

Updated Report on 28th April 2021 Earthquake (M 6.4), Sonitpur, Assam

An earthquake of Magnitude M:6.4 occurred in Sonitpur, Assam with epicentre at 26.69° N and 92.36° E, focal depth of 17 Km at 07:51:25 IST. The epicentre is closer to the plate boundary and located at about 80 Km NE of Guwahati; 132 Km N of Shillong and 180 Km W of Jorhat. The preliminary analysis shows that the events are located near to Kopili Fault closer to Himalayan Frontal Thrust (HFT). The area is seismically very active falling in the highest Seismic Hazard zone V associated with collisional tectonics where Indian plate subducts beneath the Eurasian Plate.

The historical and instrumentally recorded earthquake data (NCS catalogue) reveals that the region is affected by moderate to large earthquakes and the most prominent events among those are the 29th July 1960 Assam earthquake of M 6.0 (Figure 1).

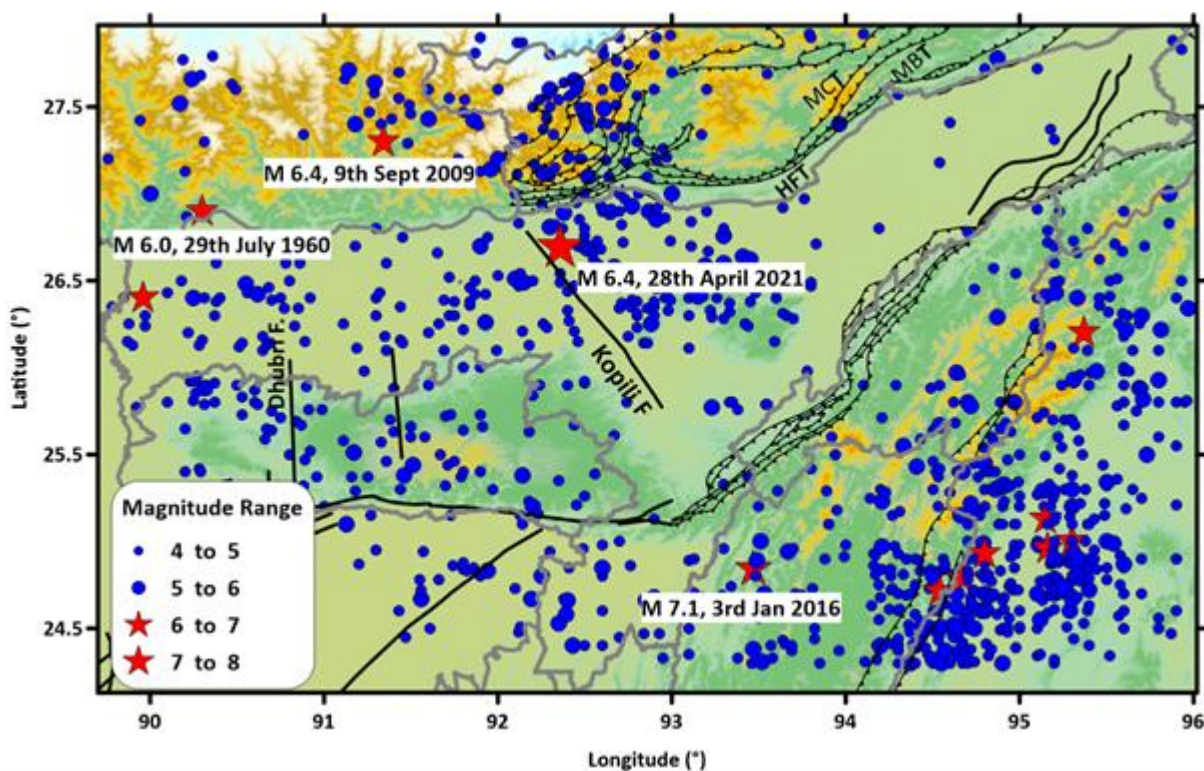


Figure 1: Seismicity ($M \geq 4.0$) in the Assam and surrounding region during 1960 -March 2020 [earthquake data source: seismo.gov.in and Geological faults and lineaments source: Bhukosh, GSI] and the Mainshock of 28th April 2021 is also shown

