



**GOVERNMENT OF INDIA
GEOLOGICAL SURVEY OF INDIA**

A note on earthquakes of magnitude 5.2 M_L and 4.5 M_L of 27th February, 2017 in Nepal

A moderate earthquake of magnitude 5.2 M_L occurred at a depth of 4.4 km on 27th February 2017 at 03 hr: 37m: 50.2s (UTC) and 09hr: 07m: 50.2s (IST) near Bhimeshwar in Nepal. The epicenter of the earthquake has been located at latitude 27.645° N and longitude 86.081°E as shown in Fig.1. The epicenter of earthquake has been located using data recorded at four Seismo-geodetic observatories of GSI established at Agartala, Itanagar, Mangan and Nagpur. The waveform of the earthquake and its location parameters are presented in Fig 2a and Fig.2b respectively.

Another light earthquake of magnitude 4.5 M_L occurred at a depth of 9.1 km on 27th February 2017 at 04 hr: 21 m: 45.4s (UTC) and 09hr: 51m: 45.4s (IST) near Gelu in Nepal. The epicenter of the earthquake has been located at latitude 27.467° N and longitude 86.074°E as shown in Fig.1. The epicenter of earthquake has been located using data recorded at three Seismo-geodetic observatories of GSI established at Itanagar, Mangan and Nagpur. The waveform of the earthquake and its location parameters are presented in Fig 3a and Fig.3b respectively.

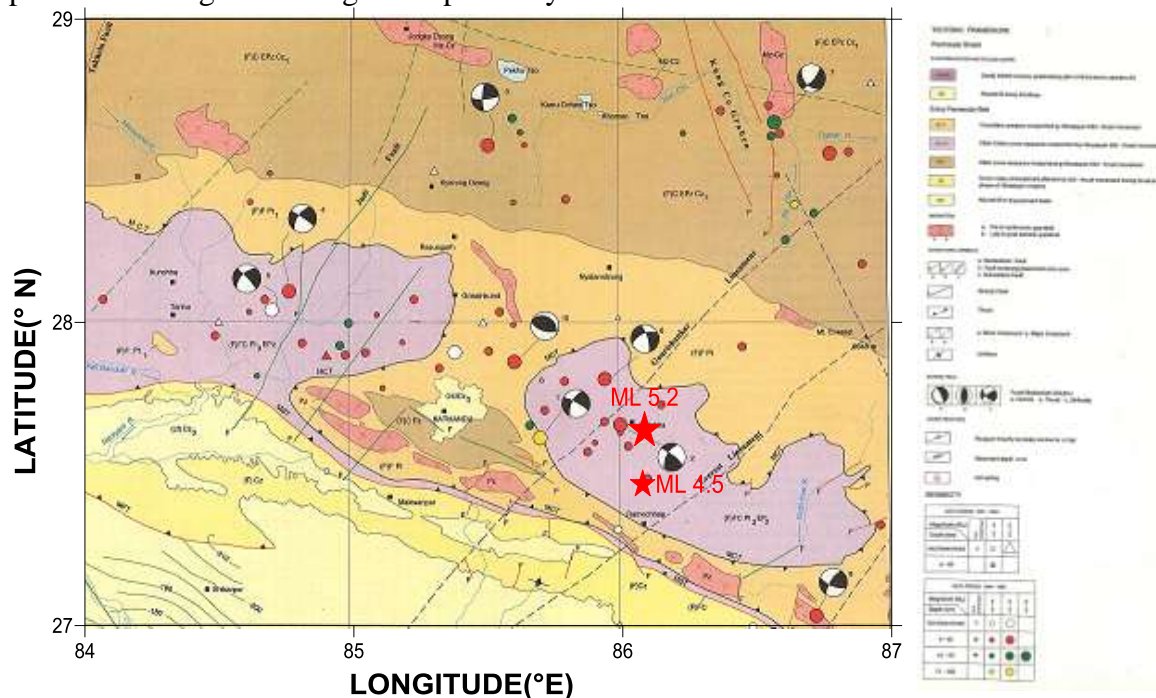


Figure 1. Tectonic map of Nepal and surroundings (Seismotectonic Atlas of India and its environs, 2000) with location of epicenter earthquake (Red star).

