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## Assessment of debris flows activity in response to earthquake using an index of sediment connectivity

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Large earthquakes trigger landslides and collapses, which not only increase the loose solid materials, but also change the topography in the catchments. The debris flow activities in response to earthquake are widespread concerned, but most of the researches focus on the material conditions and the flow properties. In this research, we investigated the temporal variations of debris flow activities in a typical catchment in the Wenchuan Earthquake area, by considering the index of sediment connectivity (IC), which reflects the efficiency of sediment delivery in the catchment. The IC values in different tributaries and different period were calculated to indicate the spatial distribution and temporal variation. The results show that the high IC values distributed in the tributaries on the right hand of the mainstream in the catchment. The IC values decreased significantly after the earthquake, indicating the sediment transfer ability decreased continuously. Meanwhile, the debris flow history and loose solid material amounts were investigated via field surveys. The debris flows activities show a close consistency with the variations of debris flow source amounts and the IC values in the catchment. This research presents a new method of assessment the characteristics of sediment transfer of debris flows affected by the earthquake, and also provides a new insight to assess the debris flow actives for its close relationship with distribution of loose solid materials and sediment connectivity.