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Denudation rates of Abukuma mountains, Japan

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We determined millennial-scale denudation rate of watersheds underlain by granite and granodiorite in Abukuma mountains, using cosmogenic Be-10 and Al-26 in river sediment. The denudation rates range from 50 to 100 mm/kyr. The granite watersheds show larger rates than the granodiorites, demonstrating the rock control in denudation. We find a negative correlation between denudation and mean gradient of the watersheds. These results may provide a clue to explore the feedback system between bedrock weathering, erosion, and formation of topography.

Keywords: denudation rate, terrestrial cosmogenic nuclides, river sediment