Expected intensity of this earthquake is assimilated by NCS, MoES as shown in Figure 2. The earthquake is felt in entire North East region of India and some parts of Bihar, West Bengal and

Bangladesh. More than 200 felt reports due to this earthquake, have been received from Assam, Bihar, Meghalaya, West Bengal and Bangladesh through NCS website and Mobile App having intensity ranging from I to V on Modified Mercalli Intensity (MMI) Scale (**Figure 3**).

Damages to buildings also reported within 100 km from epicentre in areas of Sonitpur, Nagaon, Guwahati as received from Central Seismological Observatory, NCS, Shillong and Regional Meteorological Centre, IMD, Guwahati.

A total of **33-number of aftershocks** of magnitude range of M: 2.3 to M:4.7 are located **till 00:09 IST of 4th May 20201**, signifying the release of the stress in the vicinity of source zone in and around Sonitpur, Assam [**Figure 4(a) and 4(b)**]. Epicentral distribution of aftershocks is shown in **Figure 5**.

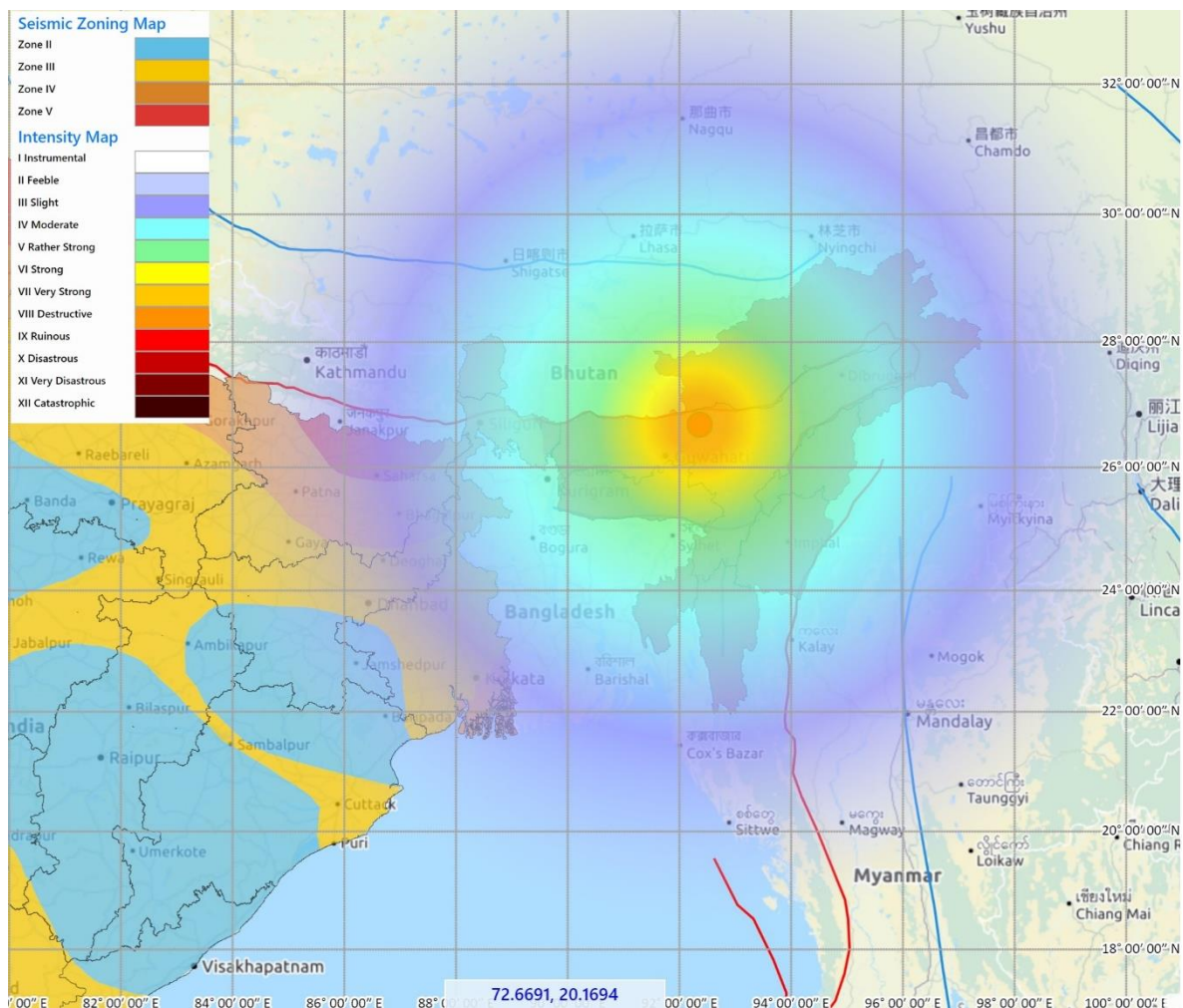


Figure 2: Estimated earthquake Intensity Map of the Mainshock M:6.4 of 28th April 2021

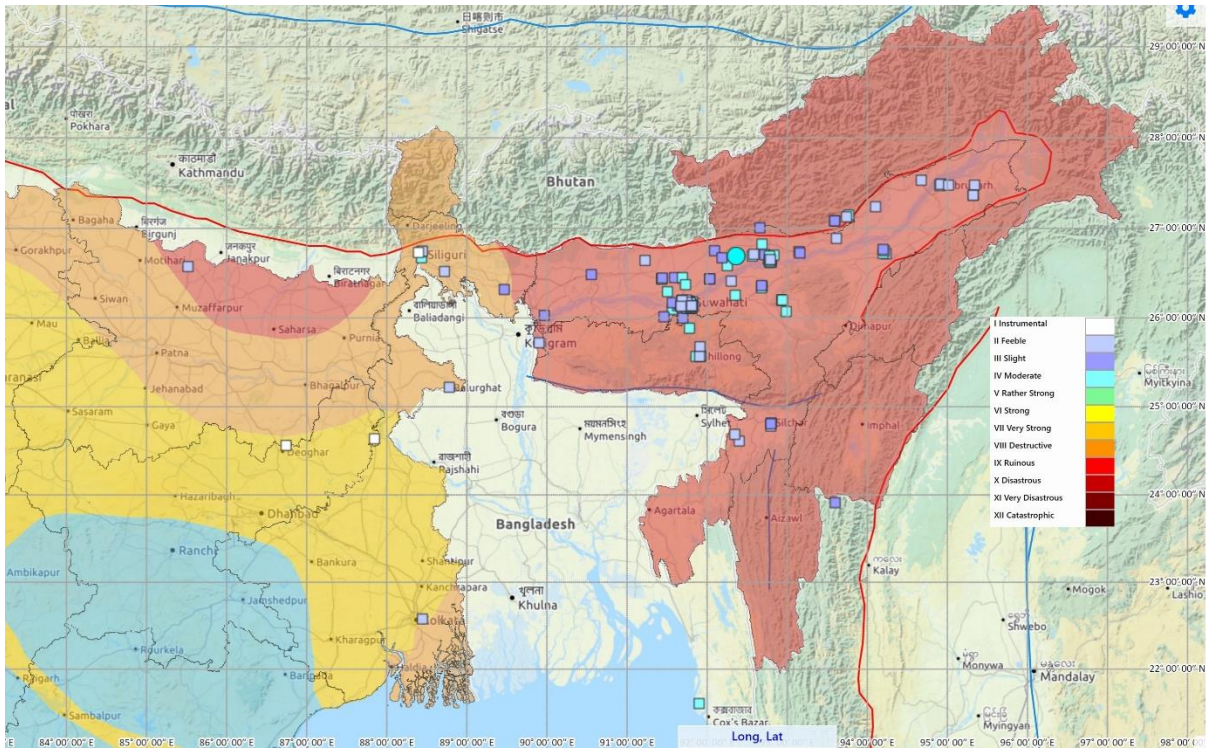


Figure 3: Felt responses (squares) of the 28th April 2021 earthquake M:6.4 (circle) from different users reported on www.seismo.gov.in and BhooKamp app.

