Micro-plastics in the Antarctic

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Greenpeace ship in the Arctic sunrise, Charlotte Bay Antarctic Peninsula. Credit: Christian Aslund

Antarctica's most remote and pristine habitats are contaminated with micro-plastic waste and persistent hazardous chemicals, new research shows.

Earlier this year, a Greenpeace expedition took a range of samples from the sea and the snow to see how pollution was affecting Antarctica.

Analysis carried out by the Greenpeace Research Laboratories at the University of Exeter revealed that micro-plastics were widespread in the area investigated.

"Using infrared methods, we found micro-plastics in seven of eight samples of surface seawater collected near the Antarctic Peninsula in February this year," said Dr. David Santillo, who led the analysis.

"Most of those micro-plastics were fibres, including polyester, polypropylene and nylon, among other materials.

"Whether they come mainly from local sources, such as shipping, or have been transported on currents from much further afield, remains to be seen.

"What is clear is that our plastic 'footprint' extends even to the ends of the Earth, to areas we may hope and expect to be pristine."

Samples of snow collected during the same expedition were analysed by an independent laboratory for the presence of perfluorinated chemicals, widely used as water-proofing and grease-proofing chemicals in outdoor clothing and food packaging. Some can be carried over vast distances on air currents and deposited in rain or snowfall, far from their sources.

"The chemicals that we detected in snow samples also show how pervasive humanity's impact can be," said Louisa Casson, of Greenpeace.

"These chemicals are widely used in many industrial processes and consumer products, and have been linked to reproductive and developmental issues in wildlife.

"The snow samples gathered included freshly-fallen snow, suggesting the hazardous chemicals were deposited from the atmosphere."

More information: Microplastics and persistent fluorinated chemicals in the Antarctic: storage.googleapis.com/p4-prod … tic-report-final.pdf

Provided by University of Exeter