

Transient response and adjustment timescales of channel width and angle of valley-side slopes to accelerated incision

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Introduction

This document contains Figures S1 to S5.

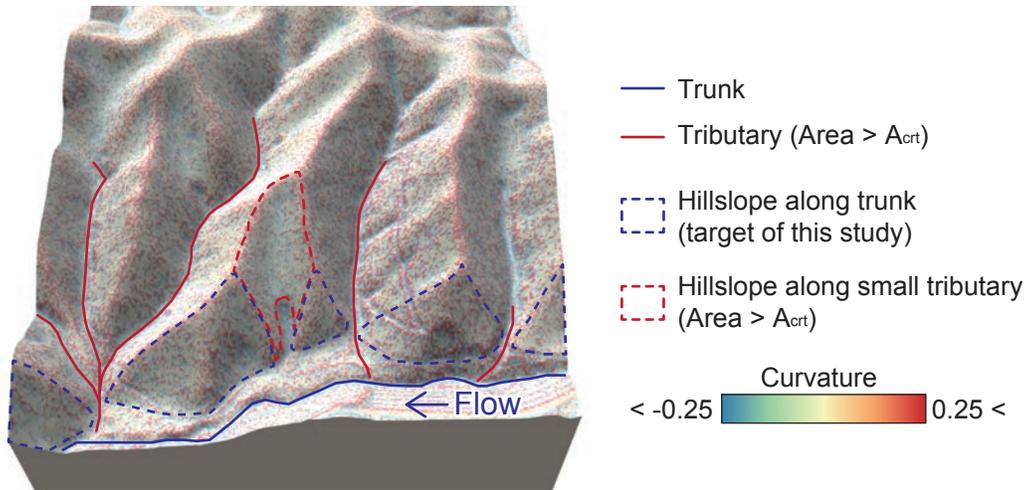


Figure S1. Results of hillslope mapping. Hillslopes along the trunk stream are used in the analysis. The base map is a shaded relief map colored by topographic curvature.

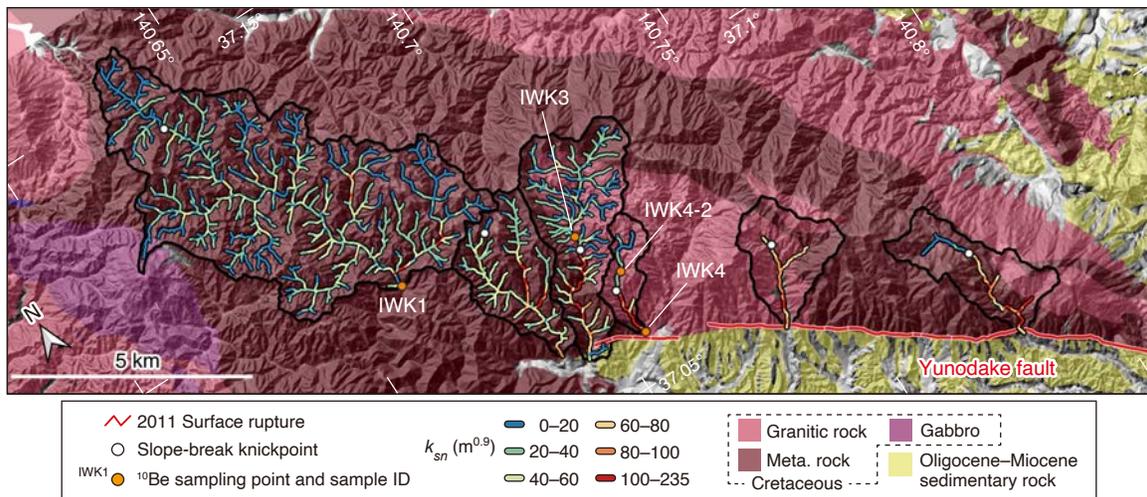


Figure S2. ^{10}Be sampling points and normalized channel steepness for the trunk and tributaries. The 2011 surface rupture trace is after Toda and Tsutsumi (2013). Geologic units are after Kubo et al. (2007) and Geological Survey of Japan (2020).

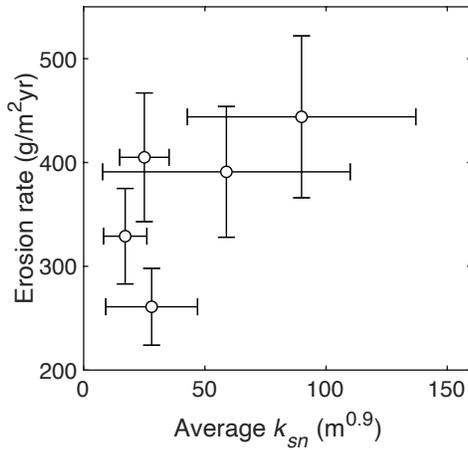


Figure S3. Basin-averaged erosion rates and average normalized channel steepness upstream of the ^{10}Be sampling points. Vertical and horizontal bars indicate 1 sigma error ranges.

