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 Tables S1, S3, and S4. Table S2 is provided separately.

Table S1

Basin Characteristics along the Yunodake Fault

Basin/ segment ID	Min. area (km^2)	Max. area (km^2)	$\theta*$	Ave k_{sn} (m$^{0.9}$)
1	0.025	24.1	0.19	28 ± 17
1-1	2.5	24.1	0.53	33 ± 16
1-2	0.025	2.5	0.34	11 ± 6
2	0.2	4.6	0.24	57 ± 19
2-1	0.2	4.6	0.46	62 ± 14
2-2	0.021	0.2	0.10	15 ± 5
3	1.0	6.9	0.11	69 ± 54
3-1	4.9	6.9	1.66	120 ± 46
3-2	0.021	4.7	0.48	31 ± 15
4	0.2	1.6	−1.05	61 ± 53
4-1	0.9	1.6	0.40	122 ± 21
4-2	0.1	0.9	−0.52	21 ± 11
5	0.3	3.4	0.26	83 ± 15
5-1	1.0	3.4	0.38	88 ± 11
5-2	0.4	1.0	0.88	57 ± 9
6	0.3	3.8	−0.69	64 ± 53
6-1	1.5	3.8	0.31	94 ± 44
6-2	0.3	1.4	0.68	12 ± 8

* Calculated by fitting channel slope and drainage area to equation (1).

Table S3
Results of ^{10}Be analysis in Abukuma Massif

Sample ID	^{10}Be concentration ($\times 10^4$ atoms/g) [d]	Production rate (atoms/g yr) [e]	Erosion rate (g/m^2 yr)	Erosion rate (mm/yr) [f]	Upstream area (km^2)	Upstream ave. k_{sn} (m$^{0.9}$) [g]
ABK-R1[a]	6.96 ± 0.36	7.3	219 ± 27	0.13 ± 0.02	7.6	45.9
ABK-R3[a]	4.80 ± 0.22	6.8	296 ± 36	0.18 ± 0.02	97.2	30.1
Be1[b]	5.22 ± 0.12	6.8	272 ± 31	0.17 ± 0.02	104.8	30.1
Be2[b]	3.10 ± 0.09	6.1	412 ± 48	0.25 ± 0.03	24.1	47.6
Be3[b]	5.05 ± 0.13	6.5	268 ± 31	0.16 ± 0.02	27.8	46.6
Be4[b]	5.04 ± 0.12	7.1	296 ± 34	0.18 ± 0.02	161.3	35.0
Be5[b]	4.49 ± 0.15	6.5	301 ± 35	0.18 ± 0.02	13.9	58.1
Be6[b]	7.92 ± 0.16	6.7	178 ± 20	0.11 ± 0.01	101.6	17.5
Ab-21[c]	5.86 ± 0.29	7.0	250 ± 31	0.15 ± 0.02	5.3	30.8

[a] Nakamura et al. (2014). [b] Regalla et al. (2013). [c] Matsushi et al. (2014) [d] KNB5-1 ^{10}Be standard (Nishiizumi et al., 2007). [e] The production rate at sea level and high latitude was 4.68 atoms g^{-1} yr^{-1} corrected from the value proposed by Stone (2000) assuming a ^{10}Be half-life of 1.387 My (Chmeleff et al., 2010; Korshinek et al., 2010). [f] The bulk density of samples was 1.63 g/cm^3 (Nakamura et al., 2014). [g] Average k_{sn} for trunk and tributaries upstream from a sampling point.

Table S4
Erodibility Coefficient (m$^{0.1}$/yr) for Granitic Rocks in Iwaki and Abukuma Massif

	$n = 2/3$	$n = 1$	$n = 5/3$	Reference
Iwaki	1.77E-05	4.85E-06	3.70E-07	This study
Abukuma	1.58E-05	4.52E-06	3.90E-07	Nakamura et al. (2014), Regalla et al. (2013), Matsushi et al. (2014)