

DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

National Earthquake Information Center
Waveform Catalog
August 1985

by

Madeleine D. Zirbes
Janna M. Lishner
Beverly J. Moon
U.S. Geological Survey
Denver, Colorado

Open-File Report 85-660H
1985

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Contents

	Introduction	ii
1.	1985 August 1 05:27:43.63 West Irian Region	1367
2.	1985 August 1 23:15:15.45 South Sandwich Islands Region	1372
3.	1985 August 2 07:46:51.47 Hindu Kush Region	1377
4.	1985 August 4 02:36:23.68 Mindanao, Philippine Islands	1385
5.	1985 August 4 04:54:01.98 Off Coast of Southern Chile	1391
6.	1985 August 4 12:01:57.36 Central California	1397
7.	1985 August 5 13:00:39.57 Taiwan Region	1404
8.	1985 August 7 03:38:06.29 Vanuatu Islands	1409
9.	1985 August 8 16:18:03.35 Java	1414
10.	1985 August 8 16:29:57.49 Java	1420
11.	1985 August 9 09:32:07.30 Banda Sea	1426
12.	1985 August 9 13:03:11.20 Near Islands, Aleutian Islands	1431
13.	1985 August 9 19:59:45.51 Luzon, Philippine Islands	1437
14.	1985 August 10 16:36:09.14 New Britain Region	1444
15.	1985 August 11 00:19:02.41 West Caroline Islands	1450
16.	1985 August 11 09:59:41.65 Komandorsky Islands Region	1456
17.	1985 August 12 00:04:50.91 Near Coast of Central Chile	1464
18.	1985 August 12 03:49:17.98 Near East Coast of Honshu, Japan	1471
19.	1985 August 12 04:18:57.96 Bali Sea	1479
20.	1985 August 13 07:31:31.57 Ceram	1485
21.	1985 August 14 04:10:41.08 Kermadec Islands Region	1490
22.	1985 August 18 03:48:04.17 Halmahera	1495
23.	1985 August 21 10:43:23.07 Fiji Islands Region	1501
24.	1985 August 21 11:26:28.81 Near Coast of Northern Peru	1507
25.	1985 August 22 19:29:57.96 Tonga Islands Region	1514
26.	1985 August 23 12:41:59.72 Southern Xinjiang, China	1519
27.	1985 August 24 06:53:15.44 South of Fiji Islands	1527
28.	1985 August 26 14:08:23.12 New Britain Region	1533
29.	1985 August 27 07:39:14.50 Tonga Islands	1538
30.	1985 August 28 20:50:48.47 Fiji Islands Region	1546
31.	1985 August 29 06:13:16.32 South Sandwich Islands Region	1553

Introduction

This report provides a visual catalog of digitally recorded waveform data available from the event tapes produced by the United States Geological Survey's National Earthquake Information Center (NEIC). It is intended to provide the researcher with a quick index both to the availability of data and to the character of the data for each event (e.g., complexity and directionality).

The network-event tapes are a data service initiated by the NEIC in 1984. Currently, these tapes contain data from the Global Digital Seismograph Network (GDSN), the Regional Seismograph Test Network (RSTN), and the Glen Almond, Canada, SRO station. In the future, data from other high-quality stations and arrays, installed and operated by countries around the world, will be added to the event tapes as they are made available to us.

Network-event tapes contain digital data for earthquakes of magnitude 5.5 or greater in the NEIC network-day tape format. For this catalog, all available vertical component recordings in all period bands are shown, including those for stations that were saturated or nonoperational or that had some other difficulty during the event. Horizontal component records were omitted in order to minimize the size of this catalog. In general, one can expect them to be of approximately the same quality as the vertical component records at any particular time. Most of the available stations do not record short-period horizontal components. All stations that have intermediate-period recordings, however, record all three components in this band. Only long-period components are recorded continuously; short- and intermediate-period channels are recorded only when an event is detected. Horizontal components (where available) are recorded whenever the vertical component is, and never otherwise.

This report mainly consists of vertical component waveforms from all reporting stations, organized by event. The section for each event is prefaced by a station coverage map, in which stations and geography within 100° of the source are shown in an azimuthal equidistant projection centered at the epicenter. Following the coverage map, all short-period, vertical component waveforms are shown in order of increasing epicentral distance. Each short-period waveform is two minutes long and is identified by station

code, start time, and epicentral distance, Δ , in degrees. The start time is chosen to be about 15 seconds before the earliest theoretical arrival time of interest (P, Pdiff, or PKPdiff, depending on distance). The vertical scale is in microns of ground displacement at the dominant period of the instrument response, which is taken to be 1 second. Each page of waveforms is titled with the event origin date-time, the Flinn-Engdahl region name, and the component identifier (SPZ, LPZ or IPZ). Also, the depth of the event (h) in kilometers and its average body (m_b) and vertical surface wave (M_{SZ}) magnitudes are shown for convenience.

Following the short-period waveforms (SPZ), long-period vertical (LPZ) and finally intermediate-period vertical (IPZ) waveforms are shown. In each case, the format is the same as for the short-period waveforms. Fifty minutes of long-period data are shown beginning 1 minute before the theoretical first arrival, and the dominant period is taken to be 25 seconds. Four minutes of intermediate-period data are shown beginning 30 seconds before the theoretical first arrival, and the dominant period is assumed to be 1 second. Because (1) the event detection algorithm is not perfect, (2) only about half of the available stations have intermediate-period channels, and (3) one station (GAC) has no short-period recordings, it is not uncommon for stations with good long-period recordings to have no intermediate-period and perhaps no short-period recordings at all.

Table 1. Earthquakes for August 1985 with magnitudes ≥ 5.5

	Origin Time UTC	Latitude	Longitude	Depth (km)	M _b	M _s	Flinn-Engdahl Region Name
1.	1985 08 01 05:27:43.63	2.144° S	133.779° E	33.0	5.5		West Irian Region
2.	1985 08 01 23:15:15.45	57.709° S	25.373° W	33.0	5.7	5.0	South Sandwich Islands Region
3.	1985 08 02 07:46:51.47	36.173° N	70.811° E	102.6	6.1		Hindu Kush Region
4.	1985 08 04 02:36:23.68	7.445° N	123.463° E	35.4	5.8	6.2	Mindanao, Philippine Islands
5.	1985 08 04 04:54:01.98	44.888° S	75.447° W	22.6	5.5	5.4	Off Coast of Southern Chile
6.	1985 08 04 12:01:57.36	36.211° N	120.177° W	5.0	5.4	5.9	Central California
7.	1985 08 05 13:00:39.57	24.485° N	122.004° E	10.0	5.1	5.9	Taiwan Region
8.	1985 08 07 03:38:06.29	20.621° S	169.896° E	33.0	5.5		Vanuatu Islands
9.	1985 08 08 16:18:03.35	6.183° S	113.449° E	603.0	5.7		Java
10.	1985 08 08 16:29:57.49	6.157° S	113.376° E	588.7	5.7		Java
11.	1985 08 09 09:32:07.30	6.882° S	129.402° E	195.9	5.6		Banda Sea
12.	1985 08 09 13:03:11.20	52.382° N	173.734° E	43.8	5.5	4.8	Near Islands, Aleutian Islands
13.	1985 08 09 19:59:45.51	16.889° N	120.224° E	33.0	5.8	6.1	Luzon, Philippine Islands
14.	1985 08 10 16:36:09.14	4.325° S	152.880° E	42.0	5.7	5.5	New Britain Region
15.	1985 08 11 00:19:02.41	11.157° N	140.207° E	33.0	5.7	6.1	West Caroline Islands
16.	1985 08 11 09:59:41.65	54.101° N	168.688° E	29.9	6.0	5.8	Komandorsky Islands Region
17.	1985 08 12 00:04:50.91	38.420° S	73.490° W	33.0	5.5	6.0	Near Coast of Central Chile
18.	1985 08 12 03:49:17.98	37.739° N	141.733° E	51.1	6.0	6.3	Near East Coast of Honshu, Japan
19.	1985 08 12 04:18:57.96	7.031° S	117.163° E	583.7	5.6		Bali Sea
20.	1985 08 13 07:31:31.57	3.858° S	128.439° E	121.4	5.6		Ceram
21.	1985 08 14 04:10:41.08	31.970° S	178.823° W	33.0	5.5	4.9	Kernadec Islands Region
22.	1985 08 18 03:48:04.17	2.813° N	128.190° E	70.6	5.5		Halmahera
23.	1985 08 21 10:43:23.07	15.994° S	179.143° W	33.0	5.7	5.5	Fiji Islands Region
24.	1985 08 21 11:26:28.81	9.211° S	78.908° W	60.8	6.1		Near Coast of Northern Peru
25.	1985 08 22 19:29:57.96	22.264° S	174.904° W	33.0	5.6	5.5	Tonga Islands Region
26.	1985 08 23 12:41:59.72	39.423° N	75.274° E	33.0	6.4	7.6	Southern Xinjiang, China
27.	1985 08 24 06:53:15.44	22.022° S	177.839° W	353.5	5.6		South of Fiji Islands
28.	1985 08 26 14:08:23.12	6.922° S	148.970° E	33.0	5.2	6.1	New Britain Region
29.	1985 08 27 07:39:14.50	17.455° S	173.390° W	36.3	6.0	5.3	Tonga Islands
30.	1985 08 28 20:50:48.47	21.012° S	179.011° W	624.7	5.9		Fiji Islands Region
31.	1985 08 29 06:13:16.32	57.253° S	25.526° W	94.1	5.6		South Sandwich Islands Region

Table 2. Current network-event tape station list

Code	ID	Station	Latitude	Longitude	Elevation (m)	Type*
ANMO	30	Albuquerque, New Mexico	34.95° N	106.46° W	1740.0	SRO
ANTO	31	Ankara, Turkey	39.87° N	32.79° E	883.0	SRO
BCAO	37	Bangui, Central African Republic	4.43° N	18.54° E	336.0	SRO
BDF	72	Brasilia, Brazil	15.66° S	47.90° W	1500.0	DWWSSN
CHTO	33	Chiang Mai, Thailand	18.79° N	98.98° E	316.0	SRO
COL	62	College, Alaska	64.90° N	147.79° W	320.0	DWWSSN
CTAO	50	Charters Towers, Australia	20.09° S	146.25° E	357.0	ASRO
GAC	43	Glen Almond, Quebec, Canada	45.70° N	75.48° W	620.0	SRO
GDH	70	Godhavn, Greenland	69.25° N	53.53° W	23.0	DWWSSN
GRFO	39	Graefenberg, Germany	49.69° N	11.22° E	500.0	SRO
GUMO	35	Guam, Mariana Islands	13.59° N	144.87° E	14.0	SRO
HON	66	Honolulu, Hawaii	21.32° N	158.01° W	2.0	DWWSSN
JAS1	64	Jamestown, California	37.93° N	120.42° W	425.0	DWWSSN
KEV	67	Kevo, Finland	69.76° N	27.01° E	80.0	DWWSSN
KONO	54	Kongsberg, Norway	59.65° N	9.60° E	216.0	ASRO
LON	63	Longmire, Washington	46.75° N	121.81° W	854.0	DWWSSN
MAJO	53	Matsushiro, Japan	36.54° N	138.21° E	422.0	ASRO
NWAO	38	Mundaring (Narrogen), Australia	32.93° S	117.24° E	265.0	SRO
RSCP	81	Cumberland Plateau, Tennessee,	35.60° N	85.57° W	481.0	RSTN
RSNT	82	Yellowknife, Northwest Territories	62.48° N	114.59° W	90.0	RSTN
RSNY	84	Adirondack, New York	44.55° N	74.53° W	351.0	RSTN
RSO	85	Red Lake, Ontario	50.86° N	93.70° W	302.0	RSTN
RSSD	83	Black Hills, South Dakota	44.12° N	104.04° W	1948.0	RSTN
SCP	61	State College, Pennsylvania	40.79° N	77.87° W	352.0	DWWSSN
SHIO	40	Shillong, India	25.57° N	91.88° E	1600.0	SRO
SLR	71	Silverton, South Africa	25.73° S	28.28° E	1348.0	DWWSSN
SNZO	42	Wellington (South Karori), New Zealand	41.31° S	174.70° E	-12.0	SRO
TATO	41	Taipei, Taiwan	24.98° N	121.49° E	53.0	SRO
TAU	74	Hobart, Tasmania	42.91° S	147.32° E	132.0	DWWSSN
TOL	73	Toledo, Spain	39.88° N	4.05° W	480.0	DWWSSN
ZOBO	51	La Paz (Zongo), Bolivia	16.27° S	68.13° W	4450.0	ASRO

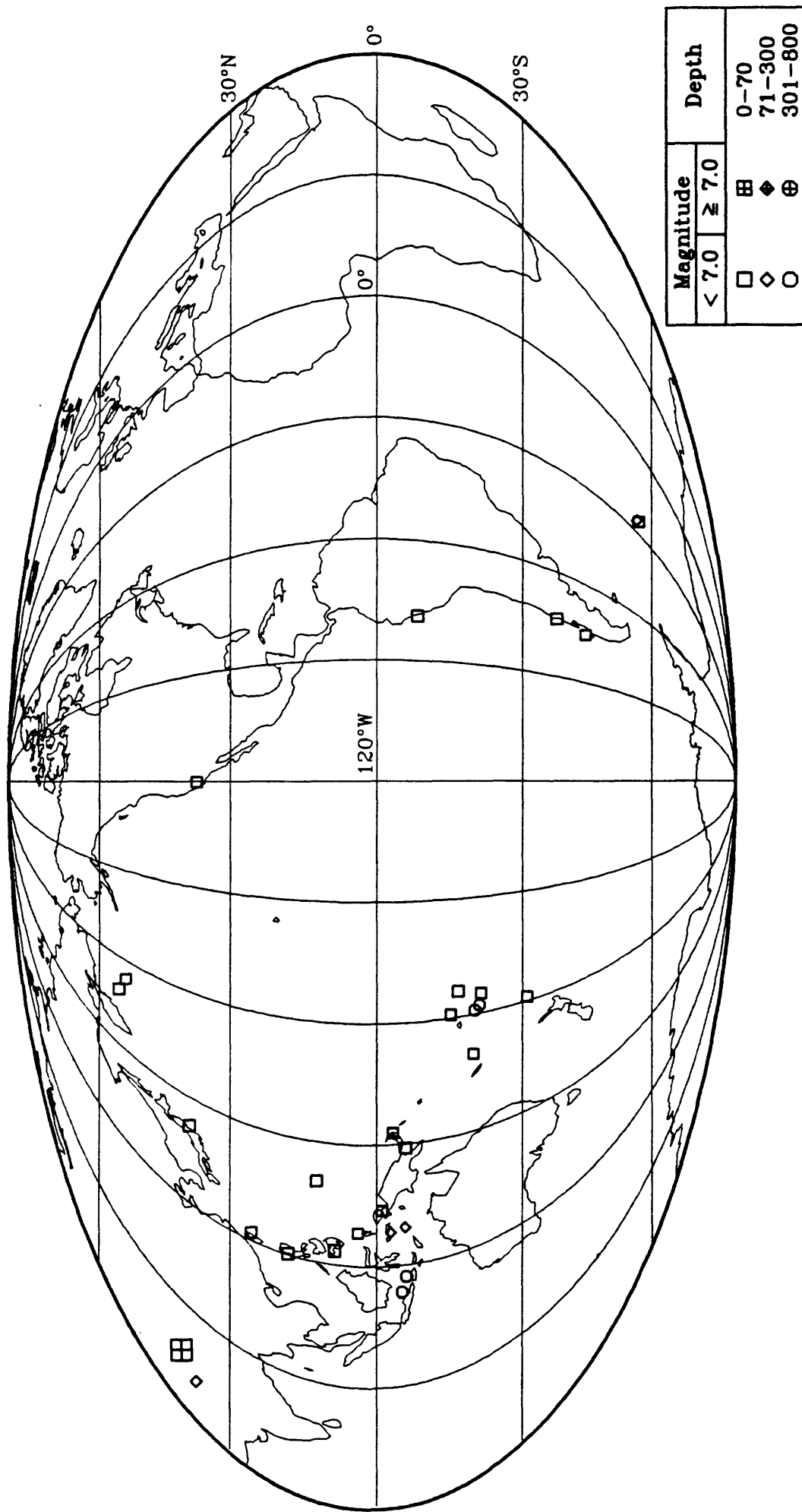
* SRO - Seismic Research Observatory

ASRO - Abbreviated Seismic Research Observatory

DWWSSN - Digital World Wide Standardized Seismograph Network

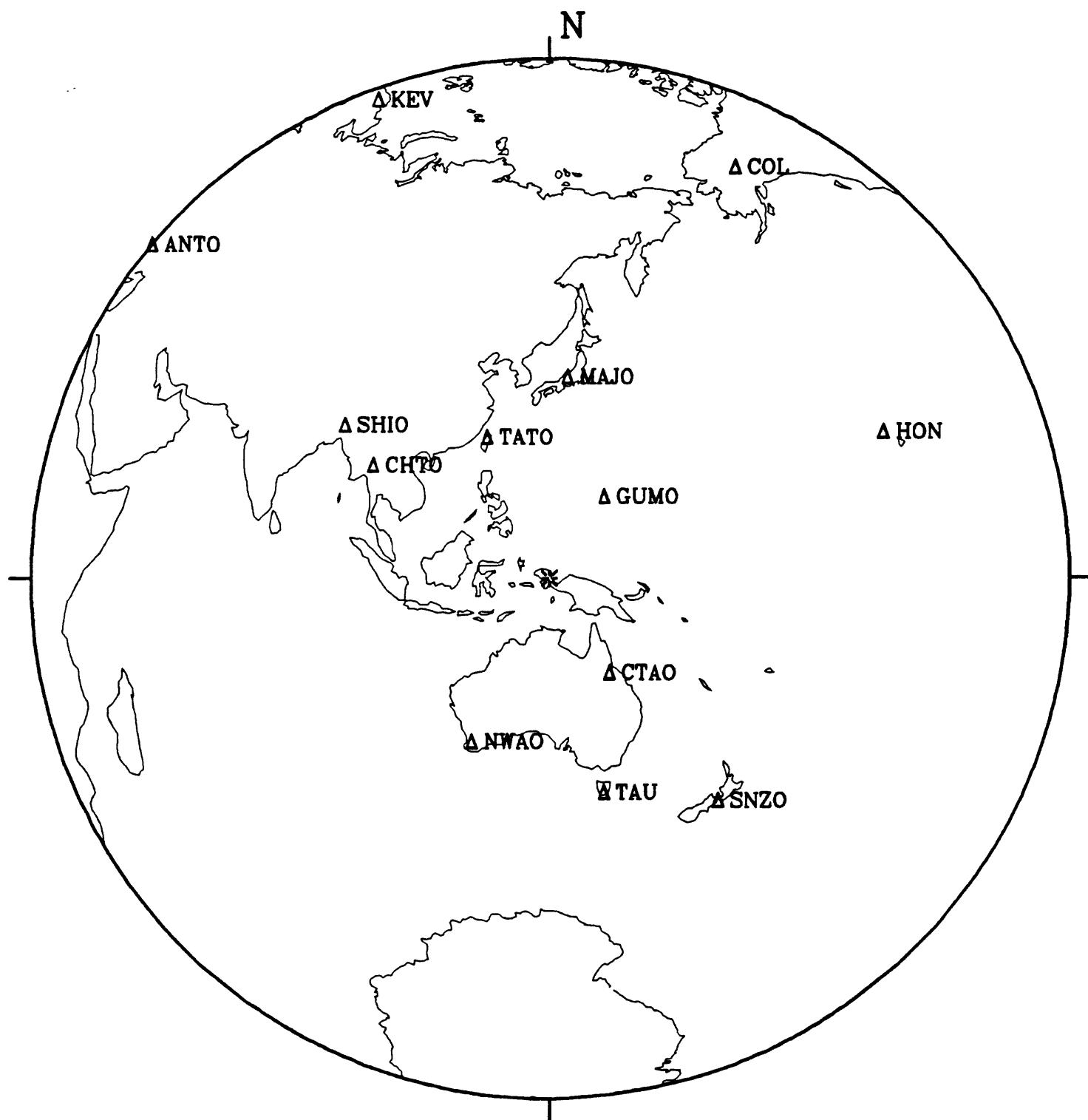
RSTN - Regional Seismic Test Network

EARTHQUAKES - August 1985 - MAGNITUDE ≥ 5.5



01 August 1985 05:27:43.63

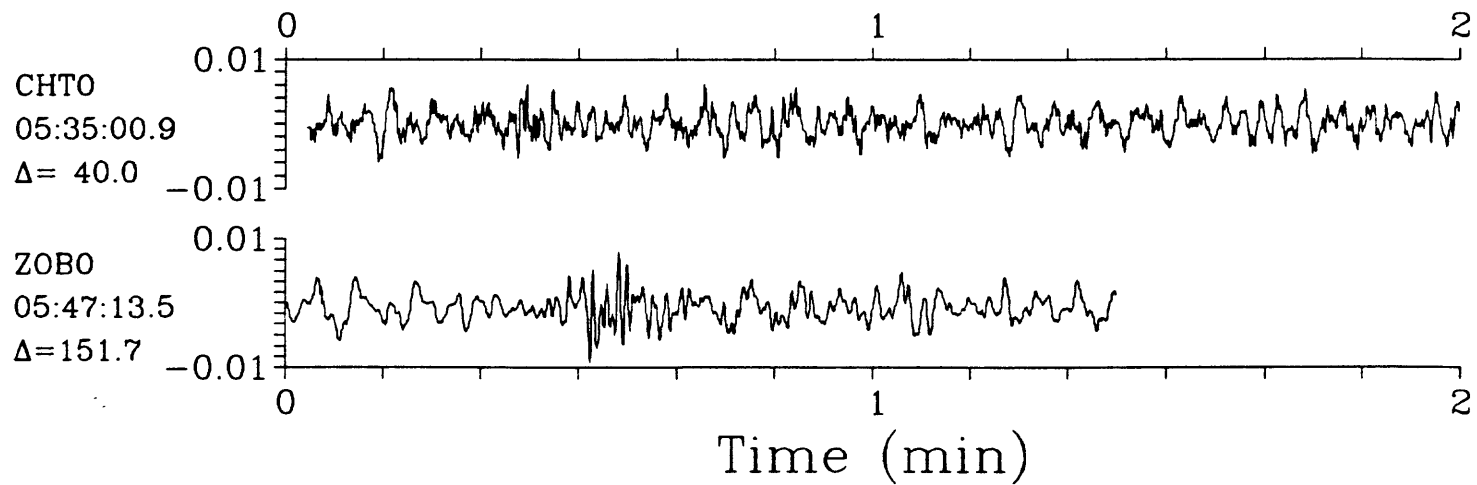
West Irian Region



SPZ

01 August 1985 05:27:43.63
West Irian Region $h=33.0$ $m_b=5.5$

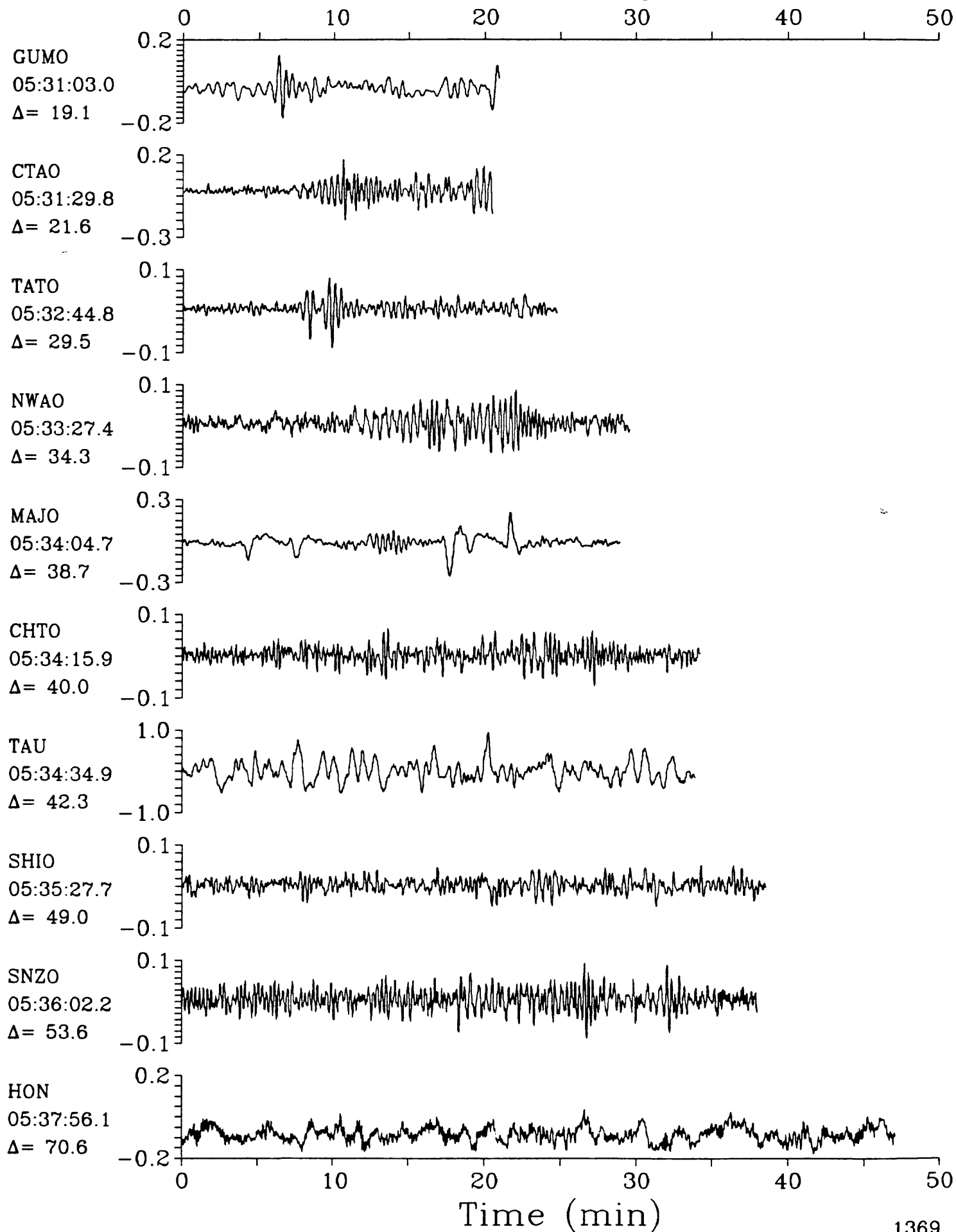
SPZ



LPZ

01 August 1985 05:27:43.63
West Irian Region $h=33.0$ $m_b=5.5$

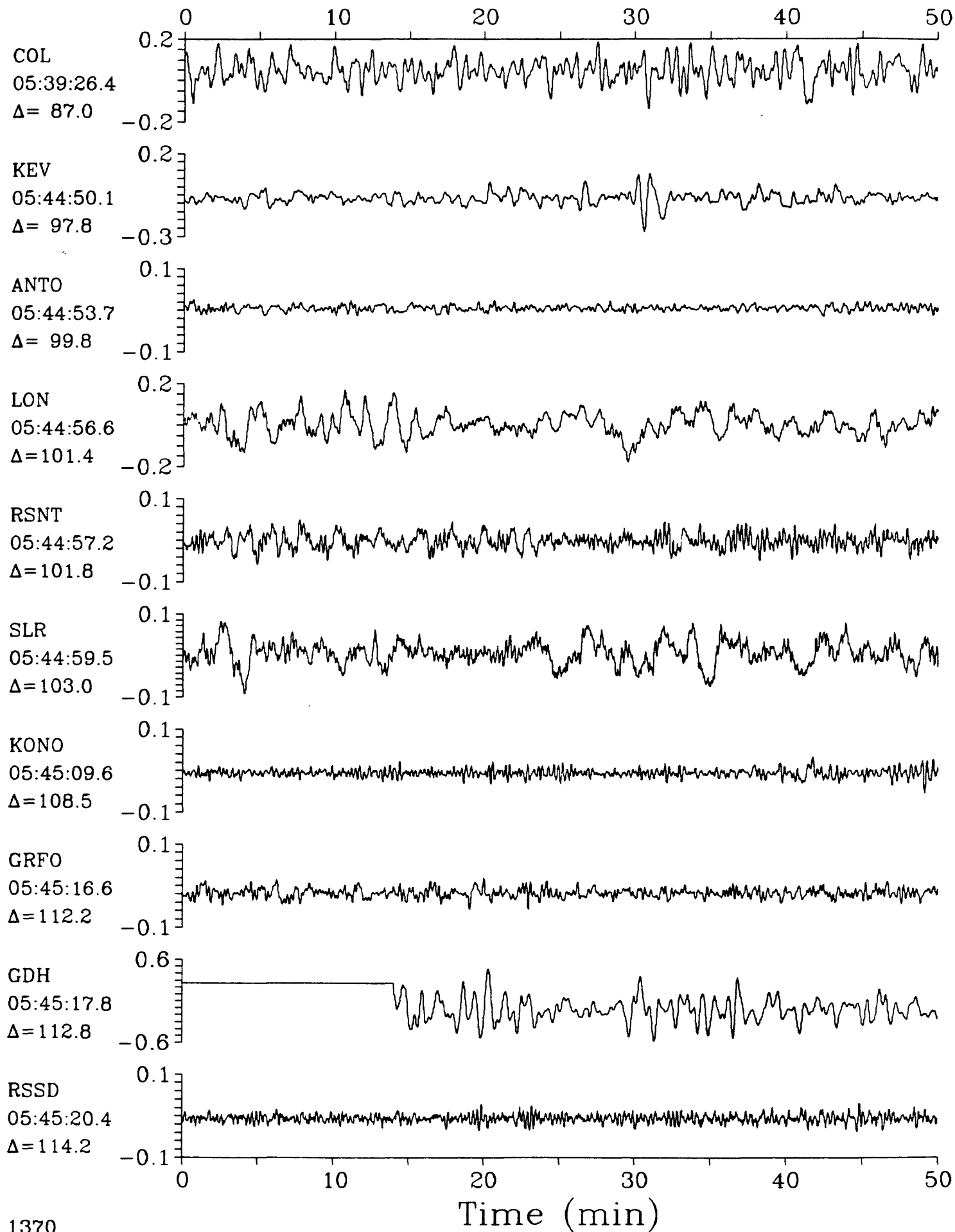
LPZ



LPZ

01 August 1985 05:27:43.63
West Irian Region $h=33.0$ $m_b=5.5$

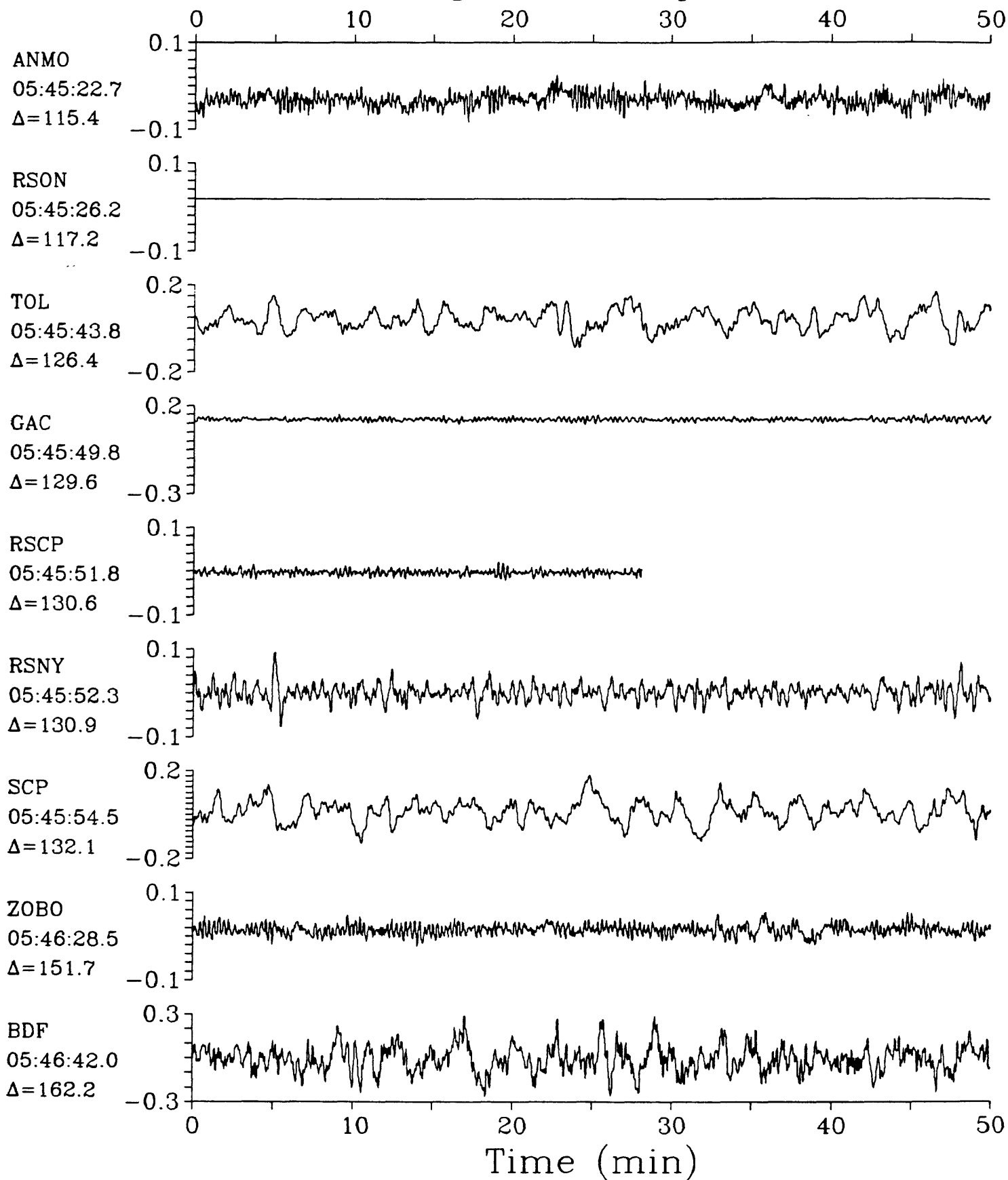
LPZ



LPZ

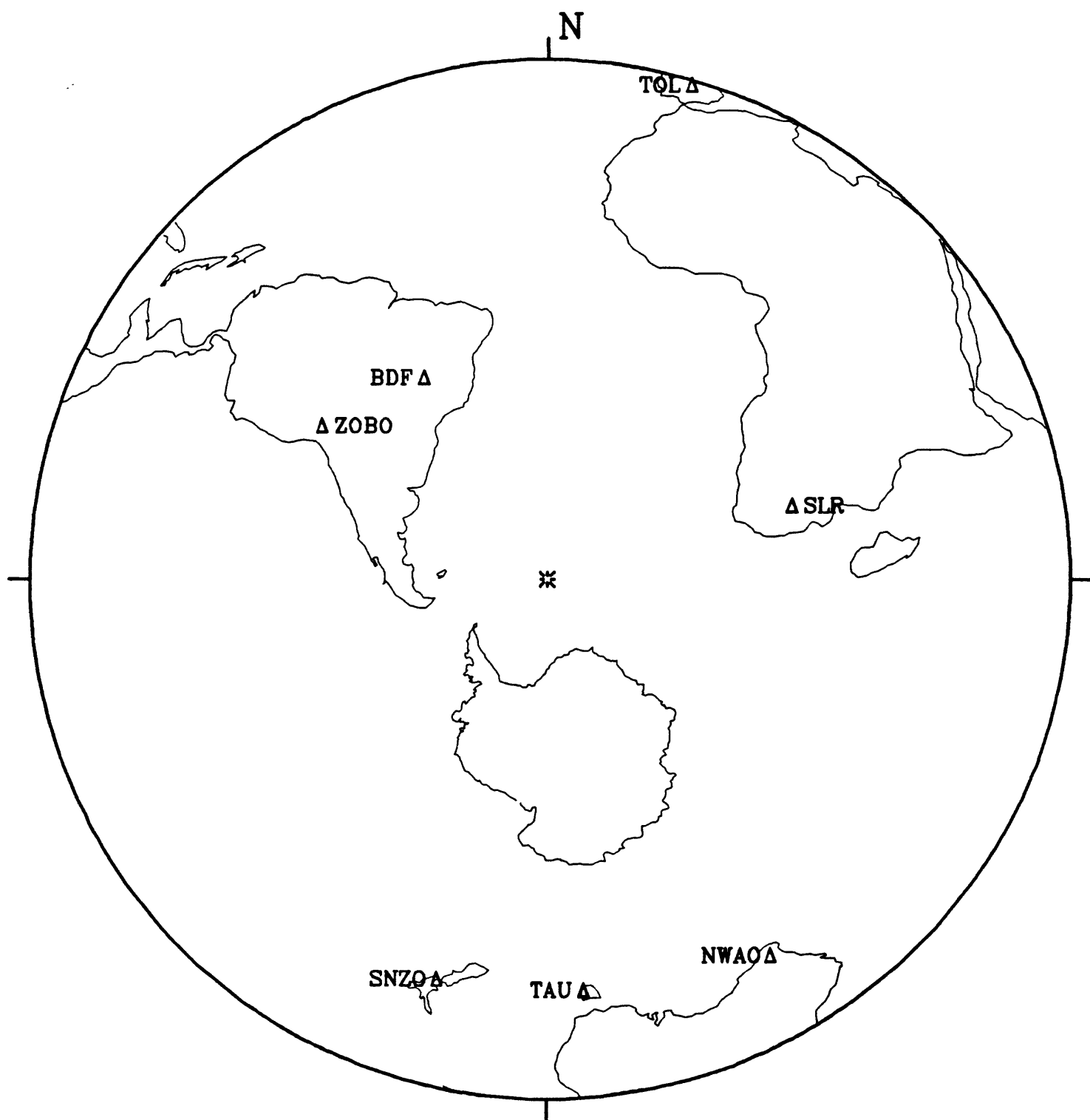
01 August 1985 05:27:43.63
West Irian Region $h=33.0$ $m_b=5.5$

LPZ



01 August 1985 23:15:15.45

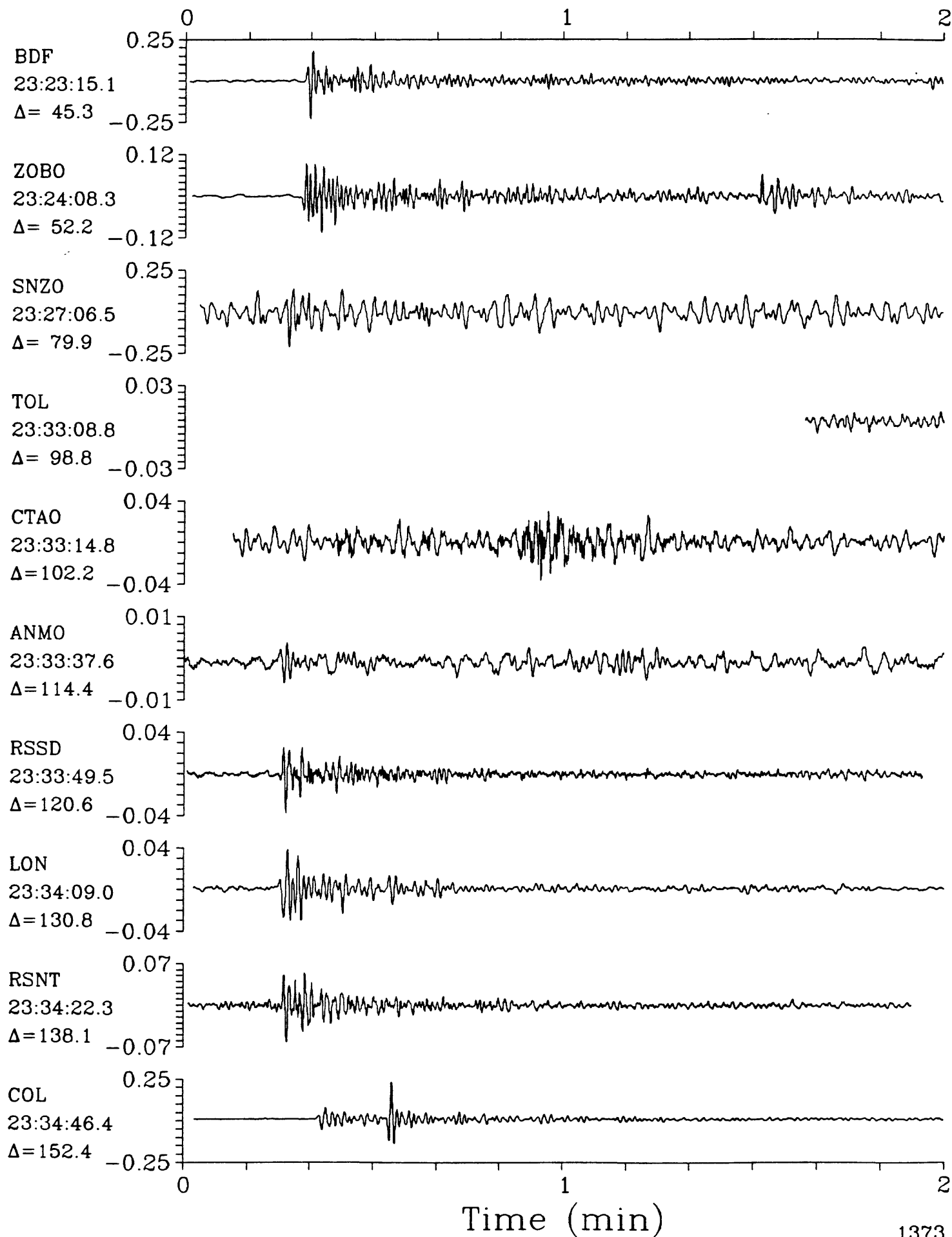
South Sandwich Islands Region



SPZ

01 August 1985 23:15:15.45

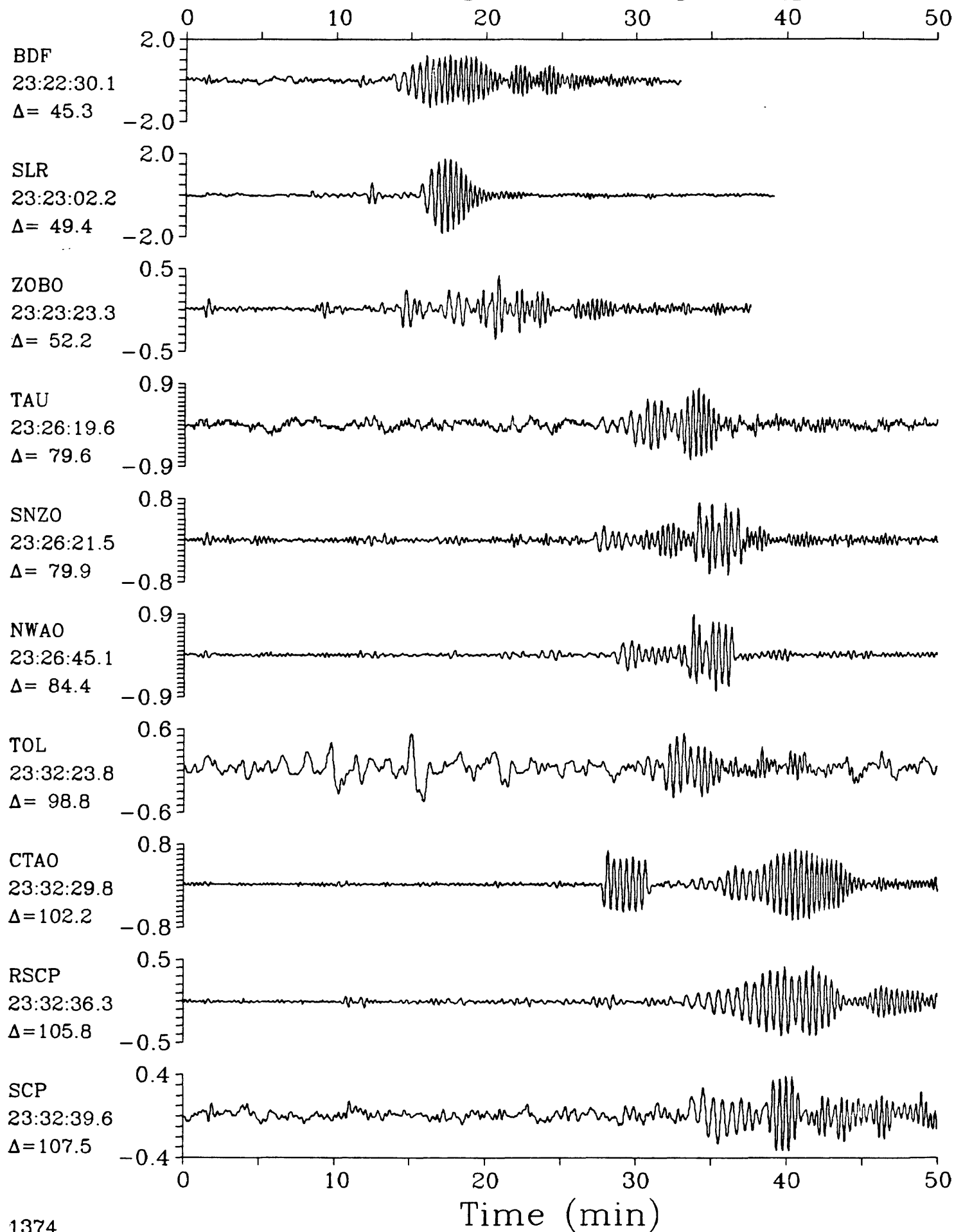
SPZ

South Sandwich Islands Region $h=33.0$ $m_b=5.7$ $M_{sz}=5.0$ 

LPZ

01 August 1985 23:15:15.45

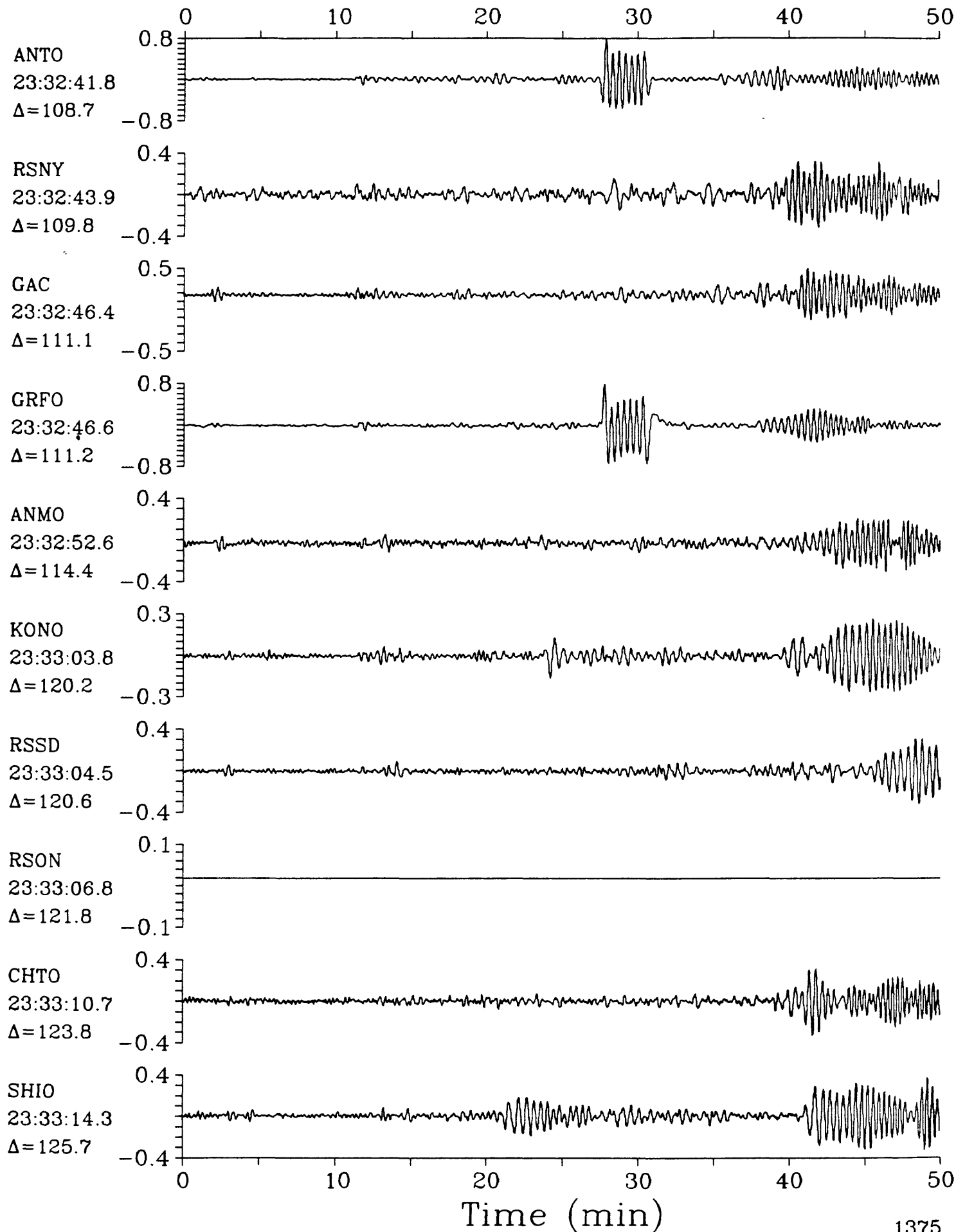
LPZ

South Sandwich Islands Region $h=33.0$ $m_b=5.7$ $M_{sz}=5.0$ 

LPZ

01 August 1985 23:15:15.45

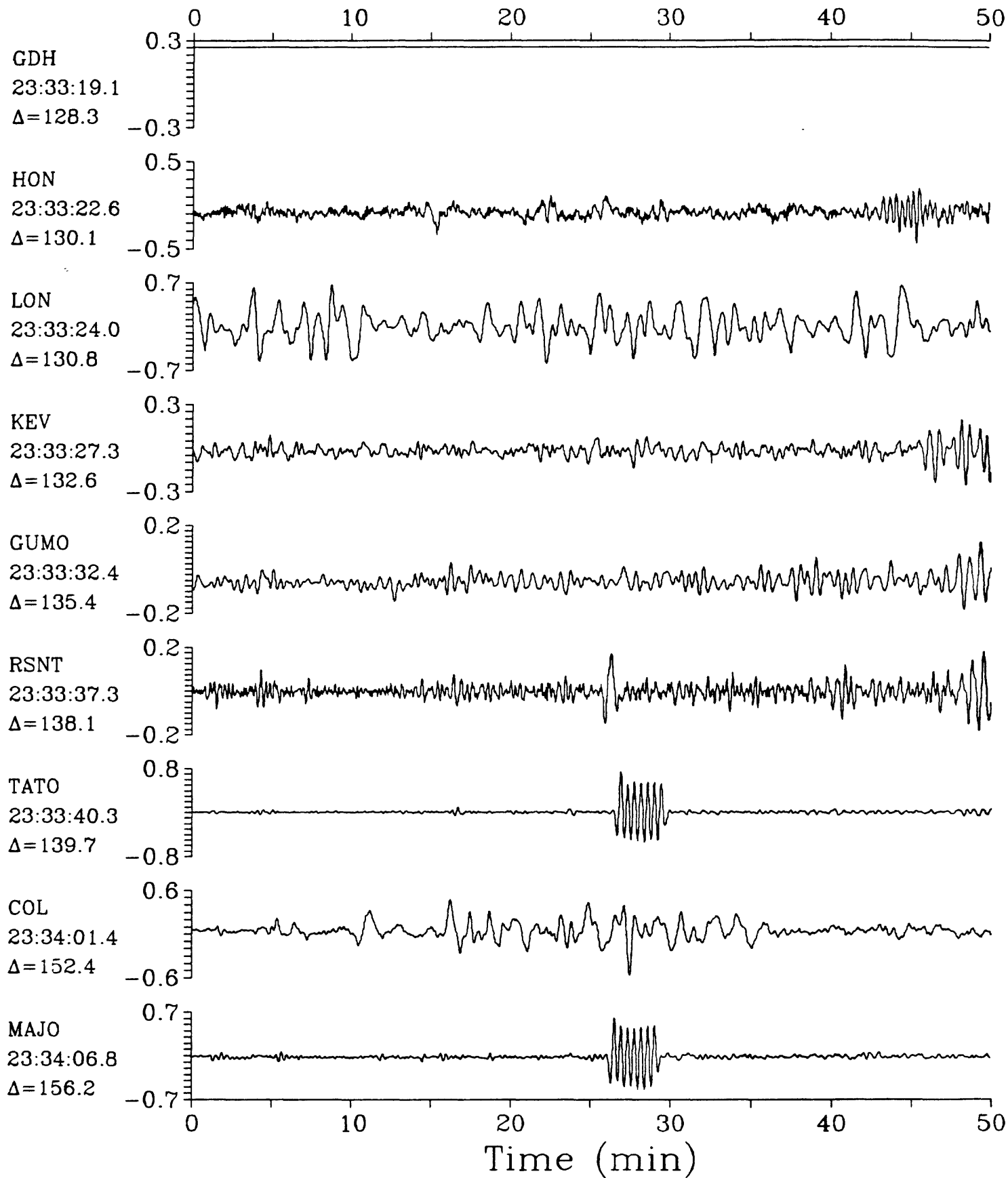
LPZ

South Sandwich Islands Region $h=33.0$ $m_b=5.7$ $M_{sz}=5.0$ 

LPZ

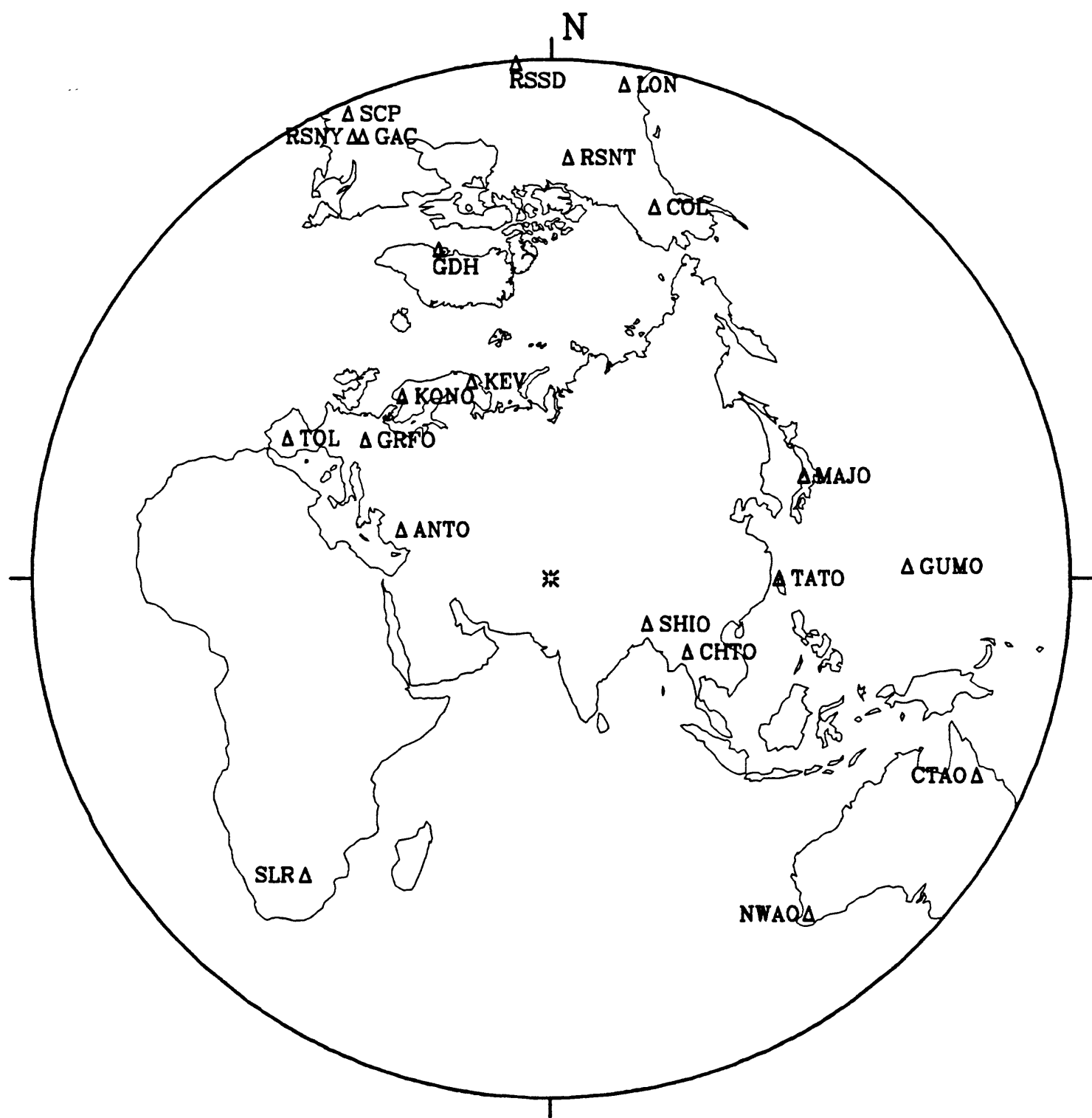
01 August 1985 23:15:15.45

LPZ

South Sandwich Islands Region $h=33.0$ $m_b=5.7$ $M_{SZ}=5.0$ 

02 August 1985 07:46:51.47

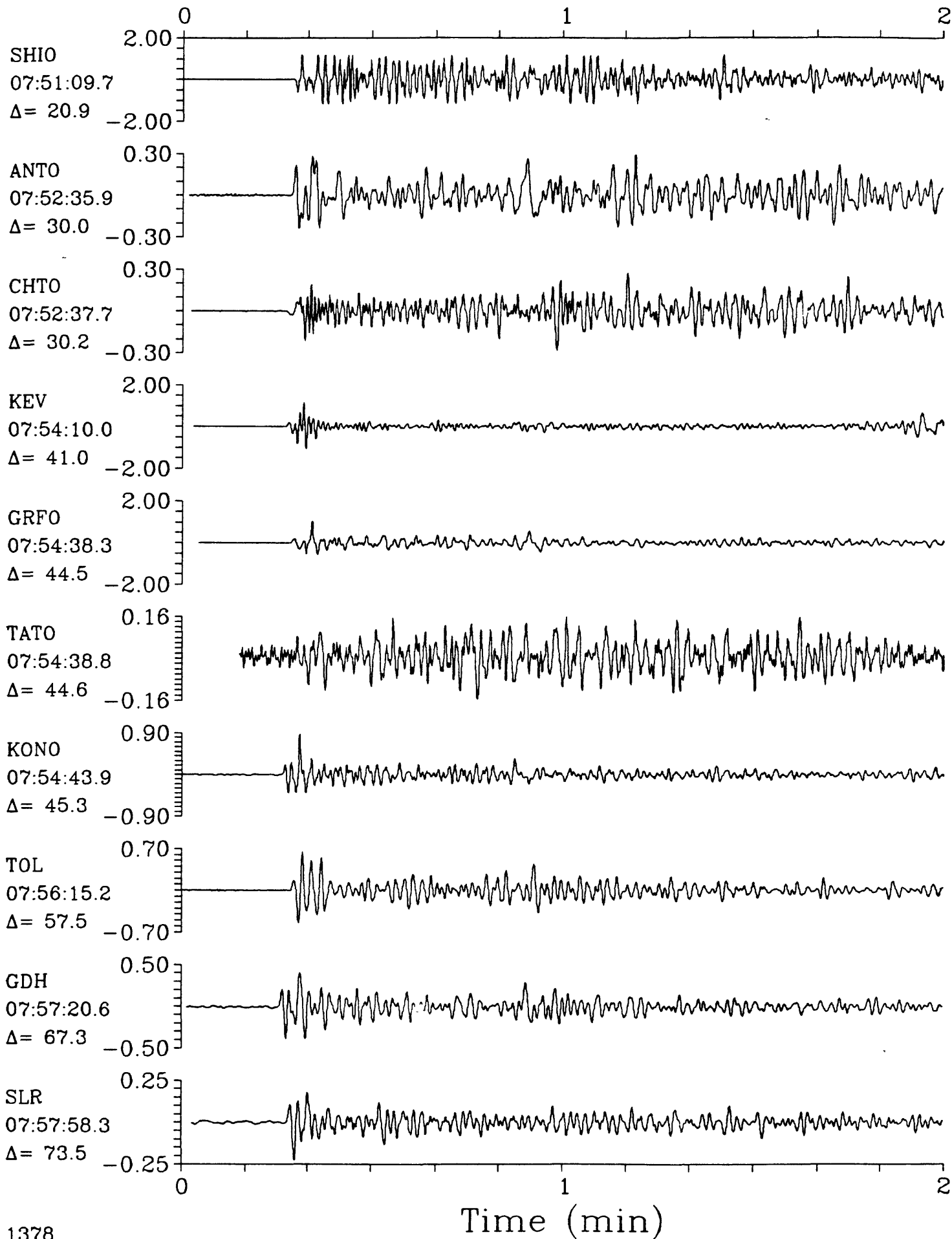
Hindu Kush Region



SPZ

02 August 1985 07:46:51.47
Hindu Kush Region $h=102.6$ $m_b=6.1$

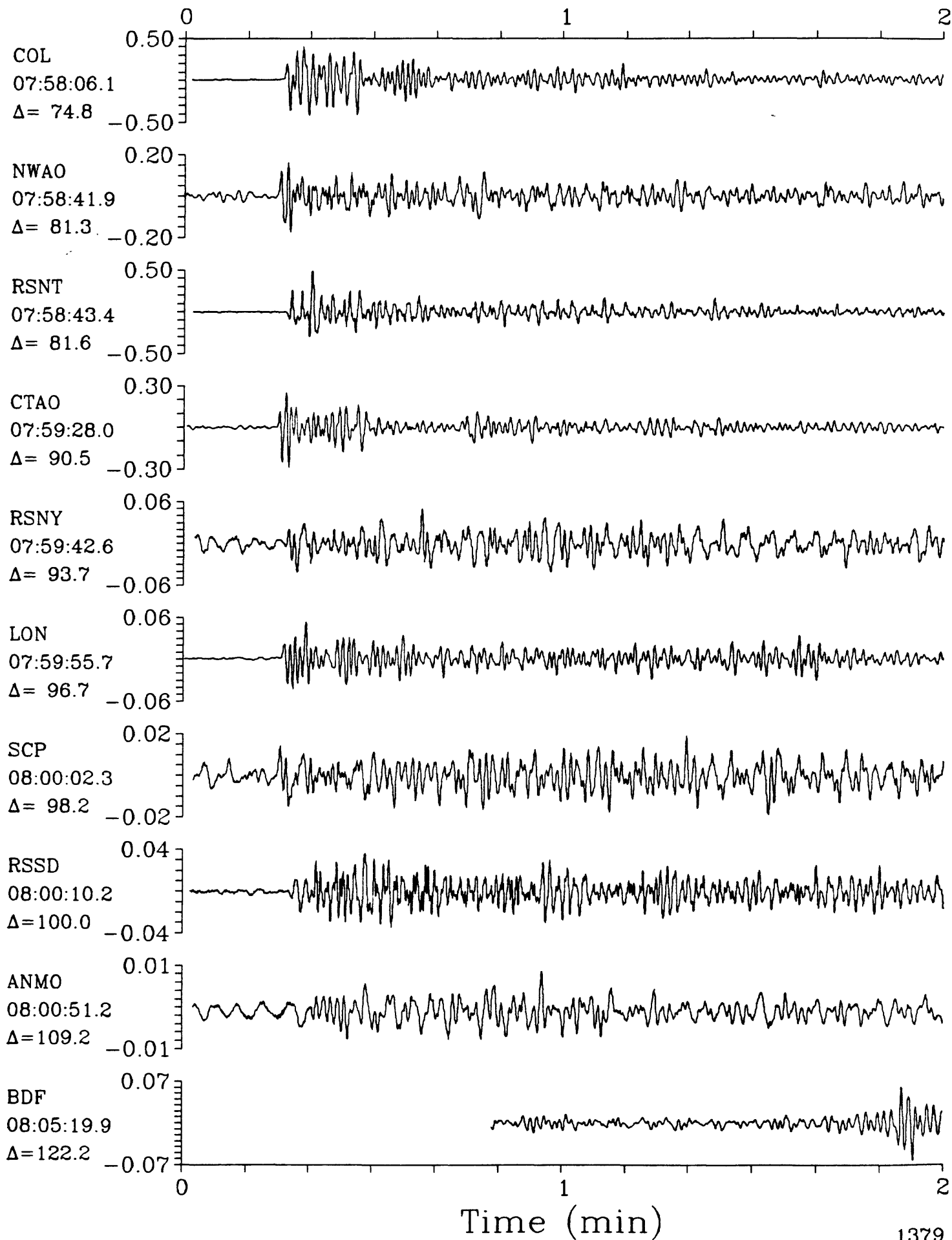
SPZ



SPZ

02 August 1985 07:46:51.47
Hindu Kush Region $h=102.6$ $m_b=6.1$

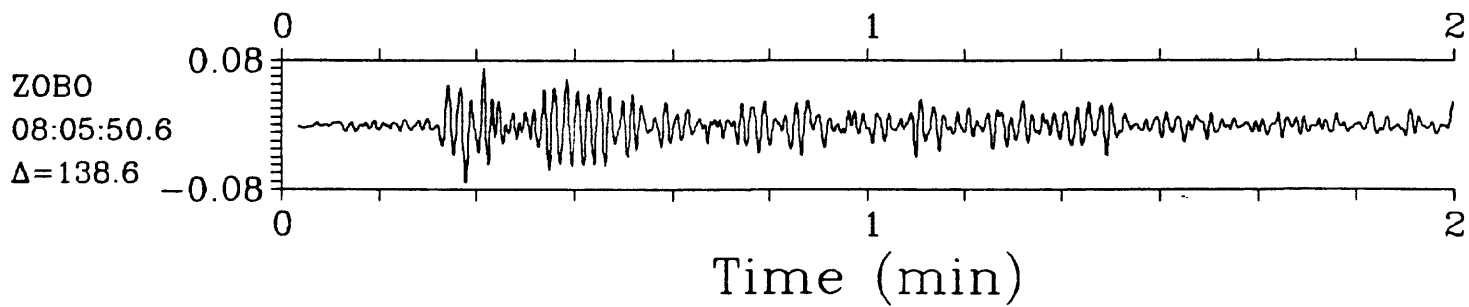
SPZ



SPZ

02 August 1985 07:46:51.47
Hindu Kush Region $h=102.6$ $m_b=6.1$

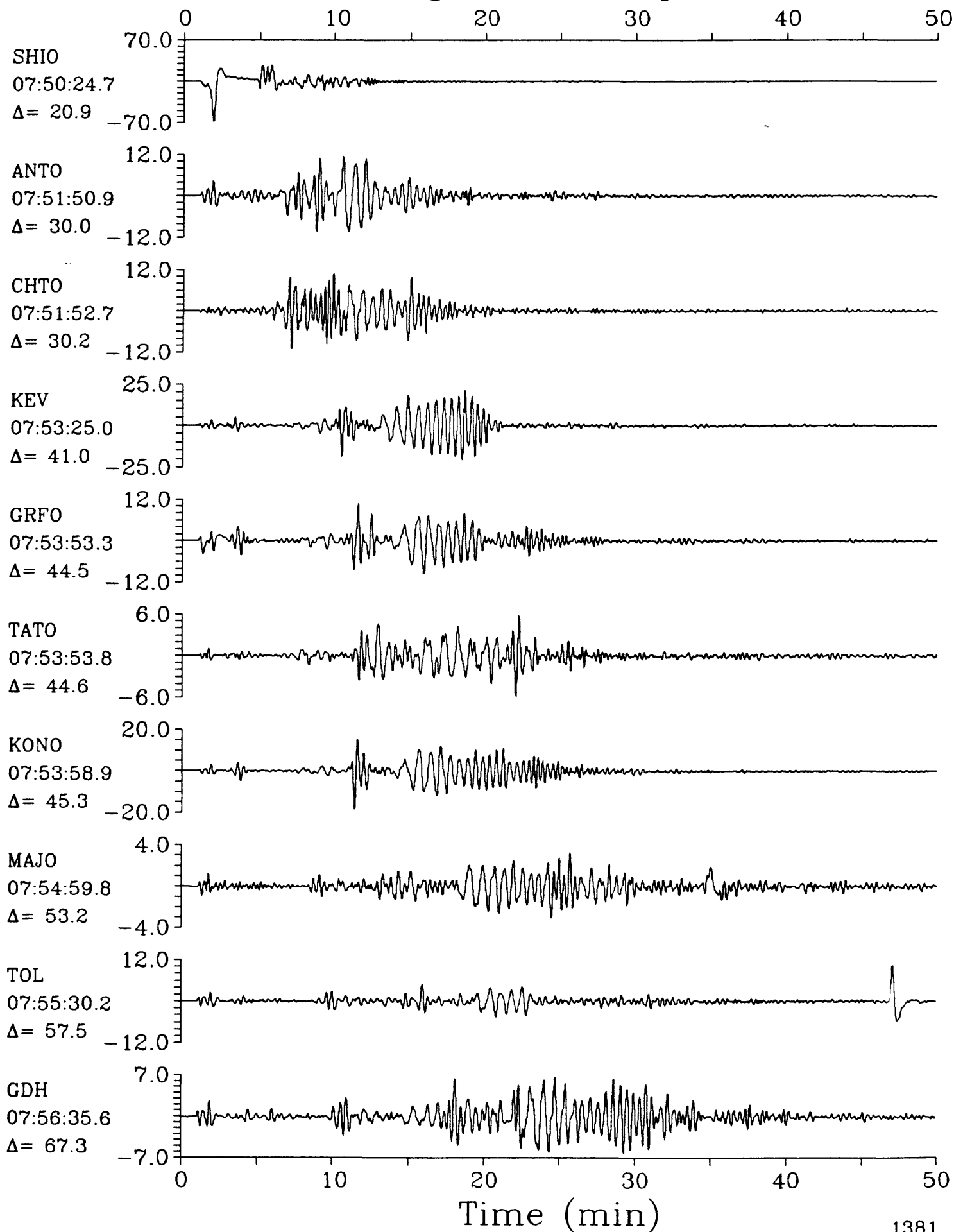
SPZ



LPZ

02 August 1985 07:46:51.47
Hindu Kush Region $h=102.6$ $m_b=6.1$

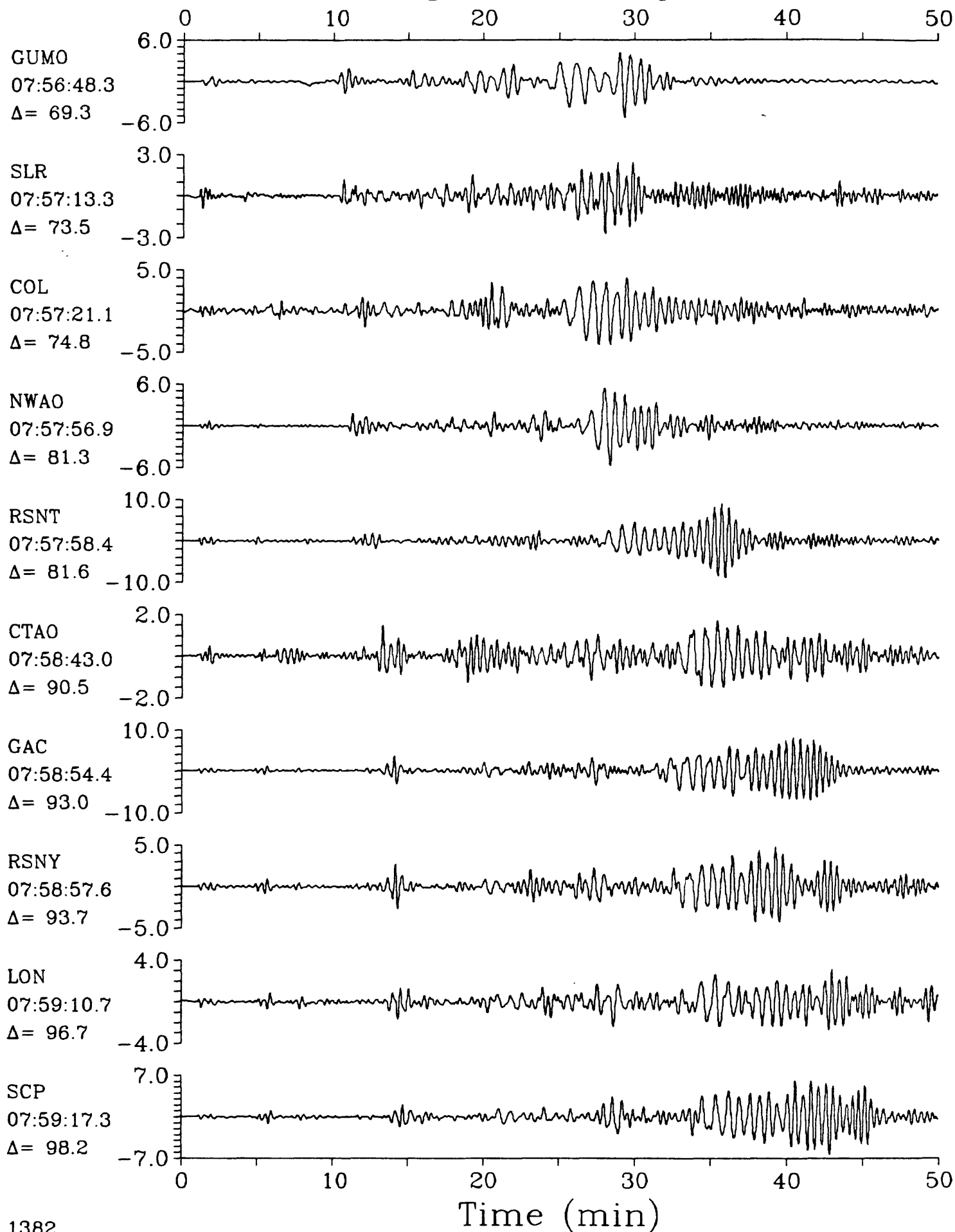
LPZ



LPZ

02 August 1985 07:46:51.47
Hindu Kush Region $h=102.6$ $m_b=6.1$

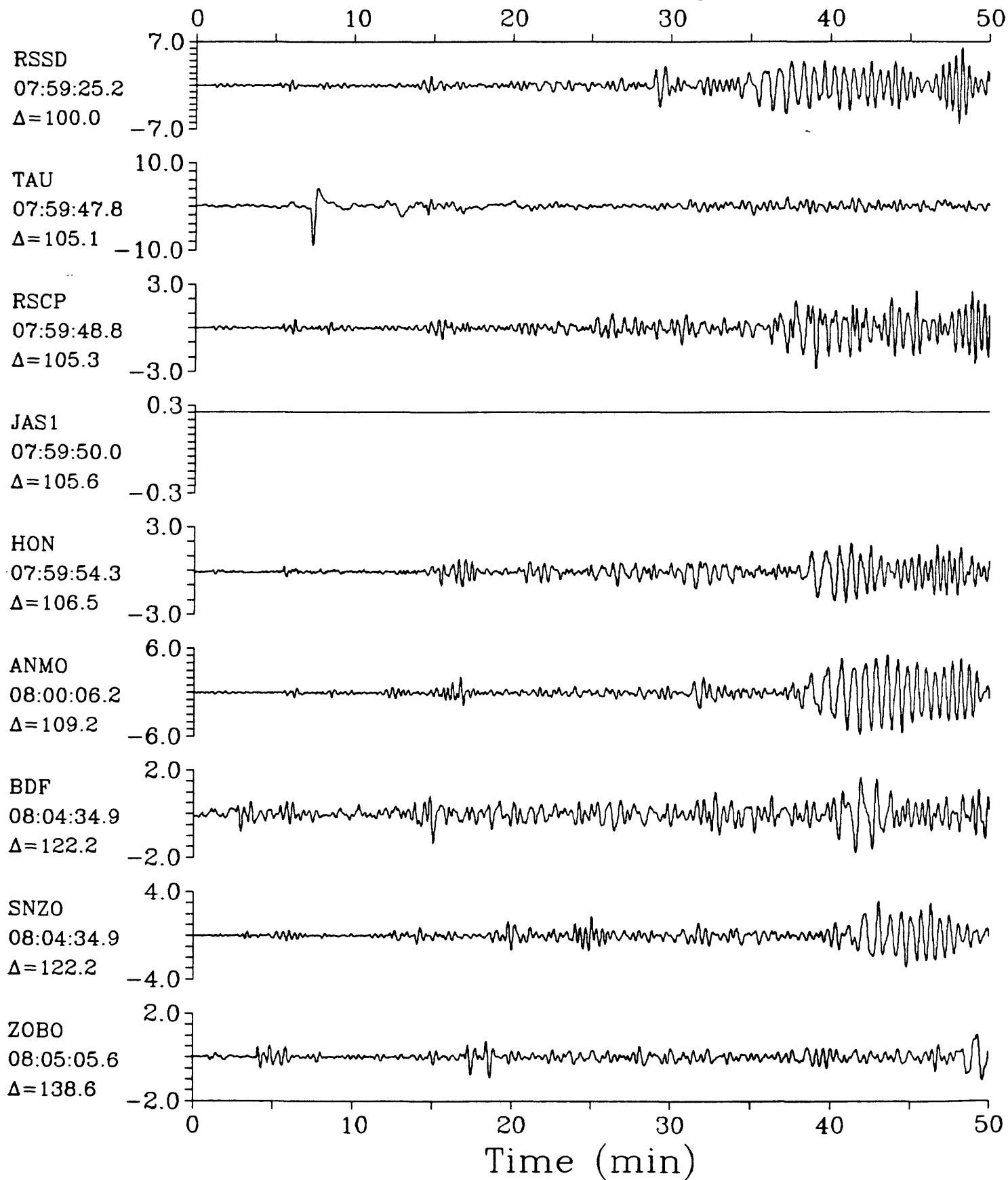
LPZ



LPZ

02 August 1985 07:46:51.47
Hindu Kush Region $h=102.6$ $m_b=6.1$

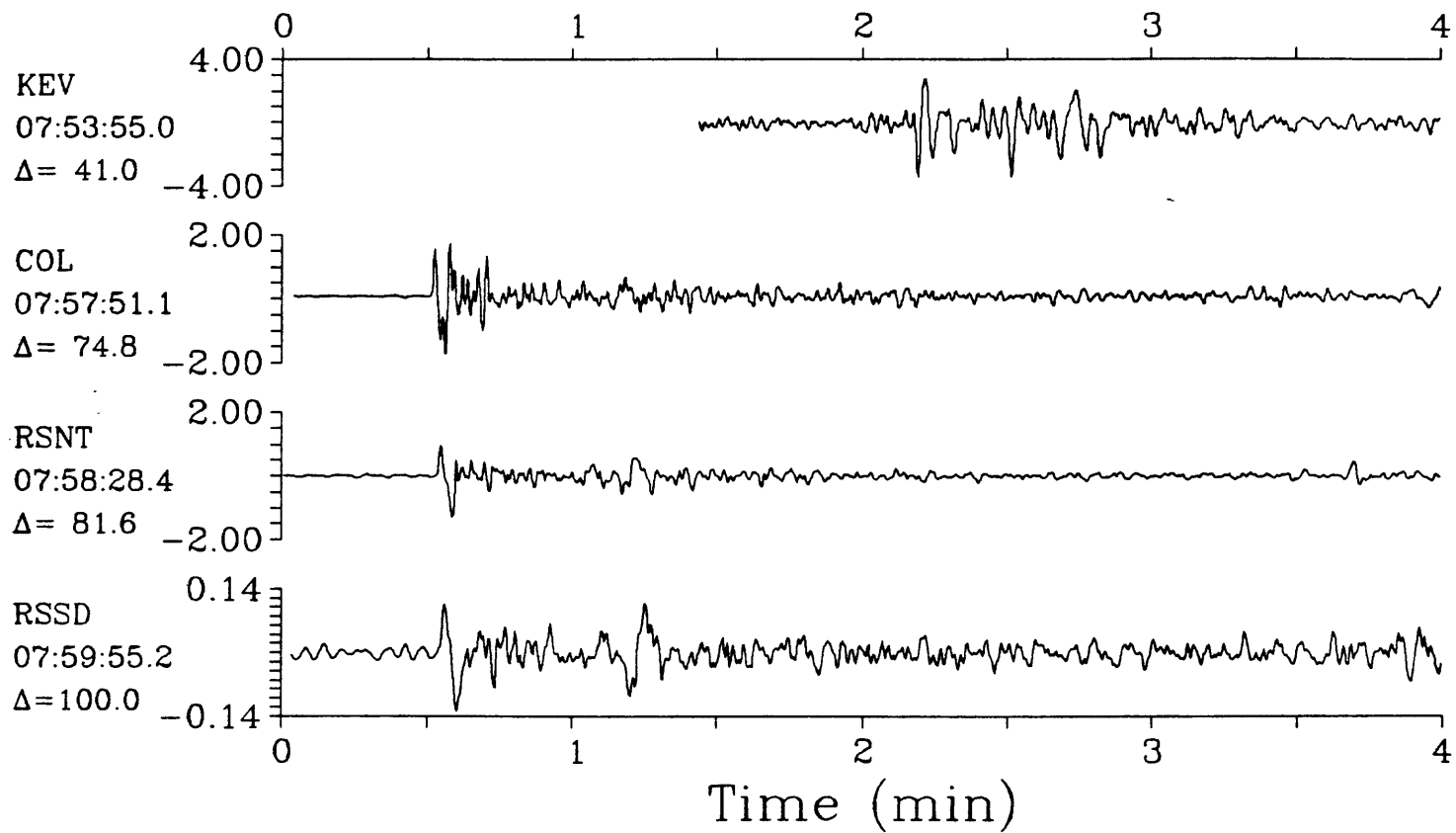
LPZ



IPZ

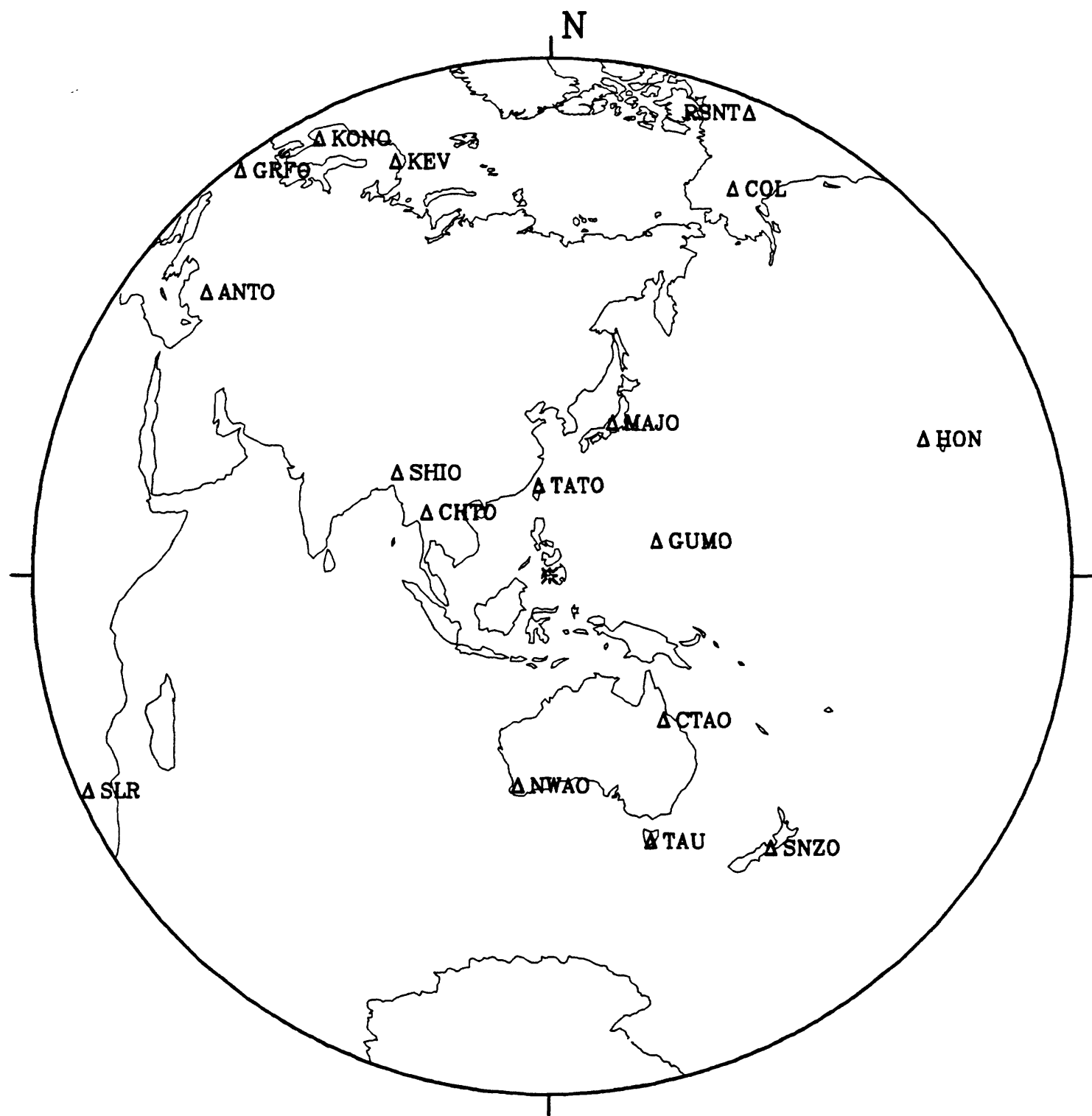
02 August 1985 07:46:51.47
Hindu Kush Region $h=102.6$ $m_b=6.1$

