

QUAKE BULLETIN

Monthly Bulletin

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Editor: Ramancharla Pradeep Kumar

Associate Editors: Chenna Rajaram

Pulkit Velani

Raju Sangam

EARTHQUAKE EVENTS:

This database will give the information about the earthquakes that occurred worldwide and India wide from February 2016. The list of the earthquakes is as follows:

Worldwide:

(Source: <http://earthquake.usgs.gov/earthquakes/>)

| Date | Time (UTC) | Lat | Long | Depth (km) | Mw | Location |
|------------|------------|---------|----------|------------|-----|--|
| 01/04/2016 | 19:24:55 | 3.41 S | 144.97 E | 5.4 | 6.2 | 123km NE of Angoram, Papua New Guinea |
| 03/04/2016 | 08:23:53 | 14.35 S | 166.82 E | 35.0 | 6.9 | 81km NNW of Port-Olry, Vanuatu |
| 06/04/2016 | 06:58:48 | 14.08 S | 166.60 E | 24.0 | 6.7 | 105km WSW of Sola, Vanuatu |
| 06/04/2016 | 14:45:29 | 8.20 S | 107.39 E | 29.0 | 6.1 | 71km SSW of Bunisari, Indonesia |
| 07/04/2016 | 03:32:53 | 13.99 S | 166.57 E | 26.8 | 6.7 | 106km W of Sola, Vanuatu |
| 10/04/2016 | 10:28:58 | 36.47 N | 71.14 E | 211.6 | 6.6 | 42km WSW of Ashkasham, Afghanistan |
| 13/04/2016 | 13:55:17 | 23.13 N | 94.90 E | 134.8 | 6.9 | 74km SE of Mawlaik, Burma |
| 14/04/2016 | 12:17:05 | 14.50 S | 166.48 E | 10.0 | 6.0 | 86km NW of Port-Olry, Vanuatu |
| 15/04/2016 | 12:26:36 | 32.85 N | 130.64 E | 10.0 | 6.2 | 7km SW of Ueki, Japan |
| 16/04/2016 | 15:03:46 | 32.69 N | 130.73 E | 6.0 | 6.0 | 6km E of Uto, Japan |
| 17/04/2016 | 21:50:27 | 14.52 S | 166.35 E | 16.0 | 6.4 | 95km NW of Port-Olry, Vanuatu |
| 15/04/2016 | 14:11:27 | 13.42 N | 92.27 W | 25.0 | 6.1 | 104km SSW of Champerico, Guatemala |
| 15/04/2016 | 16:25:06 | 32.78 N | 130.73 E | 10.0 | 7.0 | 1km WSW of Kumamoto-shi, Japan |
| 16/04/2016 | 23:58:37 | 0.37 N | 79.94 W | 19.2 | 7.8 | 27km SSE of Muisne, Ecuador |
| 20/04/2016 | 08:33:47 | 0.64 N | 80.21 W | 14.8 | 6.2 | 19km WNW of Muisne, Ecuador |
| 20/04/2016 | 08:35:10 | 0.71 N | 80.00 W | 10.0 | 6.0 | 12km NNE of Muisne, Ecuador |
| 22/04/2016 | 03:03:41 | 0.33 S | 80.54 W | 10.0 | 6.0 | 33km NNW of Bahia de Caraquez, Ecuador |
| 28/04/2016 | 19:33:24 | 16.07 S | 167.39 E | 27.2 | 7.0 | 1km SE of Norsup, Vanuatu |
| 29/04/2016 | 01:33:38 | 10.27 N | 103.72 W | 10.0 | 6.6 | Northern East Pacific Rise |

| | | | | | | |
|------------|----------|---------|----------|-----|-----|------------------------------|
| 30/04/2016 | 08:35:42 | 16.31 S | 167.19 E | 4.8 | 6.0 | 32km SW of Lakatoro, Vanuatu |
|------------|----------|---------|----------|-----|-----|------------------------------|

India wide:

