Report on Real Time Earthquake Location

From: Earthquake Monitoring Center (EMC) of NCS
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National Center for Seismology
Ministry of Earth Sciences
Government of India

Month: MAY 2025
Technical Report No: NCS/2025/5

Report of Earthquakes occurred in the month of MAY 2025

1) Introduction:

National Center for Seismology maintains a National Seismological Network of **167 stations** each having state of art equipment and spreading all across the country **(Figure:1).** Using these stations during the period 01st – 30th MAY 2025 a total number of 157 earthquakes have been located and

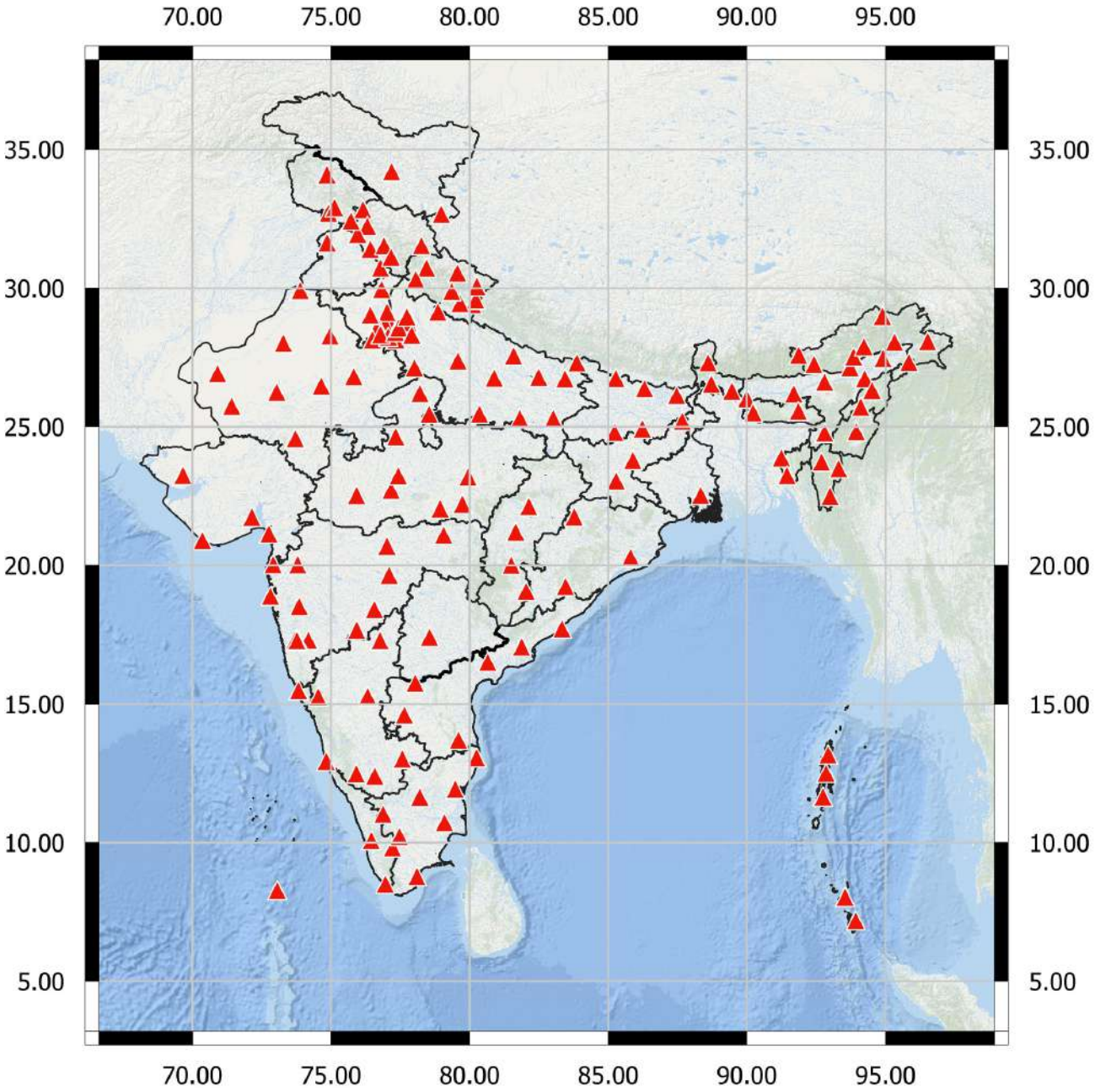


