



First evidence of microplastic contamination in the supraglacial debris of an Alpine glacier

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Contamination by plastic debris has been documented in the most region of the world, but their occurrence in high mountain areas has not been investigated to date. Here we present the first evidence of the occurrence of microplastic in any terrestrial glacier environment. In details, in the supraglacial debris of the Forni Glacier (Italian Alps), we documented the occurrence of 74.4 ± 28.3 SE items kg⁻¹ of sediment (dry weight), an amount that is within the range of variability of microplastic contamination observed in marine and coastal sediments in Europe. Most plastic items were made by polyesters, followed by polyamide, polyethylene and polypropylene. We estimated that the whole ablation area of Forni Glacier should host 131-162 million plastic items. Microplastic can be released directly into high elevation areas by human activities in the mountain or be transported by wind to high altitude. The amount of microplastic on Forni Glacier may derive from concentration of debris from the large accumulation area to the relatively smaller ablation area due to glacier flow and melting.