

# Report on Real Time Earthquake Location

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# Report of Earthquakes occurred in the month of January 2021

## 1) Introduction:

National Center for Seismology maintains National Seismological Network of 115 stations each having state of art equipment and spreading all across the country. Using these stations during the period 01<sup>st</sup> – 28<sup>th</sup> February 2021 a total number of 126 earthquakes have been located and disseminated from the center (**Fig:1**), out of which 112 earthquakes has occurred in India and its neighborhood region bounded by the coordinates 0°- 40°N & 60°-100°E (**Fig:2**).

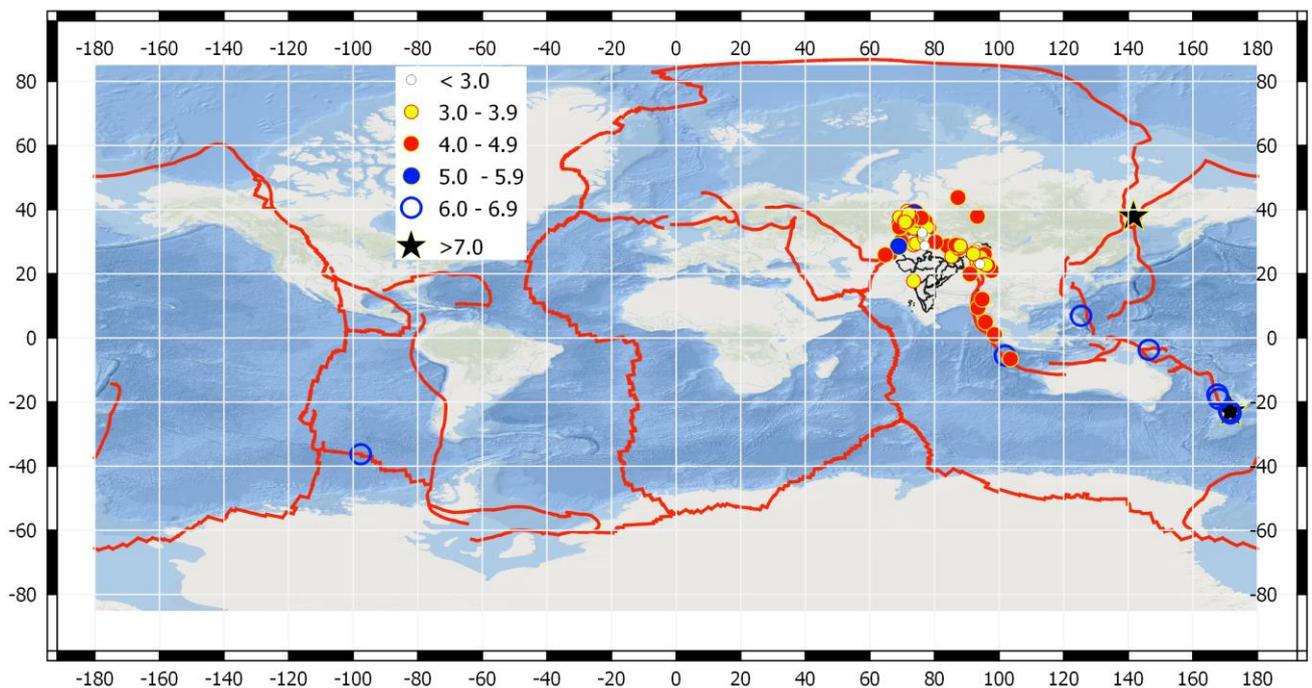


Fig:1 Earthquakes located and disseminated by NCS during 01<sup>st</sup> –28<sup>th</sup> February 2021

## 2) Seismicity:

During the period, the density of earthquakes in India and its neighborhood region bounded by the coordinates 0- 40°N & 60-100°E; can largely be seen in Hindu Kush region, North Eastern part of India as shown in **Fig:2**. Few earthquakes of smaller magnitudes ( $M < 3.0$ ) also occurred in and around Delhi Region. Few earthquakes in the magnitude rang from M:4.0 to M:4.9 occurred in Andaman island region.

