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Multi-river Calibration Curve for Passive Acoustic Bedload Transport Monitoring.

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Bedload transport estimation is required for a variety of engineering and ecological applications. Measurement of bedload transport by direct sampling is expensive and time-consuming and rarely captures the spatio-temporal variability of bedload transport. Recent research shows that passive acoustic technology, such as hydrophone, has the potential to monitor bedload transport by recording Self Generated Noise (SGN) resulting from particles collision. In this work, we present a calibration curve relating specific bedload flux to cross-sectional acoustic power for 40 experiments conducted on 13 French rivers. We present the measurement protocols for bedload transport and SGN, the results of the campaign, and discuss the physics of the relationship between the measured quantities.