

Supplement of

Bedload transport measurements with Swiss impact plate geophones in two Austrian mountain streams (Fischbach and Ruetz): system calibration, grain size estimation, and environmental signal pick-up

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- Figure S1
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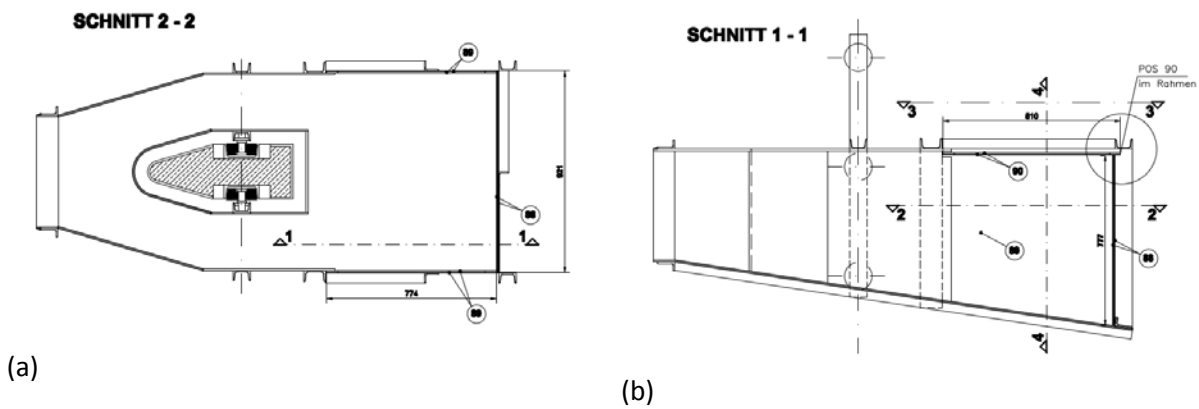


Figure S1. Basket sampler as designed and used by TIWAG to collect bedload samples downstream of the geophone plate where there is a steel-concrete pillar to guide the position of the sampler during the calibration measurements. (a) top view, (b) side view



Figure S2. Geophone measuring cross-section at the Fischbach in March 2013, view looking upstream. Note that only about half the width of the sill with the steel plate is submerged under water. Base-flow during this period is approximately $1 \text{ m}^3 \text{ s}^{-1}$. (Photo Hydrographic Service of Tyrol.)