Figure 1: National Seismological Network (NSN) of 167 Stations

disseminated from the center **(Figure:2)**, out of which 150 earthquakes have occurred in India and its neighborhood region bounded by the coordinates 0° 40N & 60°100E **(Figure:3)**.

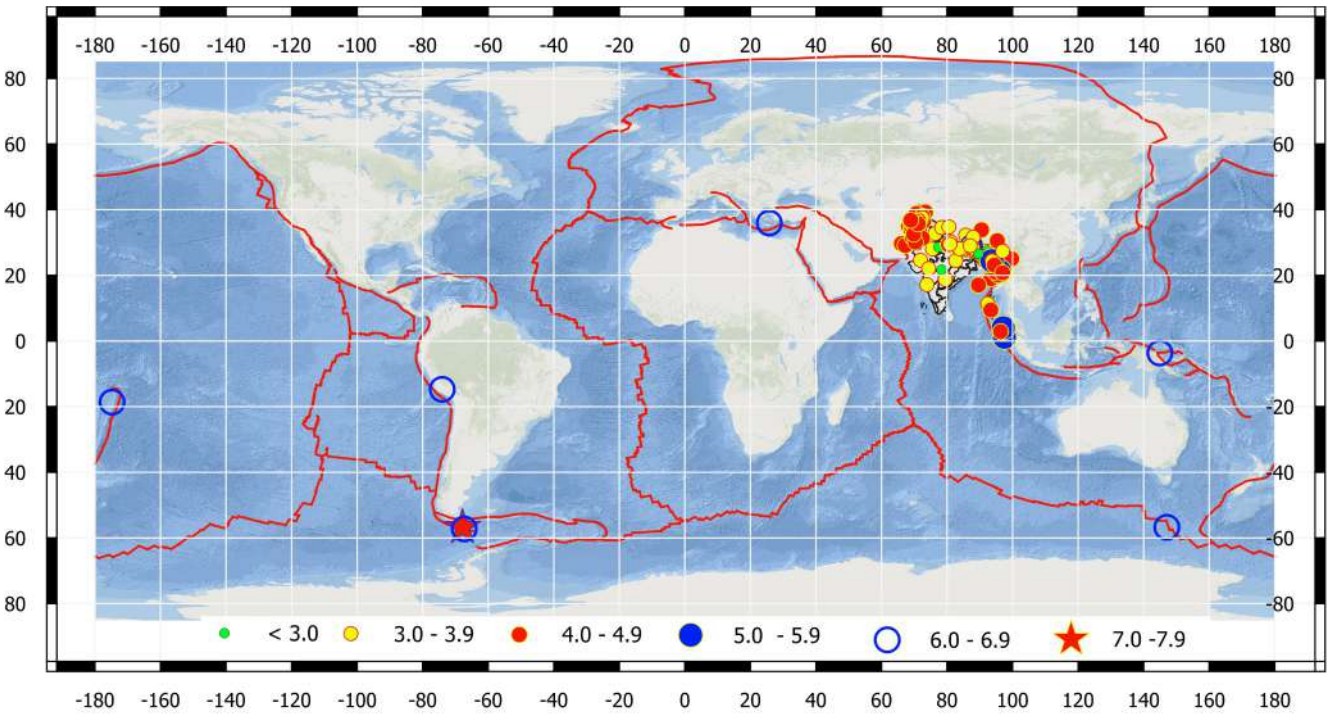


Figure 2: Earthquakes located and disseminated by NCS during 01st – 31st MAY2025

2) Seismicity:

During the period, the majority of earthquakes within India and its neighbourhood region bounded by the coordinates 0-40^{0}N & 60-100^{0}E; were located in Hindu Kush region, North India (Jammu and Kashmir, Ladakh, Himachal Pradesh and Uttarakhand), North East India (Arunachal Pradesh, Assam, Meghalaya, Manipur and Sikkim) as shown in **Figure 3**.

