport of MNPs via SSAs as a possible new exposure route for human health is unknown. Therefore, the aim of this explorative study was two-fold: (1) to examine if the polymer types, sizes and concentrations of MNPs affect the aerosolization process, (2) to perform a preliminary exposure assessment for humans based on the results of the aforementioned experiment.

This study used a laboratory-based bubble bursting mechanism, simulating the aerosolization process in the sea. Four different series of experiments were set up, to study the influence of plastic size, polymer type, plastic concentration and seawater characteristics on the aerosolization process. To determine the potential human exposure to microplastics via inhalation of SSAs, the results of the experiments in the lab were extrapolated to the field using the concentration of plastics in the sea and the volume of inhaled aerosols.

Our results indicate an enrichment of MNPs in SSAs compared to surface and bulk seawater. Aerosolization increased with decreasing plastic size and with decreasing concentration, and was higher for the higher density polymer type. Besides, the use of surface seawater instead of bulk seawater seemed to influence the aerosolization process. Our human exposure estimate shows that in comparison with reported inhaled concentrations in urban and indoor environments, this exposure route seems negligible for microplastics. Following the business as usual scenario on plastic pollution, the daily inhalation in 2100 is estimated to increase but still be far below 1 particle per day. A variation in exposure concentration can be seen due to weather conditions influencing the aerosol formation. Currently, due to the lack of environmental concentrations of nanoplastics, it is impossible to do a similar extrapolation for nanoplastics.

This study shows that aerosolization is a new plastic transport pathway to take into account, but seems negligible for microplastics in terms of human exposure. An estimation is needed for nanoplastics as a higher aerosolization and a higher exposure is expected.

3.14.P-Mo213 Having Fun and Raising Awareness: Italian Students Monitor Airborne Microplastic in Indoor and Outdoor School Environments

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Densely populated areas are a significant source of microplastics (MP, < 5 mm), for example considering tire wear particles and textile fibres, easily dispersed through the air. However, public perception on MP as an environmental issue is still confined mostly to seas and oceans. Thus, while it is urgent to increase MP monitoring effort in urban environments to estimate MP levels and identify major sources and pathways, it is also important to inform the public about our own role in spreading MP contamination. To fulfil these objectives, we present the activities carried out by the University of Modena and Reggio Emilia (UNIMORE) at a local scale, which allowed to both collect scientific data on airborne MP in urban environments and raise awareness among young people.

The perception, knowledge and attitude of the public on MP contamination was initially assessed through the administration of a voluntary-based online survey (October 2022) in the area of Modena (Italy), involving young people, firms, academia and environmental associations. The educational program «Taking microplastics into the class» was then launched in collaboration with the scientific high school in Applied science in Modena to collect data on MP passive deposition in indoor and outdoor sites at the school, estimate MP exposure in high school students and promote sustainable and pro-environmental behaviours. The program included seminars about plastic pollution and an active participation of the students in MP monitoring at school through: clean-up activities, air passive sampling, sample processing (filtration) and analysis (MP count and classification using ImageJ) and presentation of the results. UNIMORE researchers coordinated field and laboratory activities, stressing the importance of quality control measures (using field and laboratory blanks) and performing additional analyses when needed (e.g., sample oxidative treatment, acquiring MP images and identifying polymers through Micro-Raman spectroscopy).

In the questionnaire, 92.8% of the 523 respondents expressed high level of concern about MP contamination, but a lack of knowledge about MP sources in urban areas was found. The activities carried out in the high school allowed to collect first