IPZ



04 August 1985 02:36:23.68

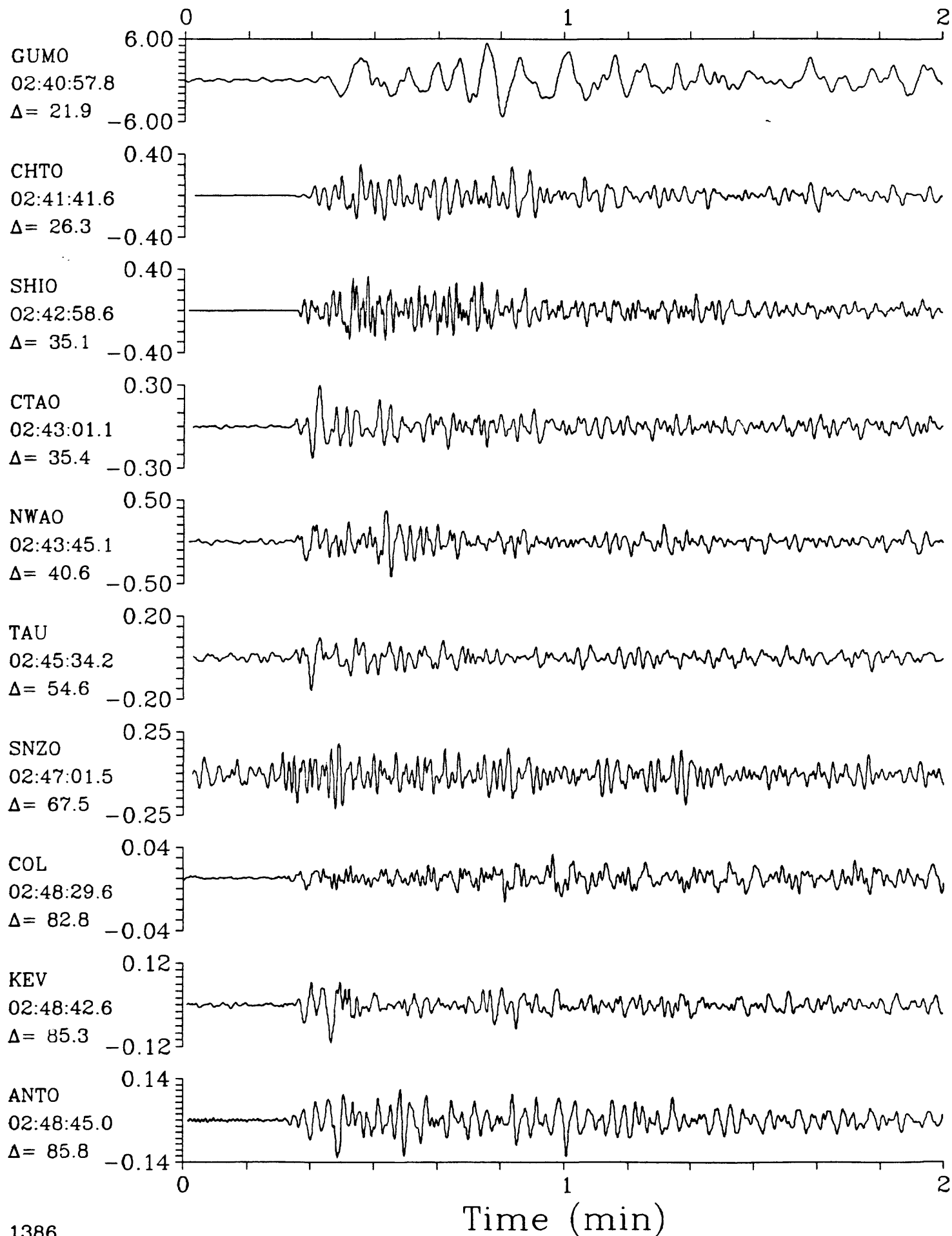
Mindanao, Philippine Islands



SPZ

04 August 1985 02:36:23.68

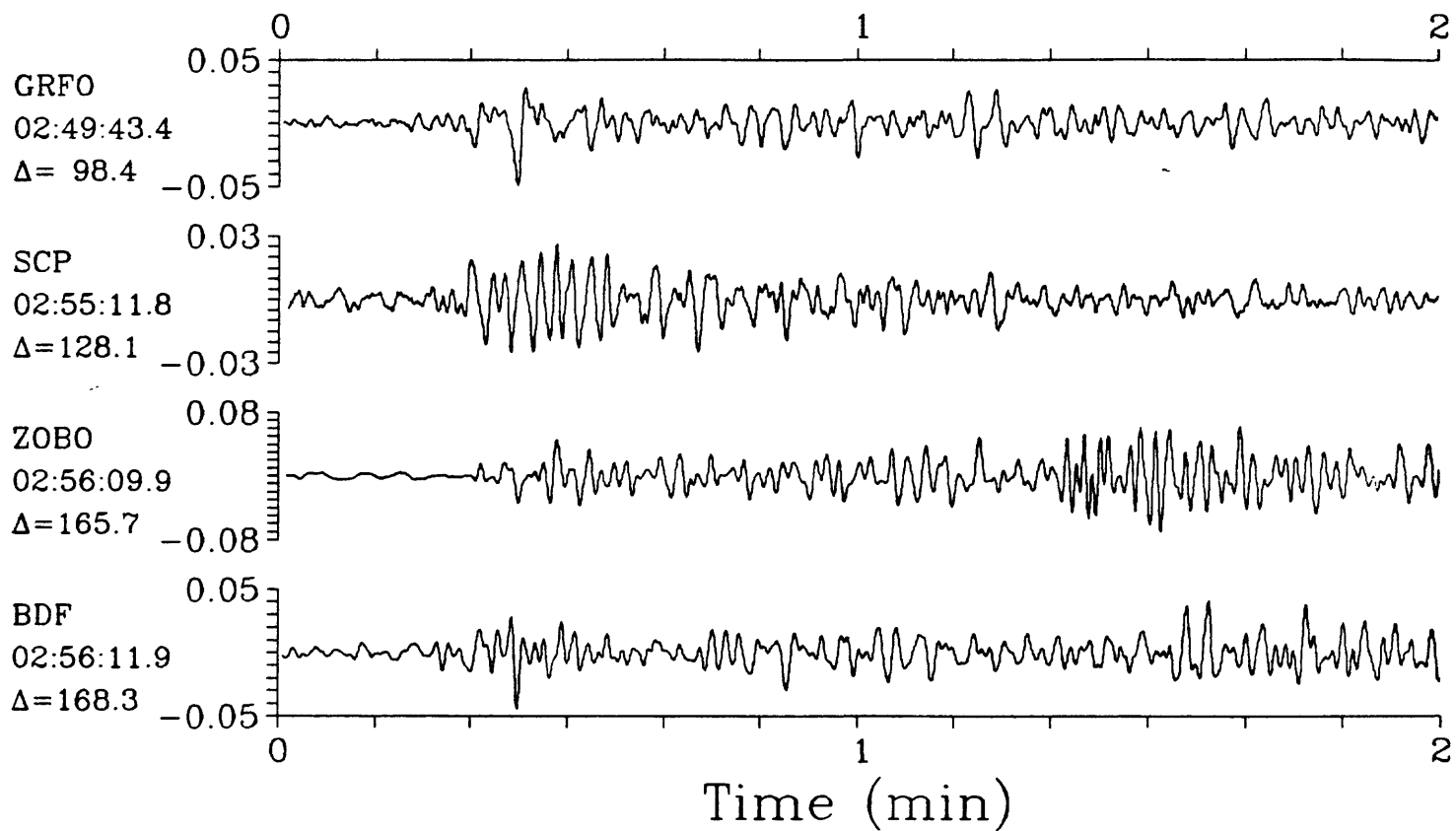
SPZ

Mindanao, Philippine Islands $h=35.4$ $m_b=5.8$ $M_{sz}=6.2$ 

SPZ

04 August 1985 02:36:23.68

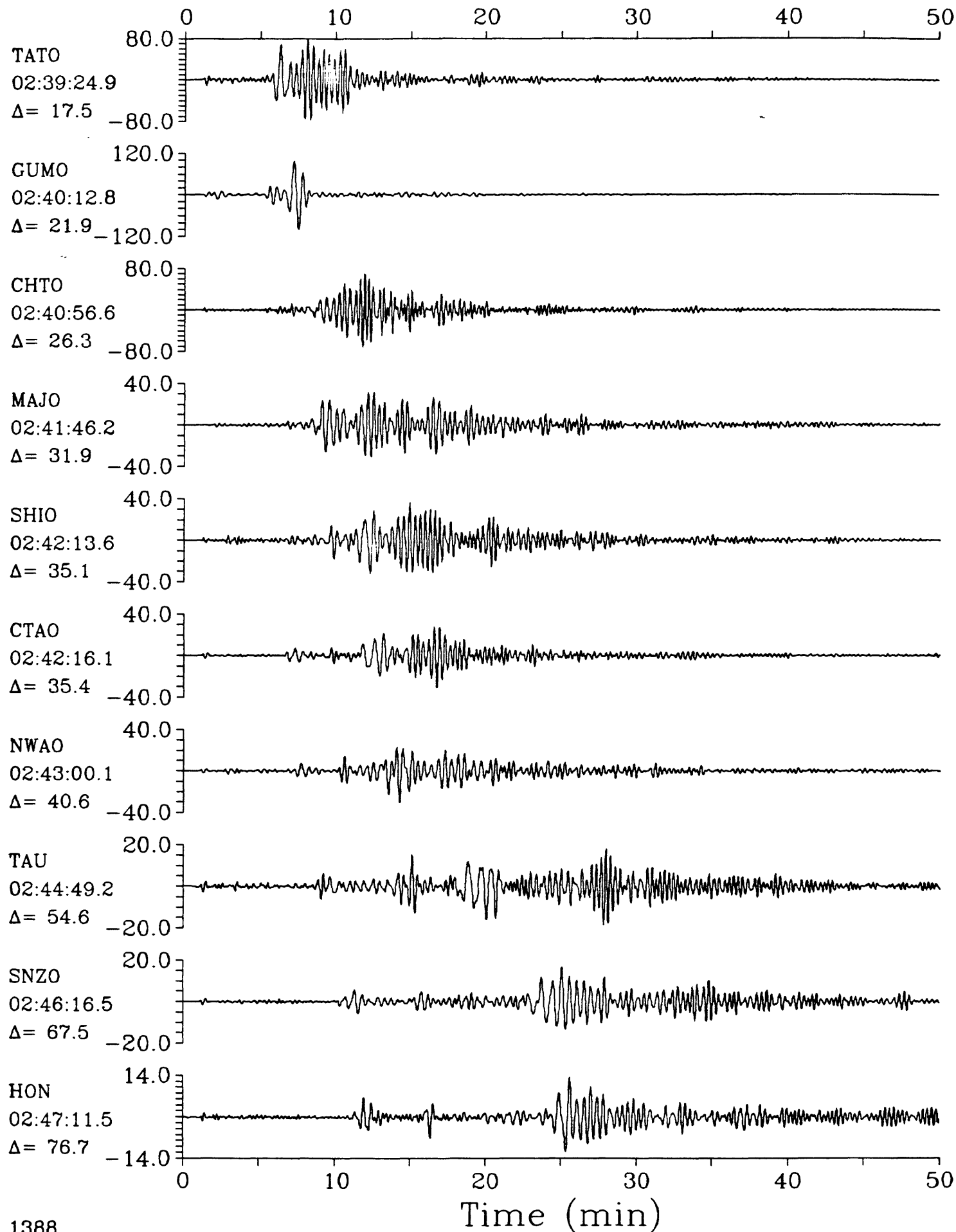
SPZ

Mindanao, Philippine Islands $h=35.4$ $m_b=5.8$ $M_{sz}=6.2$ 

LPZ

04 August 1985 02:36:23.68

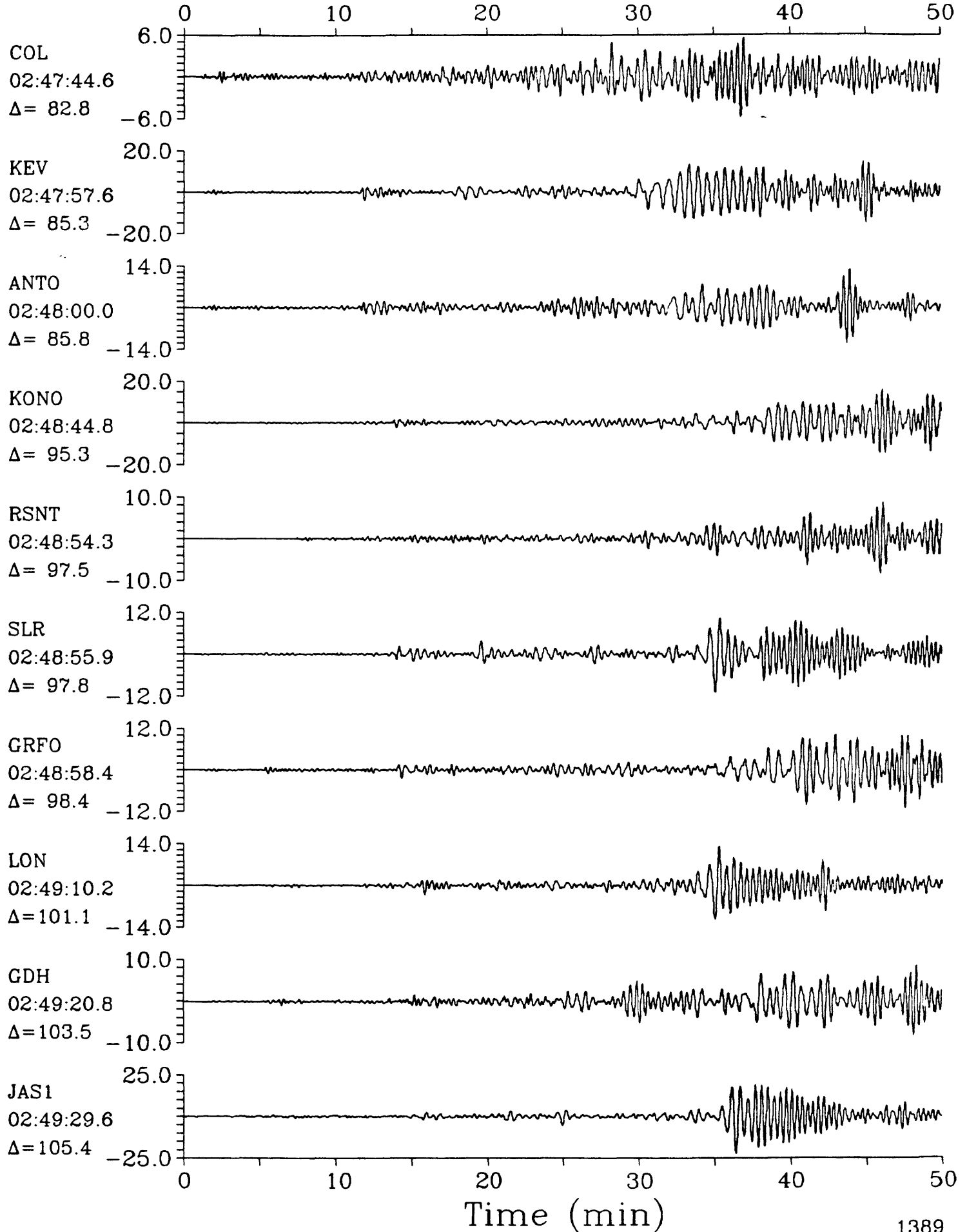
LPZ

Mindanao, Philippine Islands $h=35.4$ $m_b=5.8$ $M_{sz}=6.2$ 

LPZ

04 August 1985 02:36:23.68

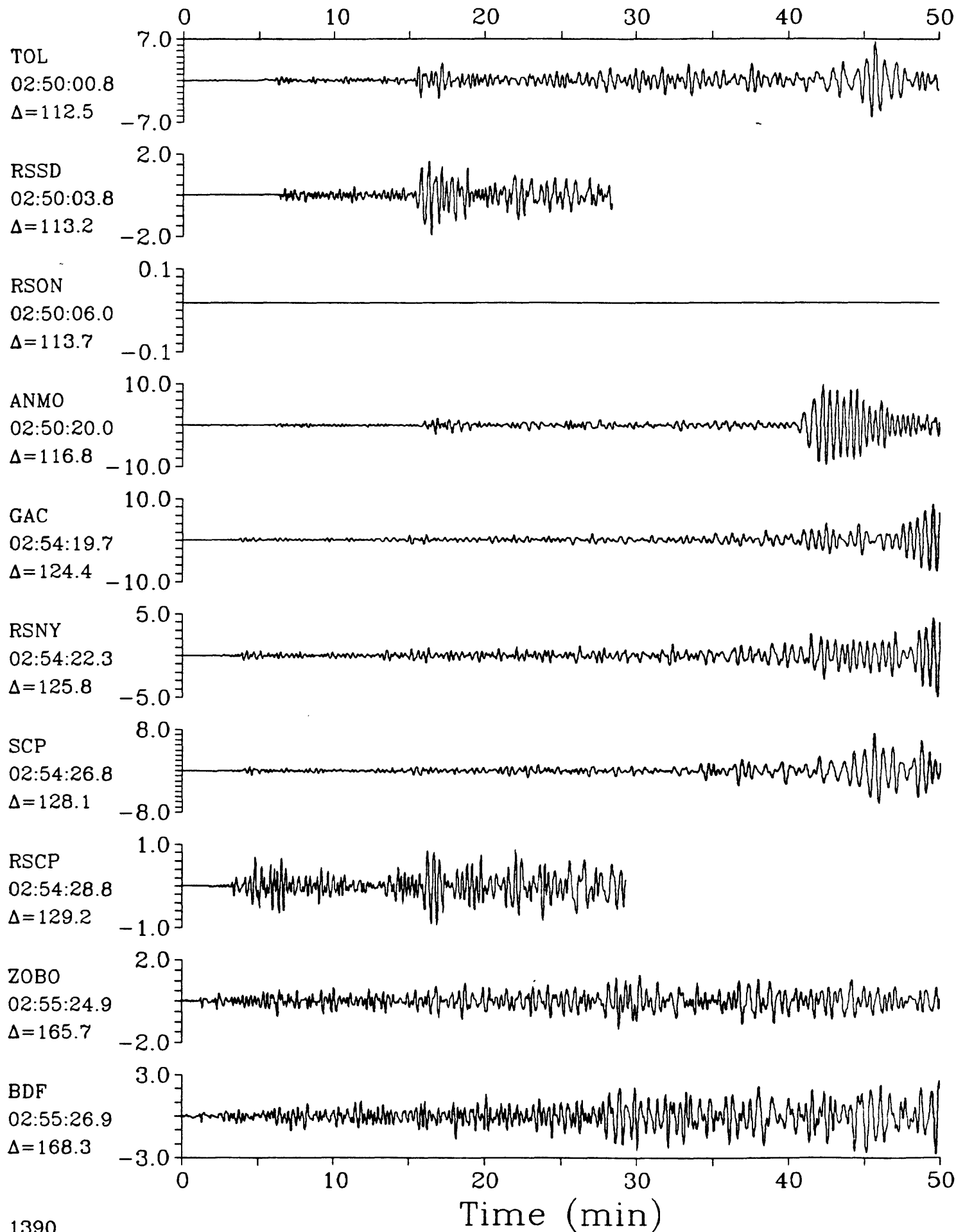
LPZ

Mindanao, Philippine Islands $h=35.4$ $m_b=5.8$ $M_{sz}=6.2$ 

LPZ

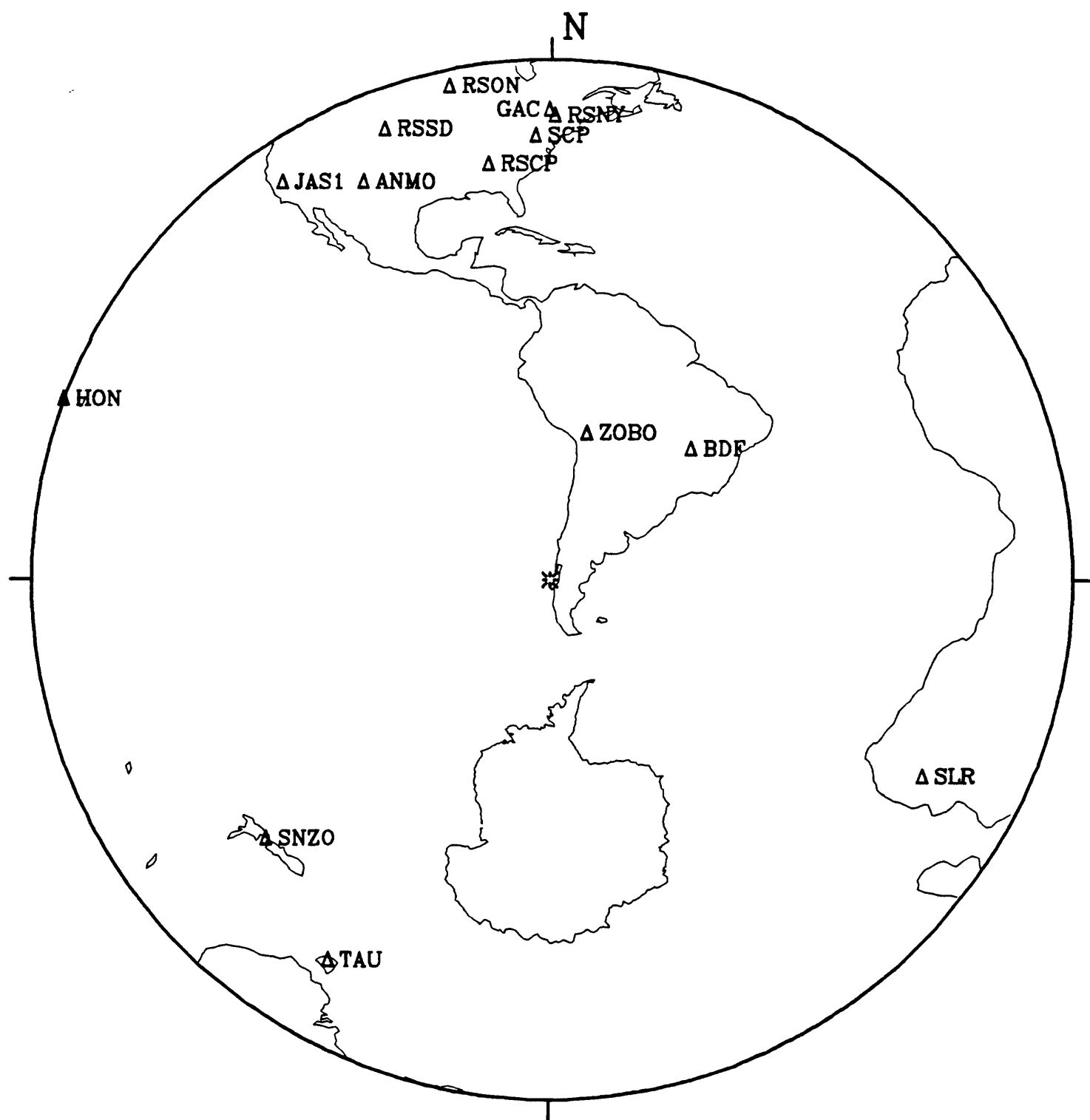
04 August 1985 02:36:23.68

LPZ

Mindanao, Philippine Islands $h=35.4$ $m_b=5.8$ $M_{sz}=6.2$ 

04 August 1985 04:54:01.98

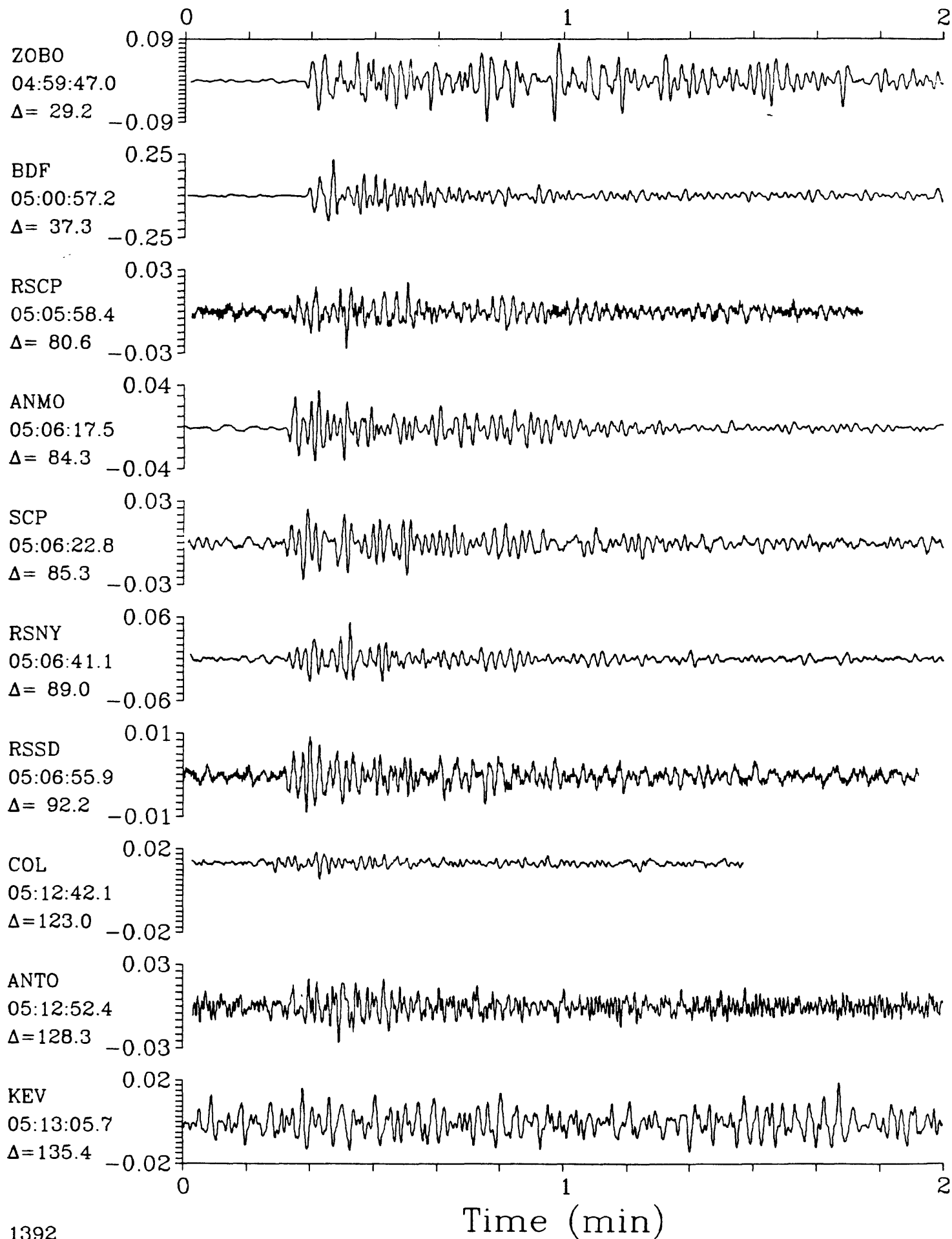
Off Coast of Southern Chile



SPZ

04 August 1985 04:54:01.98

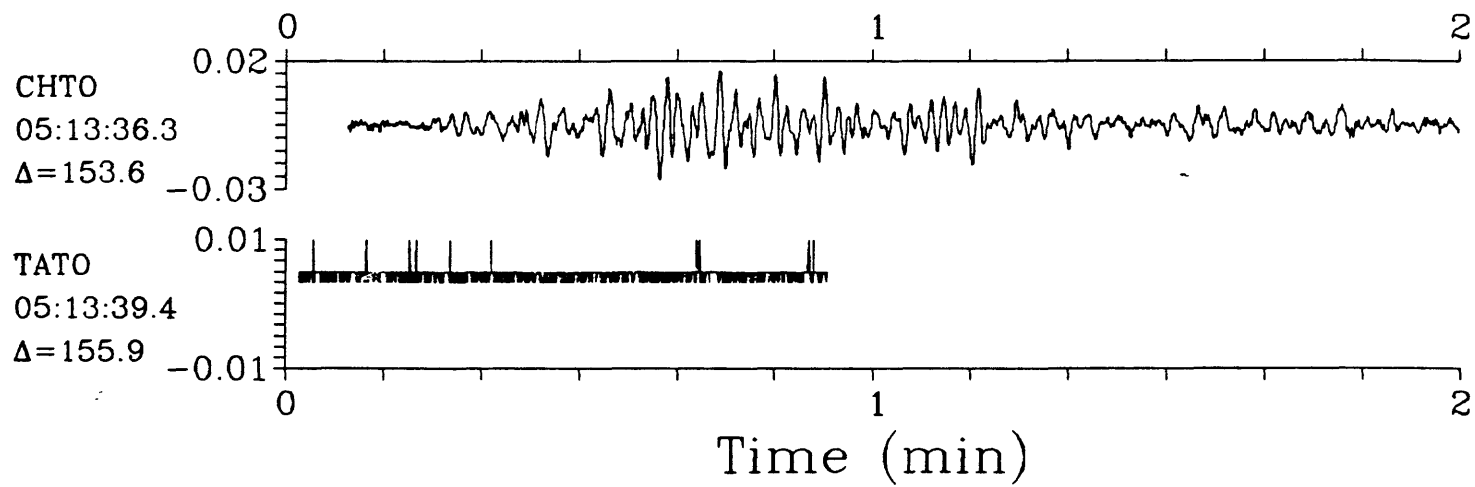
SPZ

Off Coast of Southern Chile $h=22.6$ $m_b=5.5$ $M_{sz}=5.4$ 

SPZ

04 August 1985 04:54:01.98

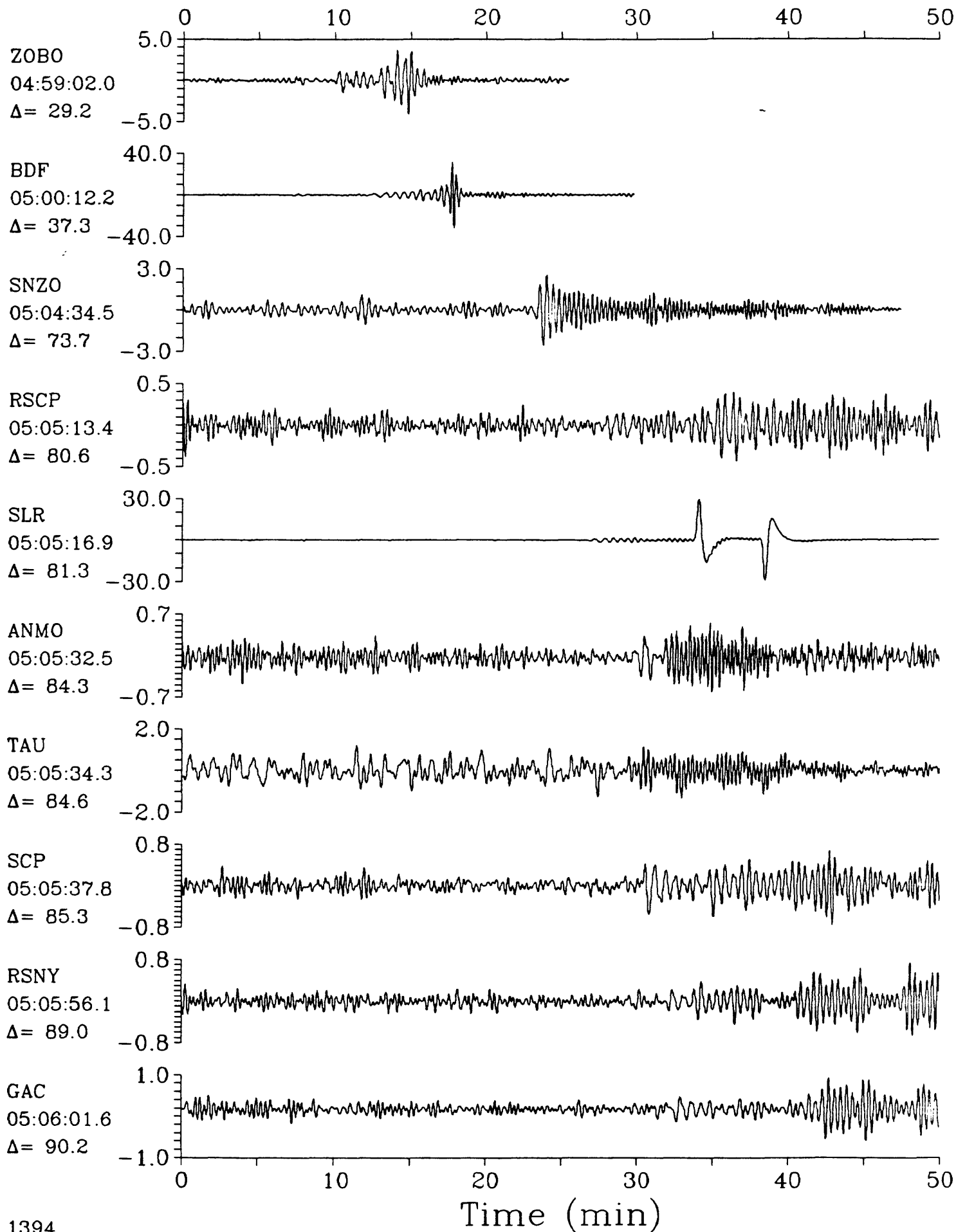
SPZ

Off Coast of Southern Chile $h=22.6$ $m_b=5.5$ $M_{SZ}=5.4$ 

LPZ

04 August 1985 04:54:01.98

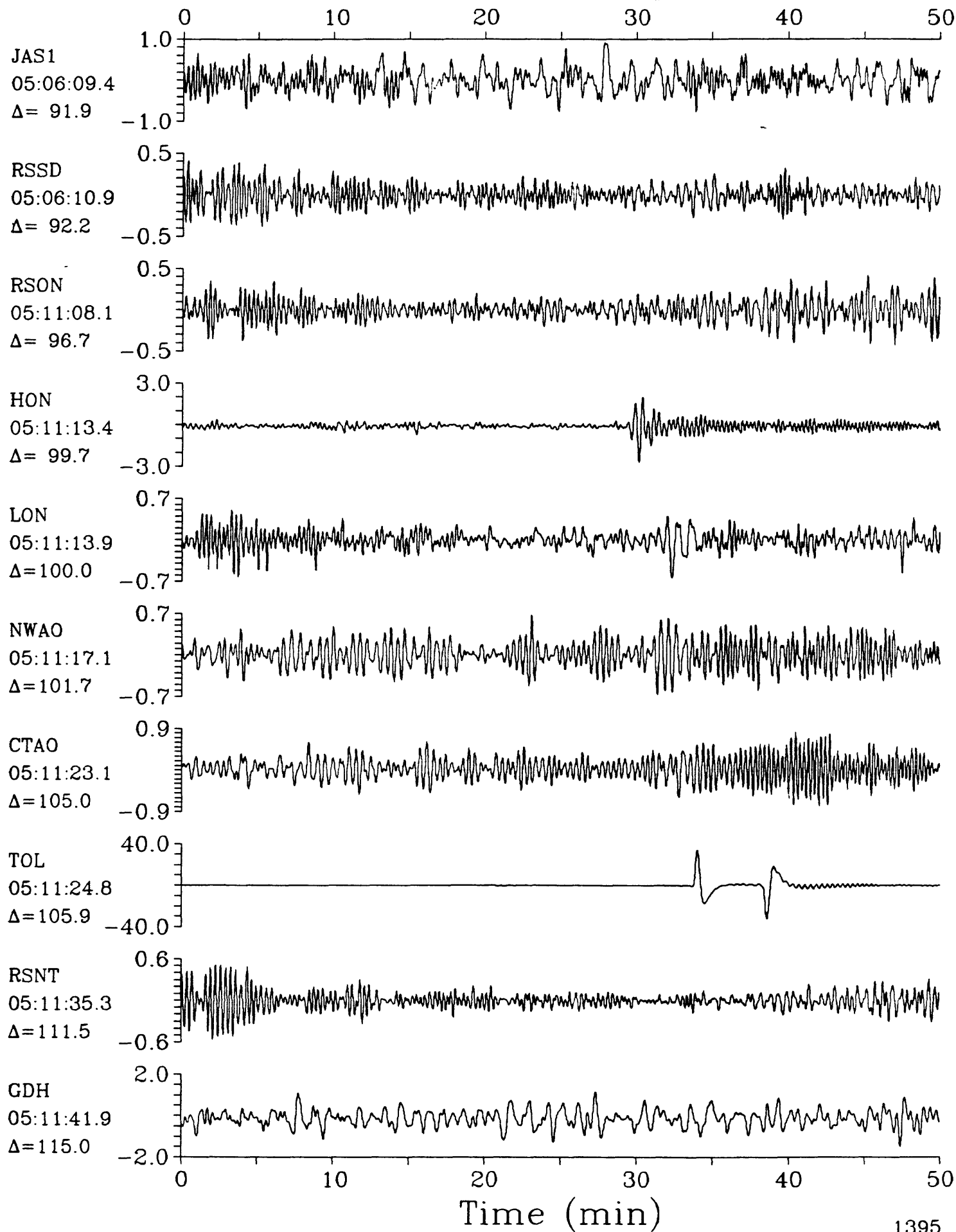
LPZ

Off Coast of Southern Chile $h=22.6$ $m_b=5.5$ $M_{sz}=5.4$ 

LPZ

04 August 1985 04:54:01.98

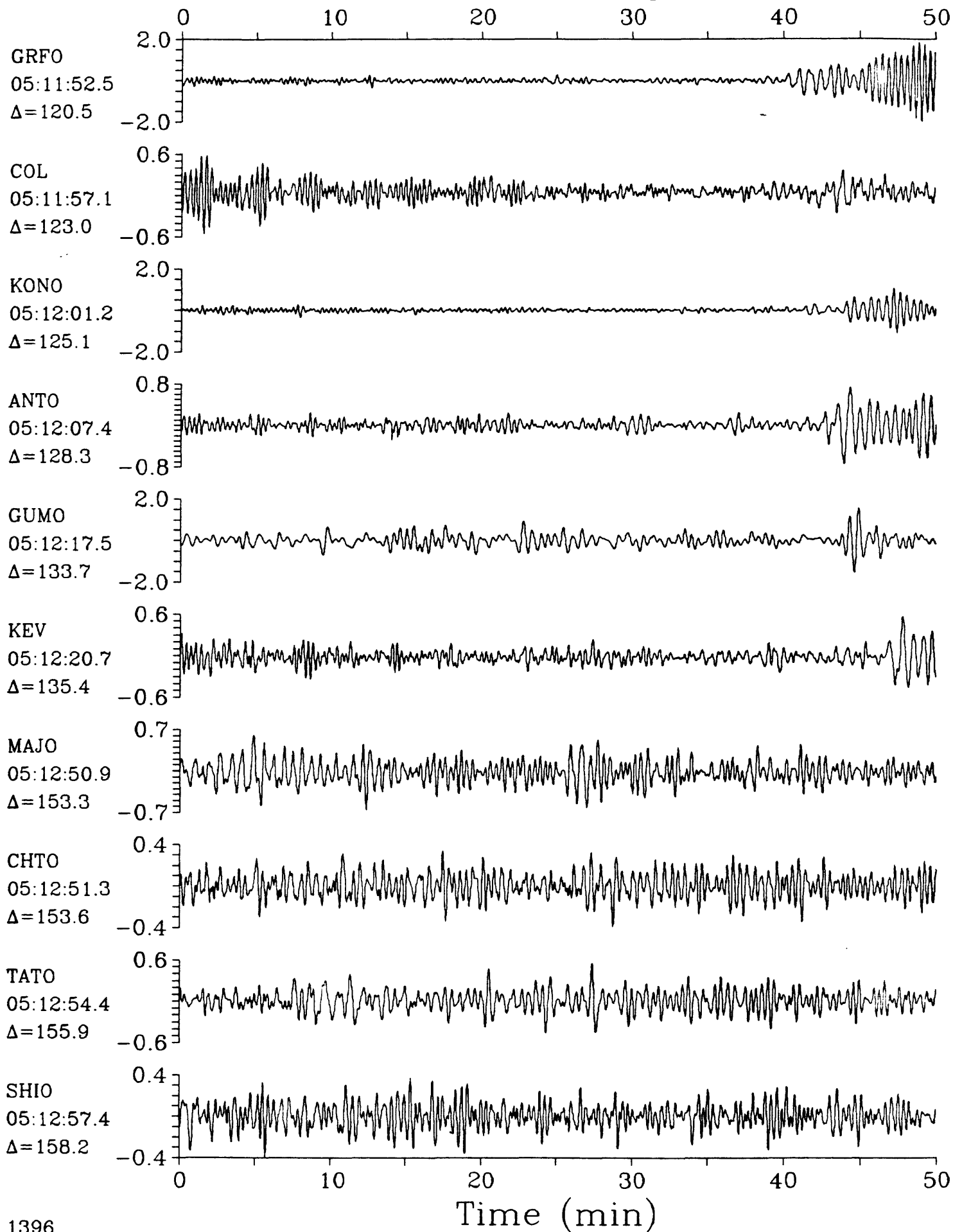
LPZ

Off Coast of Southern Chile $h=22.6$ $m_b=5.5$ $M_{sz}=5.4$ 

LPZ

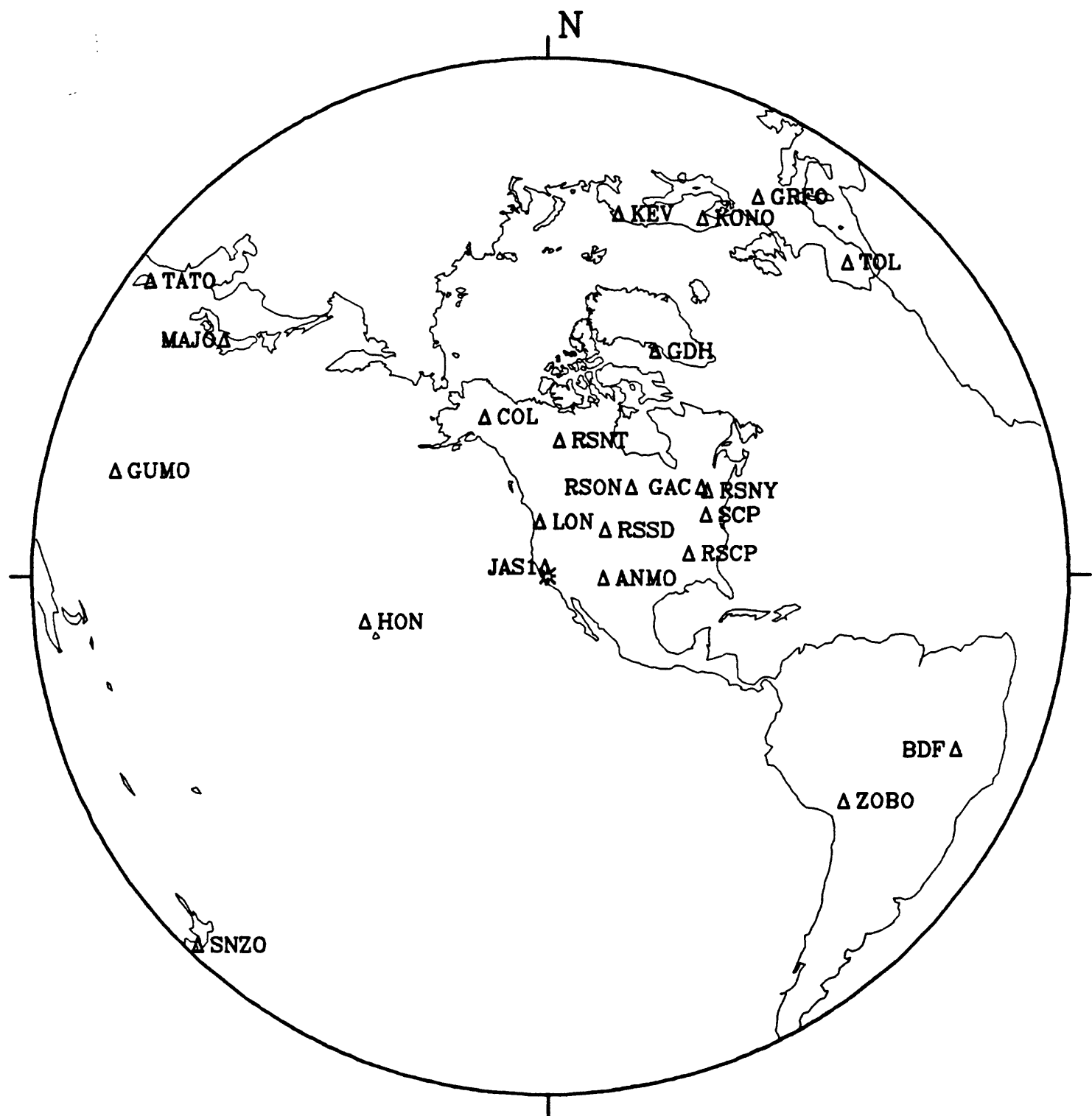
04 August 1985 04:54:01.98

LPZ

Off Coast of Southern Chile $h=22.6$ $m_b=5.5$ $M_{sz}=5.4$ 

04 August 1985 12:01:57.36

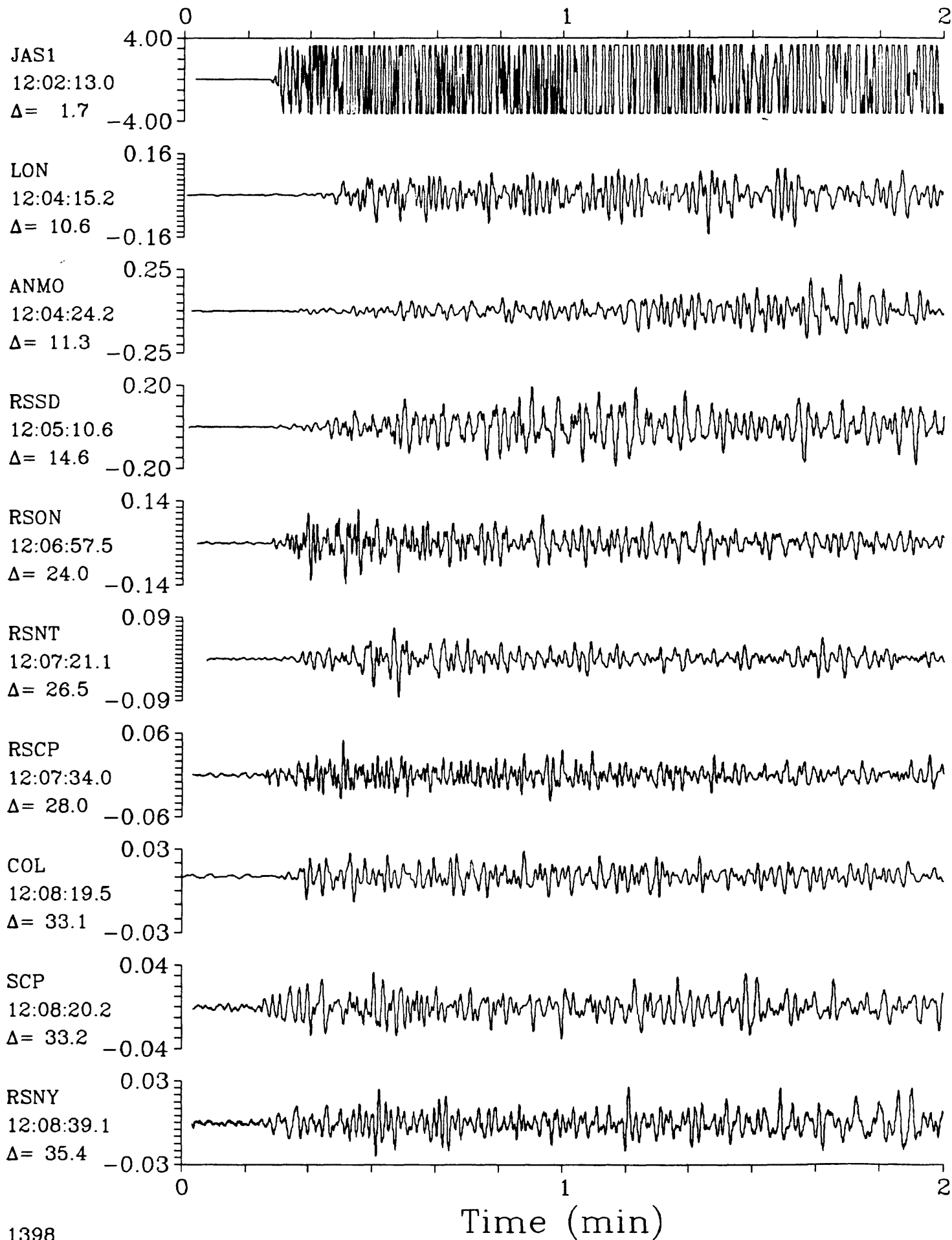
Central California



SPZ

04 August 1985 12:01:57.36

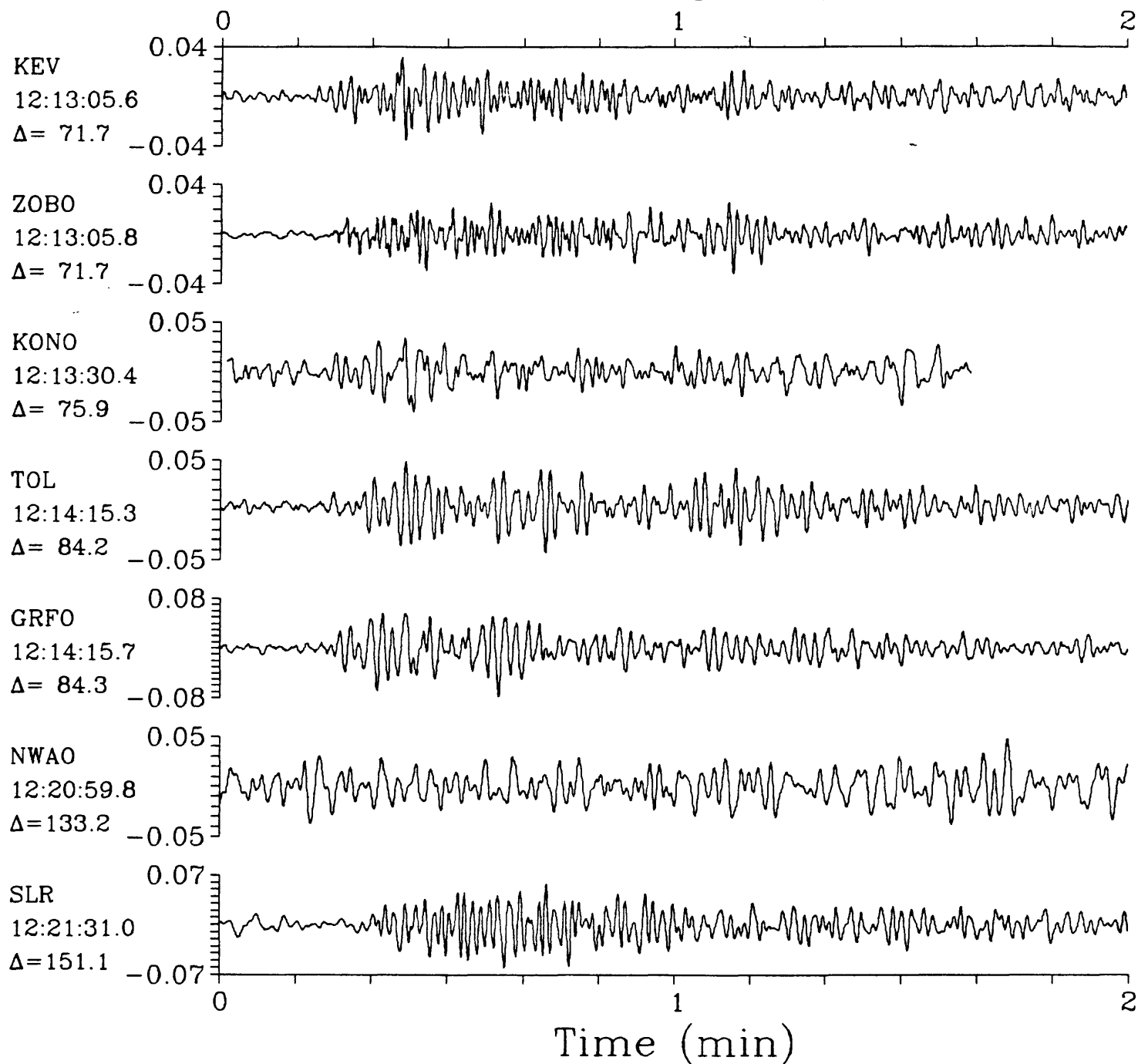
SPZ

Central California $h=5.0$ $m_b=5.4$ $M_{sz}=5.9$ 

SPZ

04 August 1985 12:01:57.36

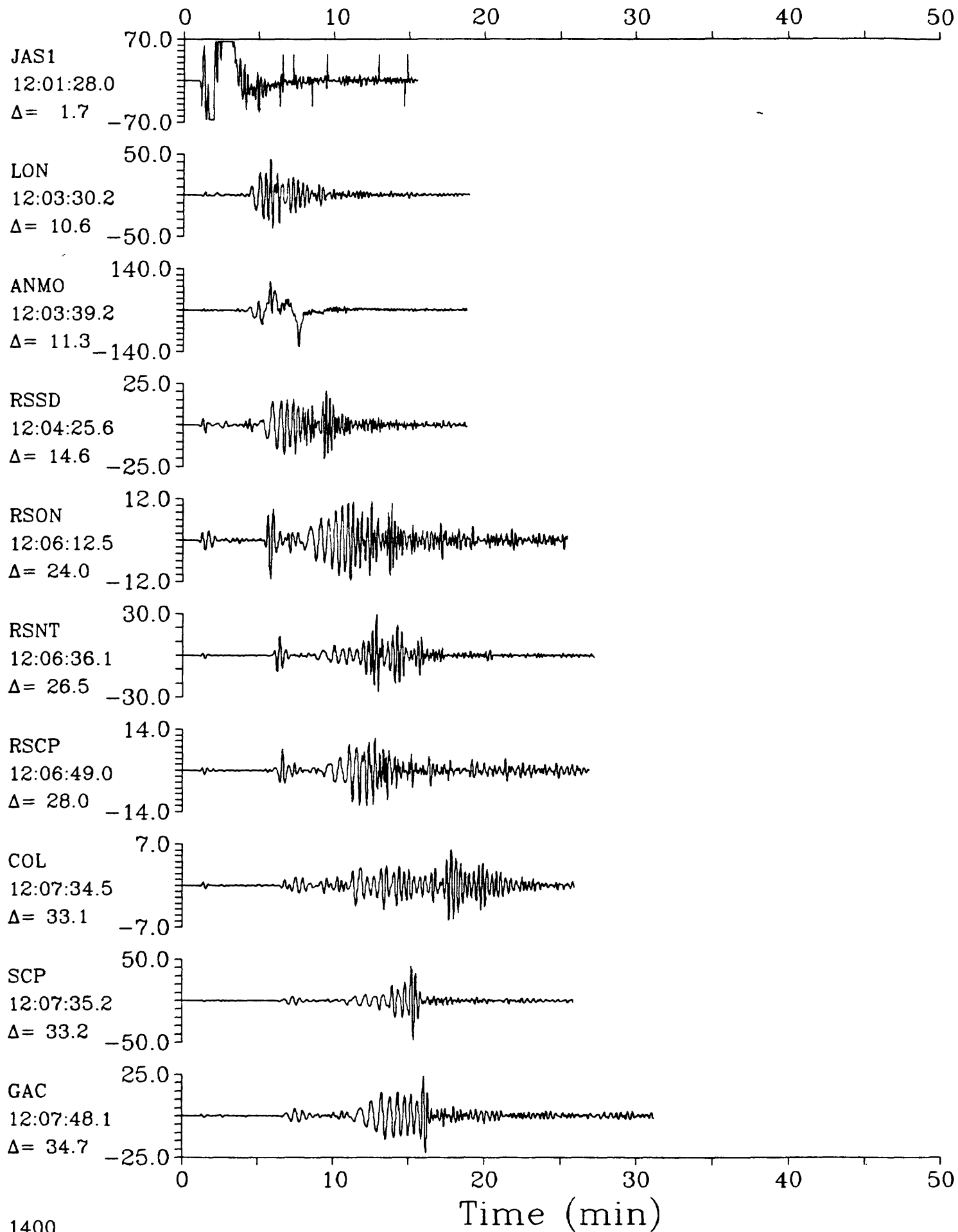
SPZ

Central California $h=5.0$ $m_b=5.4$ $M_{sz}=5.9$ 

LPZ

04 August 1985 12:01:57.36
Central California $h=5.0$ $m_b=5.4$ $M_{sz}=5.9$

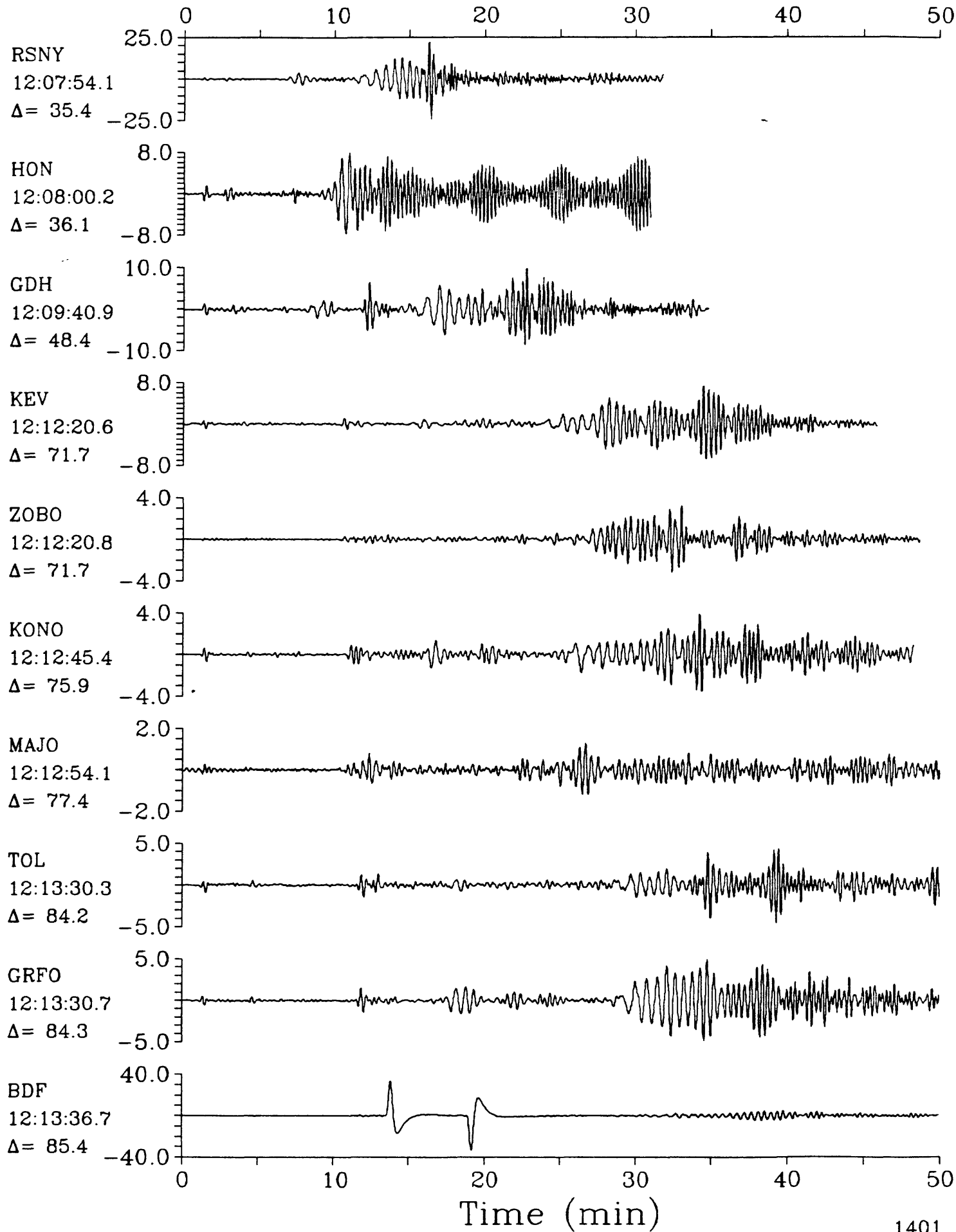
LPZ



LPZ

04 August 1985 12:01:57.36

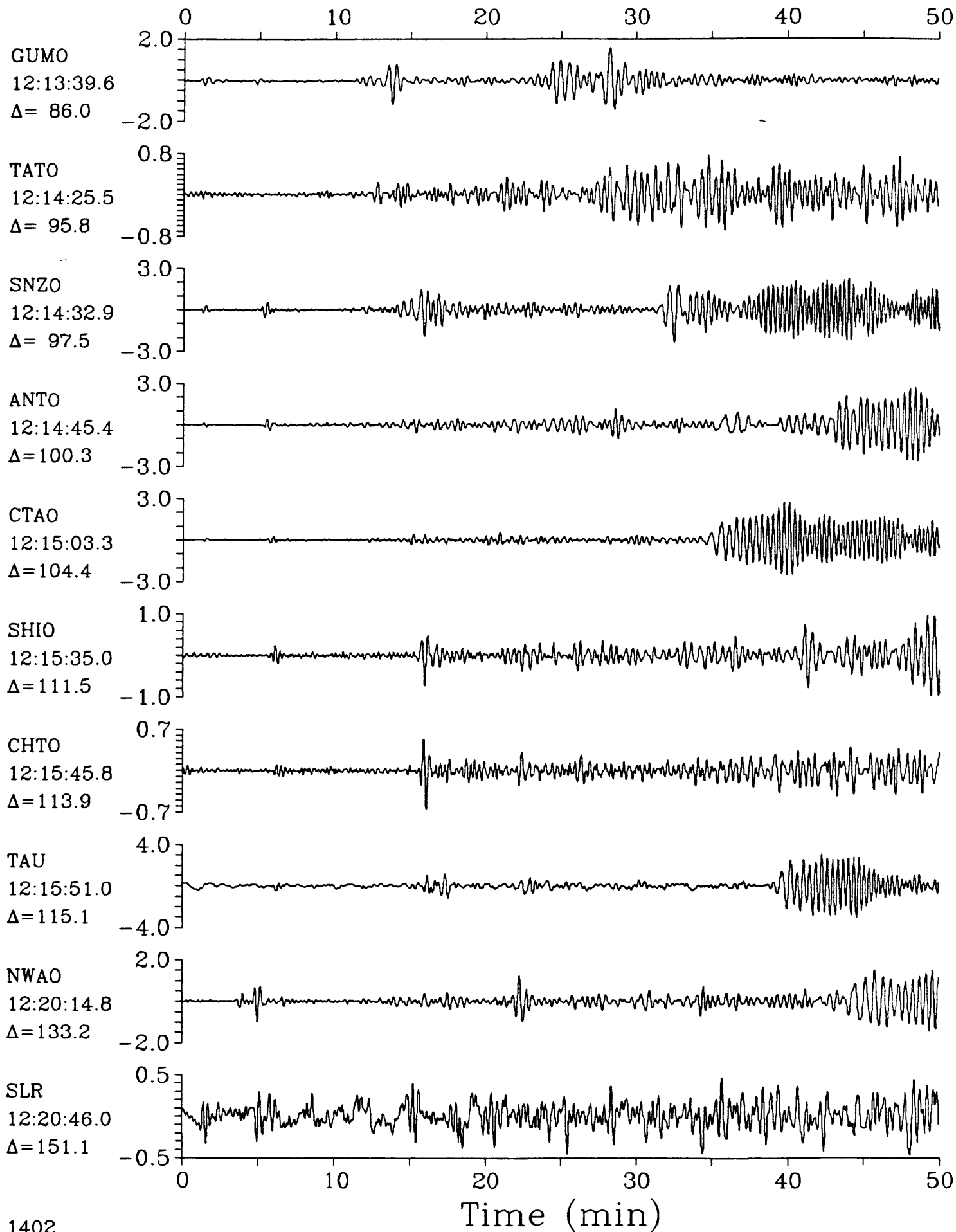
LPZ

Central California $h=5.0$ $m_b=5.4$ $M_{sz}=5.9$ 

LPZ

04 August 1985 12:01:57.36

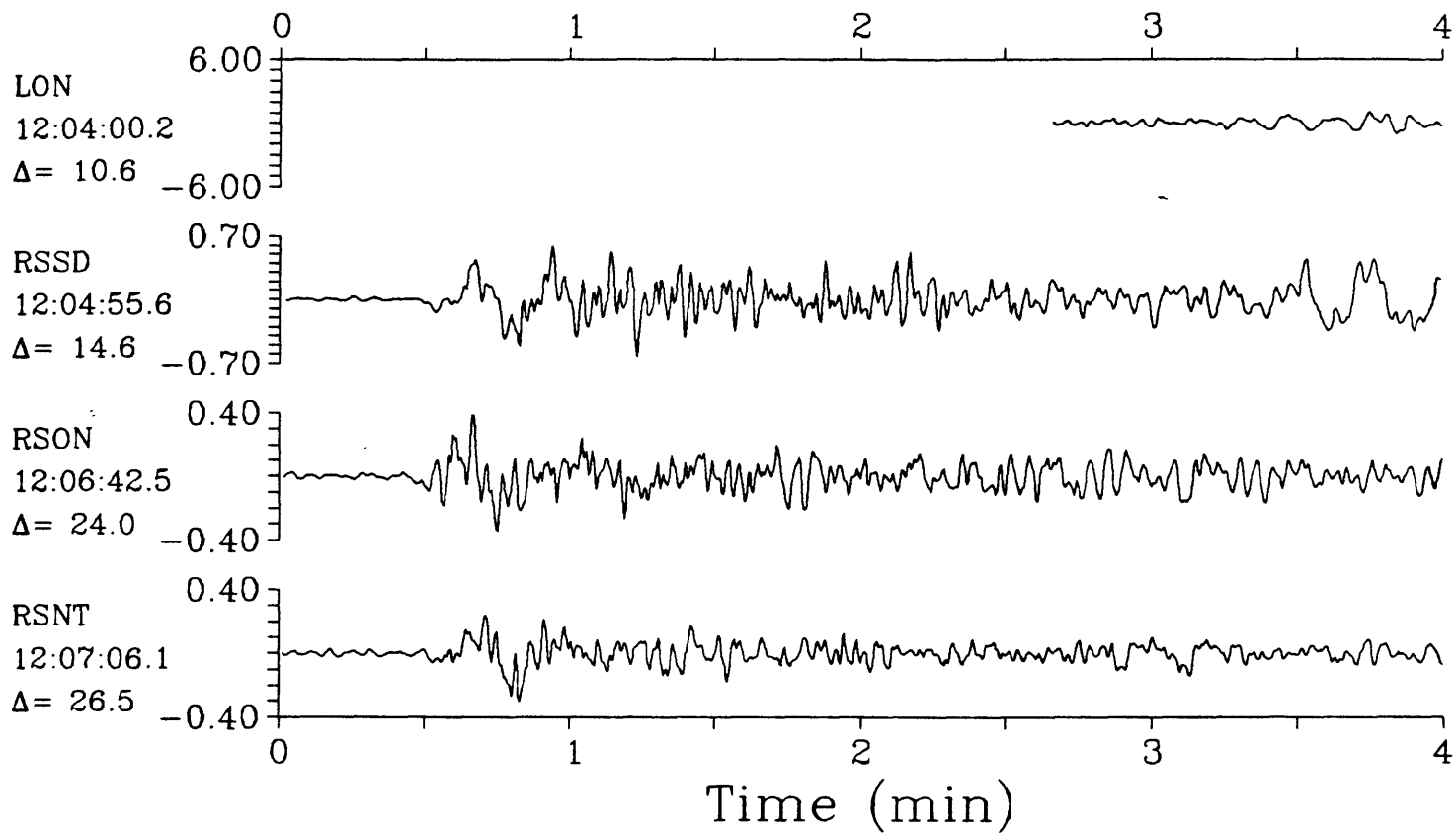
LPZ

Central California $h=5.0$ $m_b=5.4$ $M_{sz}=5.9$ 

IPZ

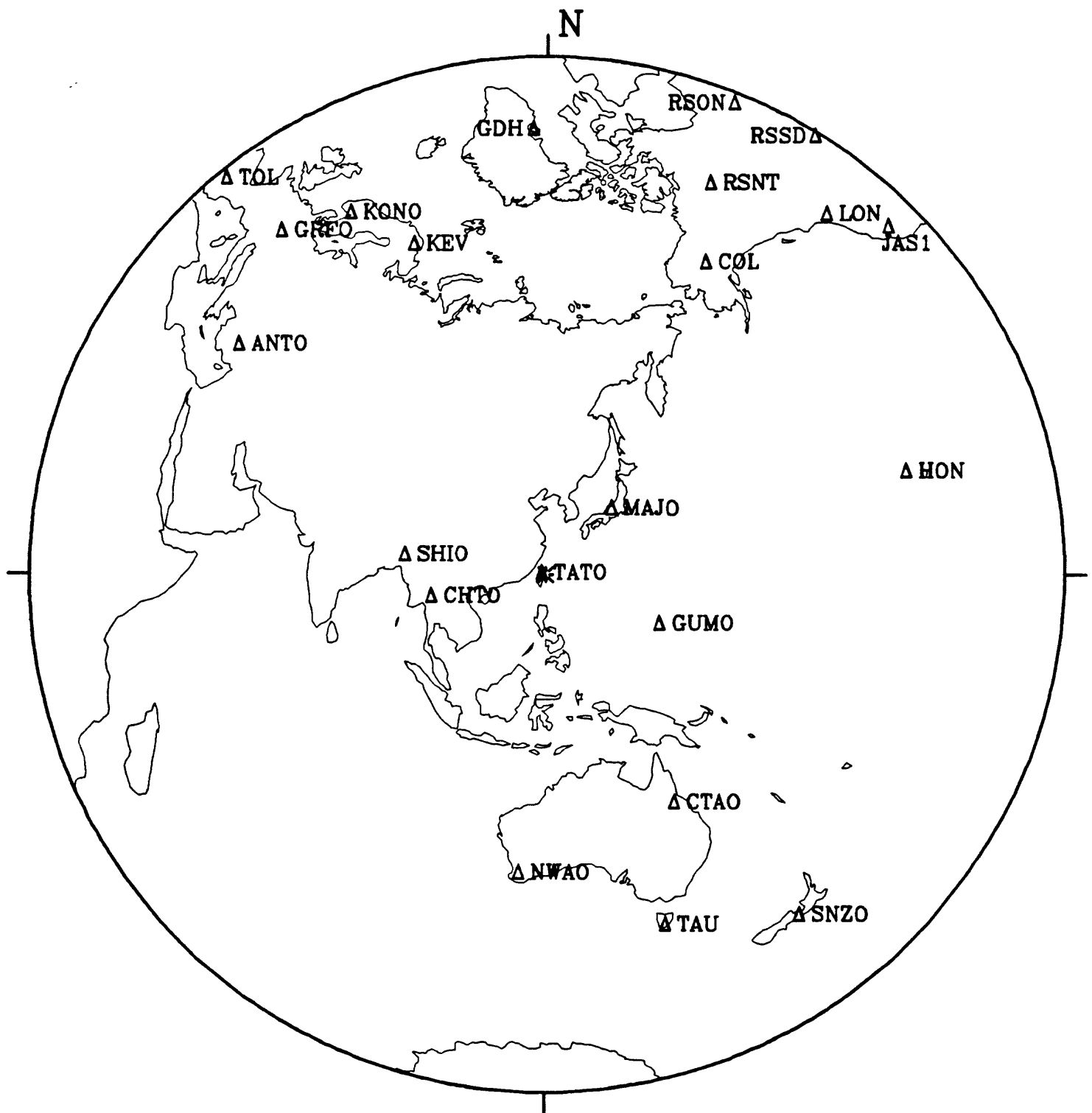
04 August 1985 12:01:57.36

IPZ

Central California $h=5.0$ $m_b=5.4$ $M_{sz}=5.9$ 

05 August 1985 13:00:39.57

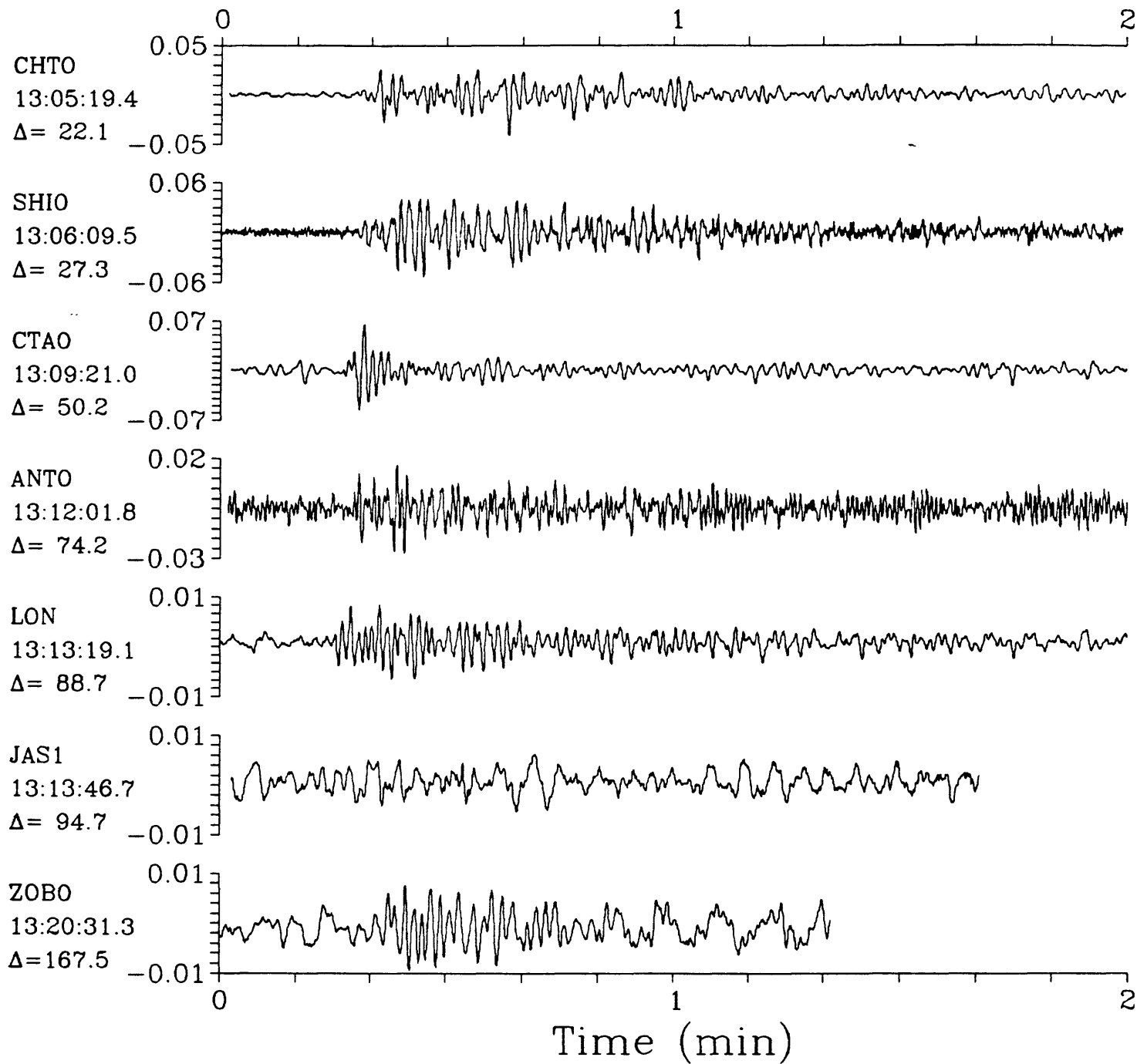
Taiwan Region



SPZ

05 August 1985 13:00:39.57
Taiwan Region $h=10.0$ $m_b=5.1$ $M_{sz}=5.9$

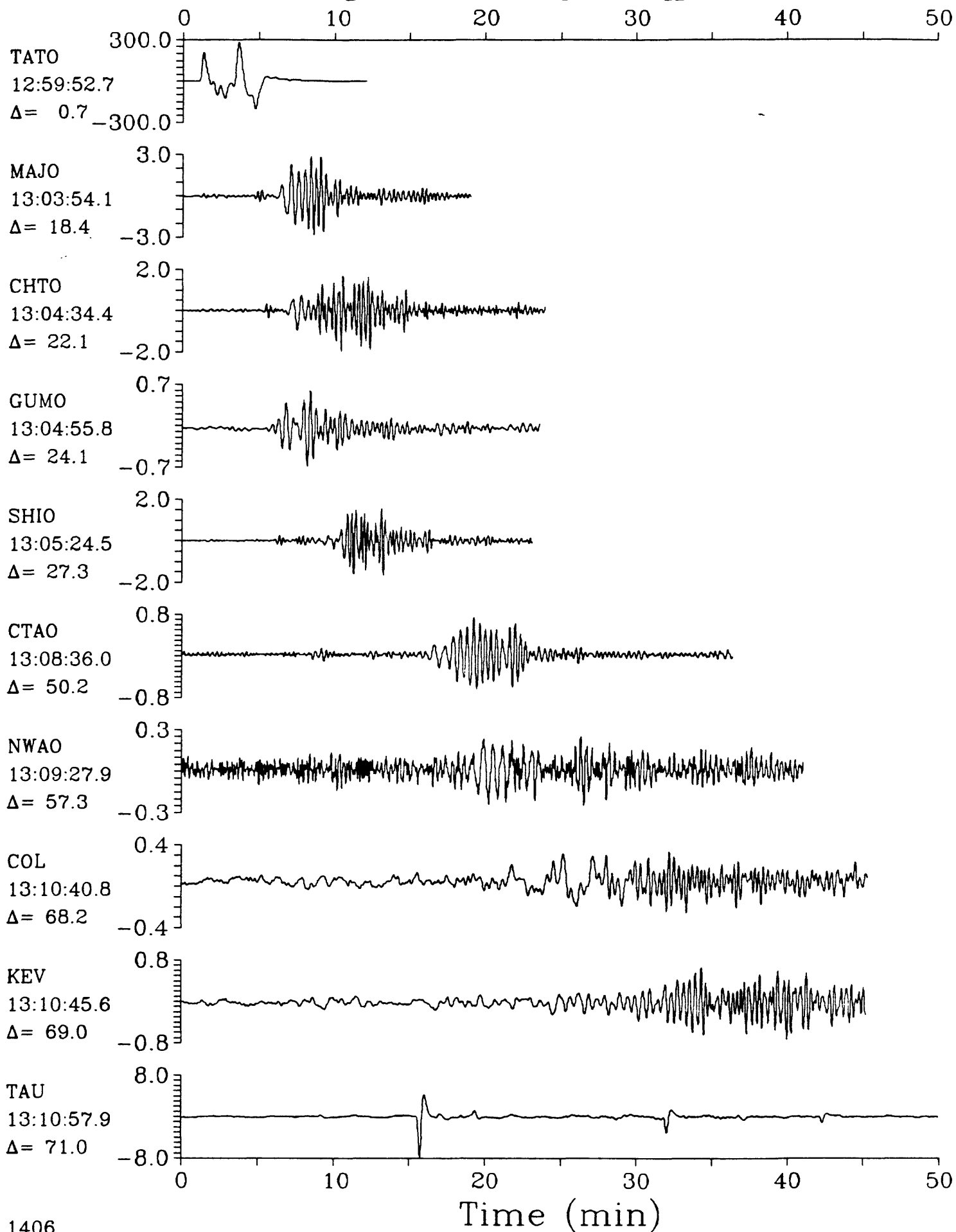
SPZ



LPZ

05 August 1985 13:00:39.57
Taiwan Region $h=10.0$ $m_b=5.1$ $M_{sz}=5.9$

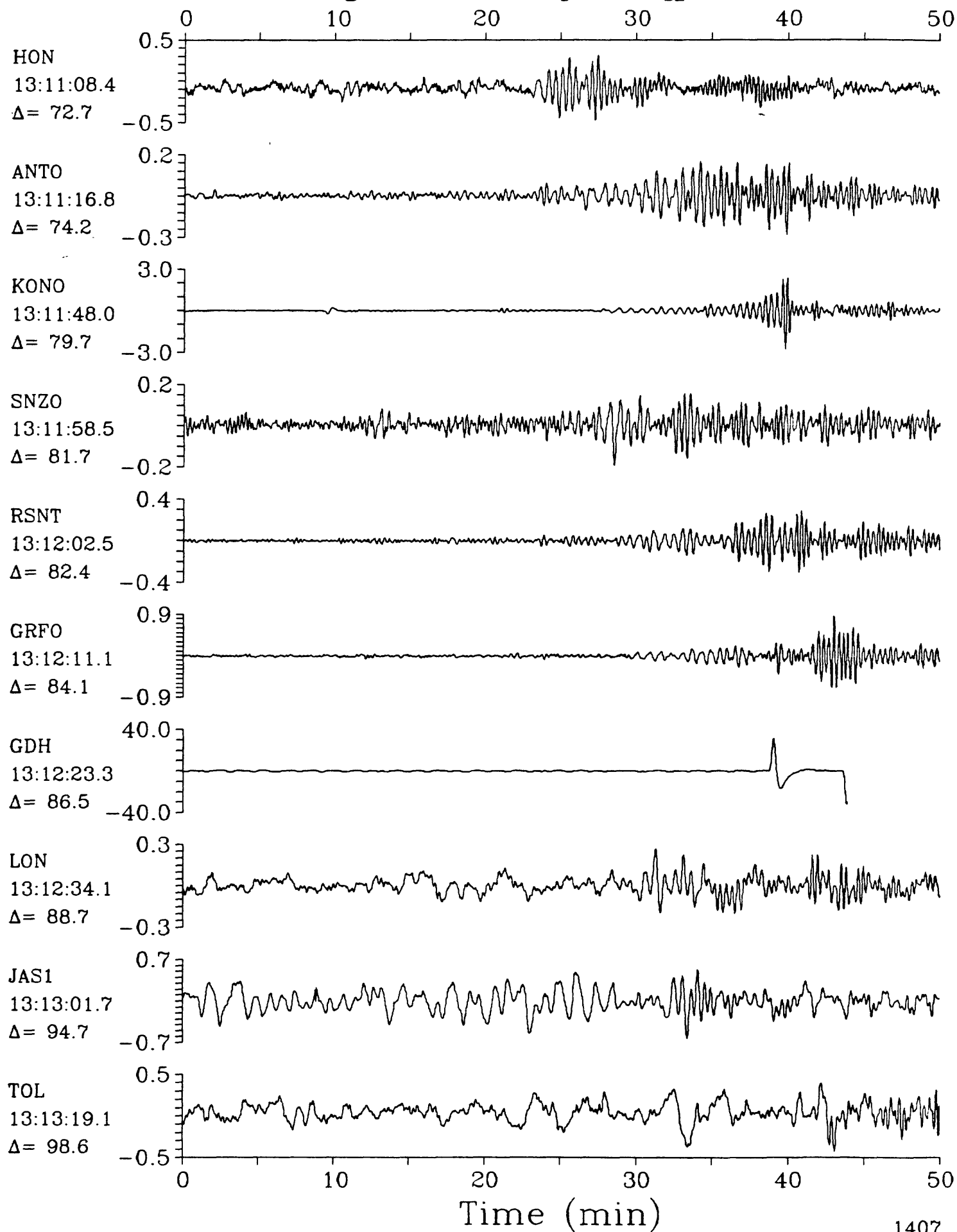
LPZ



LPZ

05 August 1985 13:00:39.57

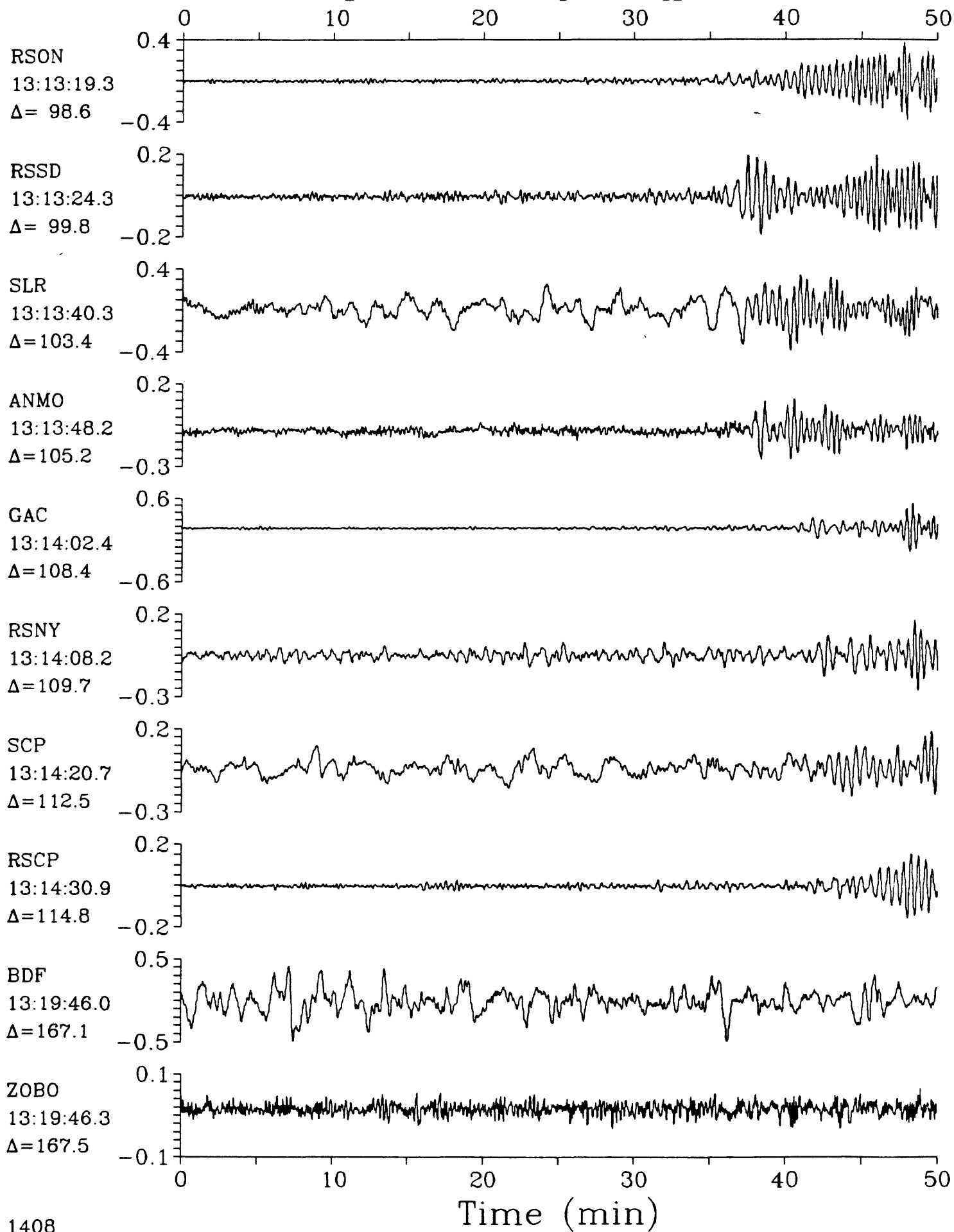
LPZ

Taiwan Region $h=10.0$ $m_b=5.1$ $M_{sz}=5.9$ 

LPZ

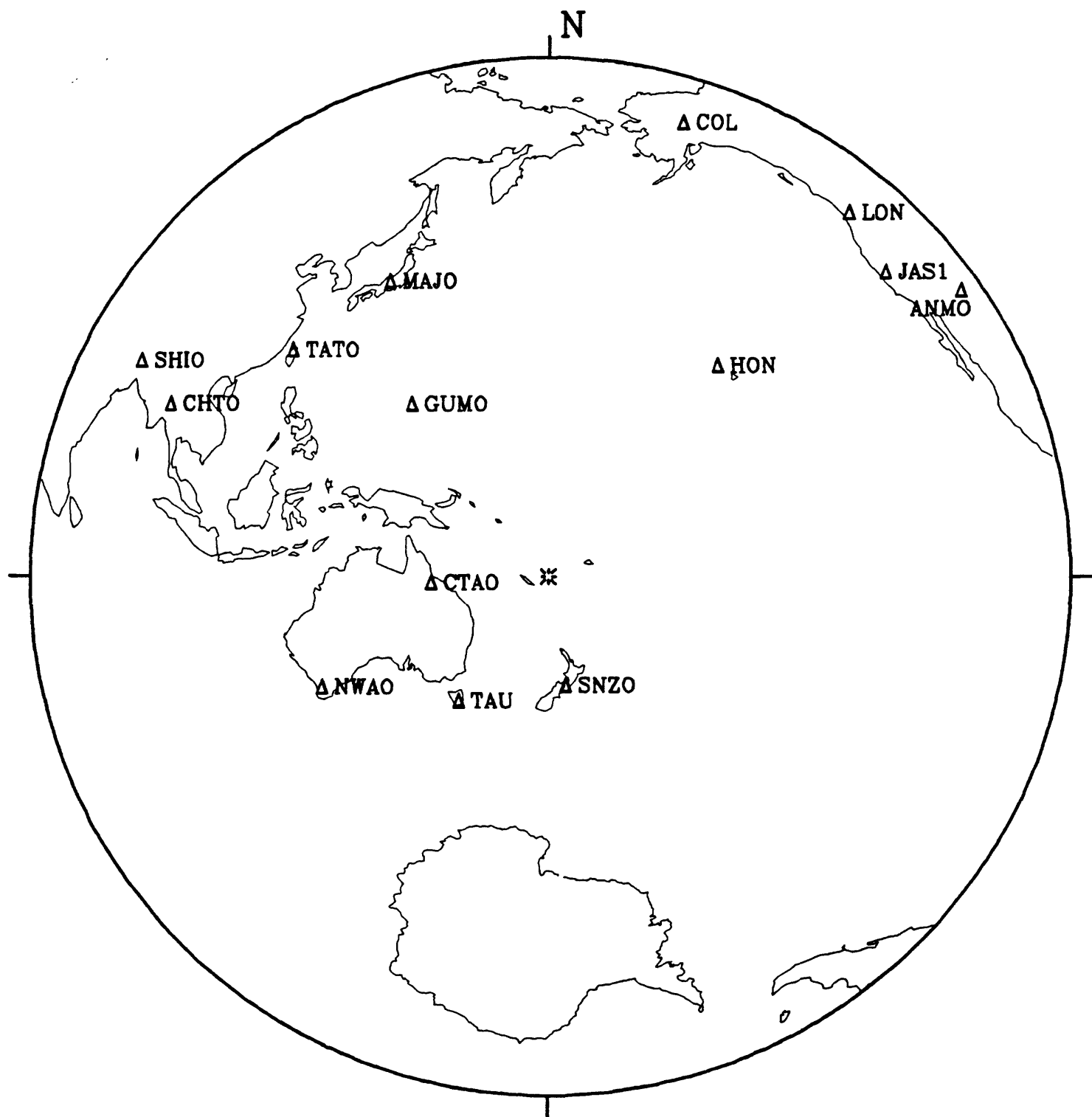
05 August 1985 13:00:39.57
Taiwan Region $h=10.0$ $m_b=5.1$ $M_{sz}=5.9$