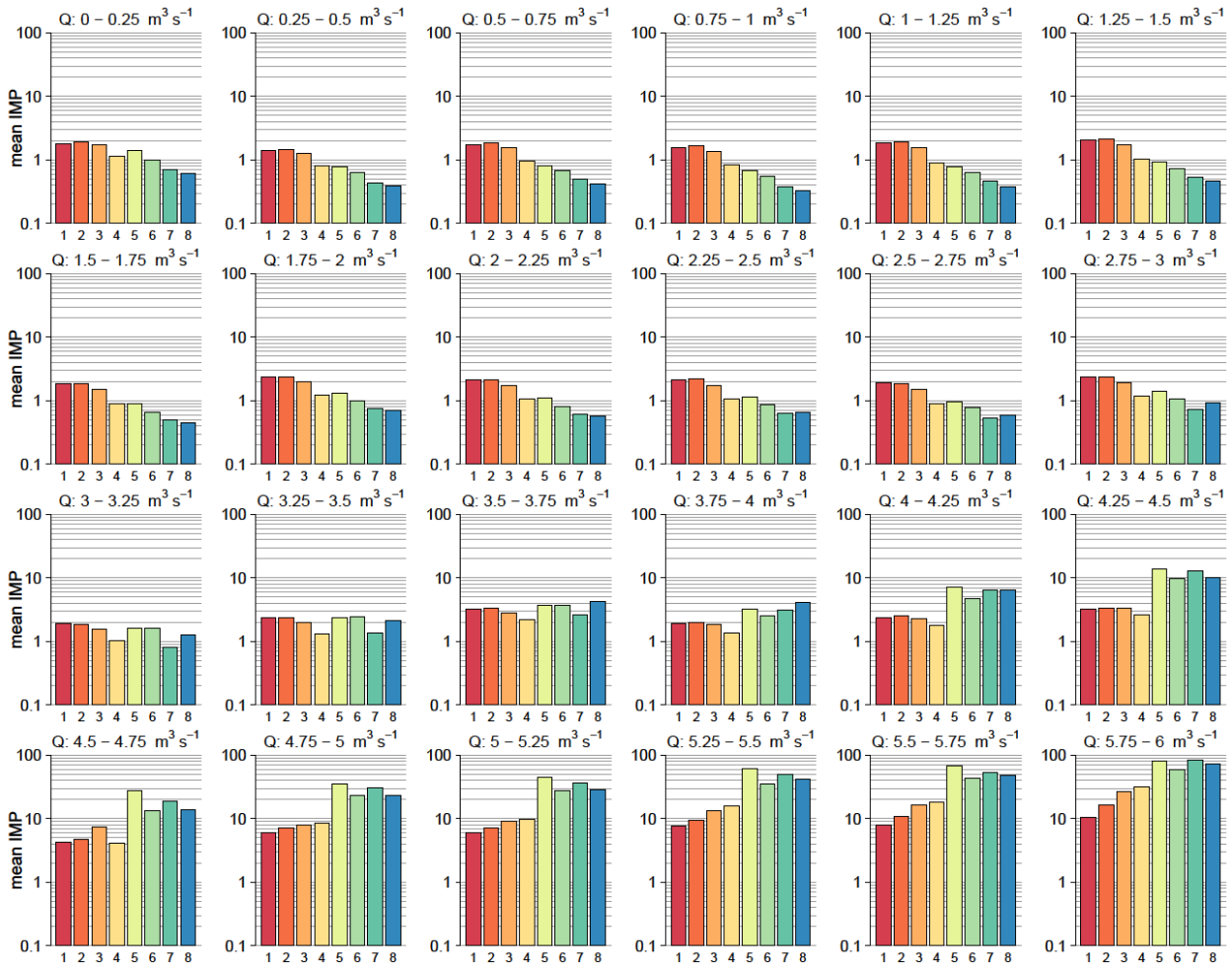


Figure S3. Fischbach: Arithmetic mean of geophone impulses per 15 min for each of the 8 plates (ordinates), averaged over the period 2008-2013 and including zero values, for discharge Q classes of width of $0.25 \text{ m}^3 \text{ s}^{-1}$, for discharges up to $6 \text{ m}^3 \text{ s}^{-1}$.