Out of total 126 earthquakes, around **38%** and **39%** of events occurred in the magnitude range **3.0-3.9** and **4.0 -4.9** respectively, whereas only one, eleven and two earthquakes occurred in the

magnitude range, 5.0-5.9, 6.0-6.9 and  $\geq 7.0$  respectively as shown in Fig:3. Detail list of earthquakes occurred during the month is available at [www.seismo.gov.in](http://www.seismo.gov.in).

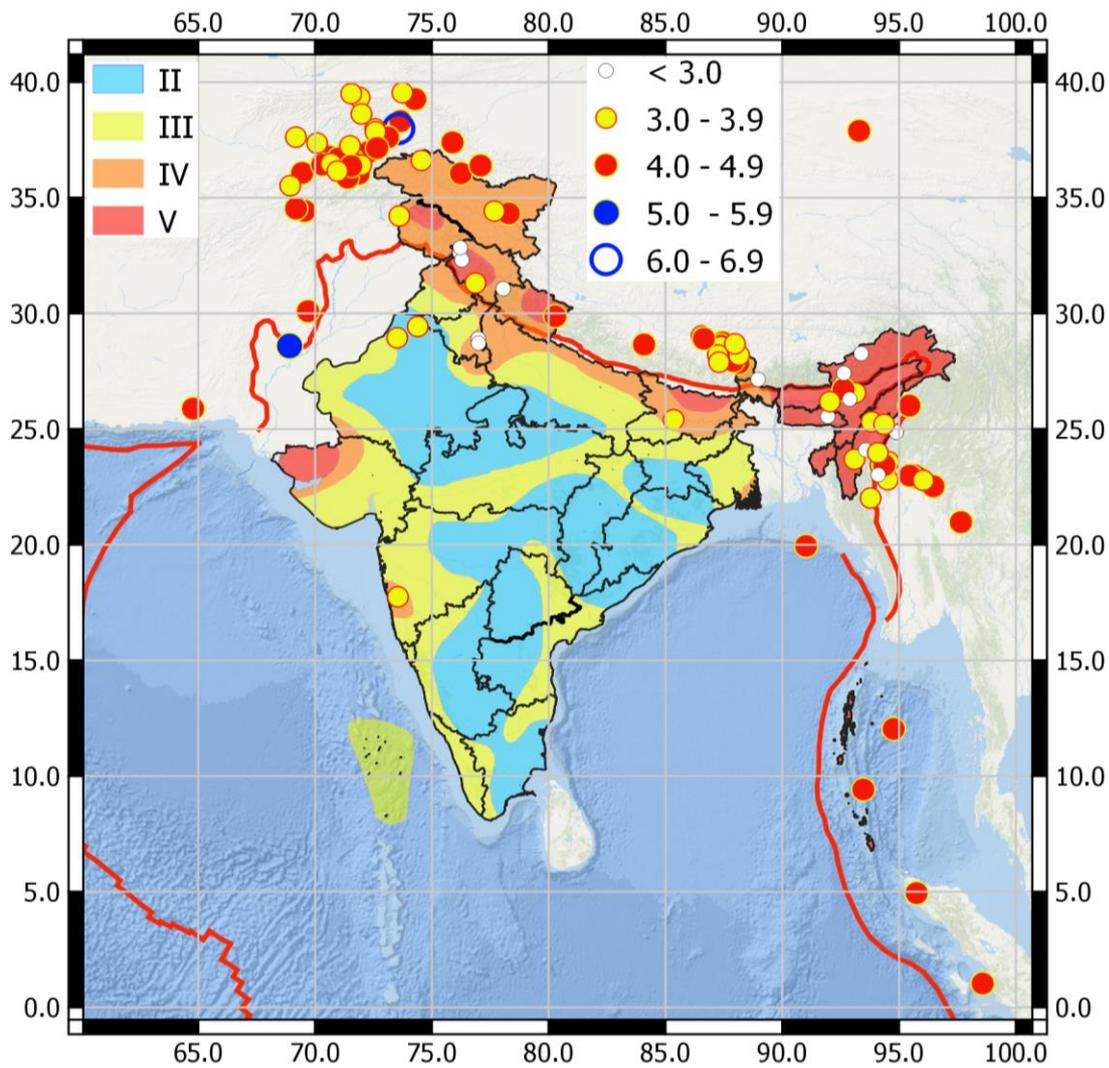


Figure 2: Map showing the earthquakes occurred during the period 01<sup>st</sup> – 28<sup>th</sup> February 2021; in India and its neighbourhood region along with the seismic zone of India.

