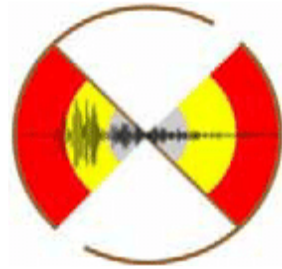




A Preliminary Report of March 27, 2025 Leh, Ladakh Earthquake (M 5.0)



National Centre for Seismology
Ministry of Earth Sciences, Government of India
Mausam Bhavan Complex, Lodi Road, New Delhi - 110 003

An earthquake of magnitude M 5.0 occurred at 02:33:03 IST located in Leh, Ladakh, with epicenter at 36.701° N, 74.352° E and focal depth of 140 km. The epicenter was about 288 km NW of Kargil, Ladakh, 293 km N of Srinagar, Jammu and Kashmir, 295 km N of Gulmarg, Jammu and Kashmir, 311km NNW of Pahalgam, Jammu and Kashmir, India. The epicenter location and intensity distribution are shown in Figures 1 and 2. Immediate after the mainshock there are 5 aftershock has been report till the preparation of report. The earthquake is located near the Main Karakoram Fault (MKT) system, which accommodated southward thrusting of the Karakoram block over the Ladakh block. Preliminary fault plane solution analysis indicates a thrust mechanism with strike-slip component, consistent with regional shear zones trending NNW–SSE to N–S directions.