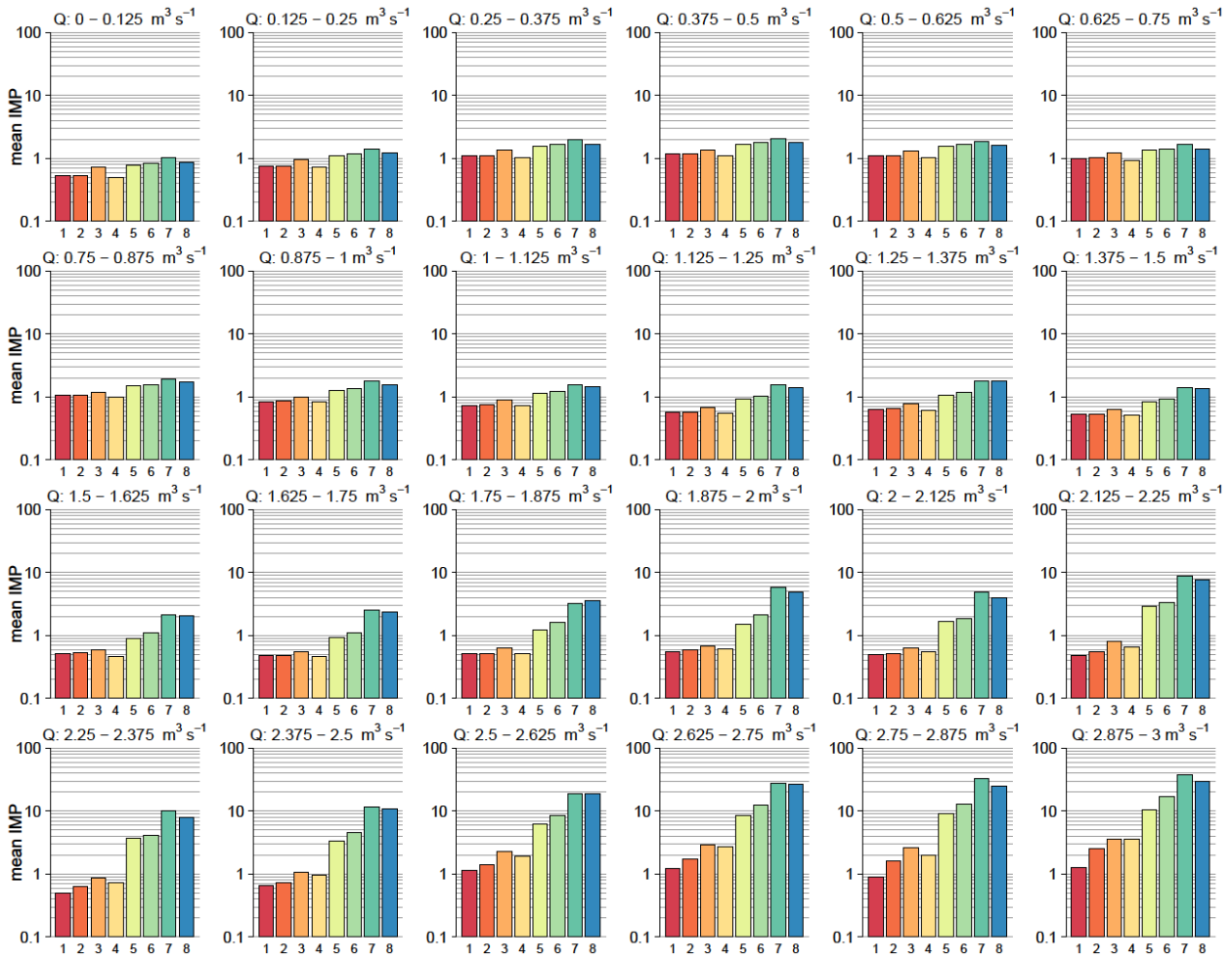


Figure S4. Ruetz: Arithmetic mean of geophone impulses per 15 min for each of the 8 plates (ordinates), averaged over the period 2008-2013 and including zero values, for discharge Q classes of width of $0.25 \text{ m}^3 \text{ s}^{-1}$, for discharges up to $3 \text{ m}^3 \text{ s}^{-1}$.

