Supplementary Materials for

Physical and Mechanical Properties of a New Analog Material (MAT-V) for Geomorphic Experiments

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Table of Contents:

Supplementary Figure

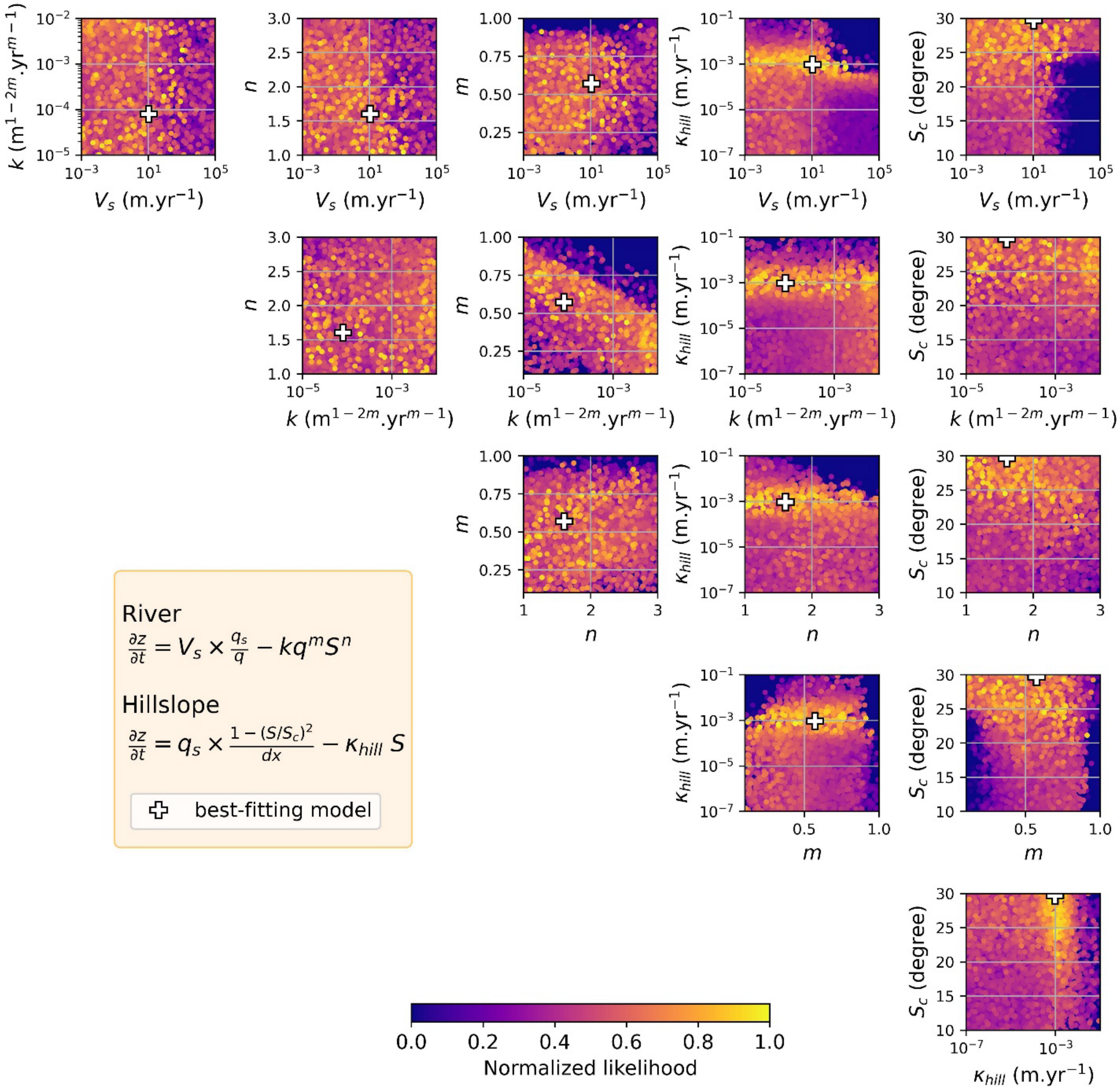

Figure S1.

Estimated trade-off between erosion law parameters derived from final elevation and erosion in experimental and numerical models. V_s: effective settling velocity, k: substrate erodibility, n: slope exponent, m: discharge exponent, κ_{hill}: hillslope erodibility, and S_c: critical slope. This scatter plot is obtained from 33,928 models stochastically explored. Circles are colored according to model likelihood, as the color scale shows. The normalized likelihood ranges from 0 (poor agreement between numerical and experimental results) to 1 (best consistency between the two approaches). The white cross shows the best-fitting model.

Supplementary Table

Table S1

Range of parameter values used to explore the space of numerical models (see Equations 1 and 2 in the main text). The fluvial erosion and deposition law is controlled by an effective settling velocity V_s, substrate erodibility k, and n and m slope and discharge exponents, respectively (Davy and Lague, 2009). The hillslope diffusion law is defined by two parameters: hillslope erodibility κ_{hill} and critical slope S_c (Carretier et al., 2016).

Parameter	Range	References
V_s	$10^{-3} - 10^{5}$ m yr^{-1}	Davy and Lague (2009)
k	$10^{-5} - 10^{-2}$ m^{1-2m} yr^{m-1}	Stock and Montgomery (1999), Harel et al. (2016)
n	$1 - 3$	Harel et al. (2016)
m	$0.1 - 1$	Harel et al. (2016)
κ_{hill}	$10^{-7} - 10^{-1}$ m yr^{-1}	Richardson et al. (2019)
S_c	$10 - 30°$	Roering et al. (1999), Grieve et al. (2016)

Reference

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