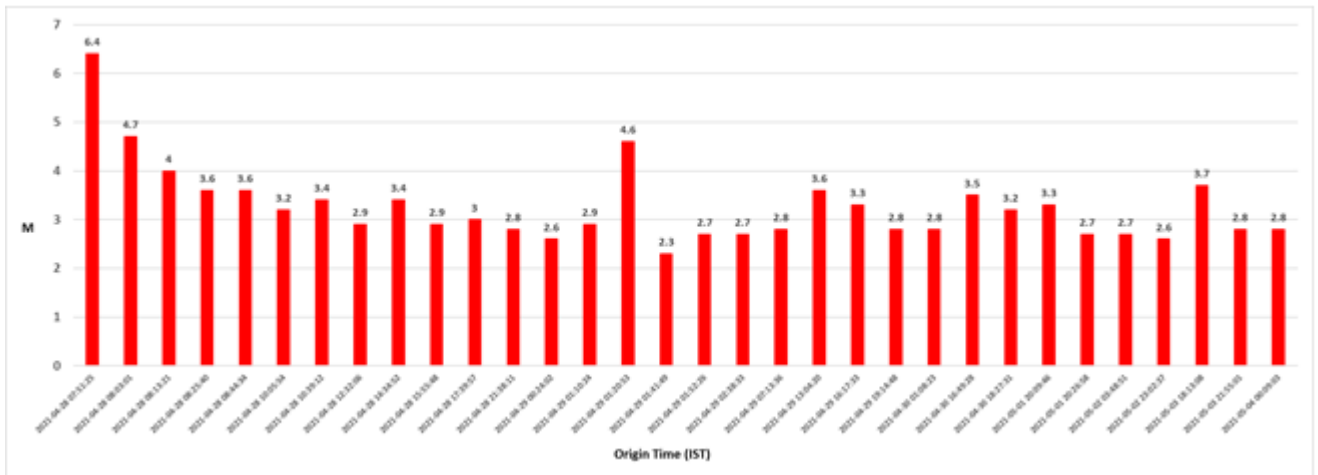


Figure 4(a) Temporal distribution of mainshock and its aftershocks

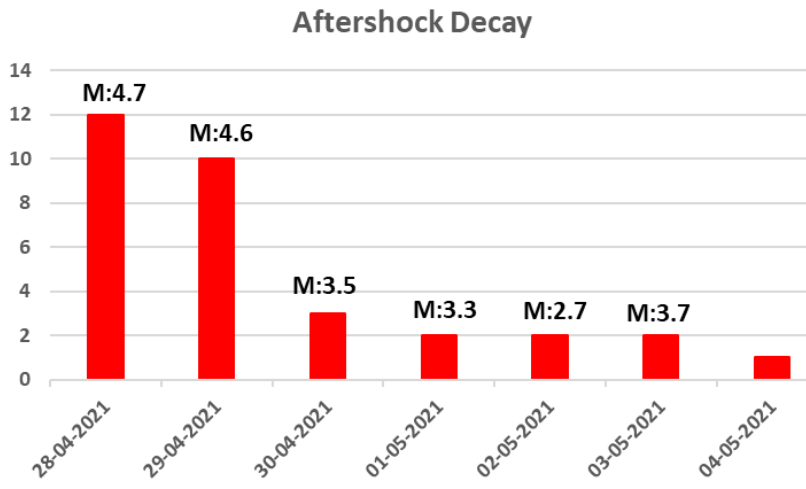


Figure 4(b): Daily decay pattern of no. of aftershock with maximum magnitude