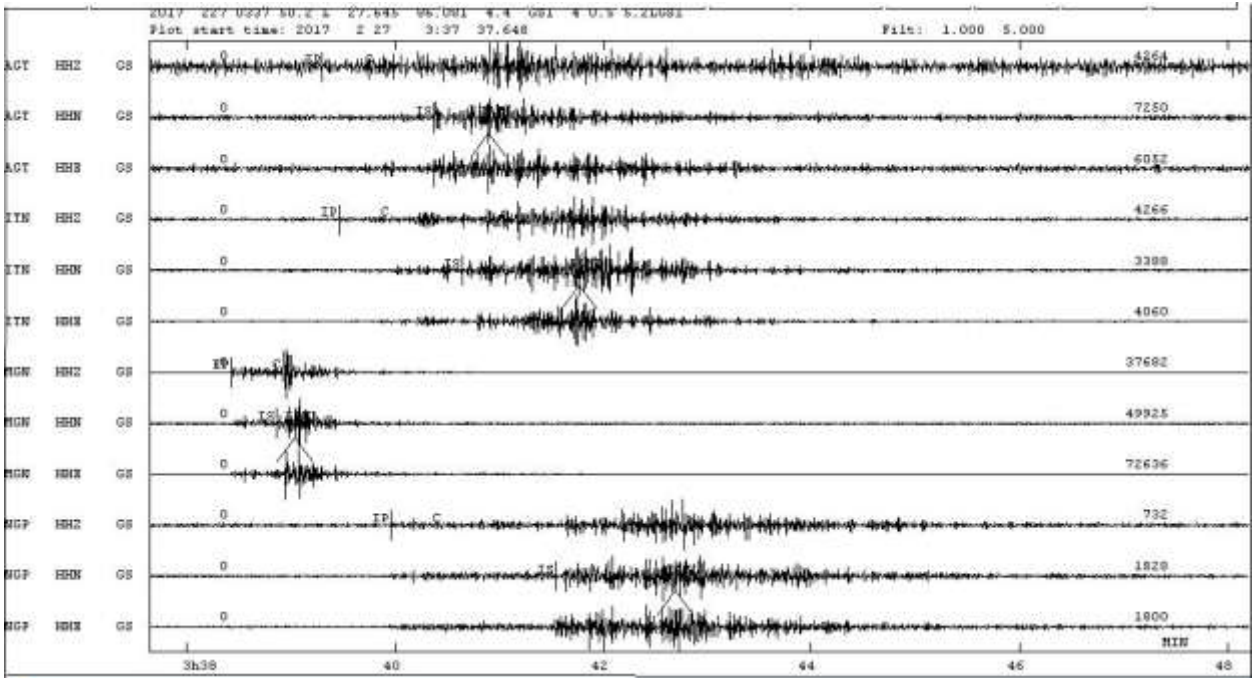


Figure 2a. Waveform of the earthquake of magnitude 5.2 M_L .

date	hrmn	sec	lat	long	depth	no	m	rms	damp	erln	erlt	erdp	i
17 227	337	50.16	2738.70N	86	4.8E	4.4	8 3	0.50	0.000	5.9	13.1	13.6	
stn	dist	azm	ain	w	phas	calcp	h	t	t	t	res	wt	di
MGN	243	93.5	50.4	0	P	C PN4	338	25.1	34.94	35.37	-0.42	1.00	7
MGN	243	93.5	50.4	0	S	SN4	338	51.4	61.24	61.54	-0.30	1.00	8
MGN	243	93.5	0	0	AMP		339	1.8	71.6				
AGT	670	127.5	48.7	0	P	C PN5	339	17.9	87.74	87.49	0.26	1.00	10
AGT	670	127.5	48.7	0	S	SN5	340	22.3	152.14	152.23	-0.09	1.00	23
AGT	670	127.5	0	0	AMP		340	53.0	182.8				
ITN	746	93.0	46.8	0	P	C PN6	339	27.7	97.53	96.56	0.98	1.00	6
ITN	746	93.0	46.8	0	S	SN6	340	38.1	167.93	168.01	-0.07	1.00	13
ITN	746	93.0	0	0	AMP		341	23.8	213.7				
NGP	1011	226.3	46.8	0	P	C PN6	339	57.1	126.95	127.68	-0.73	1.00	10
NGP	1011	226.3	46.8	0	S	SN6	341	32.7	222.54	222.17	0.38	1.00	23
NGP	1011	226.3	0	0	AMP		342	34.1	284.0				
MGN	HN	hdist:	243.0	amp:	44006.4	T:	0.5	m1 =	5.4				
AGT	HN	hdist:	670.0	amp:	6009.6	T:	0.6	m1 =	5.3				
ITN	HN	hdist:	746.0	amp:	3593.6	T:	0.6	m1 =	5.1				
NGP	HN	hdist:	1011.0	amp:	1321.1	T:	0.4	m1 =	5.1				
2017	227	0337	50.2	L	27.645	86.081	4.4	GSI	4	0.5	5.2LGS1		

Figure 2b. Location parameters of the earthquake of magnitude 5.2 M_L .

