

Japanese scientists find microplastics are present in clouds

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A "tori" or gate to mark the arrival at the summit of Mount Fuji, some 70 kilometers (43 miles) west of the capital Tokyo Climbing Mount Fuji is no easy feat, but spectacular sunrise views above a sea of clouds are a fine reward for those who take on Japan's highest peak.

Researchers in Japan have confirmed microplastics are present in clouds,

where they are likely affecting the climate in ways that aren't yet fully understood.

In a study published in *Environmental Chemistry Letters*, scientists climbed Mount Fuji and Mount Oyama in order to collect water from the mists that shroud their peaks, then applied advanced imaging techniques to the samples to determine their physical and chemical properties.

The team identified nine different types of polymers and one type of rubber in the airborne microplastics—ranging in size from 7.1 to 94.6 micrometers.

Each liter of cloud water contained between 6.7 to 13.9 pieces of the plastics.

What's more, "hydrophilic" or water-loving polymers were abundant, suggesting the particles play a significant role in rapid cloud formation and thus climate systems.

"If the issue of 'plastic air pollution' is not addressed proactively, [climate change](#) and ecological risks may become a reality, causing irreversible and serious environmental damage in the future," lead author Hiroshi Okochi of Waseda University warned in a statement Wednesday.

When microplastics reach the [upper atmosphere](#) and are exposed to [ultraviolet radiation](#) from sunlight, they degrade, contributing to greenhouse gasses, added Okochi.

Microplastics—defined as plastic particles under 5 millimeters—come from industrial effluent, textiles, synthetic car tires, [personal care products](#) and much more.

These tiny fragments have been discovered inside fish in the deepest recesses of the ocean peppering Arctic sea ice and blanketing the snows on the Pyrenees mountains between France and Spain.

But the mechanisms of their transport have remained unclear, with research on airborne microplastic transport in particular limited.

"To the best of our knowledge, this is the first report on airborne microplastics in cloud water," the authors wrote in their paper.

Emerging evidence has linked microplastics to a range of impacts on heart and lung health, as well as cancers, in addition to widespread environmental harm.

More information: Yize Wang et al, Airborne hydrophilic microplastics in cloud water at high altitudes and their role in cloud formation, *Environmental Chemistry Letters* (2023). [DOI: 10.1007/s10311-023-01626-x](https://doi.org/10.1007/s10311-023-01626-x)

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