LPZ



07 August 1985 03:38:06.29

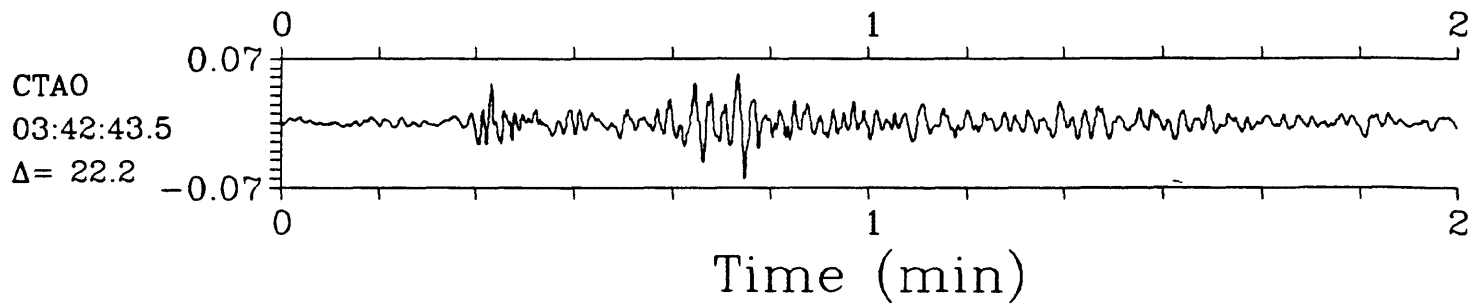
Vanuatu Islands



SPZ

07 August 1985 03:38:06.29
Vanuatu Islands $h=33.0$ $m_b=5.5$

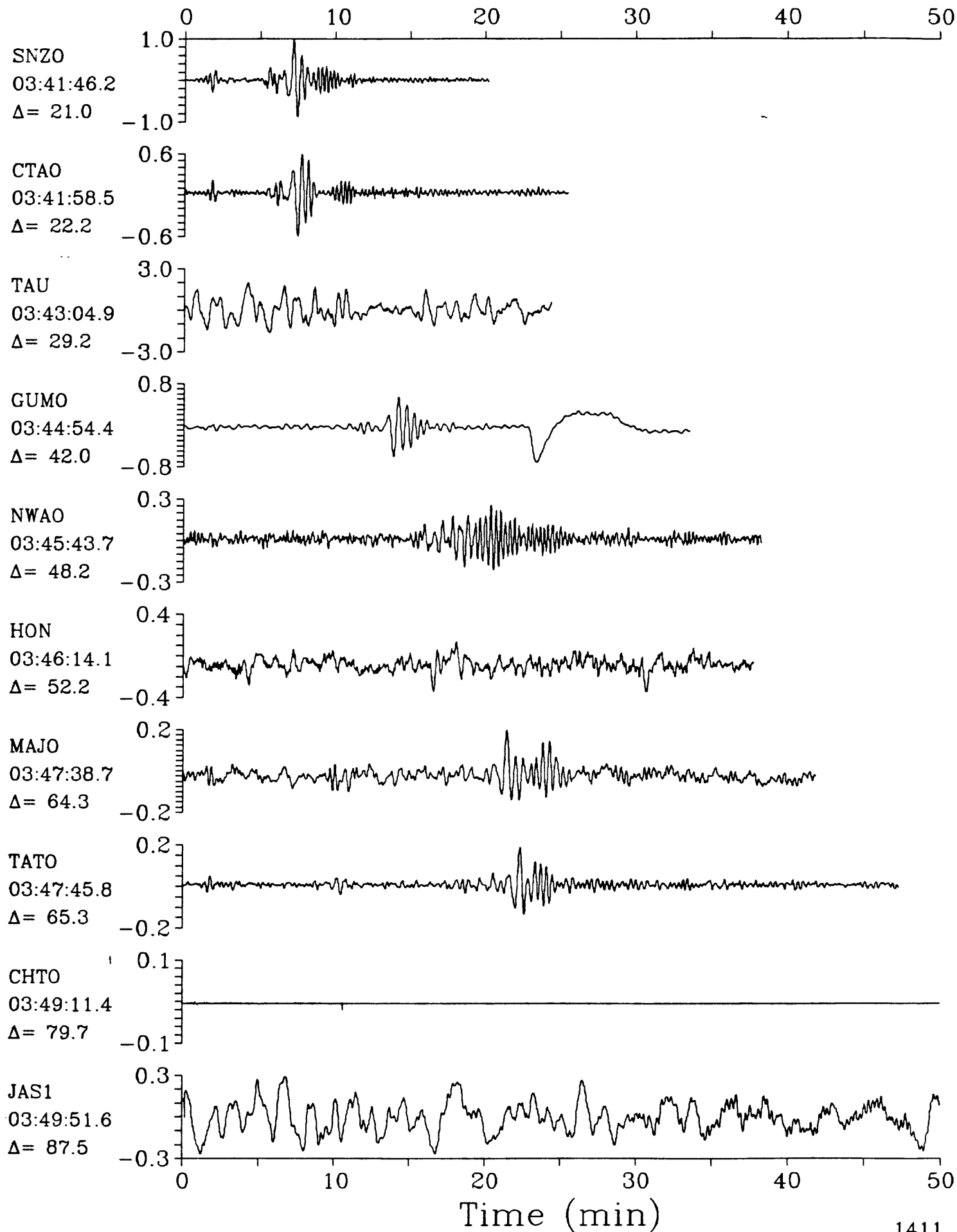
SPZ



LPZ

07 August 1985 03:38:06.29
Vanuatu Islands $h=33.0$ $m_b=5.5$

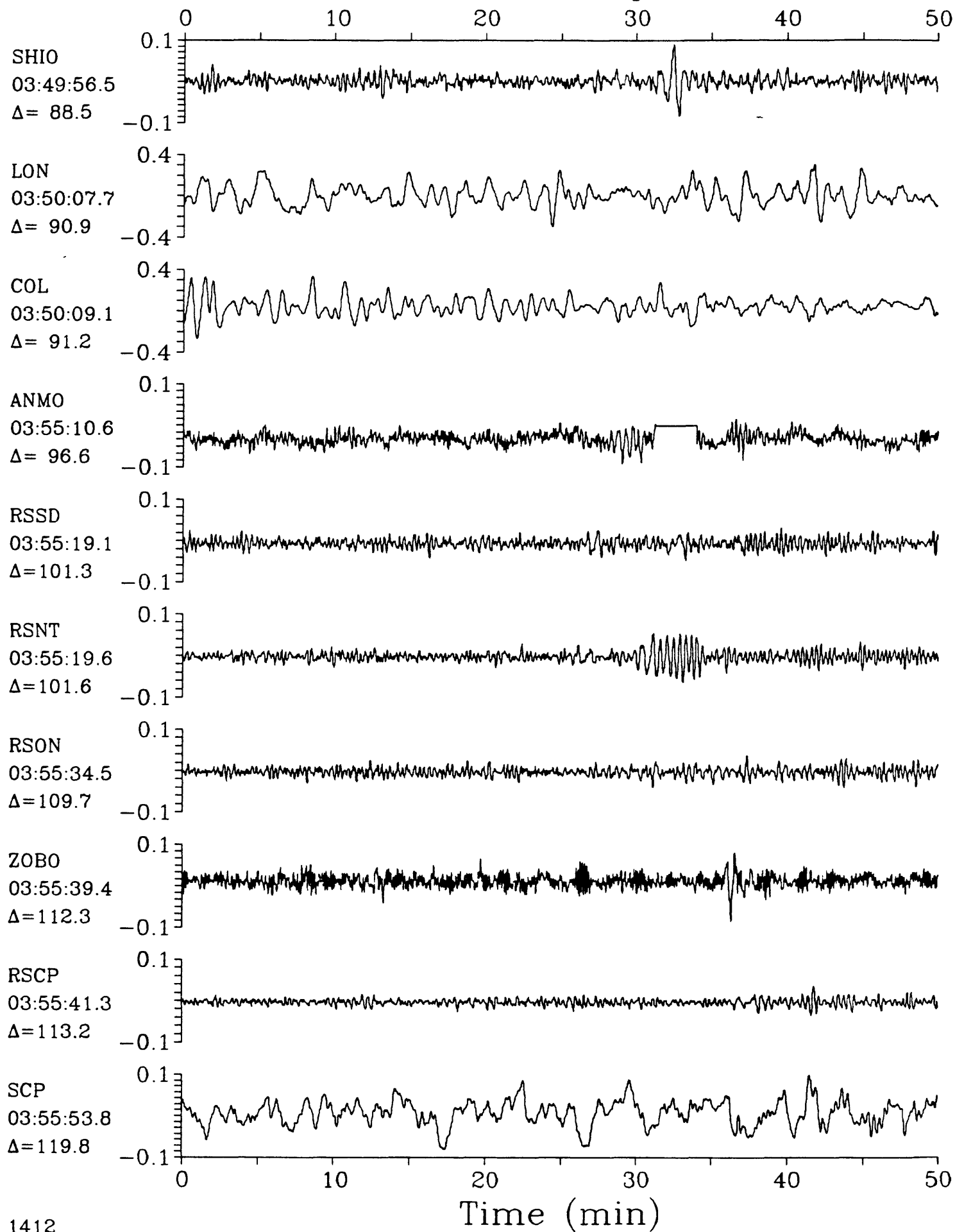
LPZ



LPZ

07 August 1985 03:38:06.29
Vanuatu Islands $h=33.0$ $m_b=5.5$

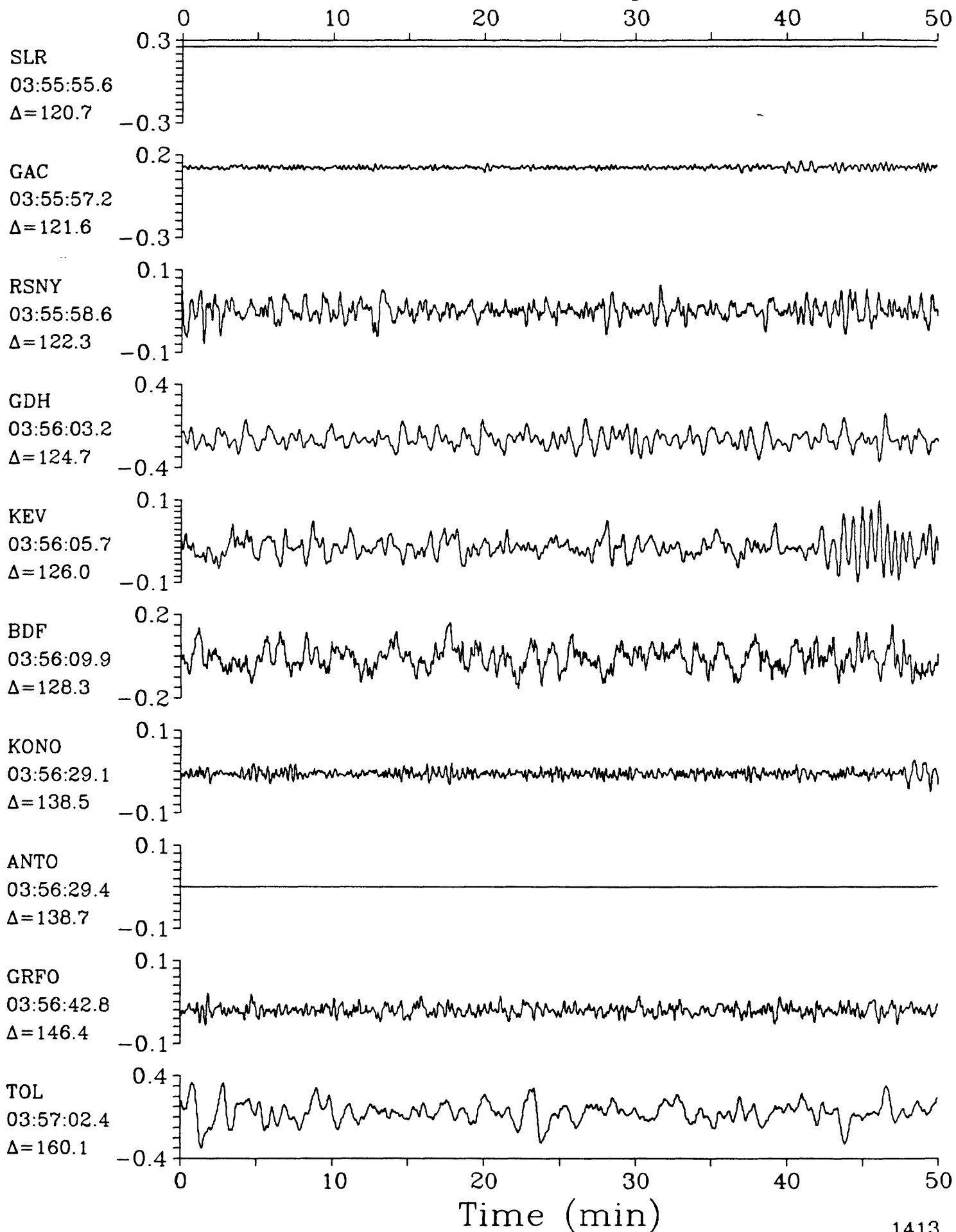
LPZ



LPZ

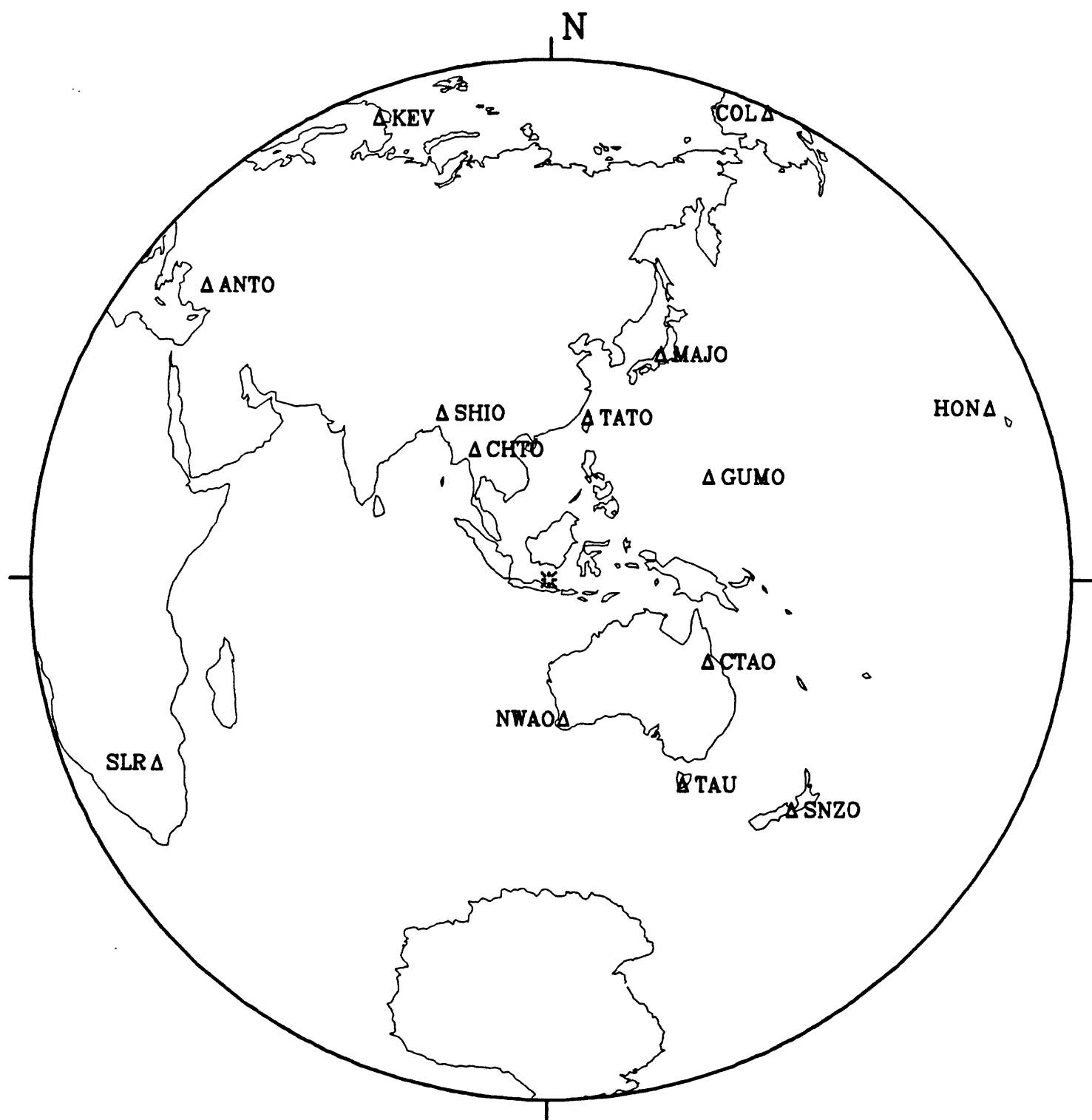
07 August 1985 03:38:06.29
Vanuatu Islands $h=33.0$ $m_b=5.5$

LPZ



08 August 1985 16:18:03.35

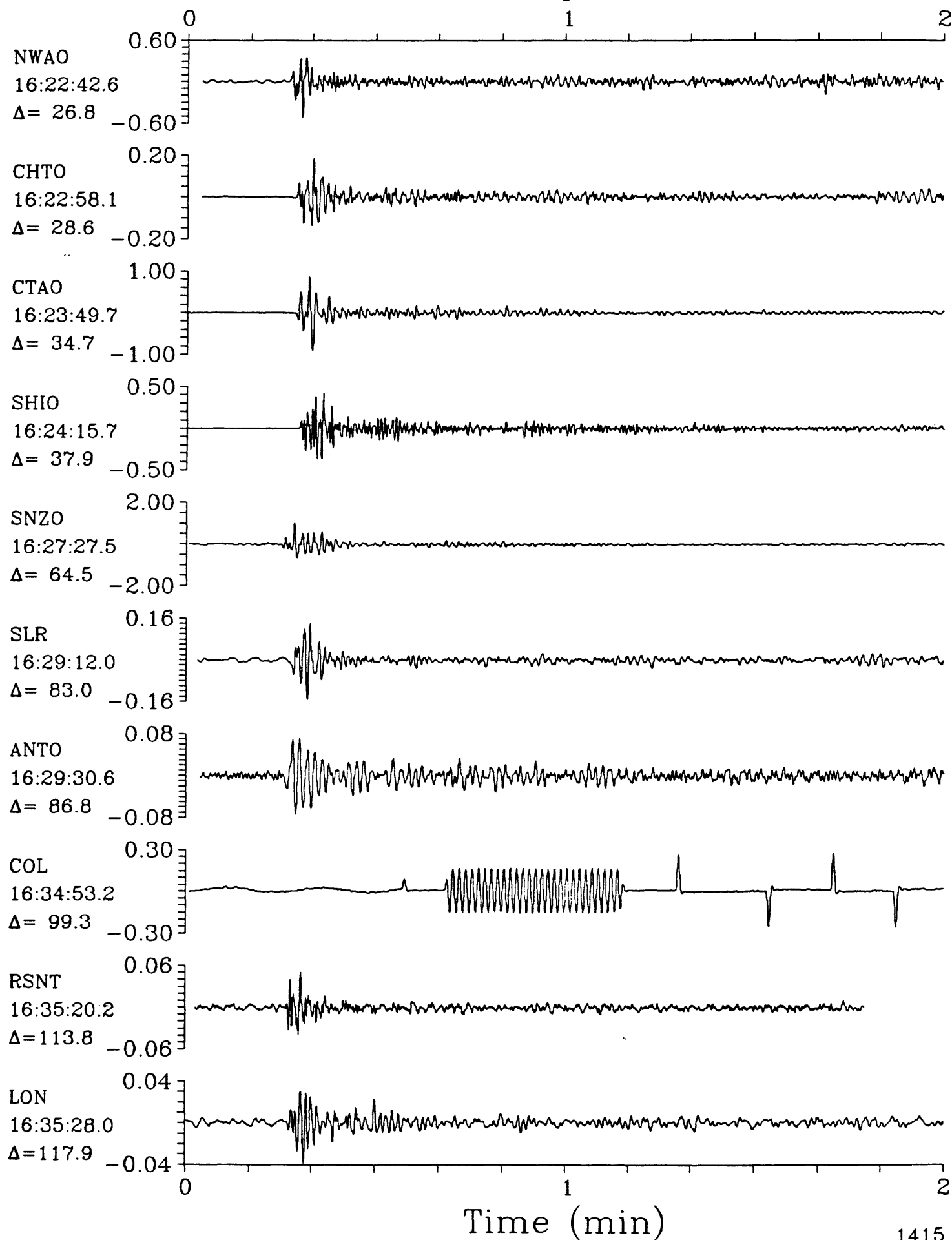
Java



SPZ

08 August 1985 16:18:03.35

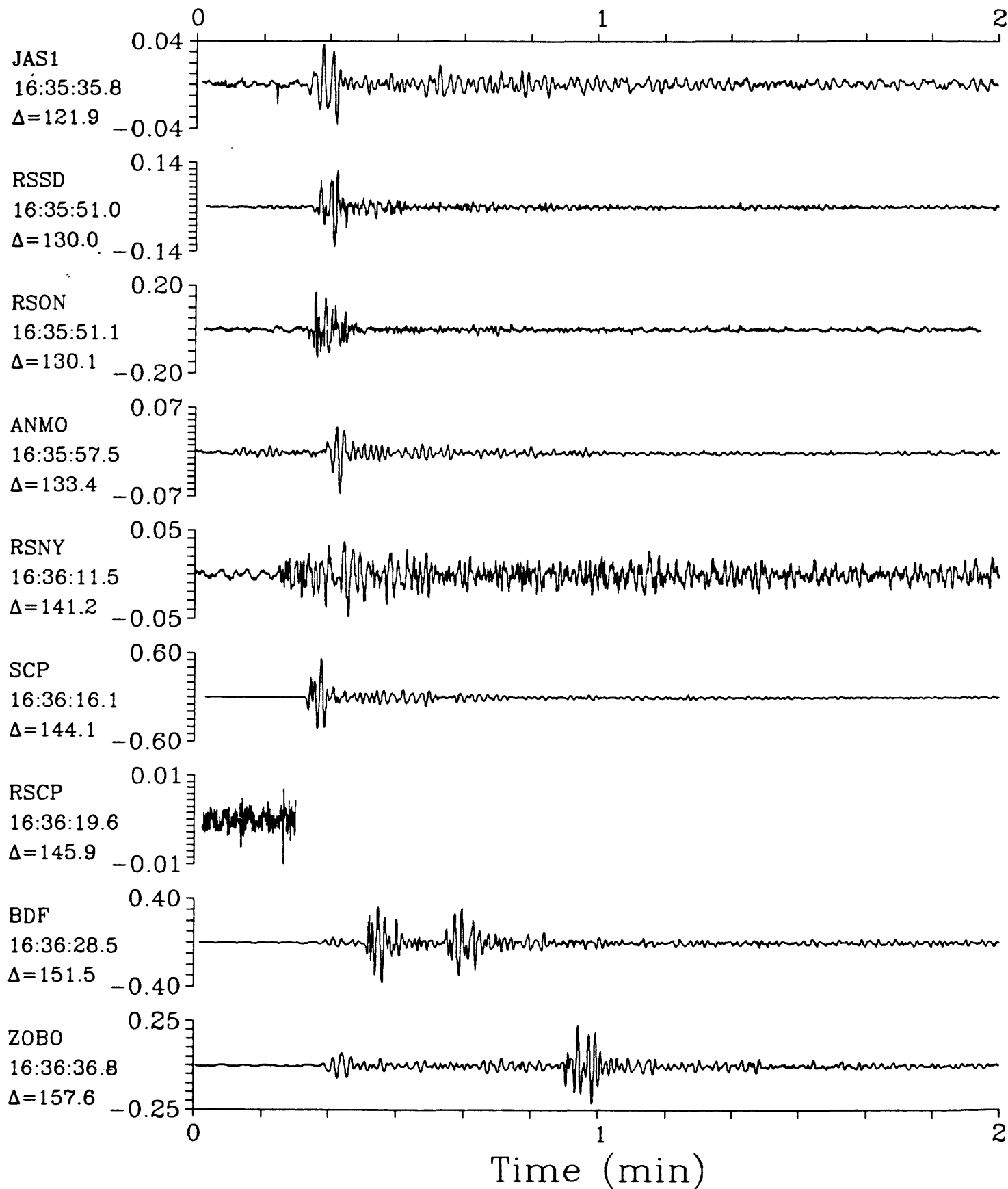
SPZ

Java h=603.0 m_b=5.7

SPZ

08 August 1985 16:18:03.35

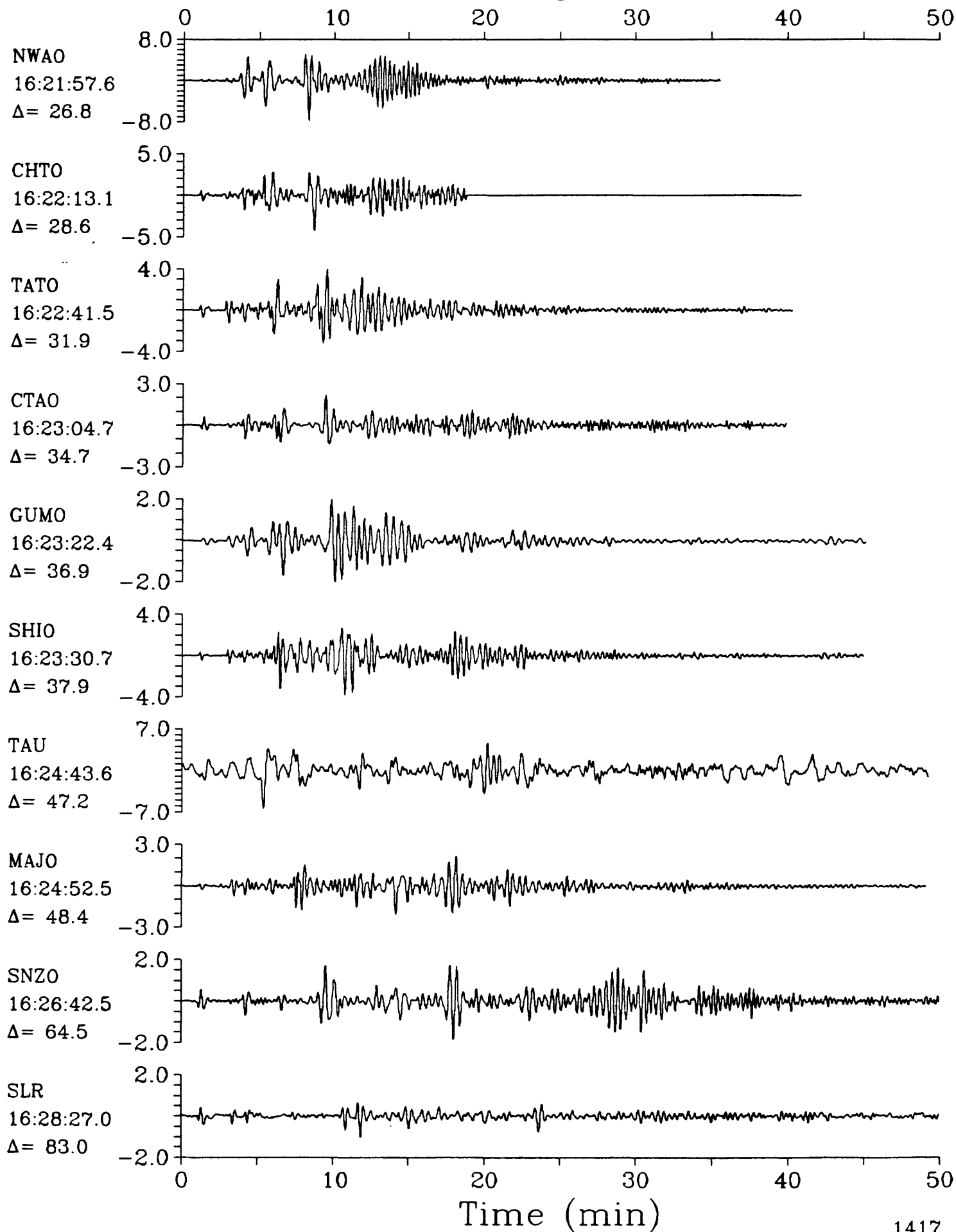
SPZ

Java h=603.0 m_b=5.7

LPZ

08 August 1985 16:18:03.35

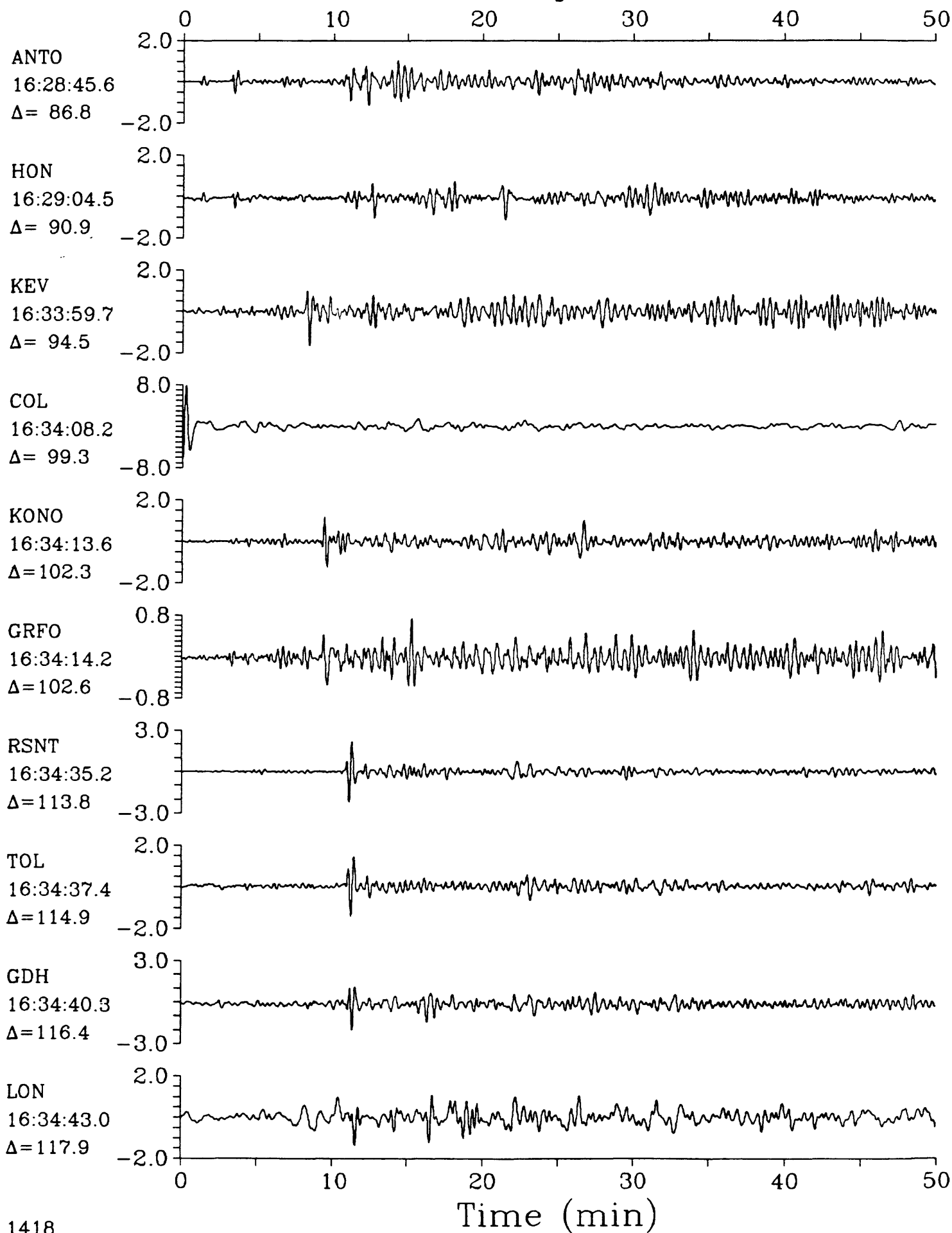
LPZ

Java h=603.0 m_b=5.7

LPZ

08 August 1985 16:18:03.35

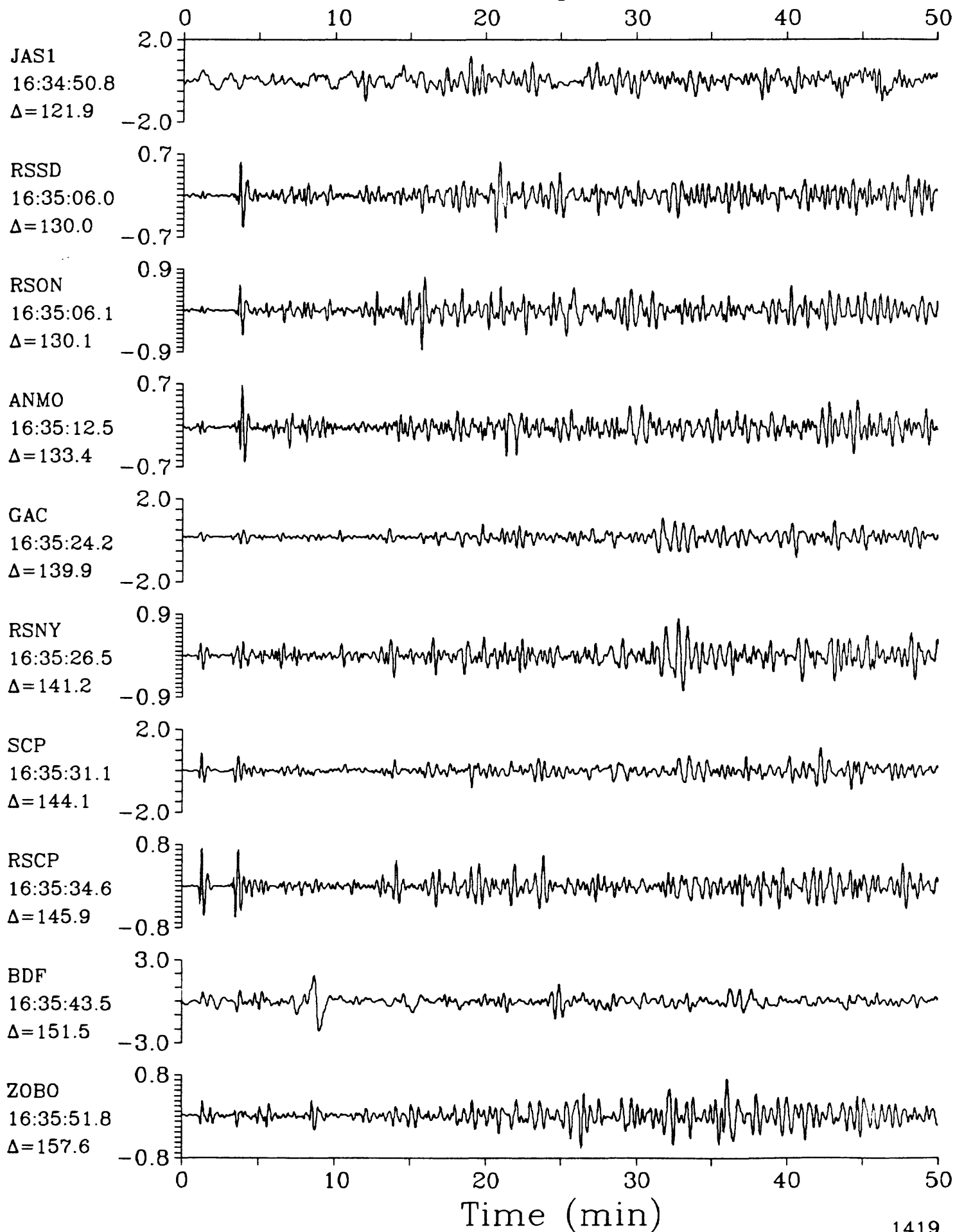
LPZ

Java h=603.0 m_b=5.7

LPZ

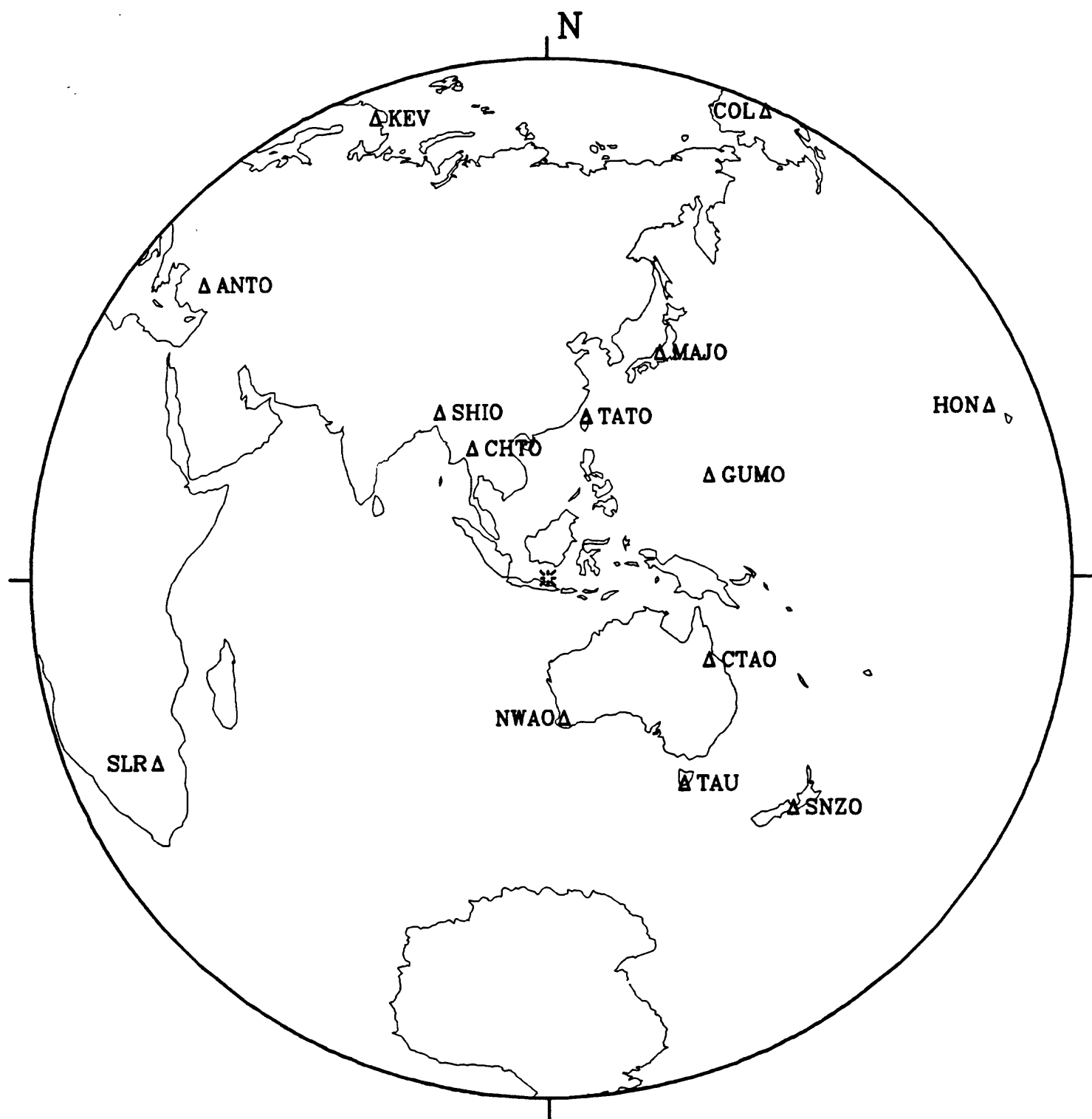
08 August 1985 16:18:03.35

LPZ

Java h=603.0 m_b=5.7

08 August 1985 16:29:57.49

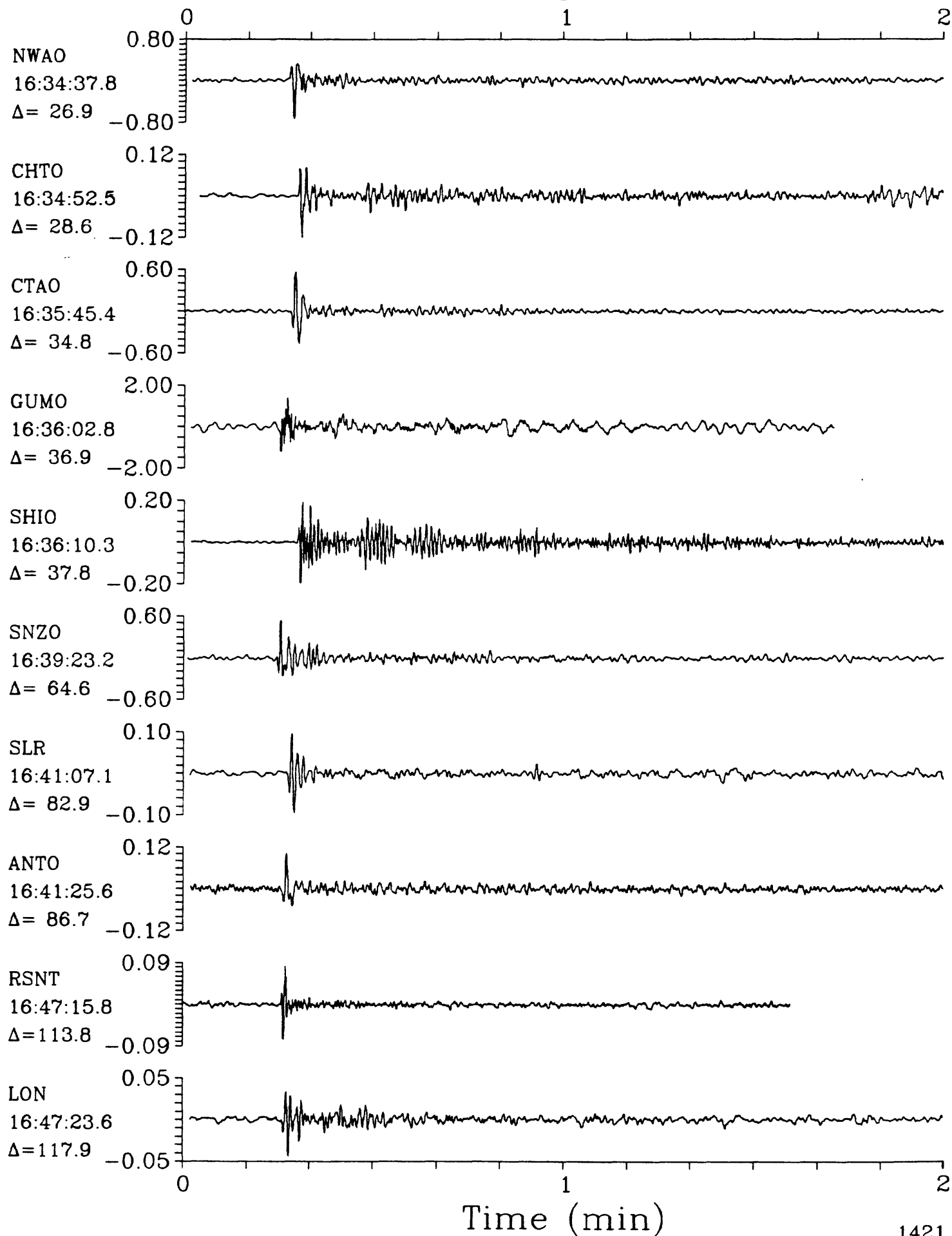
Java



SPZ

08 August 1985 16:29:57.49

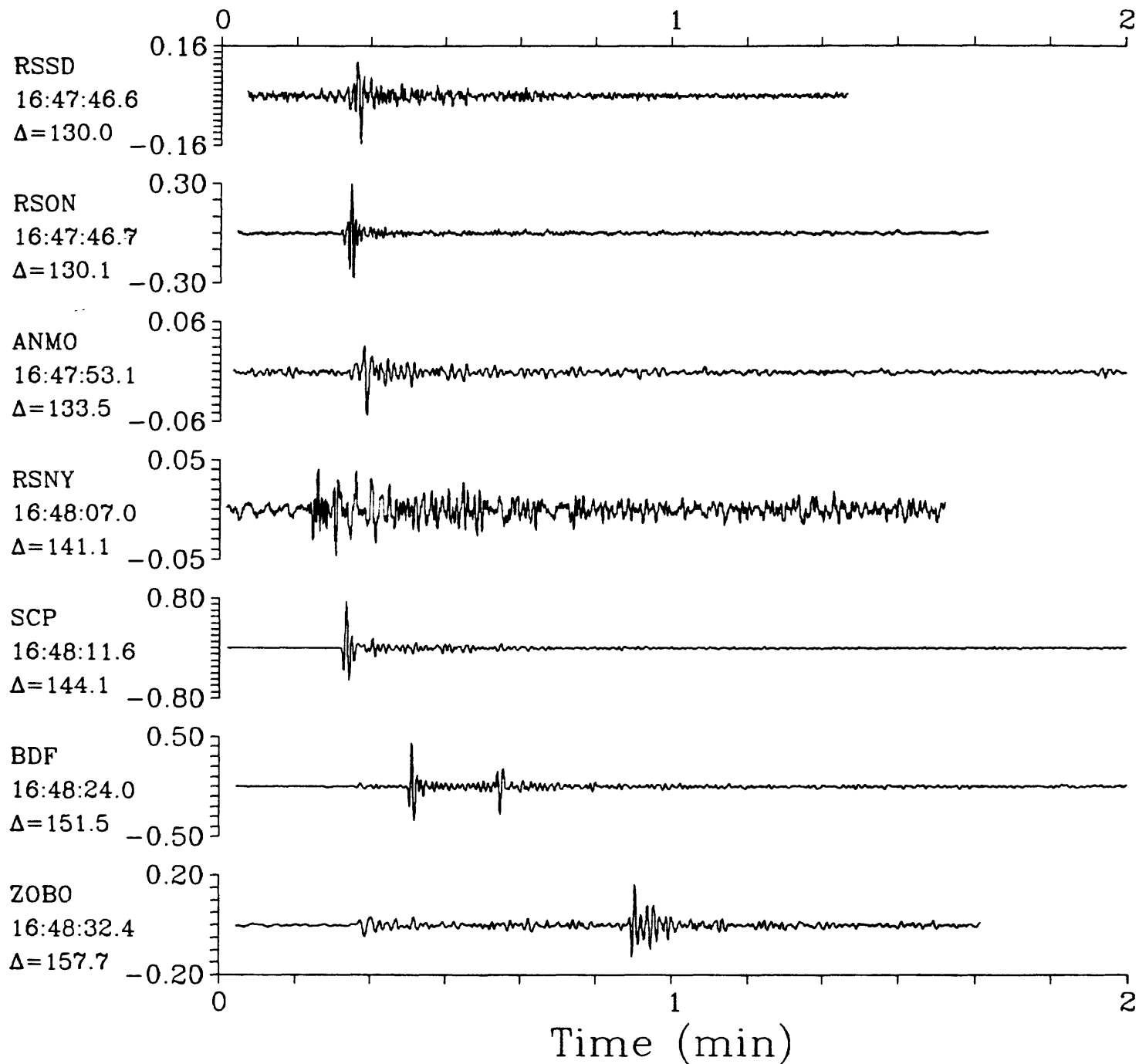
SPZ

Java h=588.7 m_b=5.7

SPZ

08 August 1985 16:29:57.49

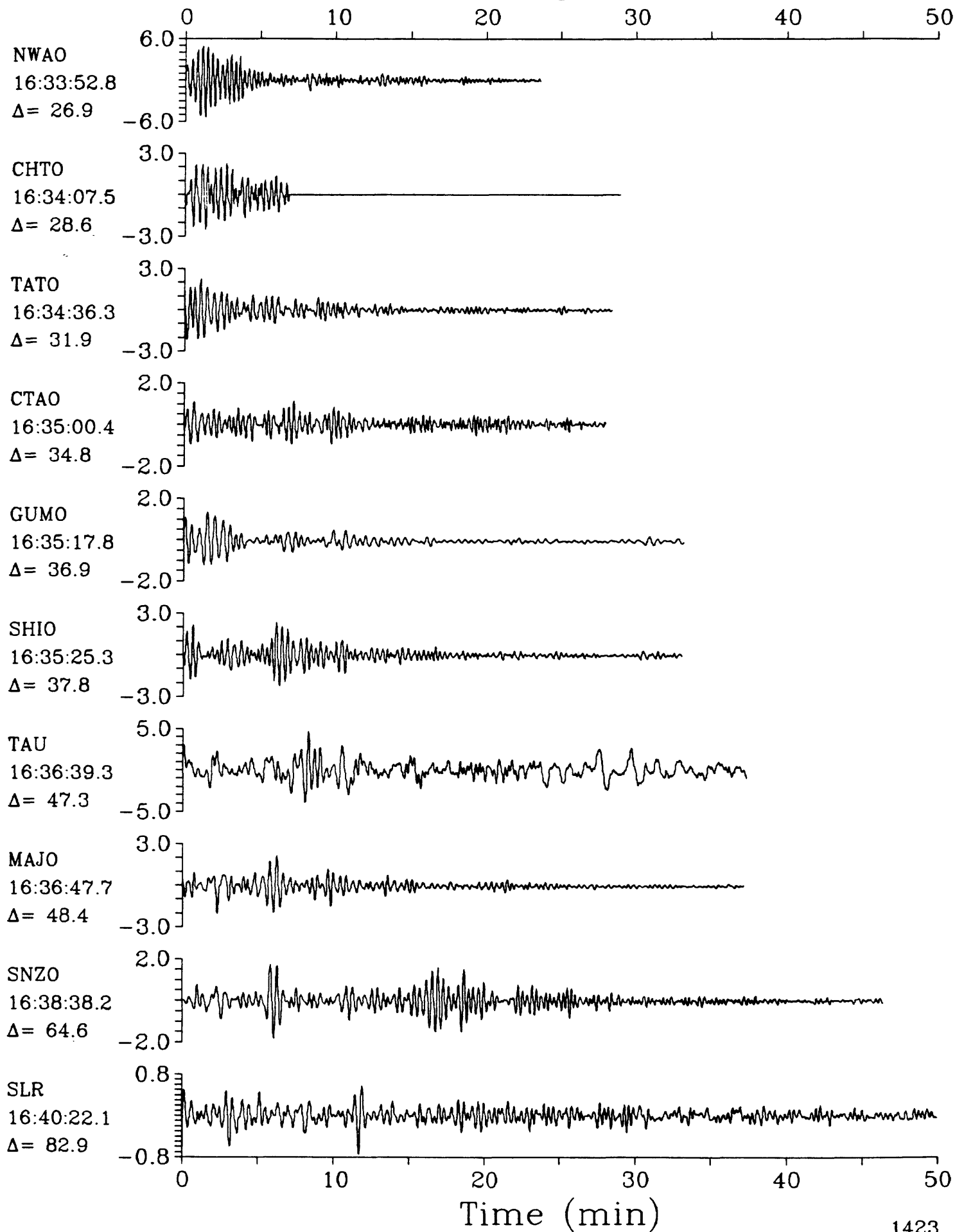
SPZ

Java h=588.7 m_b=5.7

LPZ

08 August 1985 16:29:57.49

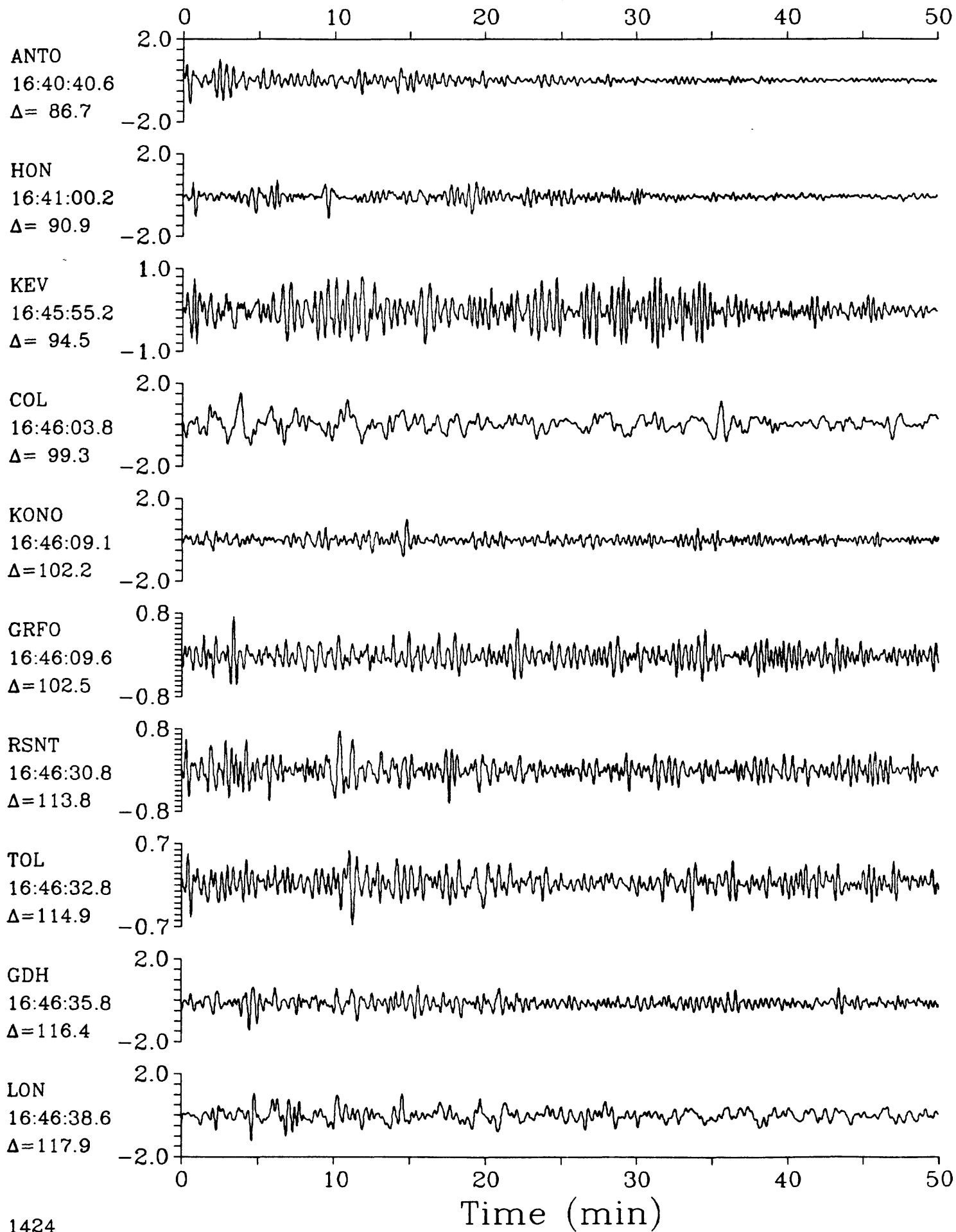
LPZ

Java h=588.7 m_b=5.7

LPZ

08 August 1985 16:29:57.49

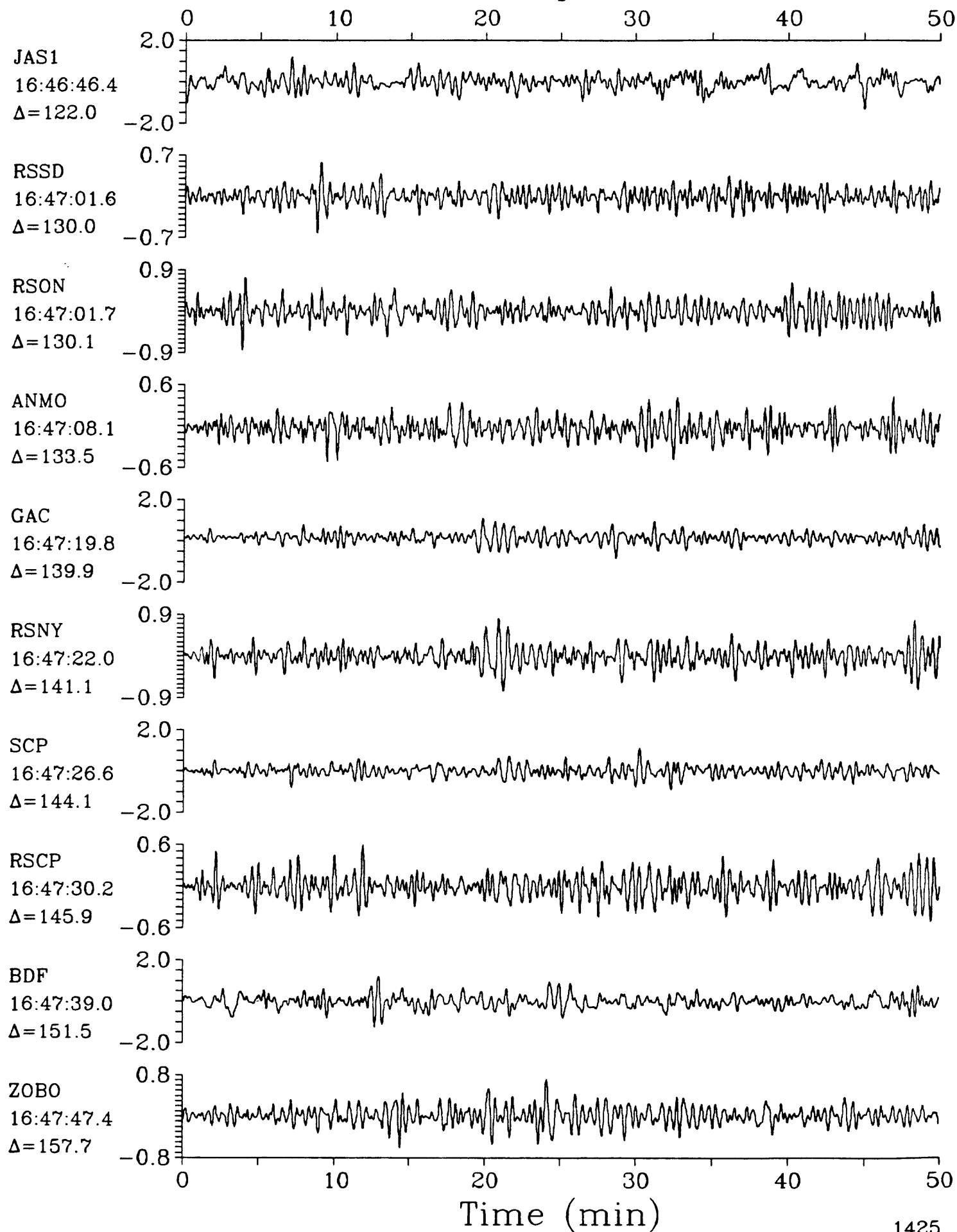
LPZ

Java h=588.7 m_b=5.7

LPZ

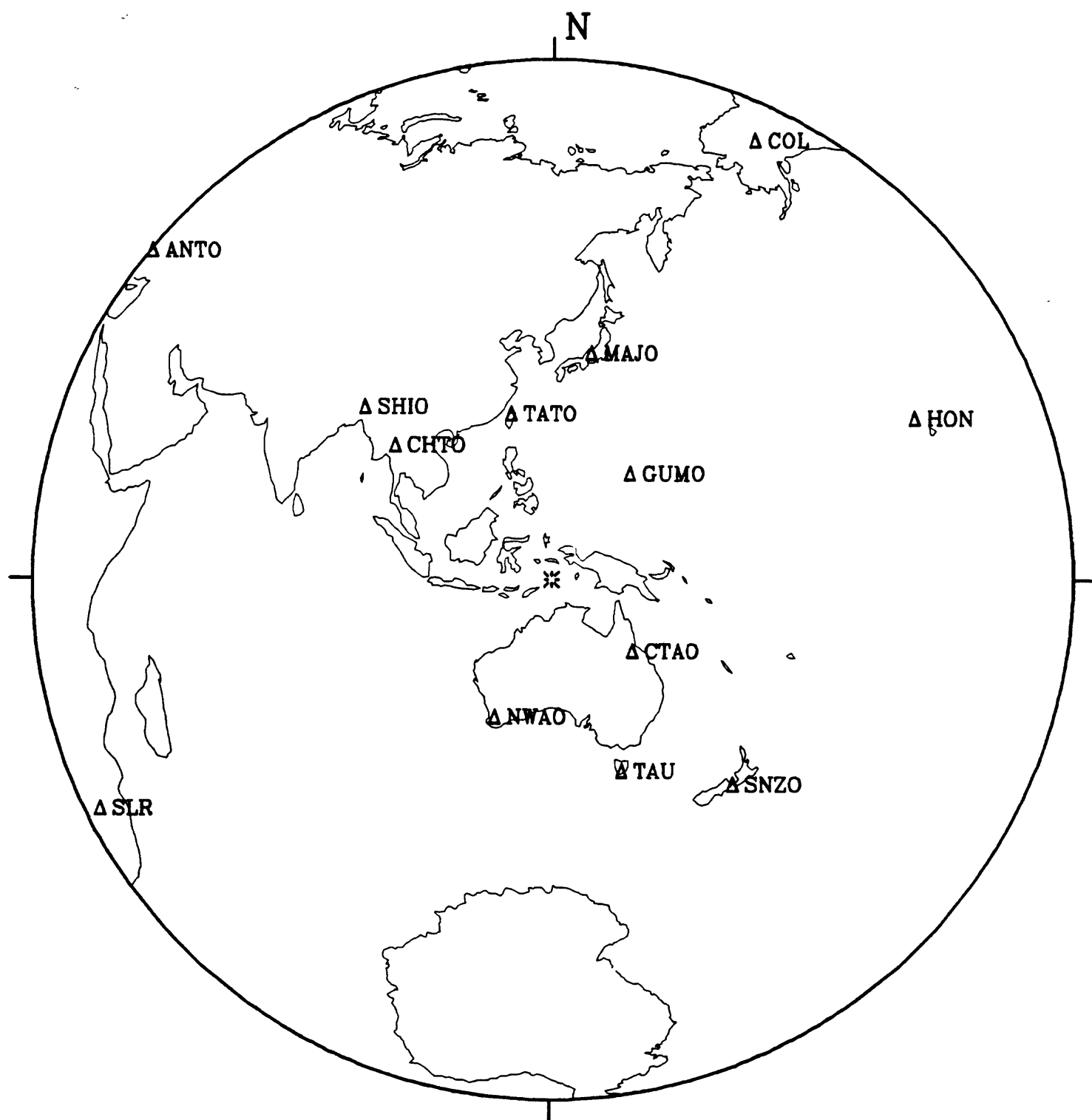
08 August 1985 16:29:57.49

LPZ

Java h=588.7 m_b=5.7

09 August 1985 09:32:07.30

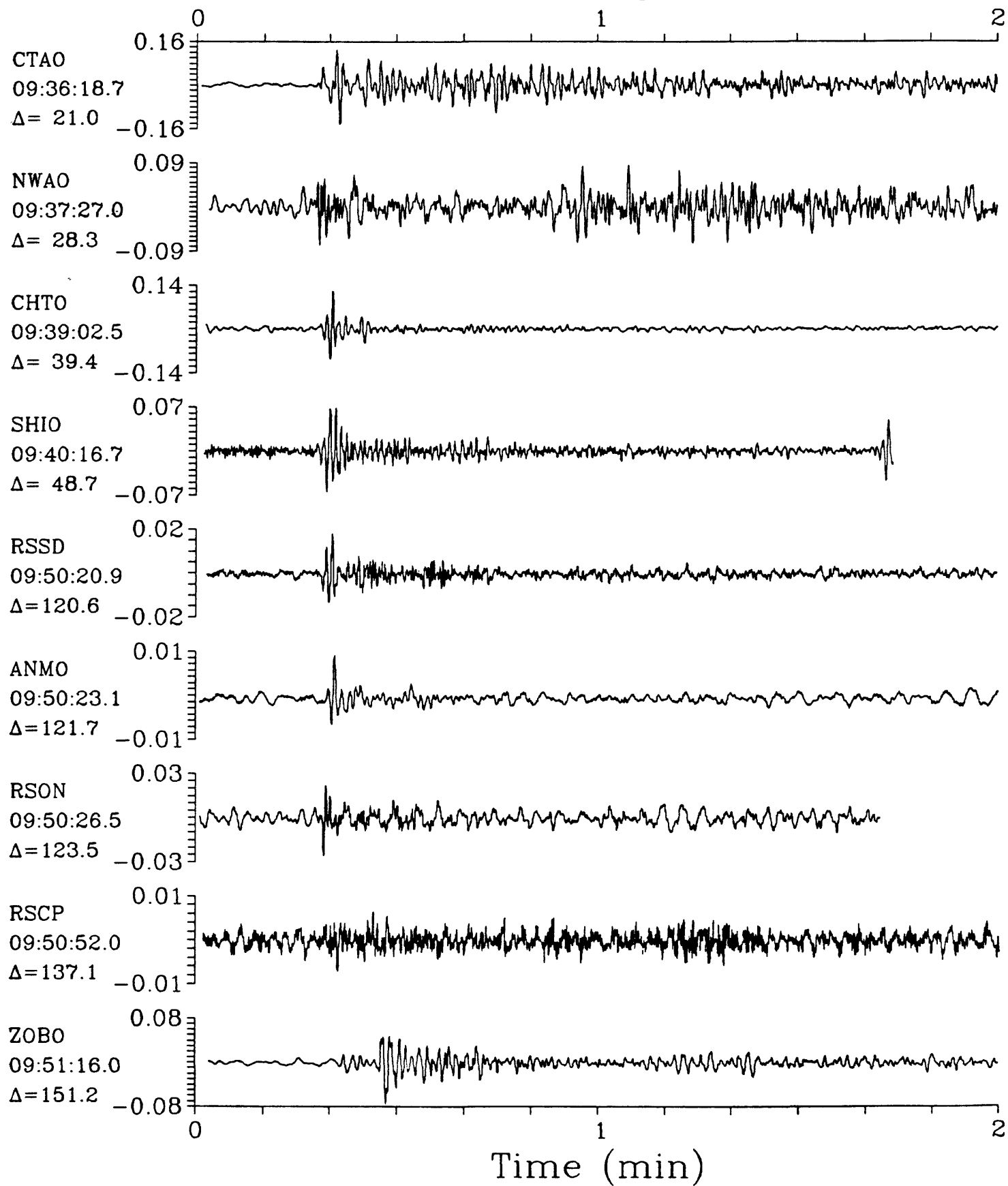
Banda Sea



SPZ

09 August 1985 09:32:07.30
Banda Sea $h=195.9$ $m_b=5.6$

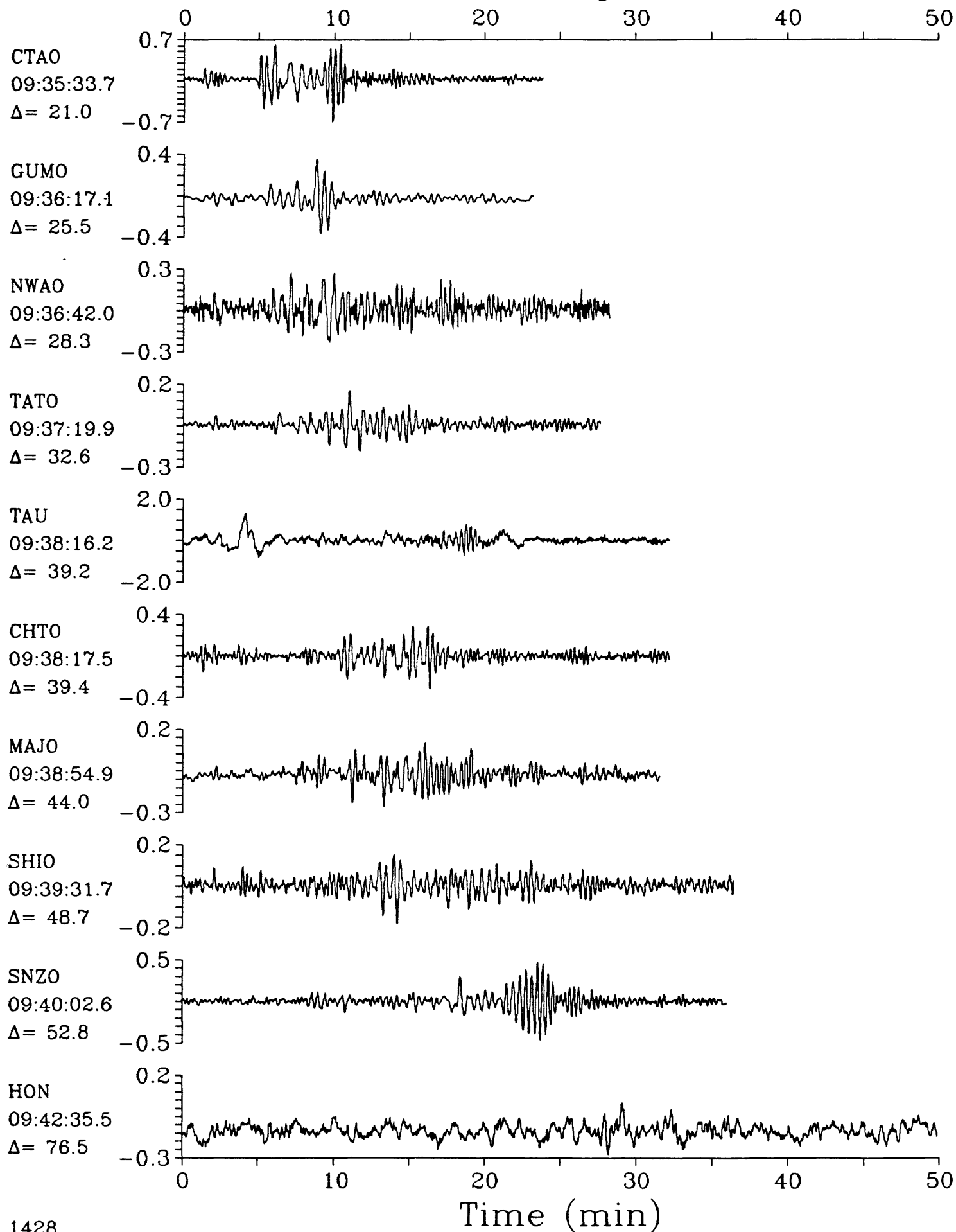
SPZ



LPZ

09 August 1985 09:32:07.30
Banda Sea $h=195.9$ $m_b=5.6$

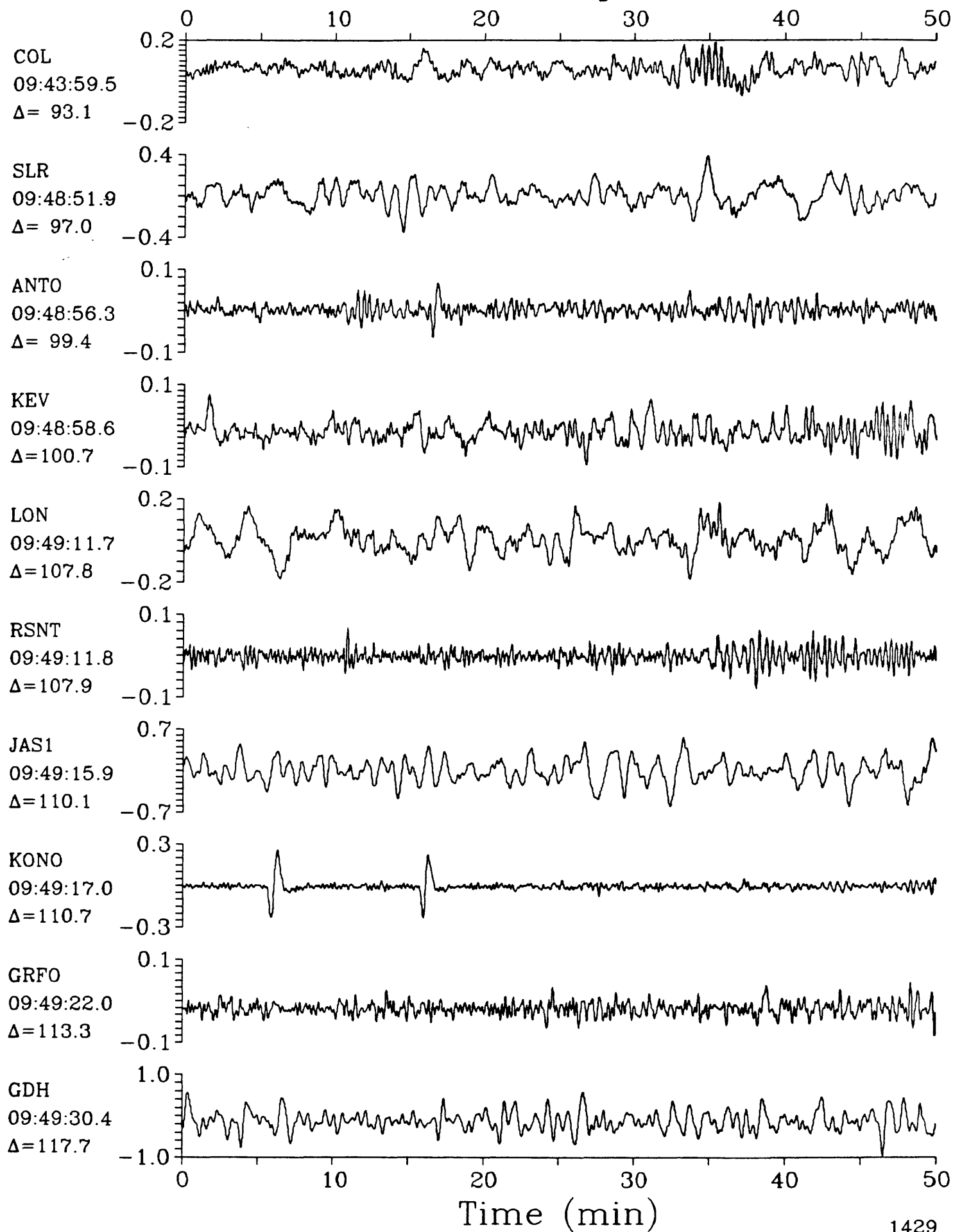
LPZ



LPZ

09 August 1985 09:32:07.30
Banda Sea $h=195.9$ $m_b=5.6$

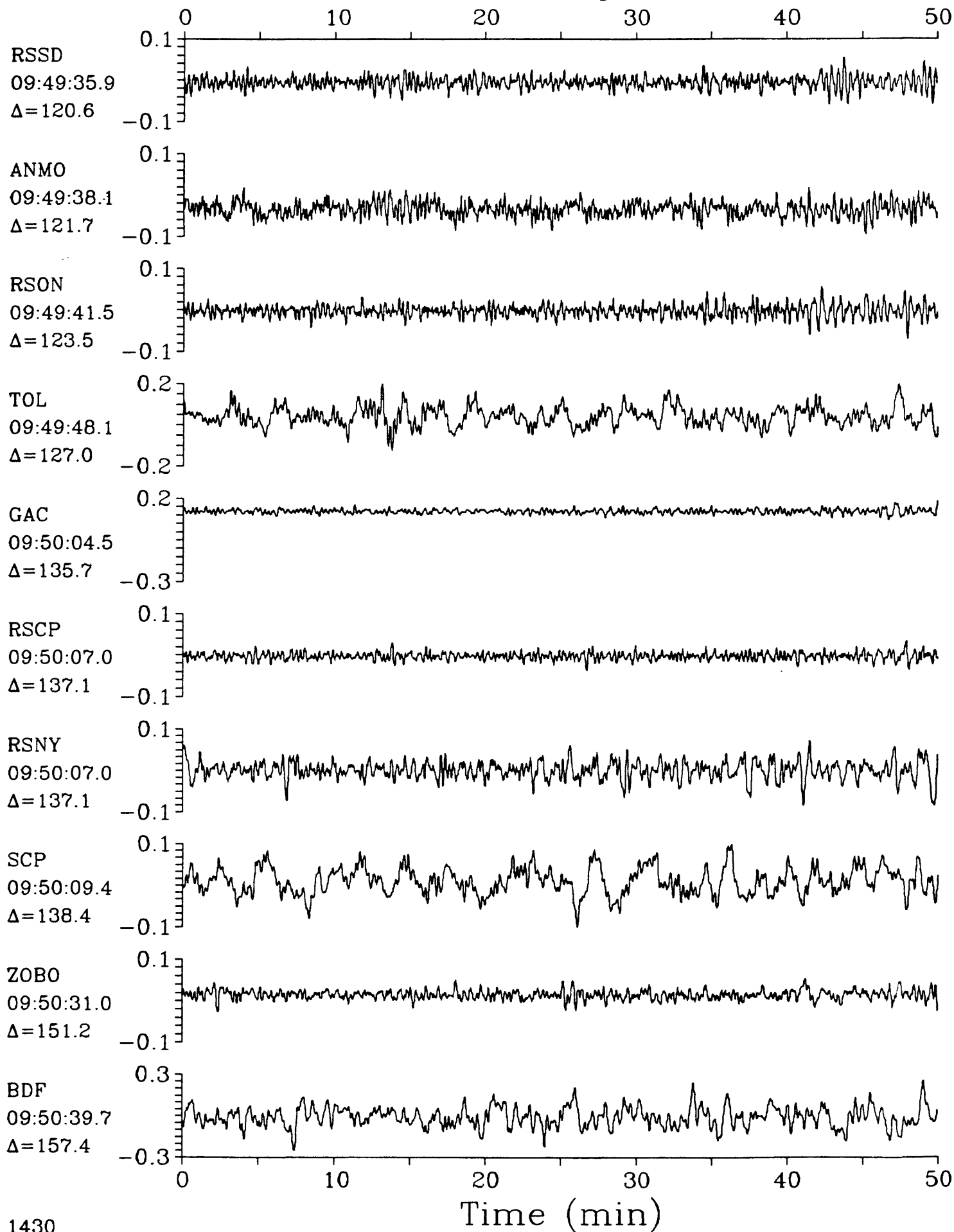
LPZ



LPZ

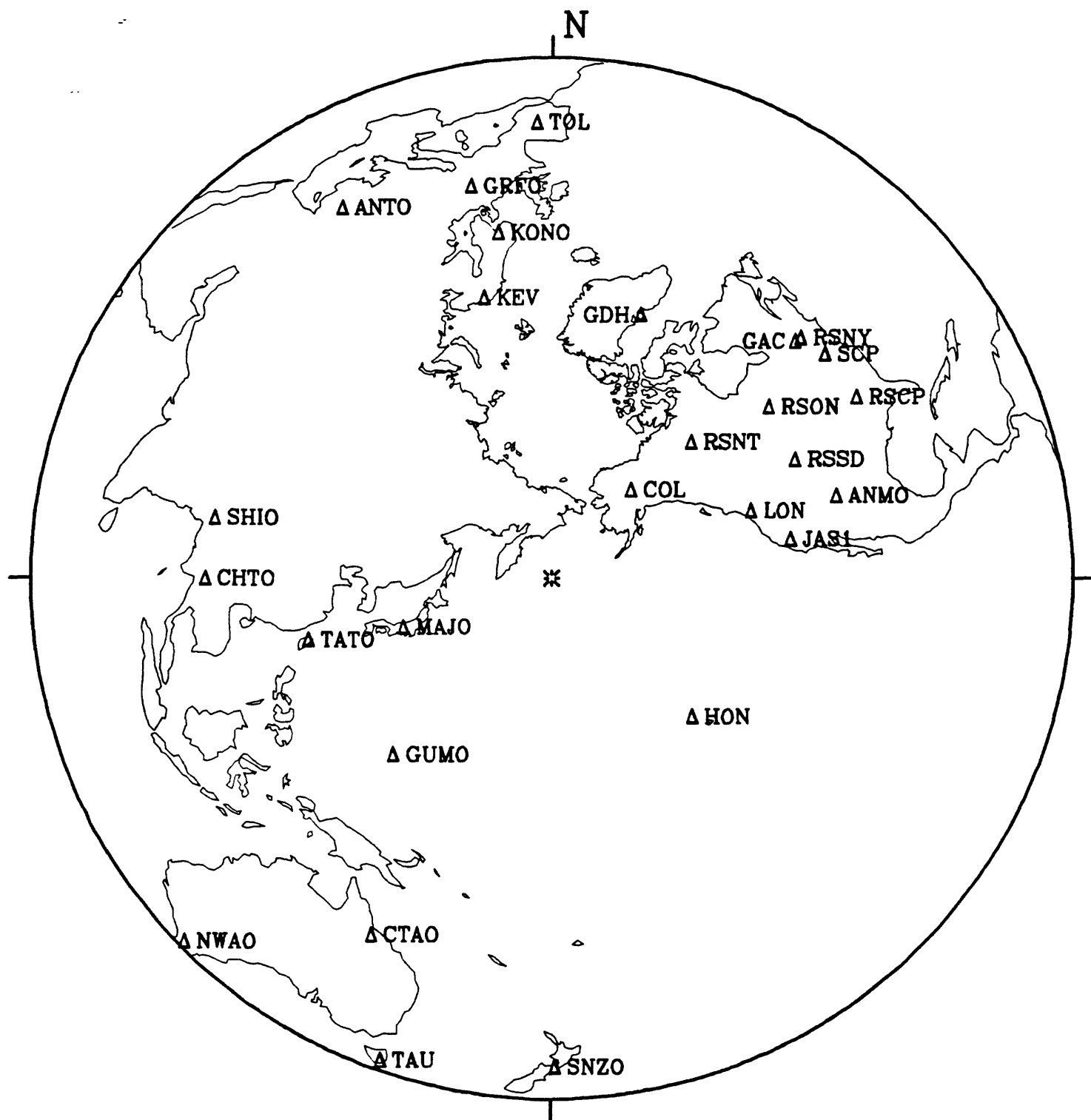
09 August 1985 09:32:07.30
Banda Sea $h=195.9$ $m_b=5.6$