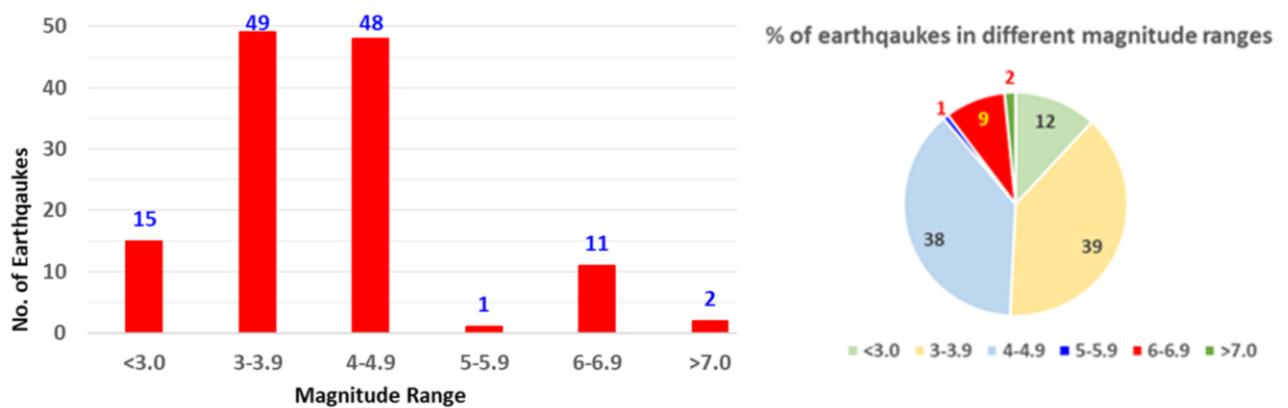


Figure 3: Bar-Diagram and Pie chart showing the number of earthquakes and their distribution in terms of percentages occurred and disseminated in the magnitude range during the period 01<sup>st</sup> – 28<sup>th</sup> February 2021 that was disseminated.

### 3) Significant Earthquakes:

During the period 01<sup>st</sup> – 28<sup>th</sup> February 2021 an earthquake of magnitude **M:6.3** occurred on 12<sup>th</sup> February 2021 in Tajikistan at 22:31:33 IST which was widely felt in the most part of the country. Two earthquake of **M:3.5** and **M:4.7** occurred on 15<sup>th</sup> and 17<sup>th</sup> February 2021 in Patna, Bihar and Sonitpur, Assam respectively; were as also felt by many in the respective region (**Fig:4** and **Fig:5**). Two earthquakes of magnitude M:7.0 and above occurred on 10<sup>th</sup> and 13<sup>th</sup> February 2021 in southeast of Loyalty Island in pacific sea (**M:7.2**) and east coast of Japan (**M:7.0**) respectively.