Few earthquakes of smaller magnitudes were also reported in northern (Meerut in Uttar Pradesh) western (Jhunjhunu in Rajasthan; Banaskantha in Gujrat; Sangali in Maharashtra); central (Alirajpur, Betul and Singraulli in Madhya Pradesh); eastern (Alipurduar in West Bengal) and southern (Peddapalli and Kumuram Bheem Asifabad in Telengana) part of country. **Twenty Four** earthquakes of smaller magnitude (**M < 3.0)** comprising **15%** of all earthquakes occurred during 01st to 31st MAY 2025. **Five** earthquakes of magnitude **M:5.0 and above** occurred during the month in the region; as detailed in **Table:1**.

Out of total 157 earthquakes **45%** and **32%** earthquakes occurred in the magnitude range **3.0-3.9** and **4.0-4.9** respectively; whereas **five** earthquakes in the magnitude range 5.0-5.9 occurred

Table:1 Earthquakes of M≥5.0 occurred during MAY 2025 within India and its neighbourhood

SN	Date	Time (IST)	Lat(^{0}N)	Long(^{0}E)	D (KM)	M	Region
1	2025-05-07	12:39:18	01.13	97.54	70	5.1	Northern Sumatra, Indonesia
2	2025-05-11	14:27:46	04.01	97.19	107	5.5	Northern Sumatra, Indonesia
3	2025-05-12	02:41:24	29.02	87.48	10	5.7	Tibet
4	2025-05-17	21:24:51	21.32	96.03	55	5.4	Myanmar
5	2025-05-28	01:54:29	24.46	93.70	40	5.2	Churachandpur,Maniur