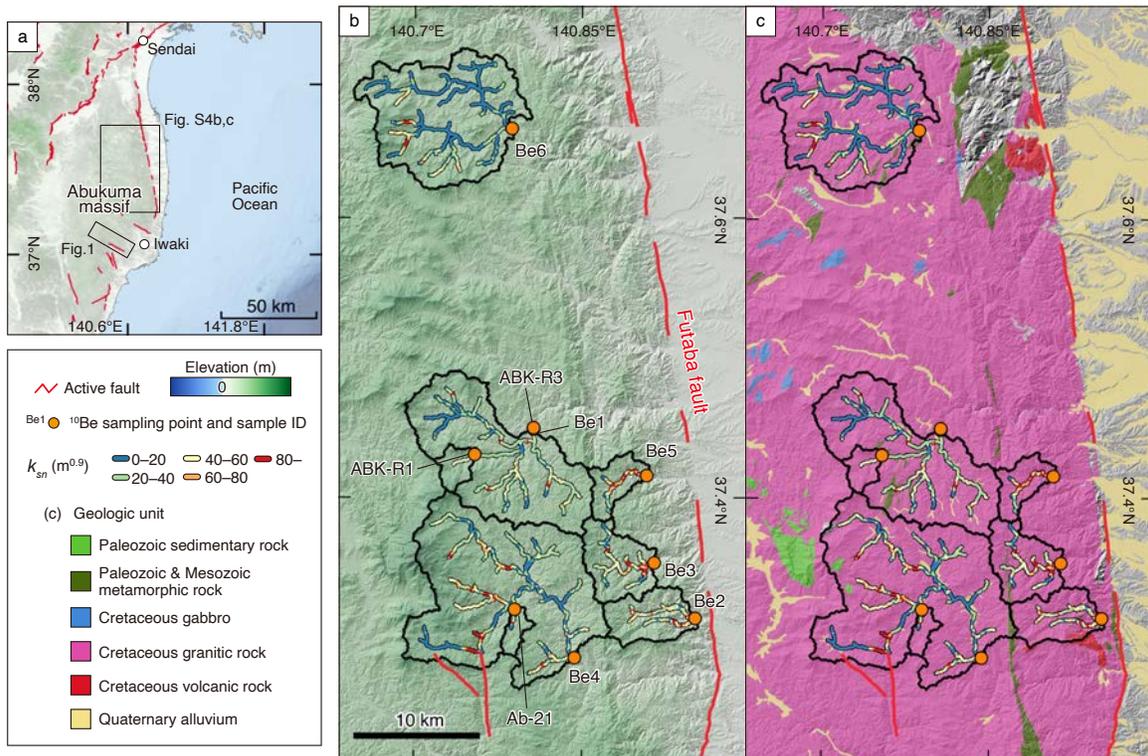


Figure S4. Normalized channel steepness and ^{10}Be samples in the Abukuma massif. (a) Topography and active faults around the Abukuma massif. (b) Normalized channel steepness and ^{10}Be samples. Results of the ^{10}Be analysis and references are shown in Table S2. (c) Geologic map (Geological Survey of Japan, 2020). Active fault traces are after Nakata and Imaizumi (2002).

