

## **The Role of Biomass-wasting in the Carbon Cycle**

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Roughly half the sediment that flows into the oceans is delivered by the small rivers that drain active mountain belts. Their high sediment yield results from high rates of erosion by mass-wasting, in particular landsliding. The dominance of mass-wasting processes implies that a disproportionately high fraction of the particulate organic carbon is also delivered to the oceans by rivers draining mountainous catchments. It is during extreme events, such as typhoons and earthquakes, that extensive slope failure occurs, sweeping standing biomass, soil and rock down hillslopes and into river channels. Peak storms also coincide

with high river discharges, which efficiently transport biomass and sediment out of the montane river system to the ocean. Rapid burial during such extreme events favours preservation of organic carbon and provides an efficient means of carbon sequestration. New data from offshore northern California document the transport and deposition of biomass-wasted carbon harvested from coastal mountains. We conclude that shallow marine sequestration of terrigenous biomass derived from mountain belts may be an important carbon sink on geologic time scales.