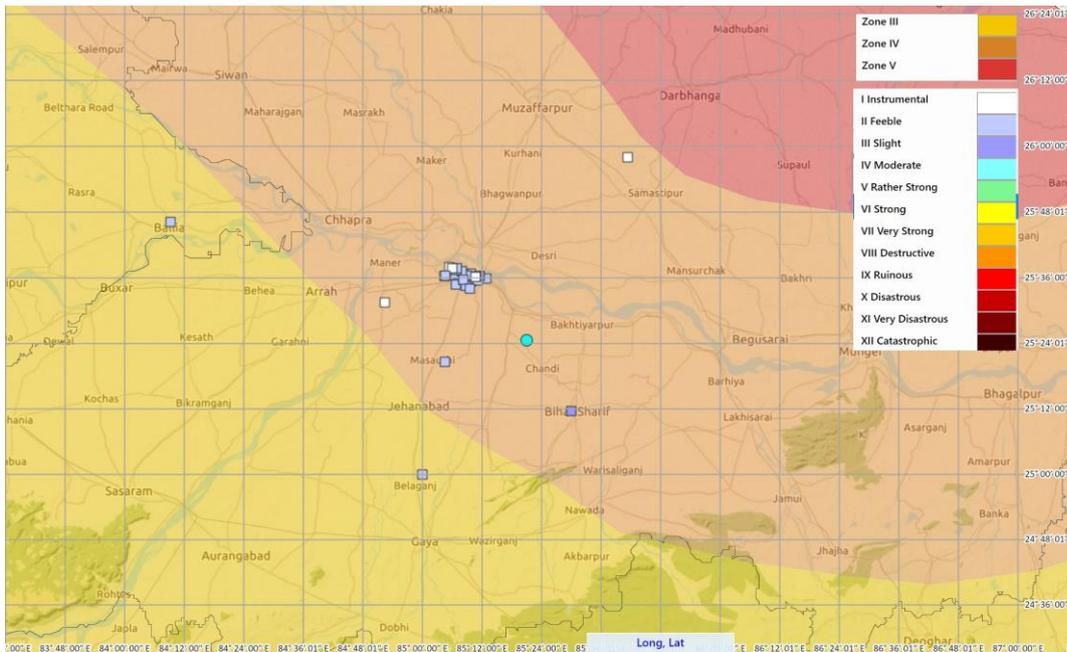


Figure 4: Map showing the epicentre (circle) and Felt reports received for Bihar earthquake of **M:3.5** occurred at **21:23:47 IST on 15<sup>th</sup> February 2021**; overlaid on Seismic Zonation Map of India.

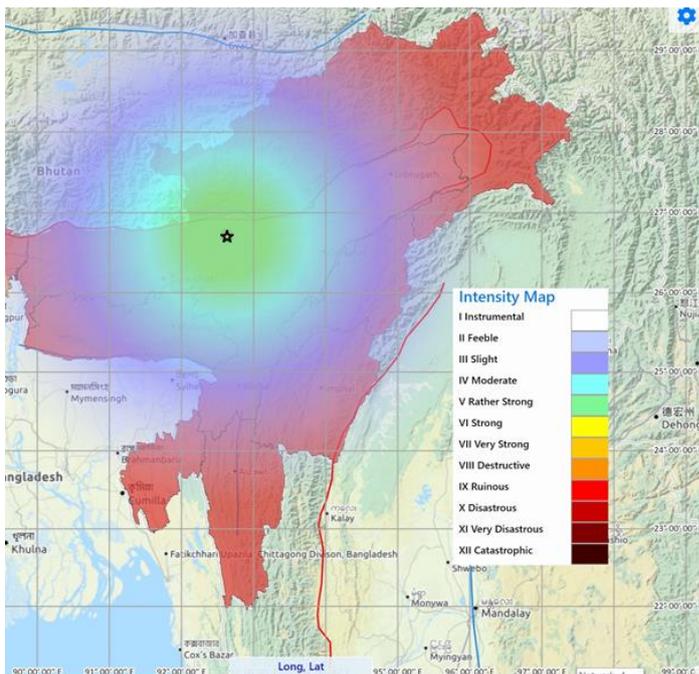


Figure 5: Map showing the epicentre (star) and intensity of Assam earthquake of **M:4.7** occurred at **17:54:46 IST on 17<sup>th</sup> February 2021**; overlaid on Zonation (zone IV) map of India.

**Tajikistan Earthquake:** An earthquake of magnitude **M:6.3** occurred in Tajikistan having epicenter at  $38.00^{\circ}$  N and  $73.58^{\circ}$  E and focal depth of 74 km at **22:31:33 IST (17:01:33 UTC )** on **12<sup>th</sup> February 2021**. The epicenter is close to the collision zone of Indian Plate and Eurasian plate. The region lies within the limit of the Fault Line Indus-Tsangpo, where the earthquakes are frequent. The distance of epicenter is about 452 km NNW from Srinagar, UT of Jammu and Kashmir, 531 km Leh (Alchi), UT of Ladakh, 640 km North of Amritsar, Punjab, 1088 Km from New Delhi. Location map along with expected intensity is shown in **Fig:6**. In past 20 years, the region at about 100 km radius from the

