

DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

National Earthquake Information Center
Waveform Catalog
July 1985

by

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Denver, Colorado

Open-File Report 85-660g
1985

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

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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 July 1985 with magnitudes ≥ 5.5

	Origin Time UTC	Latitude	Longitude	Depth (km)	m_b	Magnitude M_{sz}	Flinn-Engdahl Region Name
1.	1985 07 02 13:12:32.96	33.847° S	56.346° E	10.0	5.5	5.4	Atlantic-Indian Rise
2.	1985 07 02 13:48:18.93	33.801° S	56.432° E	10.0	5.6	5.8	Atlantic-Indian Rise
3.	1985 07 03 03:11:30.51	54.983° S	146.299° E	10.0	5.7	6.2	West of Macquarie Island
4.	1985 07 03 04:36:52.47	4.463° S	152.823° E	41.1	6.2	7.2	New Britain Region
5.	1985 07 03 15:55:49.00	17.251° S	167.839° E	28.4	5.8	6.4	Vanuatu Islands
6.	1985 07 03 19:08:54.98	30.185° S	178.658° W	173.1	5.5		Kermadec Islands
7.	1985 07 06 03:37:18.26	29.746° S	177.849° W	51.0	5.7	5.9	Kermadec Islands
8.	1985 07 06 14:37:22.25	9.731° S	117.739° E	33.0	5.6	4.7	Sumbawa Island Region
9.	1985 07 07 11:25:12.04	32.879° S	71.998° W	31.7	5.4	5.9	Near Coast of Central Chile
10.	1985 07 08 18:48:28.91	5.268° N	126.617° E	65.2	5.5		Mindanao, Philippine Islands
11.	1985 07 08 19:37:36.19	59.755° S	149.471° E	10.0	5.4	6.1	West of Macquarie Island
12.	1985 07 09 13:27:00.28	8.586° S	110.279° E	81.1	5.6		Java
13.	1985 07 10 05:06:33.18	38.632° S	91.646° W	10.0	5.3	5.7	West Chile Rise
14.	1985 07 12 06:11:49.14	5.627° S	101.799° E	33.0	5.5	5.3	Southwest of Sumatera
15.	1985 07 17 08:09:29.24	4.259° S	152.875° E	33.0	5.6	5.6	New Britain Region
16.	1985 07 17 19:31:30.31	51.632° N	172.937° W	33.0	5.5	5.9	Andeanof Islands, Aleutian Is.
17.	1985 07 18 00:25:25.91	37.128° S	78.270° E	10.0	5.3	5.8	Mid-Indian Rise
18.	1985 07 19 14:33:59.02	38.650° S	177.065° E	33.0	5.6	5.8	North Island, New Zealand
19.	1985 07 20 00:53:14.56	49.951° N	78.847° E	0.0	5.9	4.2	Eastern Kazakh SSR
20.	1985 07 21 13:10:33.34	19.036° N	67.974° W	23.1	5.7	5.4	Mona Passage
21.	1985 07 22 09:26:52.11	6.281° S	148.725° E	33.0	5.9	6.9	New Britain Region
22.	1985 07 22 09:51:33.24	6.630° S	148.881° E	33.0	5.5		New Britain Region
23.	1985 07 22 11:25:24.97	6.370° S	148.774° E	33.0	5.1	5.6	New Britain Region
24.	1985 07 26 12:18:05.81	11.319° S	166.289° E	33.0	5.8	5.2	Santa Cruz Islands
25.	1985 07 27 16:26:45.59	26.935° S	113.412° W	10.0	5.4	5.6	Easter Island Region
26.	1985 07 28 22:59:54.59	60.312° S	26.910° W	33.0	5.8	6.4	South Sandwich Islands Region
27.	1985 07 29 07:54:44.34	36.186° N	70.890° E	101.1	6.7		Hindu Kush Region
28.	1985 07 31 07:37:54.57	52.394° N	173.497° E	44.3	5.6	5.0	Near Islands, Aleutian Islands

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 (Narrogin), 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