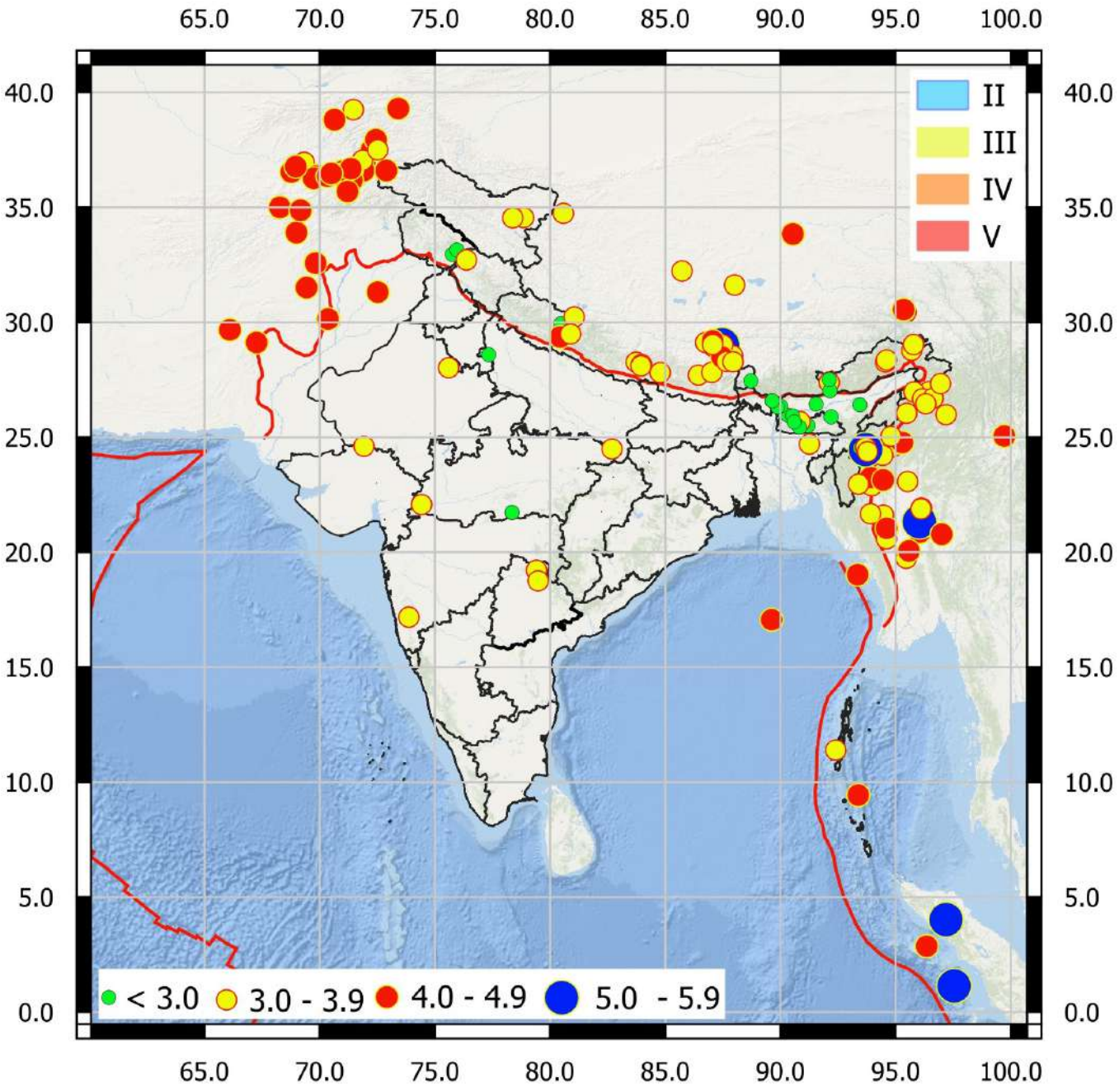


Figure 3: Map showing the seismicity during the period 01st – 31st MAY2025 occurred in India and its neighbourhood region along with the seismic zone of India.

during the period were inside the grid of 0- 40^{0}N & 60-100^{0}E as shown in **Figure 2 and Figure 3. Six** earthquakes in the magnitude range **6.0-6.9** and One earthquake of magnitude **M:7.3** occurred during the period were outside the grid of 0- 40^{0}N & 60-100^{0}E as shown in **Figure 2** and **Figure 4(a).** Detail list of earthquakes occurred during the month is available at https://seismo.gov.in/