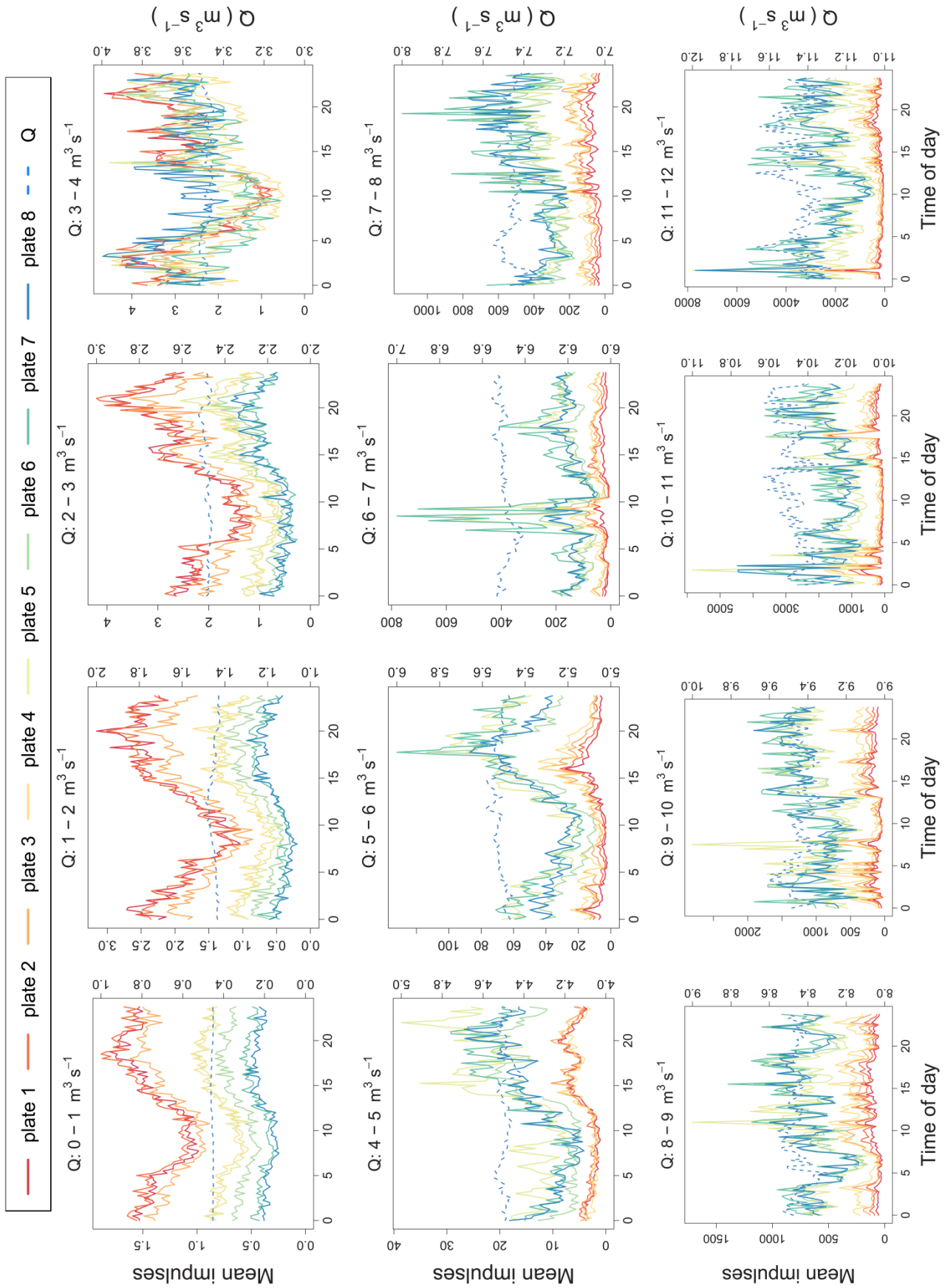


Figure S5. Fischbach: Mean of recorded impulses (mean IMP) for each of the 8 plates, and mean of discharge (Q), versus time of day, averaged for the period 2008-2013 and including zero values, shown for different discharge classes of width of $1.0 \text{ m}^3 \text{ s}^{-1}$, for discharges up to $12 \text{ m}^3 \text{ s}^{-1}$. (Same color scheme as in Fig. 12 and Fig. S3.)