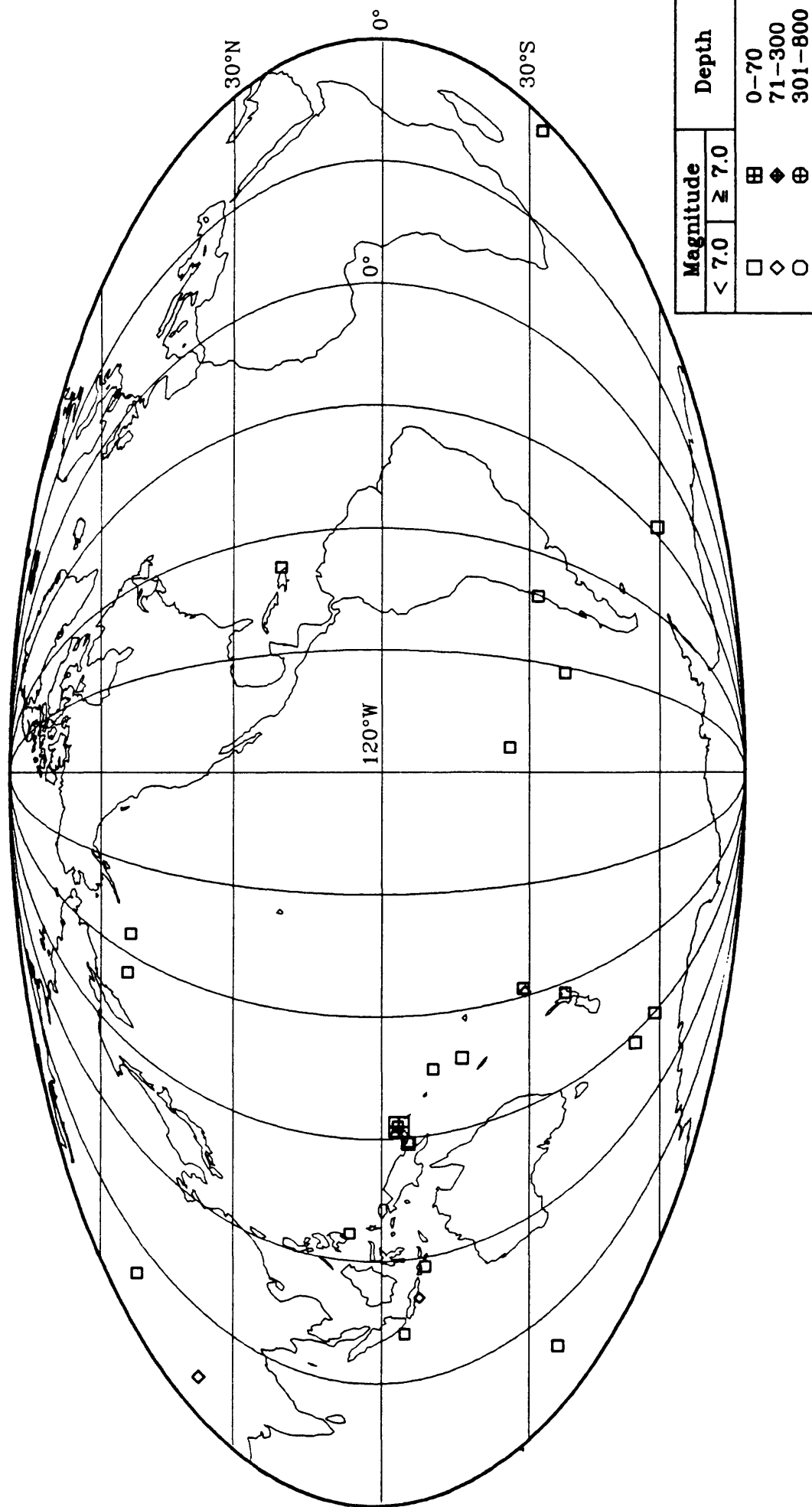
* SRO - Seismic Research Observatory

ASRO - Abbreviated Seismic Research Observatory

DWWSSN - Digital World Wide Standardized Seismograph Network