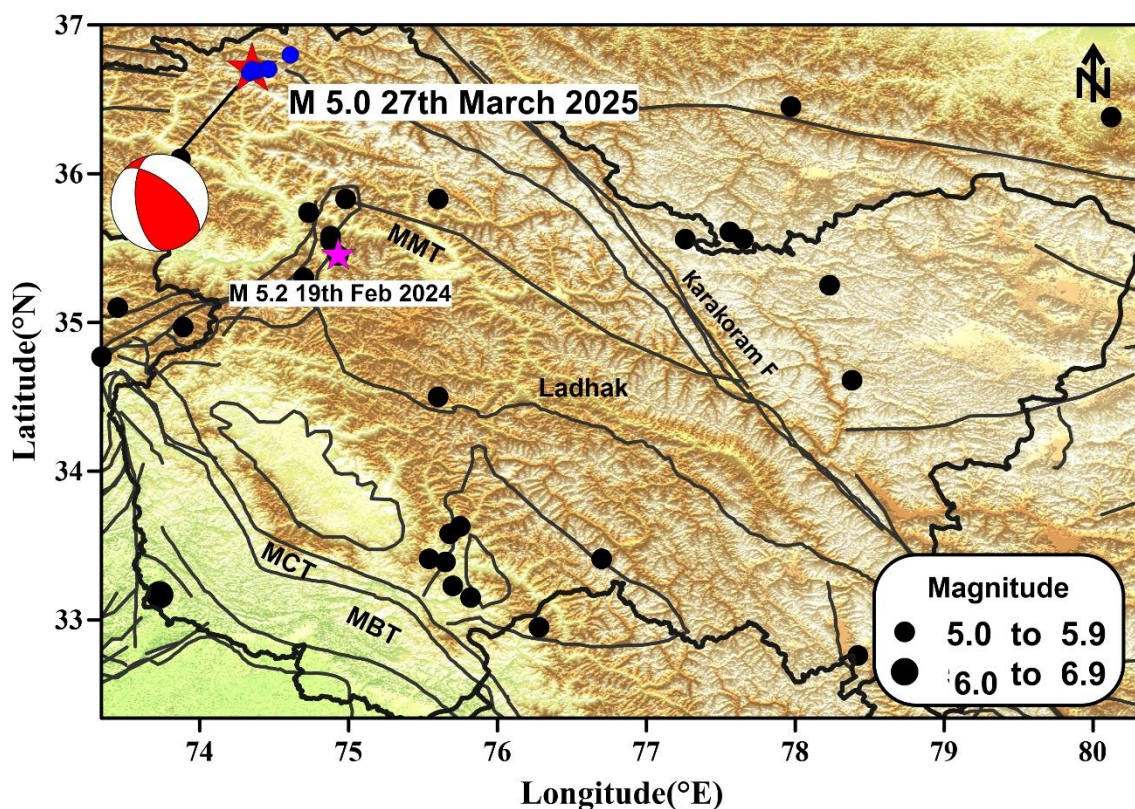


Figure 1: The present earthquake (M 5.0) of 27th March 2025 (Red Star), blue circles are the aftershocks (source: www.seismo.gov.in; NCS-MoES). The past five years seismicity in the epicentral and surrounding region shown as black circle (source: www.seismo.gov.in; NCS-MoES). The geological faults and lineament were obtained from Bhukosh, GSI. The purple triangles represent the location of seismograph stations of NCS. The yellow star is the earthquake (M $\geq$ 5.0) occurred within one year closer to epicenter.

Felt reports of maximum Intensity III (MMI scale) in epicentral region and minimum intensity of II (MMI Scale) have been reported from around 5 km and 200 km from the epicenter respectively (Fig. 2).

In addition to the above, it is noteworthy that prior to this event, a recent M 5.2 earthquake on 19 Feb 2024 occurred approximately 100 km west of today's epicenter. The proximity of these events both at intermediate depths and exhibiting thrust mechanisms with strike-slip components suggests possible stress transfer or reactivation within the NNW–SSE trending shear zones accommodating Karakoram-Ladakh block interactions. Details of Peak Ground Acceleration at few sites are tabulated below.

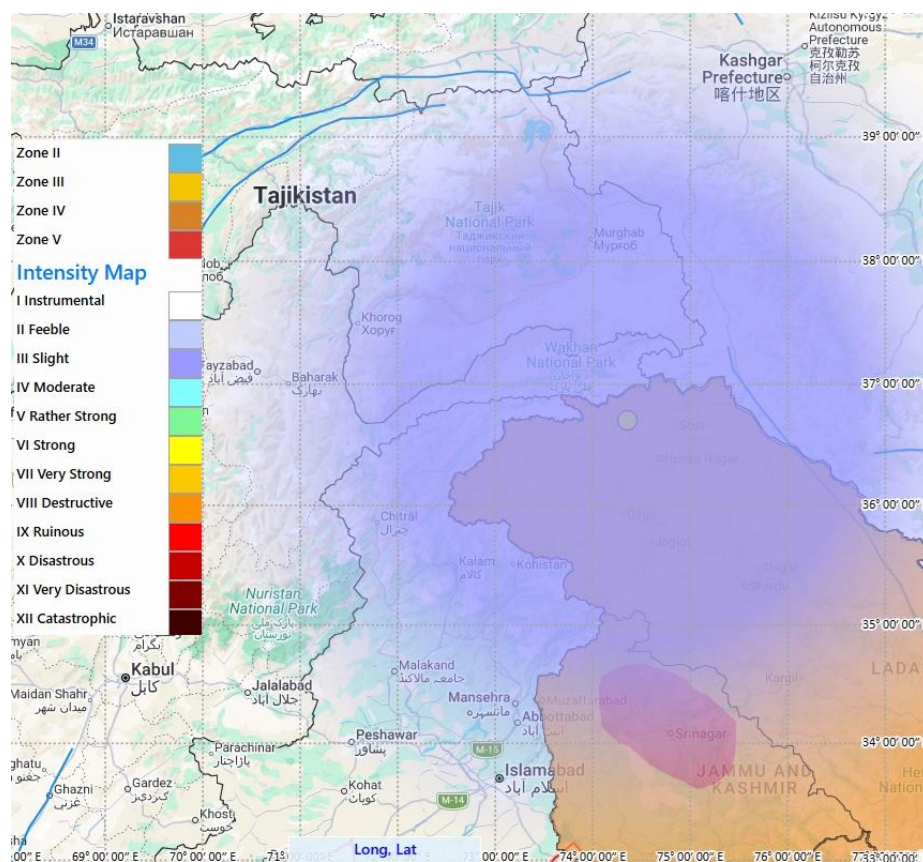


Figure 2: Earthquake intensity map of M 5.0 of 27th February 2026.

Table 1: PGA value of the earthquake of M:5.0 of 27th February 2026.

Station Name	PGA(g)	Distance(km)
SRIN	0.0003	297
UDMP	0.00012	427
AMRT	0.0002	364