

**Climatic versus geochemical controls  
on soil organic matter stabilization  
and greenhouse gas emissions along  
altitudinal transects in different  
mountain regions**

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We present novel data from altitudinal transects of four mountain regions (in Austria, Bolivia, China, Tanzania) which cover a wide range of natural ecosystems under different climates and soil geochemistry. Soil samples were subjected to a combination of aggregate and particle-size fractionation followed by organic C, total nitrogen, stable isotope (<sup>13</sup>C, <sup>15</sup>N) analyses of bulk soil and soil fractions. Bulk soils were further characterized for their texture and geochemistry (Na, K, Ca, Mg, CEC, Al, Fe, Mn, Si, P) and incubated for 63 days to assess greenhouse gas emissions (CO<sub>2</sub>, CH<sub>4</sub>, NO, N<sub>2</sub>O) and the stable C isotopic signature of soil respired CO<sub>2</sub>.