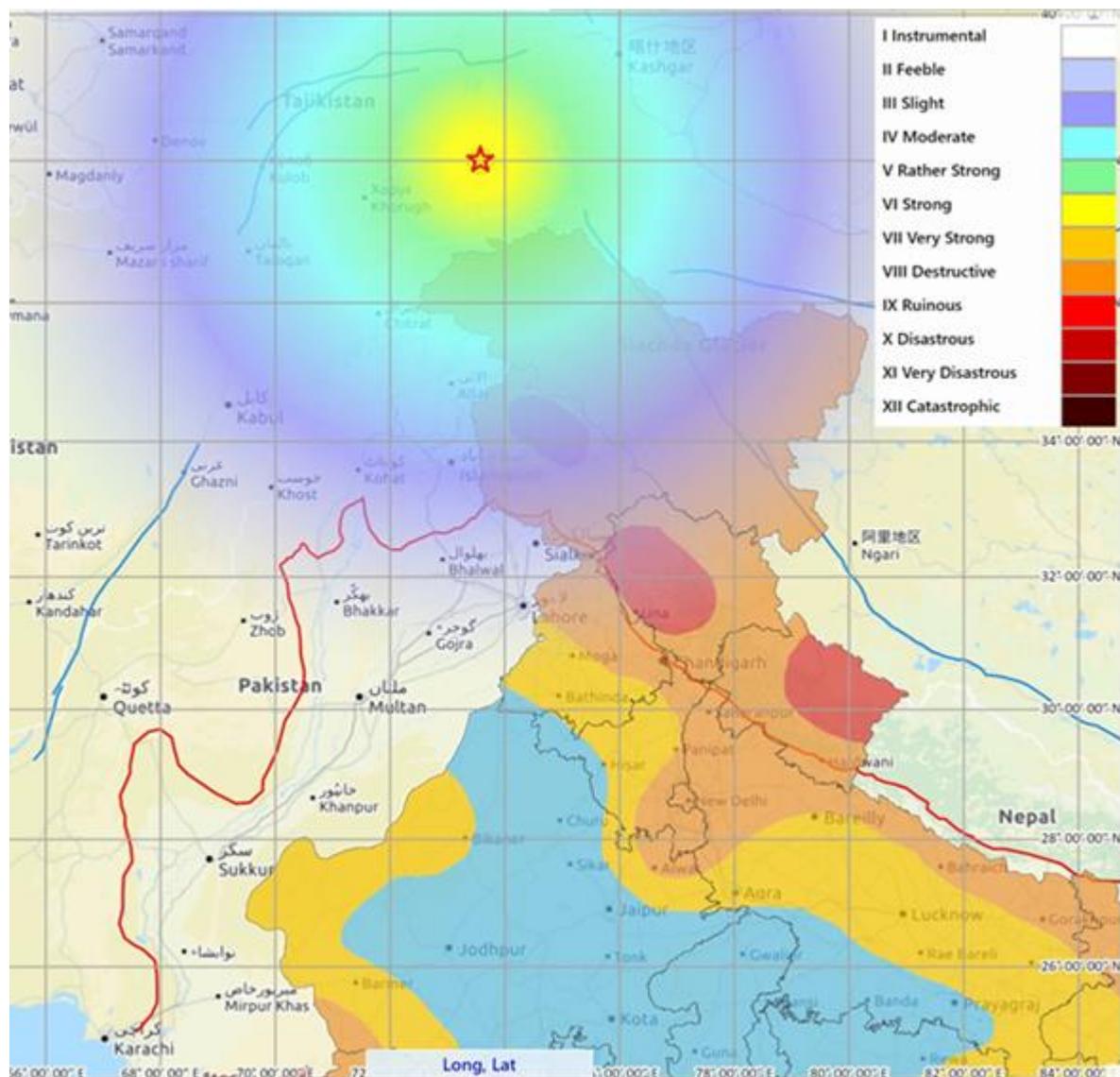


Figure 6: Map showing the epicentre (star) and expected intensity of Tajikistan earthquake occurred on 12<sup>th</sup> February 2021.

epicenter has experienced 23 earthquakes of magnitude 5.0 and above. The maximum earthquake of magnitude 7.2 occurred on 7<sup>th</sup> December 2015. The earthquake of M: 5.1 has occurred in the same region on 18<sup>th</sup> September 2020. Damage report (cracks on walls) has been reported from UT of Jammu and Kashmir and UT of Ladakh. Felt report of Intensity II and III (MMI Scale) have been received through our NCS Website and Mobile App **BhooKamp** from most of the Northern part of the India around 600-1000 km from the epicentral region (**Fig:7**). Few reports from southern part of India and outside India were also received.