LPZ



09 August 1985 13:03:11.20

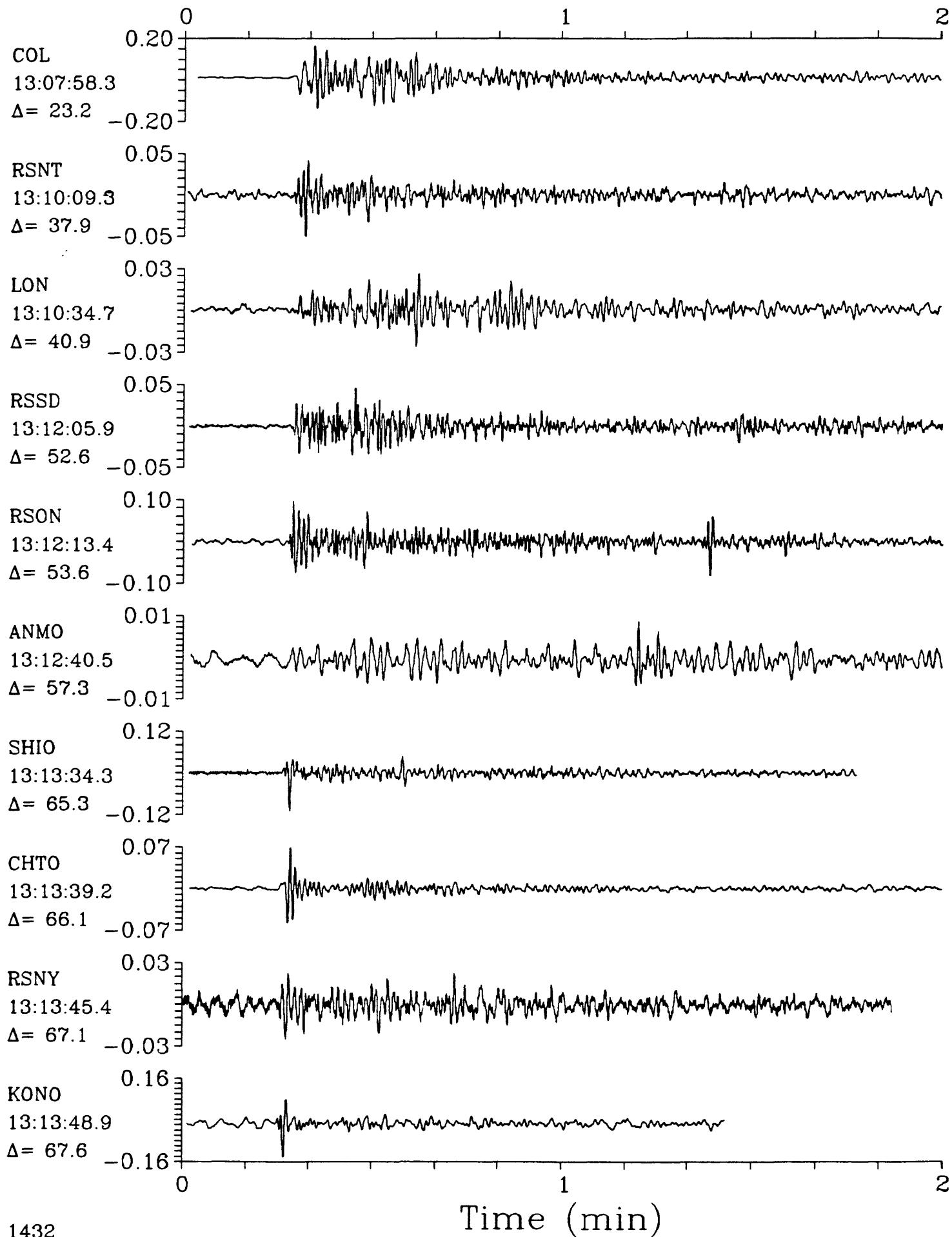
Near Islands, Aleutian Islands



SPZ

09 August 1985 13:03:11.20

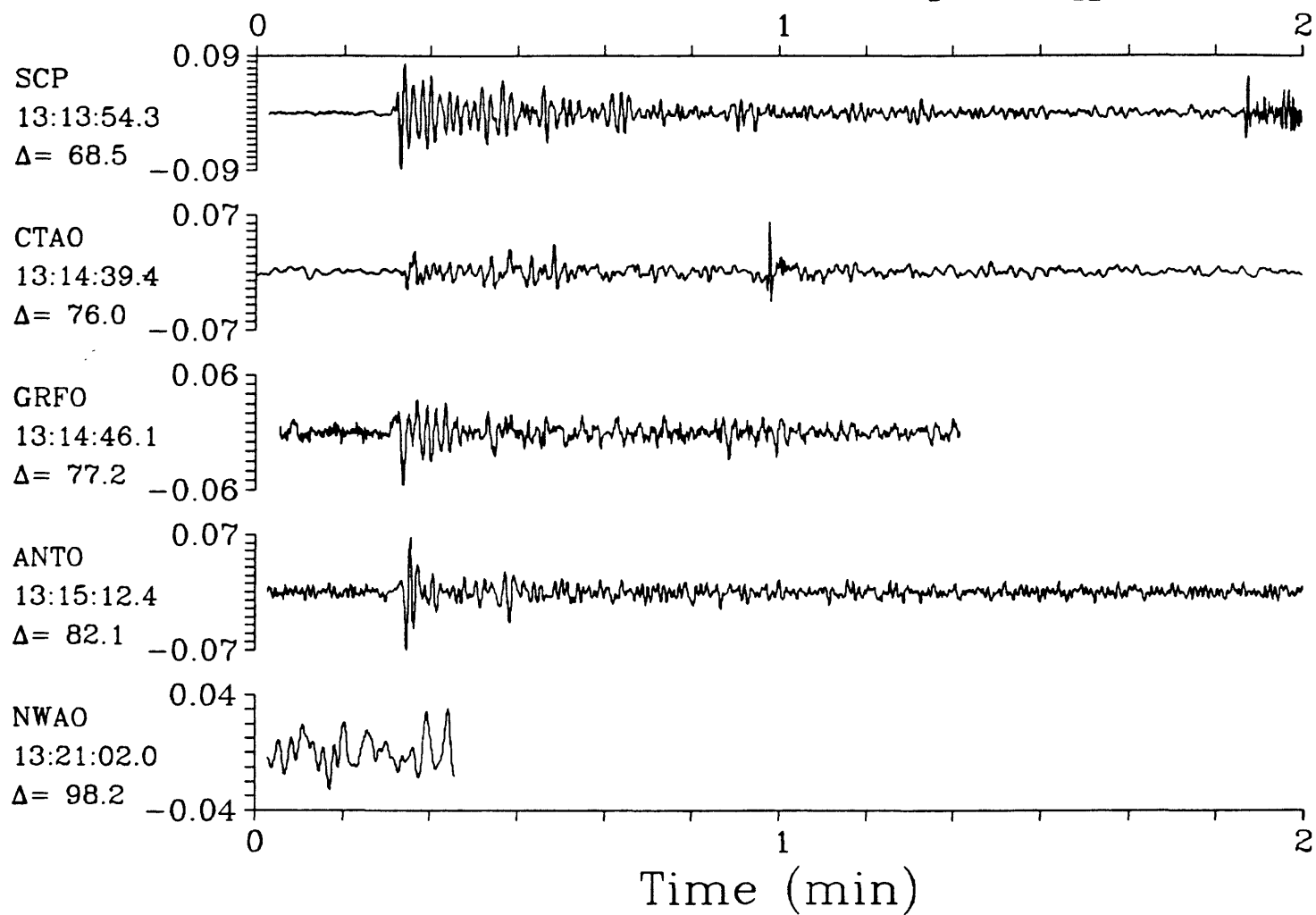
SPZ

Near Islands, Aleutian Islands $h=43.8$ $m_b=5.5$ $M_{sz}=4.8$ 

SPZ

09 August 1985 13:03:11.20

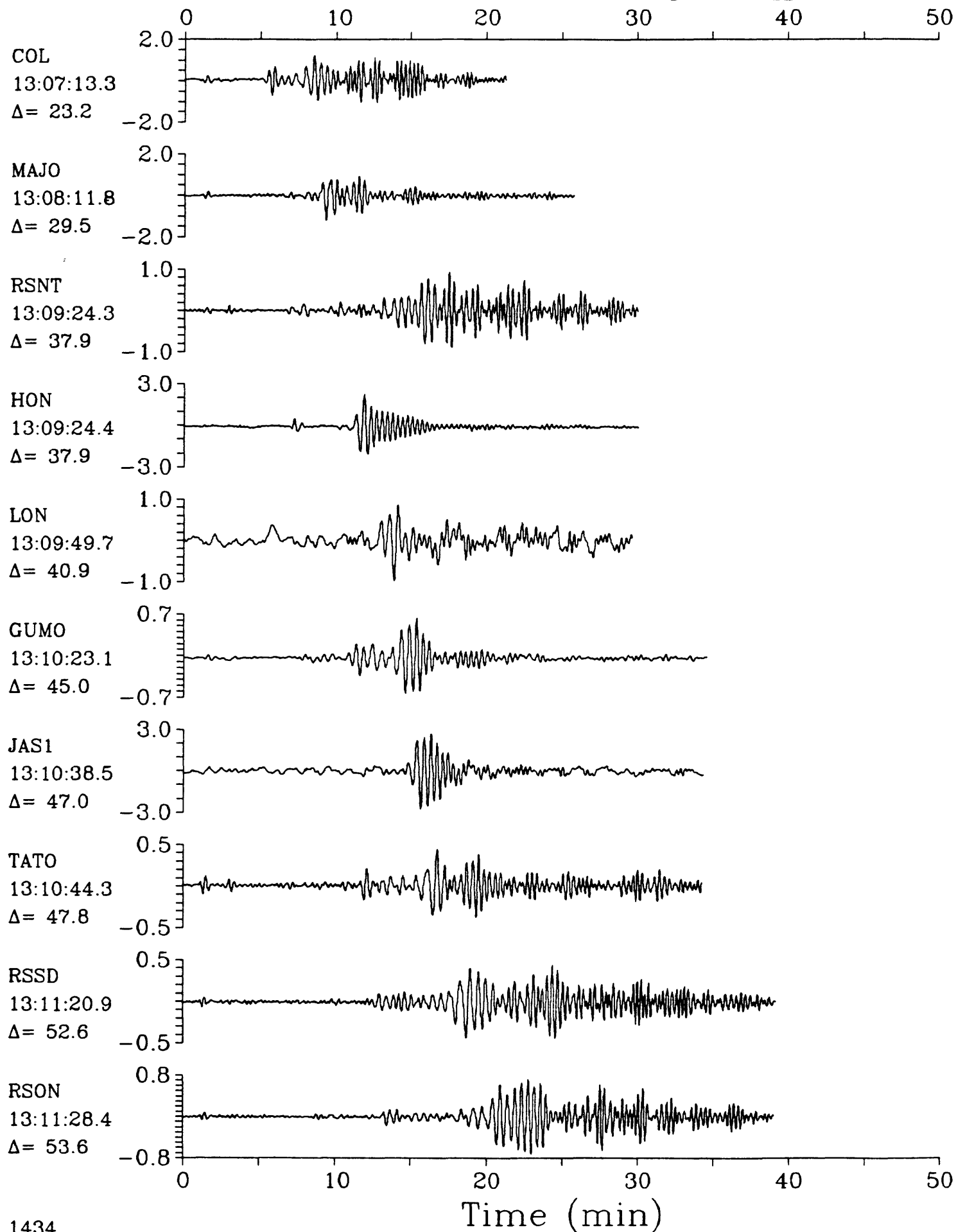
SPZ

Near Islands, Aleutian Islands $h=43.8$ $m_b=5.5$ $M_{sz}=4.8$ 

LPZ

09 August 1985 13:03:11.20

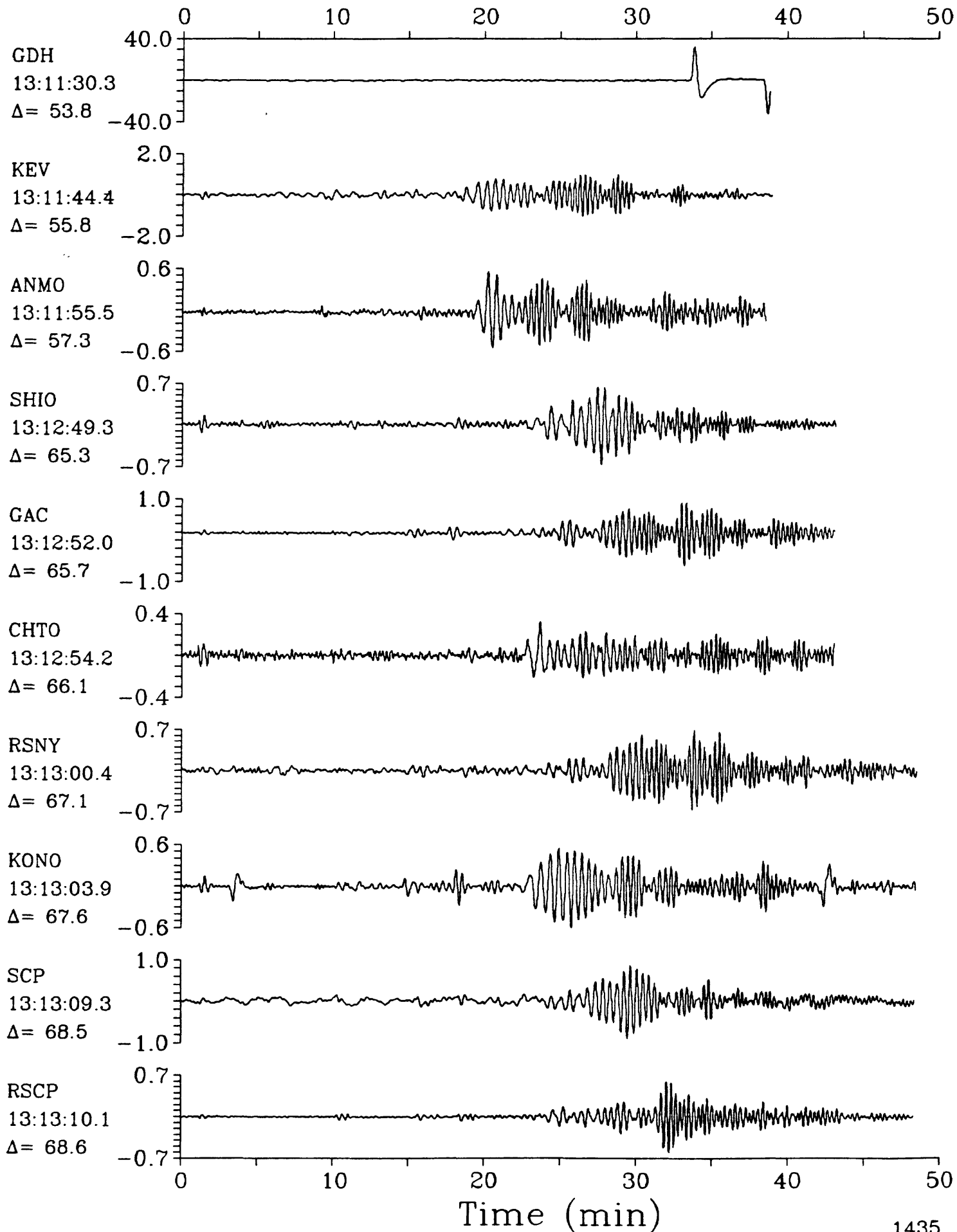
LPZ

Near Islands, Aleutian Islands $h=43.8$ $m_b=5.5$ $M_{sz}=4.8$ 

LPZ

09 August 1985 13:03:11.20

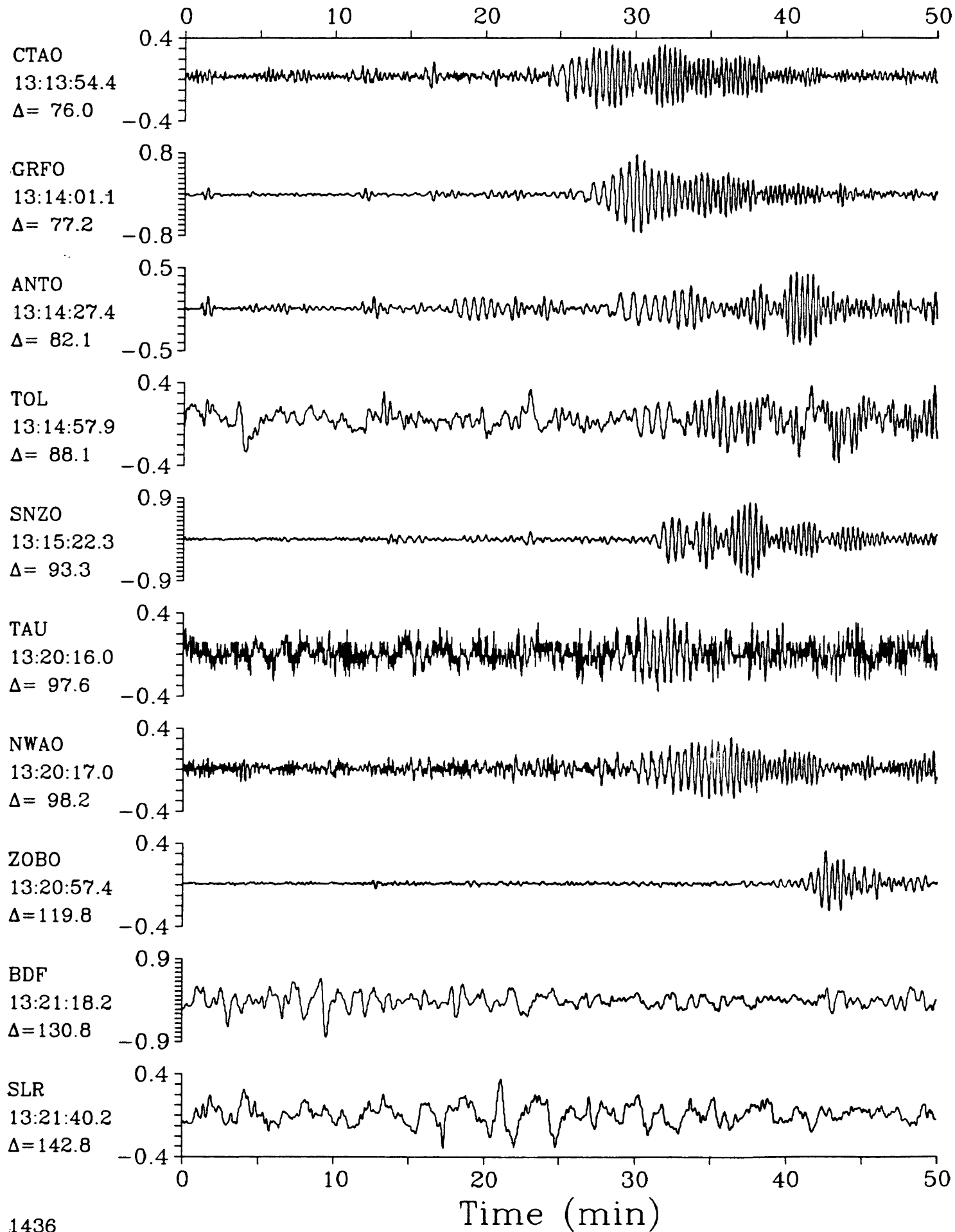
LPZ

Near Islands, Aleutian Islands $h=43.8$ $m_b=5.5$ $M_{sz}=4.8$ 

LPZ

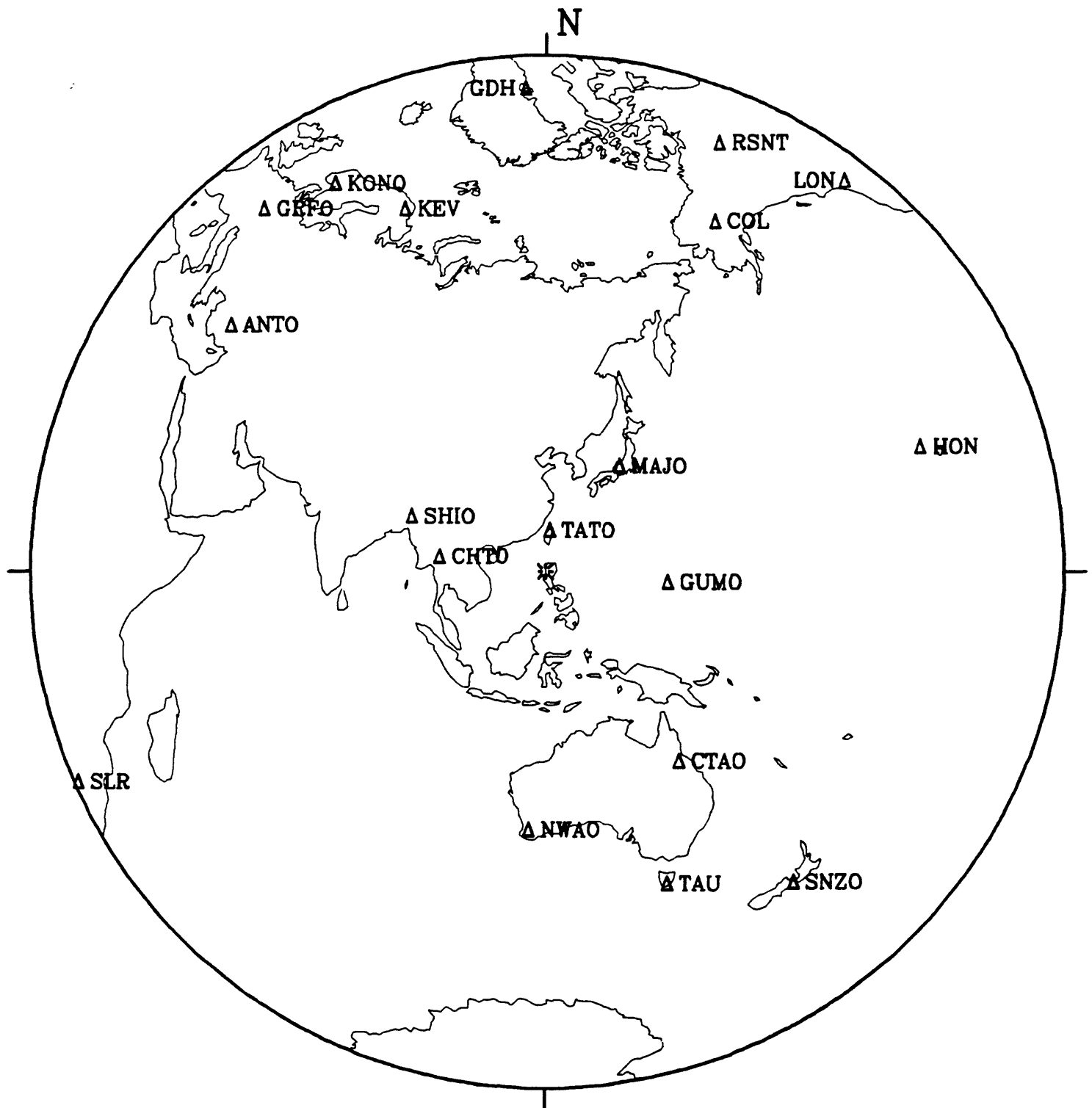
09 August 1985 13:03:11.20

LPZ

Near Islands, Aleutian Islands $h=43.8$ $m_b=5.5$ $M_{sz}=4.8$ 

09 August 1985 19:59:45.51

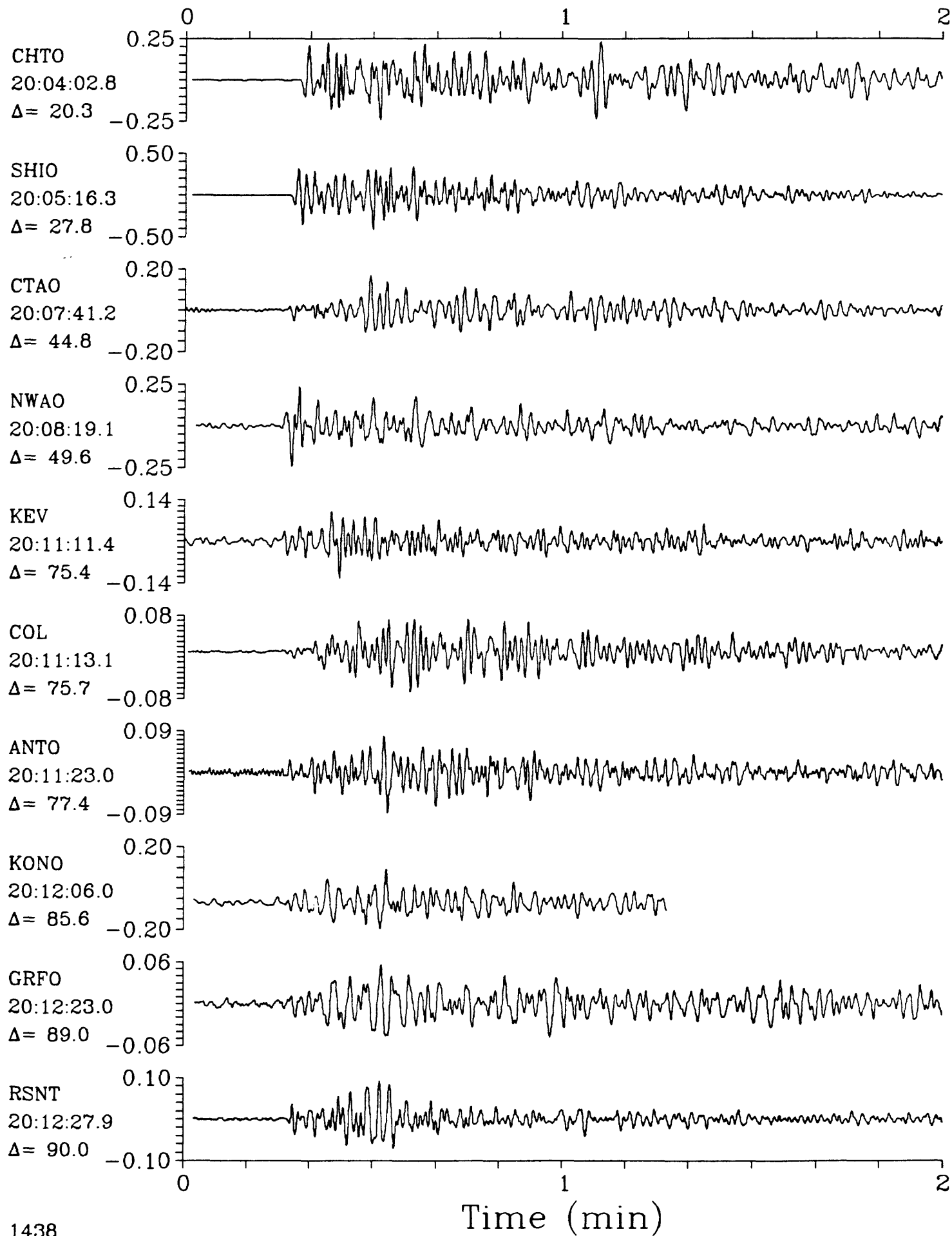
Luzon, Philippine Islands



SPZ

09 August 1985 19:59:45.51

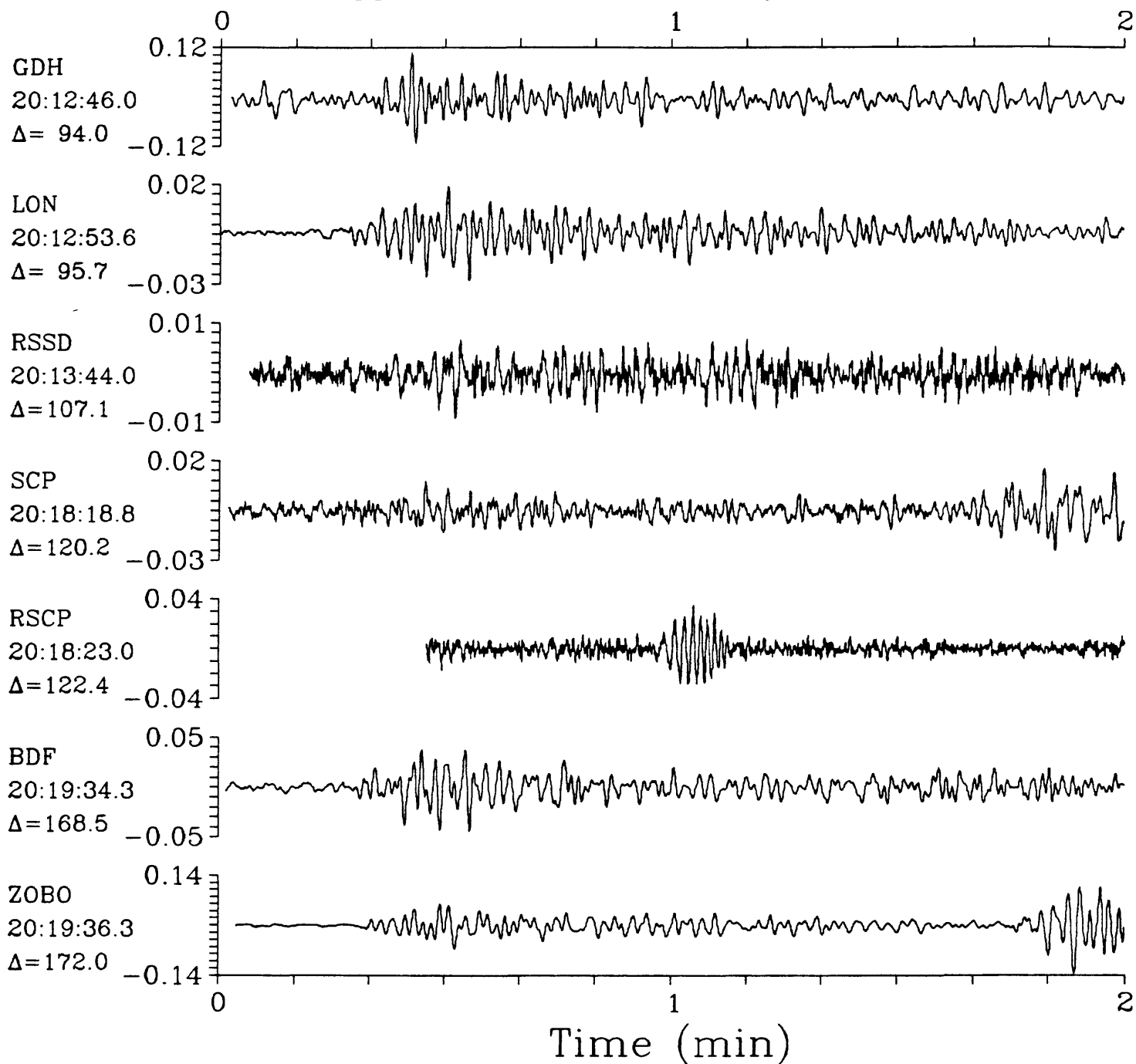
SPZ

Luzon, Philippine Islands $h=33.0$ $m_b=5.8$ $M_{sz}=6.1$ 

SPZ

09 August 1985 19:59:45.51

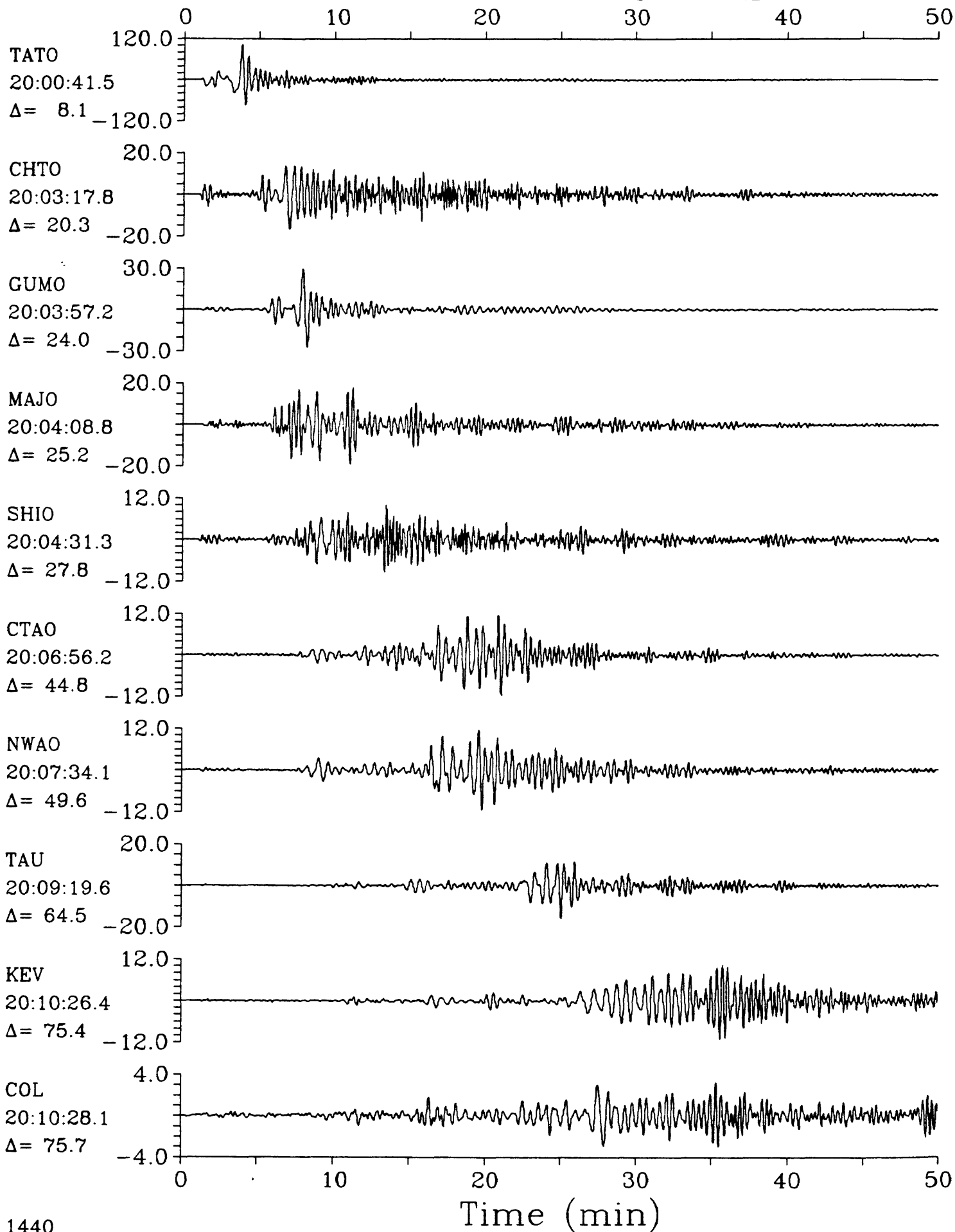
SPZ

Luzon, Philippine Islands $h=33.0$ $m_b=5.8$ $M_{sz}=6.1$ 

LPZ

09 August 1985 19:59:45.51

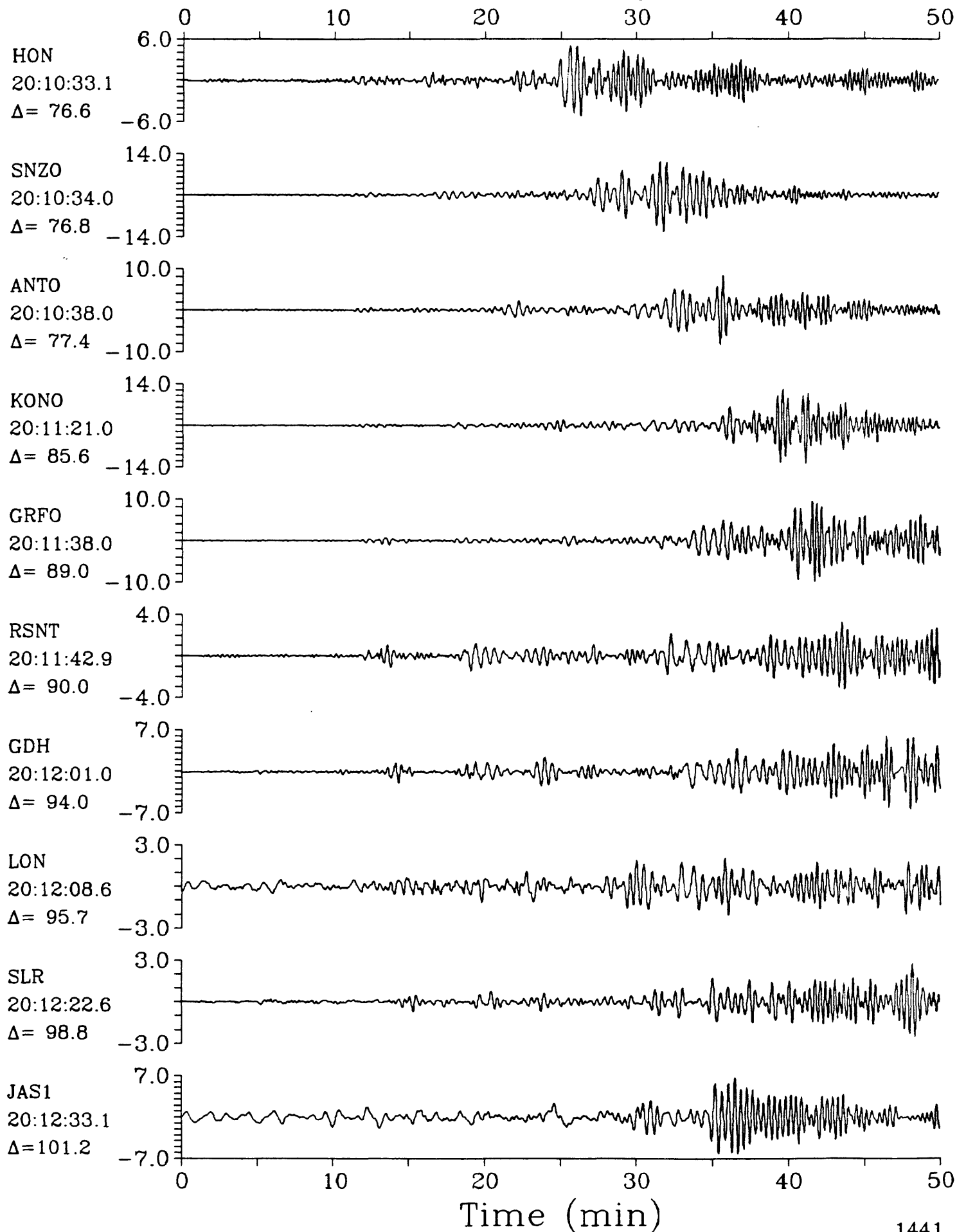
LPZ

Luzon, Philippine Islands $h=33.0$ $m_b=5.8$ $M_{sz}=6.1$ 

LPZ

09 August 1985 19:59:45.51

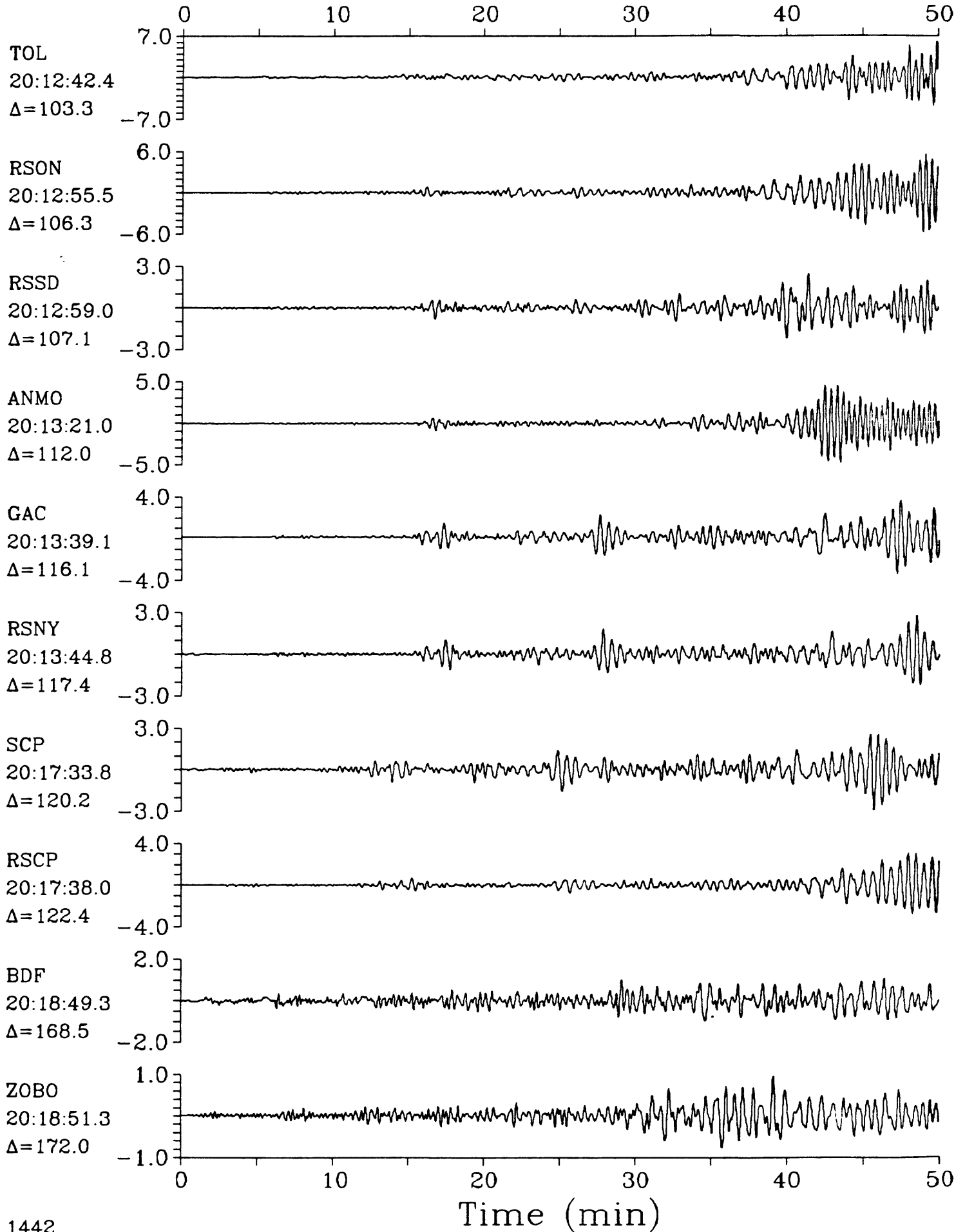
LPZ

Luzon, Philippine Islands $h=33.0$ $m_b=5.8$ $M_{sz}=6.1$ 

LPZ

09 August 1985 19:59:45.51

LPZ

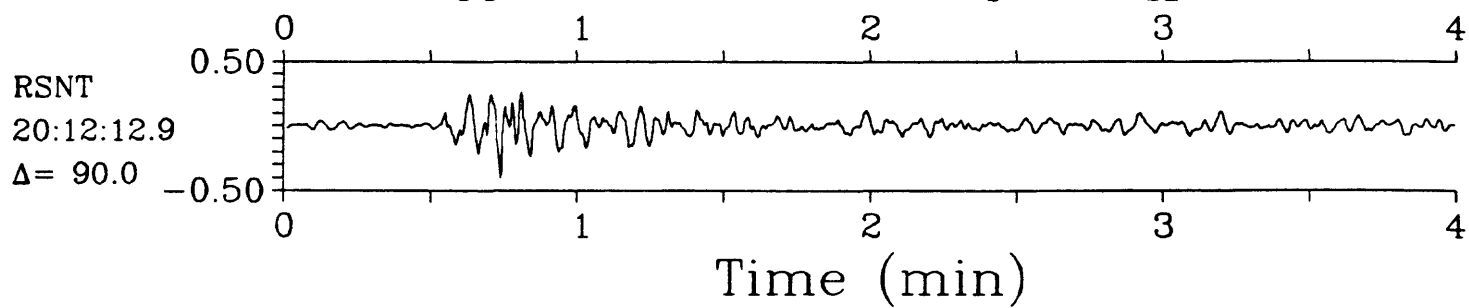
Luzon, Philippine Islands $h=33.0$ $m_b=5.8$ $M_{sz}=6.1$ 

IPZ

09 August 1985 19:59:45.51

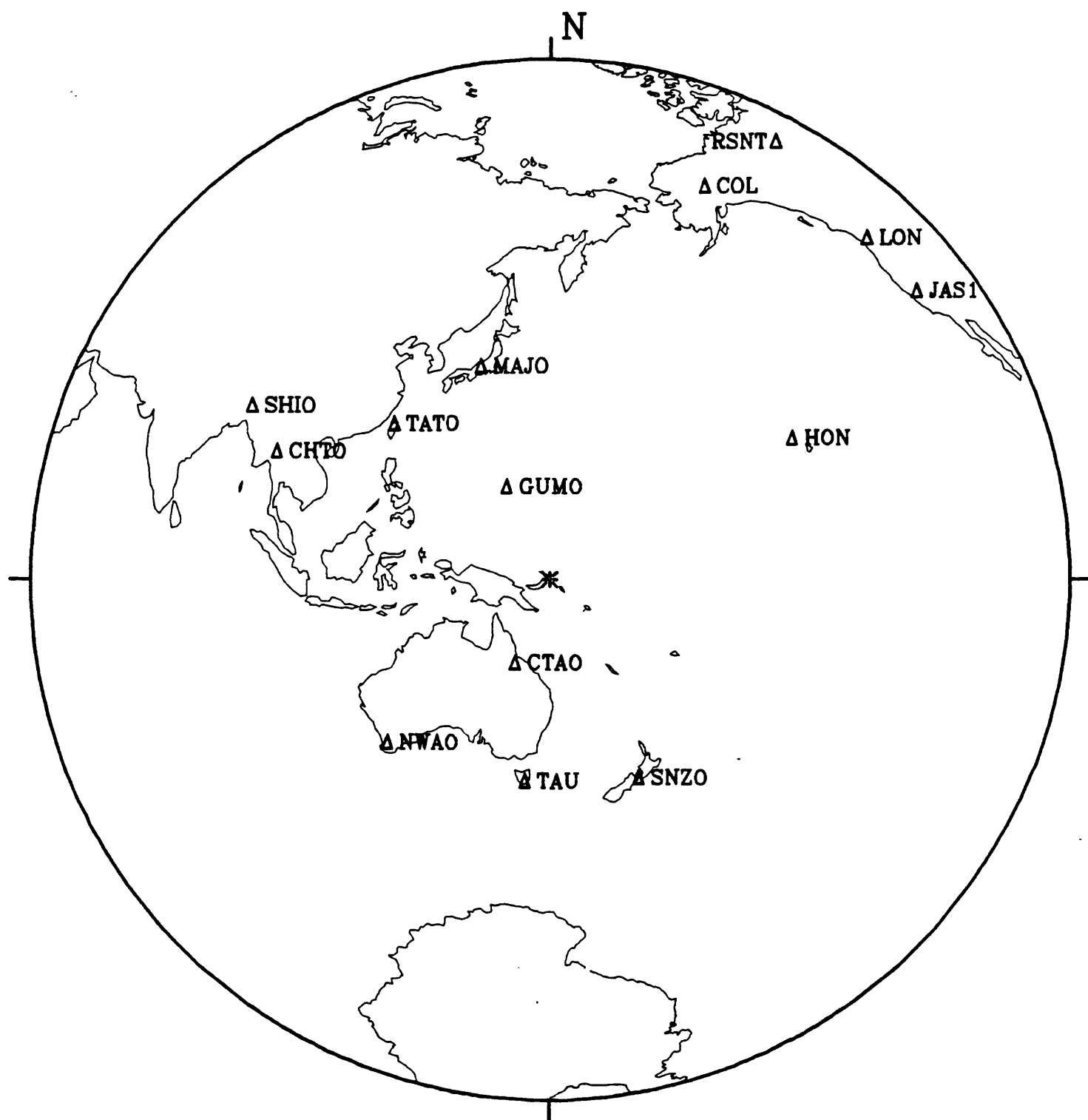
IPZ

Luzon, Philippine Islands $h=33.0$ $m_b=5.8$ $M_{sz}=6.1$



10 August 1985 16:36:09.14

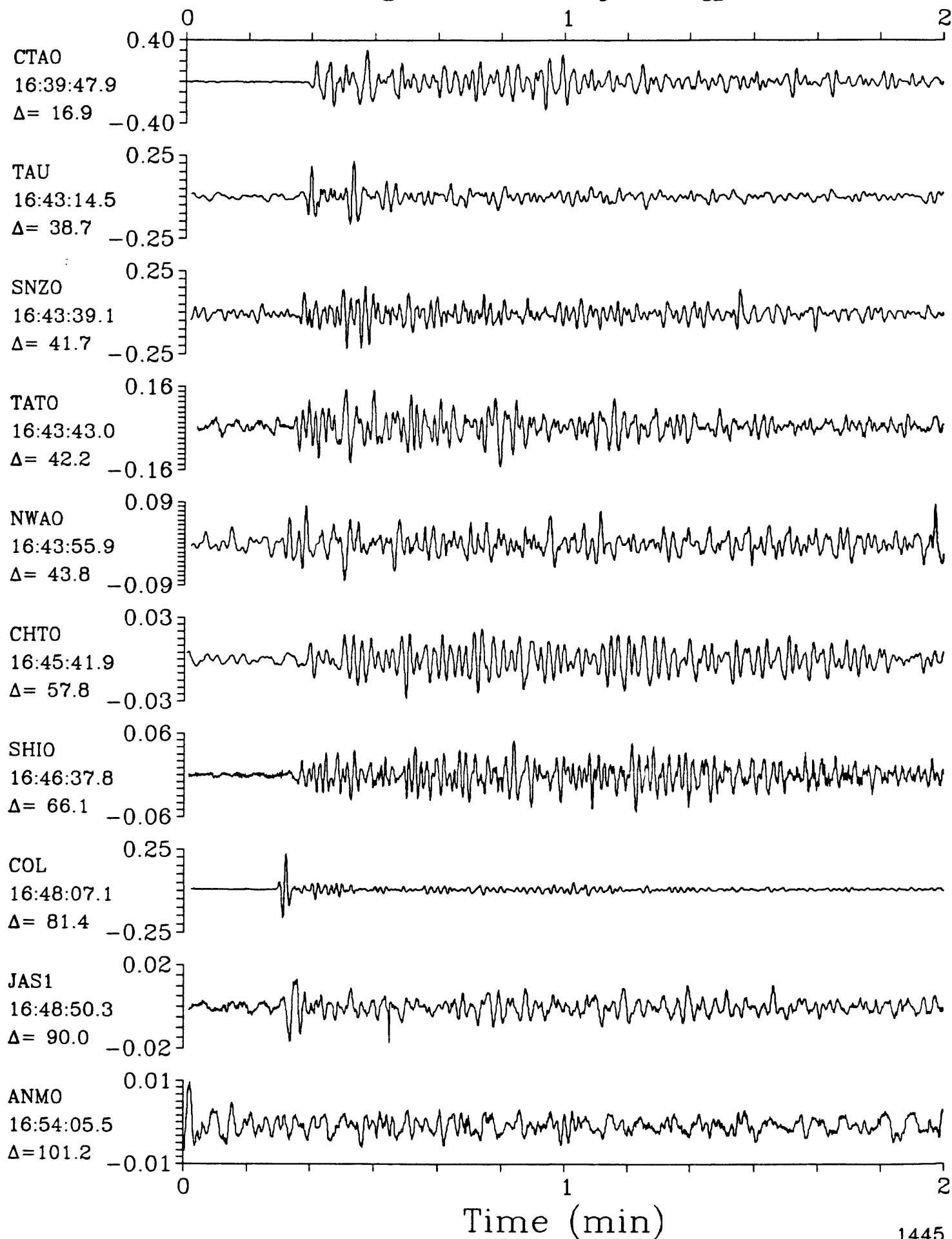
New Britain Region



SPZ

10 August 1985 16:36:09.14

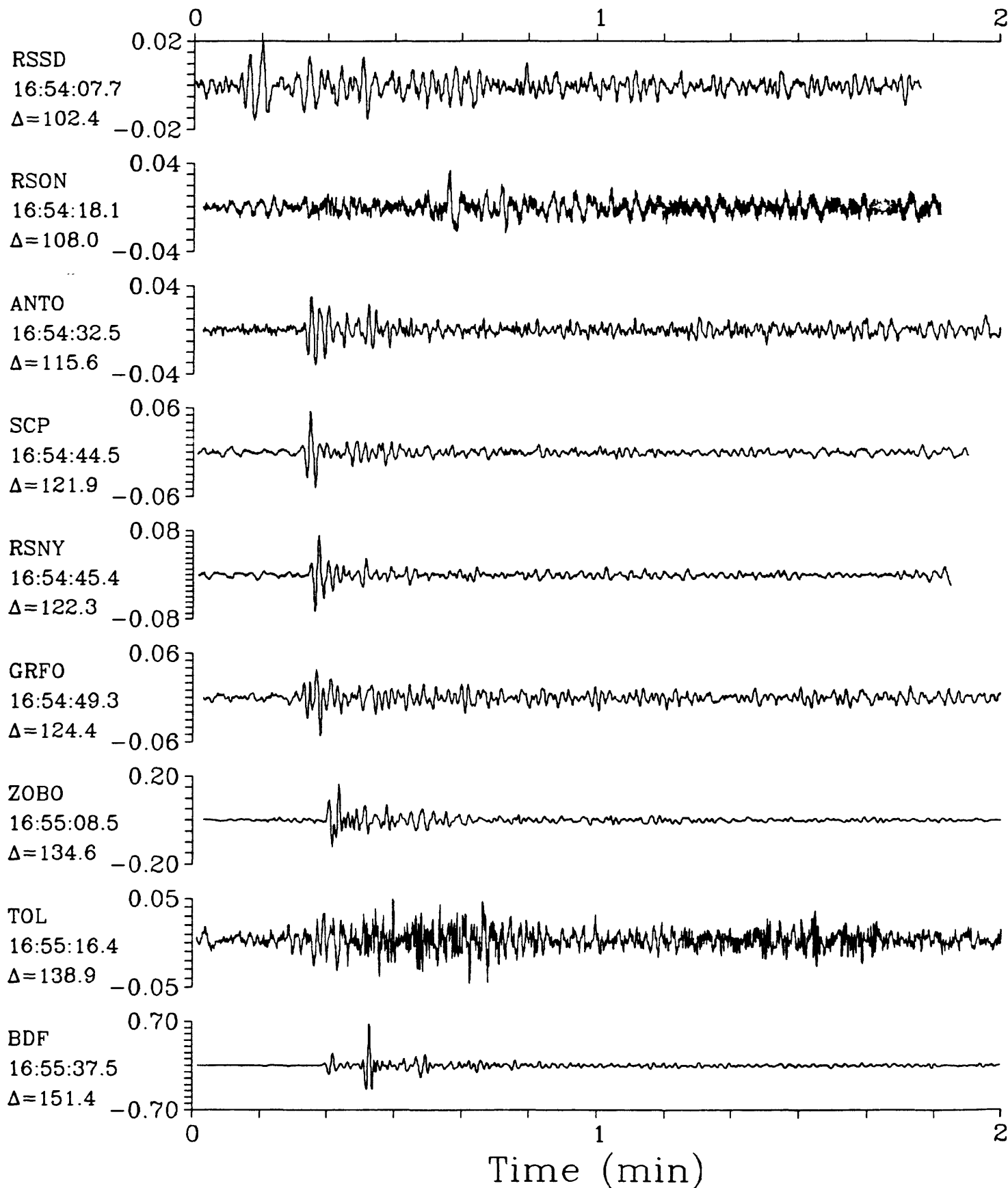
SPZ

New Britain Region $h=42.0$ $m_b=5.7$ $M_{SZ}=5.5$ 

SPZ

10 August 1985 16:36:09.14

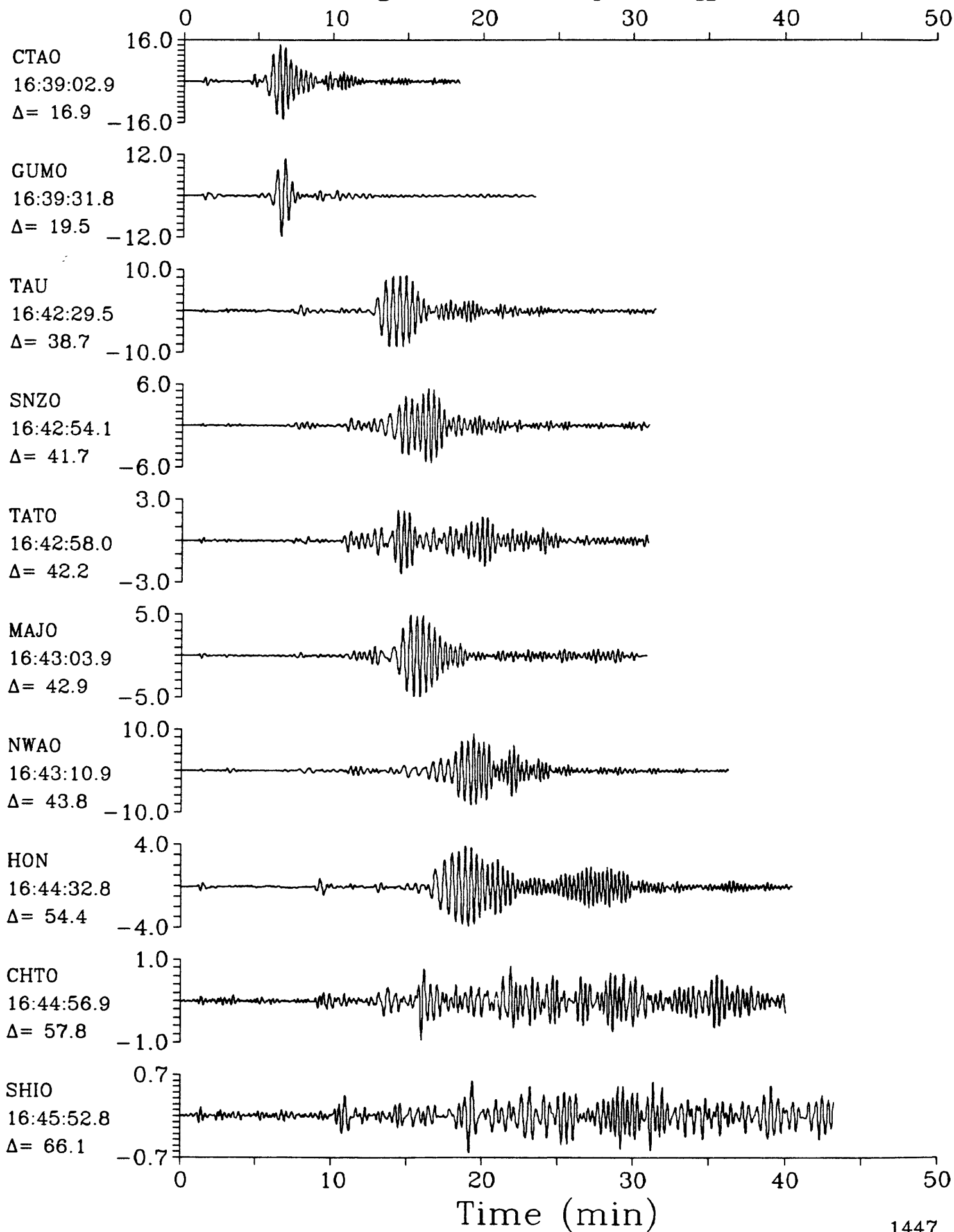
SPZ

New Britain Region $h=42.0$ $m_b=5.7$ $M_{sz}=5.5$ 

LPZ

10 August 1985 16:36:09.14

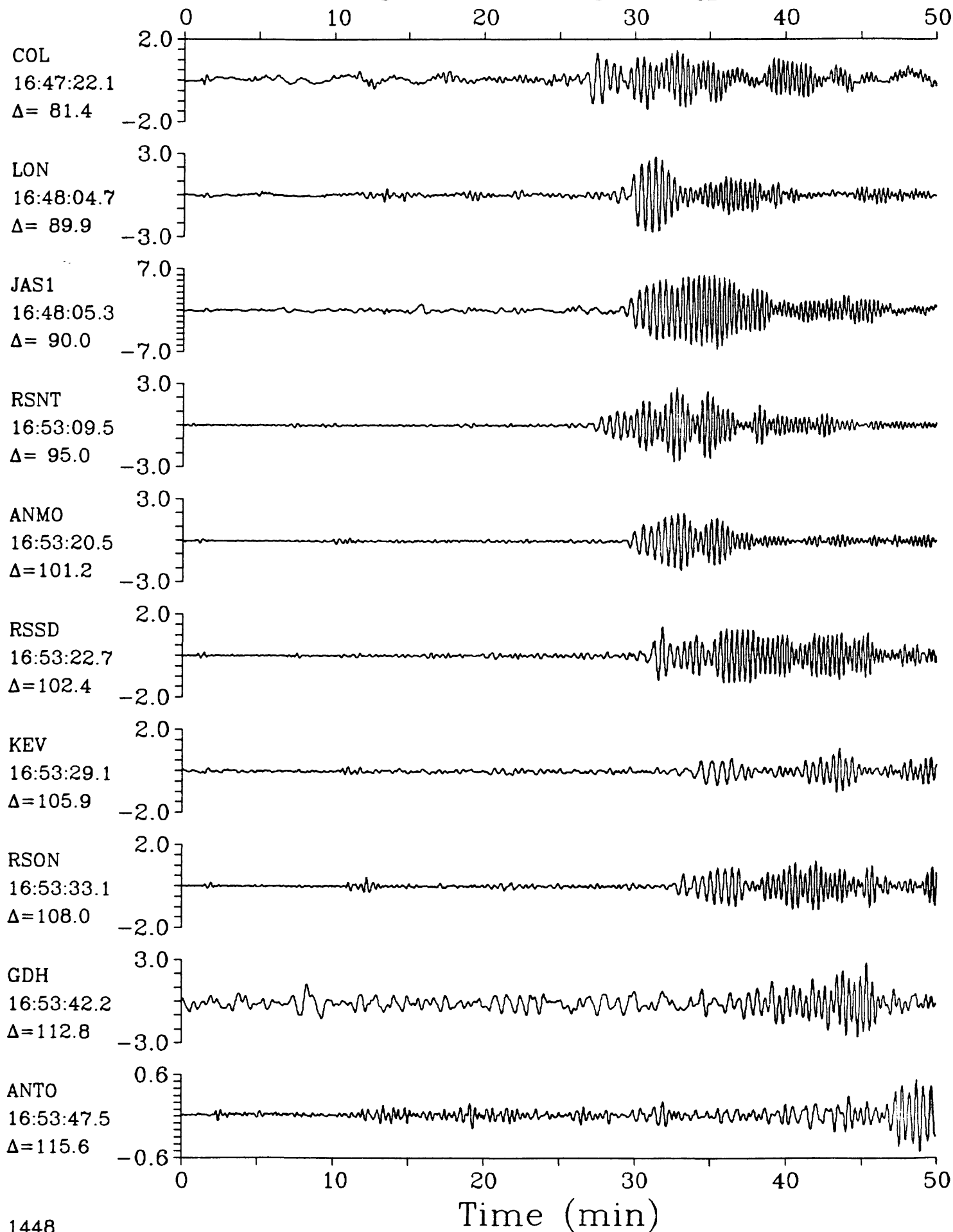
LPZ

New Britain Region $h=42.0$ $m_b=5.7$ $M_{SZ}=5.5$ 

LPZ

10 August 1985 16:36:09.14

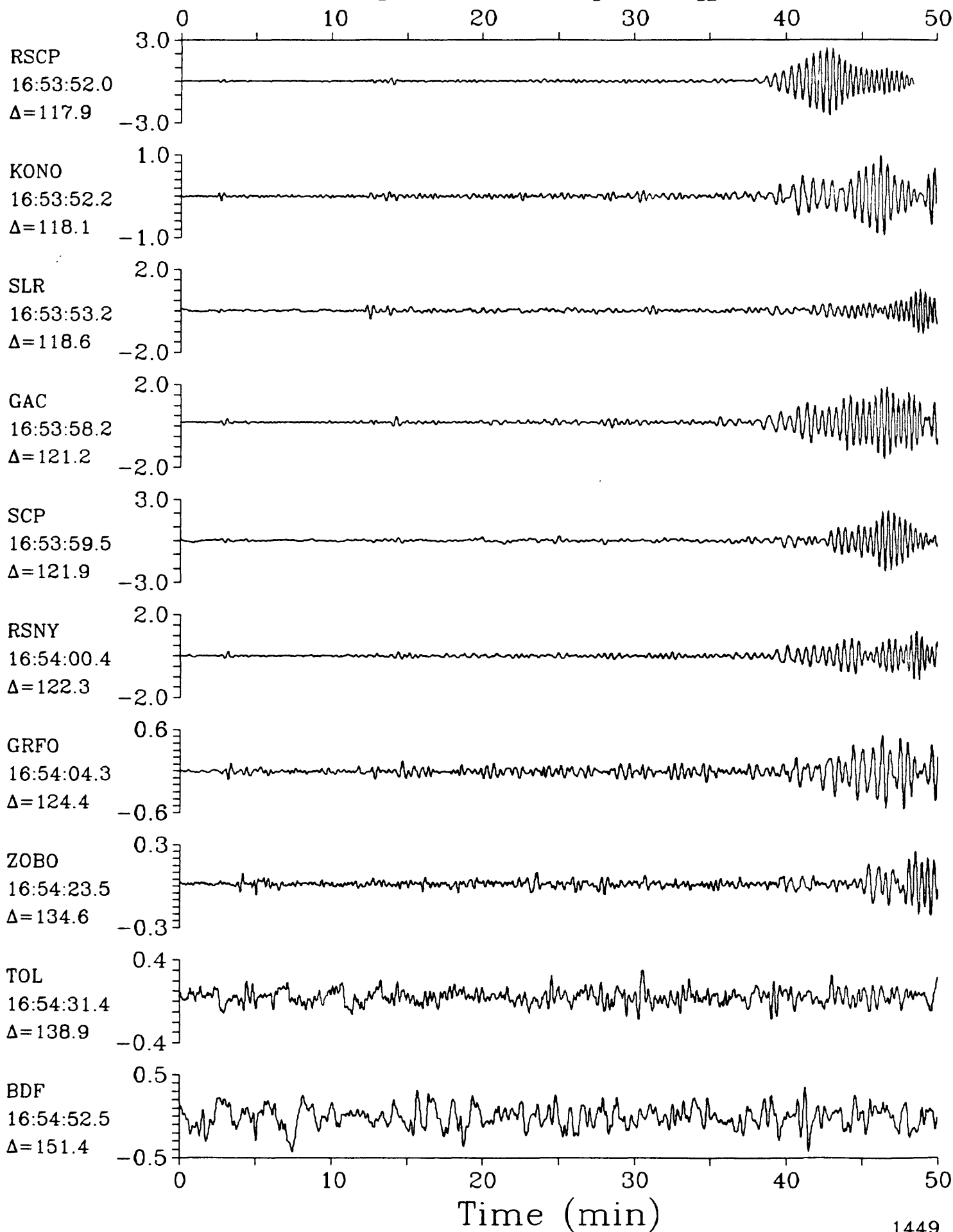
LPZ

New Britain Region $h=42.0$ $m_b=5.7$ $M_{sz}=5.5$ 

LPZ

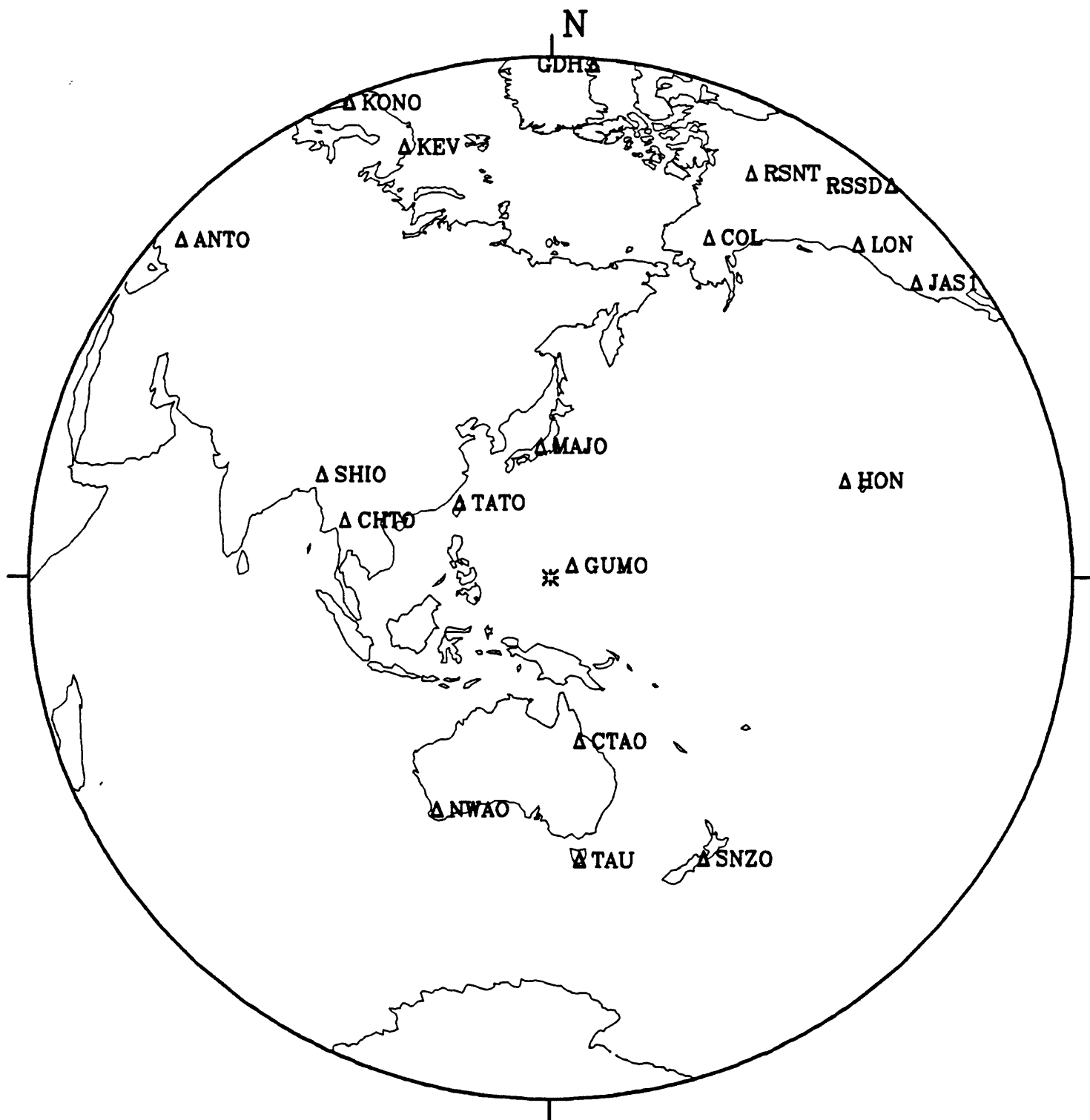
10 August 1985 16:36:09.14

LPZ

New Britain Region $h=42.0$ $m_b=5.7$ $M_{sz}=5.5$ 

11 August 1985 00:19:02.41

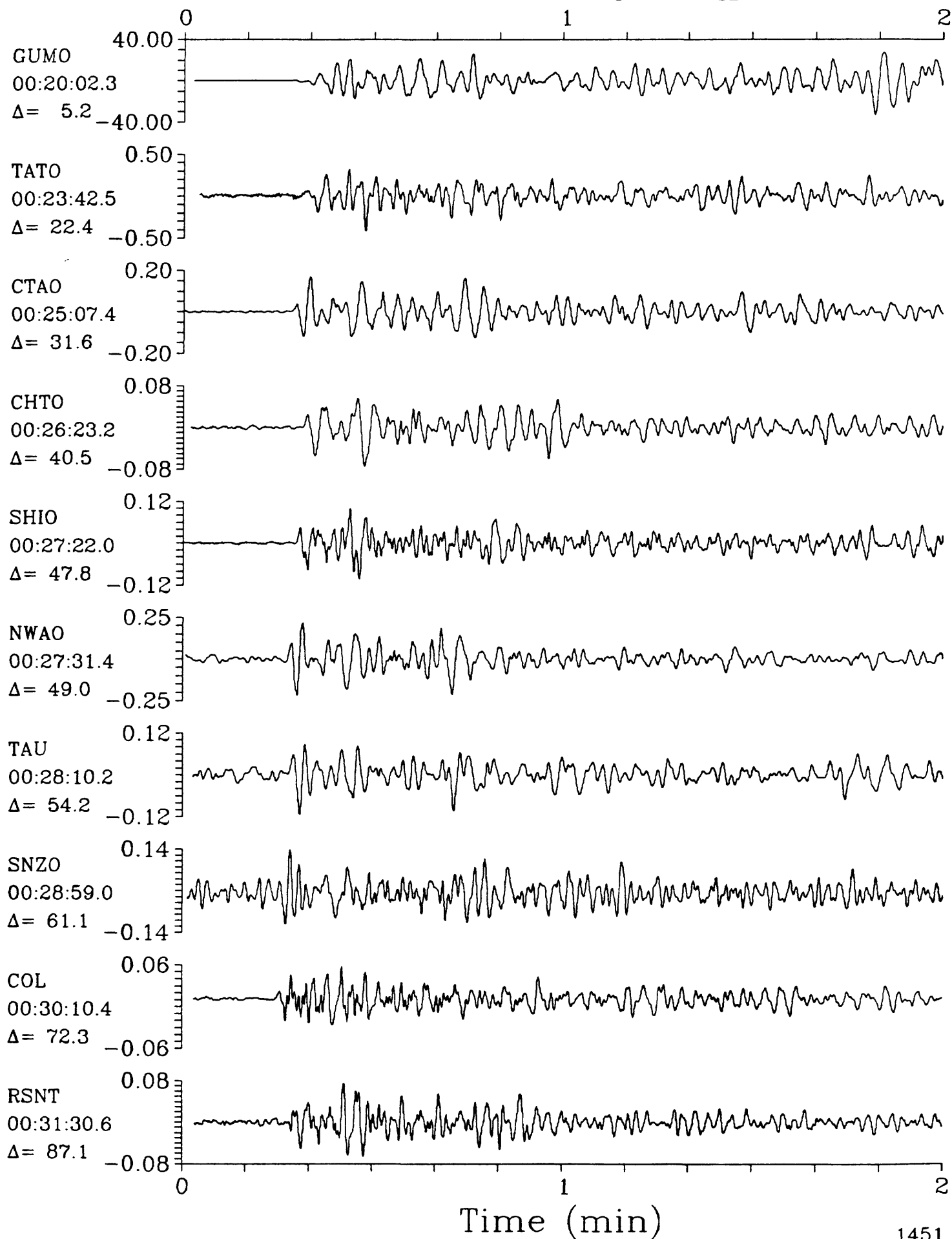
West Caroline Islands



SPZ

11 August 1985 00:19:02.41

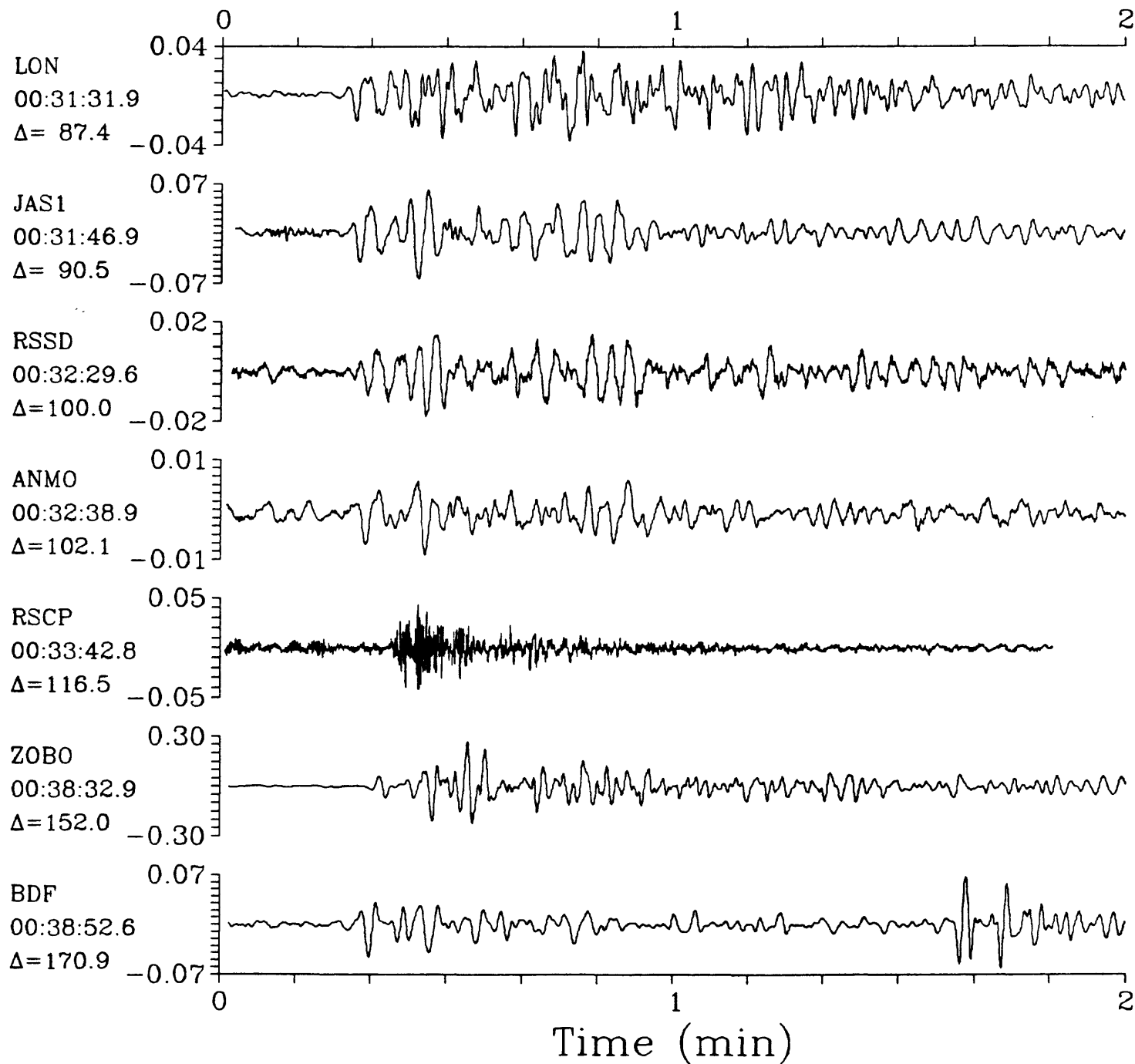
SPZ

West Caroline Islands $h=33.0$ $m_b=5.7$ $M_{SZ}=6.1$ 

SPZ

11 August 1985 00:19:02.41

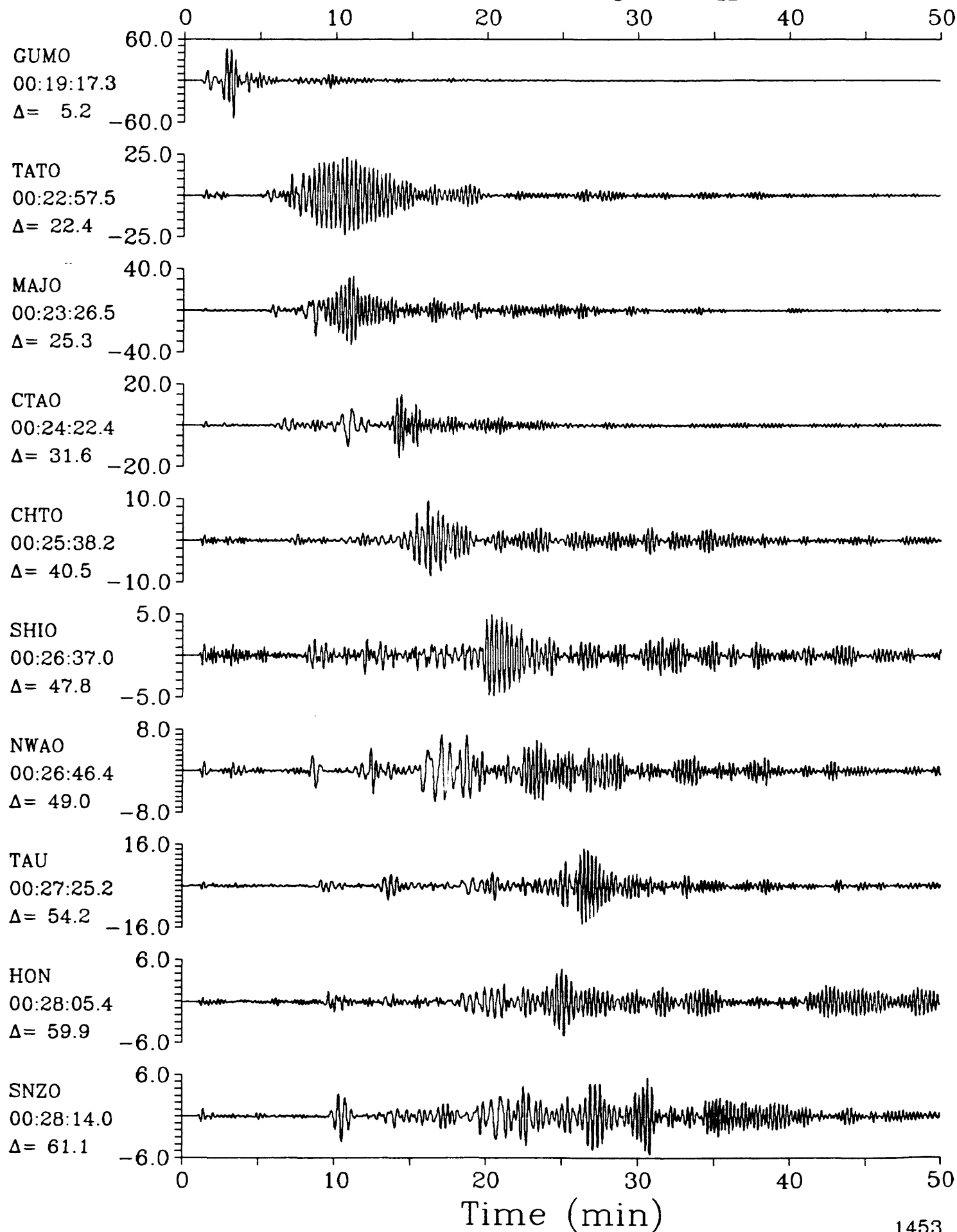
SPZ

West Caroline Islands $h=33.0$ $m_b=5.7$ $M_{sz}=6.1$ 

LPZ

11 August 1985 00:19:02.41

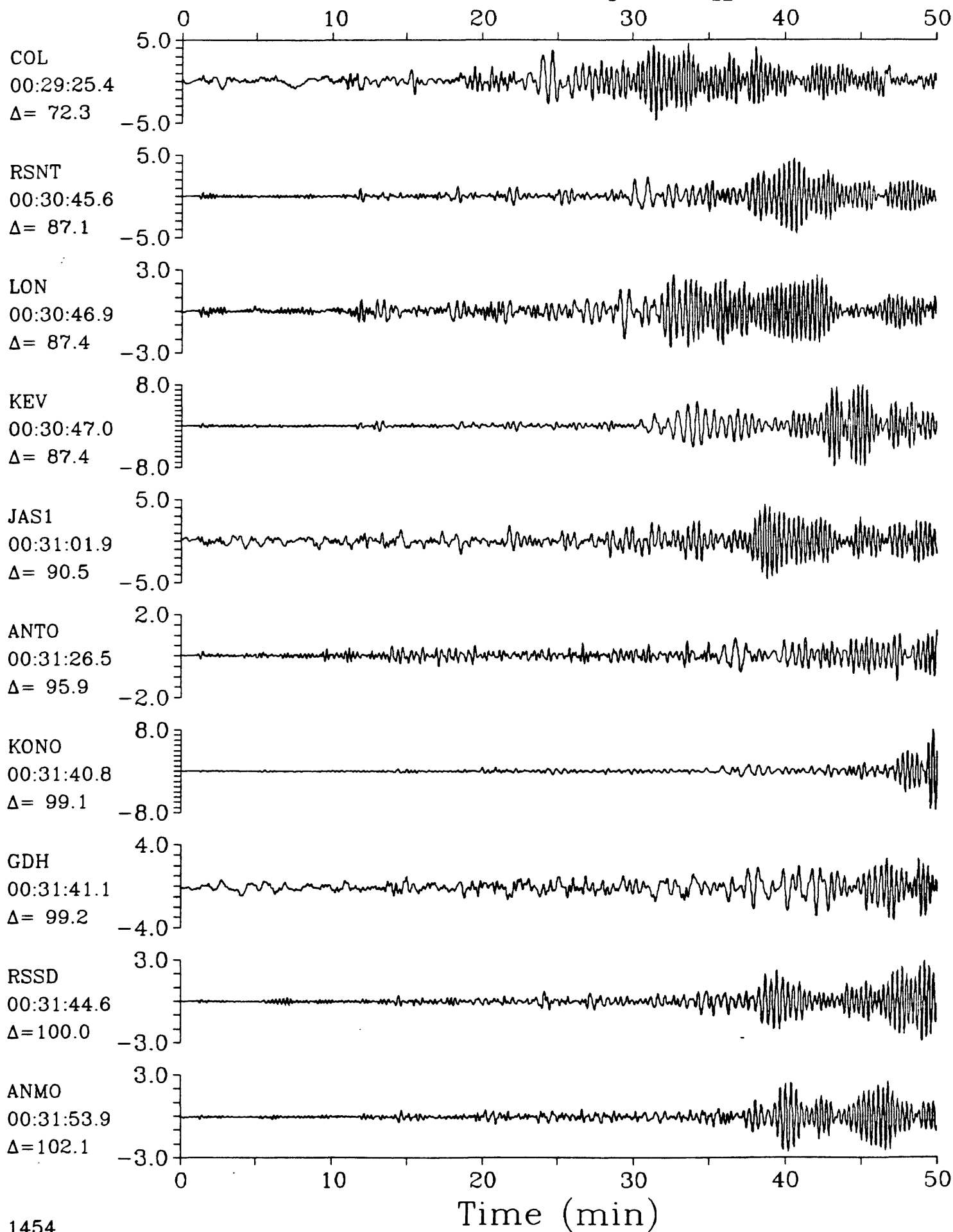
LPZ

West Caroline Islands $h=33.0$ $m_b=5.7$ $M_{sz}=6.1$ 

LPZ

11 August 1985 00:19:02.41

LPZ

West Caroline Islands $h=33.0$ $m_b=5.7$ $M_{sz}=6.1$ 

LPZ

11 August 1985 00:19:02.41

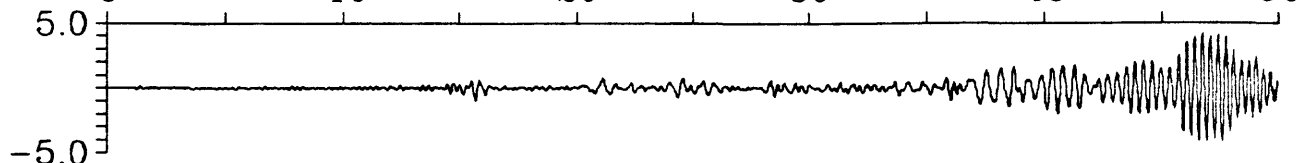
LPZ

West Caroline Islands $h=33.0$ $m_b=5.7$ $M_{sz}=6.1$

0 10 20 30 40 50

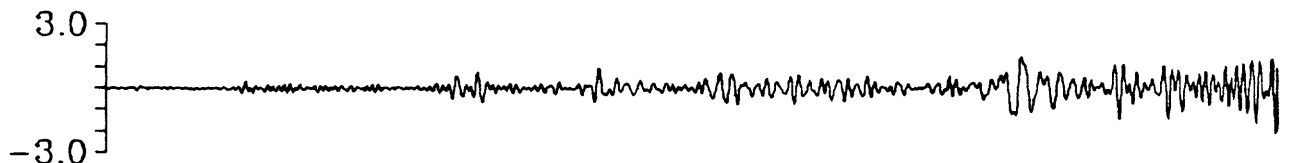
RSON

00:31:56.0

 $\Delta=102.6$ 

GRFO

00:32:05.7

 $\Delta=104.8$ 

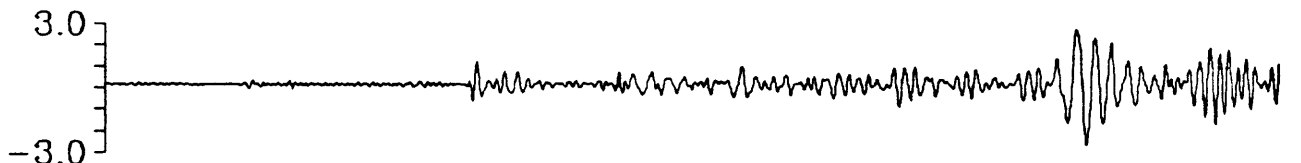
SLR

00:32:48.5

 $\Delta=114.4$ 

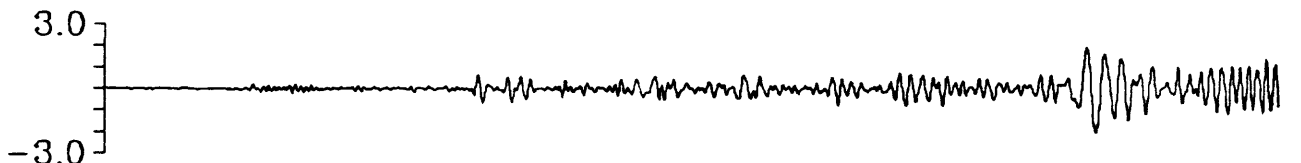
GAC

00:32:50.7

 $\Delta=114.9$ 

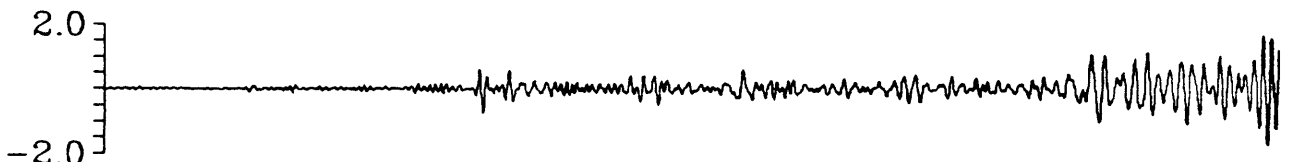
RSNY

00:32:56.6

 $\Delta=116.3$ 

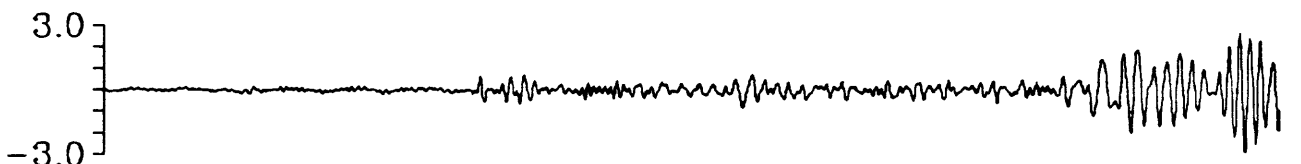
RSCP

00:32:57.8

 $\Delta=116.5$ 

SCP

00:33:02.0

 $\Delta=117.5$ 

TOL

00:33:10.3

 $\Delta=119.3$ 

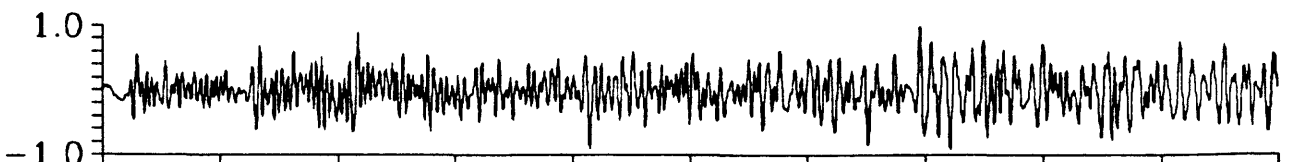
ZOBO

00:37:47.9

 $\Delta=152.0$ 

BDF

00:38:07.6

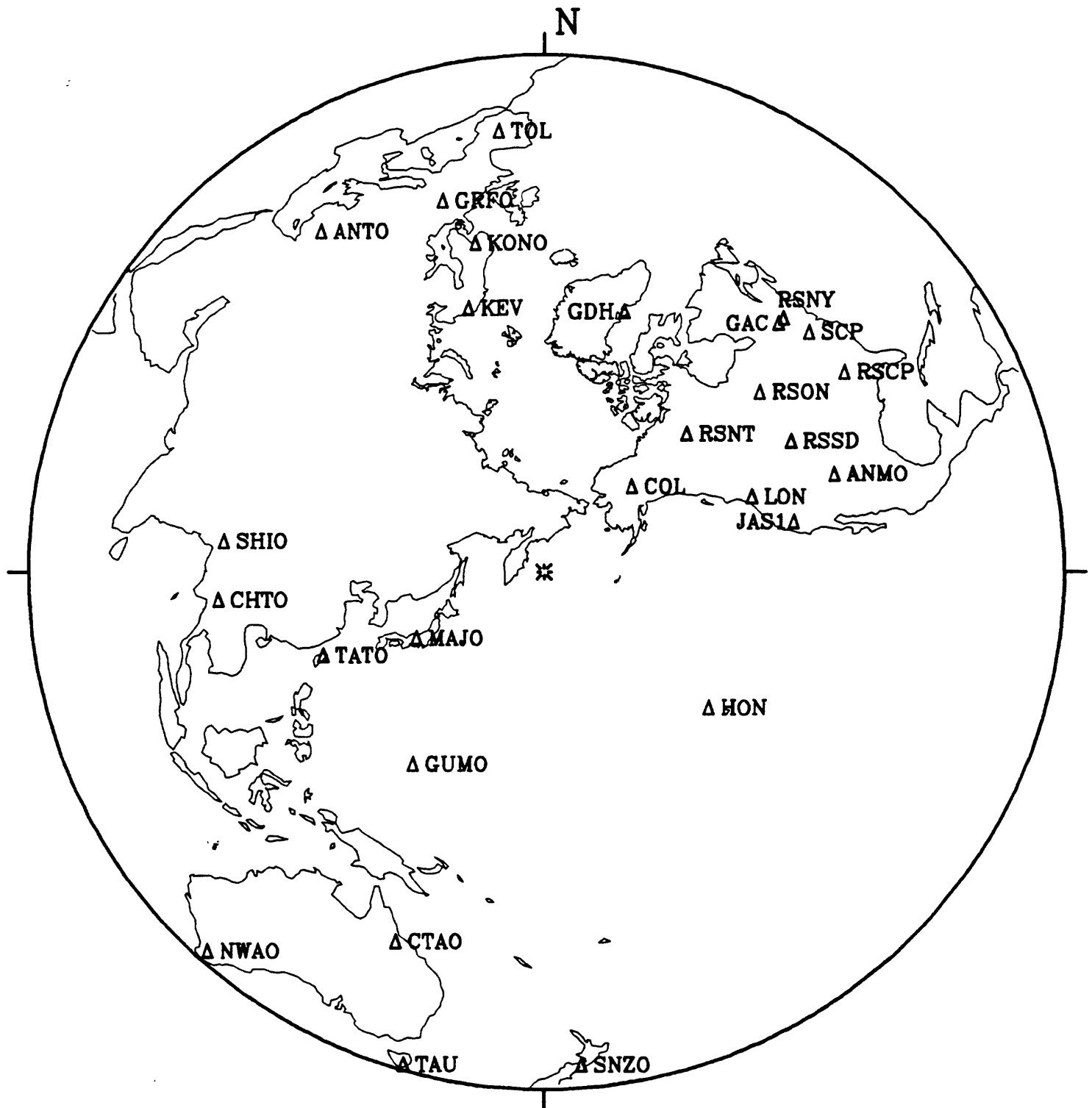
 $\Delta=170.9$ 

0 10 20 30 40 50

Time (min)