(Source: Indian Meteorological Department, IMD,
<http://www.imd.gov.in/section/seismo/dynamic/CMONTH.HTM>)

| Date | Time (UTC) | Lat | Long | Depth (km) | Mw | Location |
|------------|------------|--------|--------|------------|-----|--|
| 03/04/2016 | 20:31:39 | 24.4 N | 94.3 E | 120 | 4.0 | India(Chandel,Manipur)-Myanmar Border Region |
| 04/04/2016 | 4:31:26 | 27.8 N | 86.2 E | 10 | 4.3 | Nepal |
| 05/04/2016 | 7:42:27 | 25.9 N | 90.4 E | 10 | 5.4 | East Garo Hills, Meghalaya |
| 07/04/2016 | 20:03:19 | 27.0 N | 75.1 E | 15 | 3.5 | District Nagaur, Rajasthan |
| 08/04/2016 | 14:30:43 | 36.9 N | 71.2 E | 78 | 5.0 | Hindu Kush Region Afghanistan |
| 09/04/2016 | 13:20:14 | 27.6 N | 85.2 E | 10 | 4.5 | Nepal |
| 10/04/2016 | 10:28:57 | 36.4 N | 71.2 E | 190 | 6.8 | Hindukush Region,Afghanistan |
| 11/04/2016 | 10:36:13 | 29.8 N | 80.1 E | 10 | 3.7 | Distt.Pithoragarh, Uttarakhand |
| 12/04/2016 | 11:55:48 | 26.5 N | 90.8 E | 10 | 3.8 | District Barpeta, Assam |
| 12/04/2016 | 14:41:53 | 27.5 N | 86.1 E | 10 | 4.5 | Nepal |
| 13/04/2016 | 3:56:54 | 24.9 N | 94.0 E | 60 | 4.6 | Imphal, Manipur |
| 13/04/2016 | 13:55:16 | 23.0 N | 94.9 E | 134 | 6.8 | Myanmar - India Border Region |
| 14/04/2016 | 5:41:55 | 23.8 N | 94.0 E | 80 | 4.5 | Myanmar-India(Manipur) Border Region |
| 14/04/2016 | 16:23:40 | 23.3 N | 93.2 E | 5 | 3.5 | Champhai, Mizoram |
| 19/04/2016 | 1:14:46 | 24.8 N | 92.7 E | 10 | 3.7 | Cachar, Assam |
| 19/04/2016 | 20:32:58 | 10.3 N | 93.8 E | 10 | 5.1 | Andaman Islands |
| 23/04/2016 | 20:31:01 | 28.7 N | 85.1 E | 150 | 4.6 | Nepal |
| 24/04/2016 | 21:43:09 | 37.0 N | 71.7 E | 100 | 5.2 | Afghanistan-Tajikistan Border Region |

GROUND MOTION RECORDS:

In our centre around 624ground motion records are available. Since 1973 the ground motions are available with N-S, E-W and U-D components. All the available ground motions are listed.

(Source: PESMOS-IITR)

| S No | Earthquake | Date | Station | Component | | |
|------|------------|--------------|----------|-----------|----|----|
| | | | | NS | EW | UD |
| 1 | Guwahati | 19 June 2010 | Guwahati | ✓ | ✓ | ✓ |
| 2 | Tissa | 21 June 2010 | Tissa | ✓ | ✓ | ✓ |
| 3 | Chamba | 21 June 2010 | Chamba | ✓ | ✓ | ✓ |

EERC LIBRARY:

Publications:

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

- ❖ V. Mariani, M. Tanganelli, S. Viti and M. D. Stefano (2016), "Combined effects of axial load and concrete strength variation on the seismic performance of existing RC buildings", *Bulletin of Earthquake Engineering*, March, Vol. 14(3), pp. 805-819.
- ❖ C. Petrone, G. Magliulo and G. Manfredi (2016), "Floor response spectra in RC frame structures designed according to Eurocode 8 ", *Bulletin of Earthquake Engineering*, March, Vol. 14(3), pp. 747-767.
- ❖ A. Masi, G. Santarsiero, M. R. Gallipoli, M. Mucciarelli, V. Manfredi, A. Dusi and T. A. Stabile (2014), "Performance of the health facilities during the 2012 Emilia (Italy) earthquake and analysis of the Mirandola hospital case study", *Bulletin of Earthquake Engineering*, October, Vol. 12(5), pp. 2419-2443.
- ❖ R. Oyguc (2016), "Seismic performance of RC school buildings after 2011 Van earthquakes", *Bulletin of Earthquake Engineering*, March, Vol. 14(3), pp.821-847.
- ❖ D. Bindi, B. Petrovic, S. Karapetrou, M. Manakou, T. Boxberger, D. Raptakis, K. D. Pitilakis and S. Parolai (2015), "Seismic response of an 8-storey RC-building from ambient vibration analysis", *Bulletin of Earthquake Engineering*, March, Vol. 13(7), pp. 2095-2120.

Article:

The following article is very useful for research:

- ❖ Jain, S. K. (2016), "Earthquake Safety in India: achievements, challenges and opportunities", *Bulletin of Earthquake Engineering*, May, Vol. 14(5), pp. 1337-1436.