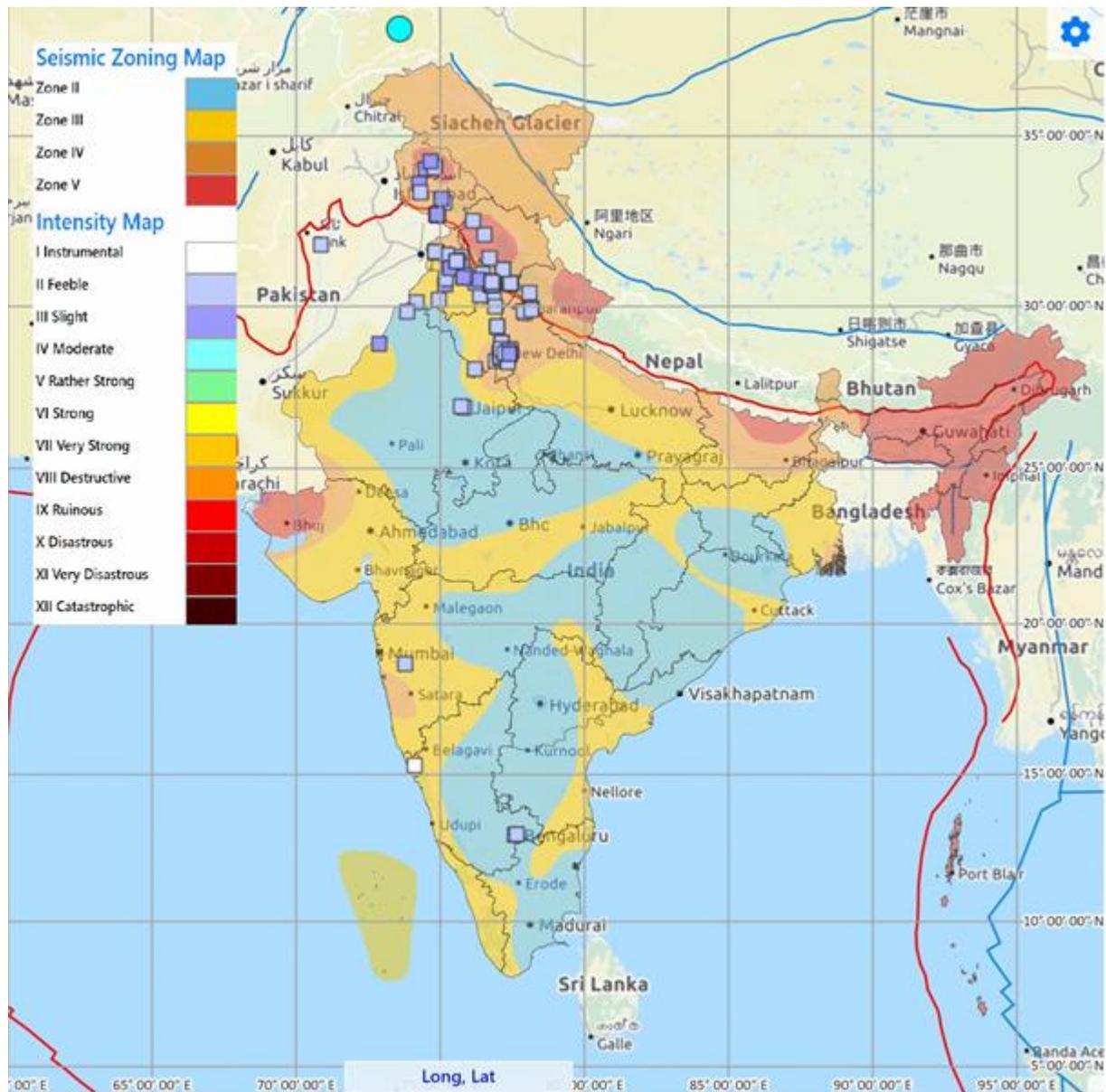


Figure 7: Map showing the felt responses received from different parts of the country and outside the country from M:6.3 Tajikistan earthquake occurred on 12<sup>th</sup> February 2021.