11 August 1985 09:59:41.65

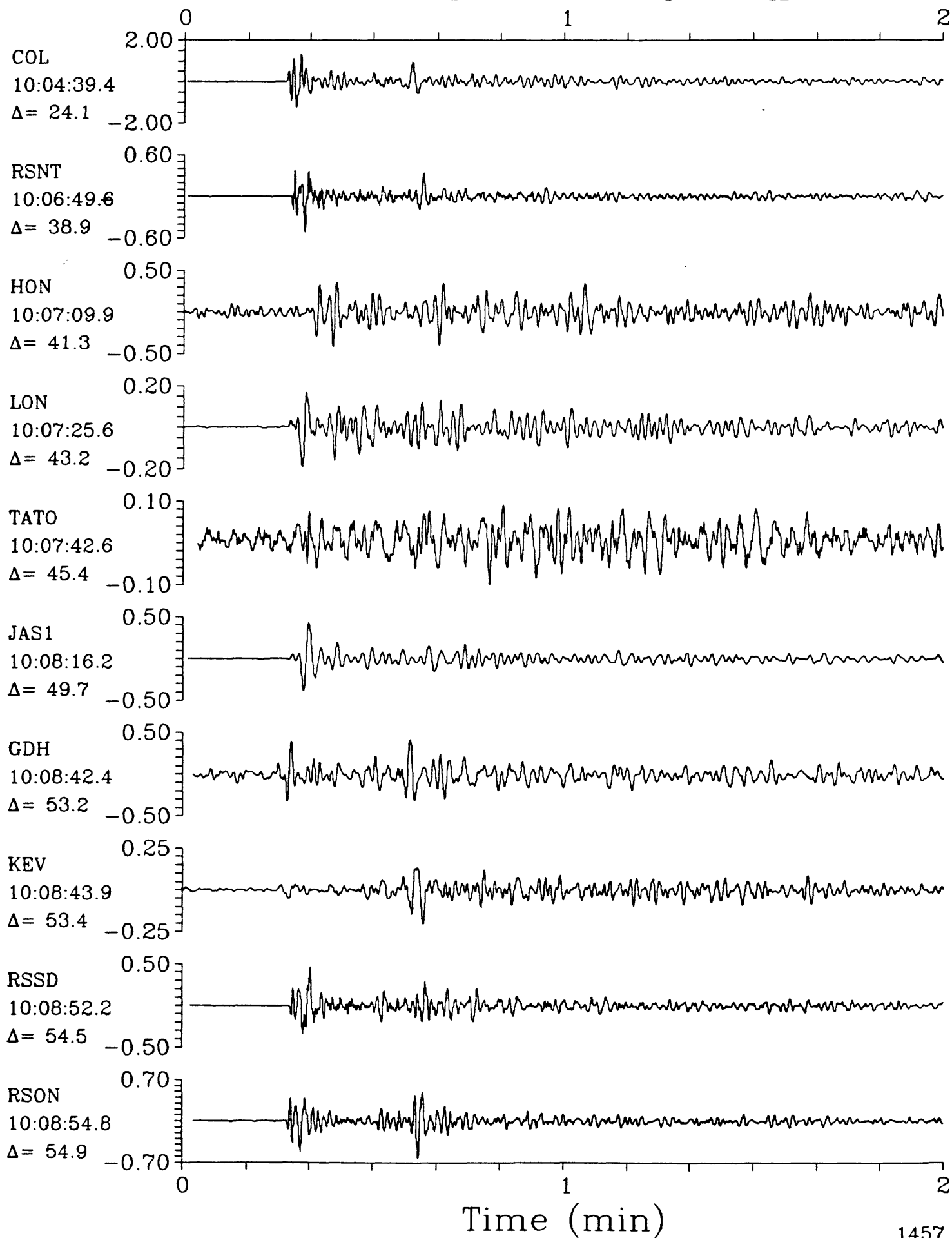
Komandorsky Islands Region



SPZ

11 August 1985 09:59:41.65

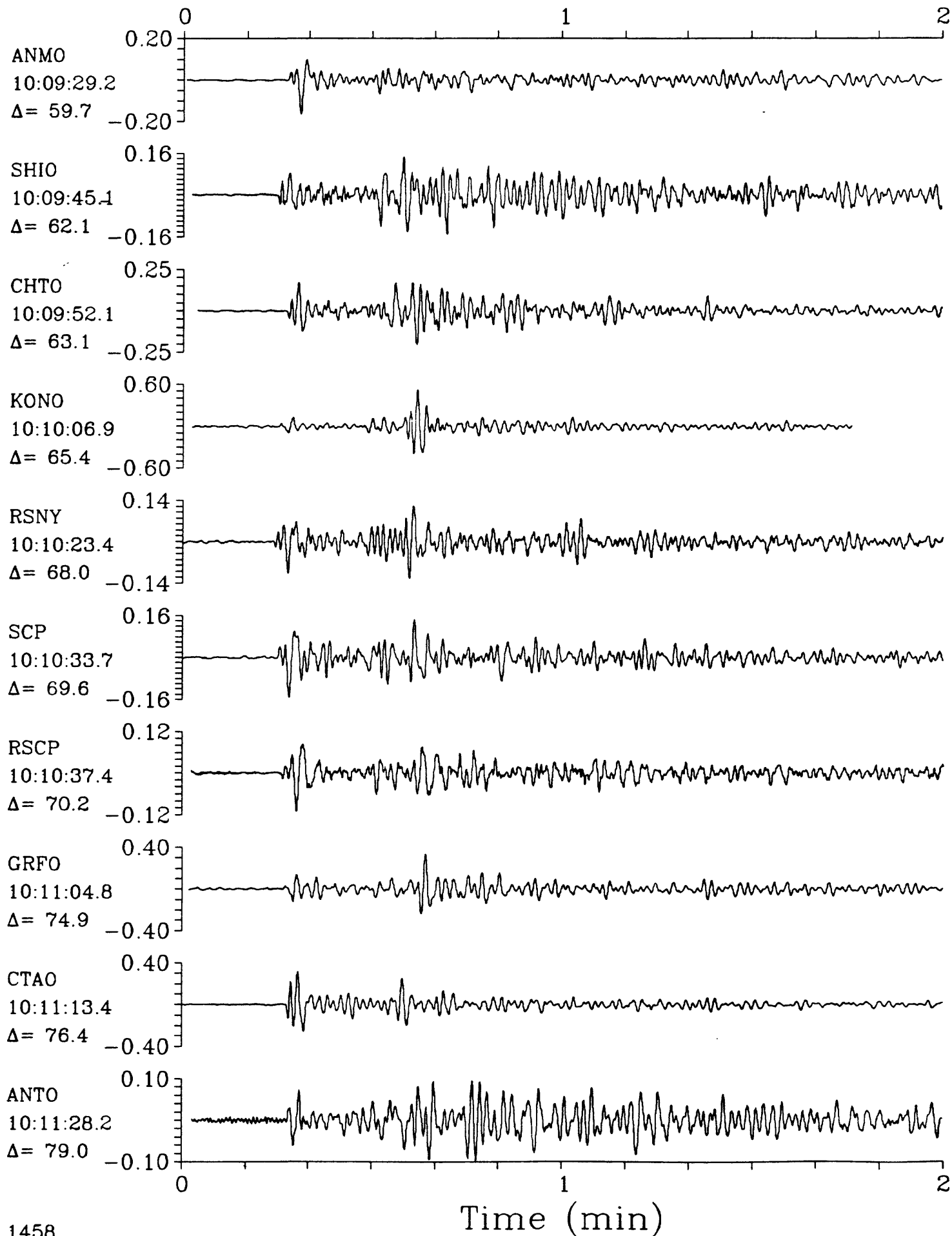
SPZ

Komandorsky Islands Region $h=29.9$ $m_b=6.0$ $M_{SZ}=5.8$ 

SPZ

11 August 1985 09:59:41.65

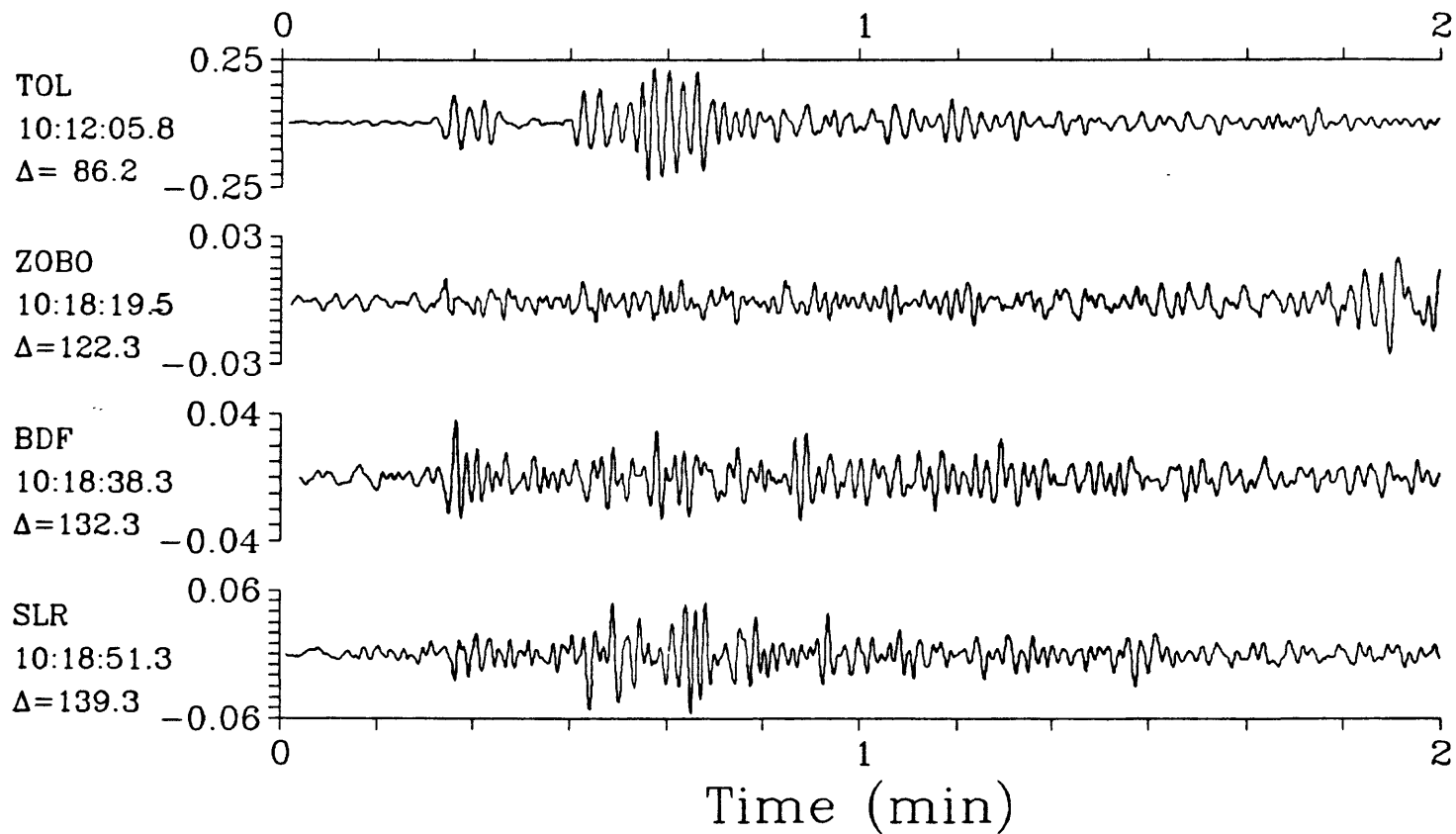
SPZ

Komandorsky Islands Region $h=29.9$ $m_b=6.0$ $M_{sz}=5.8$ 

SPZ

11 August 1985 09:59:41.65

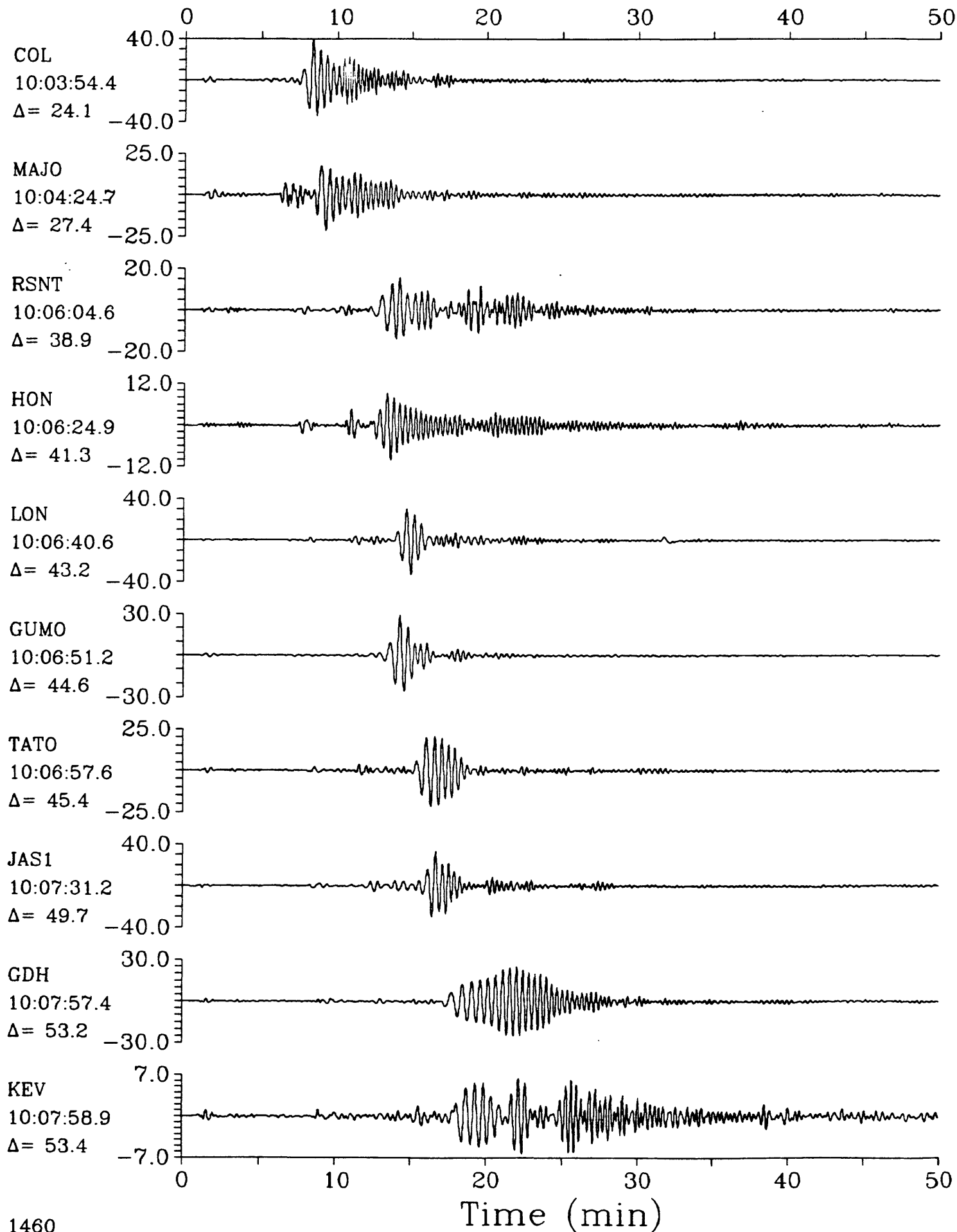
SPZ

Komandorsky Islands Region $h=29.9$ $m_b=6.0$ $M_{sz}=5.8$ 

LPZ

11 August 1985 09:59:41.65

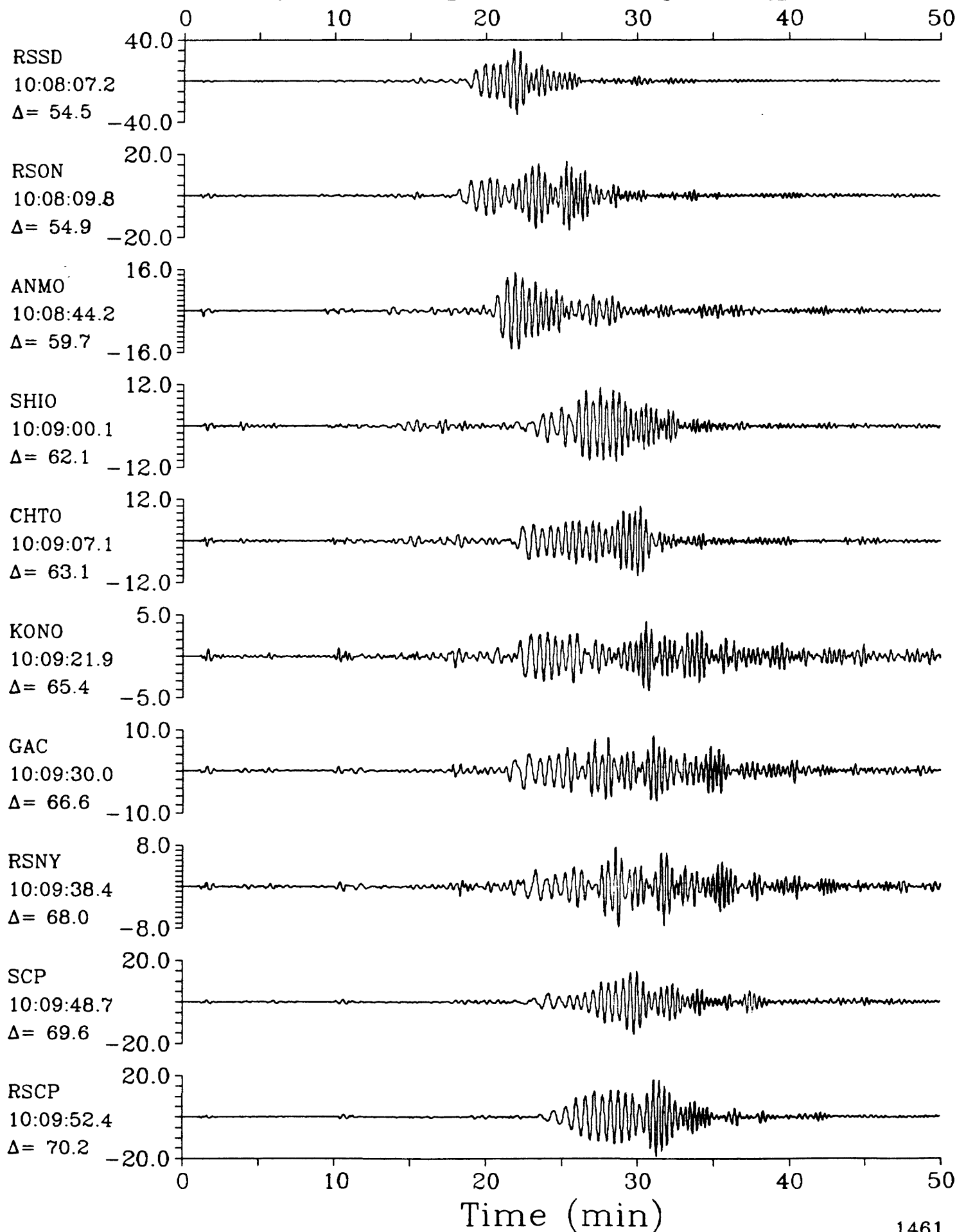
LPZ

Komandorsky Islands Region $h=29.9$ $m_b=6.0$ $M_{sz}=5.8$ 

LPZ

11 August 1985 09:59:41.65

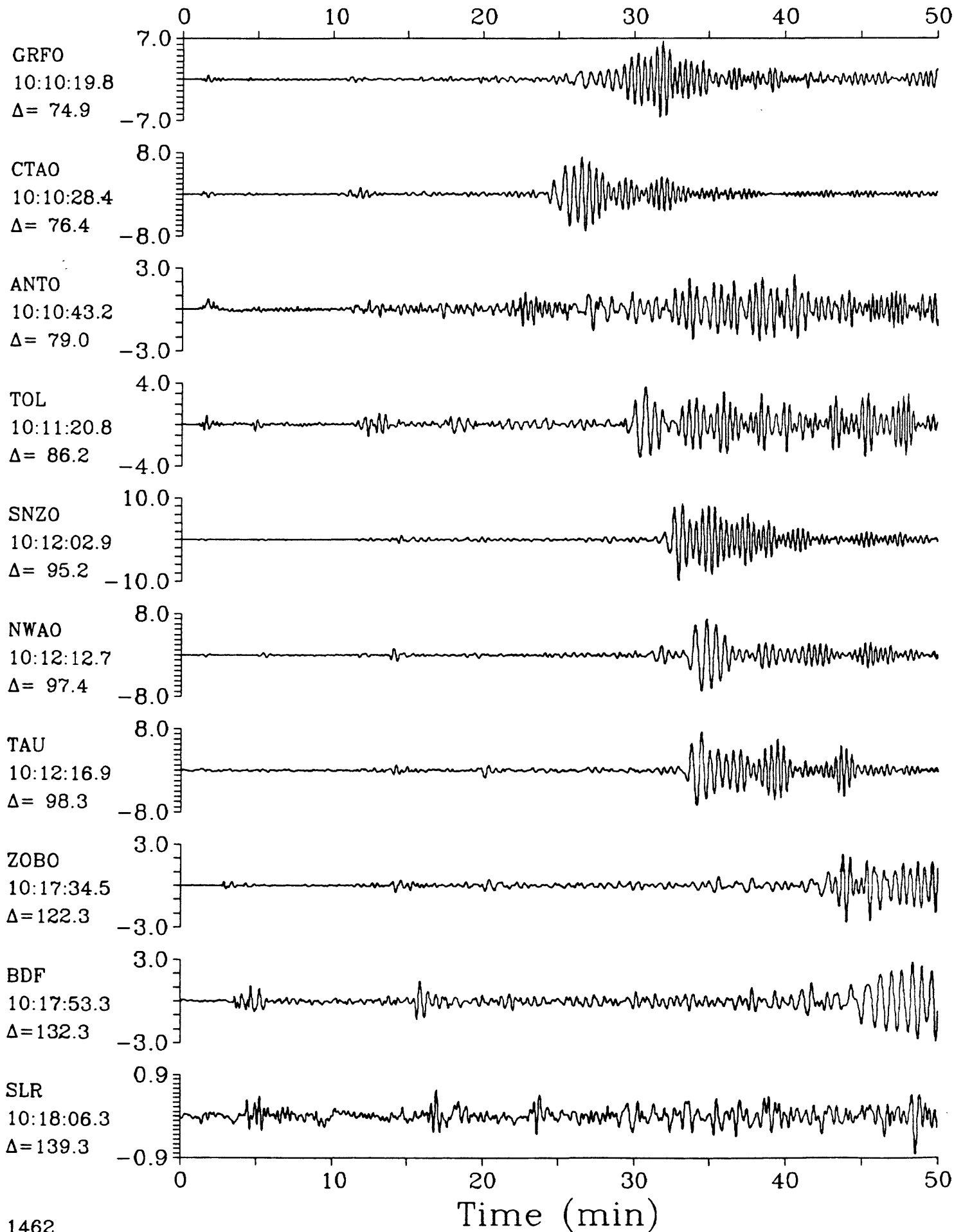
LPZ

Komandorsky Islands Region $h=29.9$ $m_b=6.0$ $M_{SZ}=5.8$ 

LPZ

11 August 1985 09:59:41.65

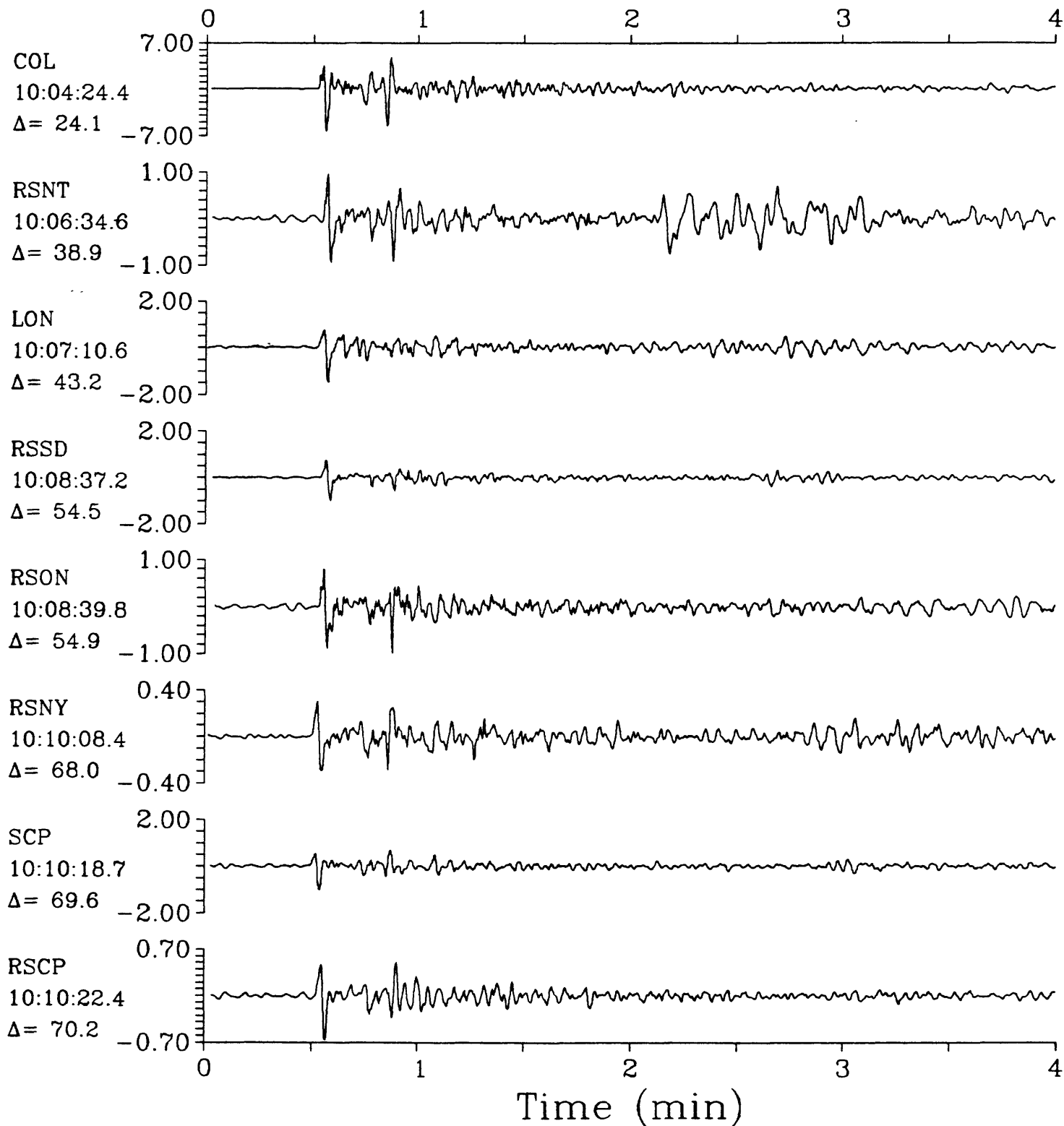
LPZ

Komandorsky Islands Region $h=29.9$ $m_b=6.0$ $M_{sz}=5.8$ 

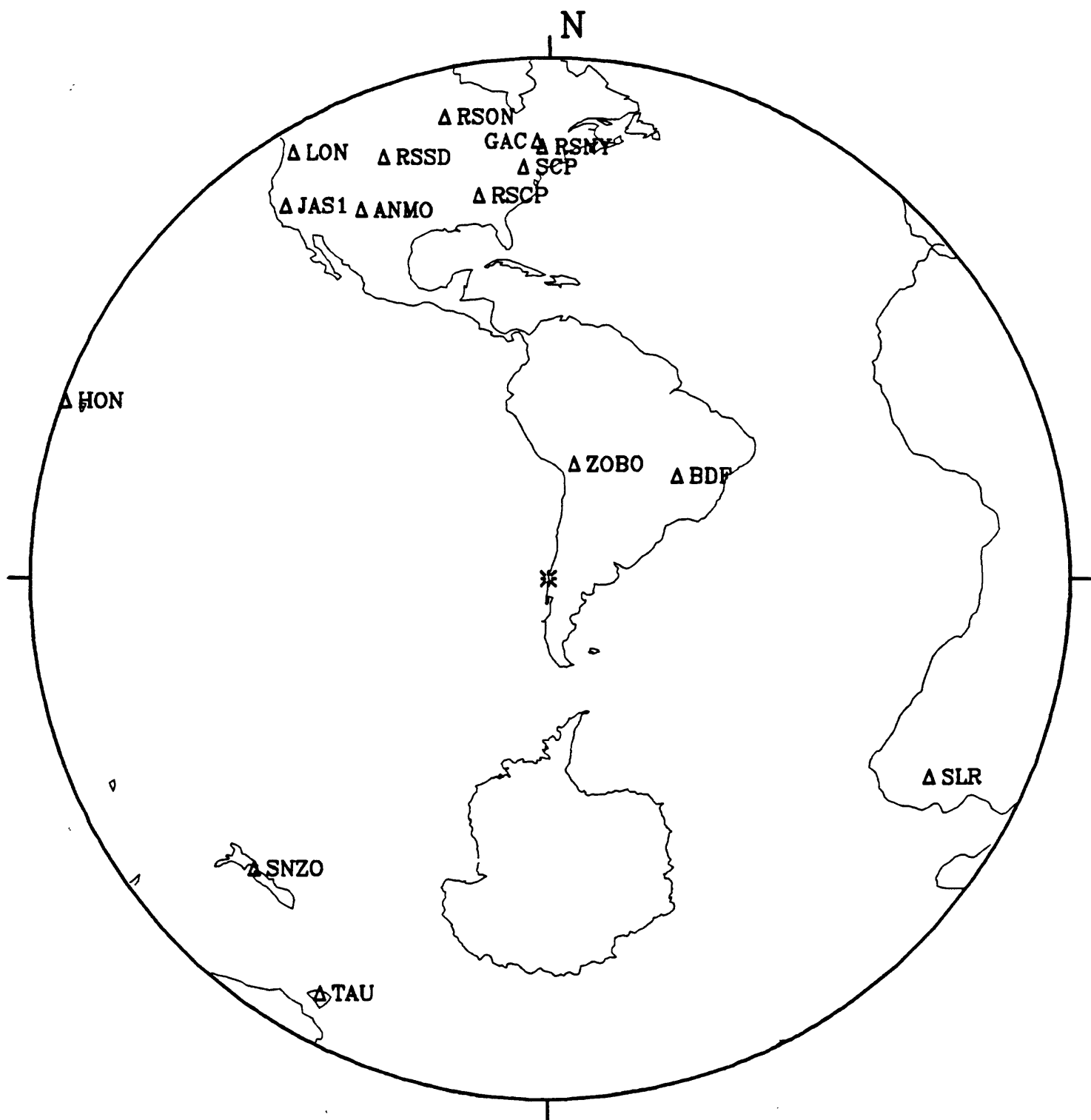
IPZ

11 August 1985 09:59:41.65

IPZ

Komandorsky Islands Region $h=29.9$ $m_b=6.0$ $M_{sz}=5.8$ 

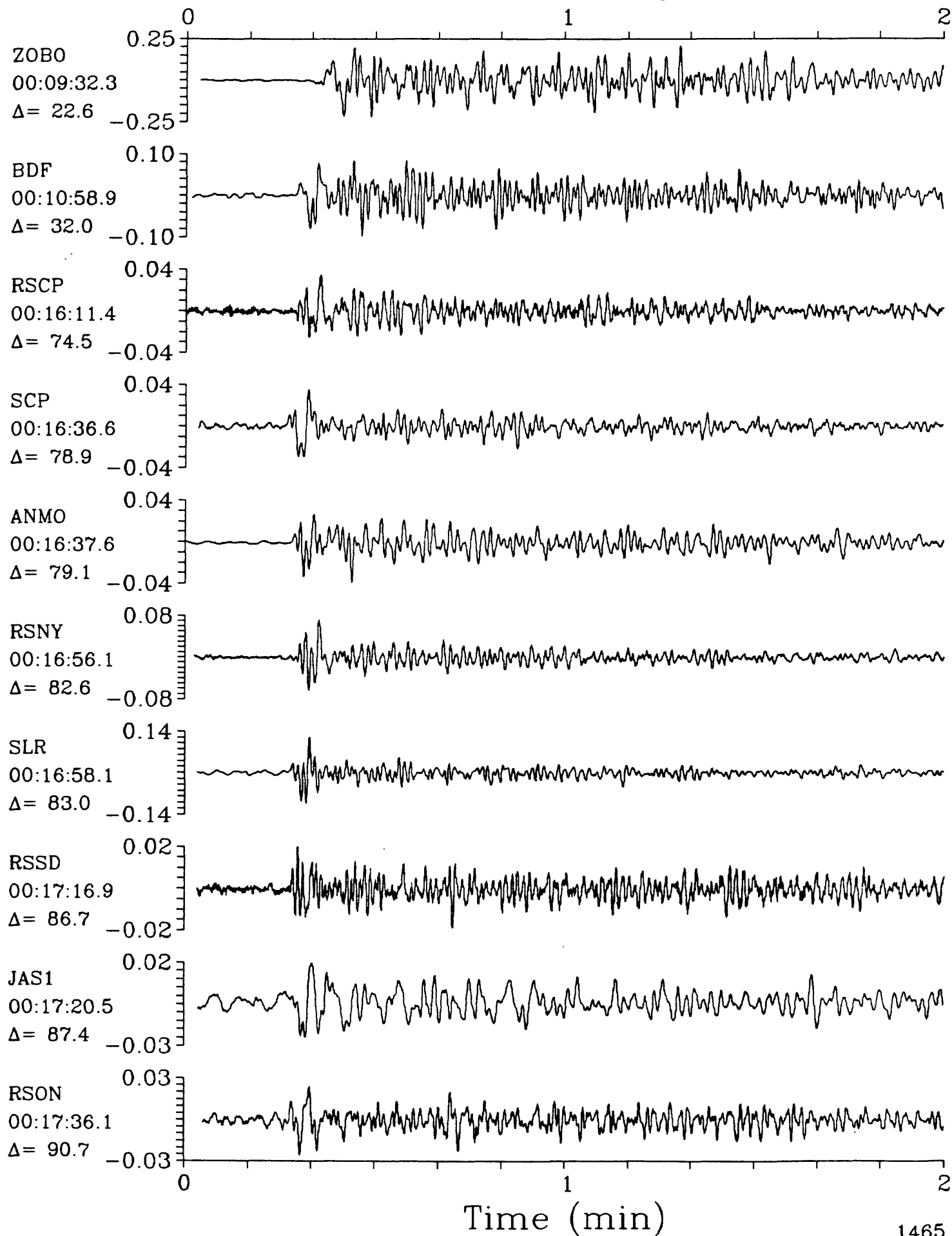
12 August 1985 00:04:50.91
Near Coast of Central Chile



SPZ

12 August 1985 00:04:50.91

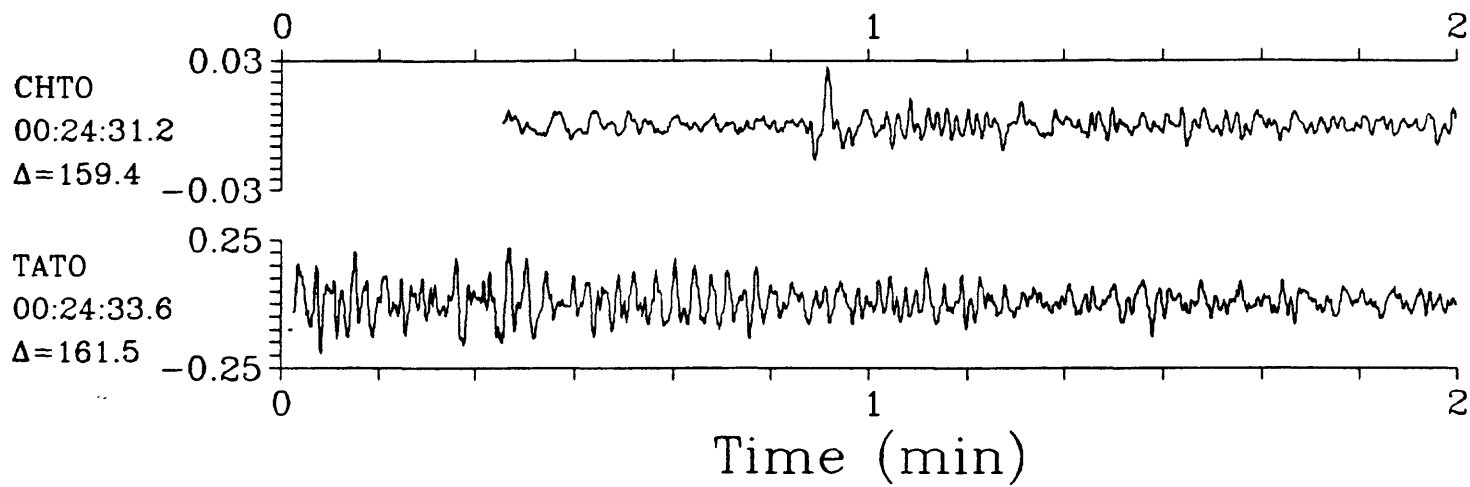
SPZ

Near Coast of Central Chile $h=33.0$ $m_b=5.5$ $M_{sz}=6.0$ 

SPZ

12 August 1985 00:04:50.91

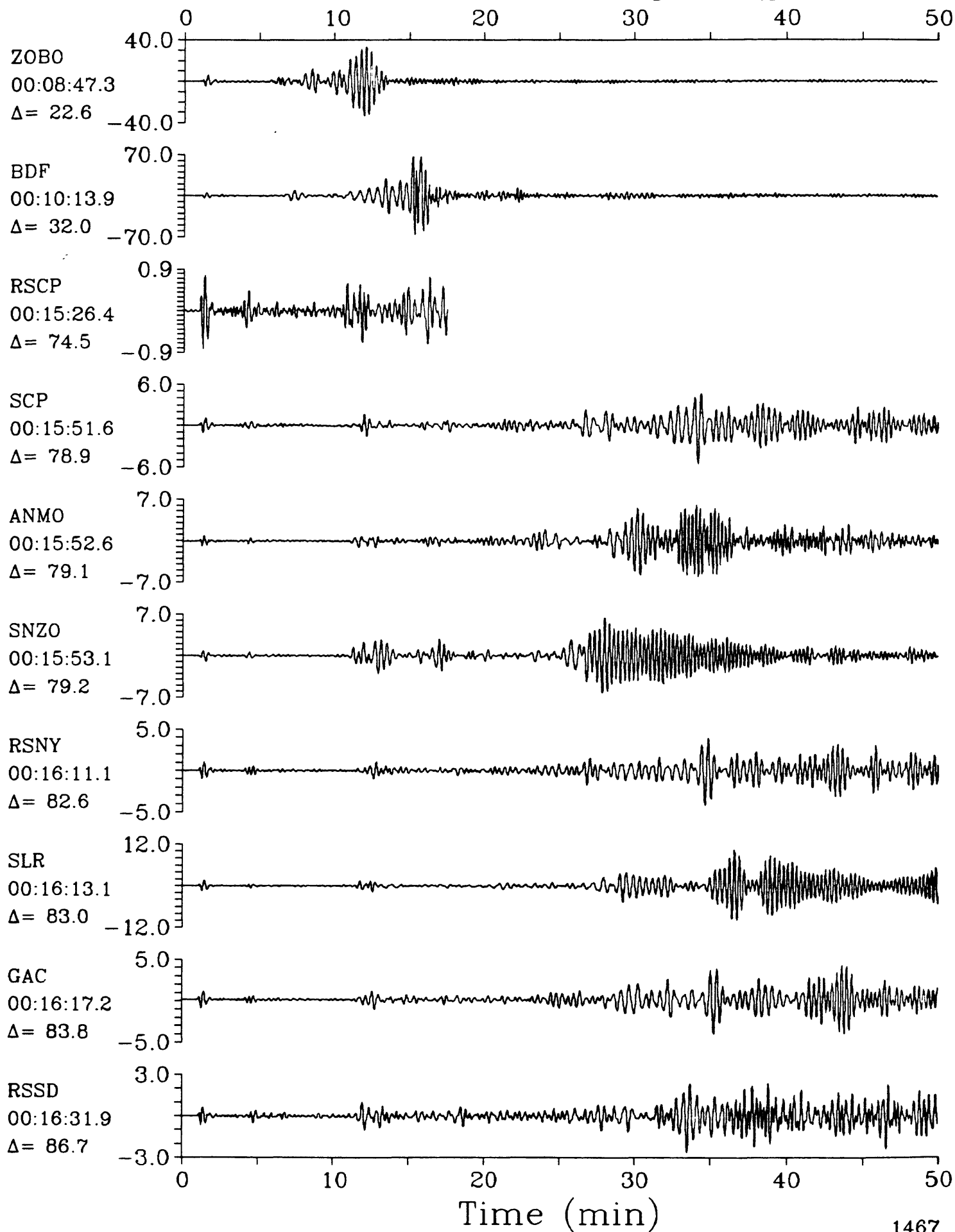
SPZ

Near Coast of Central Chile $h=33.0$ $m_b=5.5$ $M_{sz}=6.0$ 

LPZ

12 August 1985 00:04:50.91

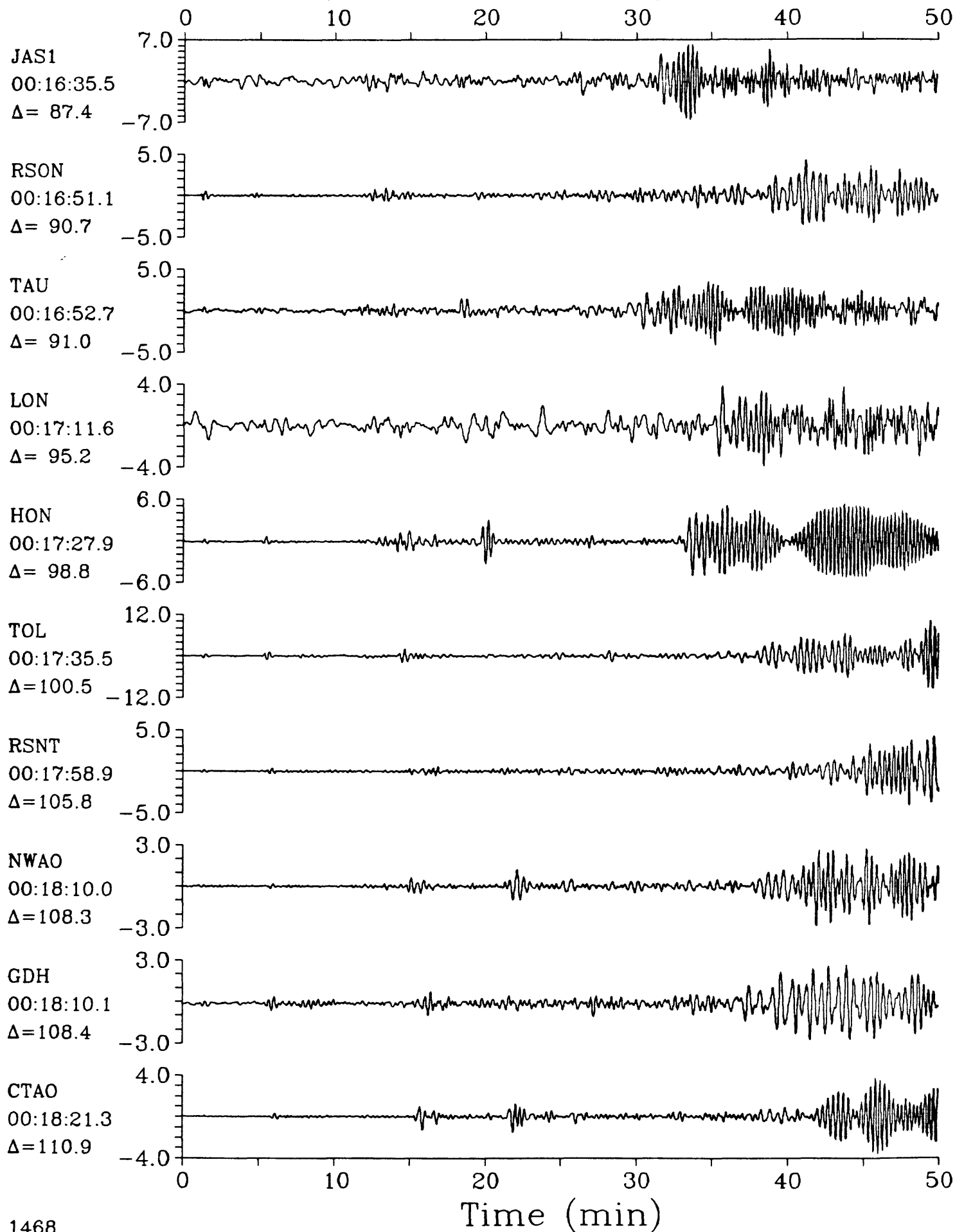
LPZ

Near Coast of Central Chile $h=33.0$ $m_b=5.5$ $M_{sz}=6.0$ 

LPZ

12 August 1985 00:04:50.91

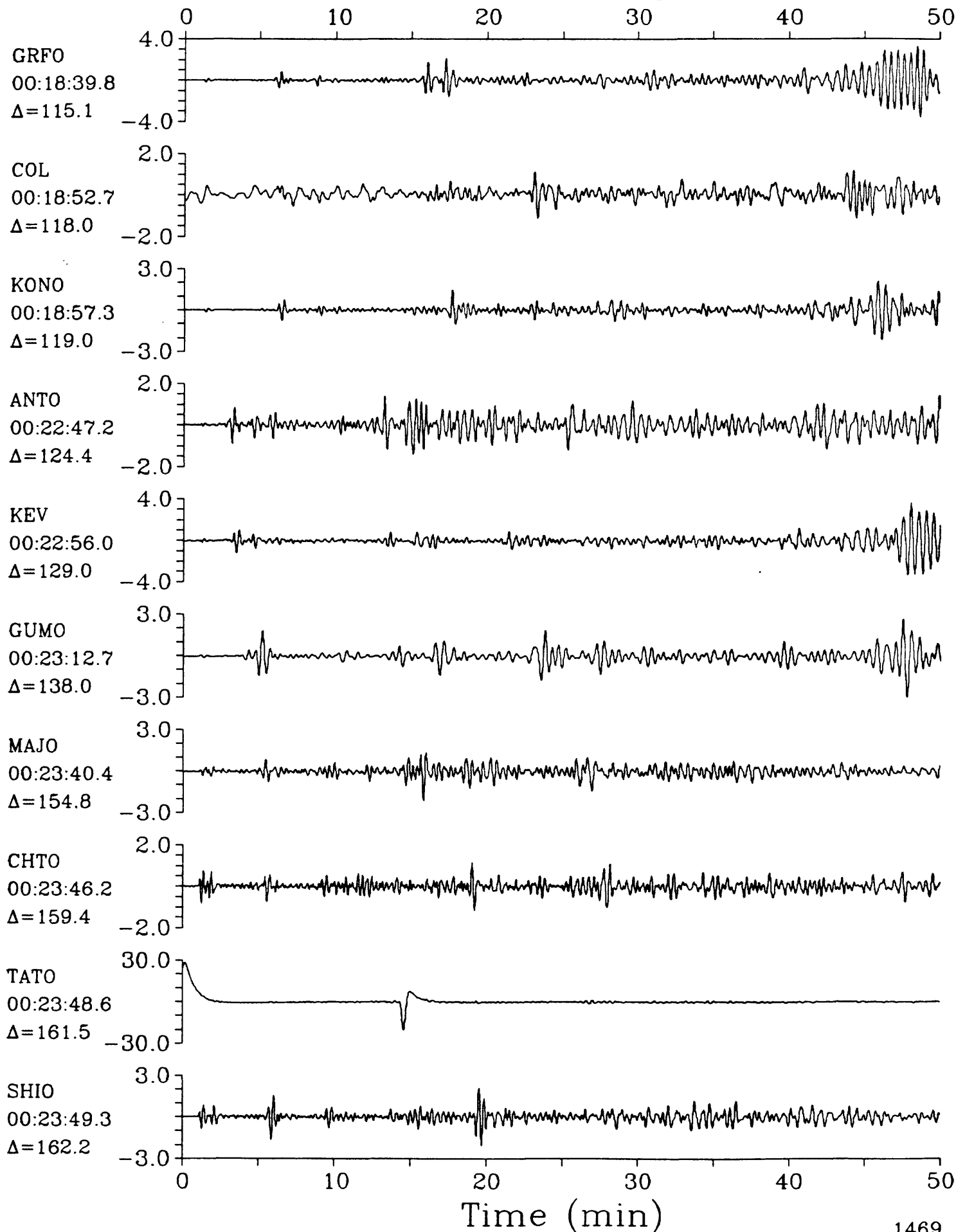
LPZ

Near Coast of Central Chile $h=33.0$ $m_b=5.5$ $M_{sz}=6.0$ 

LPZ

12 August 1985 00:04:50.91

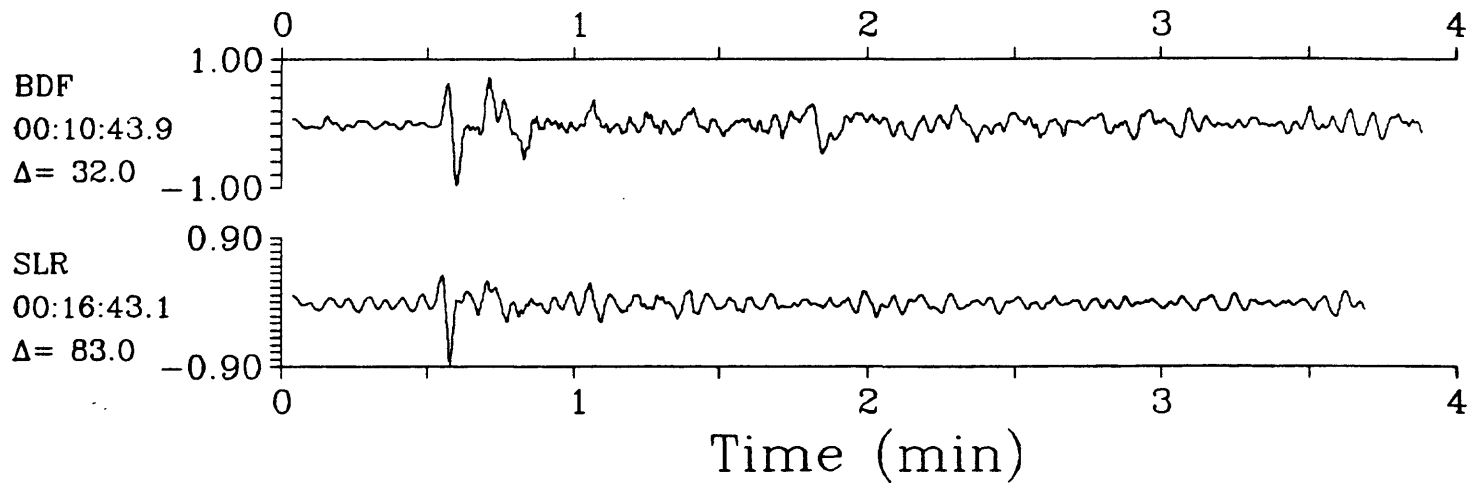
LPZ

Near Coast of Central Chile $h=33.0$ $m_b=5.5$ $M_{sz}=6.0$ 

IPZ

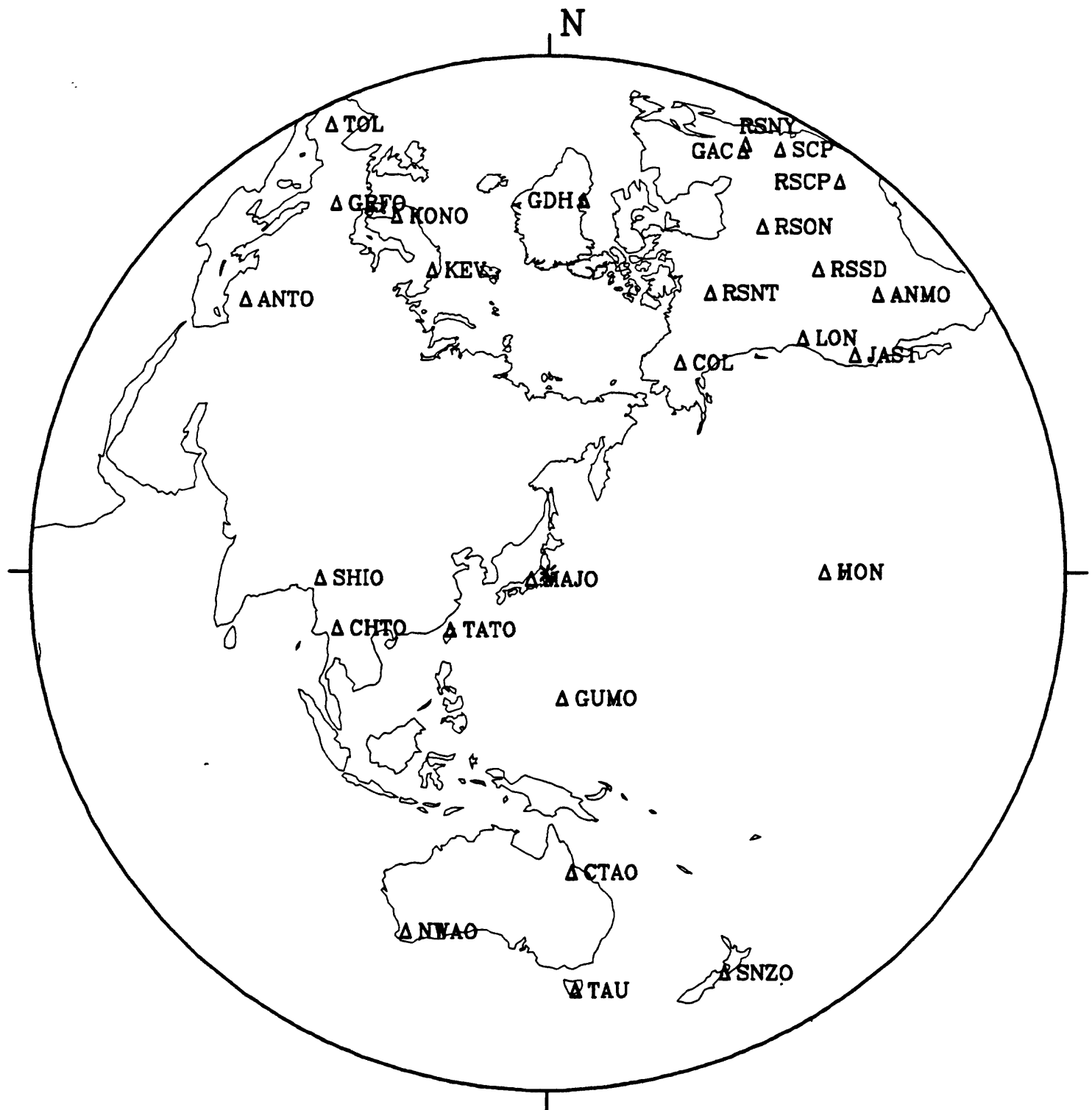
12 August 1985 00:04:50.91

IPZ

Near Coast of Central Chile $h=33.0$ $m_b=5.5$ $M_{sz}=6.0$ 

12 August 1985 03:49:17.98

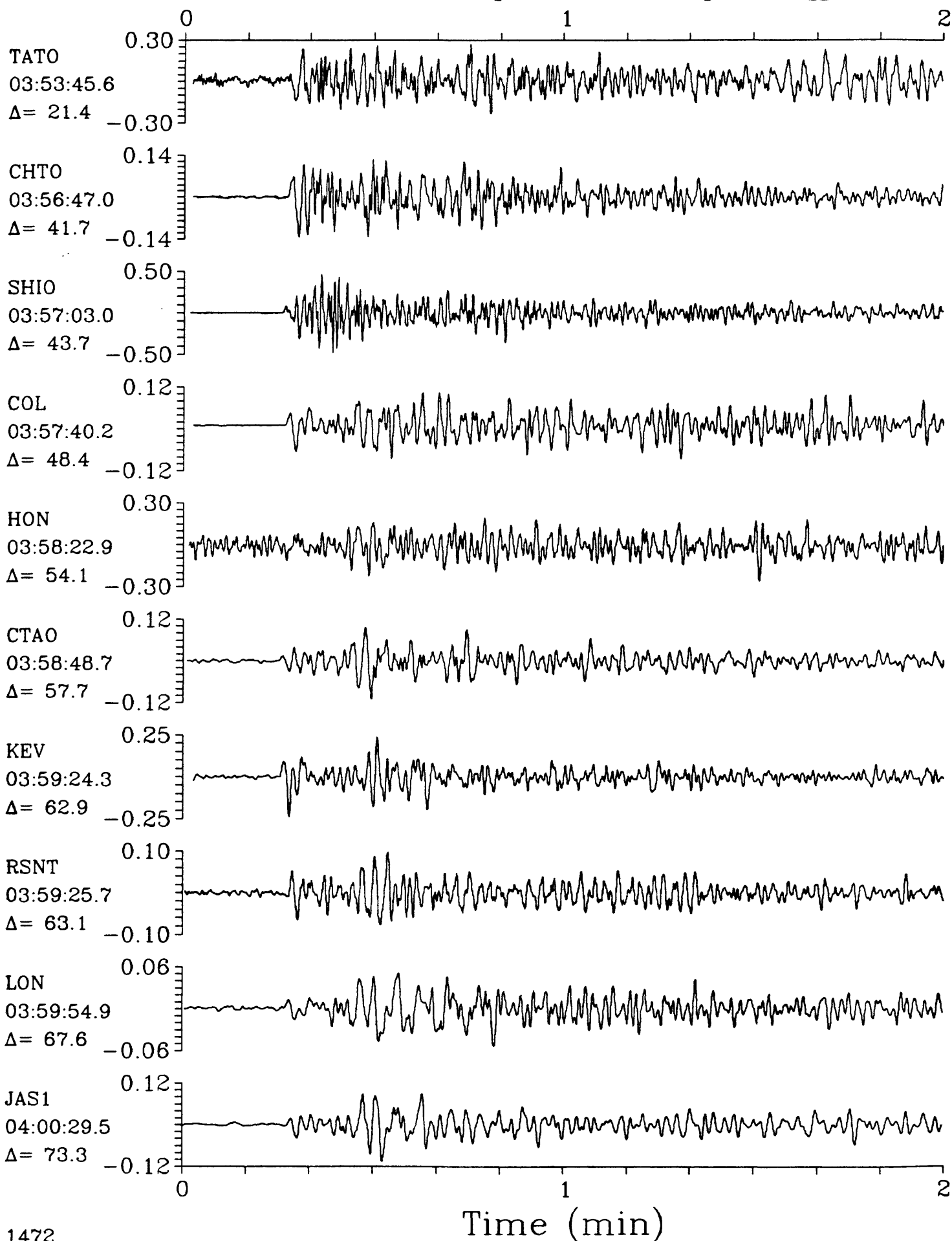
Near East Coast of Honshu, Japan



SPZ

12 August 1985 03:49:17.98

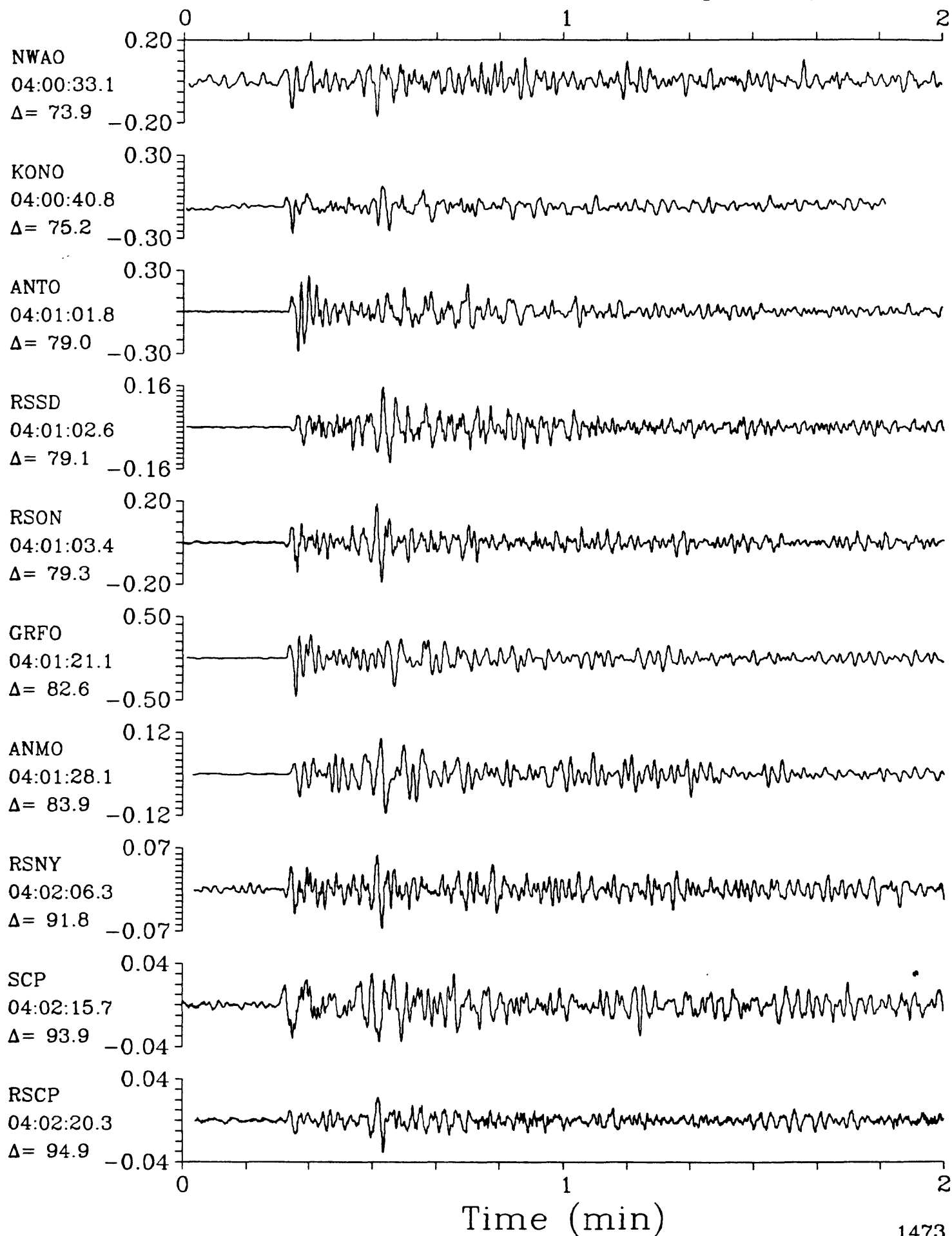
SPZ

Near East Coast of Honshu, Japan $h=51.1$ $m_b=6.0$ $M_{SZ}=6.3$ 

SPZ

12 August 1985 03:49:17.98

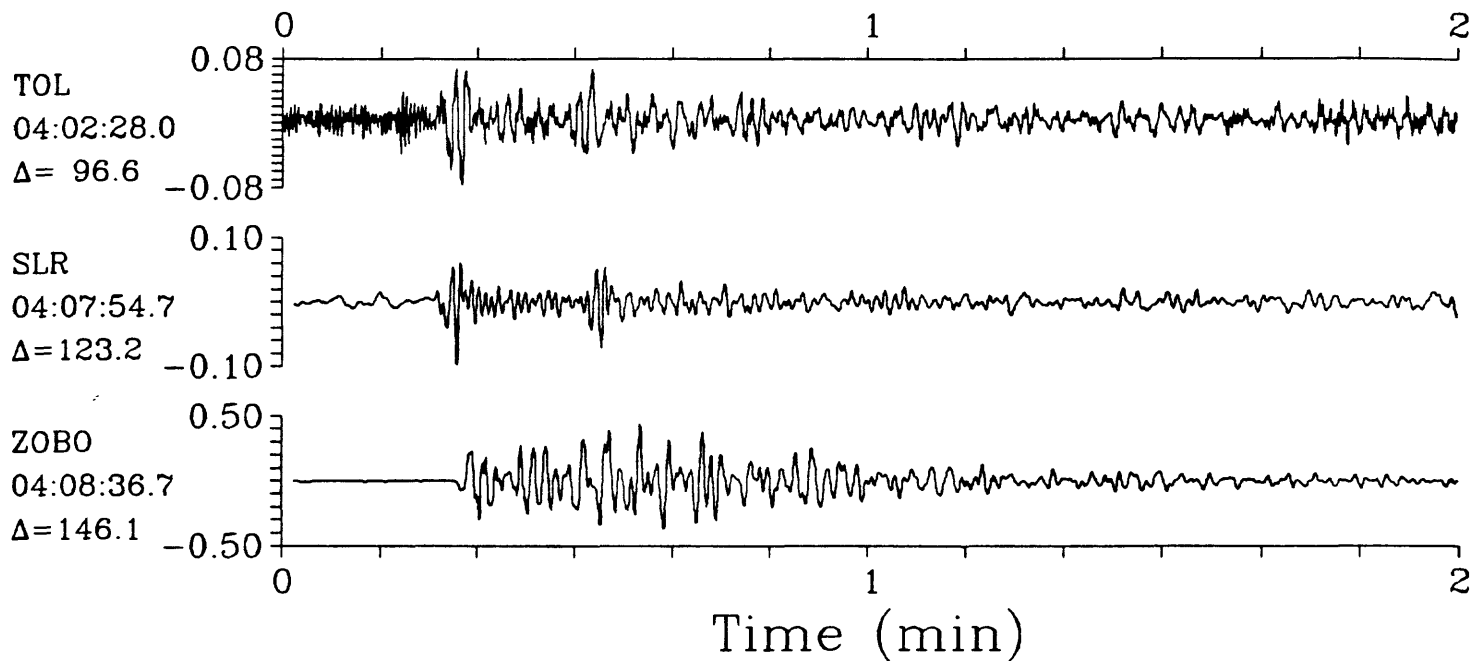
SPZ

Near East Coast of Honshu, Japan $h=51.1$ $m_b=6.0$ $M_{sz}=6.3$ 

SPZ

12 August 1985 03:49:17.98

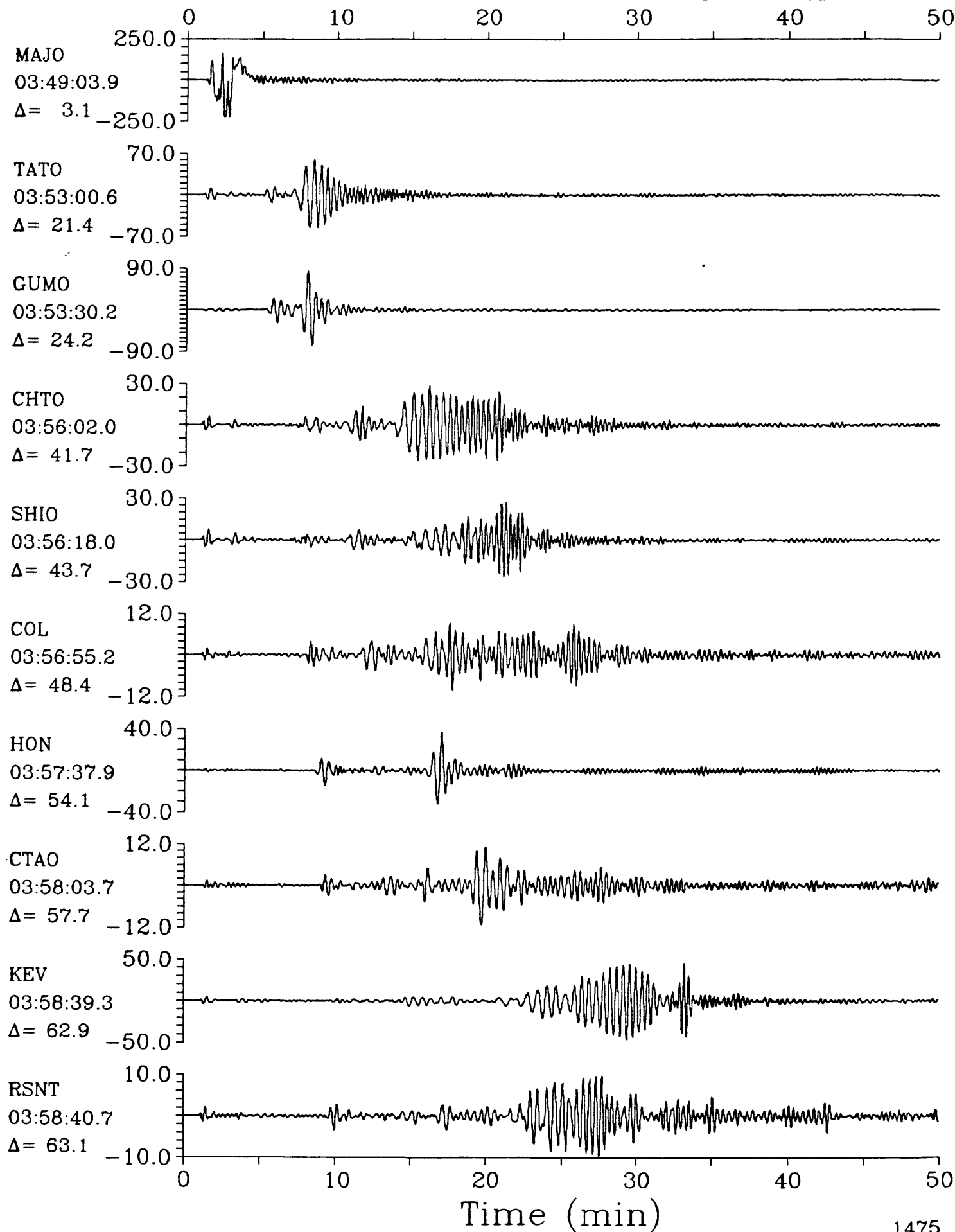
SPZ

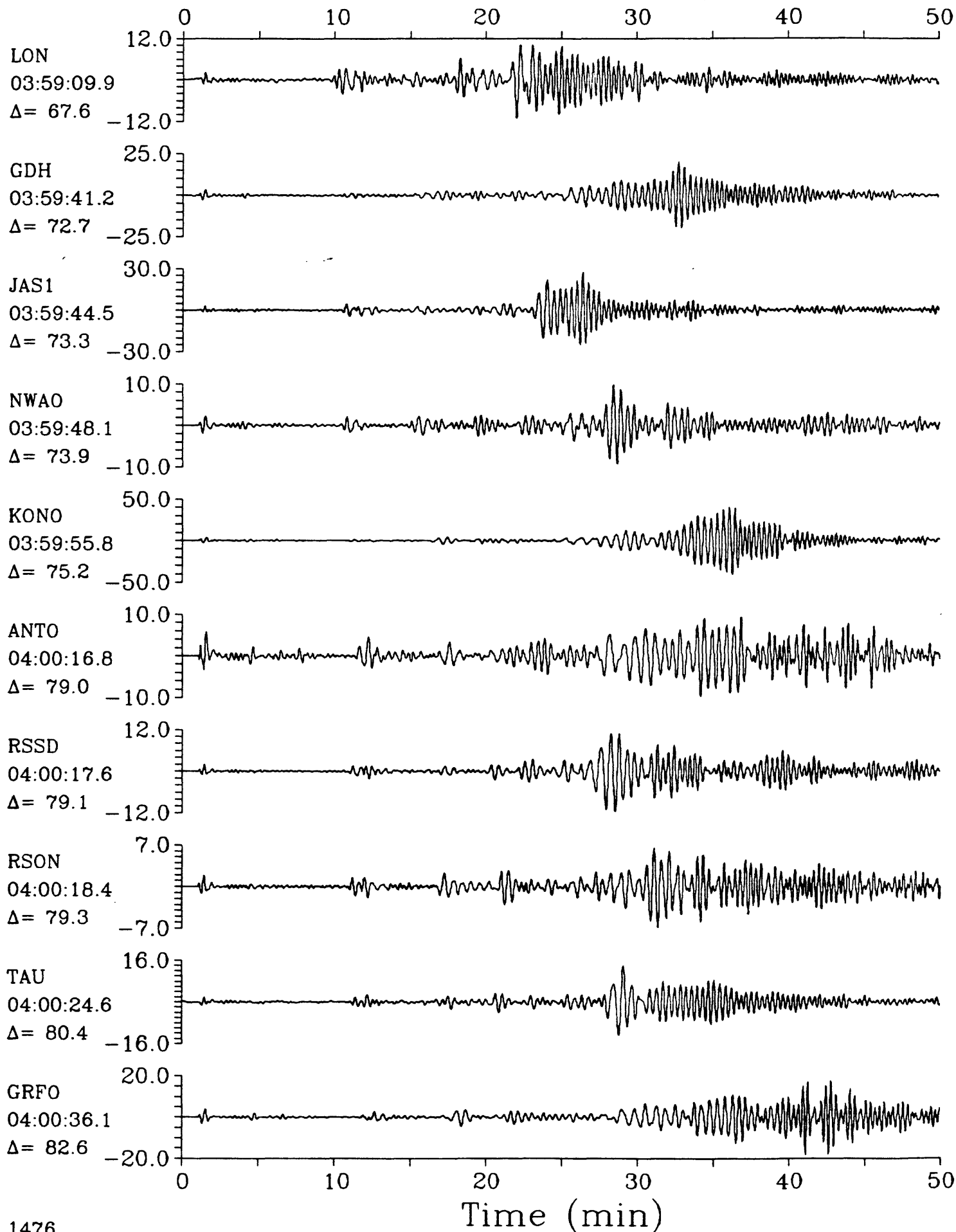
Near East Coast of Honshu, Japan $h=51.1$ $m_b=6.0$ $M_{sz}=6.3$ 

LPZ

12 August 1985 03:49:17.98

LPZ

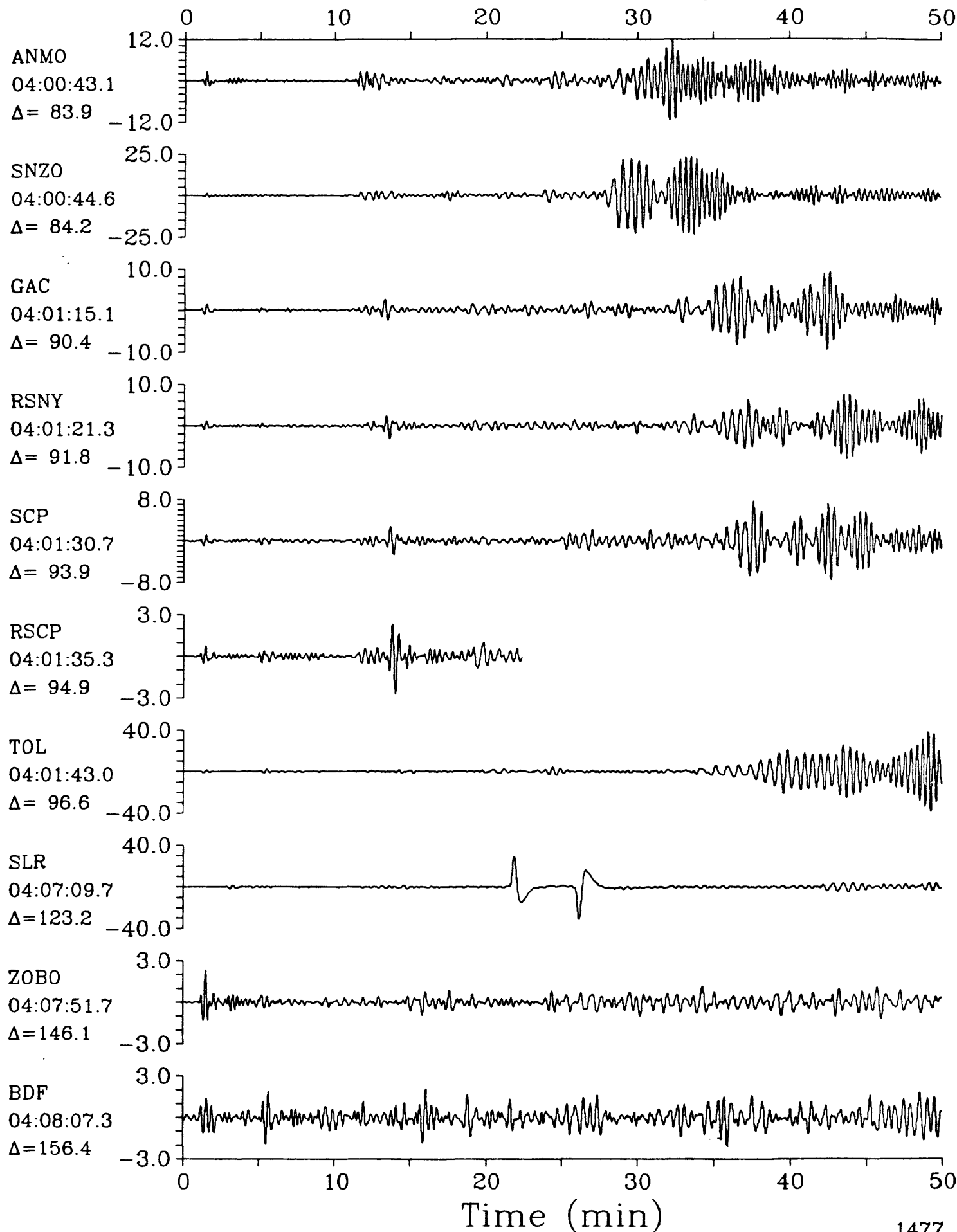
Near East Coast of Honshu, Japan $h=51.1$ $m_b=6.0$ $M_{sz}=6.3$ 



