

# QUAKE BULLETIN

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## EARTHQUAKE EVENTS:

This database will give the information about the earthquakes that occurred worldwide and India wide from December 2017. The list of the earthquakes is as follows:

### Worldwide:

(Source: United States Geological System, USGS, <http://earthquake.usgs.gov/earthquakes/>)

| Date       | Time (UTC) | Lat     | Long     | Depth (km) | Mw   | Location                                  |
|------------|------------|---------|----------|------------|------|---|
| 01/12/2017 | 32:46.0    | 30.74 N | 57.31 E  | 9.00       | 6.10 | 55km NNE of Kerman, Iran                  |
| 01/12/2017 | 49:58.5    | 6.13 S  | 147.66 E | 34.00      | 6.00 | 56km NNW of Finschhafen, Papua New Guinea |
| 03/12/2017 | 19:05.3    | 0.49 S  | 80.31 W  | 16.00      | 6.20 | 16km NE of Bahia de Caraquez, Ecuador     |
| 08/12/2017 | 22:54.2    | 10.12 N | 140.22 E | 12.79      | 6.40 | 50km NW of Fais, Micronesia               |
| 08/12/2017 | 51:08.0    | 10.01 N | 140.19 E | 8.00       | 6.30 | 45km NW of Fais, Micronesia               |
| 09/12/2017 | 14:24.8    | 10.09 N | 140.20 E | 10.00      | 6.10 | 50km NW of Fais, Micronesia               |
| 12/12/2017 | 43:17.9    | 30.72 N | 57.27 E  | 10.00      | 6.00 | 51km NNE of Kerman, Iran                  |
| 12/12/2017 | 41:31.2    | 30.82 N | 57.29 E  | 8.00       | 6.00 | 63km NNE of Kerman, Iran                  |
| 13/12/2017 | 03:42.8    | 54.22 S | 2.17 E   | 10.00      | 6.50 | 80km WNW of Bouvet Island, Bouvet Island  |
| 15/12/2017 | 47:56.9    | 7.73 S  | 108.02 E | 91.86      | 6.50 | okm ESE of Cipatujah, Indonesia           |

### India wide:

(Source: Indian Meteorological Department, IMD, [http://www.imd.gov.in/pages/earthquake\\_prelim.php](http://www.imd.gov.in/pages/earthquake_prelim.php))

| Date       | Time (UTC) | Lat      | Long    | Depth (km) | Mw   | Location                               |
|------------|------------|----------|---------|------------|------|--|
| 02/12/2017 | 23:43:44   | 27.40 N  | 88.30 E | 3.00       | 3.80 | West Sikkim                            |
| 02/12/2017 | 20:25:06   | 25.200 N | 93.30 E | 10.00      | 3.10 | North Cachar Hills Assam               |
| 05/12/2017 | 14:58:33   | 22.70 N  | 86.10 E | 39.00      | 3.00 | Dist. East Singhbhum, Jharkhand        |
| 06/12/2017 | 23:29:07   | 35.50 N  | 77.60 E | 35.00      | 5.40 | India (J & K) - Xinjiang Border Region |
| 06/12/2017 | 19:39:31   | 17.60 N  | 73.30 E | 15.00      | 3.20 | Ratnagiri, Maharashtra                 |
| 06/12/2017 | 15:19:54   | 30.40 N  | 79.10 E | 30.00      | 5.50 | Distt. Rudraprayag, Uttarakhand        |
| 08/12/2017 | 17:55:52   | 25.60 N  | 91.60 E | 10.00      | 3.00 | West Khasi Hills, Meghalaya            |
| 08/12/2017 | 2:51:13    | 27.80 N  | 85.50 E | 10.00      | 5.00 | Nepal                                  |
| 09/12/2017 | 10:43:07   | 33.30 N  | 76.80 E | 10.00      | 4.70 | Jammu and Kashmir                      |
| 10/12/2017 | 22:58:54   | 34.30 N  | 78.80 E | 33.00      | 4.50 | Jammu and Kashmir                      |
| 11/12/2017 | 16:49:54   | 12.30 N  | 93.70 E | 116.00     | 4.60 | Andaman Islands                        |
| 11/12/2017 | 3:35:17    | 25.60 N  | 90.60 E | 60.00      | 4.70 | East Garo Hills, Meghalaya             |