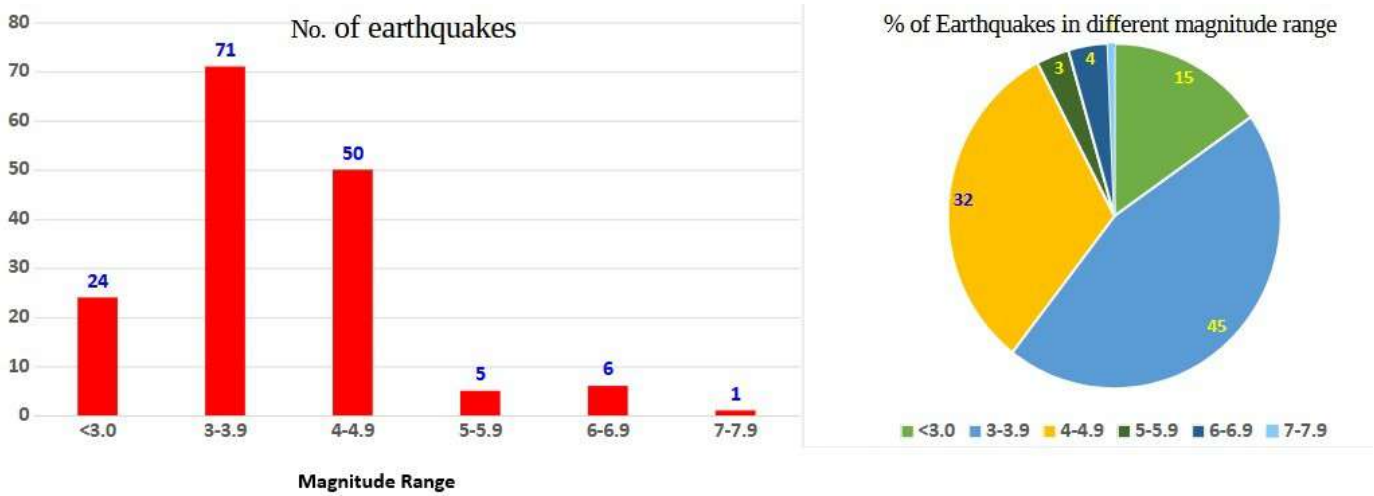


Figure 4 (a) : Distribution of earthquakes in the different magnitude range during 01st – 31st MAY 2025.

There is small positive change in number of earthquakes in the magnitude range of <3.0 and 7.0 -7.9 and negative change for other magnitude ranges with respect to previous month (April 2025) as shown in Figure 4 (b).

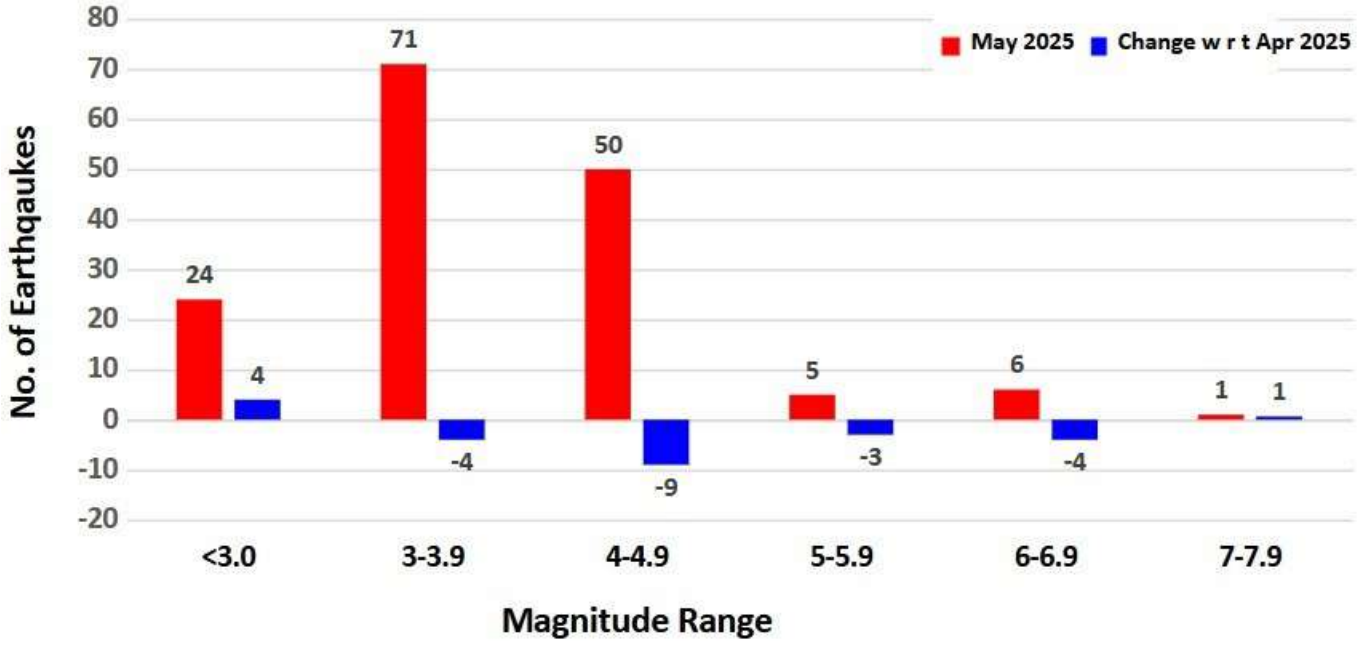


Figure 4 (b) : Change of occurrence of earthquakes in different magnitude ranges w r t previous month

