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# Impacts of earthquake-triggered landslide on the mountain forest carbon stock

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Mountain forests are important carbon pools and play a critical role in the carbon cycling on Earth. Large earthquakes can trigger landslides, which disturb mountain forests and harvest organic carbon from soil and vegetation. These processes are reported to impact on the carbon cycle over different timescales. However, to what extent does the earthquake impact on the mountain forest carbon stock is still poorly constrained. The fate of the disturbed organic carbon and evolution of the ecosystem is full of uncertainty. To understand the impacts of large earthquake on the carbon cycle, it is important to assess the amount of organic carbon eroded by the earthquake-triggered landslides and recovery of carbon stock after the earthquakeã€,

Our study focused on the upper Min Jiang catchment, which was severely affected by the 2008 $M_w$ 7.9 Wenchuan earthquake. We measured the organic carbon stock in soils and vegetation over the sites with different vegetation types and landslide impacts. Building a multiple liner regression between the field measurements and remote sensing parameters, we modelled the organic carbon stock before the earthquake and until 2021. We find that the earthquake eroded large amount of organic carbon, which 4.06 Tg from the vegetation. Since the earthquake has passed more than a decade, the restoration of vegetation and carbon stock after earthquake can be well observed. Our work reveals fluctuations in forest organic carbon stocks after major earthquakes over a period of 14 years, and providing new insights into the link between earthquake and the carbon cycle.