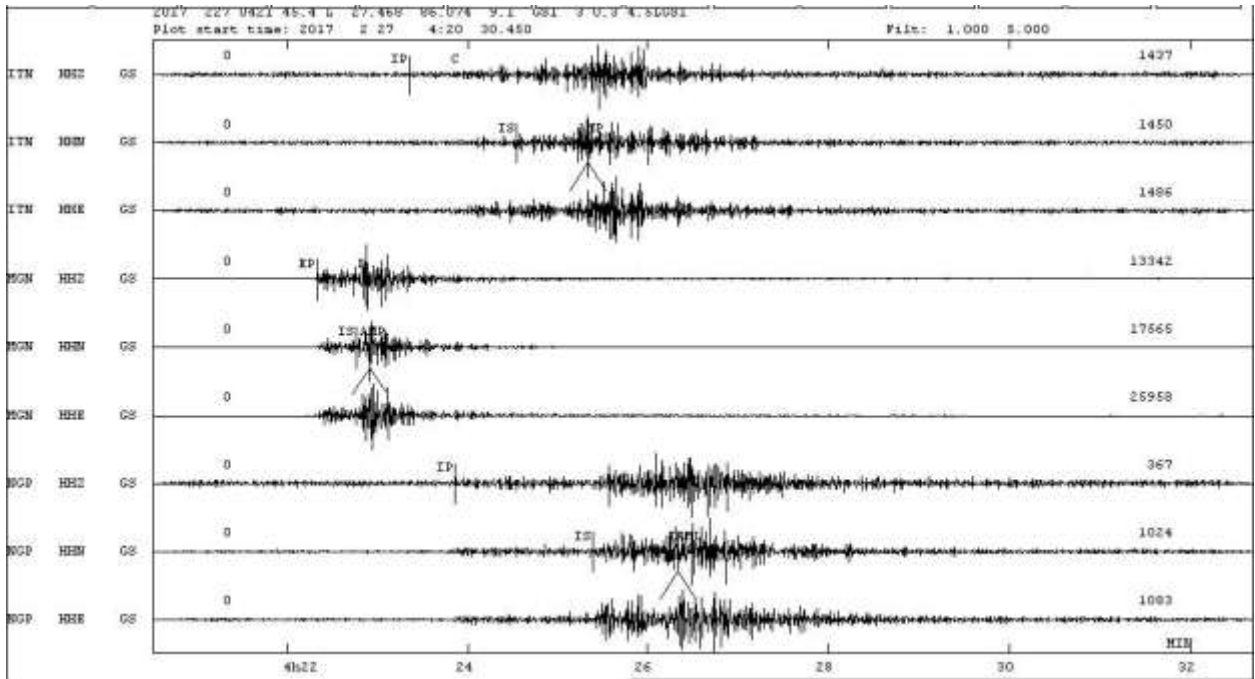


Figure 3a. Waveform of the earthquake of magnitude 4.5 M_L .

date	hrmn	sec	lat	long	depth	no	m	rms	damp	erln	erlt	erdp	i
17 227	421	45.38	2728.04N	86 4.5E	9.1	6	2	0.32	0.000	1.2	3.0	0.0	
stn	dist	azm	ain	w	phas	calcp	hrs	tsec	t-obs	t-cal	res	wt	di
MGN	244	88.8	50.4	0	P	D PN4	422	19.9	34.52	34.92	-0.40	1.00	13
MGN	244	88.8	50.4	0	S	SN4	422	46.2	60.81	60.76	0.05	1.00	31
MGN	244	88.8	0	0	AMP		422	55.6	70.2				
ITN	746	91.5	46.8	0	P	C PN6	423	21.3	95.93	96.02	-0.10	1.00	14
ITN	746	91.5	46.8	0	S	SN6	424	32.7	167.32	167.08	0.24	1.00	29
ITN	746	91.5	0	0	AMP		425	19.7	214.3				
NGP	997	227.1	46.8	0	P	PN6	423	51.4	126.06	125.53	0.53	1.00	11
NGP	997	227.1	46.8	0	S	SN6	425	23.5	218.11	218.42	-0.32	1.00	22
NGP	997	227.1	0	0	IAML		426	19.8	274.4				
MGN	HN	hdist:	244.2	amp:	15899.4	T:	0.9	ml =	4.9				
ITN	HN	hdist:	746.1	amp:	1413.7	T:	1.0	ml =	4.7				
NGP	HN	hdist:	997.0	amp:	88.9	T:	0.4	ml =	3.9				
2017	227	0421	45.4	L	27.467	86.074	9.1	GSI	3	0.3	4.5L	GSI	

Figure 3b. Location parameters of the earthquake of magnitude 4.5 M_L .