LPZ

12 August 1985 03:49:17.98

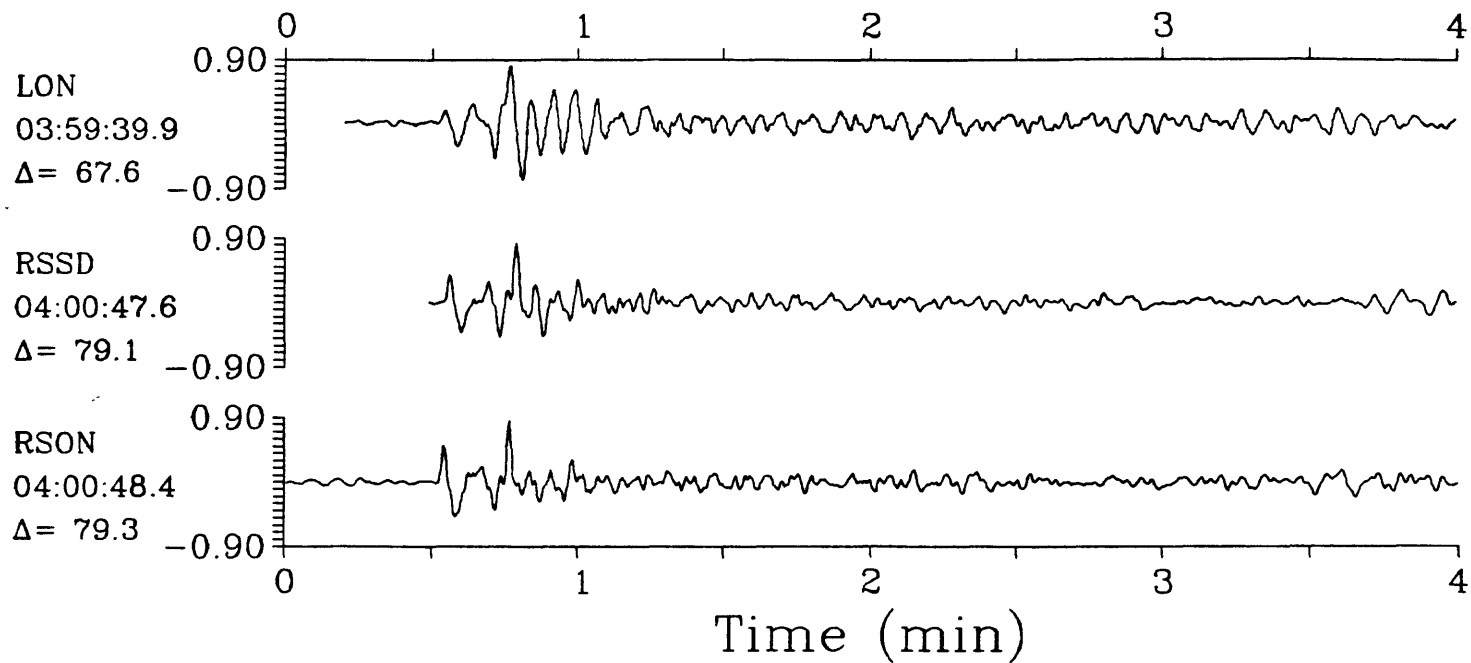
LPZ

Near East Coast of Honshu, Japan $h=51.1$ $m_b=6.0$ $M_{sz}=6.3$ 

IPZ

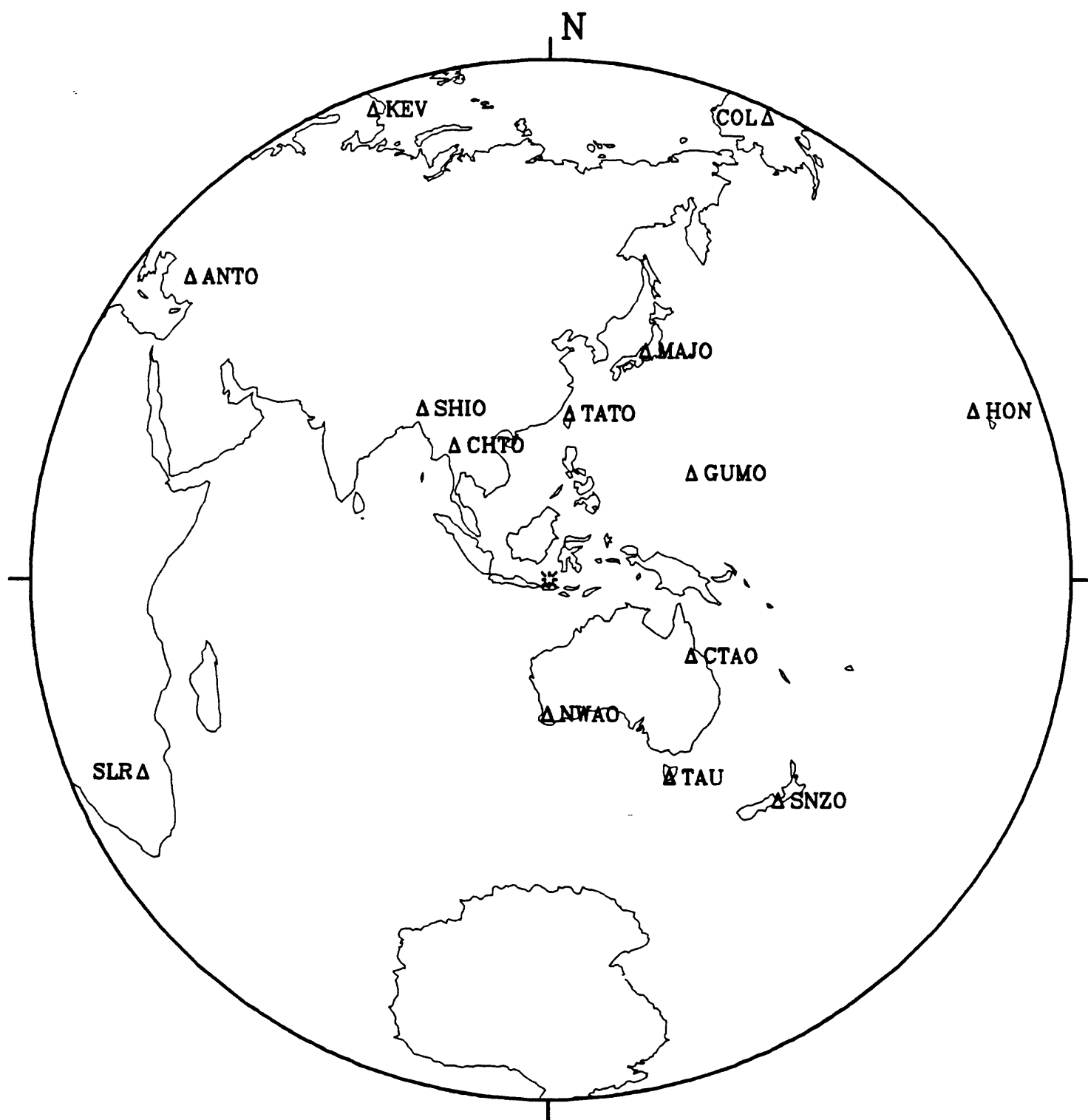
12 August 1985 03:49:17.98

IPZ

Near East Coast of Honshu, Japan $h=51.1$ $m_b=6.0$ $M_{sz}=6.3$ 

12 August 1985 04:18:57.96

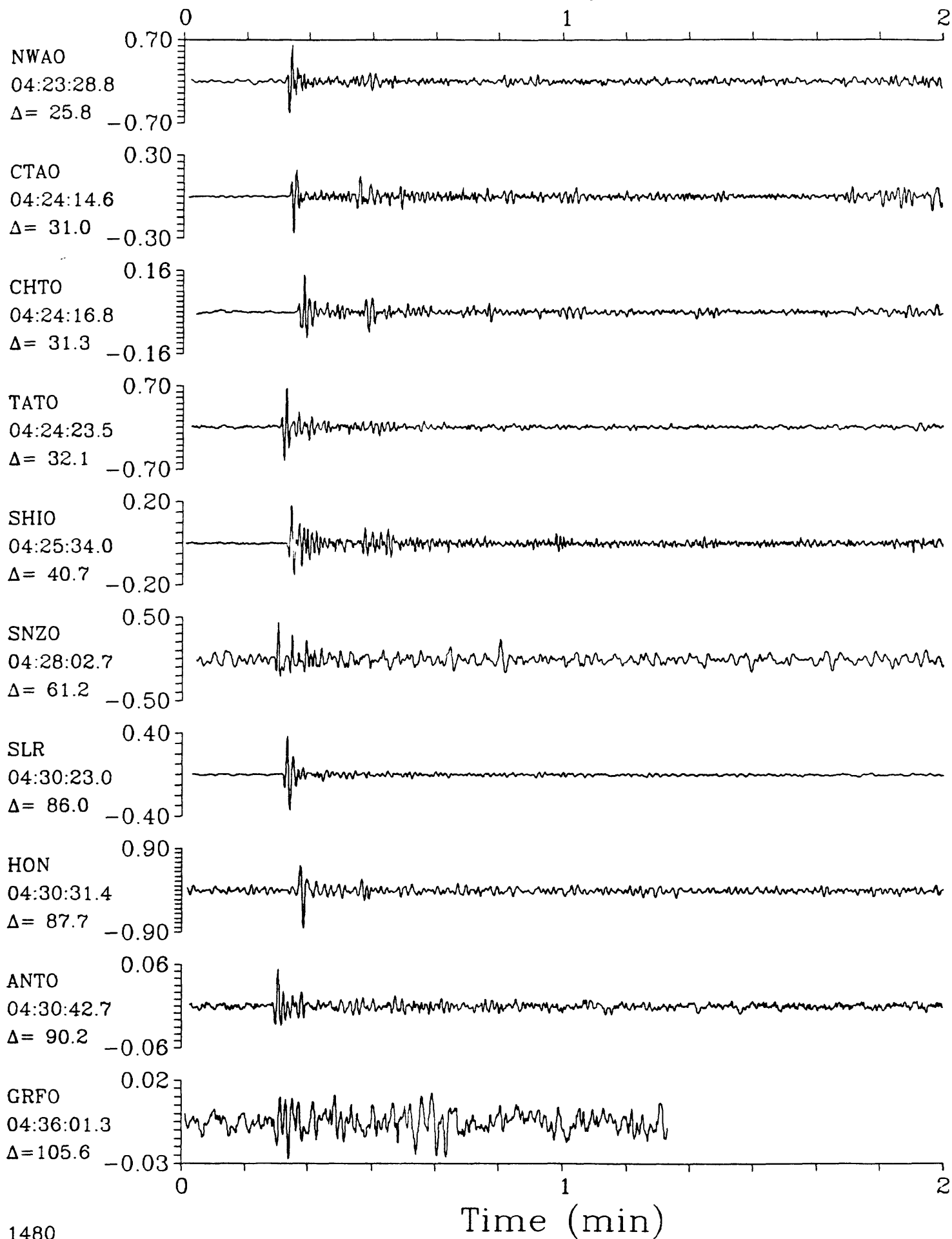
Bali Sea



SPZ

12 August 1985 04:18:57.96

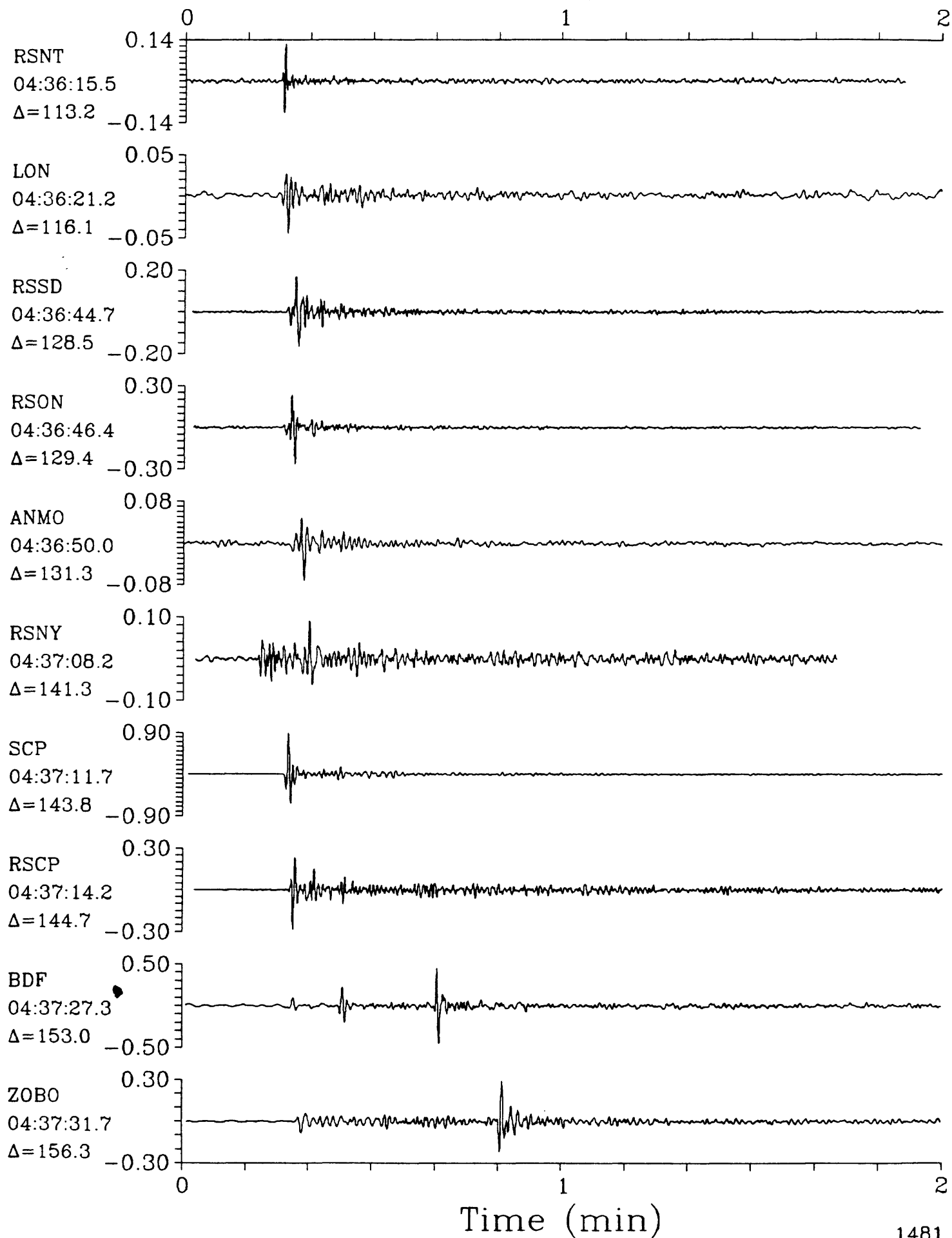
SPZ

Bali Sea $h=583.7$ $m_b=5.6$ 

SPZ

12 August 1985 04:18:57.96

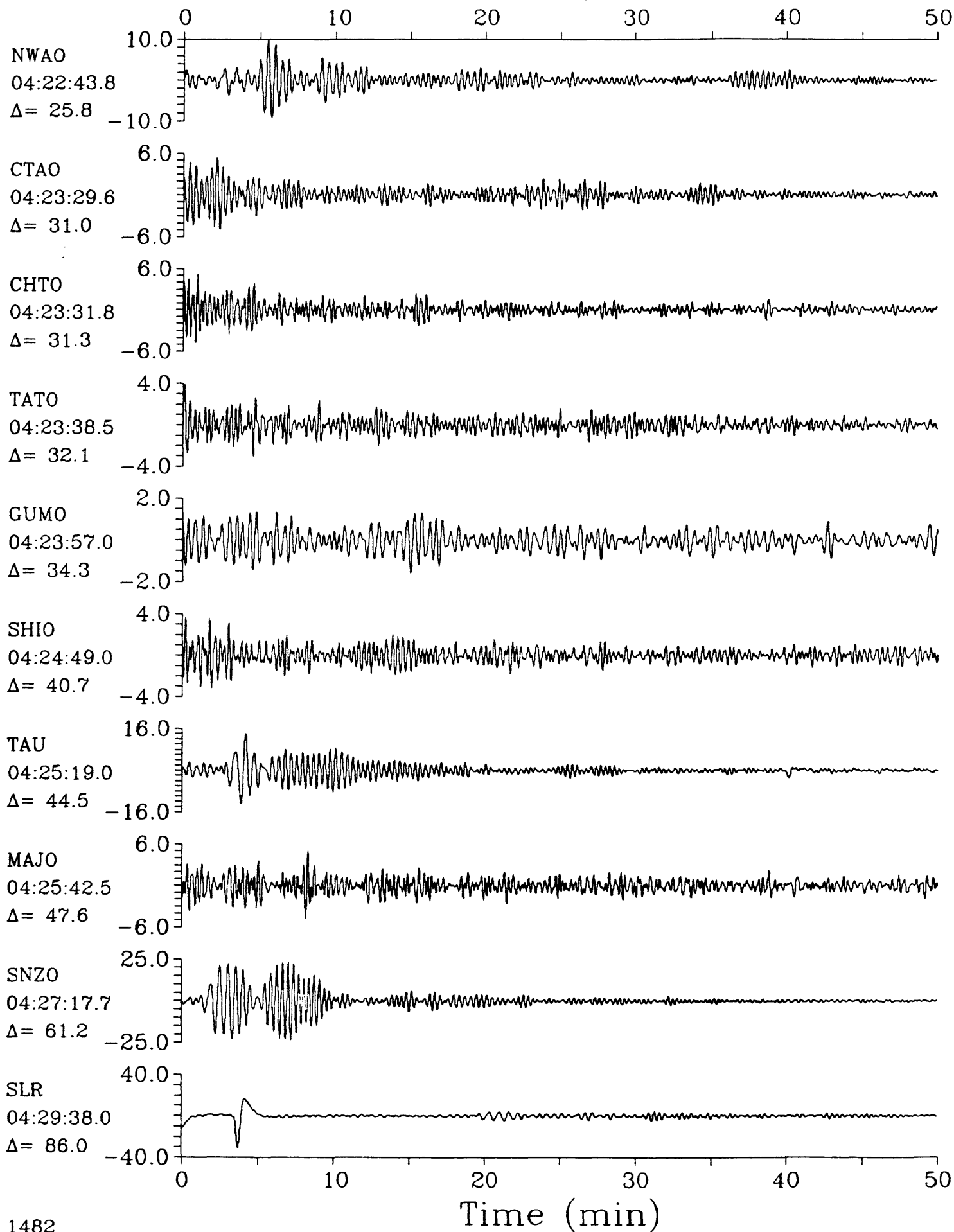
SPZ

Bali Sea $h=583.7$ $m_b=5.6$ 

LPZ

12 August 1985 04:18:57.96

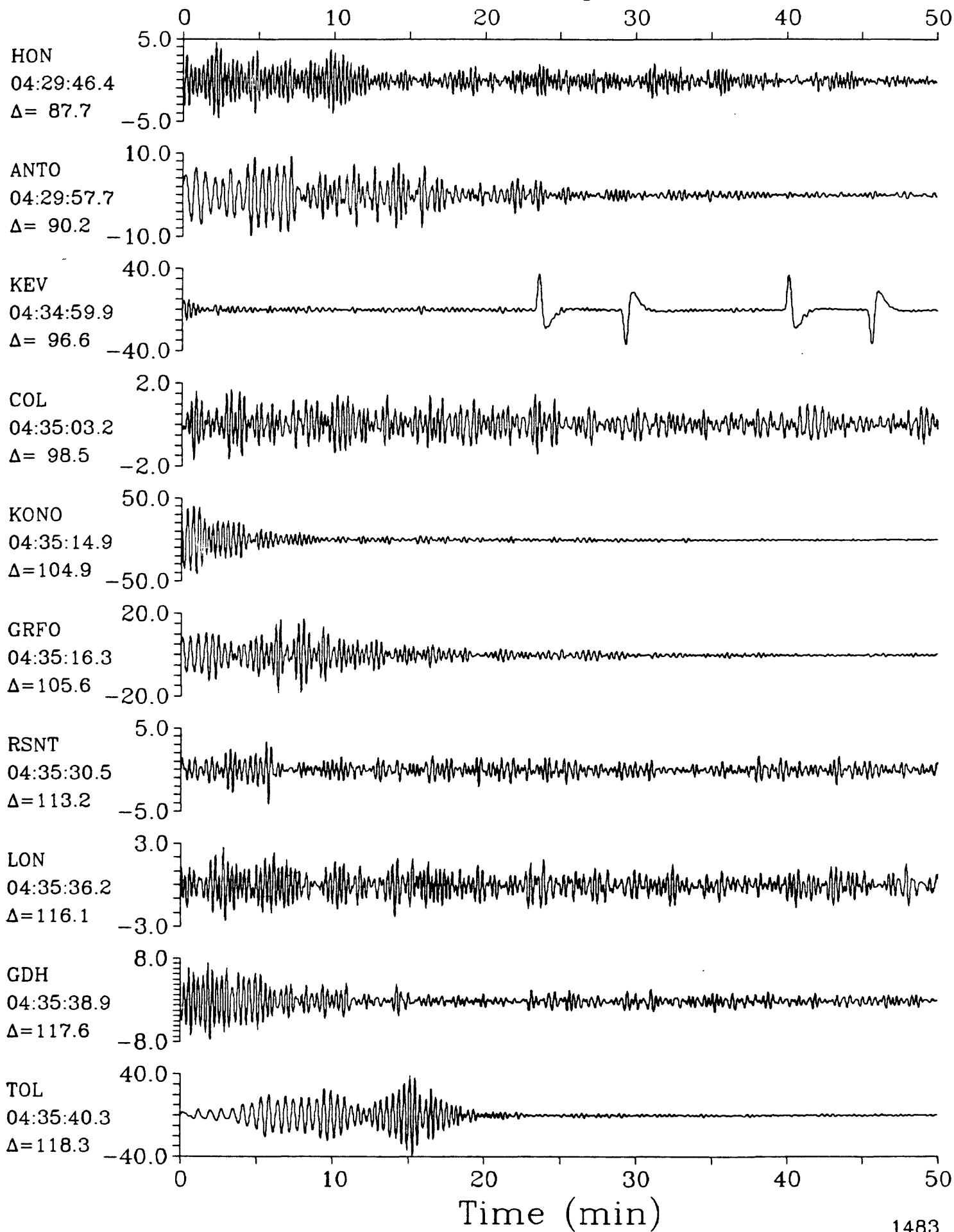
LPZ

Bali Sea $h=583.7$ $m_b=5.6$ 

LPZ

12 August 1985 04:18:57.96
Bali Sea $h=583.7$ $m_b=5.6$

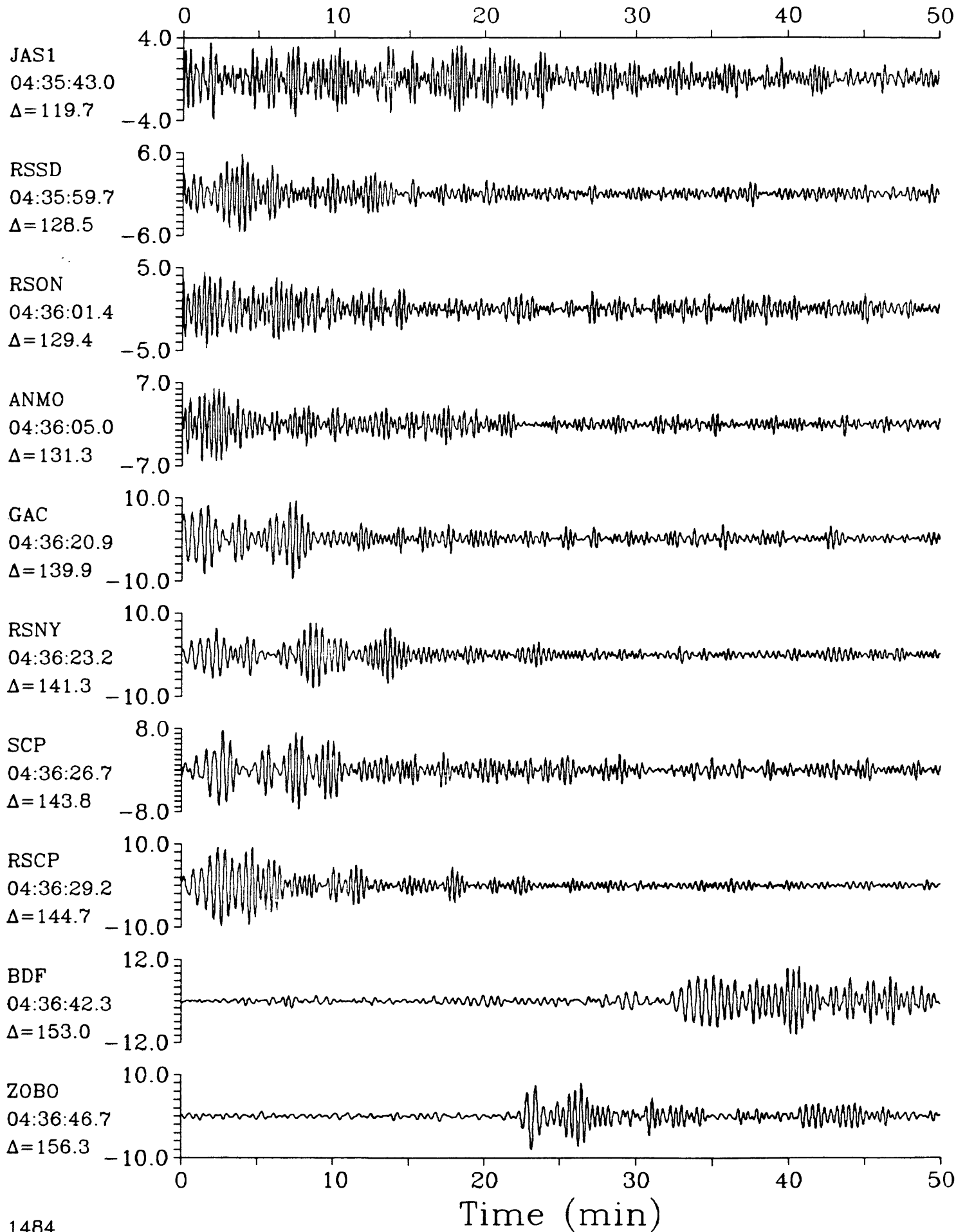
LPZ



LPZ

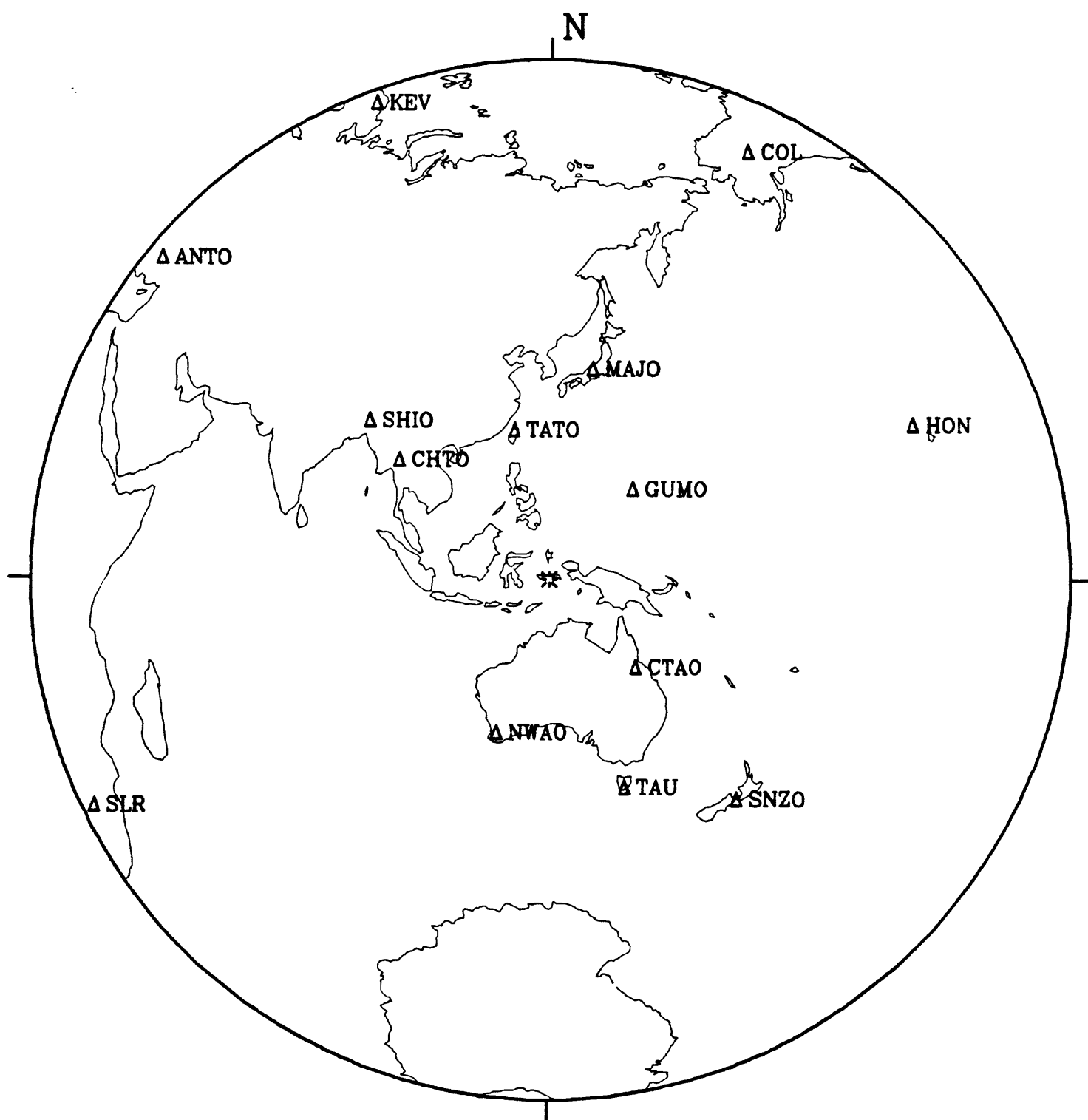
12 August 1985 04:18:57.96

LPZ

Bali Sea $h=583.7$ $m_b=5.6$ 

13 August 1985 07:31:31.57

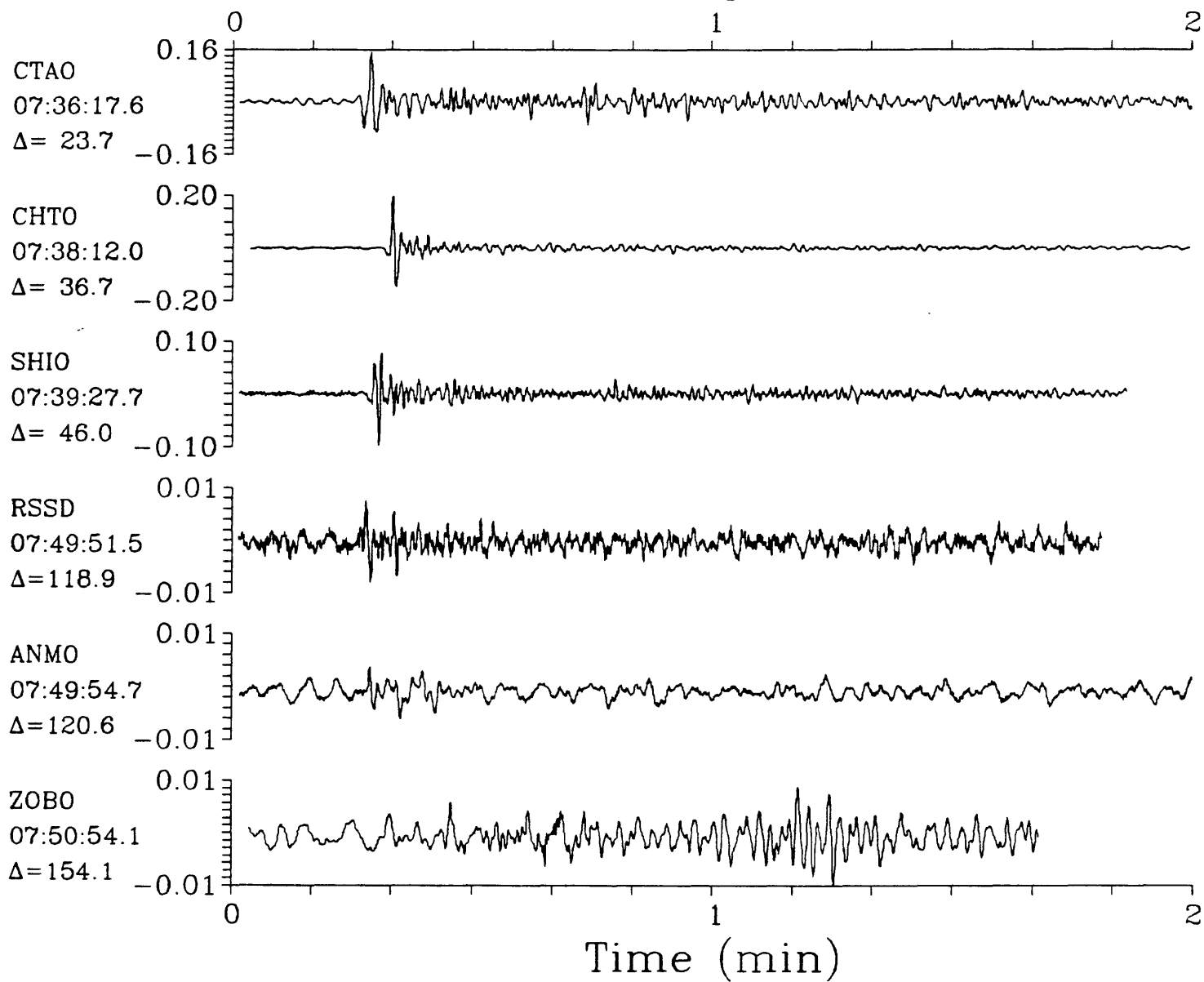
Ceram



SPZ

13 August 1985 07:31:31.57

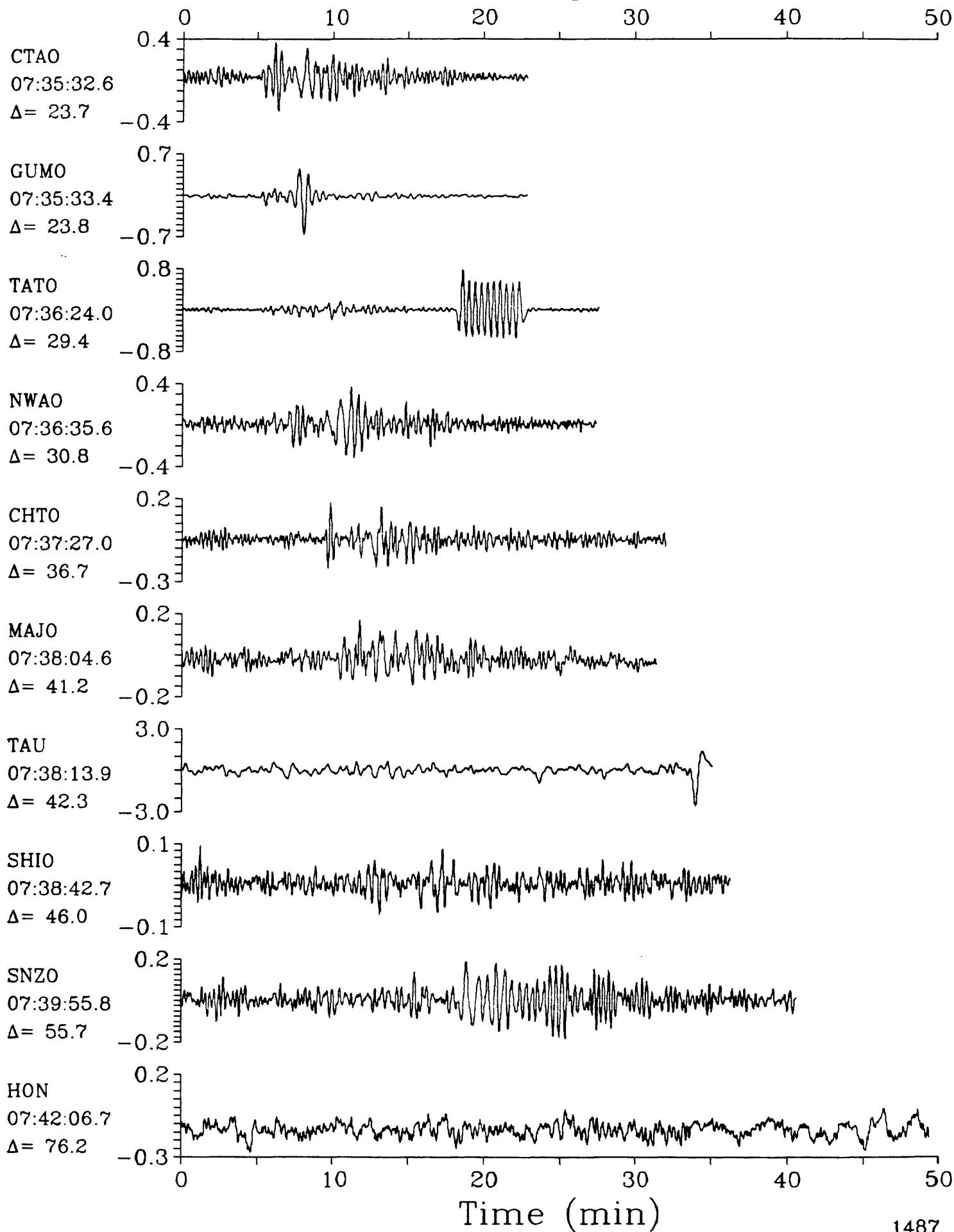
SPZ

Ceram $h=121.4$ $m_b=5.6$ 

LPZ

13 August 1985 07:31:31.57

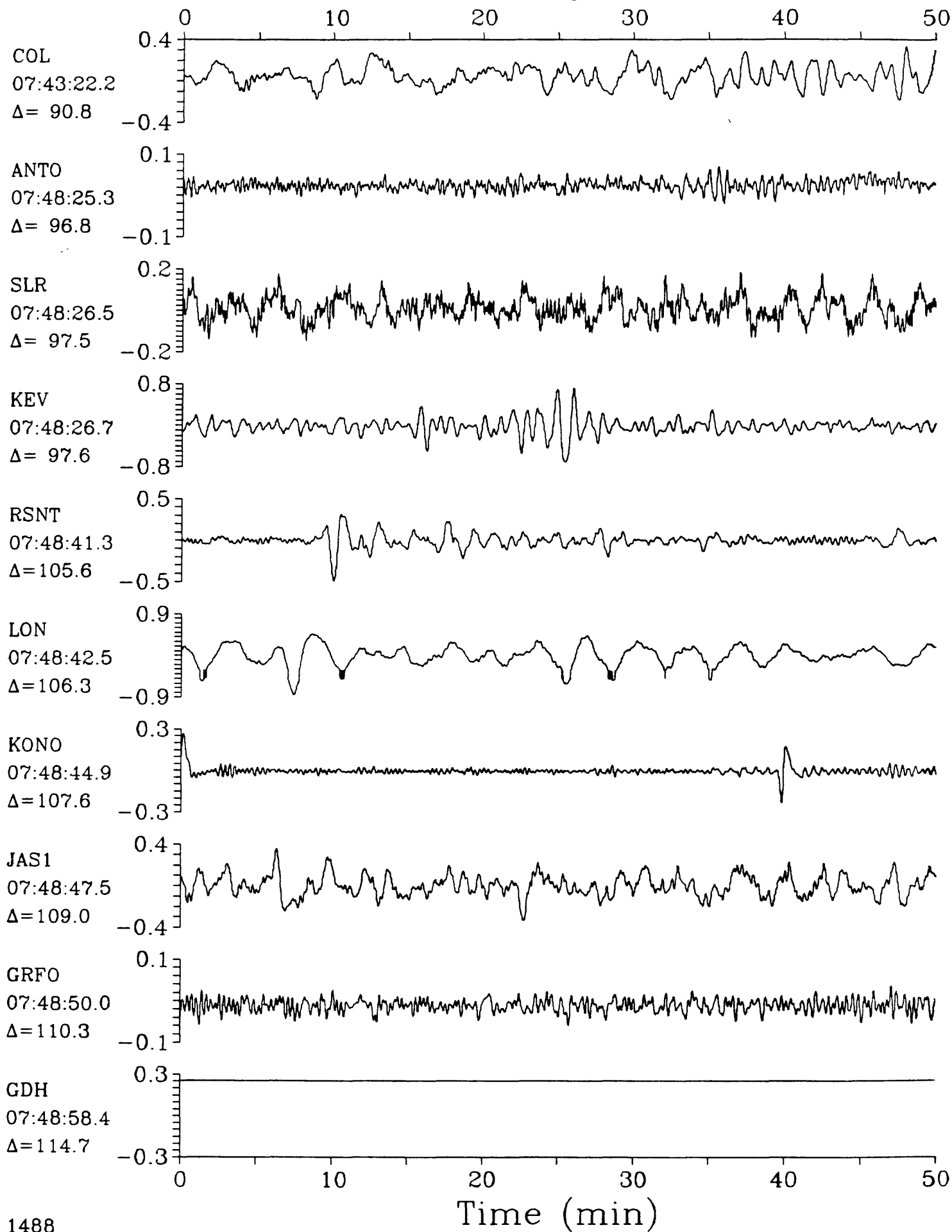
LPZ

Ceram $h=121.4$ $m_b=5.6$ 

LPZ

13 August 1985 07:31:31.57

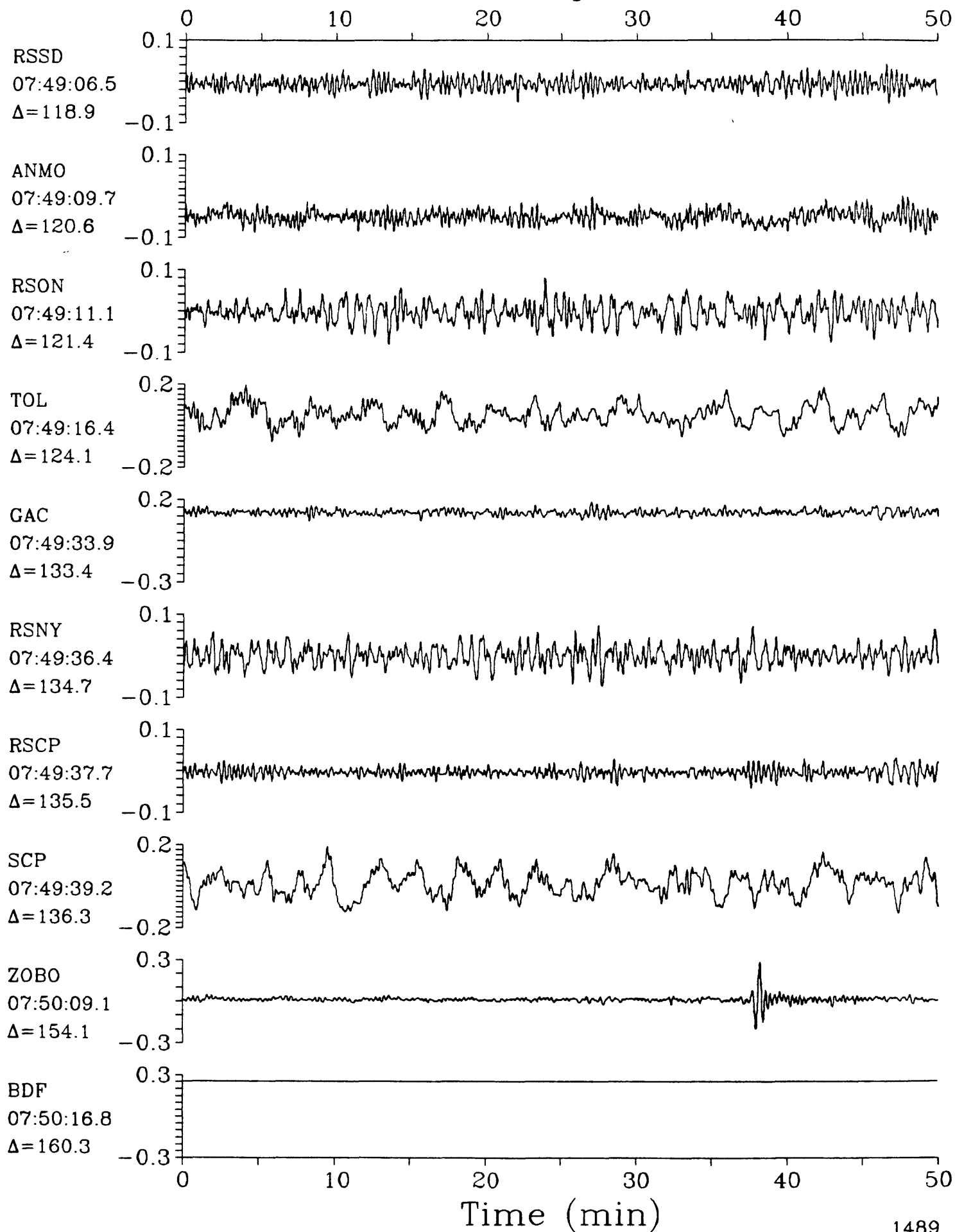
LPZ

Ceram $h=121.4$ $m_b=5.6$ 

LPZ

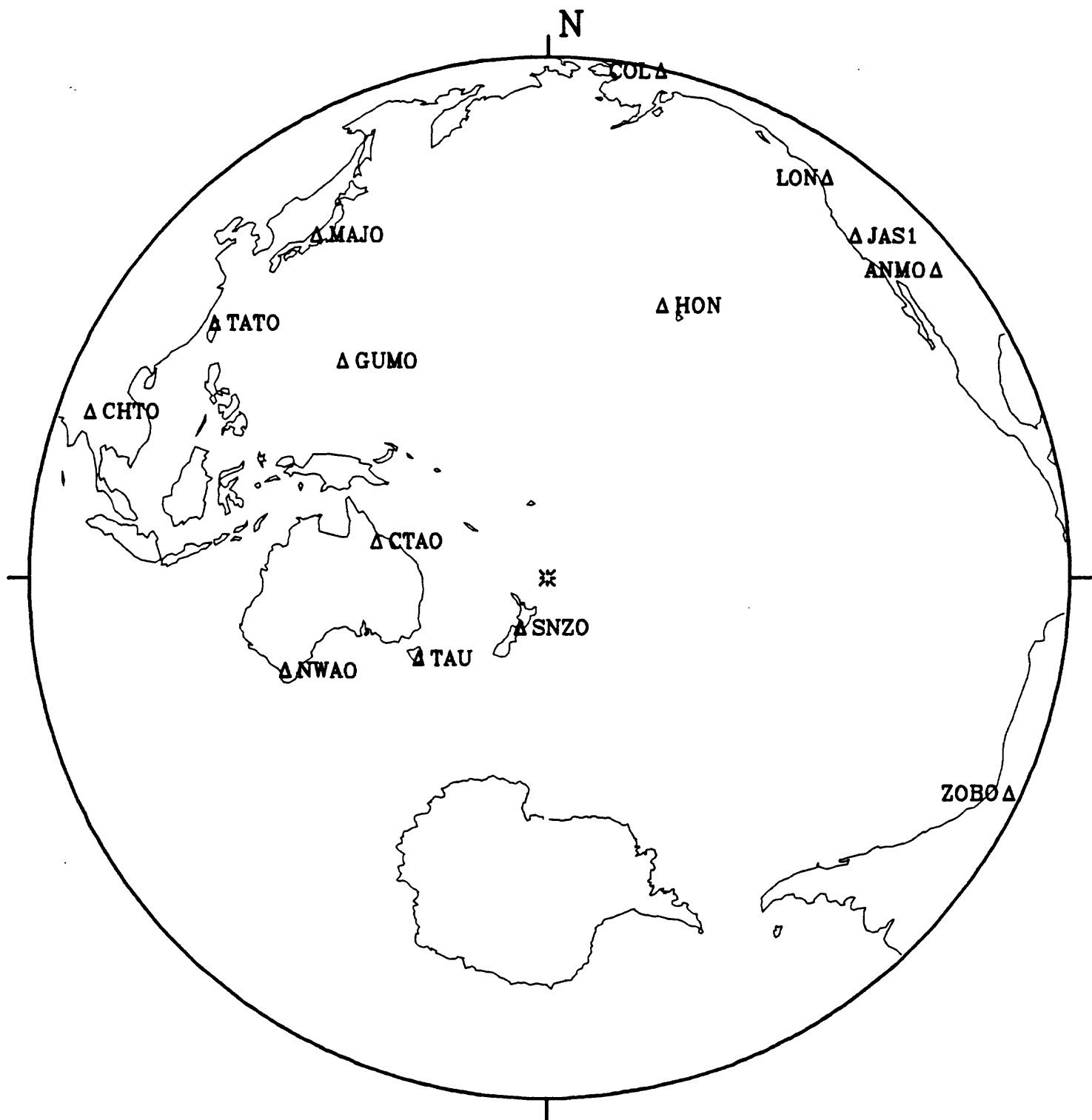
13 August 1985 07:31:31.57

LPZ

Ceram $h=121.4$ $m_b=5.6$ 

14 August 1985 04:10:41.08

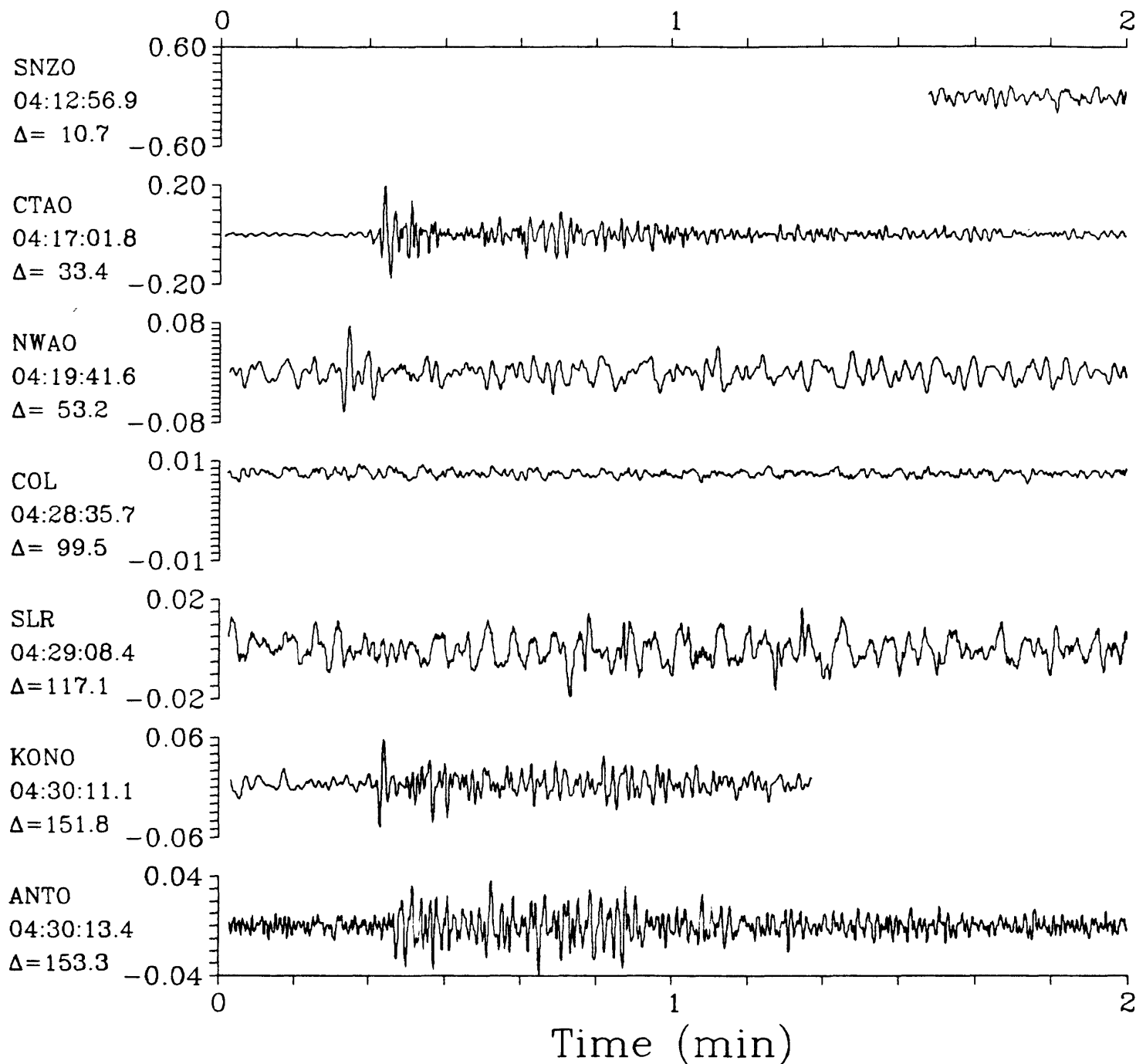
Kermadec Islands Region



SPZ

14 August 1985 04:10:41.08

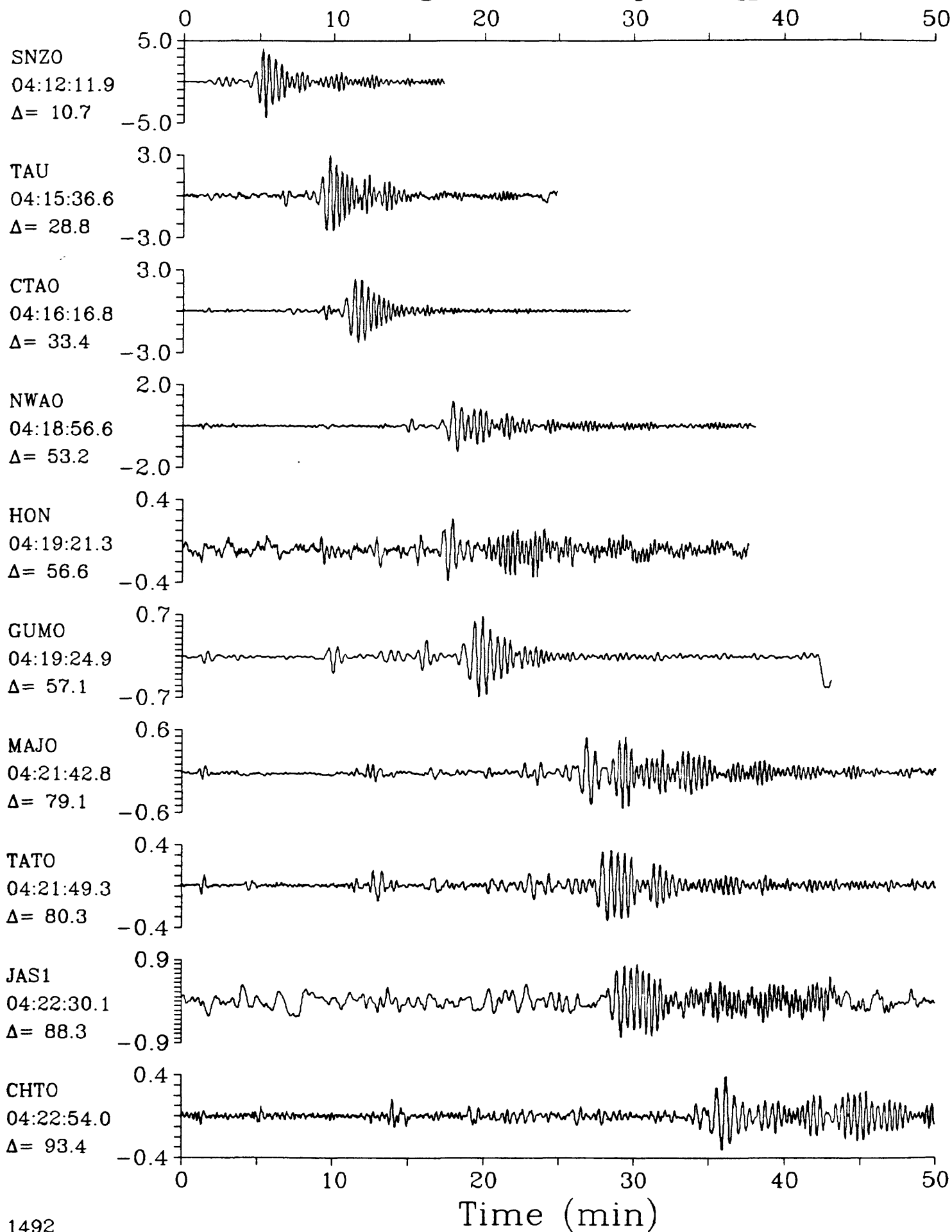
SPZ

Kermadec Islands Region $h=33.0$ $m_b=5.5$ $M_{SZ}=4.9$ 

LPZ

14 August 1985 04:10:41.08

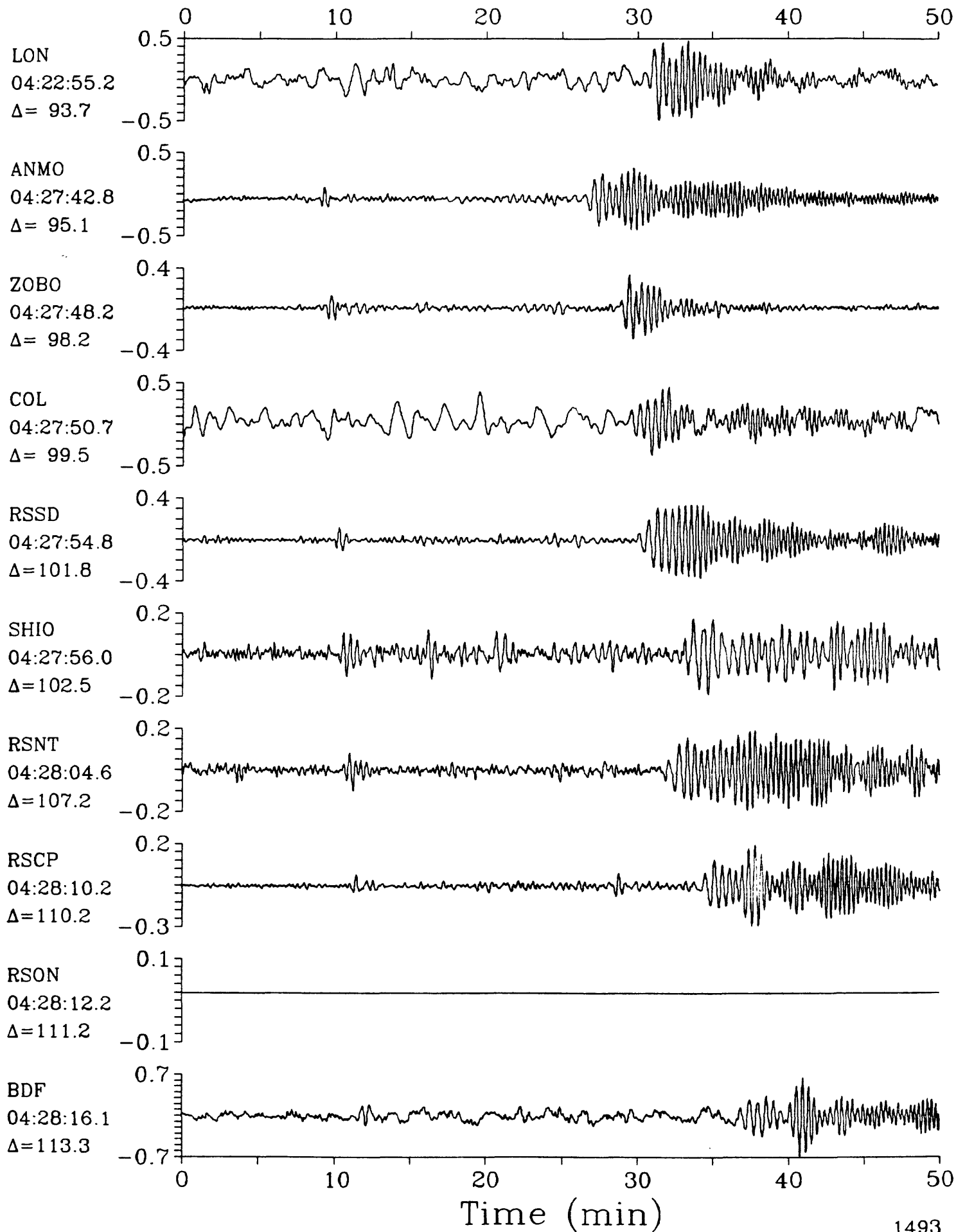
LPZ

Kermadec Islands Region $h=33.0$ $m_b=5.5$ $M_{sz}=4.9$ 

LPZ

14 August 1985 04:10:41.08

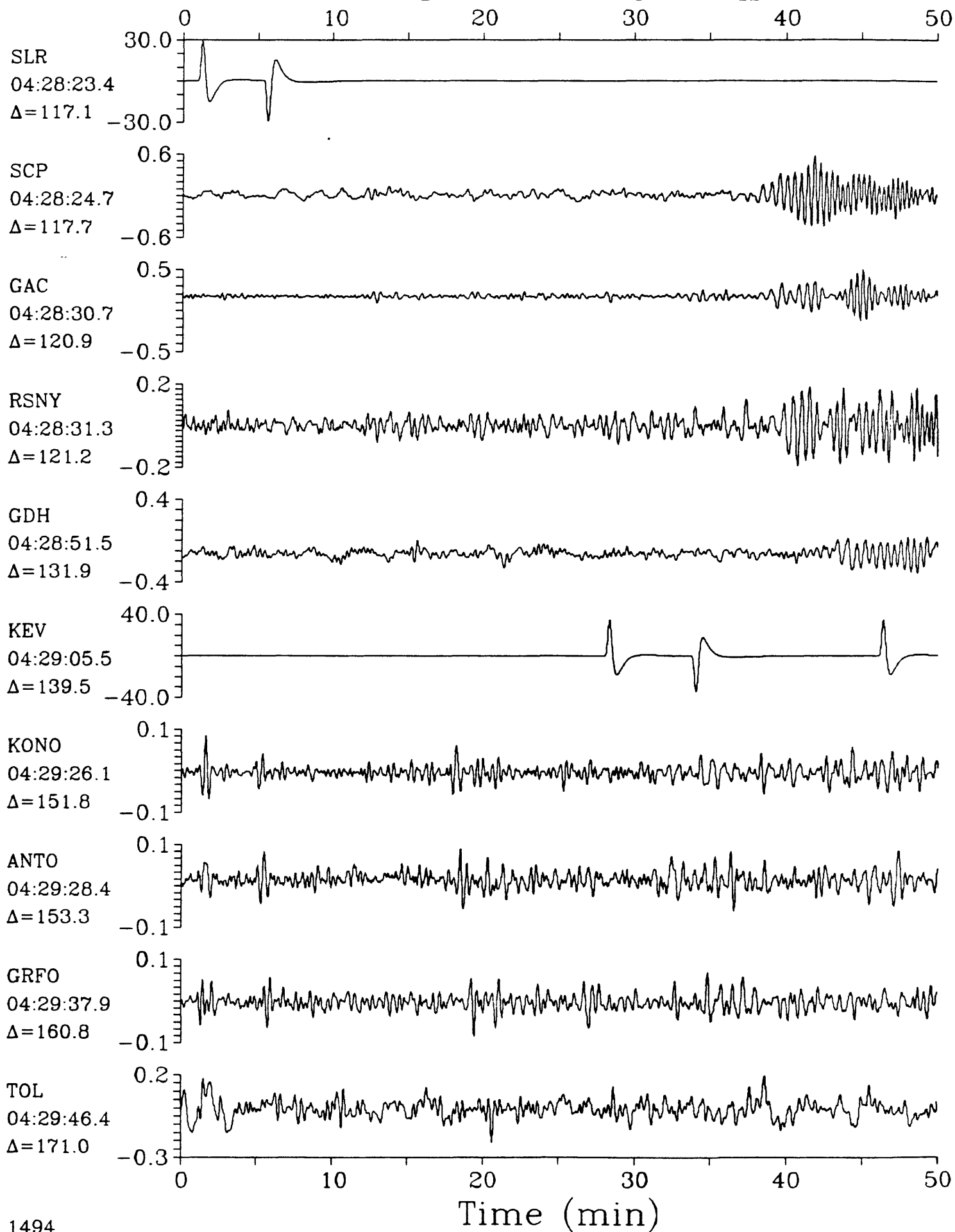
LPZ

Kermadec Islands Region $h=33.0$ $m_b=5.5$ $M_{SZ}=4.9$ 

LPZ

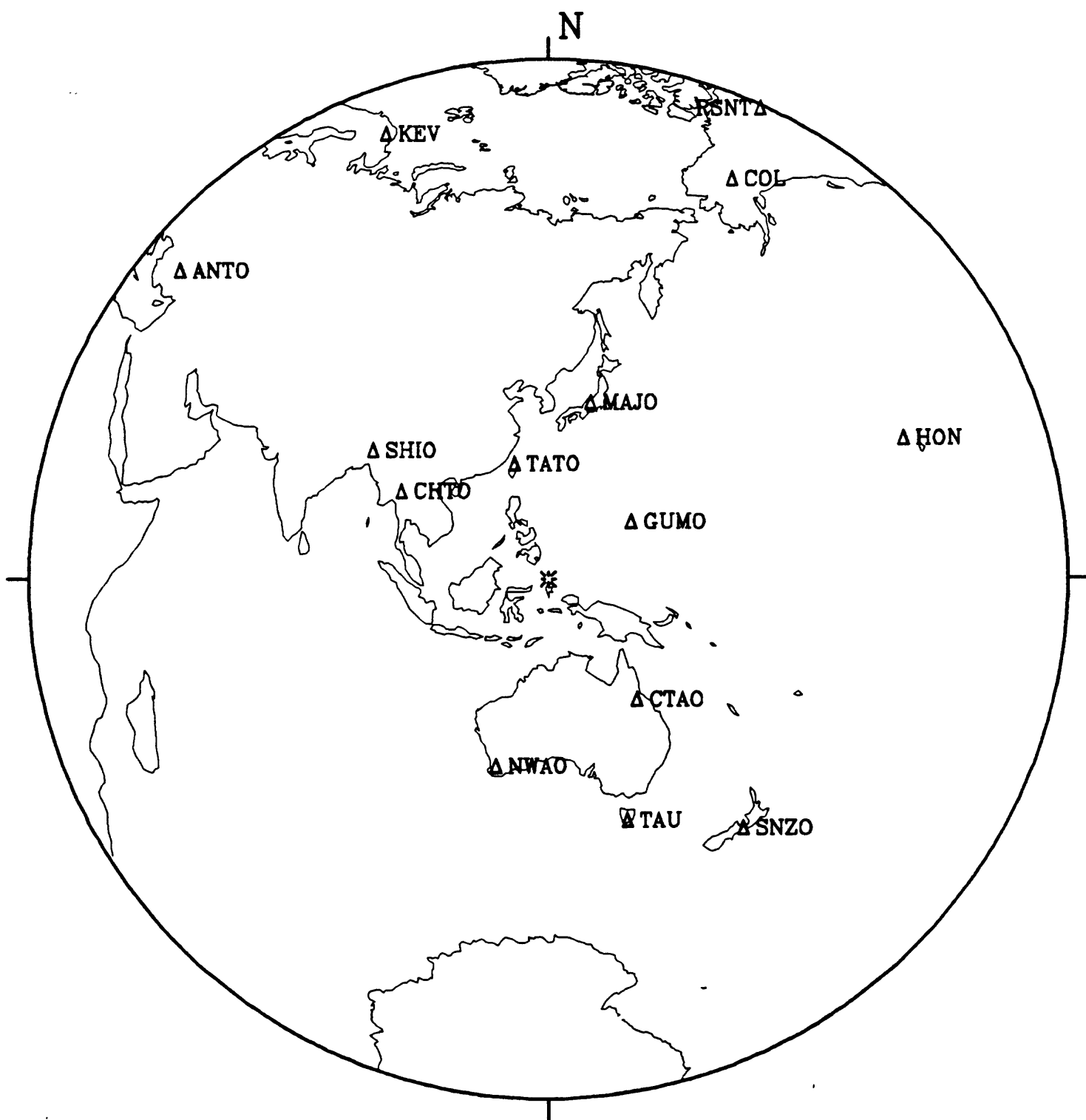
14 August 1985 04:10:41.08

LPZ

Kermadec Islands Region $h=33.0$ $m_b=5.5$ $M_{sz}=4.9$ 

18 August 1985 03:48:04.17

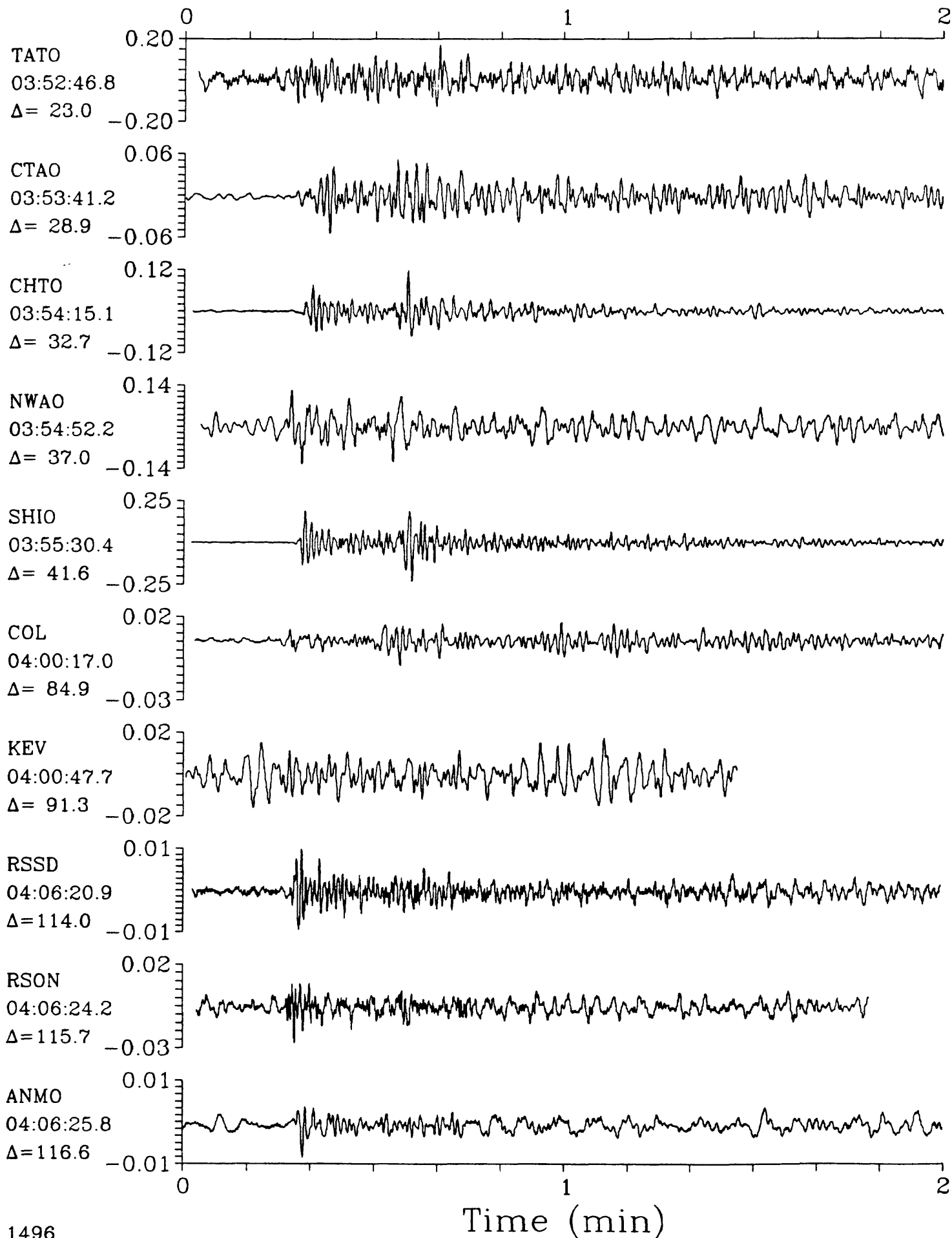
Halmahera



SPZ

18 August 1985 03:48:04.17
Halmahera $h=70.6$ $m_b=5.5$

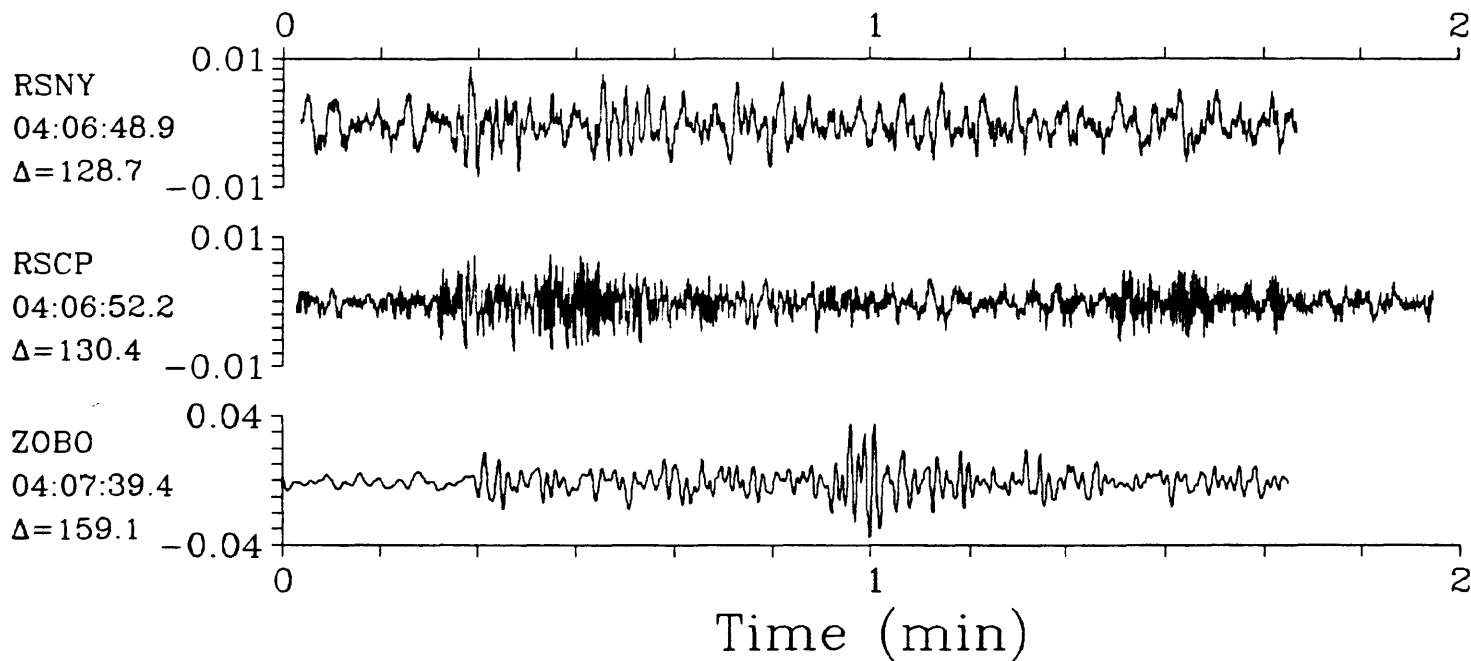
SPZ



SPZ

18 August 1985 03:48:04.17
Halmahera $h=70.6$ $m_b=5.5$

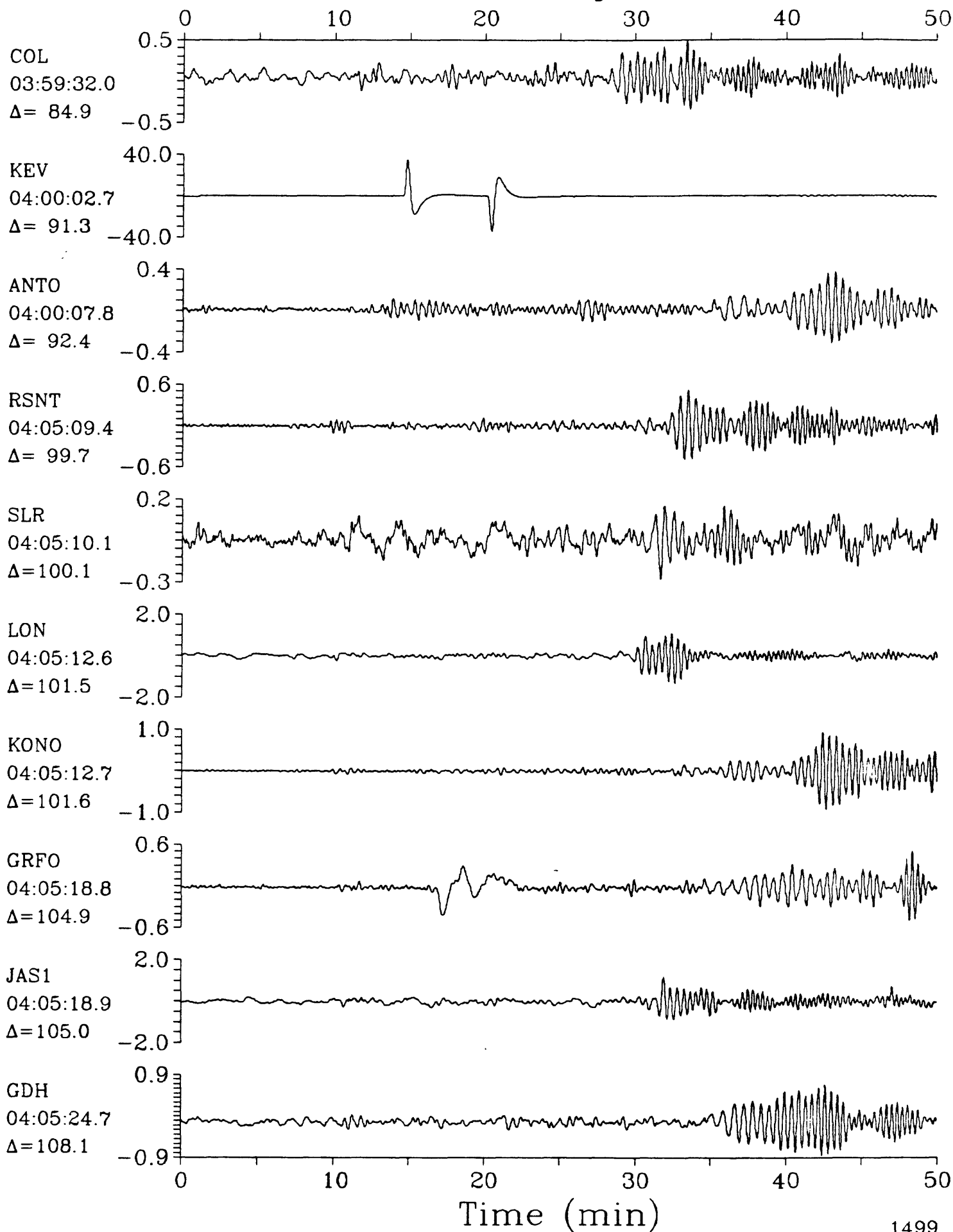
SPZ



LPZ

18 August 1985 03:48:04.17
Halmahera $h=70.6$ $m_b=5.5$

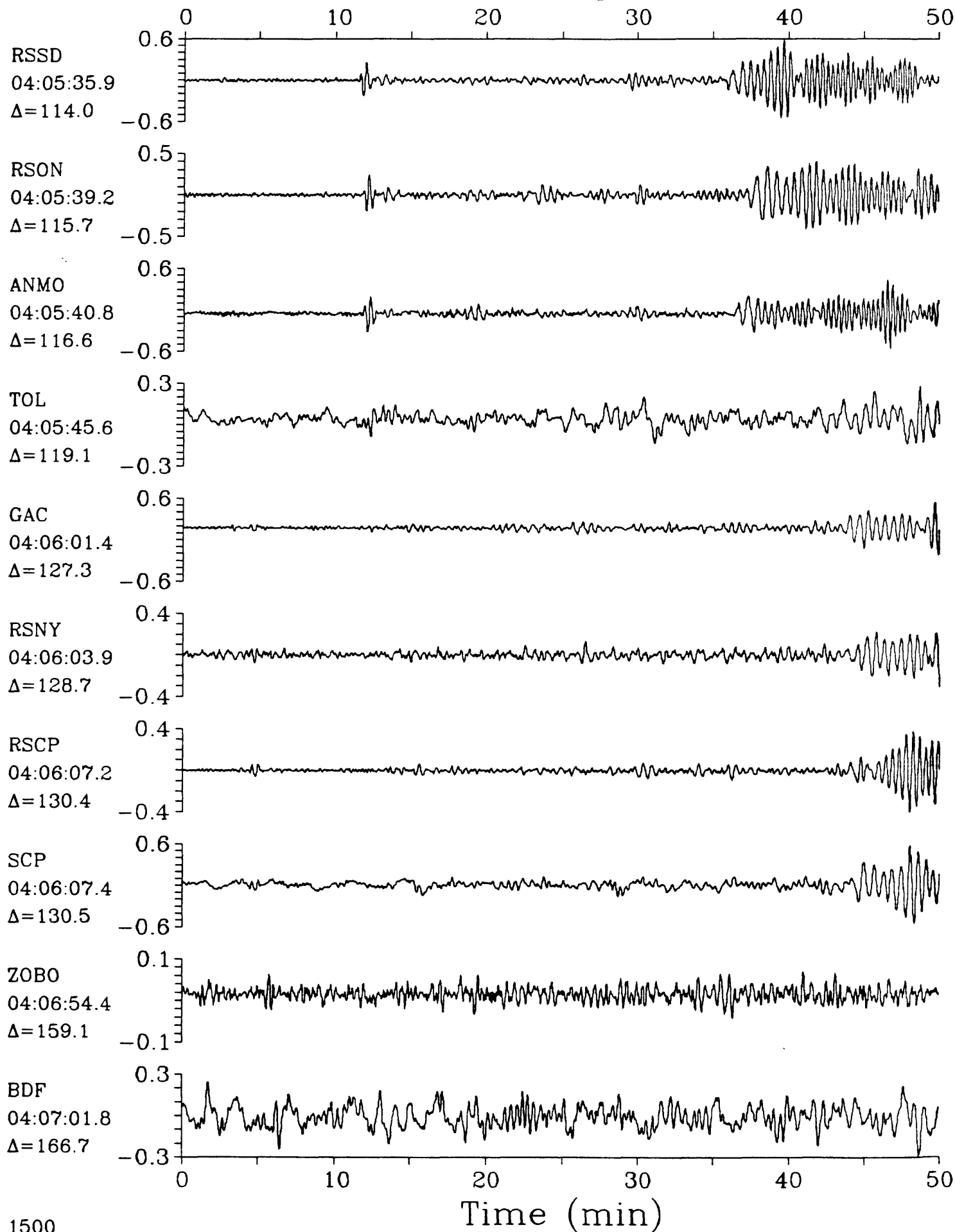
LPZ



LPZ

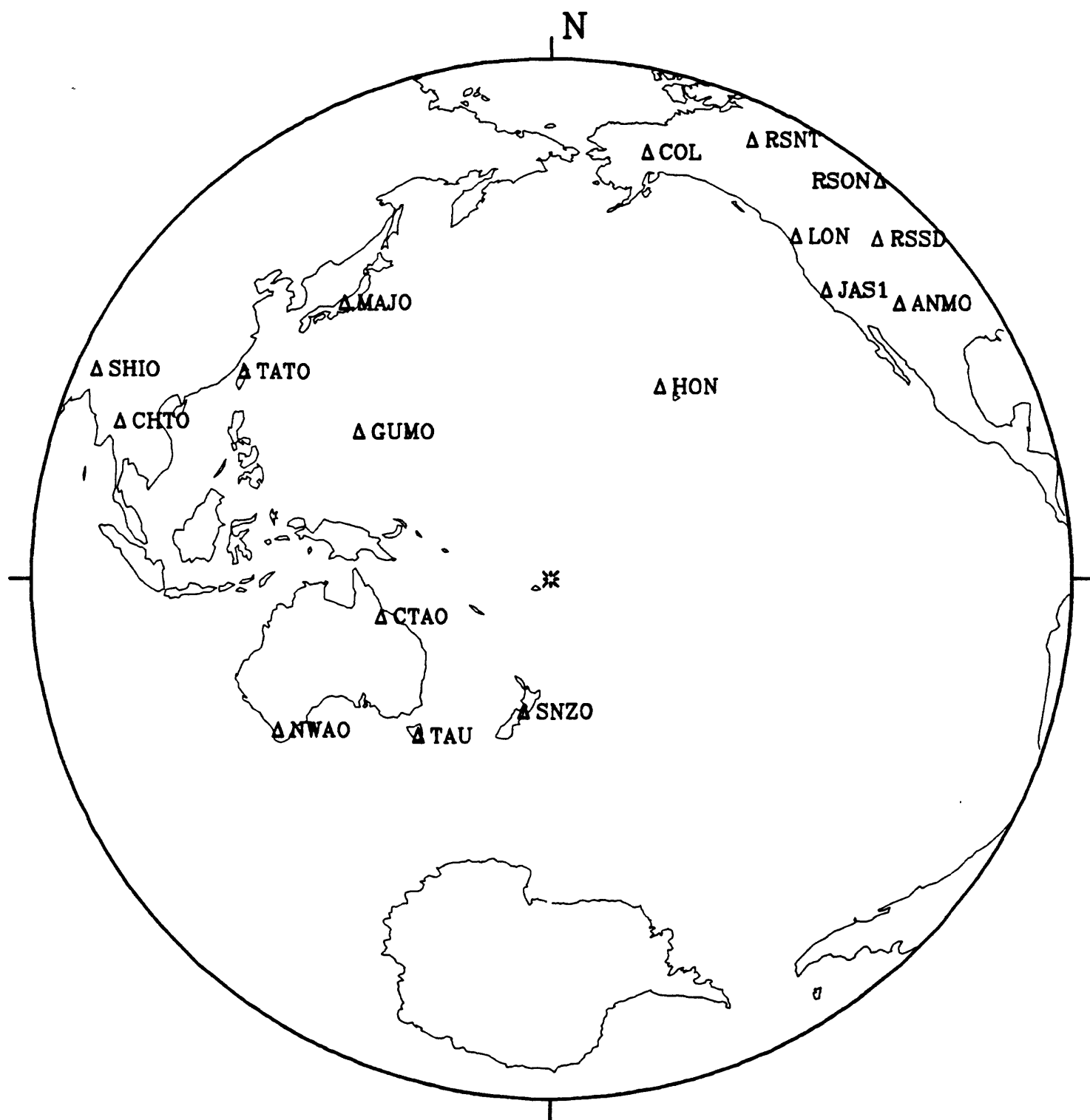
18 August 1985 03:48:04.17
Halmahera $h=70.6$ $m_b=5.5$

