

Table DR1. Cosmogenic radionuclide samples from five major Peninsular Ranges basins. Total mass denudation rate of basins feeding sediment to the Oceanside littoral cell and La Jolla Canyon and deep-sea fan was determined by summing rates from the five major basins (~80% total area feeding sediment to the Oceanside littoral cell) and maximum and minimum rates from additional minor basins (shaded). The Locations (N/W) correspond with the centroids of the basins used for the cosmogenic production scaling factors. The averaged elevations of the basins are shown. Abbreviations: Elev--elevation; Thick.--thickness; Shield.--shielding; Denud.--denudation; max.--maximum; min.--minimum.

Basin	Location (N/W)	Elev. (m)	Thick. (cm)	Production Rate			Shield. Factor	Quartz (g)	Be Carrier (mg)	$^{10}\text{Be}/^9\text{Be}$ Ratio (x 10 ⁻¹³)	Be Conc. (10 ⁵ atoms/g)	Denud. Rate (mm/yr)	Basin Area (km ²)	Volumetric Denud. Rate (10 ⁵ m ³ /yr)	Mass Denud. Rate (10 ⁵ tonnes/yr)	
				Spallation	Muons											
San Luis Rey	33.2942 / 116.9301	713	0	7.2366857	0.2384581	0.98	70.07	0.2409401	2.43 ± 0.13	0.56 ± 0.03	0.12 ± 0.01	1459	1.75	4.55		
San Mateo	33.5968 / 117.5581	420	0	5.6425926	0.2118519	0.99	112.51	0.2406217	2.31 ± 0.05	0.22 ± 0.01	0.24 ± 0.02	454	1.09	2.83		
San Juan	33.5095 / 117.4422	489	0	5.9461818	0.2168727	0.99	159.77	0.3262457	1.81 ± 0.05	0.33 ± 0.01	0.18 ± 0.01	339	0.61	1.59		
Santa Margarita	33.4935 / 117.0026	705	0	7.1340722	0.2367685	0.98	139.00	0.3484436	3.51 ± 0.10	0.59 ± 0.02	0.12 ± 0.01	1851	2.22	5.78		
San Dieguito	33.0934 / 116.9141	537	0	6.299529	0.2248352	0.98	140.00	0.339255	1.18 ± 0.10	0.85 ± 0.02	0.07 ± 0.01	894	0.63	1.63		
												Additional basins (max. denud.)	0.24 ± 0.02	1189	2.85	7.42
												Additional basins (min. denud.)	0.07 ± 0.01	1189	0.83	2.16