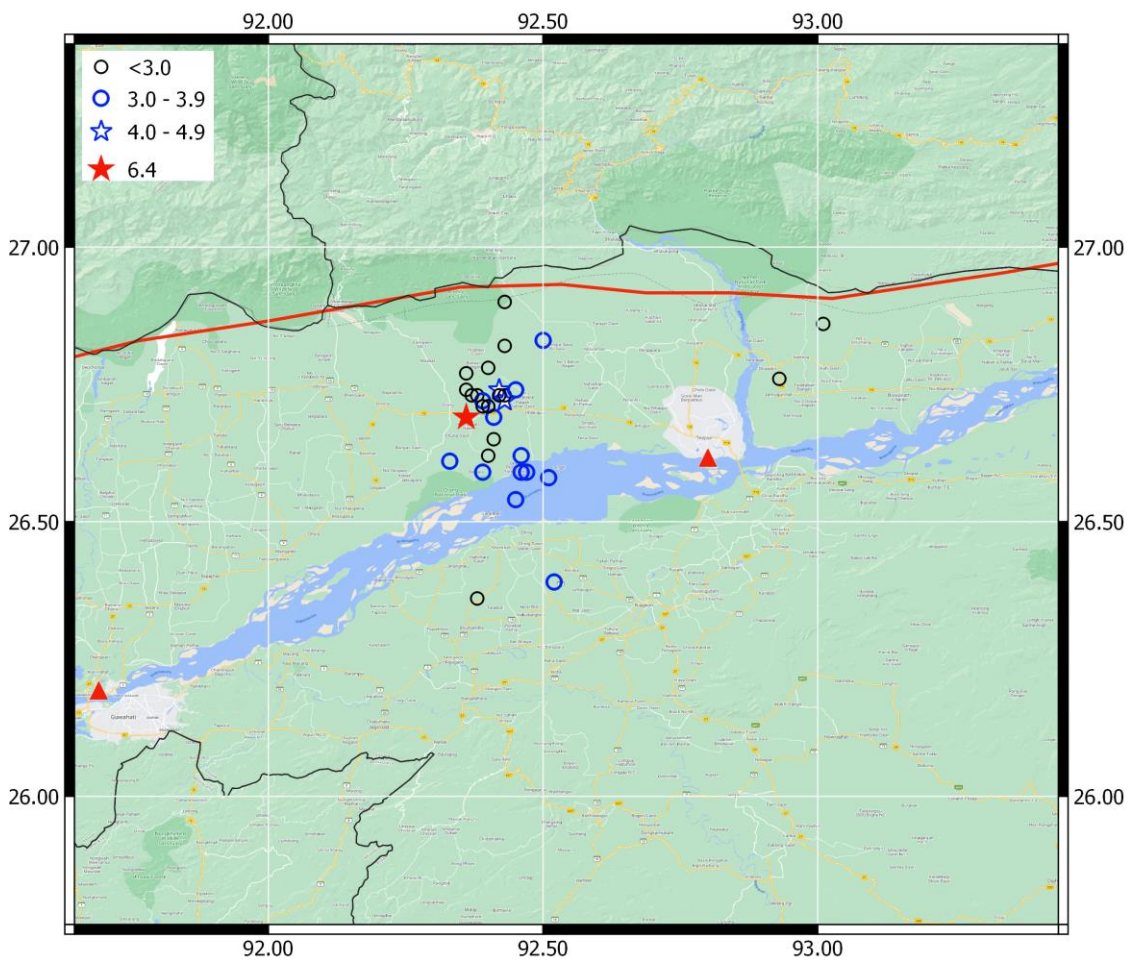


Figure 5: Spatial distribution of aftershocks of 28th April 2021 earthquake(M:6.4) of varying magnitudes

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