LPZ



21 August 1985 10:43:23.07

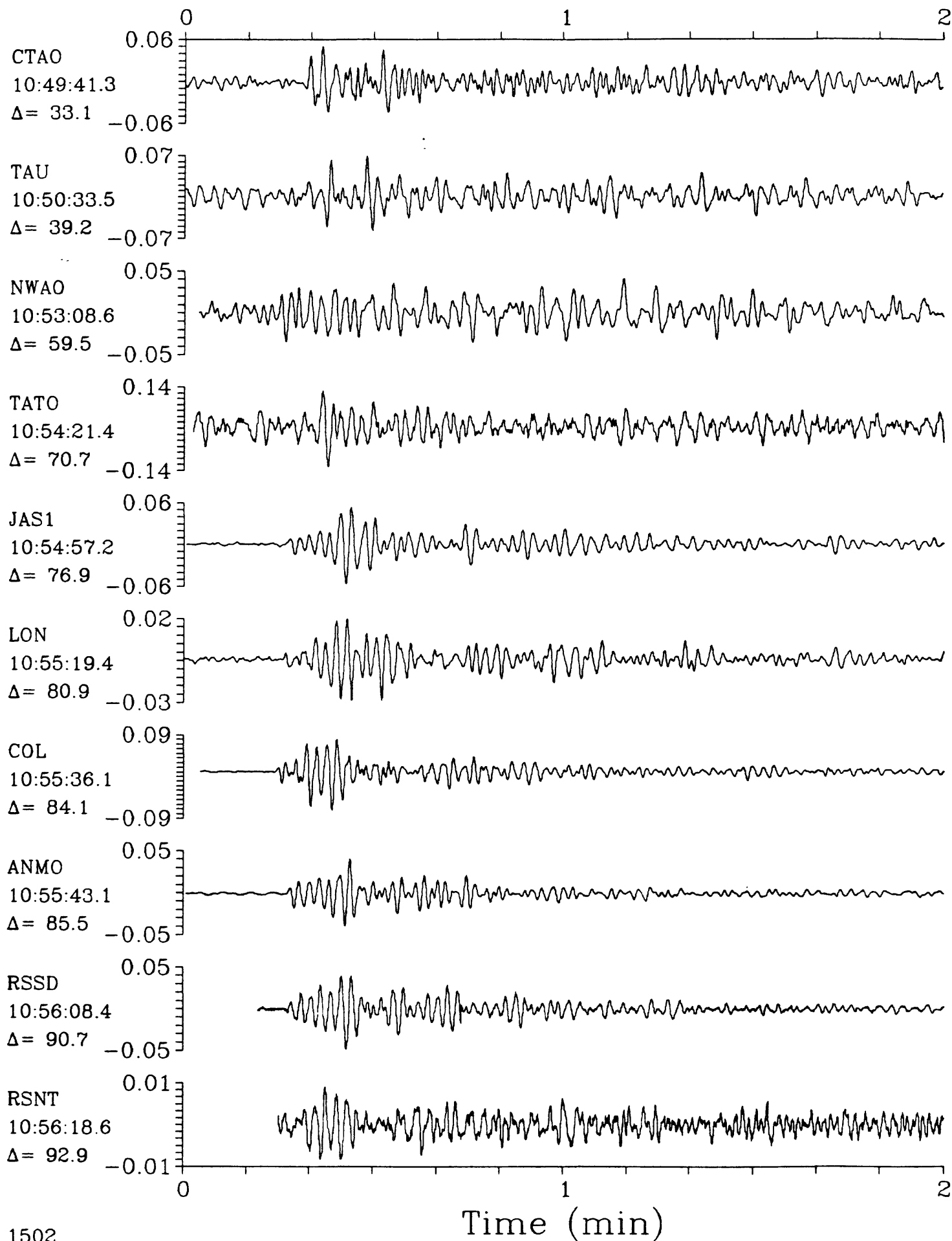
Fiji Islands Region



SPZ

21 August 1985 10:43:23.07

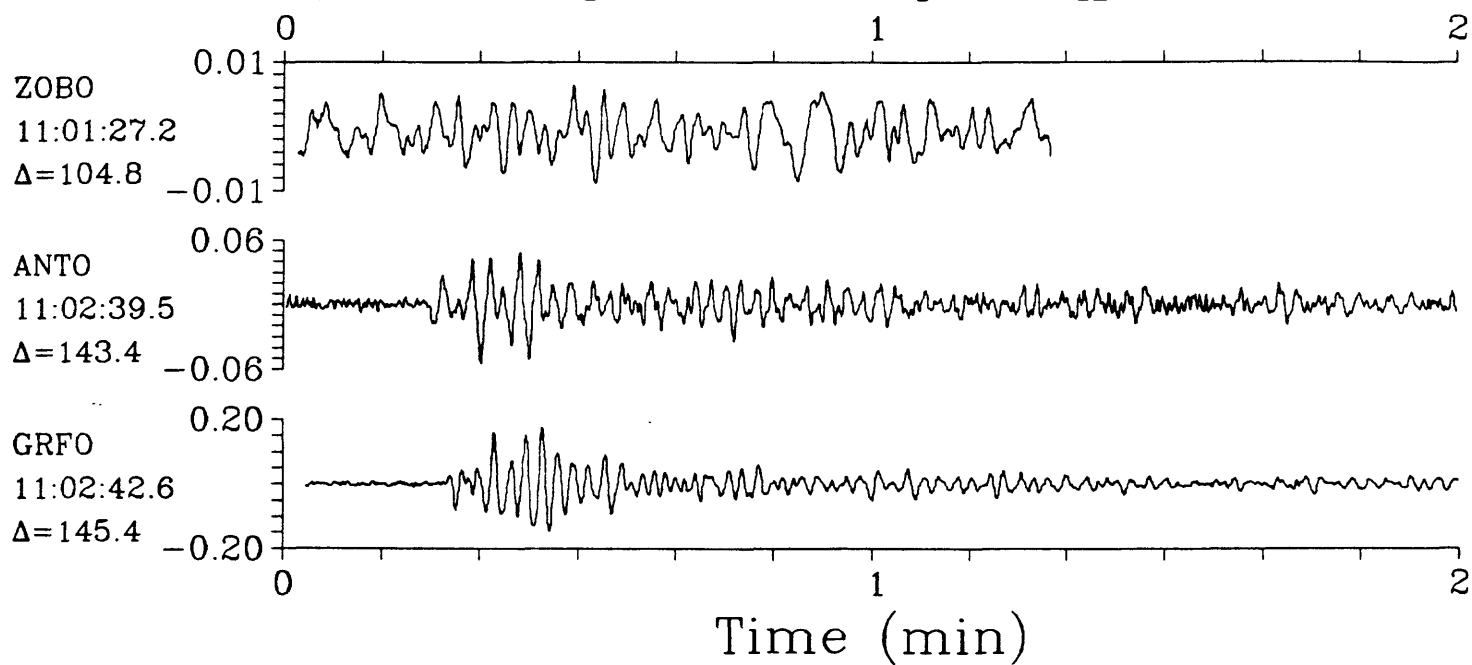
SPZ

Fiji Islands Region $h=33.0$ $m_b=5.7$ $M_{sz}=5.5$ 

SPZ

21 August 1985 10:43:23.07

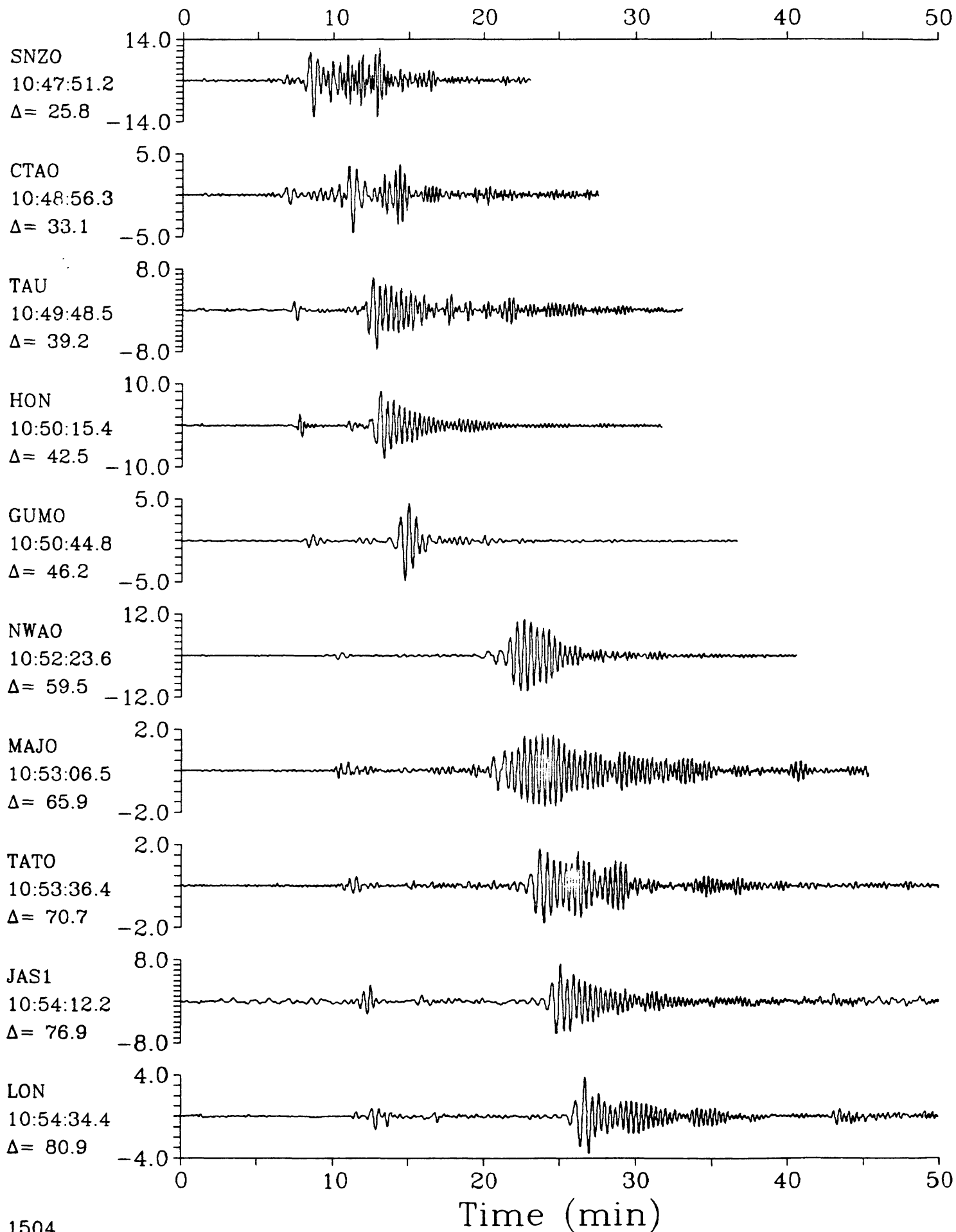
SPZ

Fiji Islands Region $h=33.0$ $m_b=5.7$ $M_{sz}=5.5$ 

LPZ

21 August 1985 10:43:23.07

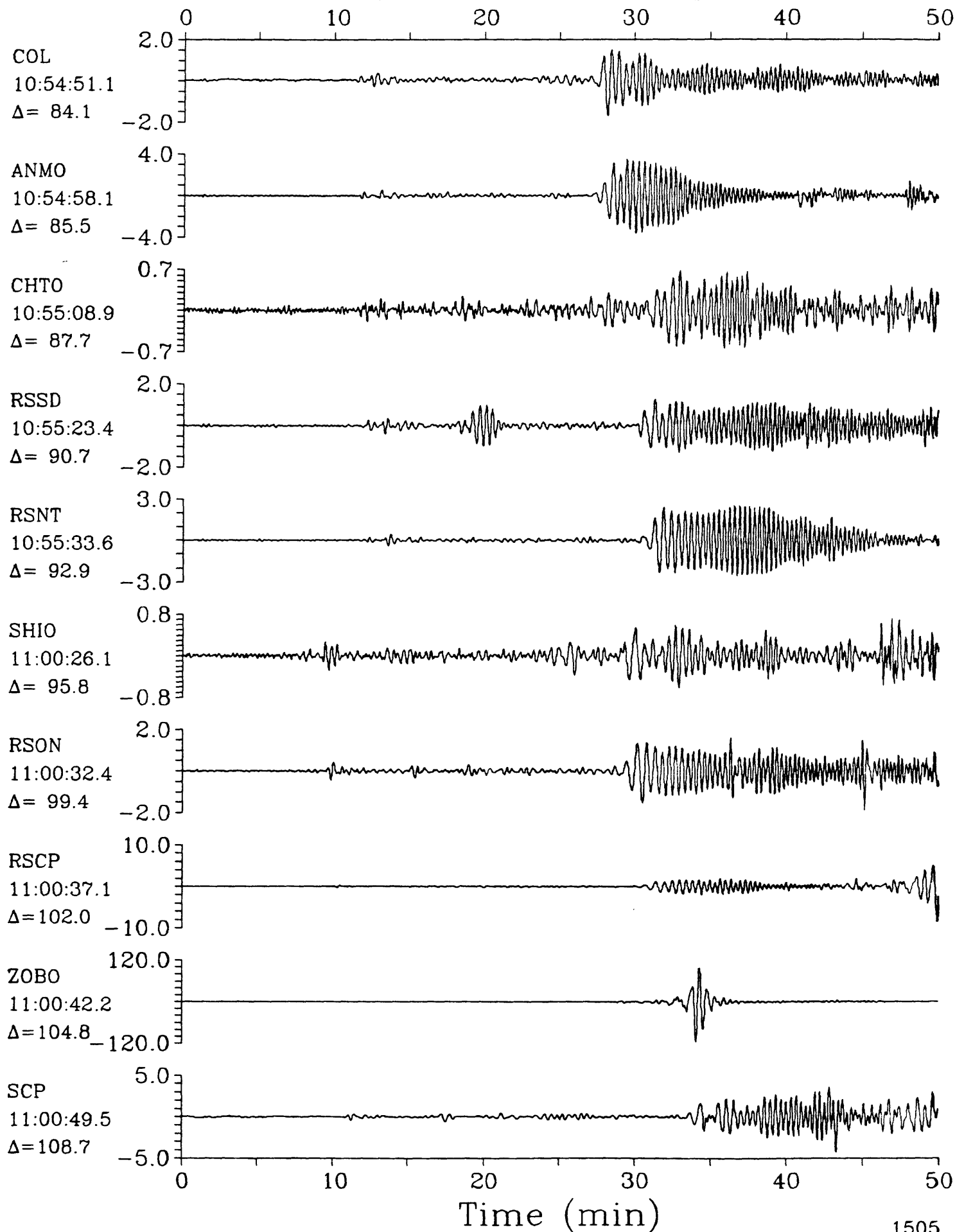
LPZ

Fiji Islands Region $h=33.0$ $m_b=5.7$ $M_{sz}=5.5$ 

LPZ

21 August 1985 10:43:23.07

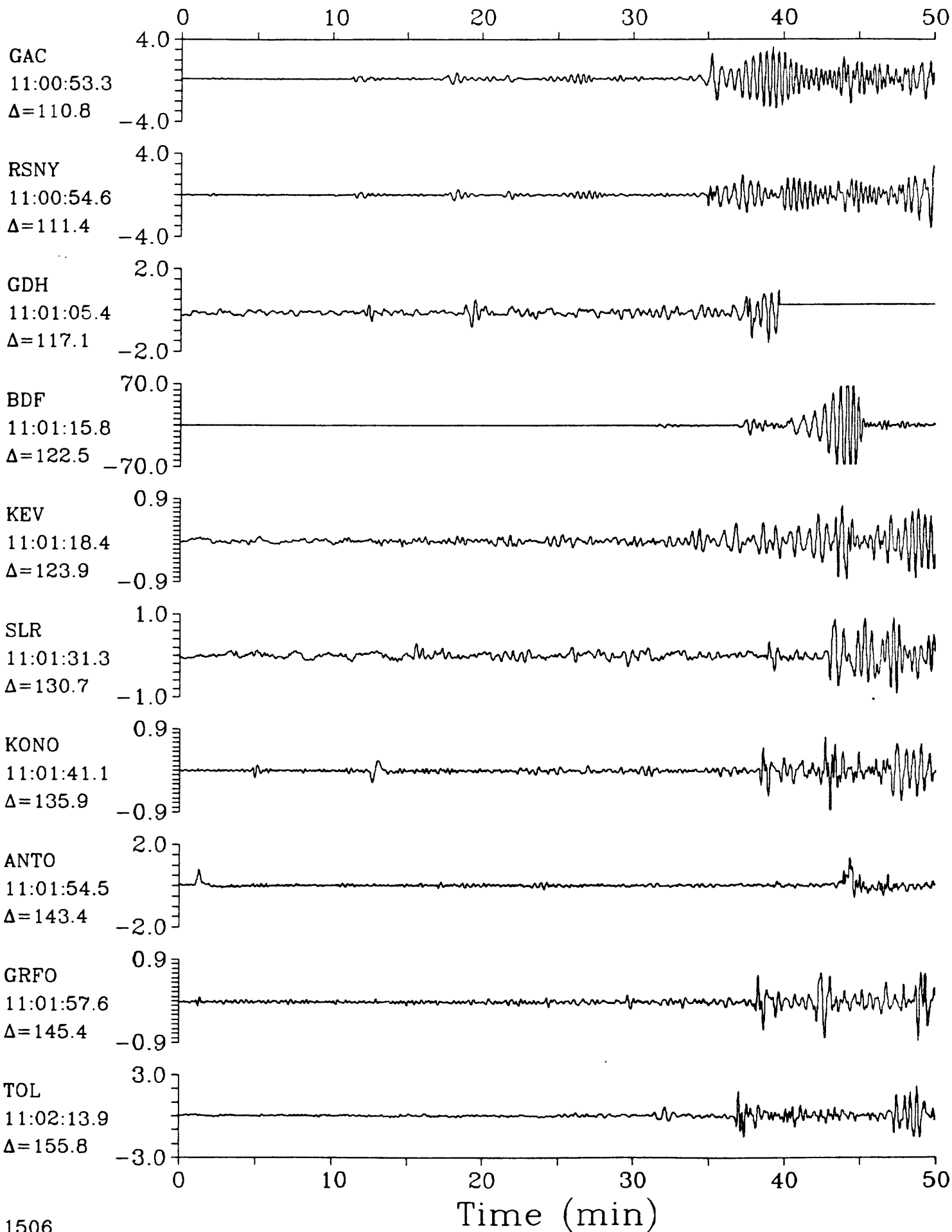
LPZ

Fiji Islands Region $h=33.0$ $m_b=5.7$ $M_{SZ}=5.5$ 

LPZ

21 August 1985 10:43:23.07

LPZ

Fiji Islands Region $h=33.0$ $m_b=5.7$ $M_{sz}=5.5$ 

21 August 1985 11:26:28.81

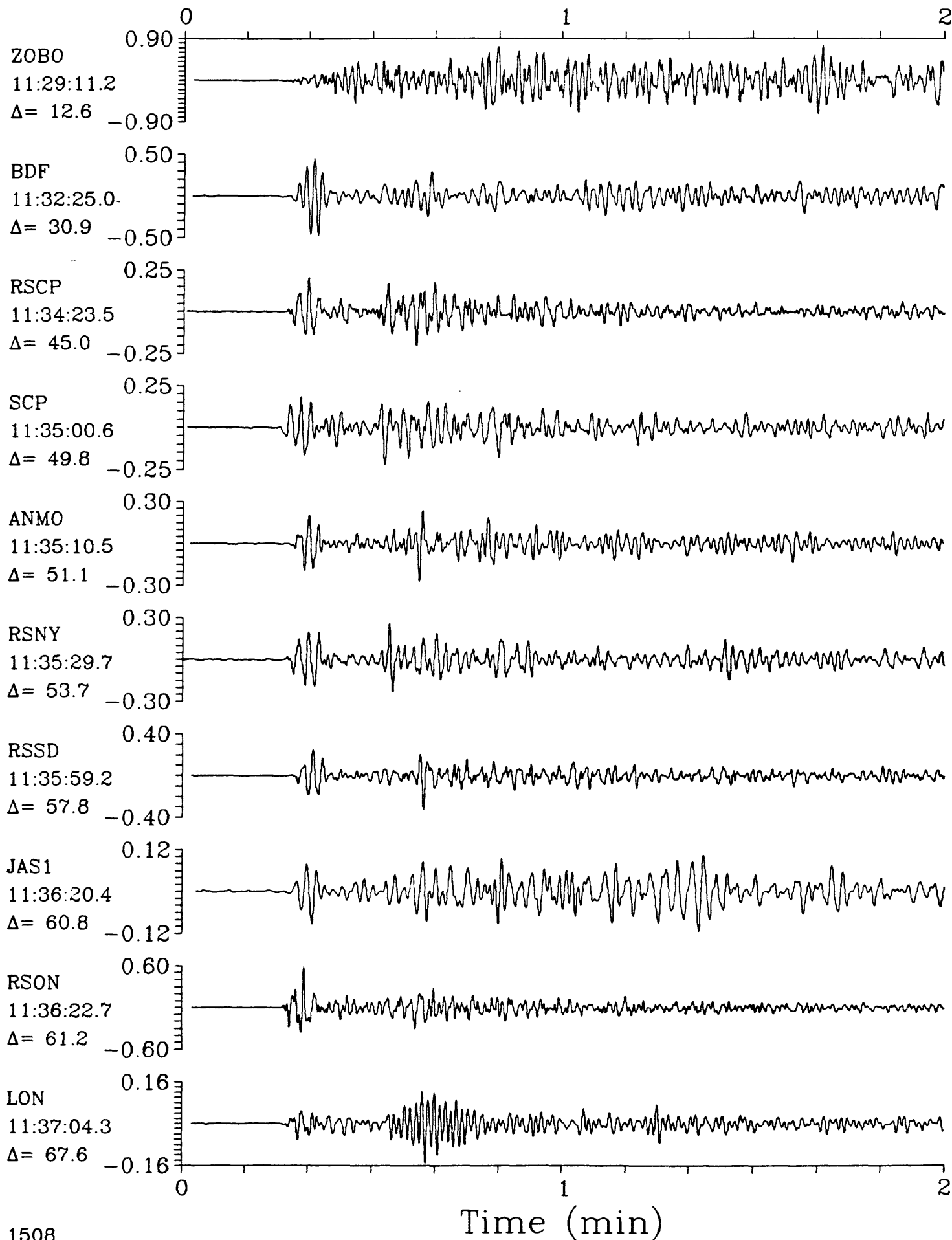
Near Coast of Northern Peru



SPZ

21 August 1985 11:26:28.81

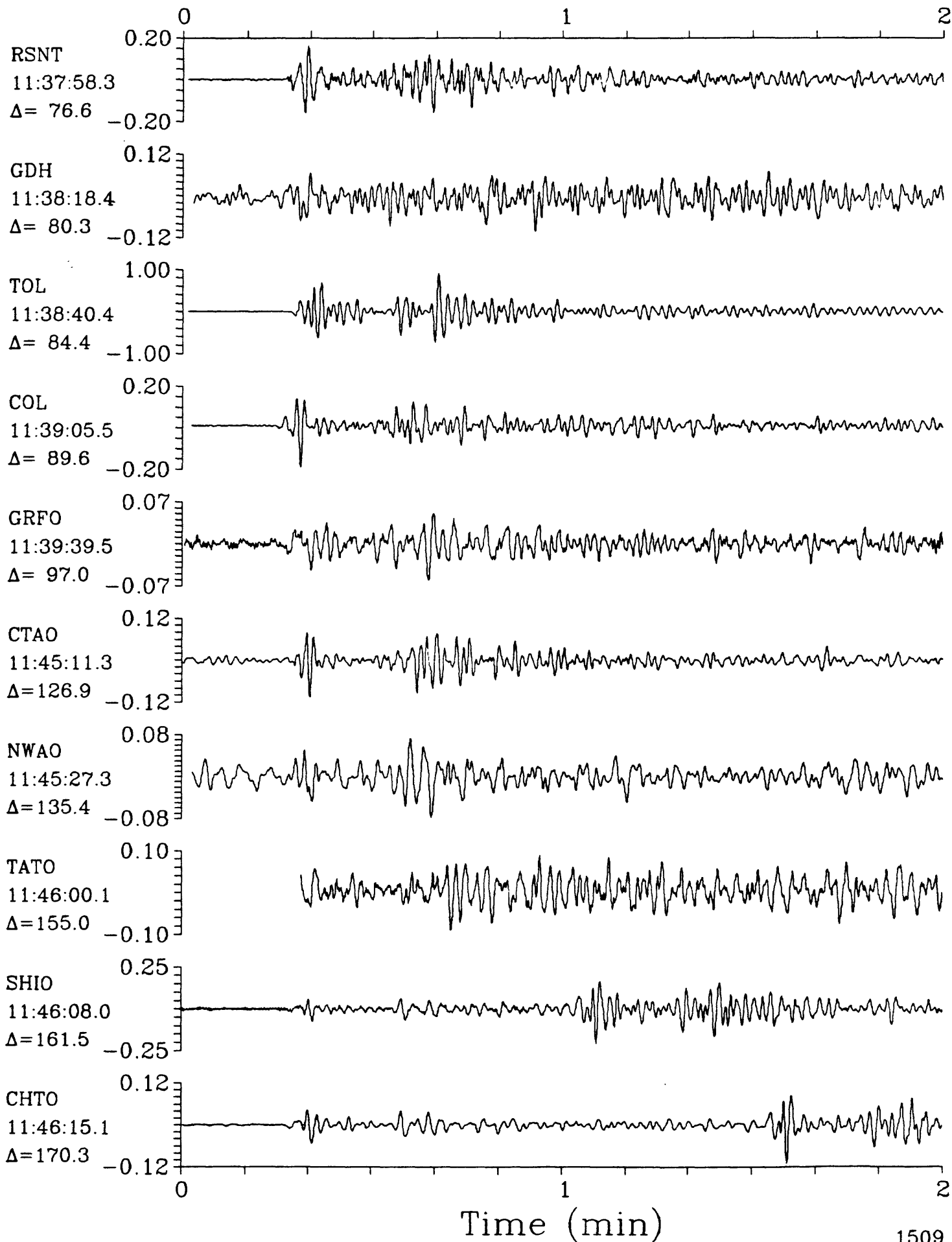
SPZ

Near Coast of Northern Peru $h=60.8$ $m_b=6.1$ 

SPZ

21 August 1985 11:26:28.81

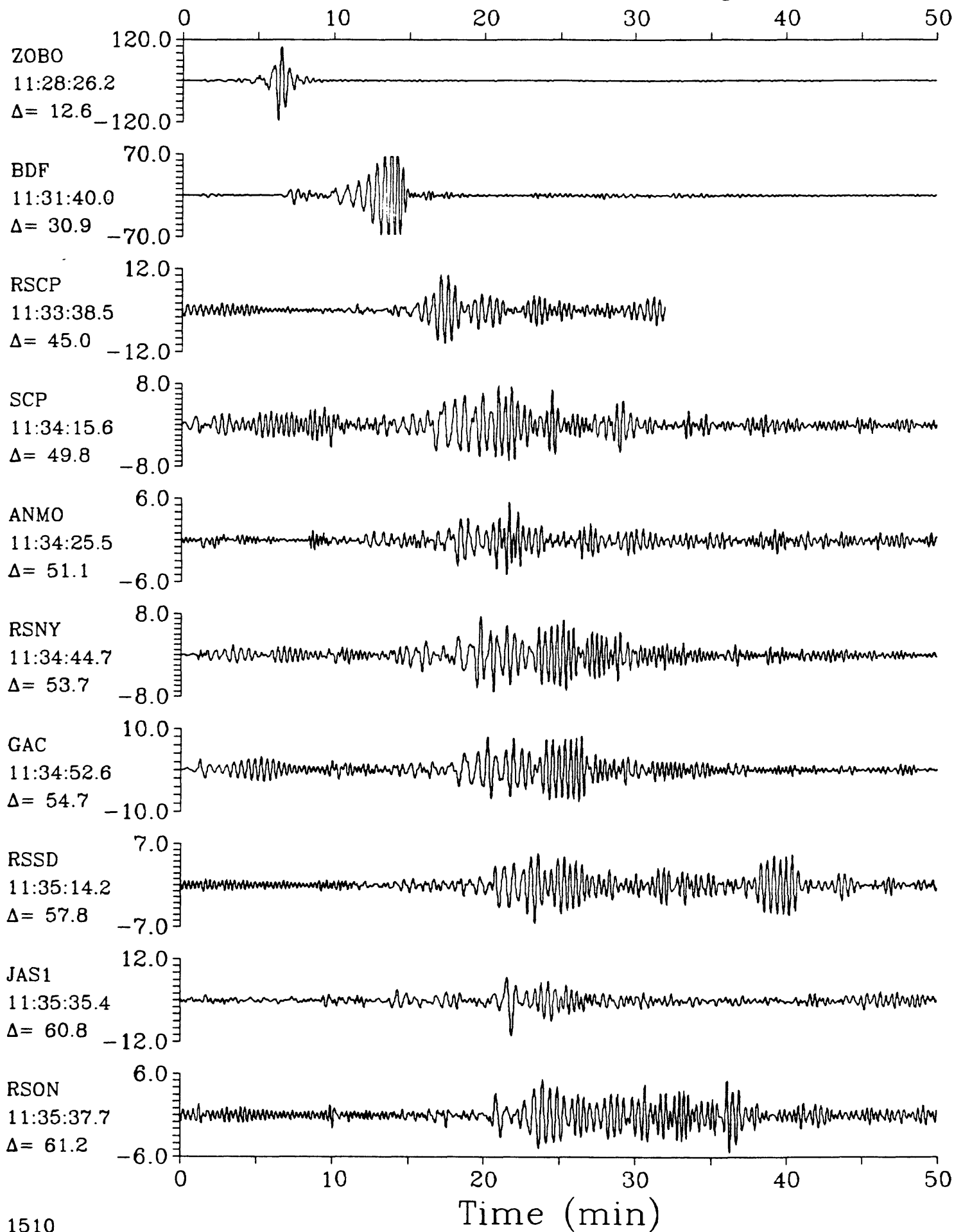
SPZ

Near Coast of Northern Peru $h=60.8$ $m_b=6.1$ 

LPZ

21 August 1985 11:26:28.81

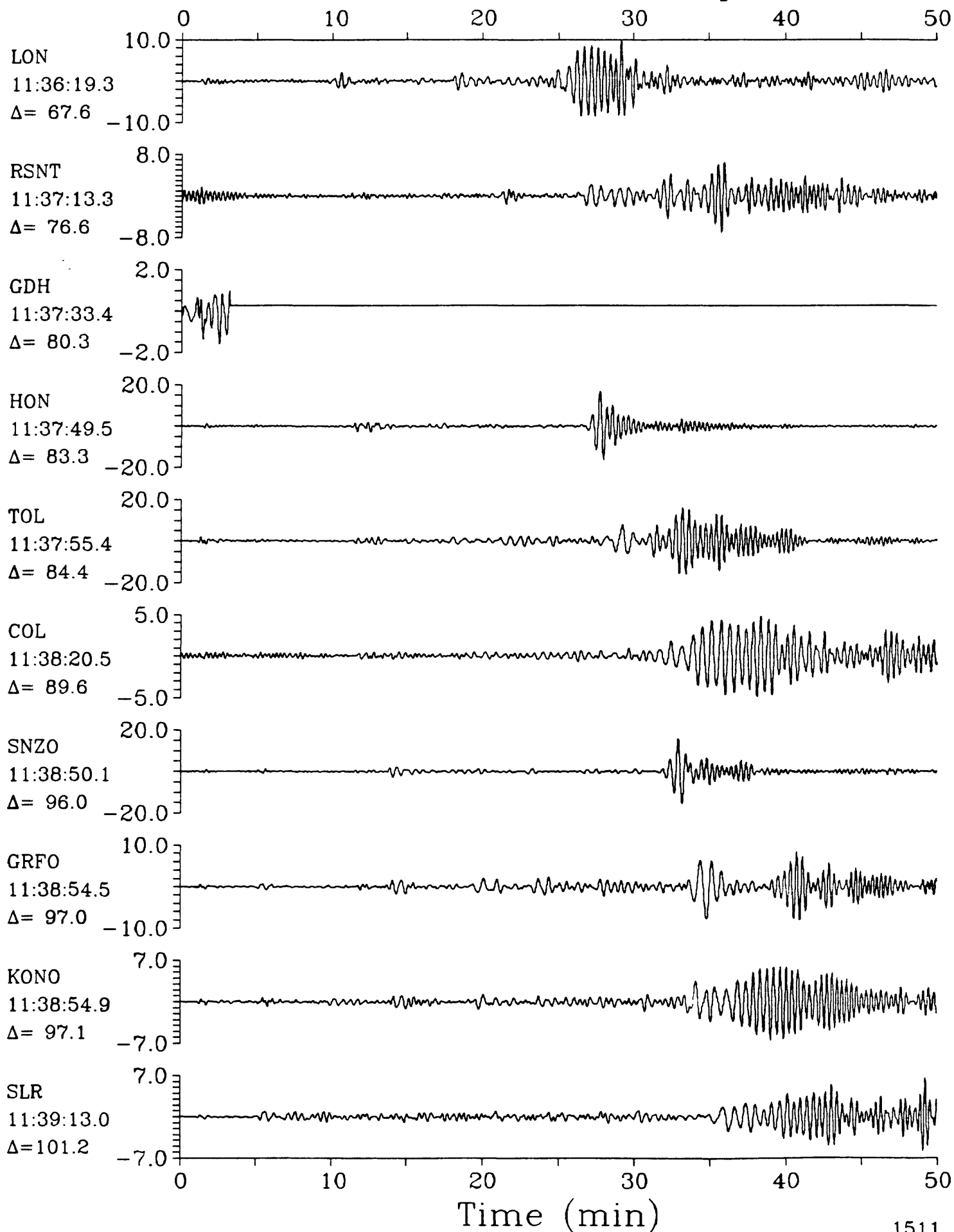
LPZ

Near Coast of Northern Peru $h=60.8$ $m_b=6.1$ 

LPZ

21 August 1985 11:26:28.81

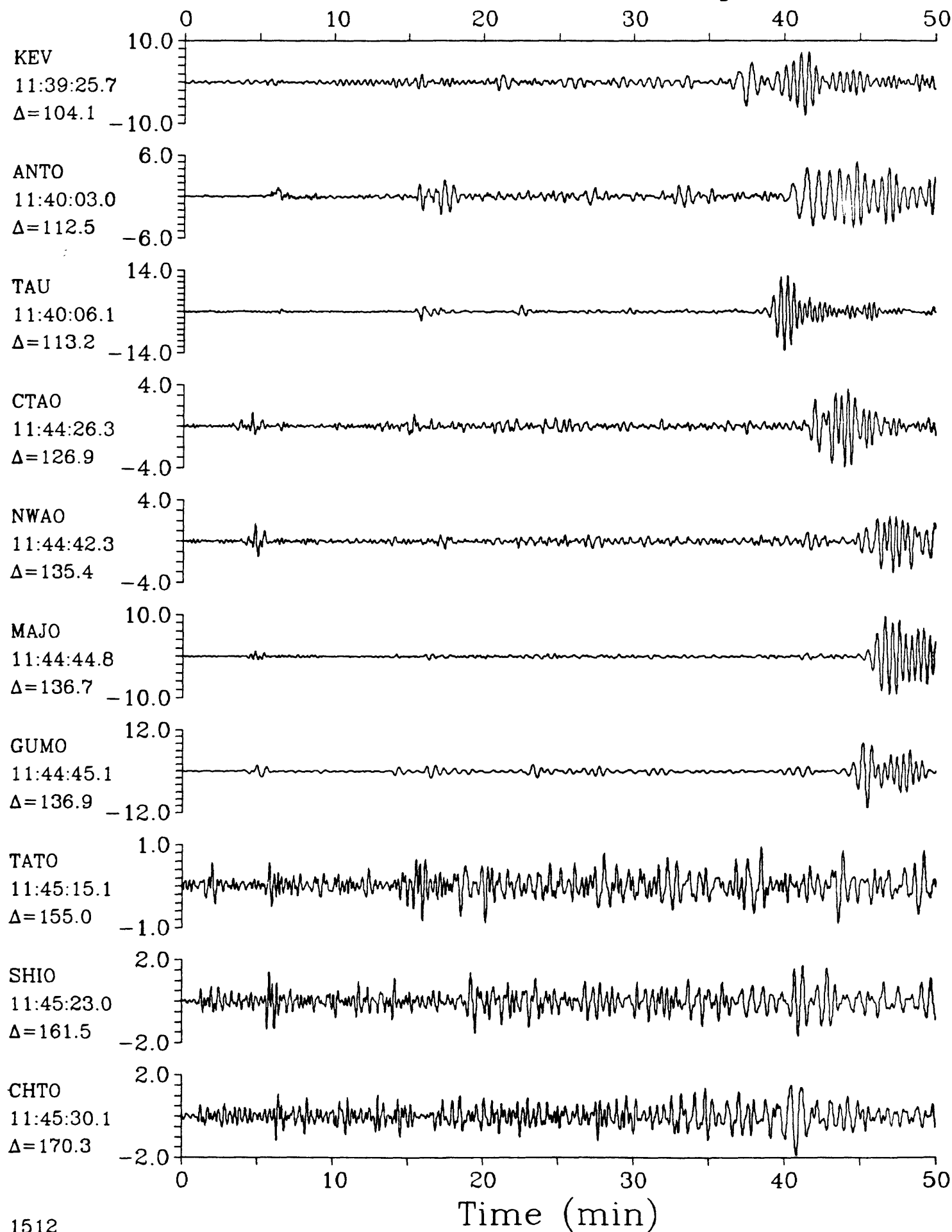
LPZ

Near Coast of Northern Peru $h=60.8$ $m_b=6.1$ 

LPZ

21 August 1985 11:26:28.81

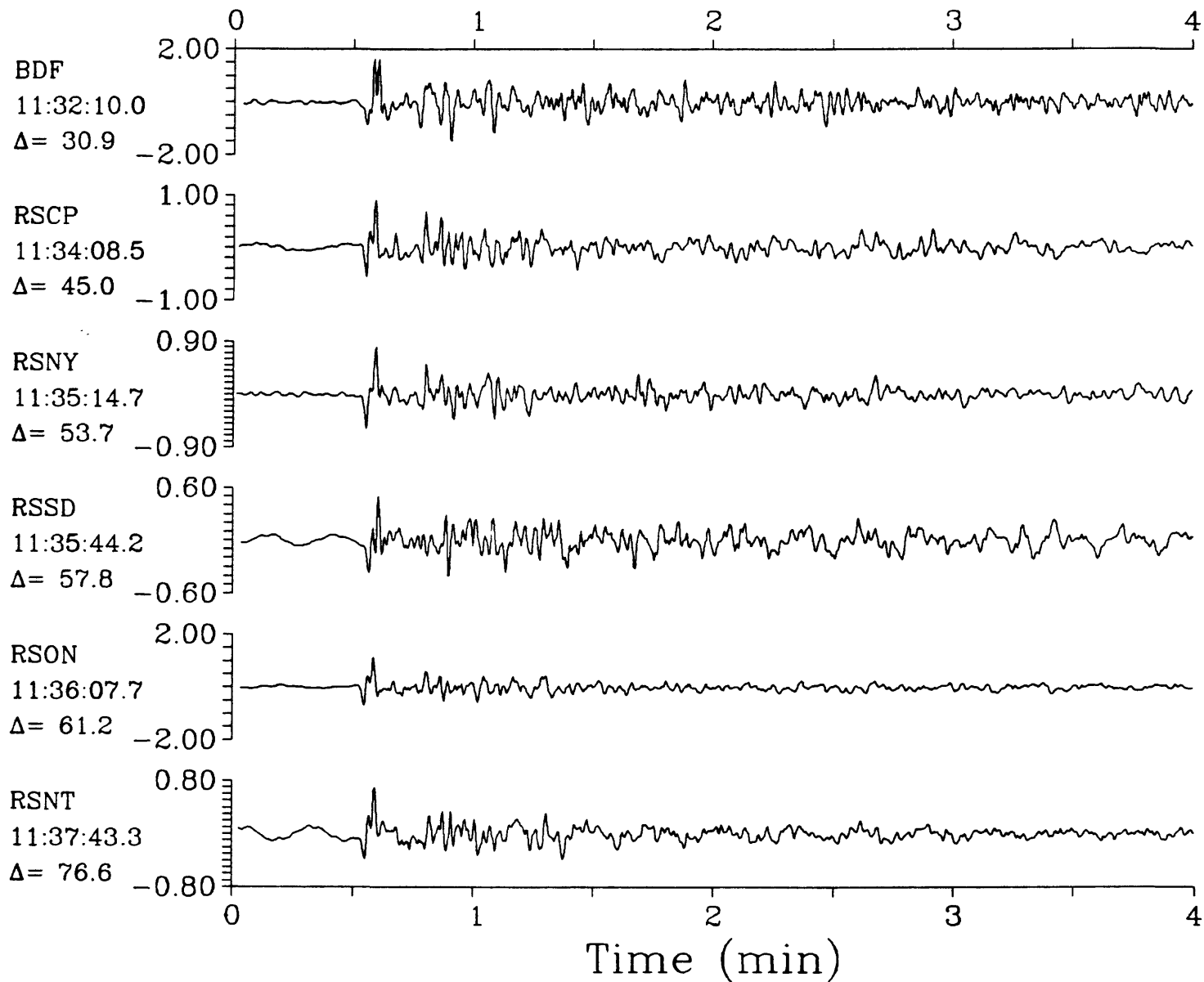
LPZ

Near Coast of Northern Peru $h=60.8$ $m_b=6.1$ 

IPZ

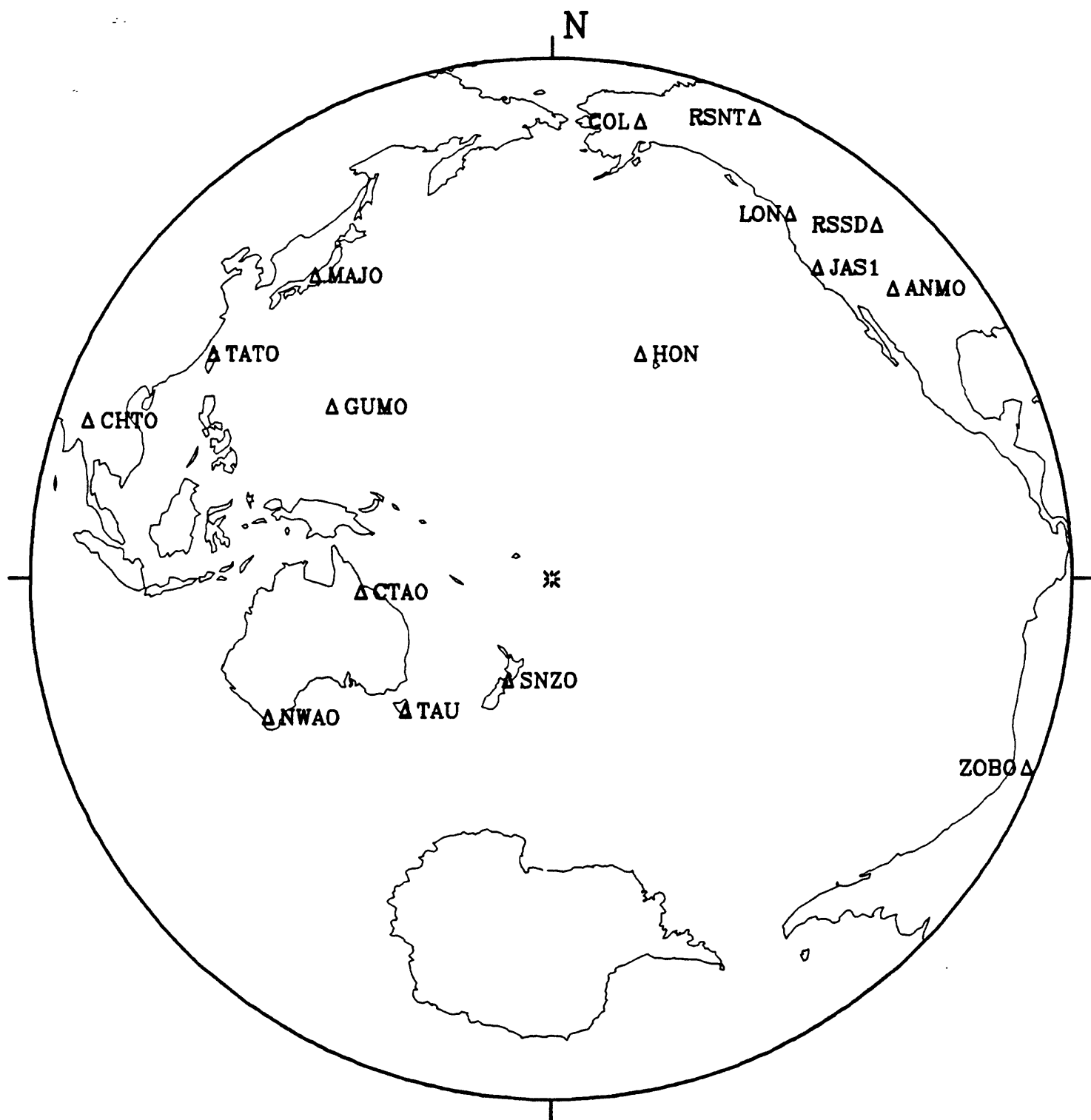
21 August 1985 11:26:28.81

IPZ

Near Coast of Northern Peru $h=60.8$ $m_b=6.1$ 

22 August 1985 19:29:57.96

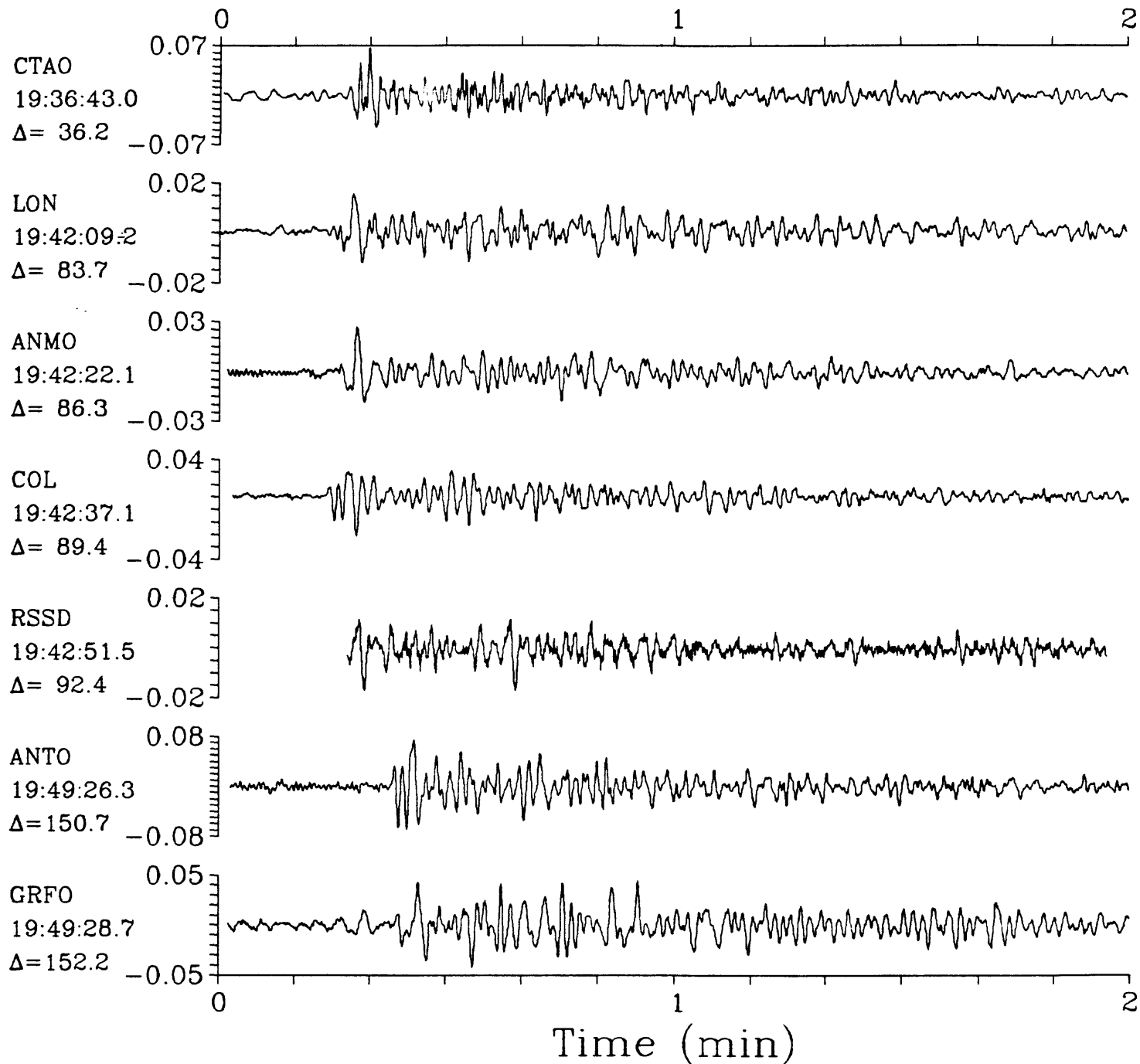
Tonga Islands Region



SPZ

22 August 1985 19:29:57.96

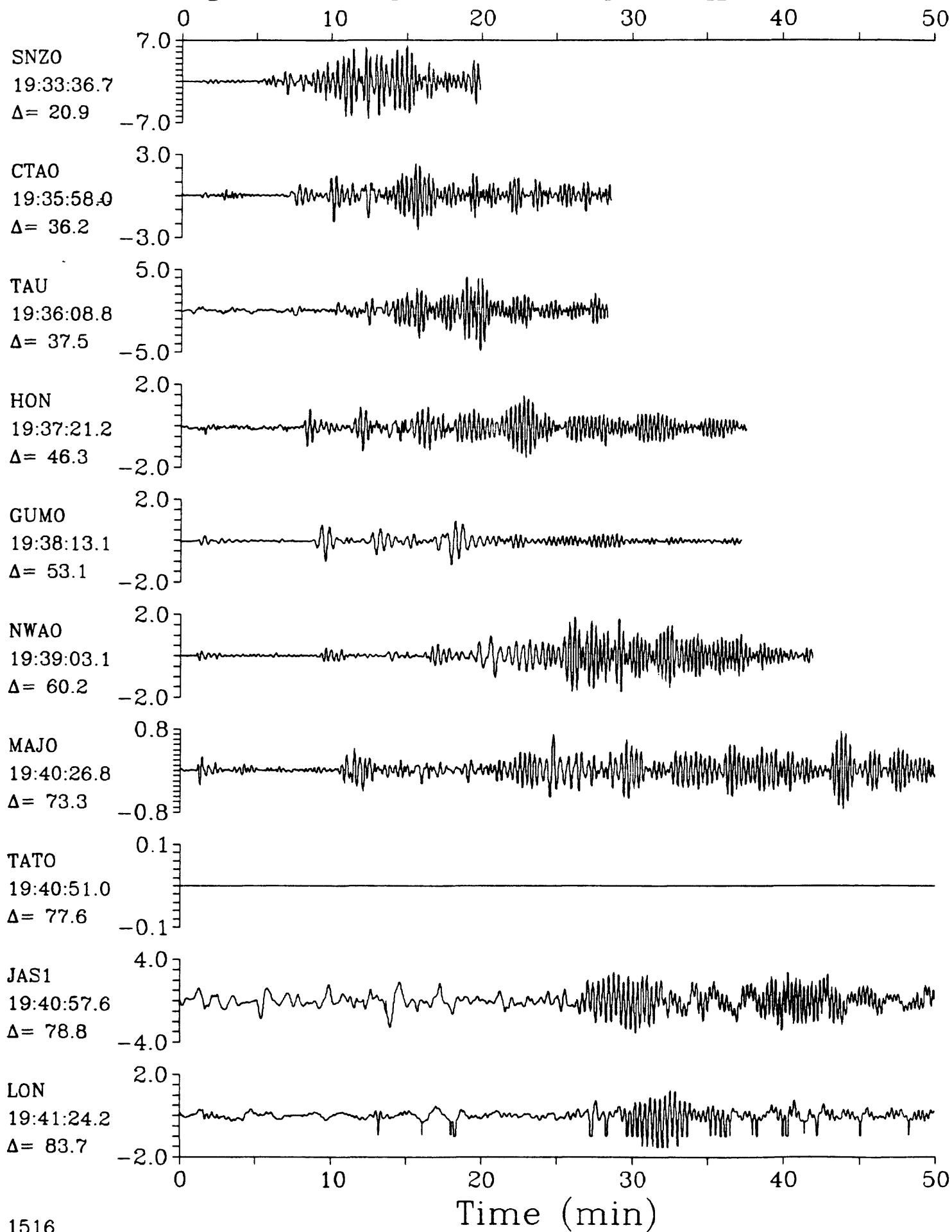
SPZ

Tonga Islands Region $h=33.0$ $m_b=5.6$ $M_{SZ}=5.5$ 

LPZ

22 August 1985 19:29:57.96

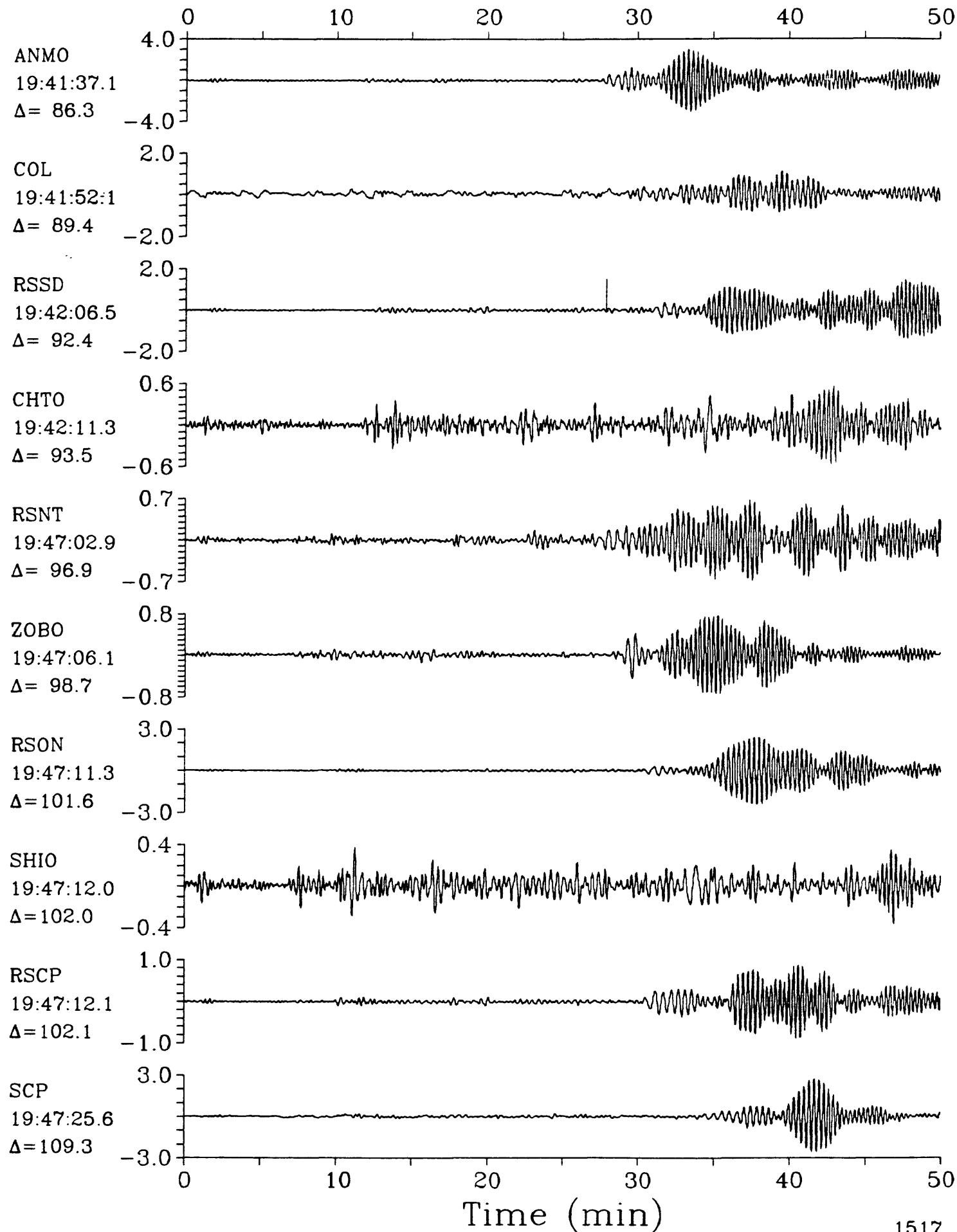
LPZ

Tonga Islands Region $h=33.0$ $m_b=5.6$ $M_{SZ}=5.5$ 

LPZ

22 August 1985 19:29:57.96

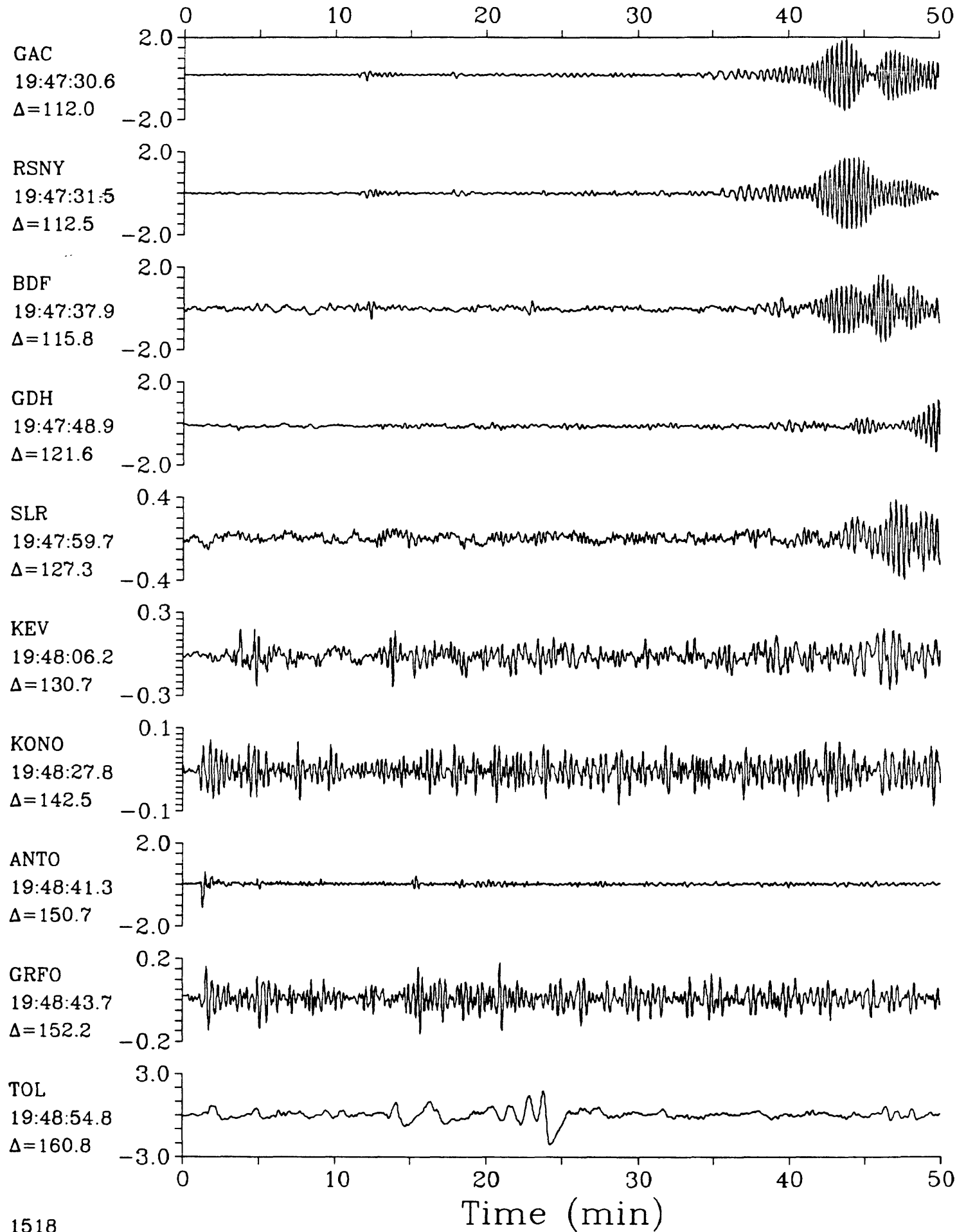
LPZ

Tonga Islands Region $h=33.0$ $m_b=5.6$ $M_{sz}=5.5$ 

LPZ

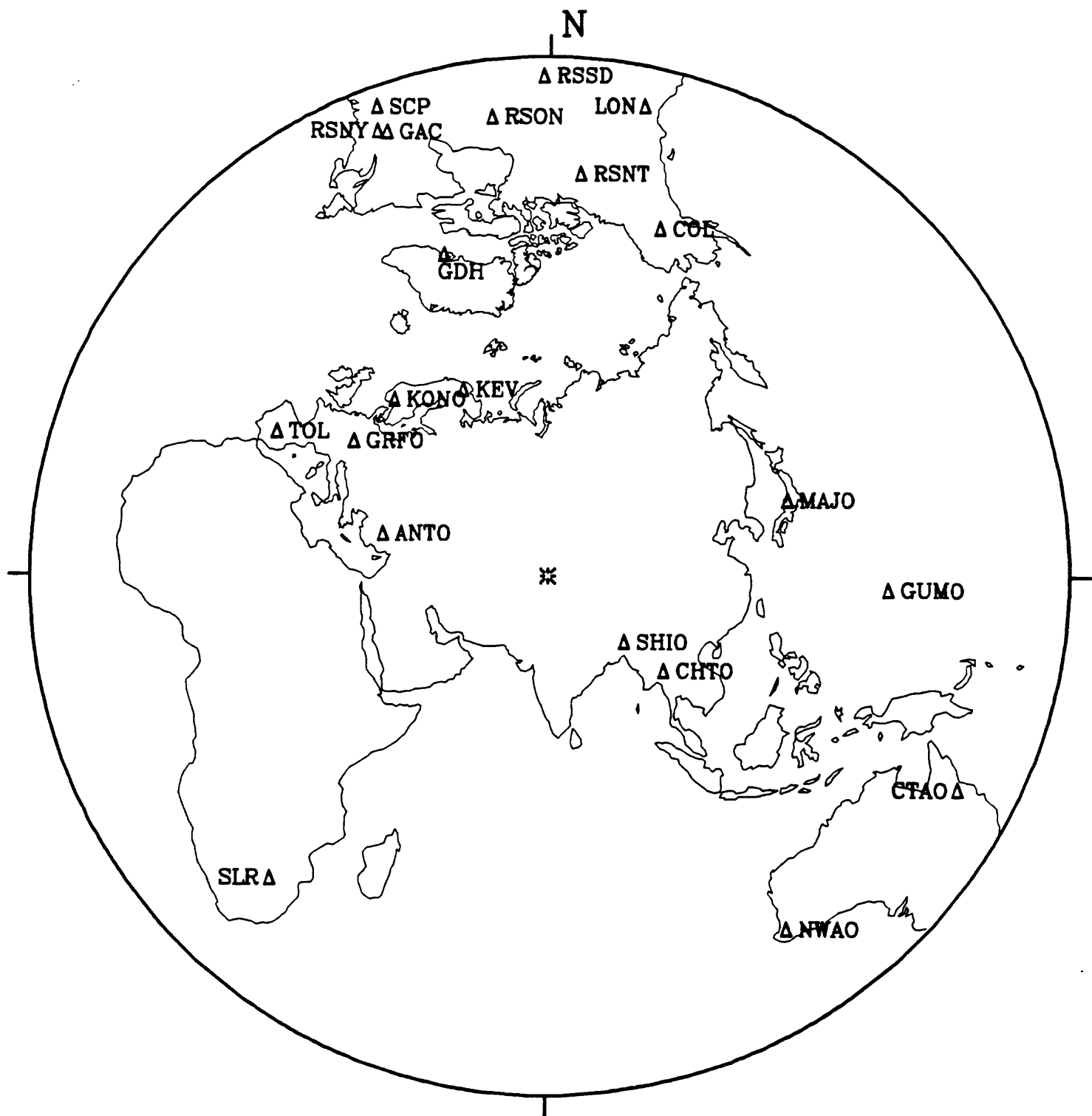
22 August 1985 19:29:57.96

LPZ

Tonga Islands Region $h=33.0$ $m_b=5.6$ $M_{SZ}=5.5$ 

23 August 1985 12:41:59.72

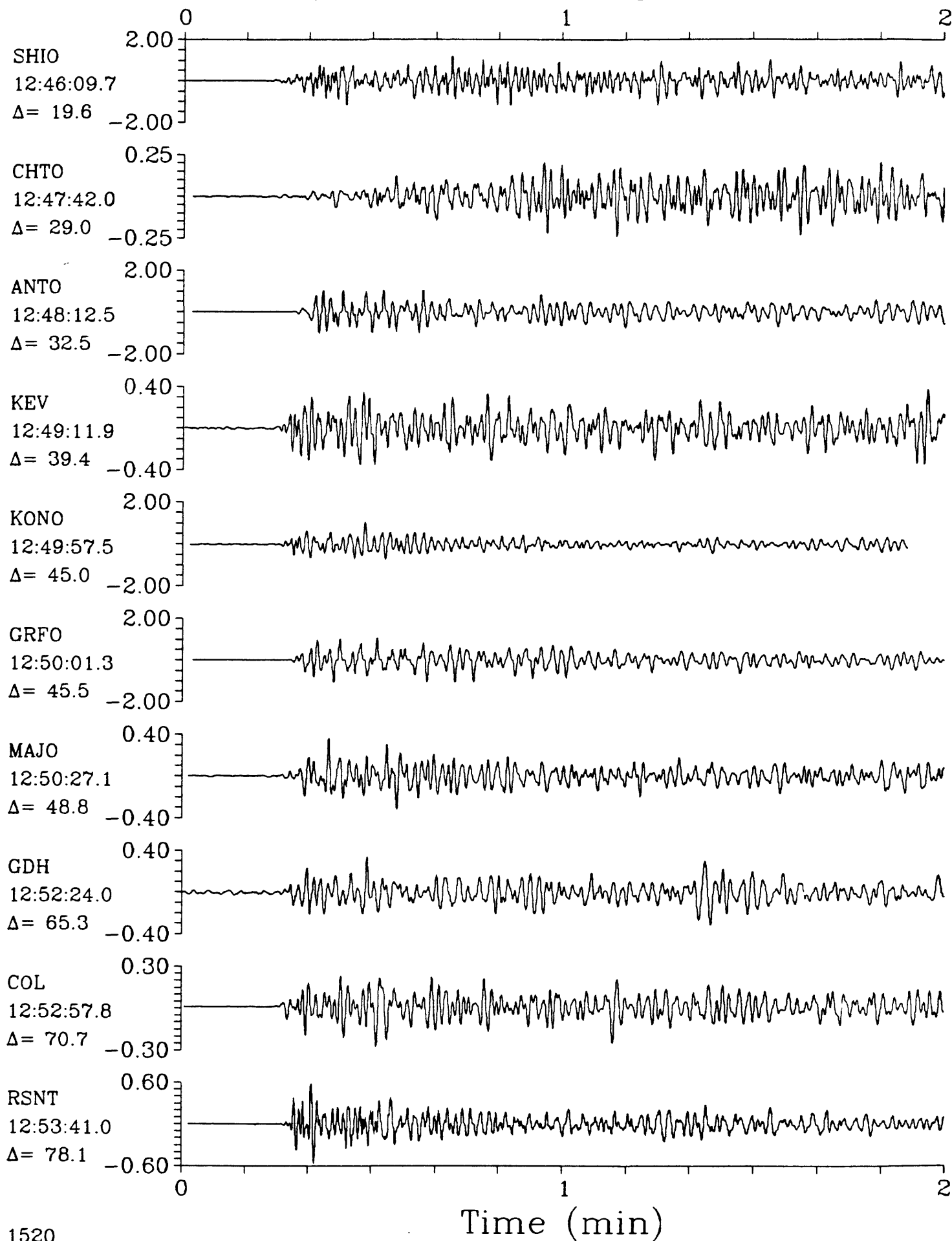
Southern Xinjiang, China



SPZ

23 August 1985 12:41:59.72

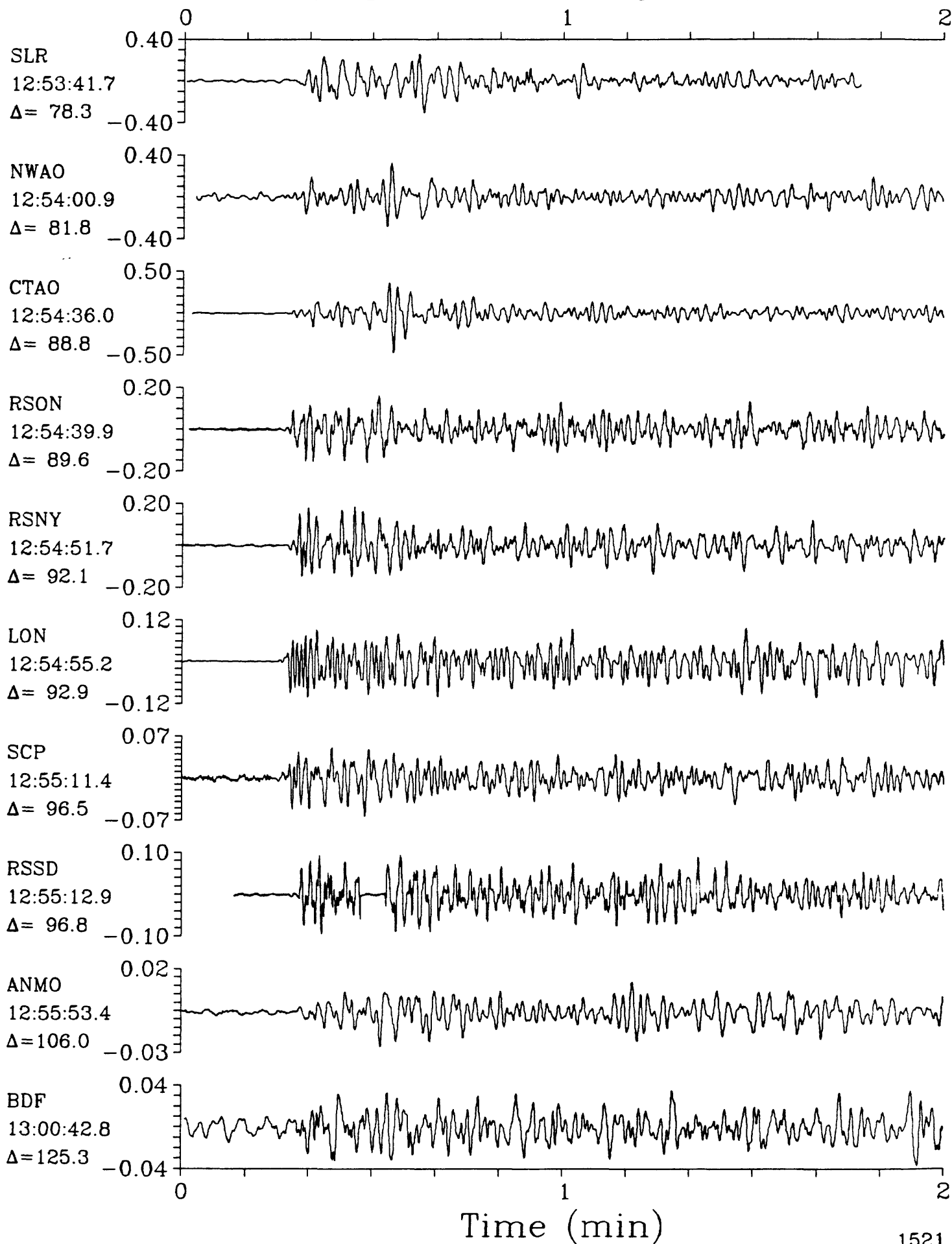
SPZ

Southern Xinjiang, China $h=33.0$ $m_b=6.4$ $M_{sz}=7.6$ 

SPZ

23 August 1985 12:41:59.72

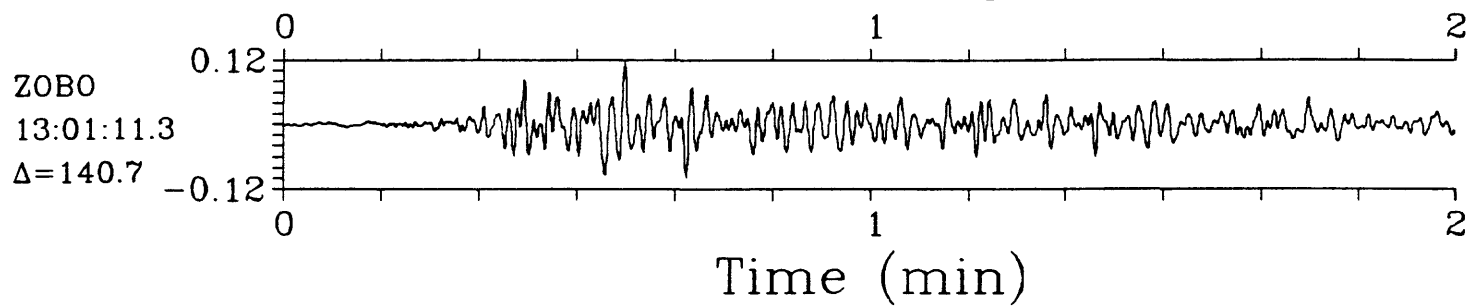
SPZ

Southern Xinjiang, China $h=33.0$ $m_b=6.4$ $M_{SZ}=7.6$ 

SPZ

23 August 1985 12:41:59.72

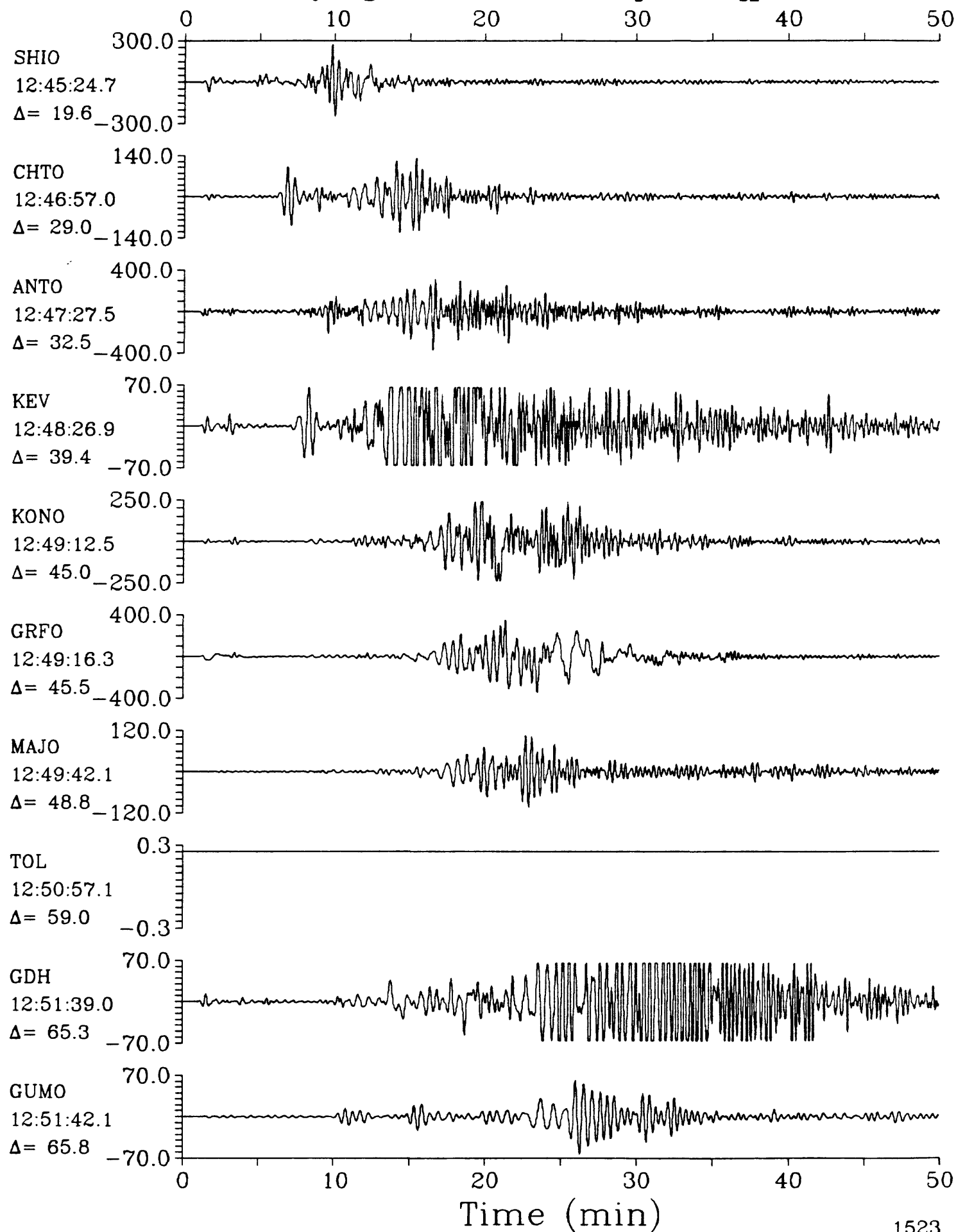
SPZ

Southern Xinjiang, China $h=33.0$ $m_b=6.4$ $M_{sz}=7.6$ 

LPZ

23 August 1985 12:41:59.72

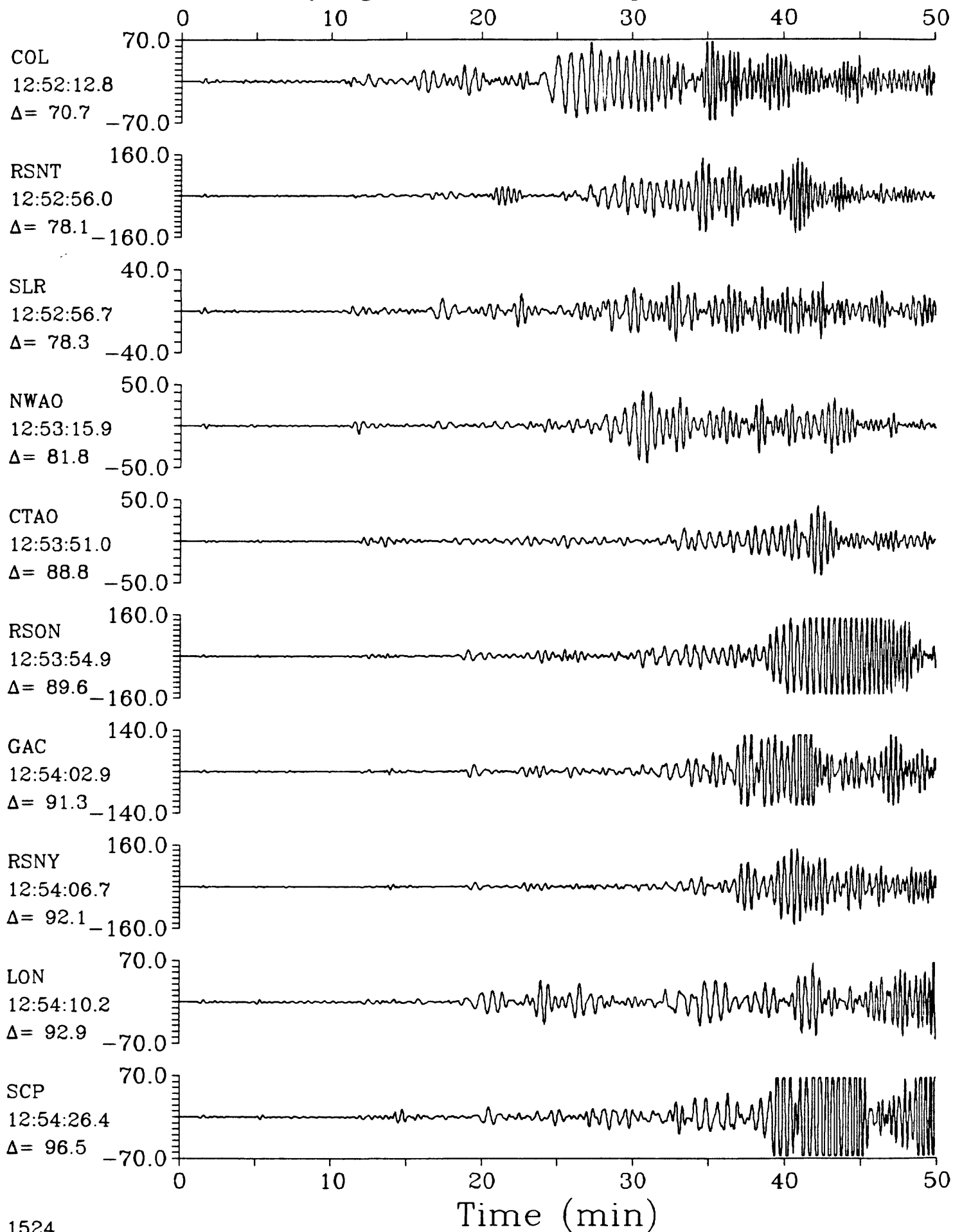
LPZ

Southern Xinjiang, China $h=33.0$ $m_b=6.4$ $M_{sz}=7.6$ 

LPZ

23 August 1985 12:41:59.72

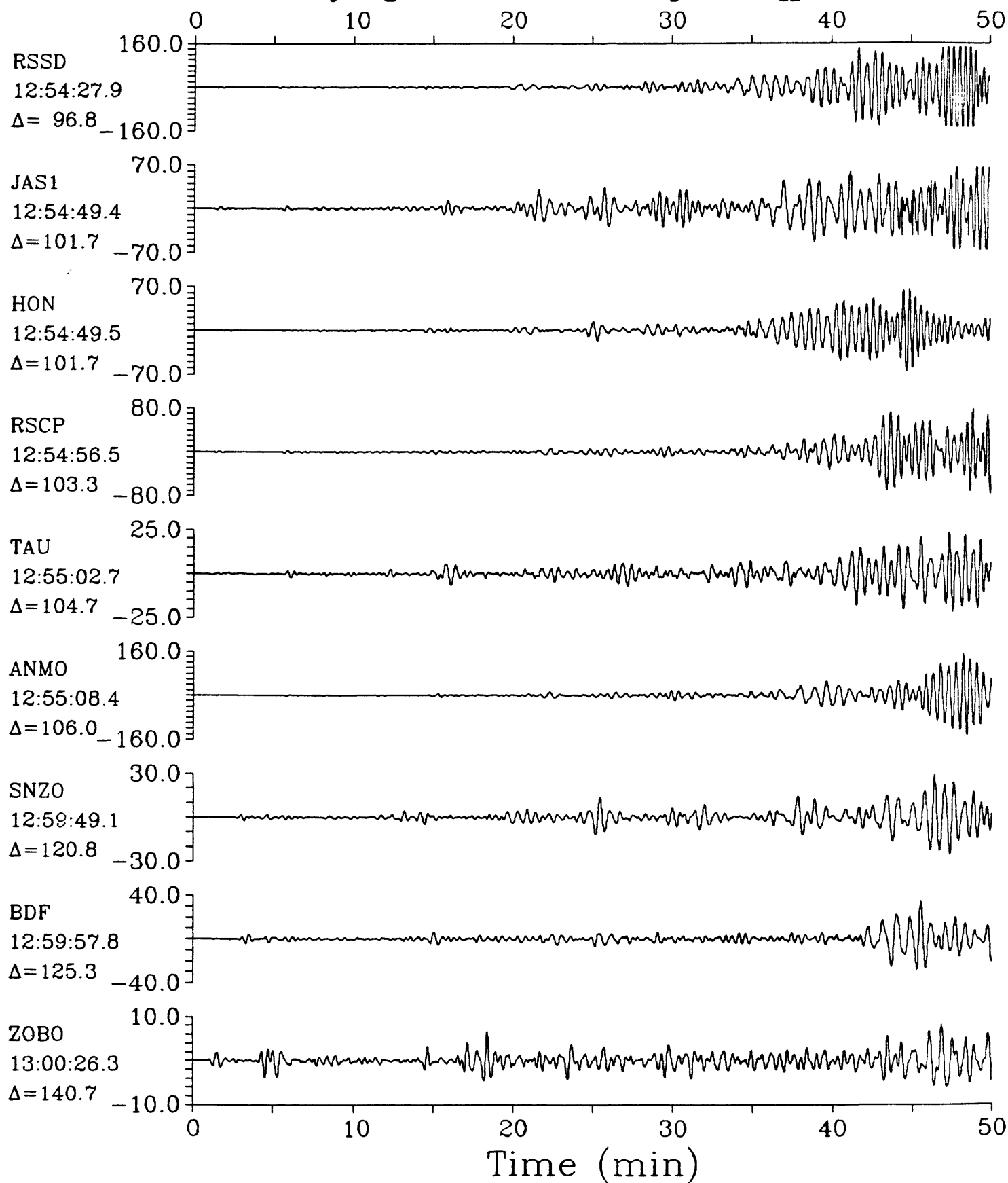
LPZ

Southern Xinjiang, China $h=33.0$ $m_b=6.4$ $M_{sz}=7.6$ 

LPZ

23 August 1985 12:41:59.72

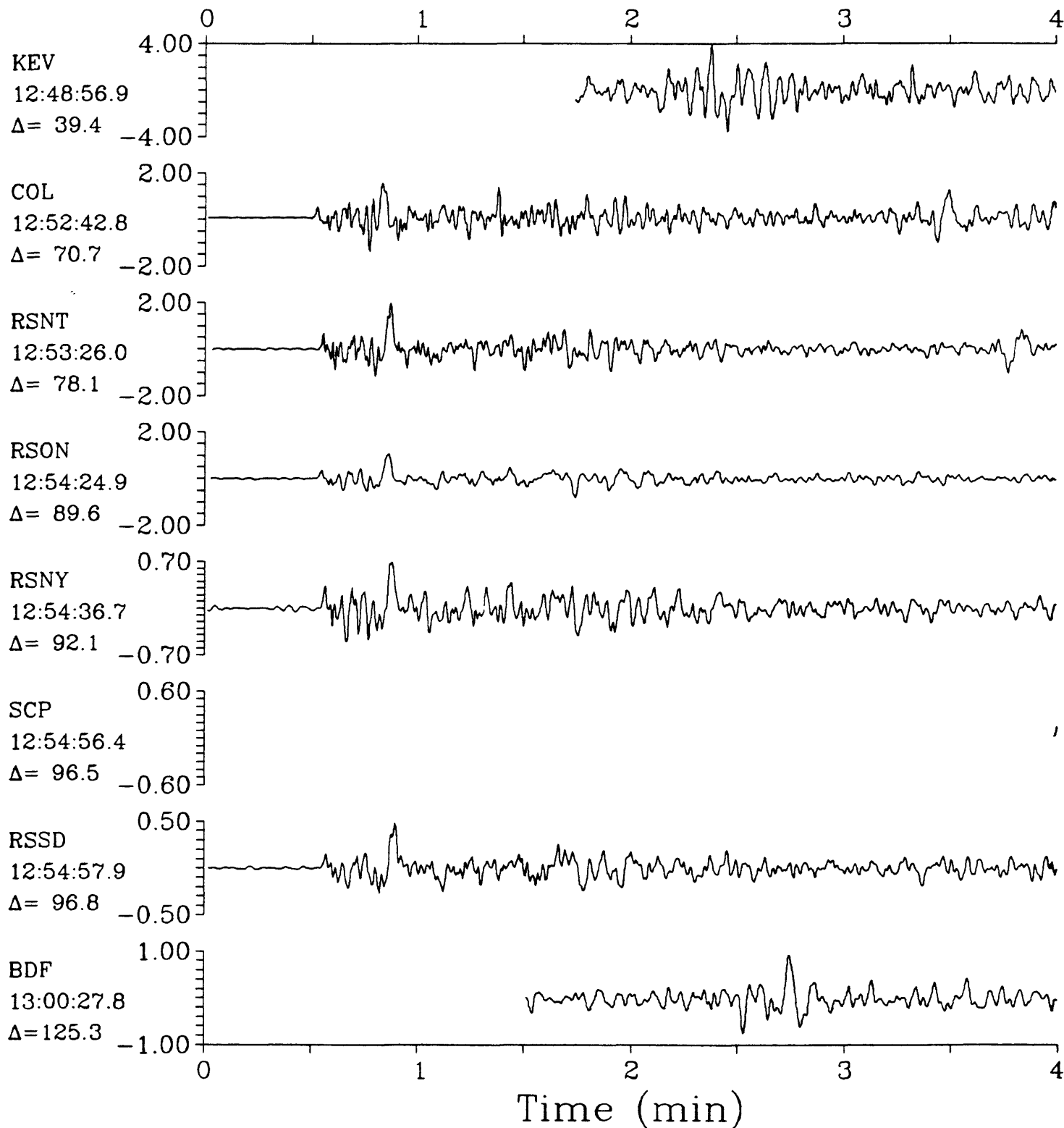
LPZ

Southern Xinjiang, China $h=33.0$ $m_b=6.4$ $M_{sz}=7.6$ 

IPZ

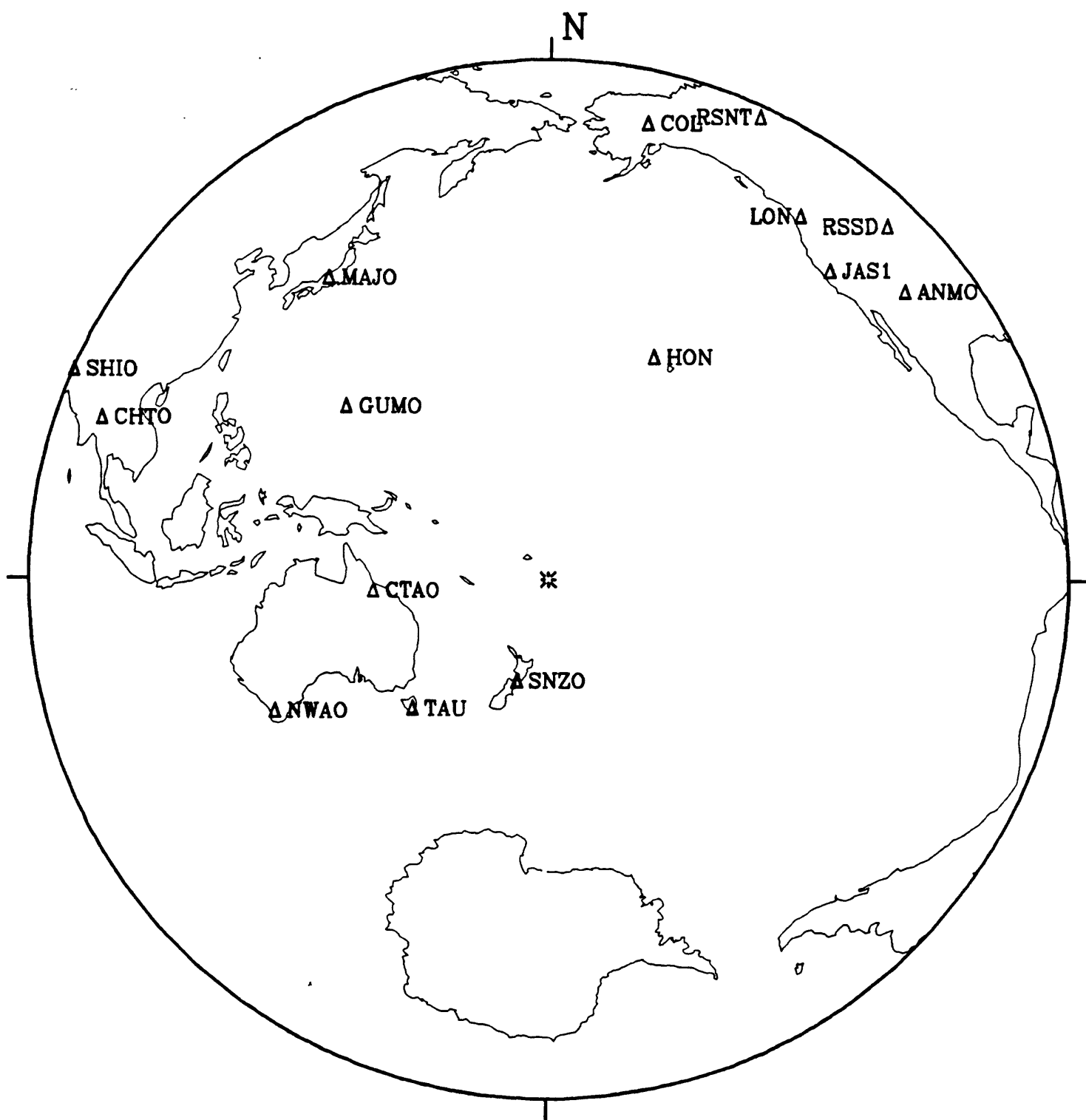
23 August 1985 12:41:59.72

IPZ

Southern Xinjiang, China $h=33.0$ $m_b=6.4$ $M_{sz}=7.6$ 

24 August 1985 06:53:15.44

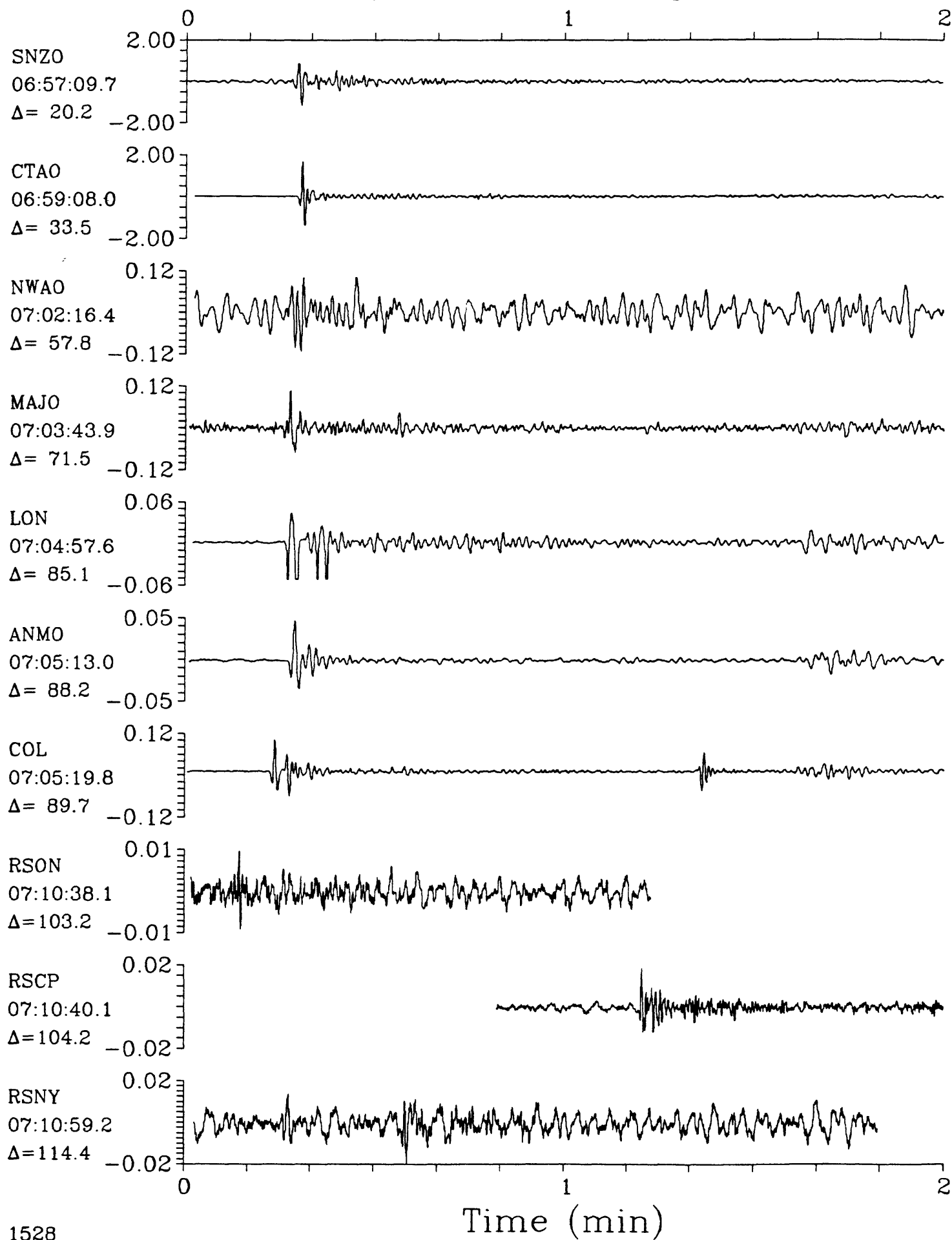
South of Fiji Islands



SPZ

24 August 1985 06:53:15.44
South of Fiji Islands $h=353.5$ $m_b=5.6$

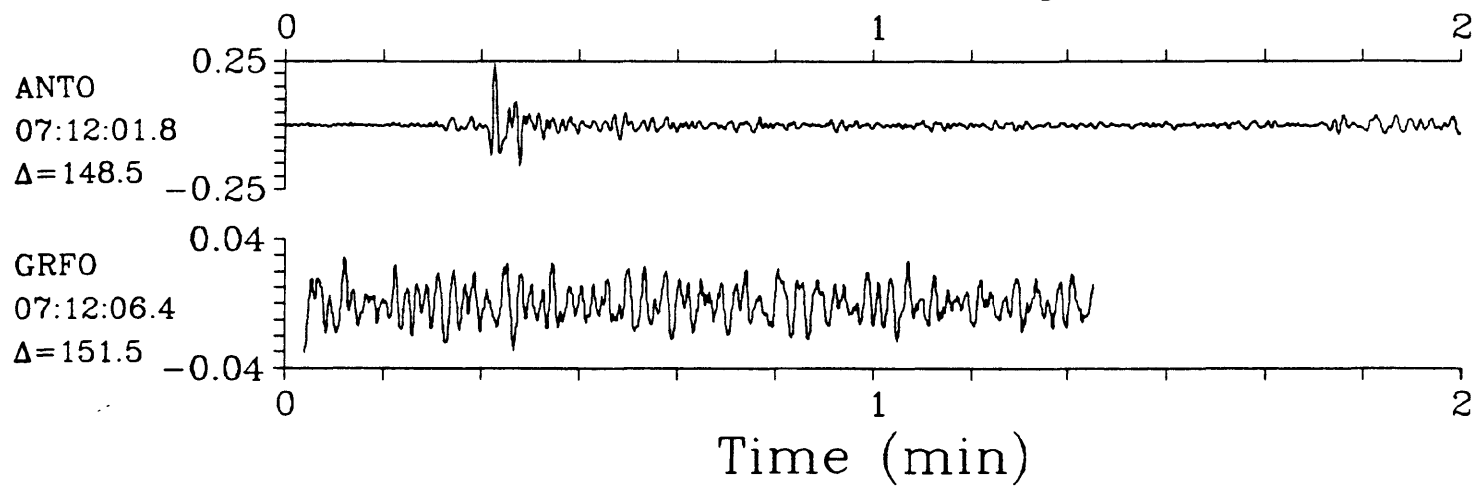
SPZ



SPZ

24 August 1985 06:53:15.44
South of Fiji Islands $h=353.5$ $m_b=5.6$

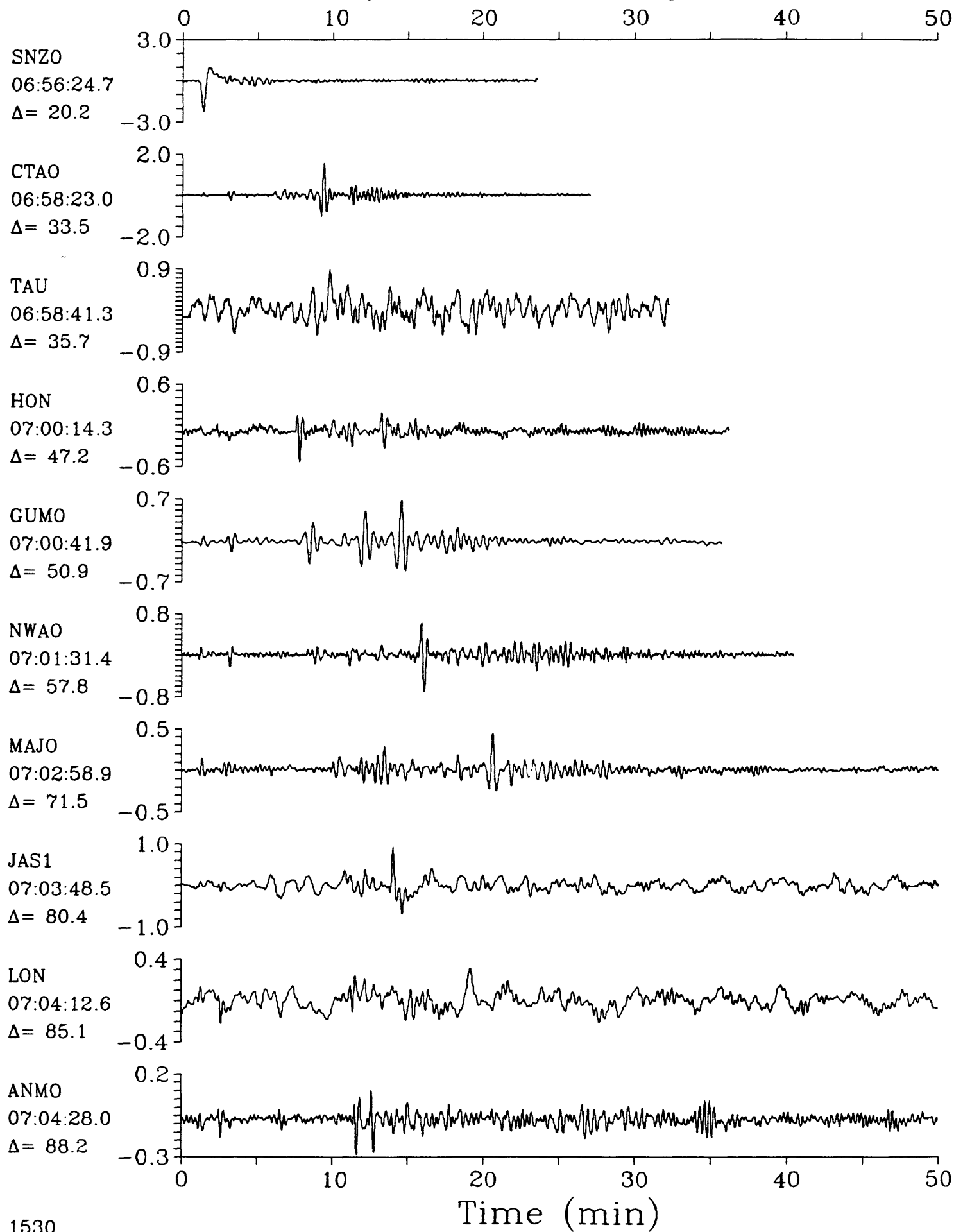
SPZ



LPZ

24 August 1985 06:53:15.44
South of Fiji Islands $h=353.5$ $m_b=5.6$

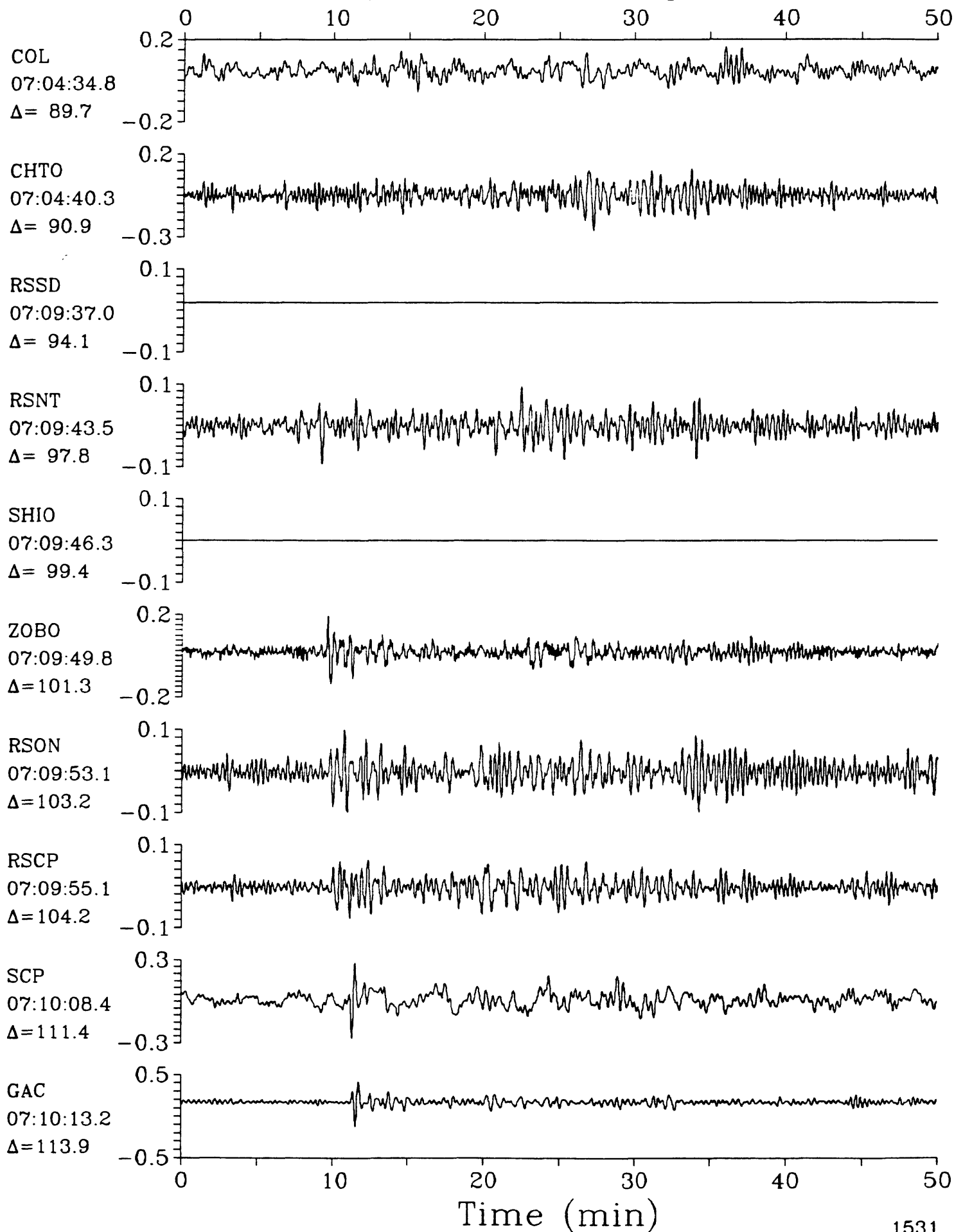
LPZ



LPZ

24 August 1985 06:53:15.44
South of Fiji Islands $h=353.5$ $m_b=5.6$

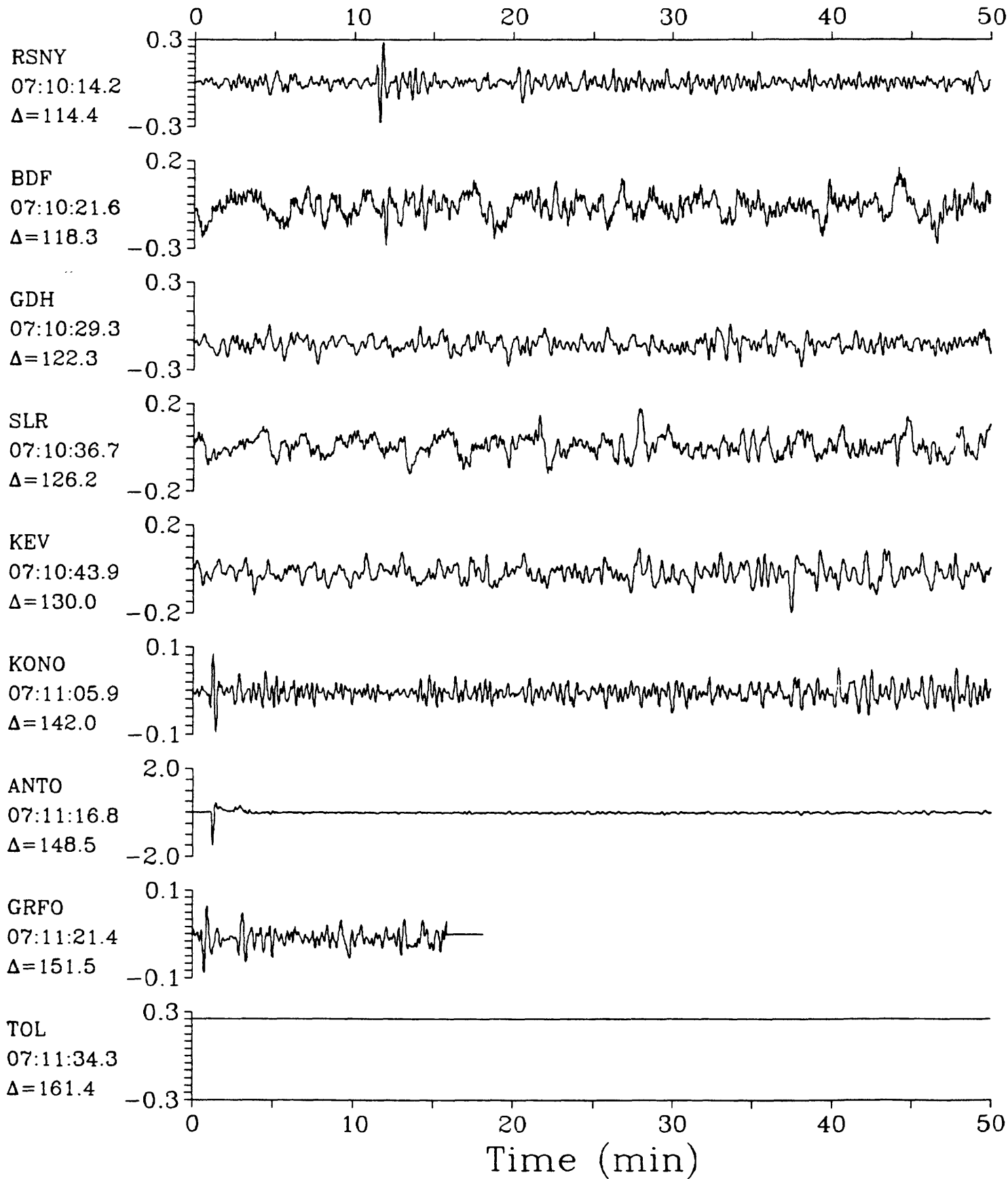
LPZ



LPZ

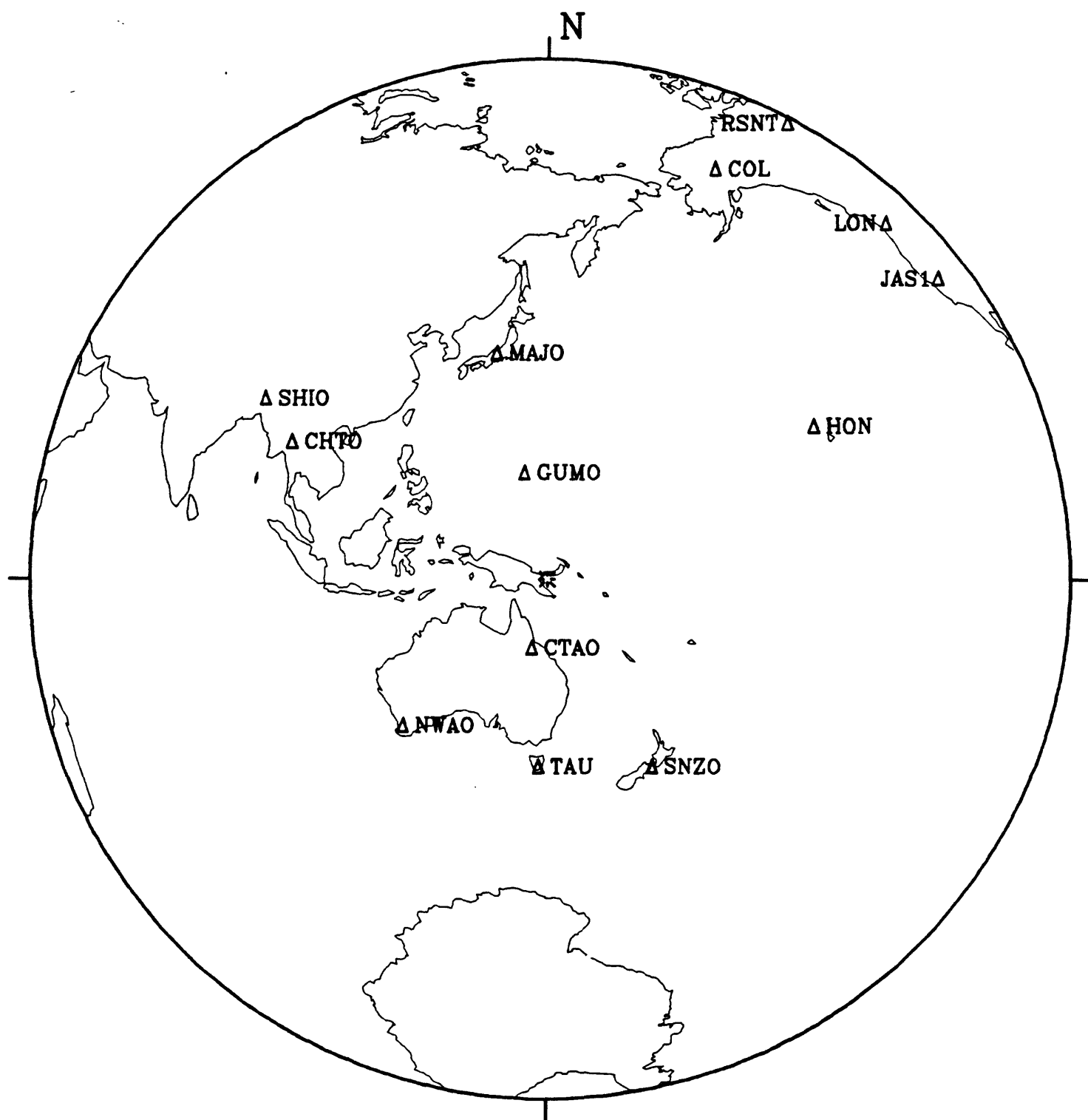
24 August 1985 06:53:15.44
South of Fiji Islands $h=353.5$ $m_b=5.6$

