

Occurrence and distribution of microplastics in road dust collected from Myanmar and Taiwan



Kumamoto University

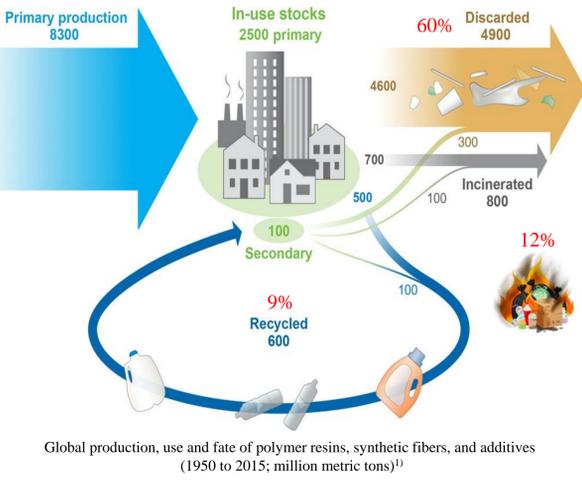
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Background & Introduction



Microplastic (MP)

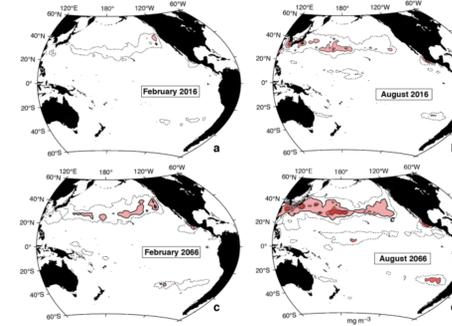
- Small pieces of plastic
- <5mm
- Hydrophobic property

1) Primary sources

Personal care and cosmetic products (PCCPs)



2) Secondary sources



Abundance of microplastics in the present and future.³⁾

- Marine plastic pollution is an ongoing concern especially in the North Pacific
- Increase approximately four fold by 2066 from the present condition.
- Concentration harmful to aquatic biota was between 1,000 and 10,000 mg/cm³

Objectives

- Investigation on the occurrence and distribution of MPs in road dust from Myanmar and Taiwan
- Identification of the ingredient chemical in microplastic (PVC) in road dust

Conclusions

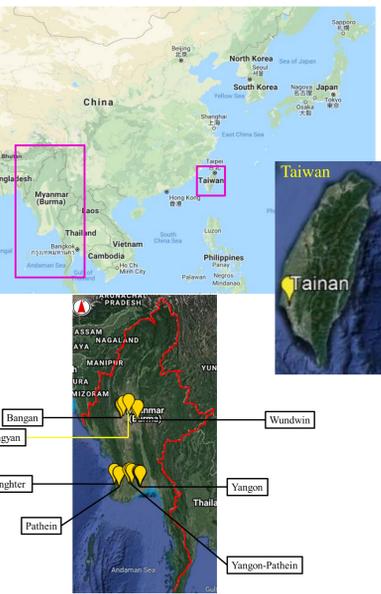
- Ubiquitous distribution of MP in road dusts from Myanmar and Taiwan
- Phthalates were identified in microplastic (PVC) in road dust

Global production, use and fate of polymer resins, synthetic fibers, and additives (1950 to 2015; million metric tons)¹⁾

