

# Supporting Information for "Steady $^{10}\text{Be}$ -derived paleo-erosion rates across the Plio-Pleistocene climate transition, Fish Creek-Vallecito basin, California"

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**Additional Supporting Information (Files uploaded separately)**

1. Text S2 (R code).
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**Introduction** Supporting information provided here includes R code for analysis of sediment  $^{10}\text{Be}$  concentrations for paleo-erosion rates (Text S2), a table of output steps resulting from this code (Table S1), a large paleomagnetic results data table for sites not previously published (Table S3), and text files of  $^{10}\text{Be}$  analyses and field measurements formatted for ingestion into the R code (Data Sets S4 and S5). Paleomagnetic data collection and analysis methods are described in the main text. Data Set S4 contains information similar to Table 4 in the main text.

**Table S1.** (following page) Step-by-step  $^{10}\text{Be}$  paleo-erosion rate analysis results, expressed in atoms of  $^{10}\text{Be}$  per gram of quartz.

sample	$N_A$	$N_X$	$N_D$	$N_B$	$N_E$
FCVB-02	41,284±4,379	2,286	52,654	1,448	90,204+15,502/-10,582
FCVB-03	74,605±5,891	2,247	59,440	1,954	129,844+14,587/-11,041
FCVB-04	40,924±3,206	2,555	74,542	2,629	110,283+18,396/-10,468
FCVB-05	62,889±29,312	2,555	117,215	2,629	174,921+88,804/-84,239
FCVB-08	18,712±2,589	2,458	23,702	2,180	37,776+14,324/-7,422
FCVB-09	28,172±3,089	2,452	37,507	2,180	61,046+14,946/-8,401
FCVB-11	27,186±3,005	2,574	35,289	1,448	58,453+15,003/-8,193
FCVB-12	84,659±4,503	2,458	120,884	2,629	200,456+17,843/-11,820
FCVB-13	39,674±26,901	2,580	55,009	2,097	90,006+69,297/-64,637
FCVB-16	11,416±2,287	2,743	34,242	2,497	40,417+30,485/-14,276
FCVB-17	11,251±3,432	2,733	31,179	2,629	37,068+31,097/-17,578
FCVB-18	15,732±10,215	2,151	40,357	2,497	51,441+45,959/-39,511
FCVB-23	38,268±3,429	2,625	25,196	1,375	59,465+11,021/-6,424
FCVB-24	27,218±2,493	1,511	37,487	1,551	61,643+10,151/-6,404
FCVB-25	30,151±6,002	1,236	57,031	2,274	83,672+20,209/-17,314
FCVB-26	39,828±3,287	1,277	65,137	1,505	102,183+11,747/-8,921
FCVB-29	7,725±2,639	1,787	25,891	2,097	29,733+24,584/-15,016
FCVB-30	7,301±2,627	1,708	22,641	1,705	26,529+22,578/-13,972
FCVB-31	5,962±2,231	1,950	15,545	1,551	18,006+22,587/-12,326
FCVB-32	14,481±5,237	1,724	44,078	2,379	54,456+29,168/-23,160
FCVB-34	43,569±4,255	1,316	41,953	1,705	82,501+11,035/-8,613
FCVB-36	51,225±3,252	1,192	38,851	1,416	87,468 +7,827/-5,810
FCVB-01	21,162±2,761	2,091	62,566	2,140	79,496+22,050/-13,072
WWB-01	37,897±2,597	1,641	77,599	2,380	111,475+13,783/-8,661
WWB-02	36,859±2,748	1,598	71,663	2,140	104,785+13,439/-8,816
WWB-03	37,954±4,102	1,656	68,405	2,523	102,180+16,040/-11,761
WWB-04	46,216±5,830	1,573	72,467	2,789	114,320+18,322/-14,896
WWB-05	39,353±3,736	1,612	65,302	2,315	100,728+14,177/-10,183
TAP-06	30,934±2,731	1,559	78,866	1,351	106,889+16,153/-10,771
TAP-07	33,206±3,380	1,600	78,079	3,297	106,388+17,161/-11,892
TAP-08	35,324±2,897	1,587	77,635	2,140	109,231+14,928/-9,784
LDW-09	23,979±2,228	1,558	73,080	2,039	93,462+16,924/-10,262
LDW-10	38,081±3,122	1,624	112,742	3,068	146,131+19,514/-13,212
LDW-11	41,599±3,660	1,614	115,678	2,523	153,140+19,882/-14,518
WWB-13	34,594±4,005	1,323	57,567	2,380	88,458+13,860/-10,806
WWB-14	32,774±3,768	1,577	53,978	2,523	82,652+14,349/-10,292
CSN-17	21,880±2,024	1,639	99,655	1,074	118,821+23,257/-13,343
CSN-18	17,936±1,643	1,563	81,587	1,715	96,246+21,918/-11,504
CSN-19	17,801±1,456	1,571	86,360	1,878	100,711+22,649/-11,201
CSN-20	29,969±2,034	1,530	123,996	1,809	150,626+20,325/-12,021
CSN-21	18,716±1,326	1,555	79,538	1,867	94,832+19,875/-9,552
CSN-22	17,601±1,243	1,578	73,812	1,821	88,014+19,925/-9,070
CSN-23	14,419±1,134	1,534	67,755	1,577	79,063+21,743/-9,591
CSN-24	27,780±1,675	1,445	109,974	1,188	135,121+17,765/-9,846
CSN-25	22,630±1,326	1,644	127,827	1,666	147,148+25,925/-12,429
CSN-26	17,490±1,174	1,620	92,252	1,832	106,290+24,965/-11,002
CSN-27	24,180±1,635	1,532	101,199	1,666	122,181+19,475/-10,379
CSN-28	28,157±2,326	1,584	110,965	1,577	135,961+20,869/-12,862

**Text S2.** R code for calculating paleo-erosion rates and errors. This code also calculates modern catchment erosion rates, and produces the plot for Figure 10 in the main text.

**Table S3.** Paleomagnetic site polarity results from the White Wash/Little Devil and Canyon Sin Nombre areas, as well as new data from the North transect. Posted as a separate Excel file. Data columns: site name, UTM easting, UTM northing, height within measured stratigraphic section, site polarity (n = normal, r = reversed), demagnetization class, bedding attitude (dip direction/dip).

**Data Set S4.**  $^{10}\text{Be}$  concentrations and field measurements from FCVB sedimentary section formatted for input to R analysis code. Data columns: sample name, sample age, sample age error,  $^{10}\text{Be}$  concentration from AMS measurement,  $^{10}\text{Be}$  concentration error,  $^{10}\text{Be}$  production rate at sample site, depth of sample collection from beneath outcrop surface, depth error, paleochannel thickness above sample location, thickness error, long-term sample burial rate, flag for samples from North area.

**Data Set S5.**  $^{10}\text{Be}$  concentrations from modern stream samples formatted for input to R analysis code. Data columns: sample name, sample location description,  $^{10}\text{Be}$  concentration from AMS measurement,  $^{10}\text{Be}$  concentration error, plotting offset (units of age in Myr) for Figure 10.