

Earth Sciences

Colloquium Series

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A Chip off the New Block: How Plastics Joined the Rock Cycle

Petroleum-based plastics have become the low-cost, standard option for products that were once composed of materials like metal, glass, paper, ceramic, and natural fibers. Industrial production of commercial plastic has increased exponentially since the 1960s, with total global production surpassing 430 million tonnes in 2024. A significant portion of these plastics accumulate in the environment due to poor product design, littering, low-recycling rates, and the lack of policies supporting a circular plastics economy. Once in the environment, plastics undergo chemical, mechanical, and biological degradation, which promotes embrittlement and the creation of microplastics (<5 mm long). These tiny particles are easily dispersed by wind, precipitation, and flowing water, thus making them readily available for ingestion by the smallest of organisms. The hydrophobic nature of plastics can also lead to their sorption of chemical contaminants proven to be harmful to organisms, including humans. Plastic debris has been found in both natural sinks like lake-bottom sediment, shorelines, and fishes, and in anthropogenic sinks, such as landfills and stormwater ponds. Once intermingled with natural sediment, microplastics become part of the rock cycle. This presentation will use case studies of plastic pollution from different environmental compartments to show how their concentrations and types are controlled by weathering, transport, redeposition, burial, and human activity.

Date: Friday, September 25, 2026

Time: 1:30 pm

Location: BGS 0153

Coffee and Timbits will be served.