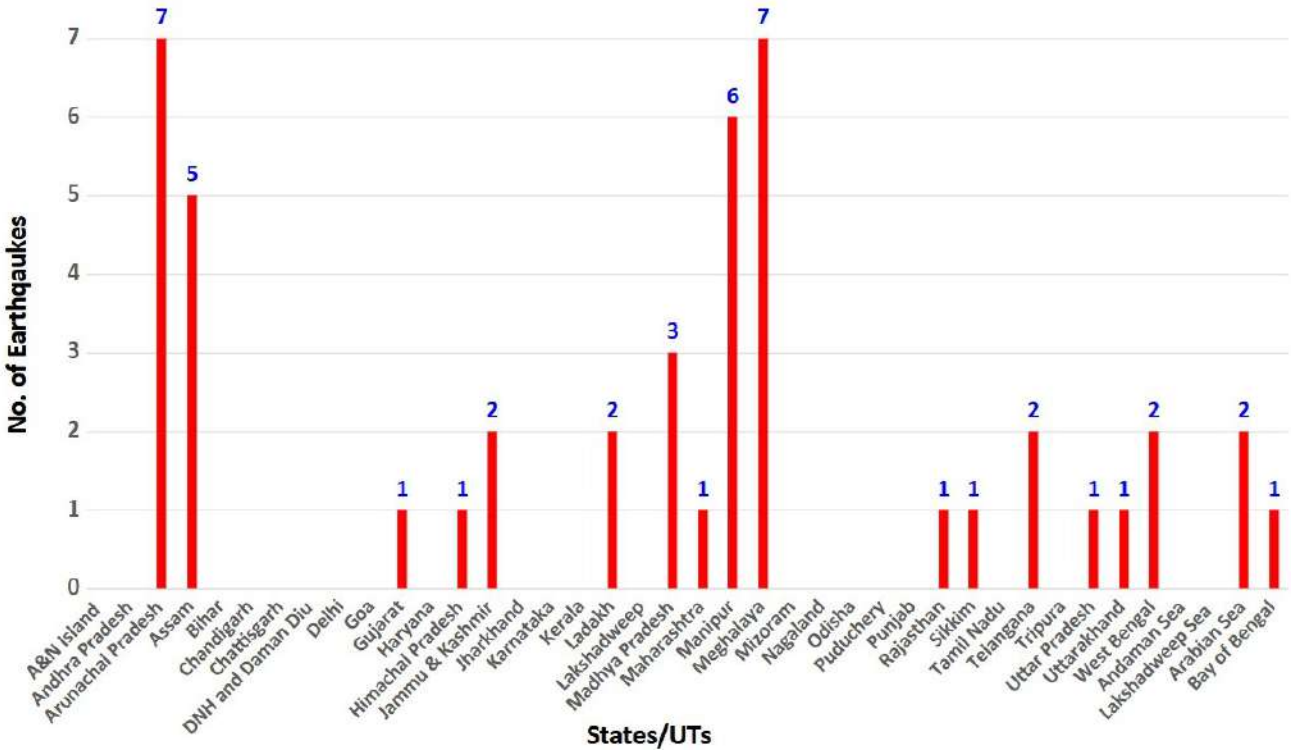


Figure 5: State wise distribution of earthquakes during the period 01st – 31st MAY2025.