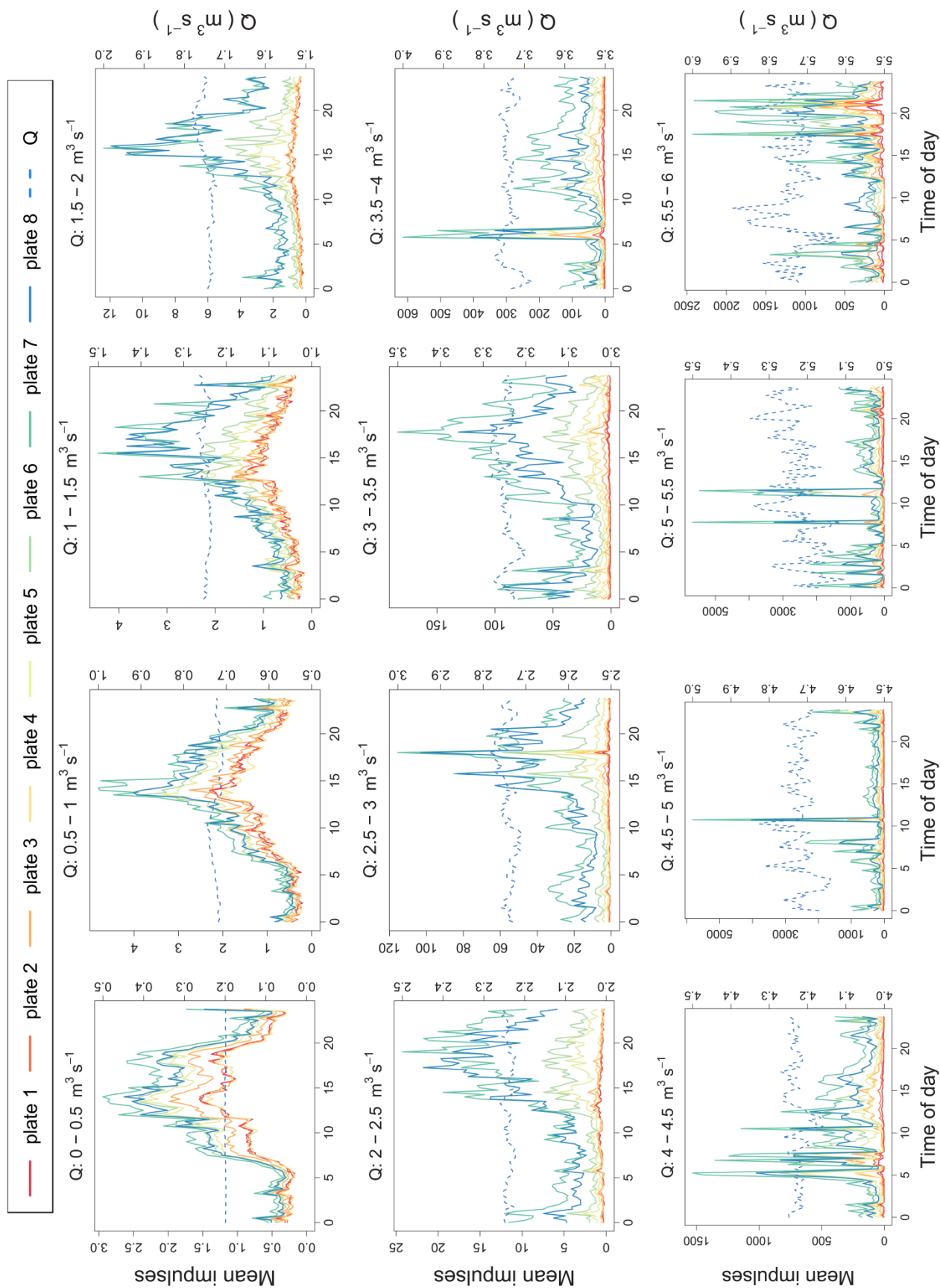


Figure S6. Ruetz: Mean of recorded impulses (mean IMP) for each of the 8 plates, and mean of discharge (Q), versus time of day, averaged for the period 2008-2013 and including zero values, shown for different discharge classes of width of $0.5 \text{ m}^3 \text{ s}^{-1}$, for discharges up to $6 \text{ m}^3 \text{ s}^{-1}$. (Same color scheme as in Fig. 13 and Fig. S4.)

