TABLE A. ^{10}Be SURFACE EXPOSURE AGES FROM NANGA PARBAT.

Map ID	Lab ID	Field ID	N.Lat (deg)	E.Long (deg)	Alt. (m)	Thick. (cm)	Density (g/cm^3)	$^{10}Be/^{9}Be$ ($\times 10^{-15}$)	±	Sample Mass (g)	^{9}Be Carrier Mass (g)	^{10}Be (10^6 atoms g^{-1})	±	C_1	C_2	Age (ka)	±
1	R97-0189	RAM-5	35.2114	74.8103	2634	3	2.57	107	13	20.0893	0.000783	0.279	0.033	1.026	1.091	8.8	1.1
2	R97-0188	ZIAP-1	35.2310	74.7456	2900	5	2.65	143	14	30.2658	0.000766	0.241	0.023	1.042	1.075	6.4	0.7
3	R97-1085	SLOAN-18	35.1763	74.8831	3573	4	2.61	51	7	10.1999	0.000799	0.269	0.036	1.036	1.093	4.9	0.7
4	R97-0190	SLOAN-17	35.1935	74.6039	3577	3	2.65	138	27	30.3739	0.000775	0.235	0.047	1.026	1.107	4.3	0.9
6	R97-0862	SLOAN-12	35.4002	74.6745	3355	2	2.65	174	13	20.2658	0.000784	0.451	0.032	1.017	1.000	8.3	0.7
7	R97-0863	SLOAN-1	35.3899	74.5773	3400	4	2.65	109	9	20.497	0.000787	0.281	0.023	1.034	1.081	5.6	0.5
8	R97-0186	SLOAN-4	35.3878	74.5779	3255	4	2.65	150	14	30.2887	0.000783	0.260	0.024	1.034	1.102	5.7	0.6
9	R97-0861	INDUS-7	35.4020	74.4150	1730	9	2.55	57	14	20.3722	0.000780	0.146	0.035	1.077	1.039	8.3	2.0
10	R97-0860	INDUS-6	35.4010	74.4150	1730	5	2.52	59	11	20.2933	0.000767	0.150	0.029	1.038	1.033	8.2	1.6
11	R97-0182	INDUS-5	35.4009	74.4052	1575	5	2.60	76	15	12.6571	0.000769	0.310	0.060	1.041	1.072	19.7	3.9
13	R97-0187	SLOAN-7	35.4210	74.5660	3846	4	2.65	288	18	3.901	0.000786	3.883	0.246	1.034	1.047	58.8	4.5
14	R97-0859	INDUS-1	35.4646	74.5018	1892	3	2.63	200	13	14.7885	0.000787	0.709	0.045	1.024	1.061	35.2	2.7
15	R97-0183	INDUS-2	35.4631	74.5033	1845	5	2.53	522	27	24.1704	0.000780	1.126	0.059	1.042	1.018	56.7	3.8
16	R97-0184	GOR-1	35.5136	74.5169	2103	12	2.61	2075	285	30.405	0.000777	3.543	0.487	1.100	1.043	165.5	23.8

Notes:

$^{10}Be/^{9}Be$ ratios measured at PRIME Lab and corrected by 1.14 for NIST Be standard calibration.

Zero erosion ages calculated with high latitude-sea level ^{10}Be production rate of 5.75 ± 0.24 ^{10}Be atoms g^{-1} SiO_2 yr^{-1} (Kubik et al., 1998) scaled to latitude and altitude of sample sites with Table 2 of Lal (1991, Earth Planet. Sci. Lett., v. 104, p. 424-439). The calibration site for this production rate is the closest available in space and time to Nanga Parbat. Using production rate of 6.01 ^{10}Be atoms g^{-1} SiO_2 yr^{-1} (Nishiizumi et al., 1989) does not alter ages of <10 ka significantly (see Table 1 of main text). Variations in geomagnetic field intensity over the past 10 ka produced changes on the order of ±3% in cosmogenic ^{10}Be production (Kubik et al., 1998) that are contained within analytical uncertainty. Ages calculated with ^{10}Be $t_{1/2}$ of 1.51×10^6 yrs and neutron absorption mean free path of 157 g cm^{-2}.

C_1 is correction for sample thickness (Gosse et al., 1995).

C_2 is distant shielding correction computed using the average horizon angle at the sample site in eight azimuthal quadrants and employing a $(\sin\theta)^{2.3}$ flux dependence (Dunne et al., 1999, Geomorph. v. 27, p. 3-11).

TABLE B. EQUIVALENT DOSE (ED), NATURAL INTENSITY (I_N) AND BLEACHING PARAMETERS FOR EACH SAMPLE ALIQUOT USED IN THE IRSL ANALYSIS.

	Sample 5		Sample 12	
Aliquot number	ED (Gy)	I_n (counts/sec)	ED (Gy)	I_n (counts/sec)
1	88.77	100234	198.02	50192
2	94.77	91420	200.07	47920
3	80.53	98872	189.75	53224
4	84.89	86610	197.20	48054
5	94.36	131604	202.57	40082
6	82.09	95626	196.84	48998
7	84.25	122116	230.74	50444
8	90.76	117004	199.89	48032
9	84.17	92414	219.92	52390
10	80.05	100924	207.93	46822
11	79.96	101286	N.D.	N.D.
$\overline{\chi}$	85.60	103465	204.29	24308
σ_{n-1}	5.88	14066	12.27	1815
S_N	0.069	N.D.	0.060	N.D.

Notes:

ED component obtained from the fine silt (feldspar) fraction (4 to 11μm diameter) of proglacial lake sediments.

Single aliquot additive dose ED determination used IRSL exposure of 0.5s at 50°C following a preheat of 220°C for ten minutes.

The analysis employed a Risø TL-OSL reader with colour glass filters BG39 and Corning 7-59 used to select emission in the violet-blue region of the spectrum. No anomalous fading was found in the luminescence signal from the samples.

N.D. = not determined

TABLE C. ANALYTICAL DETAILS OF IRSL AGES FROM NANGA PARBAT.

Map ID	N. Lat (deg)	E.Long (deg)	Elev	α dose rate (μGy/yr)	β dose rate (μGy/yr)	γ + cosmic dose rate (Gy/yr)	total dose (μGy/yr)	ED (Gy)	Age (yr)
5	35.2785	74.8511	2400	3693 ± 1082	5600 ± 561	3599 ± 286	12892 ± 1418	85.60 ± 5.88	6600 ± 900
12	35.2794	74.8572	2600	1424 ± 421	2867 ± 437	1687 ± 163	5978 ± 748	204.29 ± 12.27	34000 ± 4700

Notes:

The alpha dose was calculated from the uranium (ppm) and thorium (ppm) concentrations, measured using a Daybreak Thick Source Alpha Counter. Sealed/unsealed rations of 0.987 (sample 5) and 1.005 (sample 12) indicate no radon loss from the samples.

Dry infinite beta doses were measured on a SURRC thick source beta counter using a Shap granite standard (6.25Gy/ka) and magnesium oxide as a background.

Water contents of 5±5% were used to attenuate the dose rate to the samples over geologic time.

Gamma dose was calculated using the uranium and thorium concentrations and the dry infinite beta dose from the bulk sample and the cosmic dose rate was calculated using the formula in Nambi and Aitken (1986, Archaeometry v. 28, p. 202-205).

The ages were calculated using the program written by Rainer Grün.