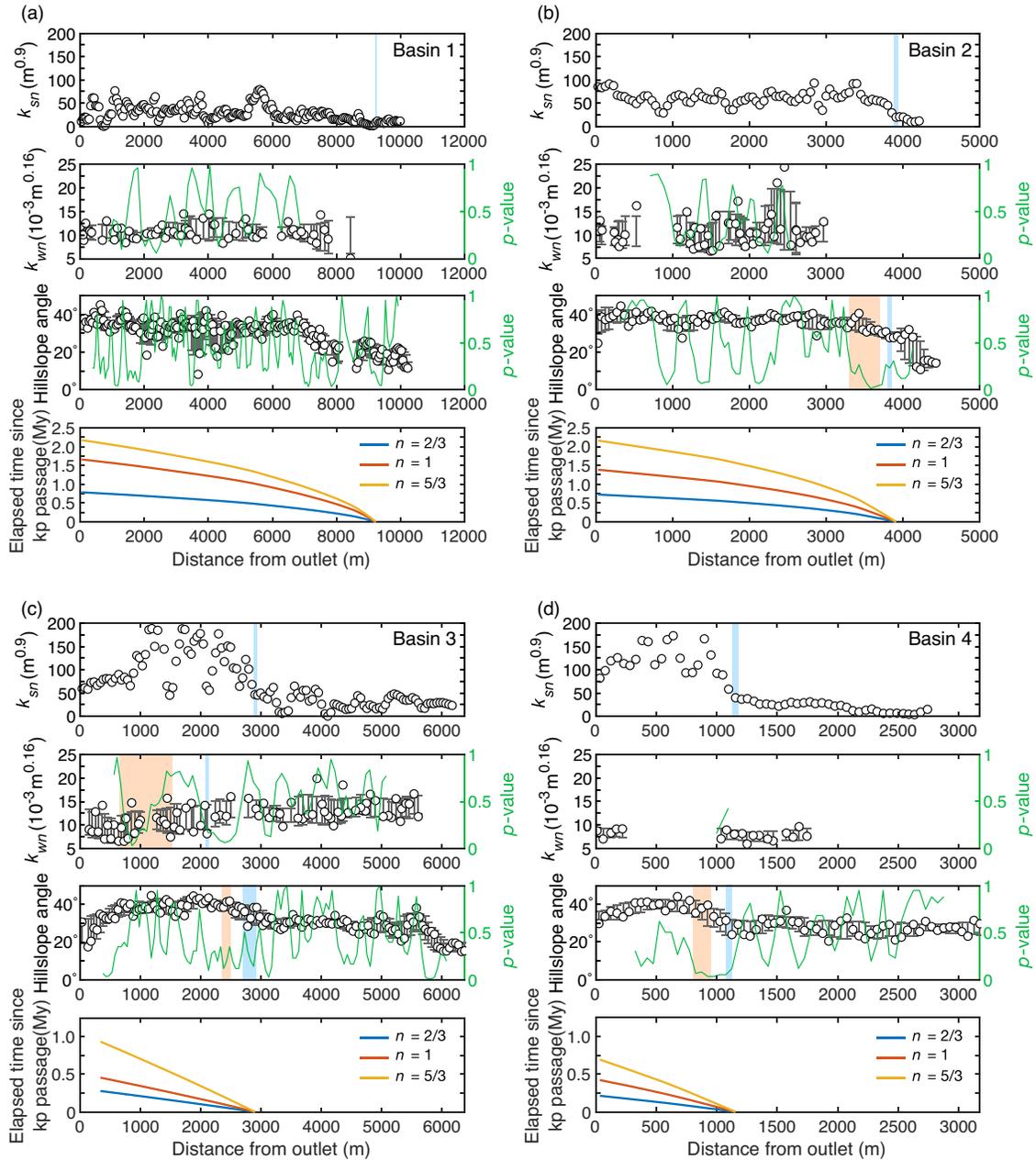


Figure S5. Along-trunk variations of channel and hillslope morphologies and knickpoint (kp) travel time in Basins 1–6. Average hillslope angle is calculated every 50 m along trunk streams. Gray bars in the upper and lower middle figures represent 8-point moving average and standard deviation. The green line in the upper middle figure indicates p -value of Student's t test. The green line in the lower middle figure indicates p -value of the Mann-Whitney U test. Blue and orange areas indicate sections where adjustment starts and finishes.

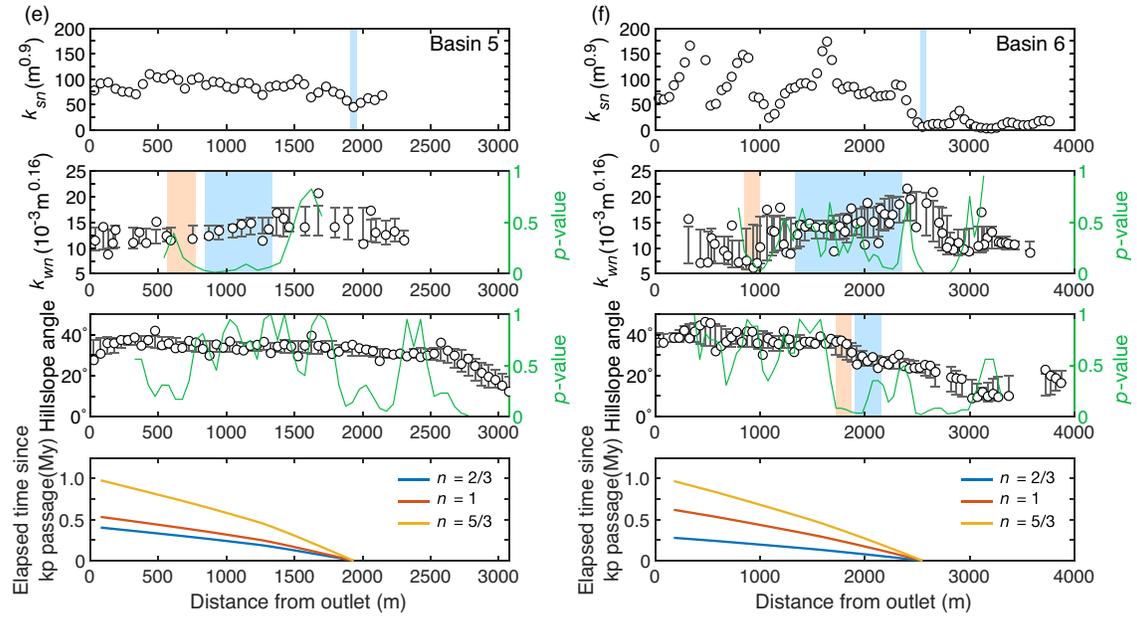


Figure S5. Continued.