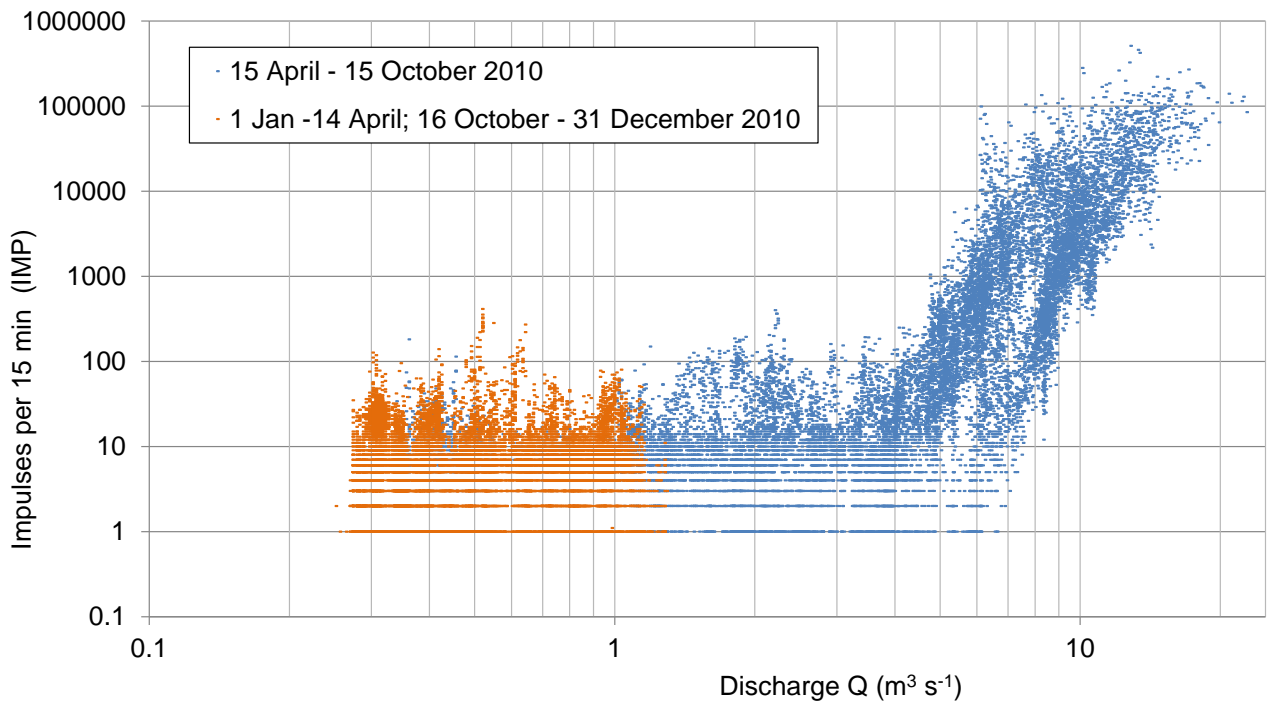


Figure S7. Fischbach: Sum of geophone impulses per 15 minute intervals (*IMP*) for all 8 plates versus discharge Q , for the entire year 2010. Discharges smaller than about $1\text{-}2\text{ m}^3\text{ s}^{-1}$ are unlikely to produce bedload transport with particles D larger than about 10 to 20 mm. Many impulses in the range of about up to 500 *IMP* and up to $3\text{ m}^3\text{ s}^{-1}$ are implausible and are likely due to nearby road traffic.

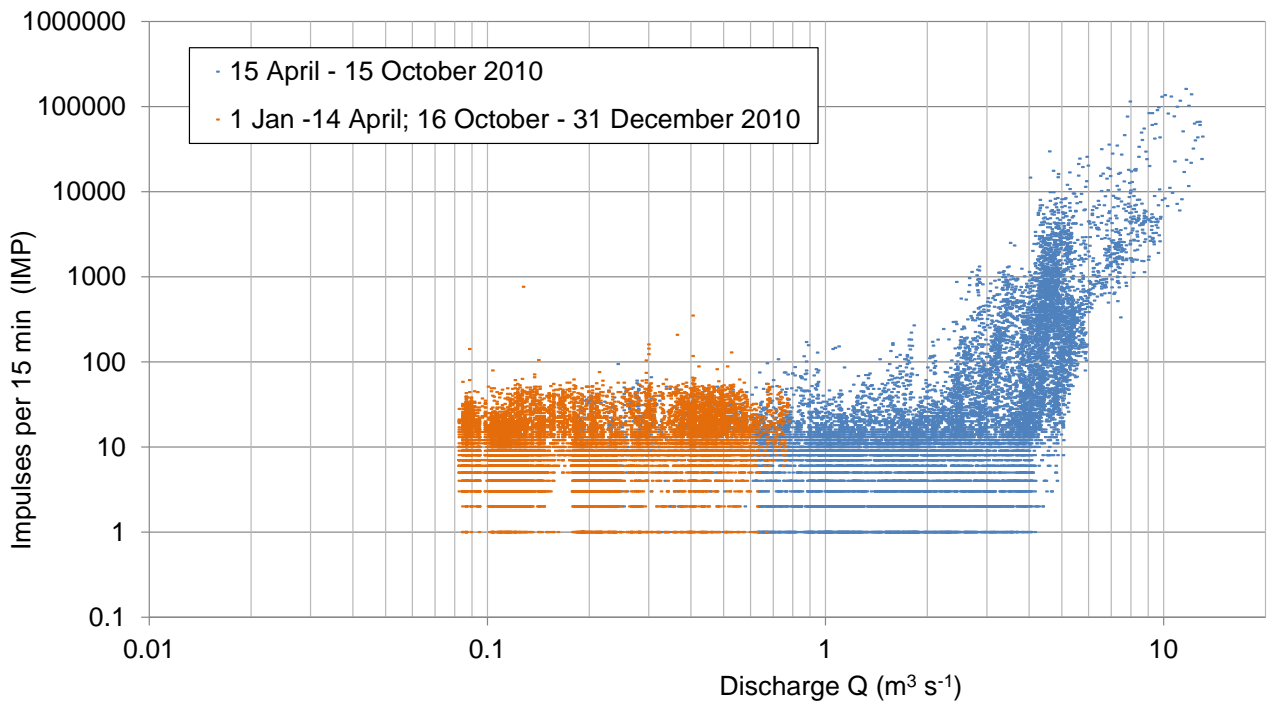


Figure S8. Ruetz: Sum of geophone impulses per 15 minute intervals (*IMP*) for all 8 plates versus discharge Q , for the entire year 2010. Discharges smaller than about $0.5\text{-}1.0\text{ m}^3\text{ s}^{-1}$ are unlikely to produce bedload transport with particles D larger than about 10 to 20 mm. Many impulses in the range of about up to 100 *IMP* and up to $1.5\text{ m}^3\text{ s}^{-1}$ are implausible and are likely due to nearby road traffic.