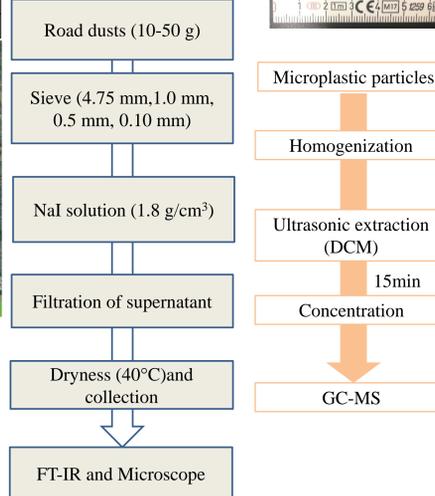


Approximately 300 million tons of debris²⁾

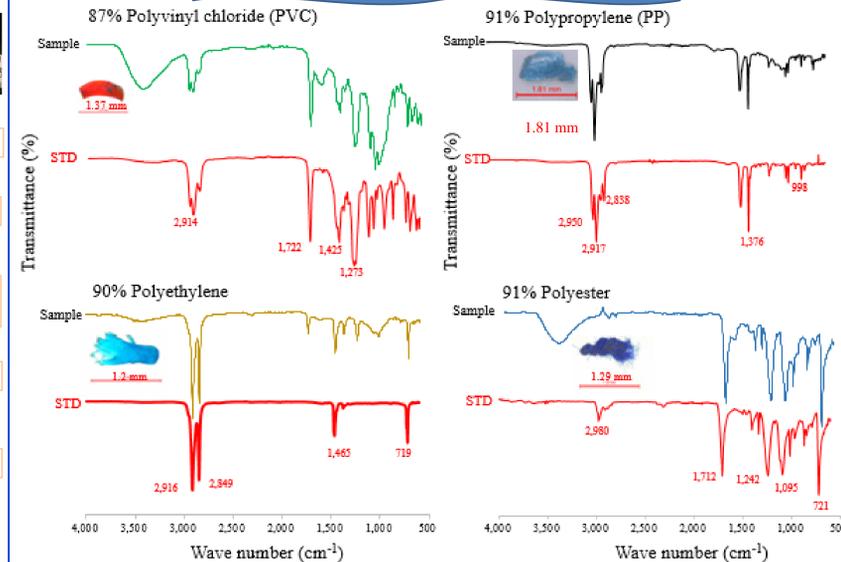
Material and Method



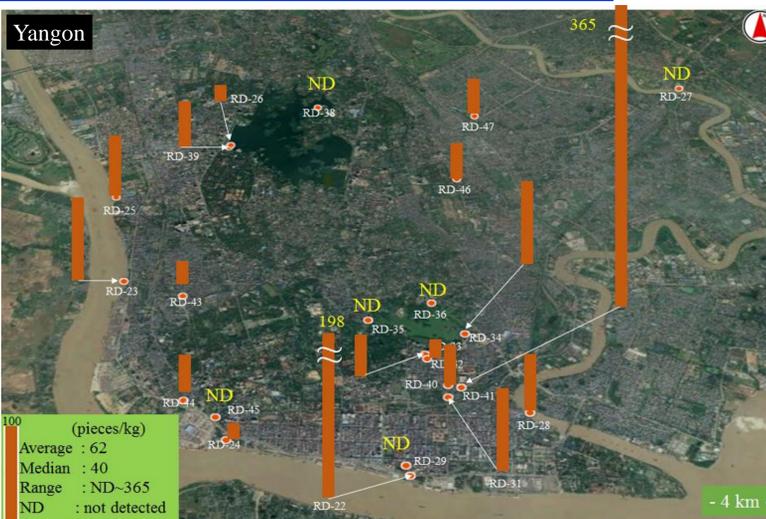
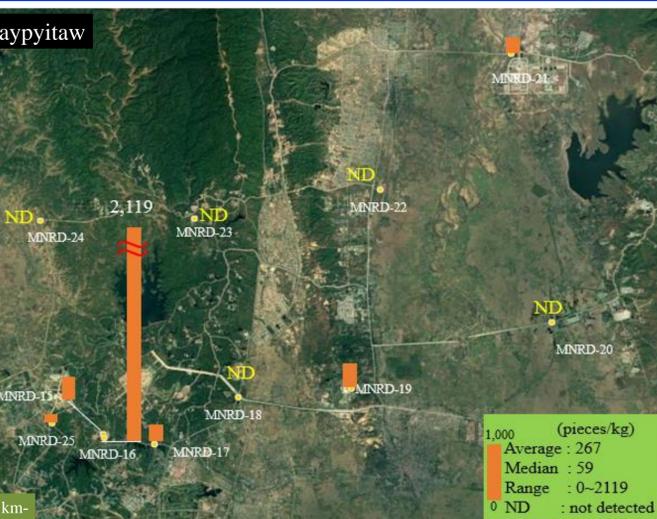
Country	Urban	Suburban	Rural	Sample number	Year
Myanmar	Yangon	Patheingyi	Bagan	47	Dec: 2014-2016
Taiwan	Tainan		Yangon-Pathein	10	Sep: 2018



