# Seismically reactivated Panjgran mass movement in the Northeast Himalayas of Pakistan

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The 2005 Kashmir earthquake induced large number of mass movements throughout the affected area, in the northeast Himalayas of Pakistan. The Panjgran mass movement in the Neelum Valley area, close to the epicenter, is one that blocked the Neelum Valley road many days after the earthquake.

SPOT images and ground investigation were used to analyse the characteristics of seismically reactivated Panjgran mass movement. The mass movement travelled 650 m in the direction of north towards Neelum river and caused severe damage of Neelum road. Initial slope movement involved the slumping in weathered, jointed shale and sandstone of Miocene Murree Formation at the foot of the mass movement. While on the detachment zone the rock fall material detached from the bed rock, moved down slope and accumulated at the base of the ridge. Total volume of Panjgran mass movement was estimated about 6.75 million cubic meters.

The study shows that the mass movement is the result of pre-existing slump on over steepened slope undercut by the Neelum river and ground shaking by the 2005 Kashmir earthquake.

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