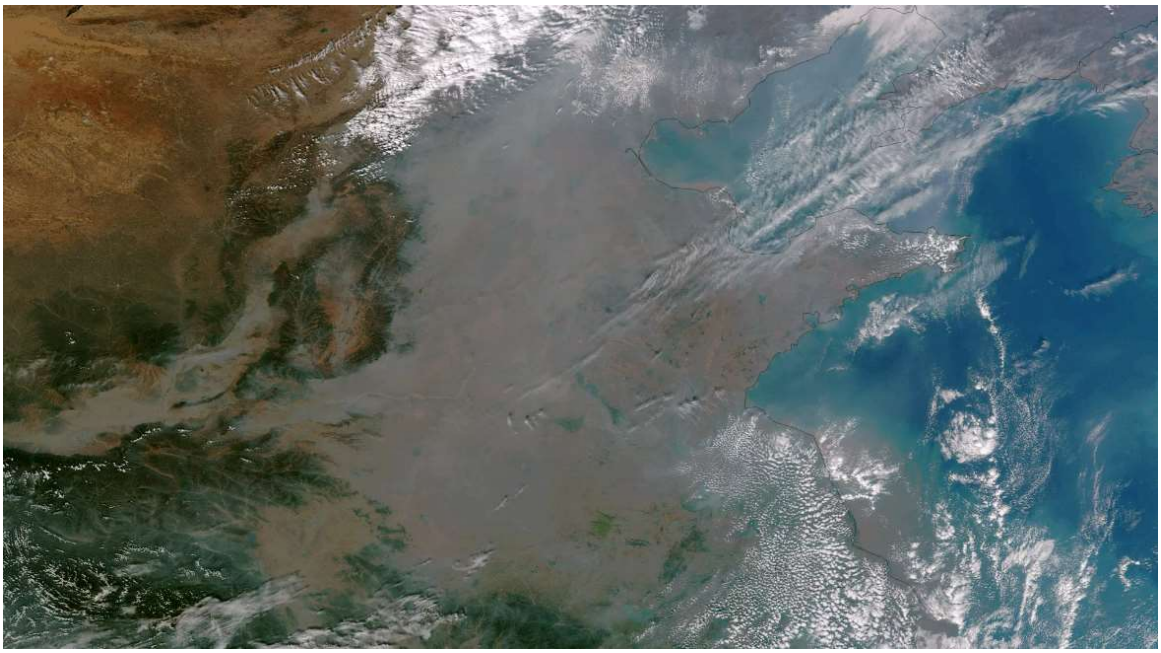

BOOK OF ABSTRACTS

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ASSESSMENT OF PLASTIC POLLUTION OF THE SOIL ENVIRONMENT

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Abstract

Plastic pollution is fast becoming a serious global environmental problem with the increase in plastic waste over recent decades. One of the first investigations of plastic and microplastic (MP) in the soil on the territory of Serbia is currently underway and is being carried out within the project "Evaluation of the Microplastic in the Soils of Serbia – EMIPLAST – SoS" funded by the Science Fund of the Republic of Serbia. The aim of the research is to reveal the impact of the presence of plastic materials on soil's main chemical, physical and biological properties. The examination of the impact of MP on the soil is being carried out through a comparative analysis of samples from localities that are and are not exposed to MP pollution. Sampling was done in three seasonal repetitions in the 2022 and will be done in the same way in 2023 in all selected plots. Microbial respiration is measured from all samples using the alkaline trap method as an indicator of microbial activity. The parameters related to the soil structure are not variable in such a short time frame, which is why they were determined at the beginning and will be determined at the end of the experimental period: mechanical composition, volumetric mass, specific mass, porosity, aggregate stability and organic matter content. Soil parameters that may affect aggregate stability such as pH, electrical conductivity and total carbon content, as well as soil nutritional status (N, P_2O_5, K_2O, Cu, Zn, Mn and $CaCO_3$) were determined. These parameters are used to characterize the soil at the research sites. Preliminary results showed that some soil properties are significantly affected by the presence of plastic materials. In order to establish the level of the negative impact of microplastics on soil properties and microbial activity in the longer term, the study is ongoing.

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