LPZ



26 August 1985 14:08:23.12

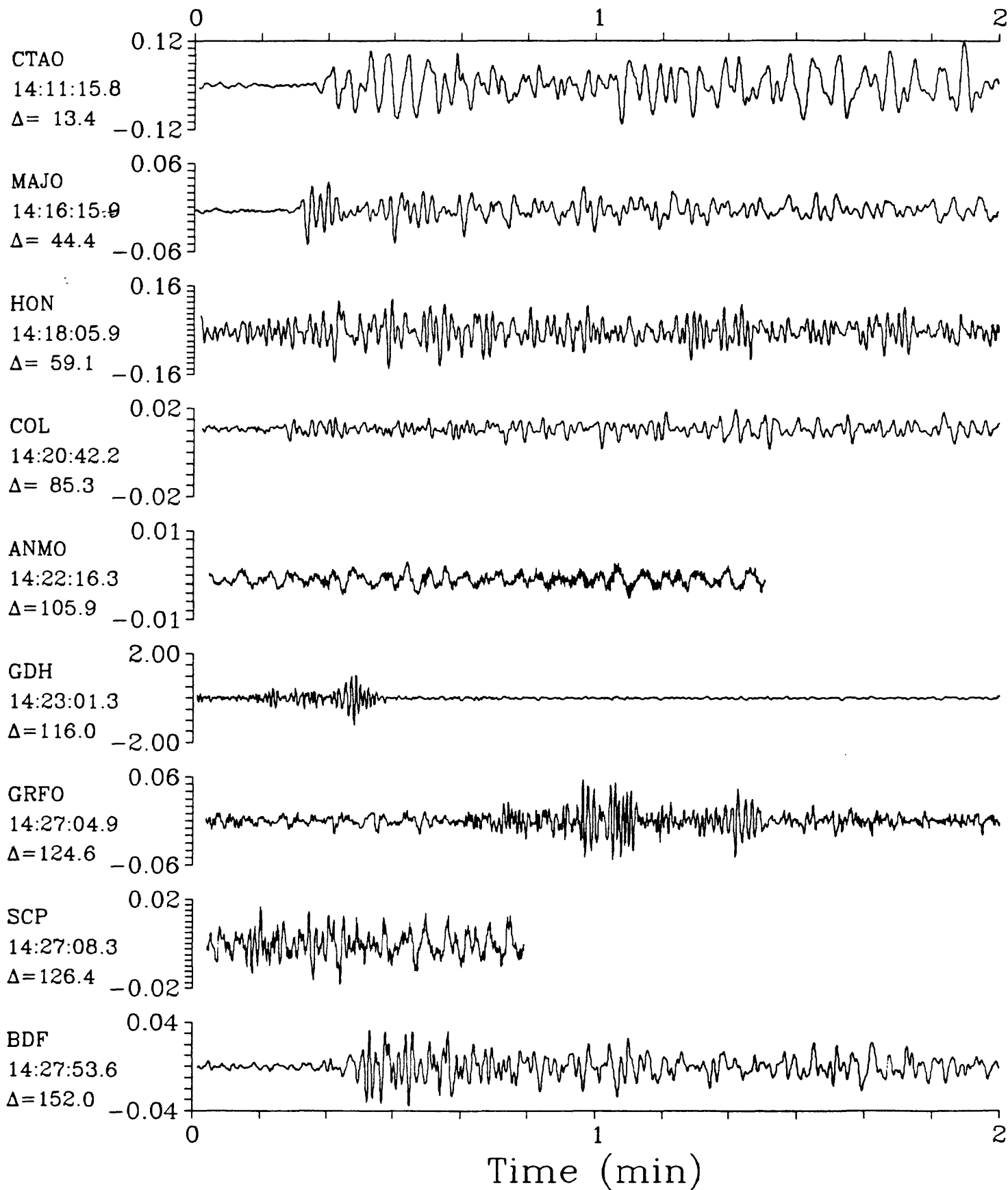
New Britain Region



SPZ

26 August 1985 14:08:23.12

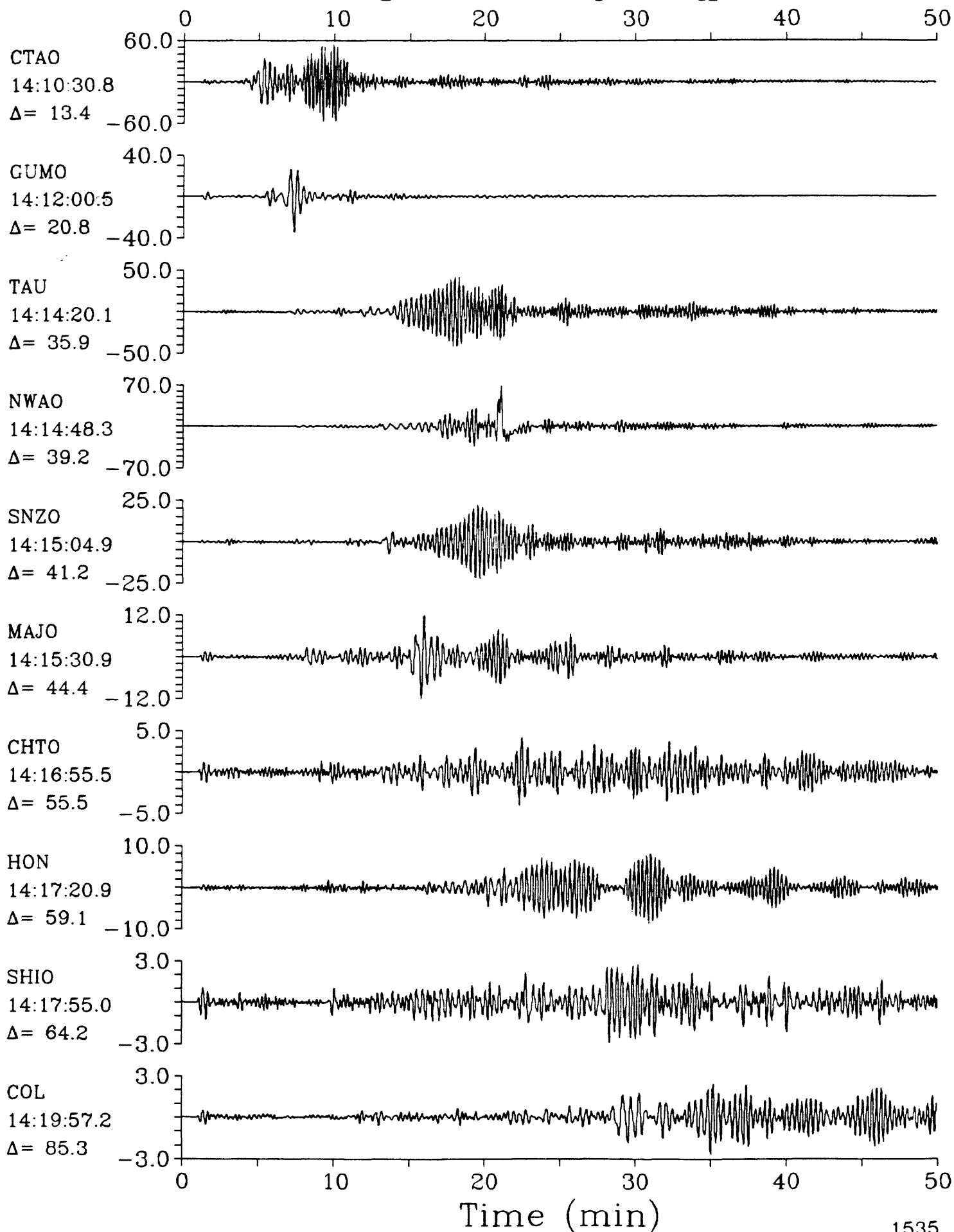
SPZ

New Britain Region $h=33.0$ $m_b=5.2$ $M_{sz}=6.1$ 

LPZ

26 August 1985 14:08:23.12

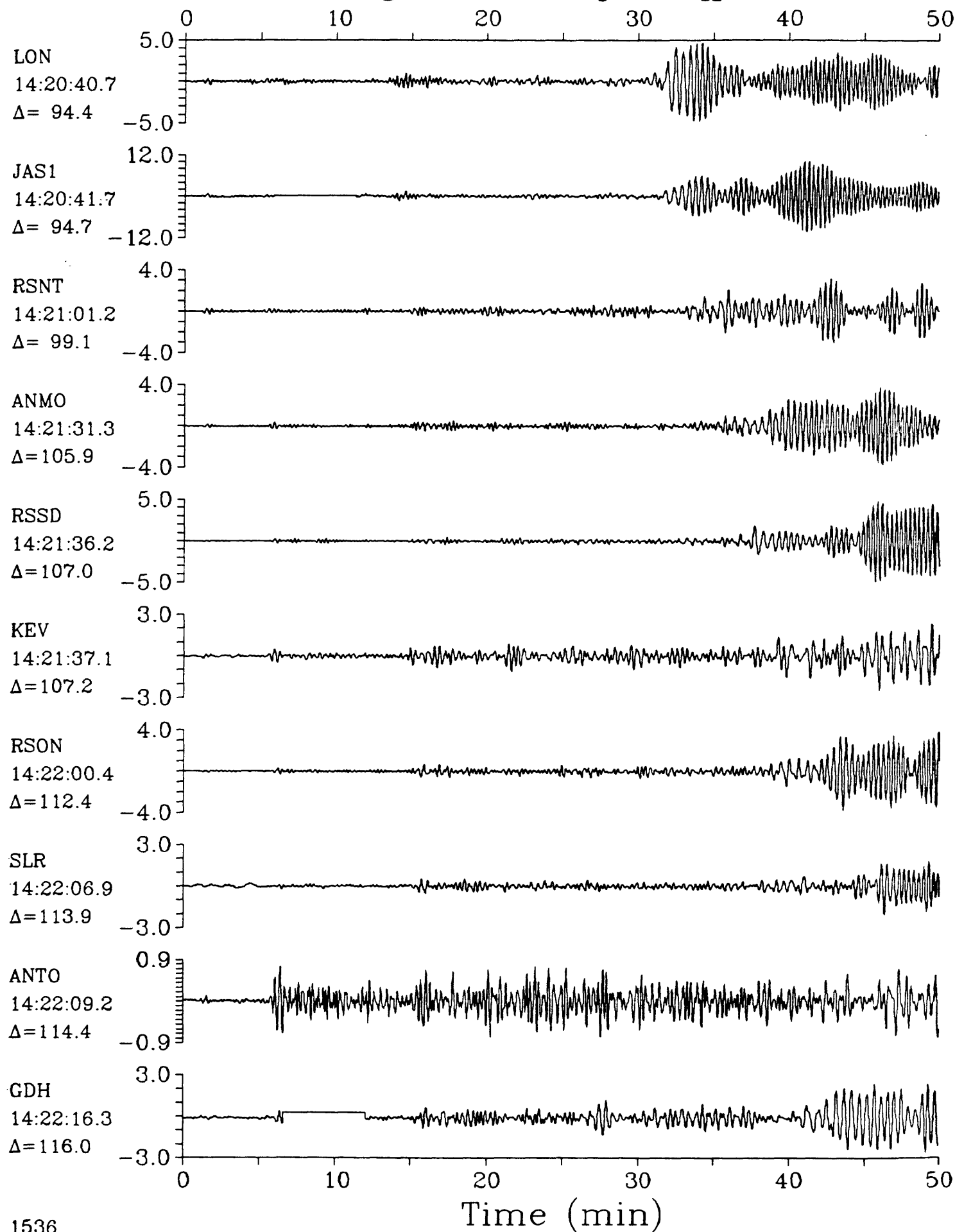
LPZ

New Britain Region $h=33.0$ $m_b=5.2$ $M_{sz}=6.1$ 

LPZ

26 August 1985 14:08:23.12

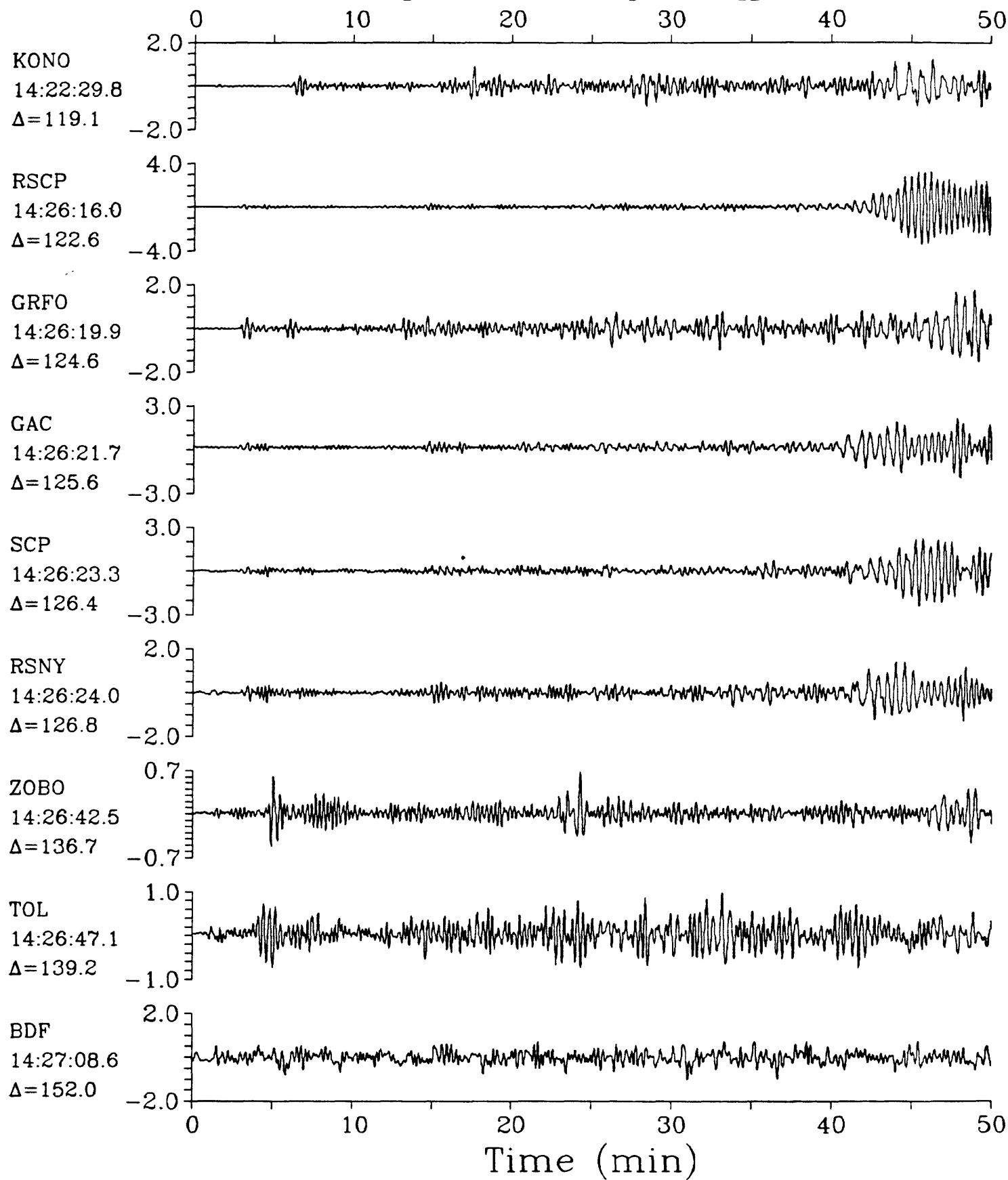
LPZ

New Britain Region $h=33.0$ $m_b=5.2$ $M_{sz}=6.1$ 

LPZ

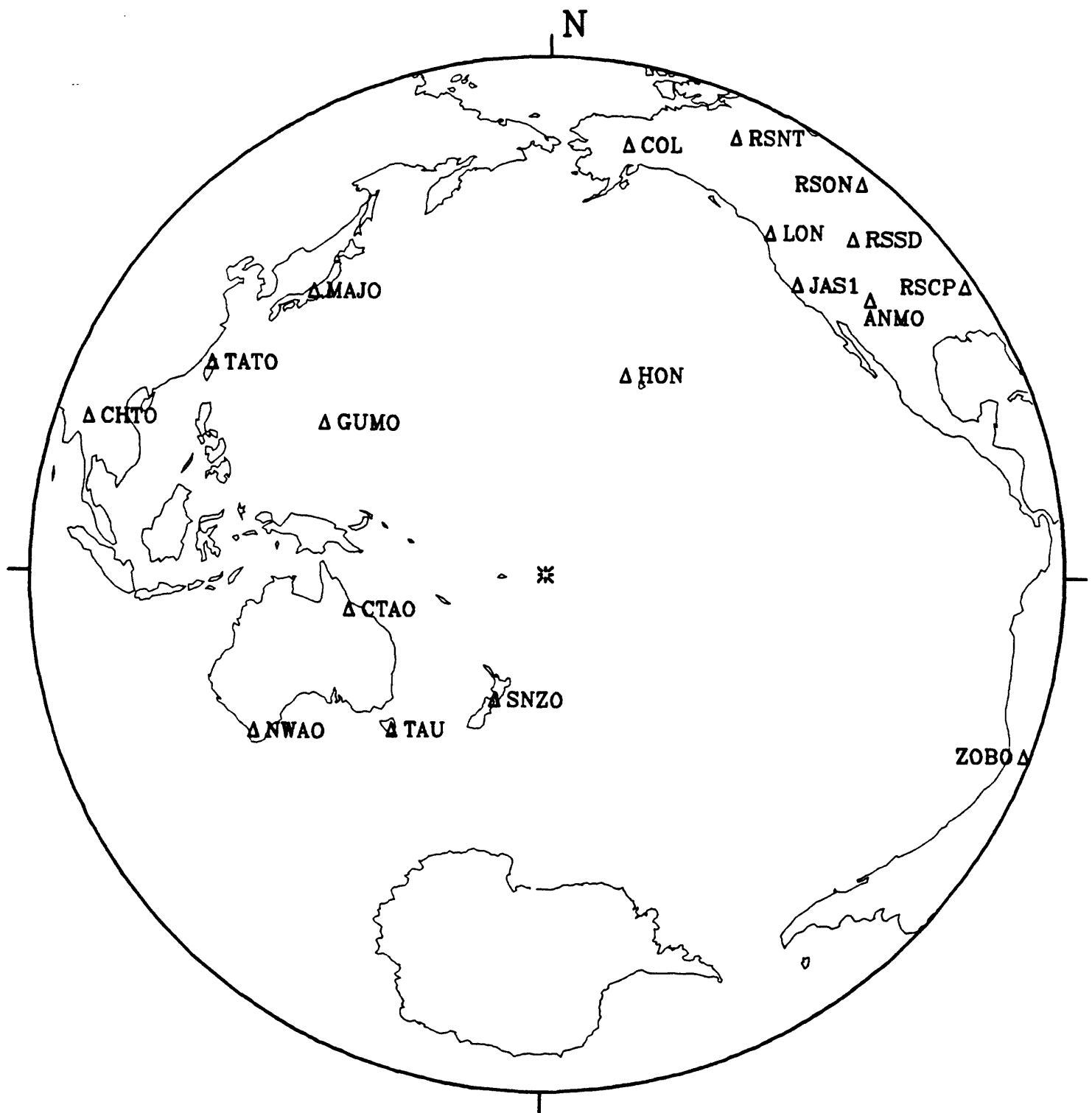
26 August 1985 14:08:23.12

LPZ

New Britain Region $h=33.0$ $m_b=5.2$ $M_{sz}=6.1$ 

27 August 1985 07:39:14.50

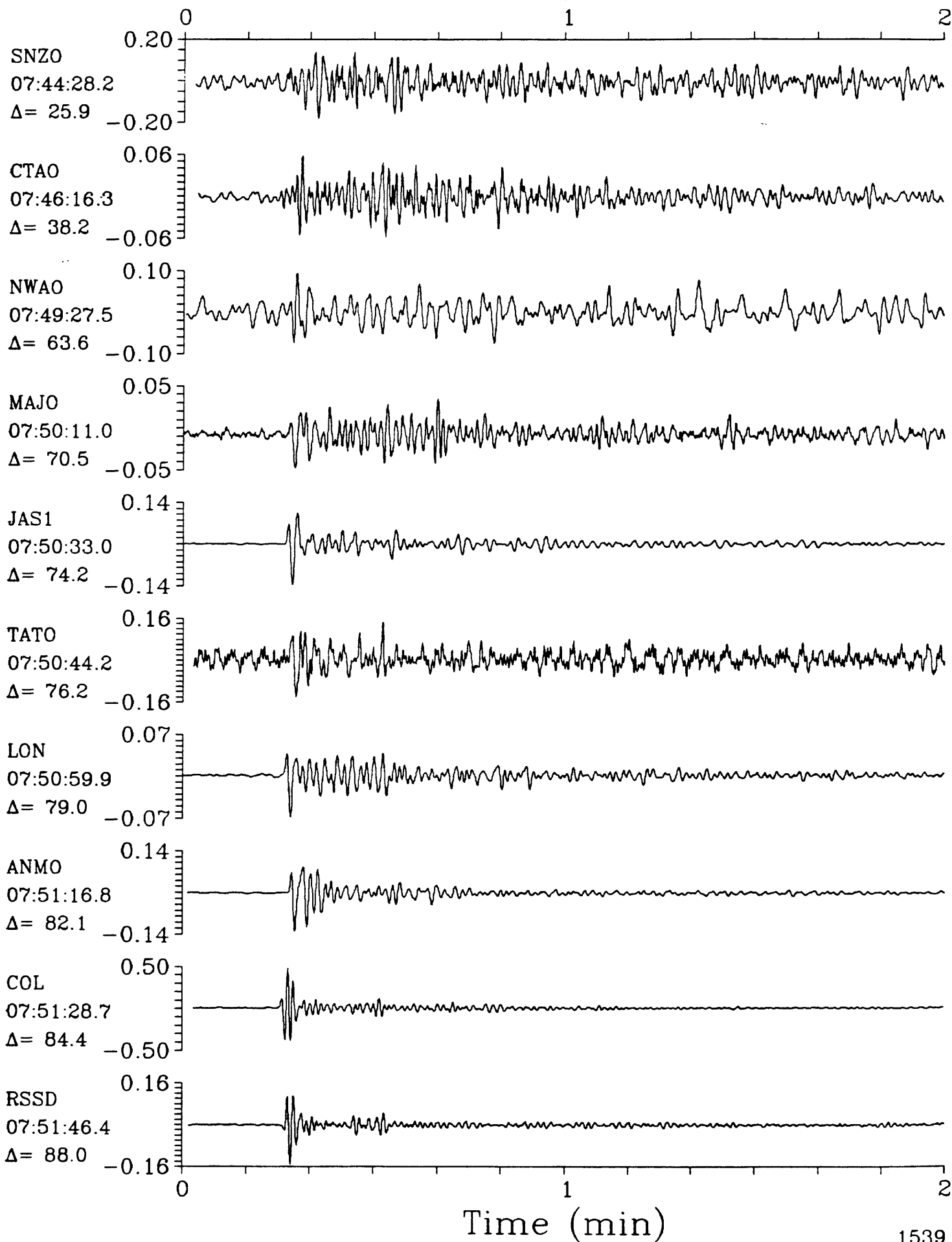
Tonga Islands



SPZ

27 August 1985 07:39:14.50
Tonga Islands $h=36.3$ $m_b=6.0$ $M_{SZ}=5.3$

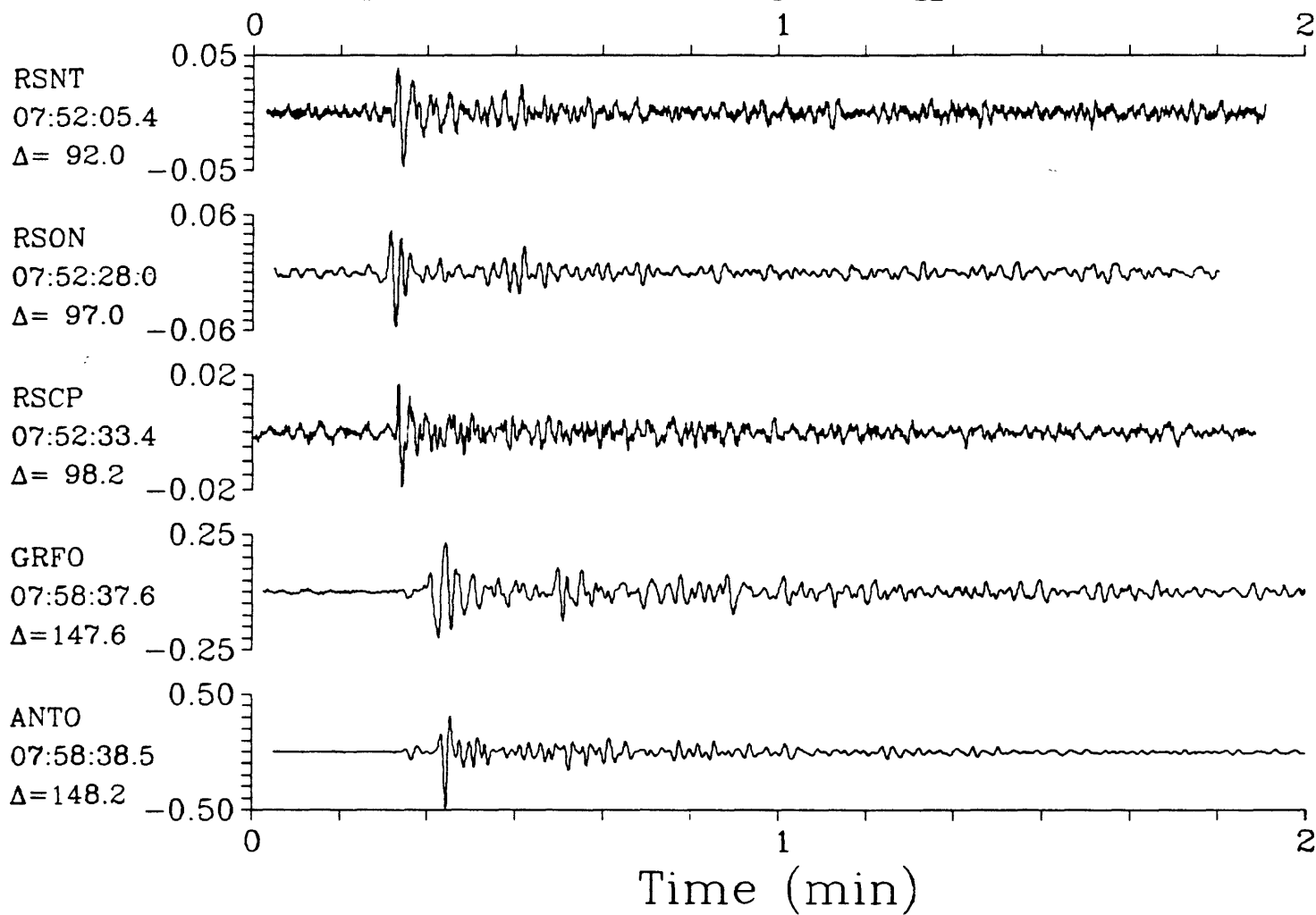
SPZ



SPZ

27 August 1985 07:39:14.50
Tonga Islands $h=36.3$ $m_b=6.0$ $M_{sz}=5.3$

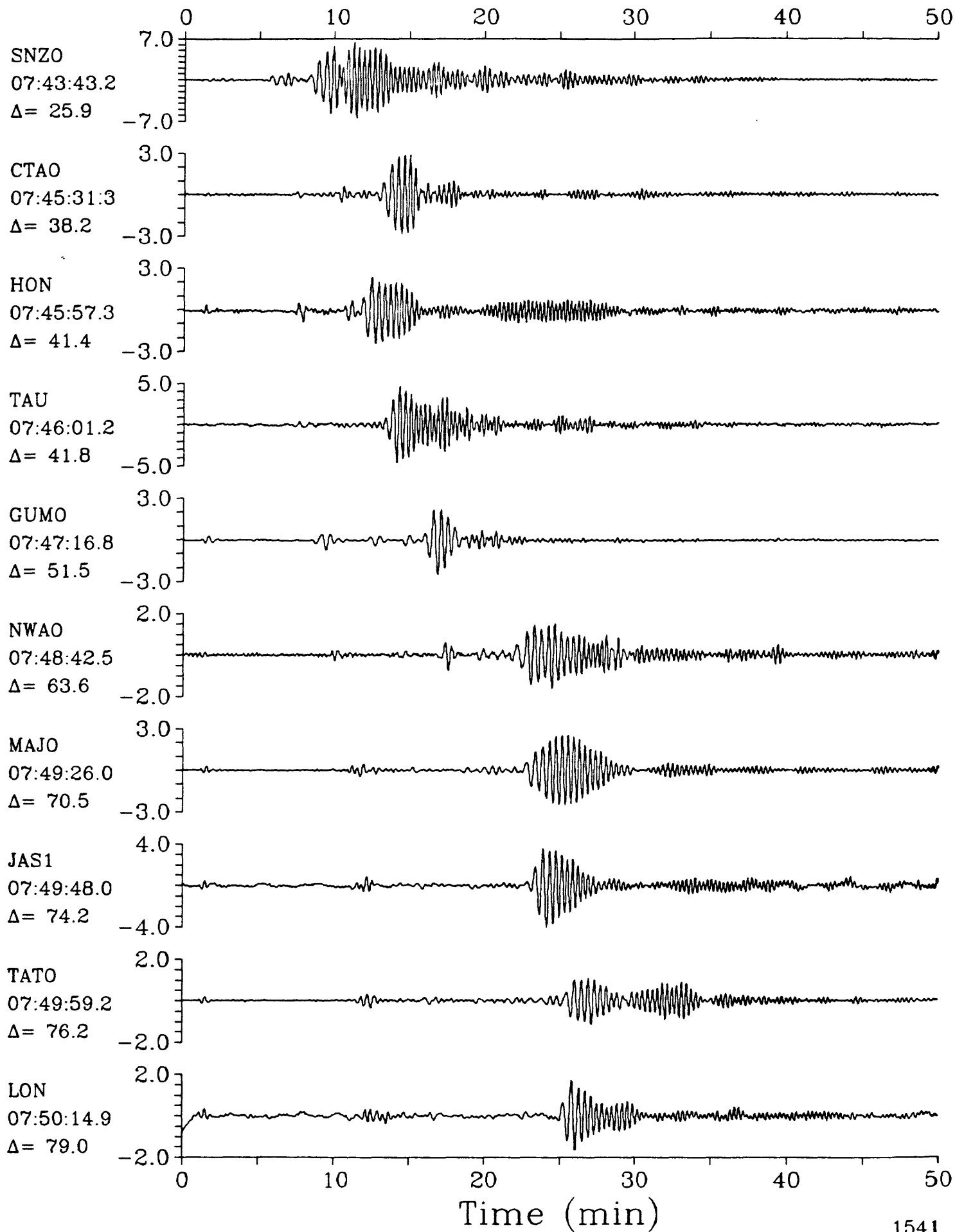
SPZ



LPZ

27 August 1985 07:39:14.50
Tonga Islands $h=36.3$ $m_b=6.0$ $M_{sz}=5.3$

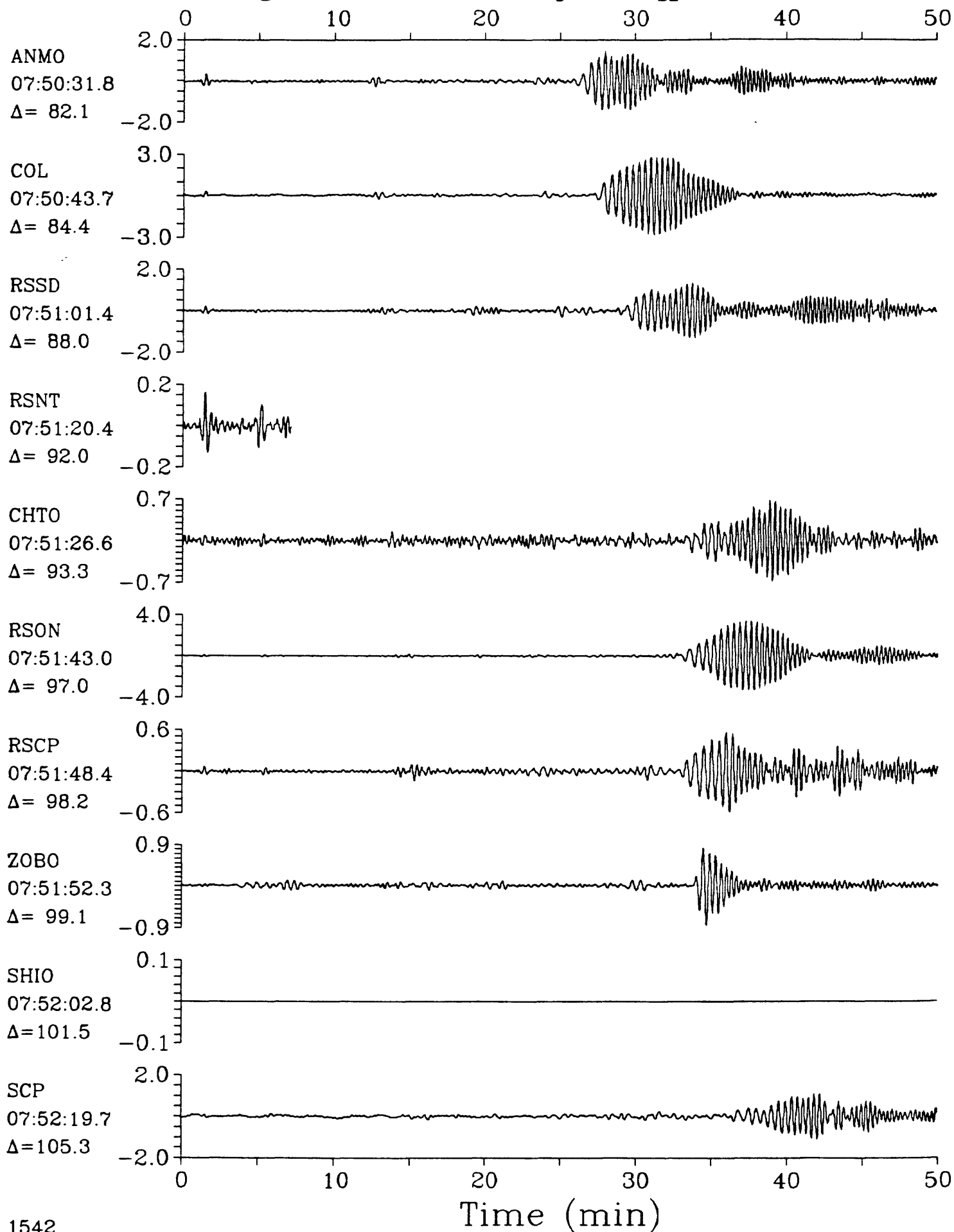
LPZ



LPZ

27 August 1985 07:39:14.50
Tonga Islands $h=36.3$ $m_b=6.0$ $M_{sz}=5.3$

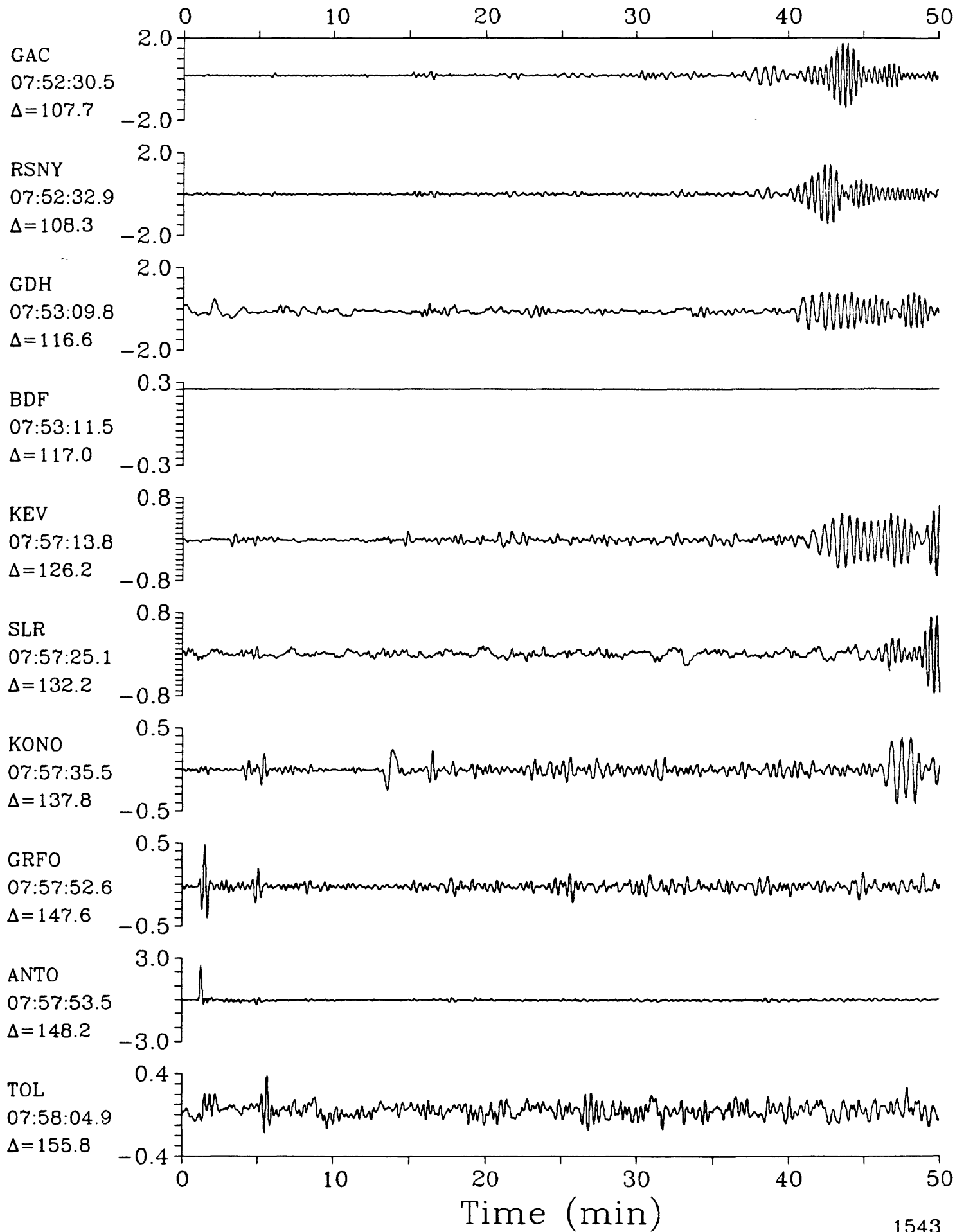
LPZ



LPZ

27 August 1985 07:39:14.50
Tonga Islands $h=36.3$ $m_b=6.0$ $M_{sz}=5.3$

LPZ

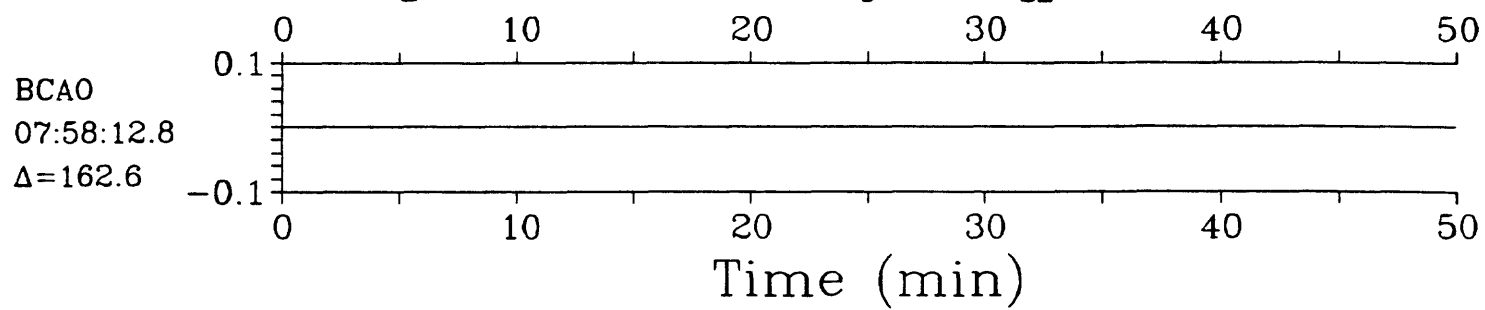


LPZ

27 August 1985 07:39:14.50

LPZ

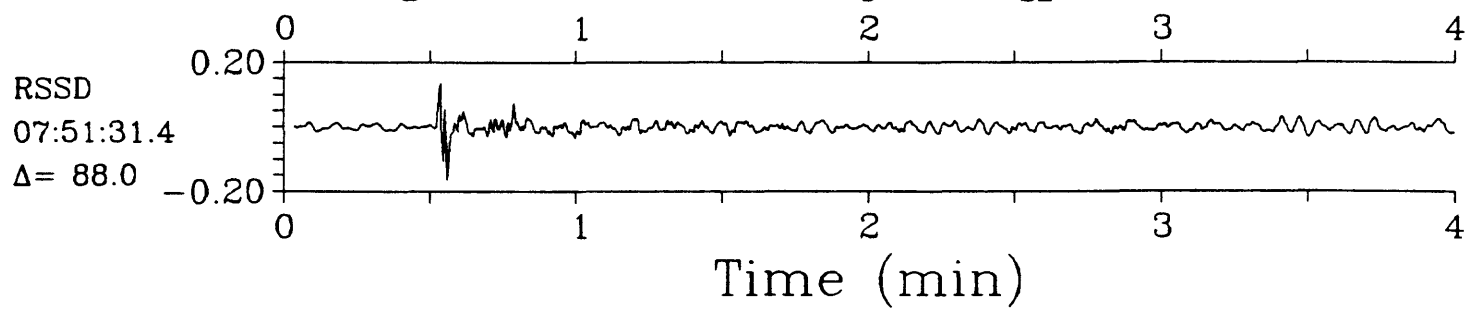
Tonga Islands $h=36.3$ $m_b=6.0$ $M_{sz}=5.3$



IPZ

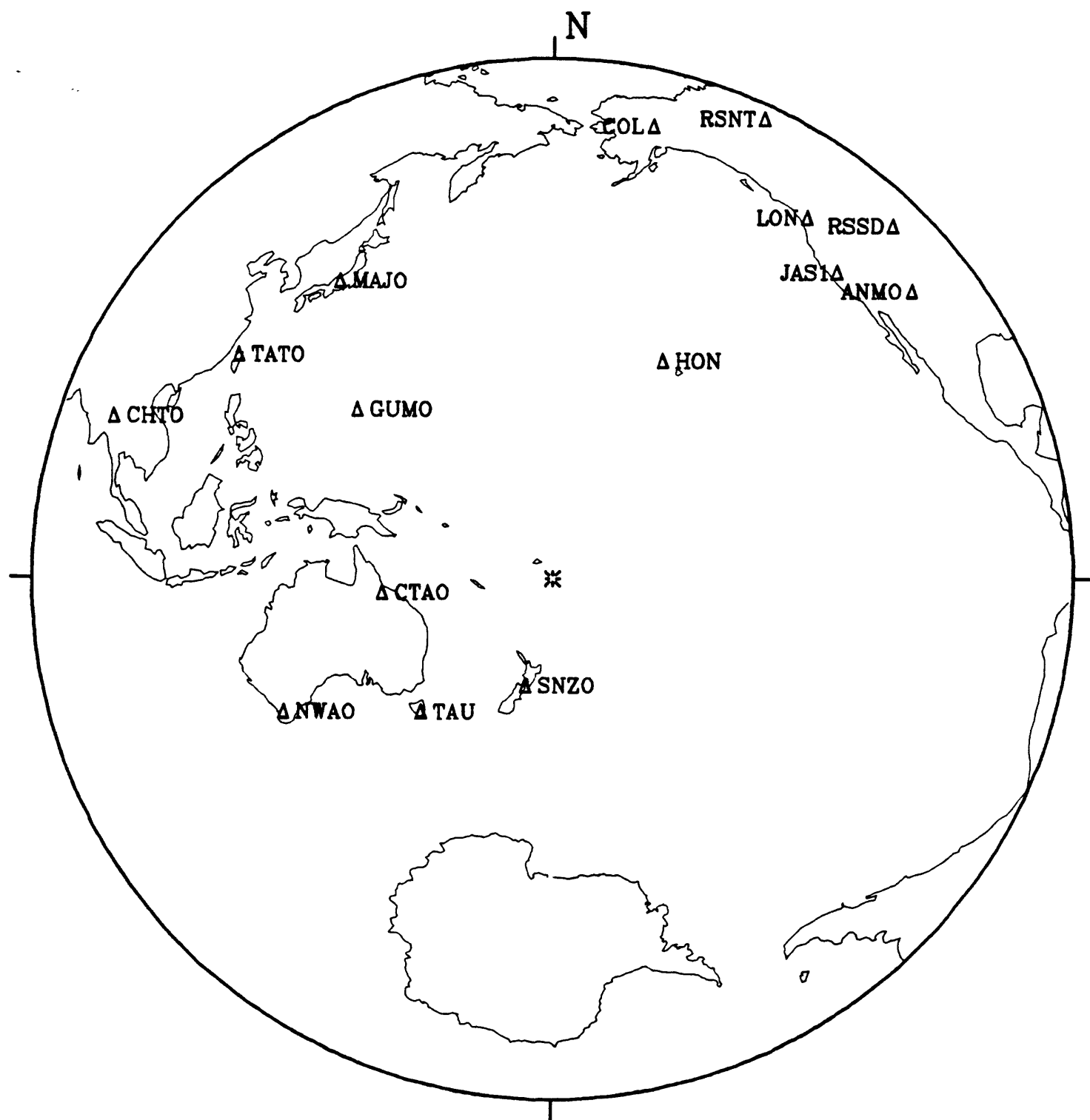
27 August 1985 07:39:14.50

IPZ

Tonga Islands $h=36.3$ $m_b=6.0$ $M_{sz}=5.3$ 

28 August 1985 20:50:48.47

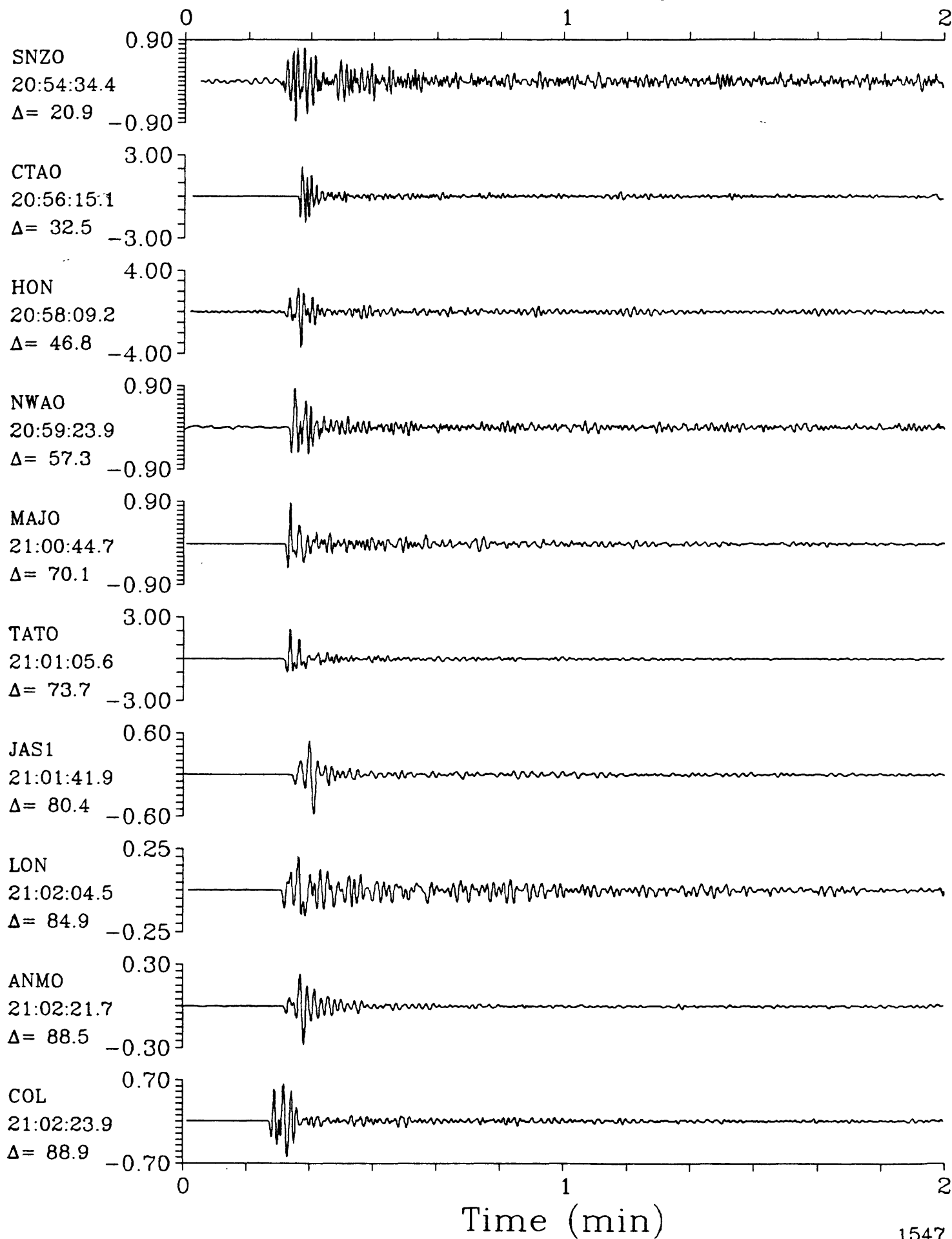
Fiji Islands Region



SPZ

28 August 1985 20:50:48.47
Fiji Islands Region $h=624.7$ $m_b=5.9$

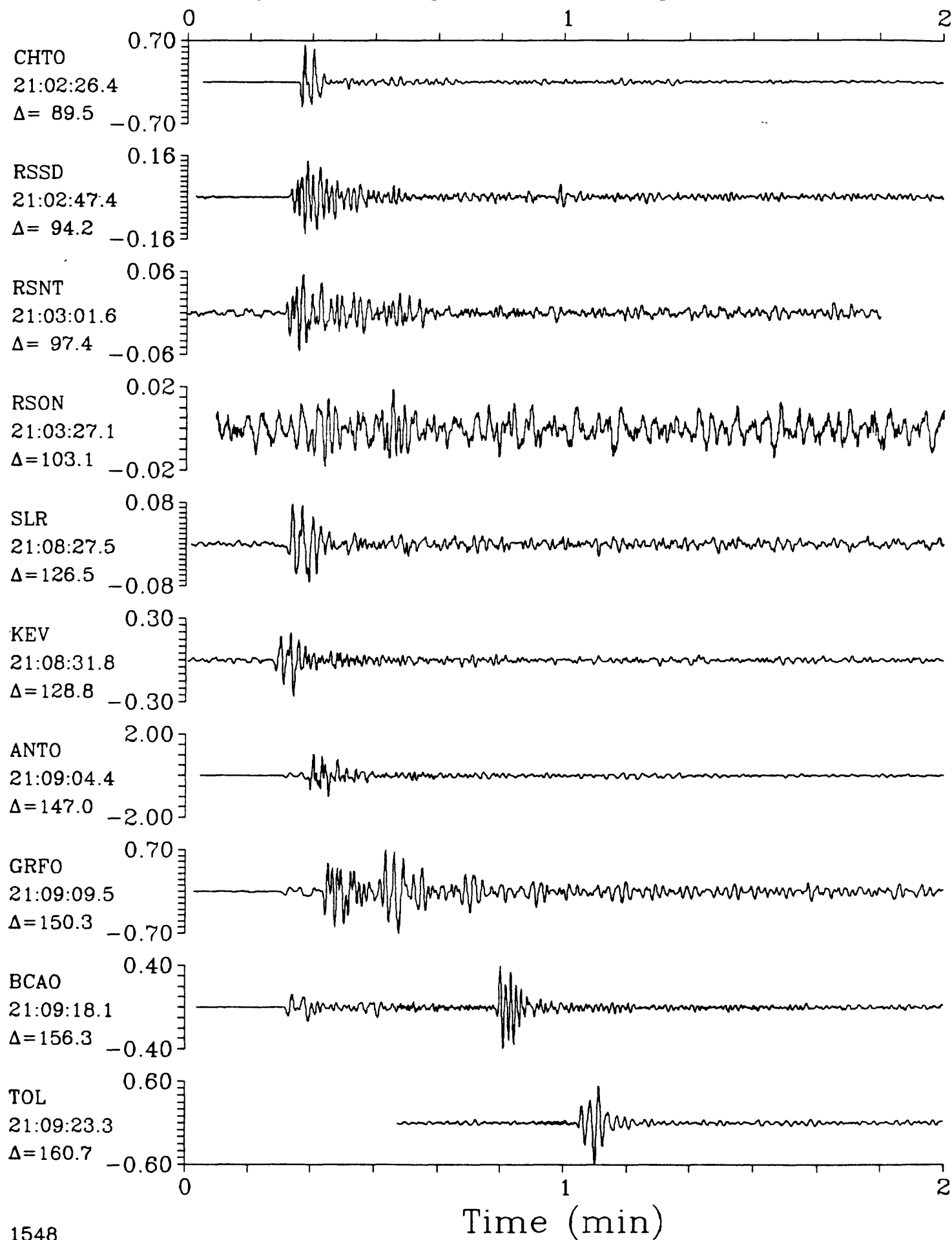
SPZ



SPZ

28 August 1985 20:50:48.47
Fiji Islands Region $h=624.7$ $m_b=5.9$

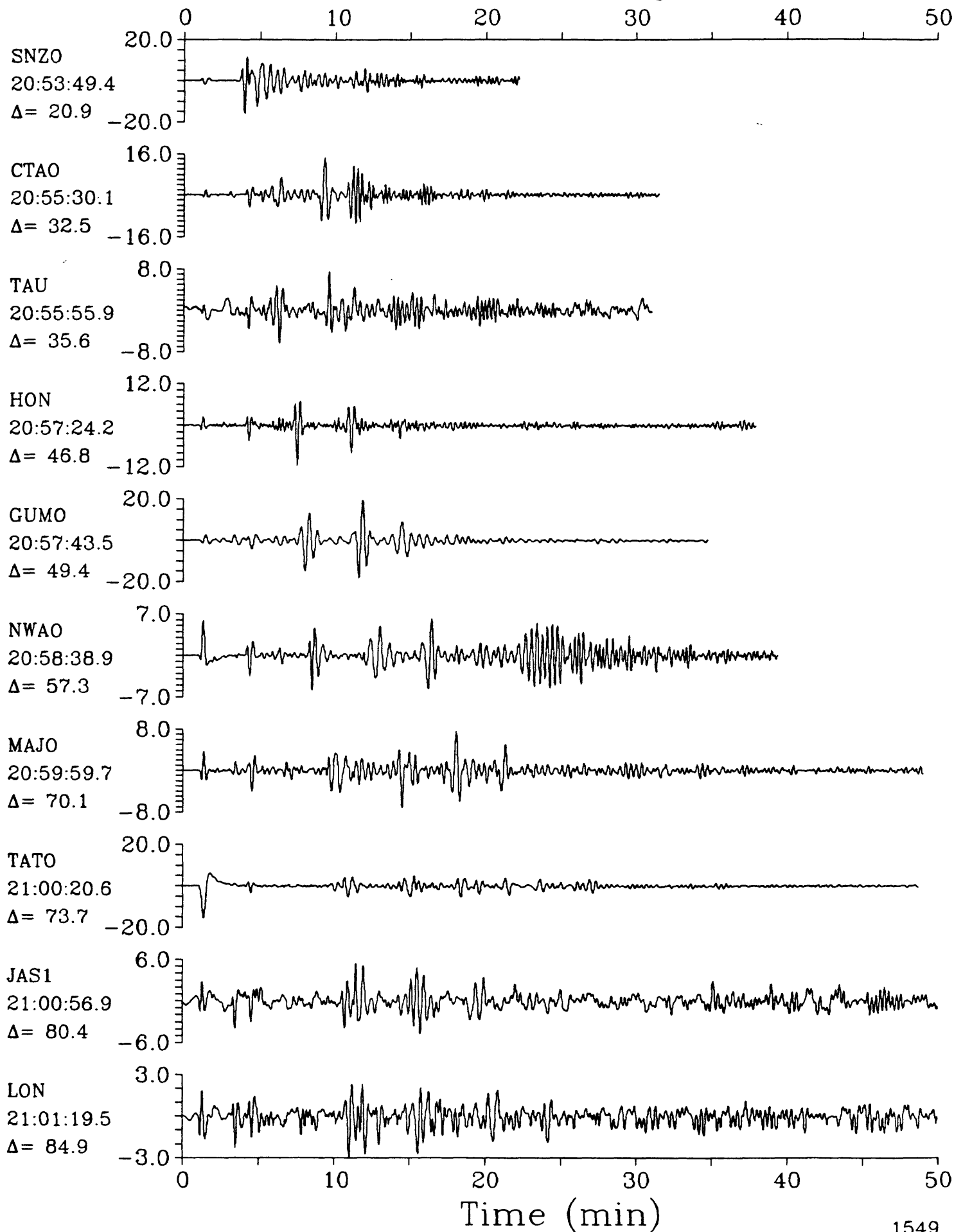
SPZ



LPZ

28 August 1985 20:50:48.47
Fiji Islands Region $h=624.7$ $m_b=5.9$

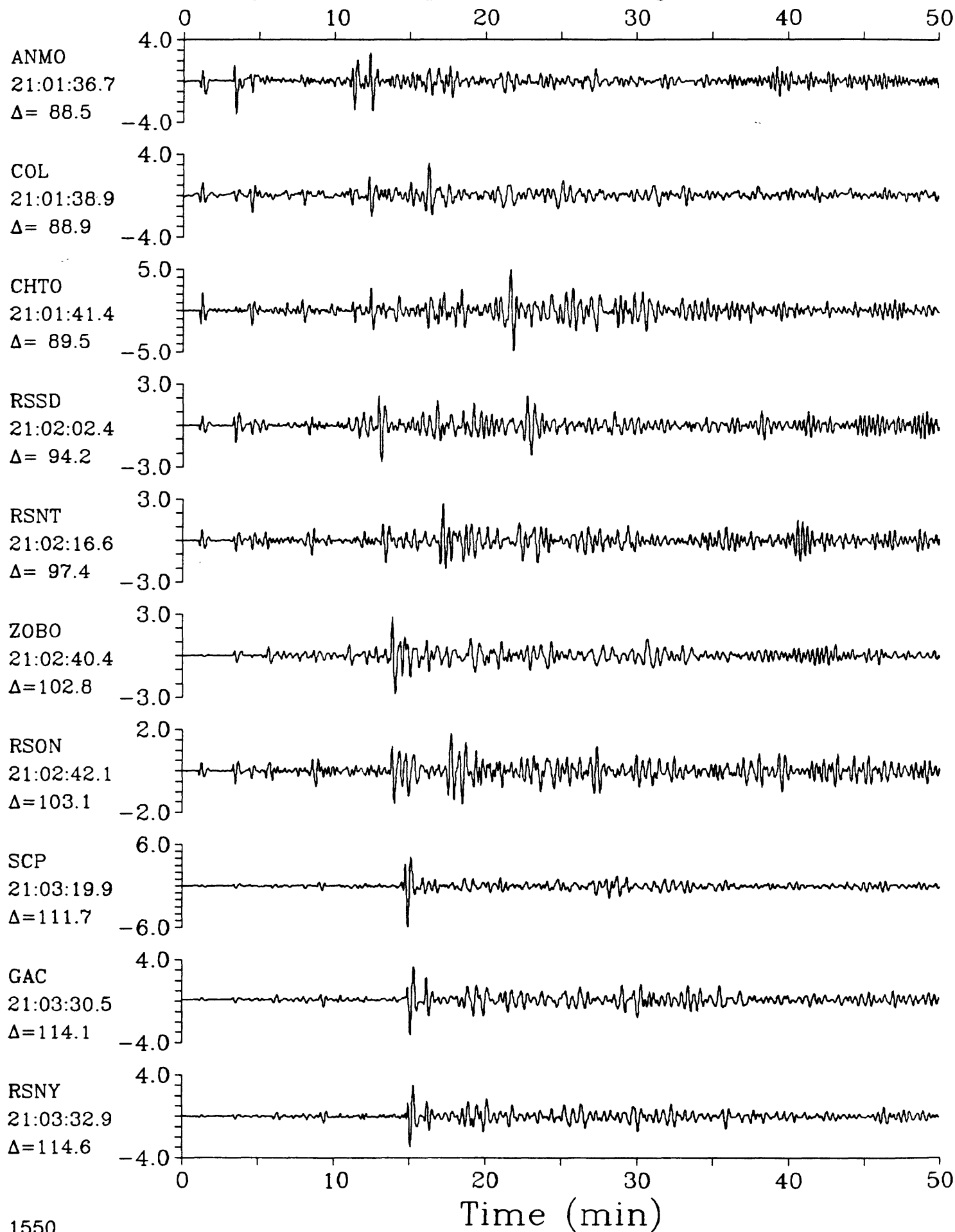
LPZ



LPZ

28 August 1985 20:50:48.47
Fiji Islands Region $h=624.7$ $m_b=5.9$

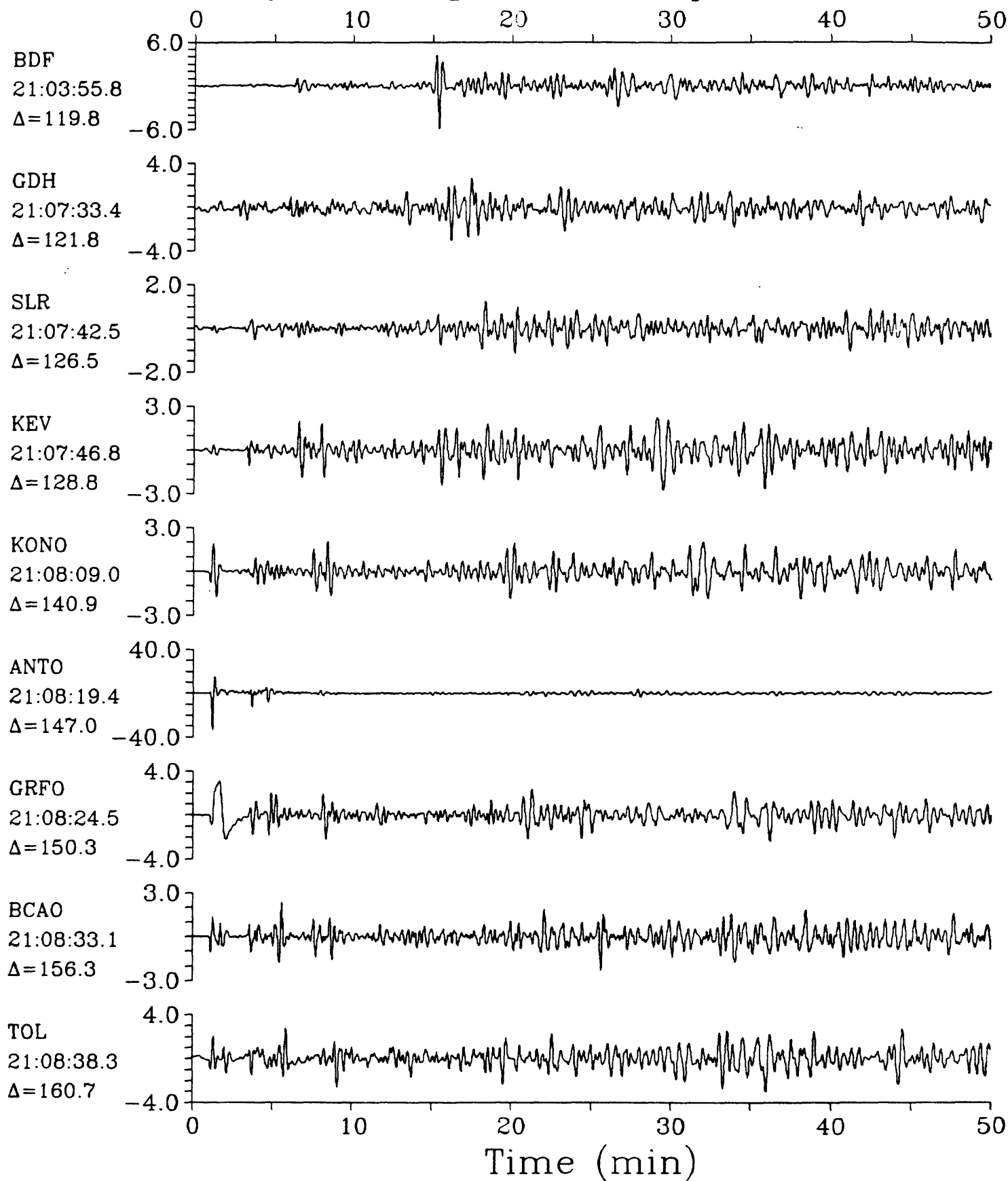
LPZ



LPZ

28 August 1985 20:50:48.47
Fiji Islands Region $h=624.7$ $m_b=5.9$

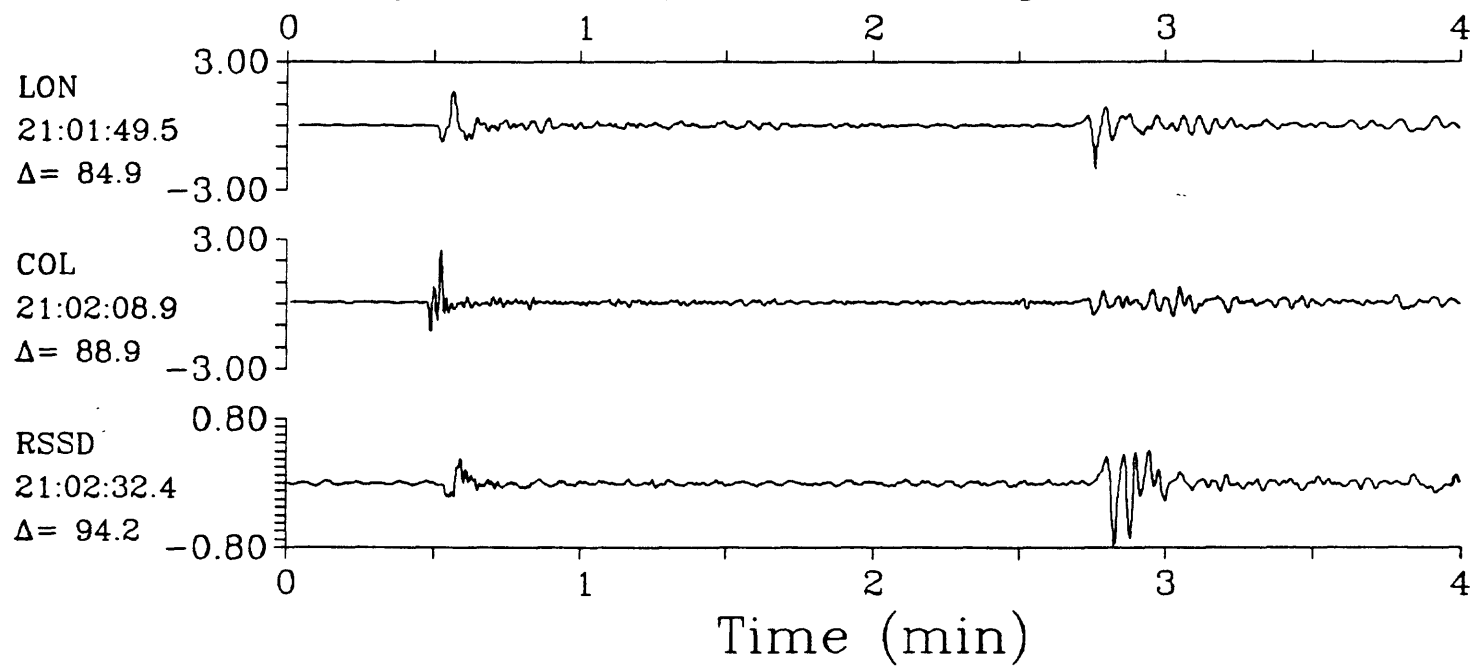
LPZ



IPZ

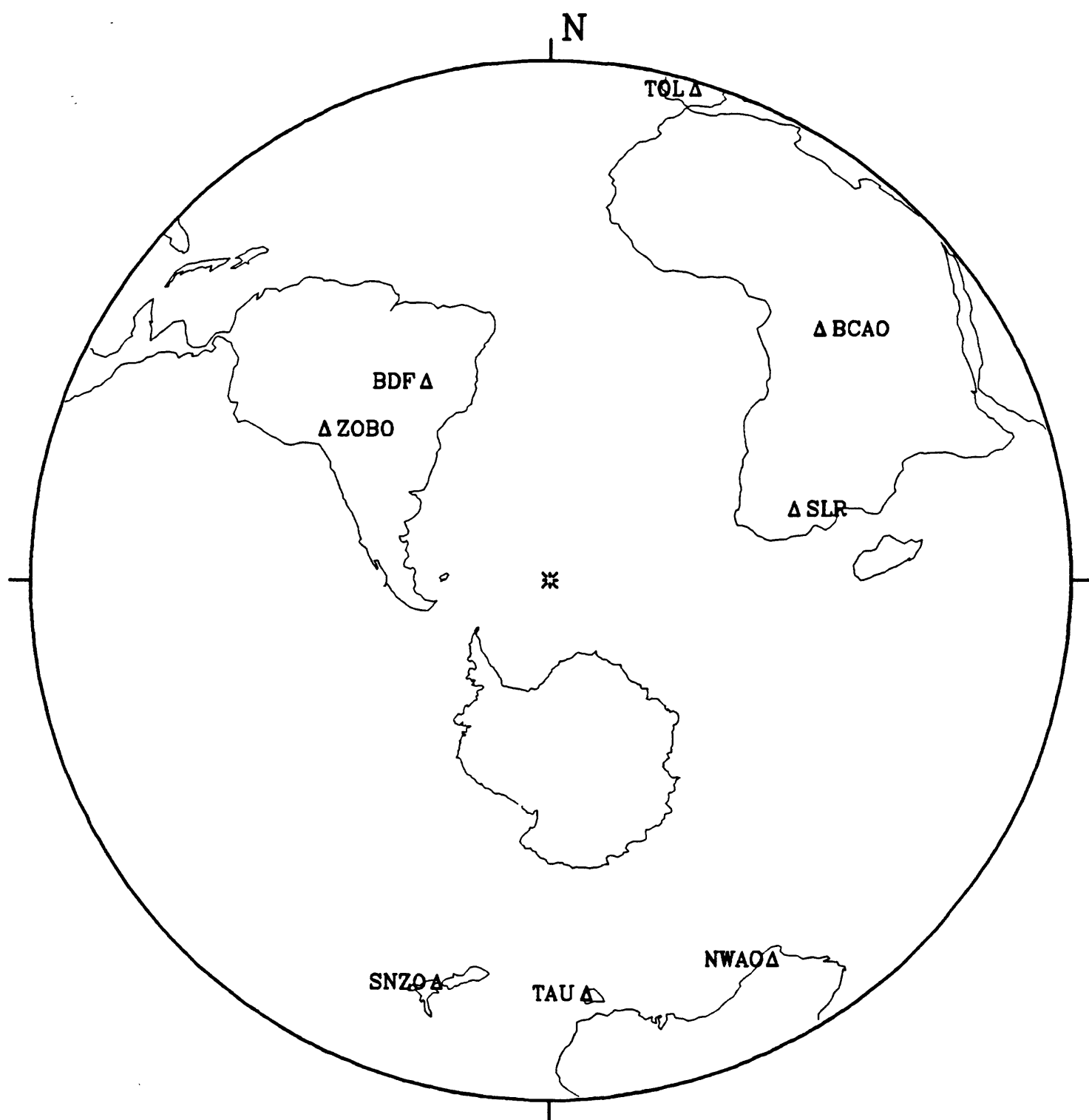
28 August 1985 20:50:48.47
Fiji Islands Region $h=624.7$ $m_b=5.9$

IPZ



29 August 1985 06:13:16.32

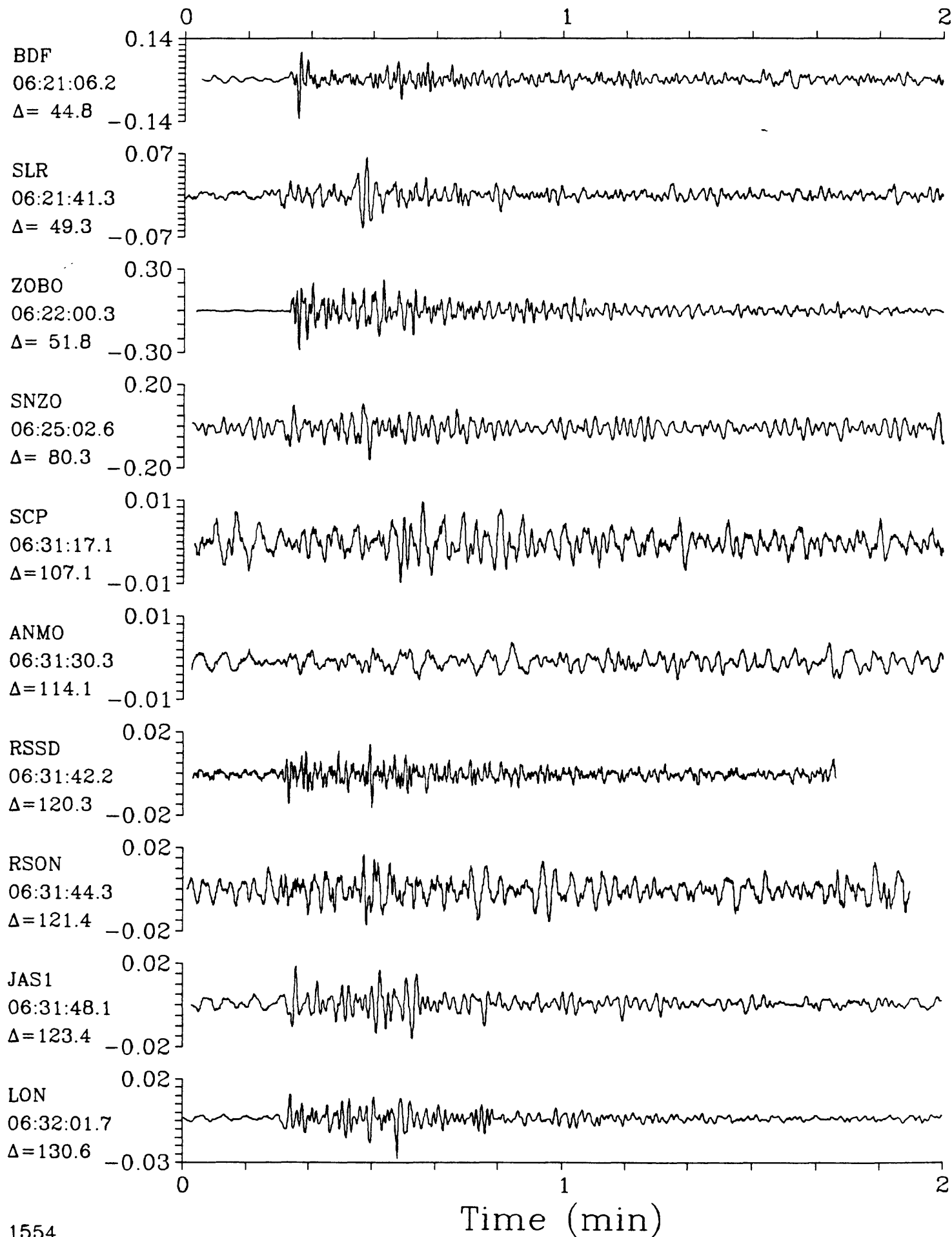
South Sandwich Islands Region



SPZ

29 August 1985 06:13:16.32

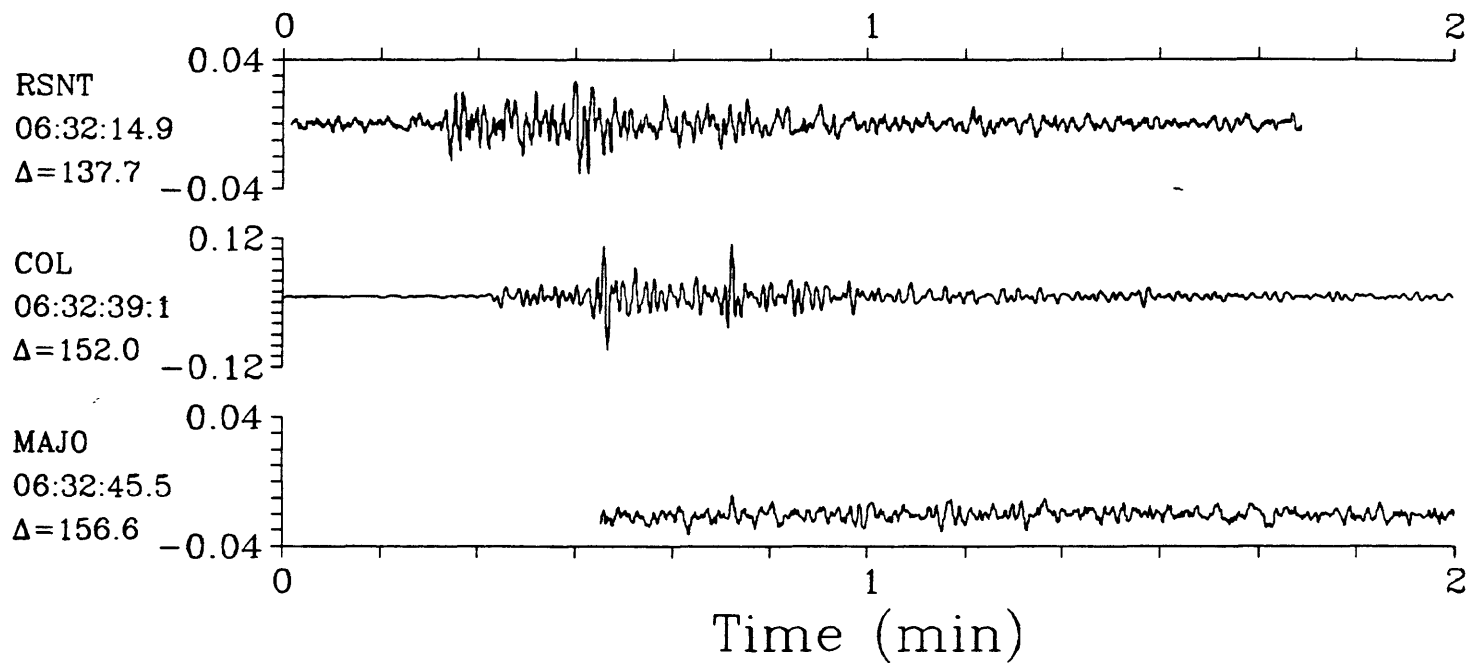
SPZ

South Sandwich Islands Region $h=94.1$ $m_b=5.6$ 

SPZ

29 August 1985 06:13:16.32

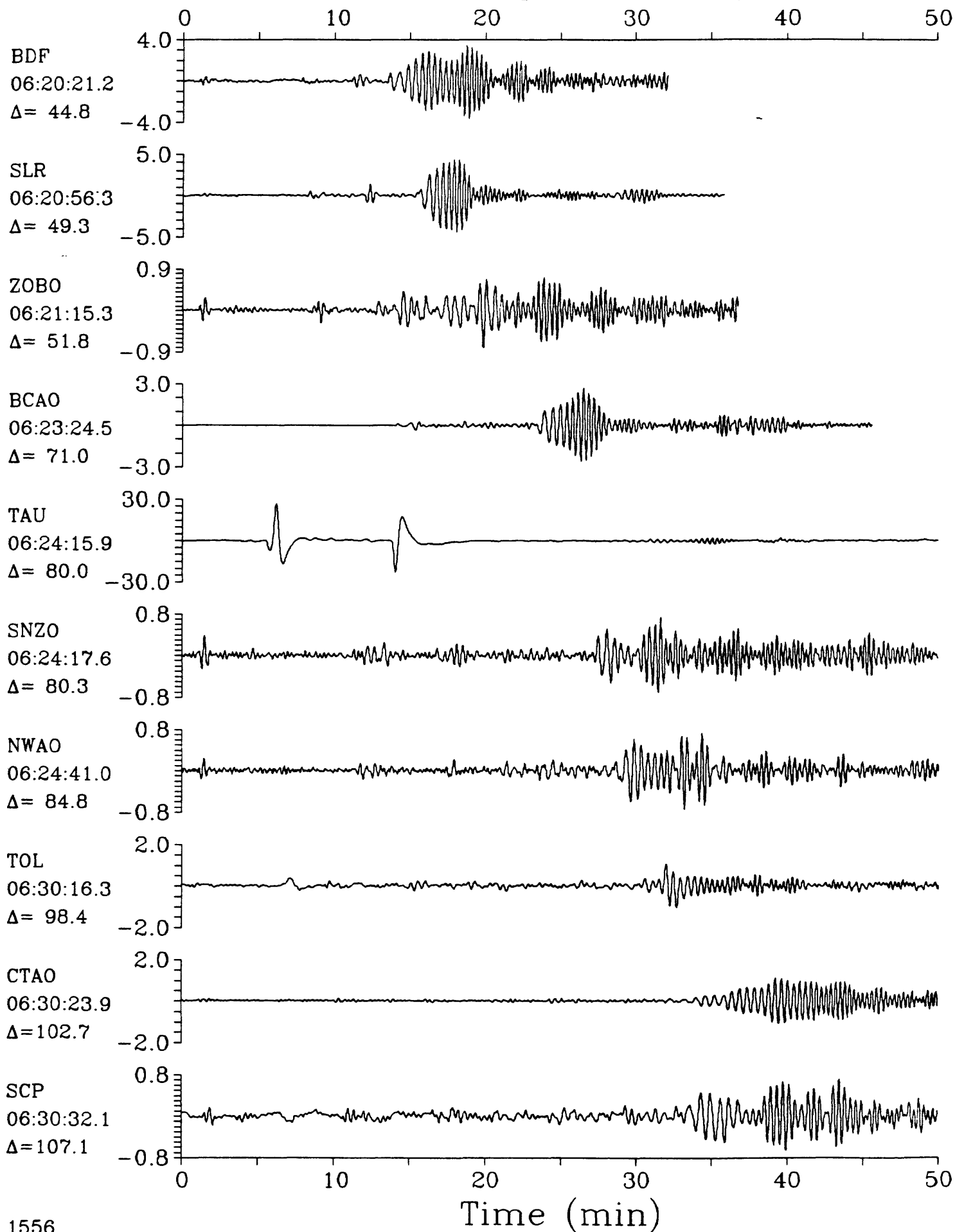
SPZ

South Sandwich Islands Region $h=94.1$ $m_b=5.6$ 

LPZ

29 August 1985 06:13:16.32

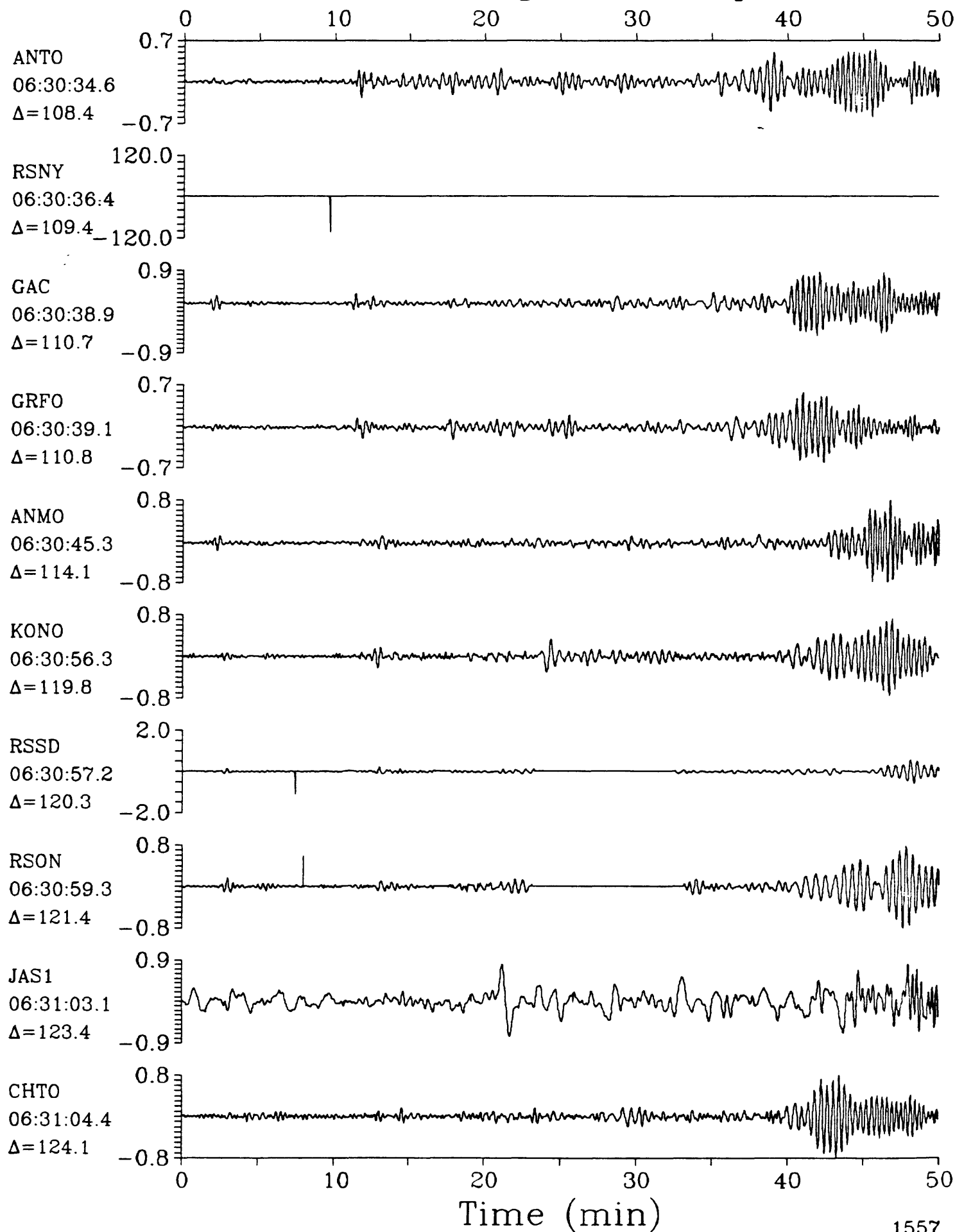
LPZ

South Sandwich Islands Region $h=94.1$ $m_b=5.6$ 

LPZ

29 August 1985 06:13:16.32

LPZ

South Sandwich Islands Region $h=94.1$ $m_b=5.6$ 

LPZ

29 August 1985 06:13:16.32

LPZ

South Sandwich Islands Region $h=94.1$ $m_b=5.6$ 