Total **46** earthquakes occurred within Indian territory; of which 7 earthquakes occurred each in Arunachal Pradesh and Meghalaya during the period and 6 were in Manipur. Out of 46 earthquakes **7** and **26** earthquakes occurred in **North** and **North-East** region respectively. State/UT and region wise distribution of earthquakes occurred during 01st – 31st May 2025 is shown in **Figure 5** and **Figure 6** respectively**.** There was spars activity reported in all regions except north and north-east part of the country during the 01st – 30th MAY2025 **(Figure 3**).

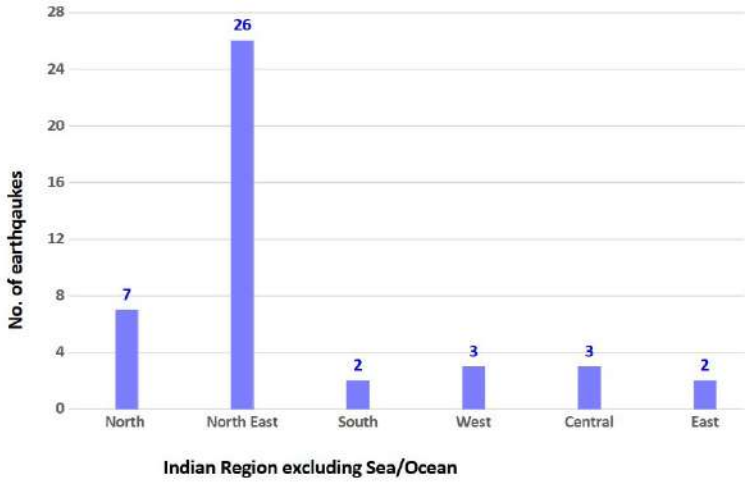


Figure: 6 Region wise distribution

3) Significant Activity:

Manipur Earthquake: An earthquake of **M:5.2** occurred at **01:54:29 IST** of **28th MAY 2025** in Churachandpur, Manipur at 24.46° N and 93.70° E with focal depth of 40 km. The epicentre was approximately 46 Km SW of Imphal; 130 Km NE of Aizwal; 220 Km SE of Shillong and 290 Km S of Itanagar. The area is seismically very active and associated with subduction tectonics where the Indian plate subducts beneath the Burma microplate. The occurrence of earthquakes in the region is attributed mainly to the tectonic settings of the Indo-Burmease wedge which consists of several mapped fault namely Kabaw fault, Kaladan fault and Churachandpur-Mao Fault (CMF).

This event occurred near the Churachandpur-Mao Fault, which is a strike-slip fault and a very apt location for triggering the mainshock due to appreciable structural heterogeneity in and around the source region. The preliminary fault plane solution derived from moment tensor inversion suggests a right-lateral strike-slip fault. The epicentre of the recent event is 48 km south of the 2016 M 6.7 Tamenglong, Manipur earthquake. **Figure 7** depicts the expected intensity of this earthquake around the source zone. The earthquake was widely felt in North-East region. More details about this earthquake are available at the URL https://riseq.seismo.gov.in/riseq/earthquake/event/QmJNOUp6OUduRkxvOWl1V0JDT0s3Zz09/Reviewed .

