Geophysical Research Abstracts
Vol. 21, EGU2019-15844, 2019
EGU General Assembly 2019

Plastic transport across Asian and European rivers

Tim van Emmerik (1) and Caroline van Calcar (1,2)
(1) The Ocean Cleanup, Rotterdam, The Netherlands, (2) Delft University of Technology, Delft, The Netherlands

Land-based plastics, carried by rivers into the world's oceans, are a major source of marine plastic pollution. Plastic pollution in aquatic ecosystems imposes serious risks on animal and human health, food safety and security, and water infrastructure. Recent modeling efforts estimated that around 1 million metric tonnes is emitted from rivers annually [Lebreton *et al.*, 2017; Schmidt *et al.*, 2017]. Although it is expected that most plastic emission originates from Southeast Asia, data on riverine plastic transport remains scarce in this area. To date, the already limited studies quantifying plastic pollution focused mainly on European and North American rivers are based on different methods, making it hard to compare the results [Blettler *et al.*, 2018]. Using simple observation and sampling methods [van Emmerik *et al.*, 2018] a first-order characterization of macroplastic (> 5 mm) transport was done in various rivers and waterways across Southeast Asia and Europe. We demonstrate that the order of magnitude and composition of riverine plastic emission may vary significantly in time and space. Our results emphasize the urgency to increase our knowledge on plastic pollution, especially in river systems.

References

Blettler, Martin CM, *et al.* "Plastic pollution in freshwater ecosystems: macro-, meso-, and microplastic debris in a floodplain lake." Environmental monitoring and assessment189.11 (2017): 581.
Lebreton, Laurent CM, *et al.* "River plastic emissions to the world's oceans." Nature communications 8 (2017): 15611.
Schmidt, Christian, Tobias Krauth, and Stephan Wagner. "Export of plastic debris by rivers into the sea." Environmental science technology 51.21 (2017): 12246-12253.
van Emmerik, Tim, *et al.* "A Methodology to Characterize Riverine Macroplastic Emission into the Ocean." Frontiers in Marine Science 5 (2018): 372.