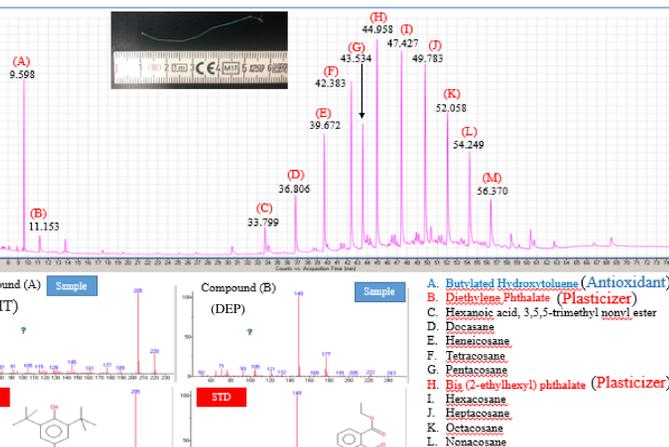
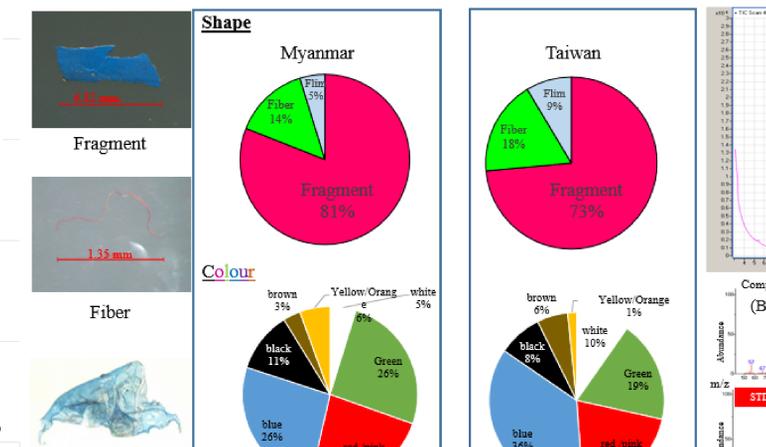
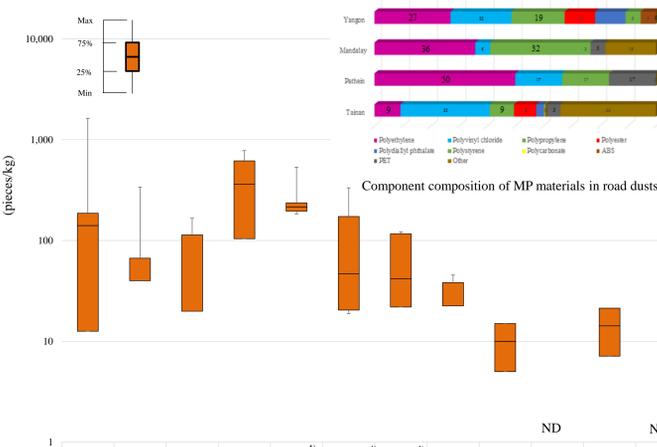
Result and Discussion



FT-IR spectra of microplastics in road dust



Distribution of MPs in the road dusts from Naypyitaw, Yangon and Mandalay



Phthalates are essentially used as plasticizer

Comparison of MPs in road dusts collected from Myanmar, Taiwan and Japan

Characteristics of microplastics in road dusts

Ingredient chemicals in a PVC microplastic fiber

1) Geiger et al., (2017), 2) Browne et al., (2011), 3) Isobe et al., (2019), 4) Kitahara (2019), 5) Latini et al., 2005