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The weight distribution of coarse particulate organic matter exported from an alpine headwater stream

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Coarse particulate organic matter (CPOM) spans sizes from 1 mm particles, weighing less than 1 mg, to large logs and whole trees, which may weigh several hundred kilograms. Different size and weight classes play different roles in stream environments, from being the prime source of energy in stream ecosystems to macroscopically determining channel morphology and local hydraulics. We show that a single scaling exponent can describe the weight distribution of CPOM transported in a mountain stream. This exponent is independent of discharge and valid for particle weights spanning almost seven orders of magnitude. Together with a rating curve of CPOM transport rates with discharge, we discuss the importance of the scaling exponent for measuring strategies, natural hazard mitigation and ecosystems.