

# MICROPLASTICS DISCOVERED IN FRESH ANTARCTIC SNOW FOR FIRST TIME

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

Representational image. Microplastic particles can be transported tremendous distances through the atmosphere. Defined as shreds less than 5mm in length, are later washed out of the air by precipitation, particularly snow. | Photo Credit: Reuters

Scientists have found microplastics — plastic pieces much smaller than a grain of rice — in freshly fallen Antarctic snow for the first time, which they said has the potential to influence the climate by accelerating melting of ice.

The findings, published recently in *The Cryosphere* journal, bring to light a serious threat to the Antarctic region.

Previous studies have found that microplastics have negative impacts on the health of the environment, limiting growth, reproduction, and general biological functions in organisms, as well as negative implications for humans.

In late 2019, Alex Aves, a PHD student at the University of Canterbury in New Zealand collected snow samples from the Ross Ice Shelf in Antarctica.

At the time, there had been few studies investigating the presence of microplastics in the air, and it was unknown how widespread this problem was, the researchers said.

"When Alex travelled to Antarctica in 2019, we were optimistic that she wouldn't find any microplastics in such a pristine and remote location," said Laura Revell, Associate Professor at the University of Canterbury.

Once back in the lab, the researchers found that there were plastic particles in every sample from the remote sites on the Ross Ice Shelf too, and that the findings would be of global significance.

"It is incredibly sad but finding microplastics in fresh Antarctic snow highlights the extent of plastic pollution into even the most remote regions of the world," Ms. Aves said.

"We collected snow samples from 19 sites across the Ross Island region of Antarctica and found microplastics in all of these," she added.

On a wider scale, the presence of microplastic particles in the air has the potential to influence the climate by accelerating melting of snow and ice, the researchers said.

Aves analysed snow samples using a chemical analysis technique to identify the type of plastic particles present.

The plastic particles were also looked at under a microscope to identify their colour, size and shape.

The researchers found an average of 29 microplastic particles per litre of melted snow, which is higher than marine concentrations reported previously from the surrounding Ross Sea and in

Antarctic sea ice.

Just next to the scientific bases on Ross Island, Scott Base, and McMurdo Station, the largest station in Antarctica, the density of microplastics was nearly three-times higher, with similar concentrations to those found in Italian glacier debris, they said.

There were 13 different types of plastic found, with the most common being PET, commonly used to make soft drink bottles and clothing. The possible sources of microplastics were examined.

Atmospheric modelling suggested microplastics may have travelled thousands of kilometres through the air, however it is likely that the presence of humans in Antarctica has established a microplastic 'footprint', the researchers added.

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