

Microplastics in Snow in Antarctica

Evrin Celik Madenli^{1,2}, Sarper Sarp³

¹ Department of Environmental Engineering, Süleyman Demirel University, Isparta, Turkey

² Department of Civil Engineering and Industrial Design, University of Liverpool, Liverpool, UK

³ Department of Chemical Engineering, Swansea University, Swansea, UK

Even though small plastic particles have been reported in the oceans as early as the 1970s, the research on microplastics started in 2004. Microplastic research in polar regions started 10 years after. Because there is not any nearby urban settlement, microplastic accumulation likelihood in the polar regions has been mostly ignored. Compared to the Arctic, the number of the studies in microplastics in Antarctica is far more less. The presence and impact of microplastics in Antarctica have not yet been fully explored and further studies are needed. This study aims to investigate microplastics in snow samples in the Antarctic. The samples were collected in Horseshoe Island during the Turkish Antarctic Science Expedition. Microplastics were determined using Fourier Transform Infrared Spectrophotometer, Scanning Electron Microscopy - Energy Dispersion Spectrometer, Dynamic Light Scattering, light microscopy, gas chromatography-mass spectrometry coupled pyrolysis, and gas chromatography-vacuum ultraviolet spectroscopy.

This study is carried out under the auspices of the Presidency of the Republic of Turkey, supported by the Ministry of Industry and Technology, coordinated by TUBITAK MAM Polar Research Institute, and supported by a grant (122Y197) from the Scientific and Technological Research Council of Turkey, through the Support Program for Scientific and Technological Research Projects.