| Date       | Time (UTC) | Lat     | Long     | Depth (km) | Mw   | Location   |
|------------|------------|---------|----------|------------|------|--|
| 15/12/2017 | 21:25:19   | 26.40 N | 93.70 E  | 30.00      | 3.30 | Karbi Anglong , Assam                                      |
| 15/12/2017 | 16:47:49   | 7.40 S  | 108.10 E | 10.00      | 6.70 | Java , Indonesia   |
| 17/12/2017 | 6:20:40    | 27.60 N | 94.30 E  | 10.00      | 4.20 | Dhemaji, Assam   |
| 21/12/2017 | 18:47:11   | 27.40 N | 92.50 E  | 10.00      | 3.90 | West Kameng, Arunachal Pradesh                             |
| 22/12/2017 | 15:58:47   | 10.00 N | 93.10 E  | 10.00      | 5.00 | Andaman Islands  |
| 23/12/2017 | 15:45:01   | 23.50 N | 94.10 E  | 126.00     | 4.90 | Myanmar- India (Manipur) Border Region                     |
| 25/12/2017 | 4:14:21    | 19.80 N | 73.20 E  | 5.00       | 3.40 | Palghar, Maharashtra                                       |
| 27/12/2017 | 15:15:52   | 9.00 N  | 77.20 E  | 5.00       | 3.00 | Tamilnadu(Tirunaveli Kattbom)- Kerala(Kollam)Border Region |
| 28/12/2017 | 11:17:28   | 30.40 N | 79.20 E  | 33.00      | 4.70 | Distt Chamoli-Rudraprayag Border Region,Uttarakhand        |
| 29/12/2017 | 16:19:15   | 26.80 N | 95.90 E  | 110.00     | 4.70 | Myanmar India Border Region                                |
| 29/12/2017 | 11:29:38   | 8.60 N  | 92.40 E  | 10.00      | 5.20 | Nicobar Islands  |
| 30/12/2017 | 18:32:07   | 25.50 N | 91.00 E  | 10.00      | 3.00 | West Khasi Hills,Meghalaya                                 |
| 30/12/2017 | 14:36:14   | 30.60 N | 79.50 E  | 10.00      | 2.90 | Chamoli, Uttarakhand                                       |
| 31/12/2017 | 0:31:18    | 27.30 N | 92.70 E  | 10.00      | 3.20 | West Kameng,Arunachal Pradesh                              |

### GROUND MOTION RECORDS:

In our centre around 624 ground motion records are available. Since 1973 the ground motions are available with N-S, E-W and U-D components. Out of all the available ground motions few of them are listed below.

(Source: PESMOS-IITR)

| Sl. No | Earthquake | Date                       | Station  | PGA (cm/sec <sup>2</sup> ) |        |        | Frequency Range (Hz) |                |                | Duration (sec) |        |        |
|--------|------------|----------------------------|----------|----------------------------|--------|--------|----------------------|----------------|----------------|----------------|--------|--------|
|        |            |                            |          | EW                         | NS     | VT     | EW                   | NS             | VT             | EW             | NS     | VT     |
| 1      | Nagaland   | 01 <sup>st</sup> July 2012 | Golaghat | 20.014                     | 36.742 | 14.703 | 0.012 – 8.655        | 0.012 – 8.447  | 1.416 – 10.806 | 26.865         | 23.920 | 35.455 |
|        |            |                            | Jorhat   | 29.982                     | 14.670 | 10.267 | 1.495 – 6.006        | 1.154 – 5.670  | 2.441 – 7.202  | 31.855         | 36.375 | 33.525 |
|        |            |                            | Tinsukia | 9.378                      | 8.941  | 4.046  | 2.576 – 11.157       | 2.709 – 11.426 | 6.604 – 21.643 | 35.725         | 36.640 | 37.495 |
| 2      | Assam      | 10 <sup>th</sup> July 2012 | Naogoan  | 7.448                      | 5.869  | 11.637 | 3.211 – 13.623       | 3.125 – 13.269 | 5.872 – 14.136 | 17.700         | 17.700 | 22.370 |
| 3      | Hindukush  | 12 <sup>th</sup> July 2012 | Chamba   | 1.088                      | 1.466  | 1.013  | 0.012 – 8.300        | 0.012 – 7.958  | 0.012 – 9.899  | 41.900         | 39.700 | 43.780 |

### EERC LIBRARY:

#### **Publications:**

The following publications are very useful for research and are available in server

- ❖ Polat Gulakan (2013), “A Dispassionate of Seismic Hazard Assessment”, Seismological Research Letters, Vol. 84, No. 3, pp 413-416.

- ❖ A. Joshua Daniel, and S.K. Sudari (2016), "Seismic Vulnerability of Buildings on Hill Slopes", *International Journal of Earth Sciences and Engineering*, Vol. 9, No. 5, pp 1887-1894.
- ❖ Prashant V. Pokharkar and Manish Shrikande (2010), "Structural Health Monitoring via Stiffness Update", *ISET Journal of Earthquake Technology*, Vol.47, No.1, pp 47-60.