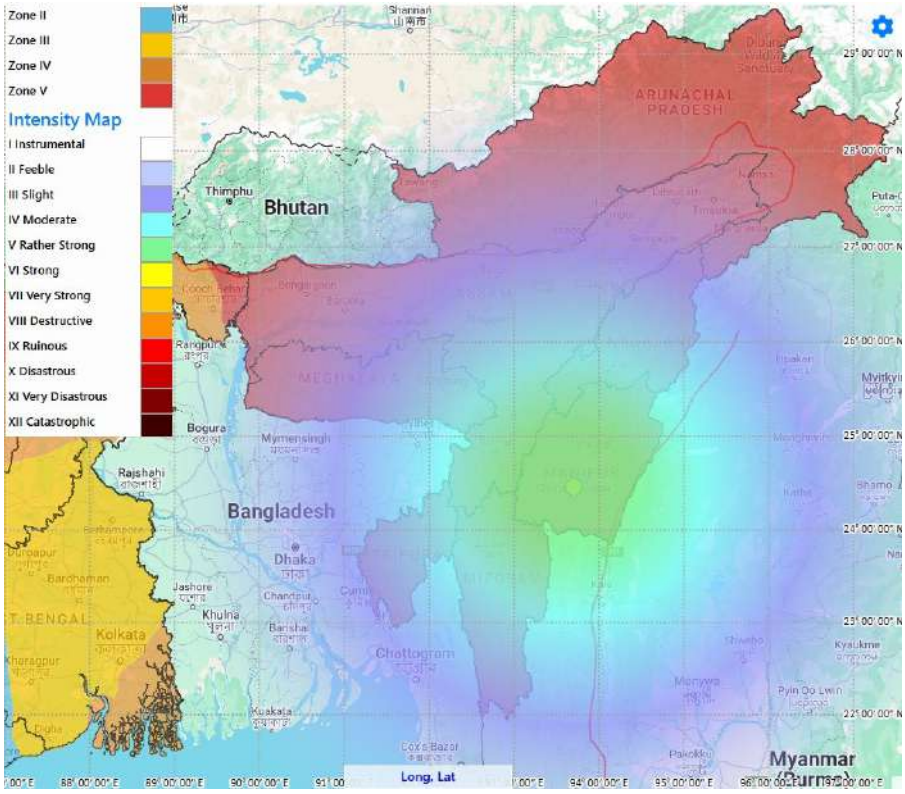
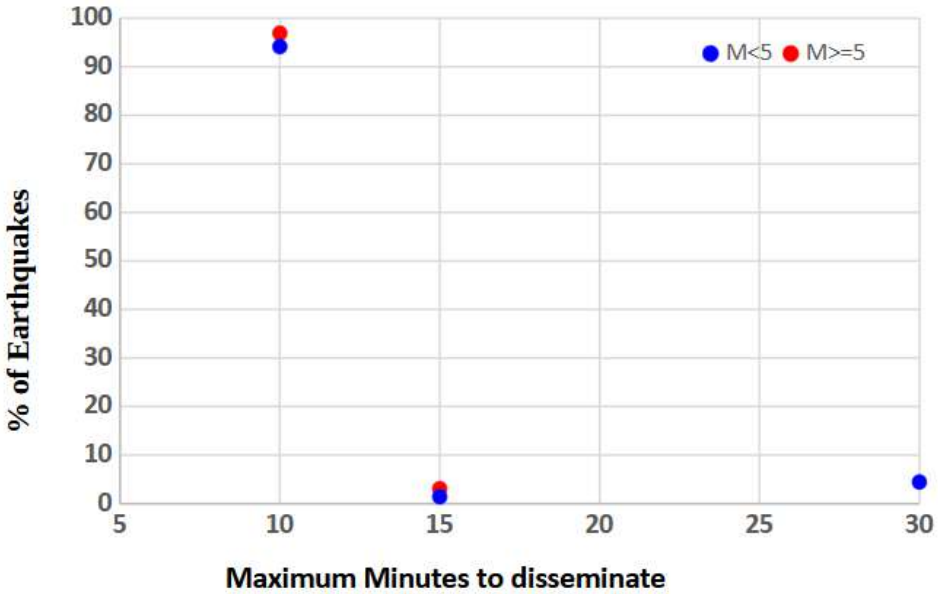


Figure 7: Intensity map of earthquake of M 5.2 occurred on 28th MAY 2025 in Manipur.

4) Dissemination Performance:



More than **90%** earthquakes of **M<5.0** and **M>5.0** occurred within India and its neighbourhood region bounded by the coordinates 0-40°N & 60-100°E were disseminated within 10 minutes as shown in **Figure 8.**

Figure 8: Dissemination of earthquakes within different time ranges during 01st –31st MAY 2025.