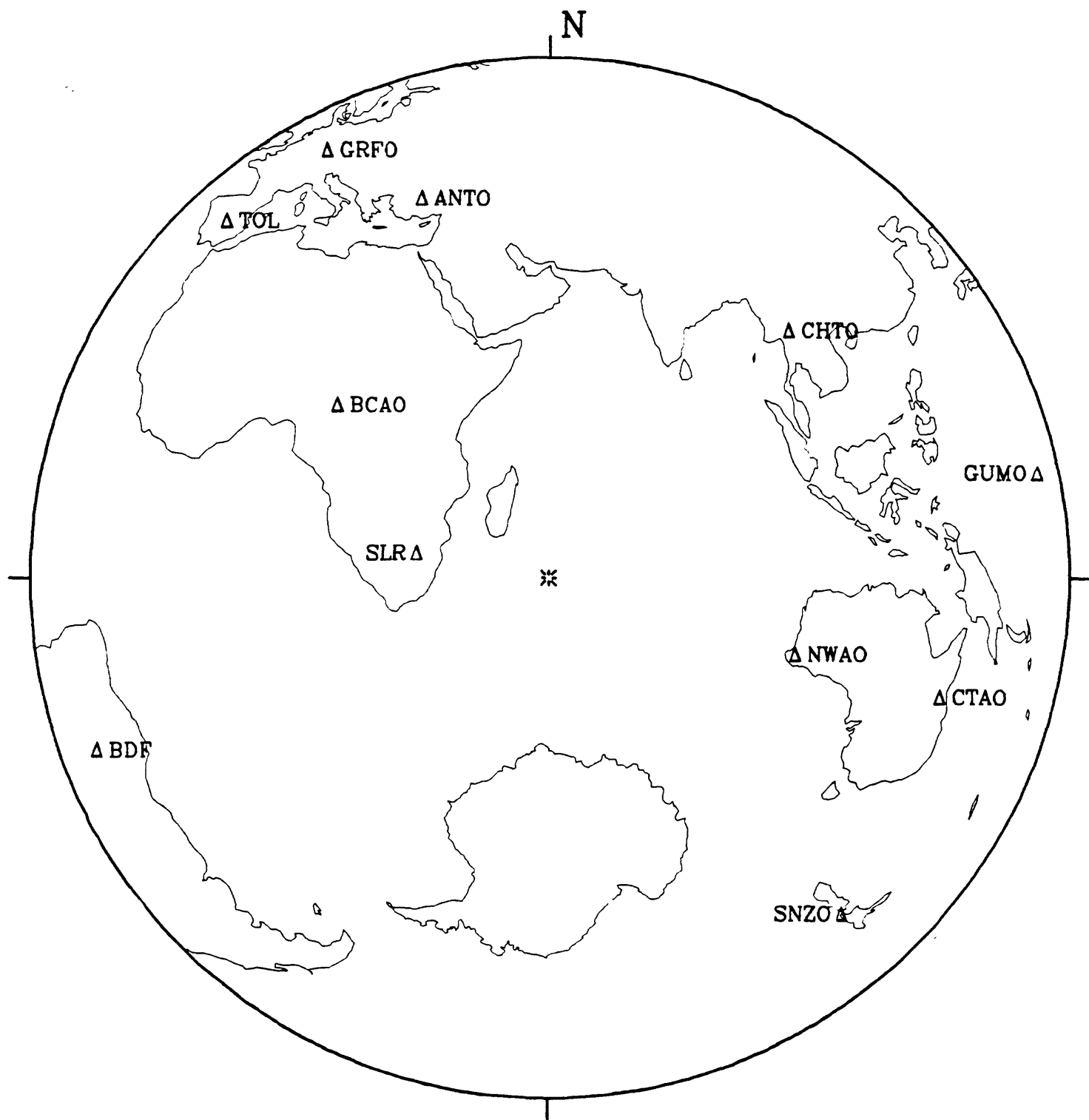
RSTN - Regional Seismic Test Network

EARTHQUAKES - July 1985 - MAGNITUDE ≥ 5.5



02 July 1985 13:12:32.96

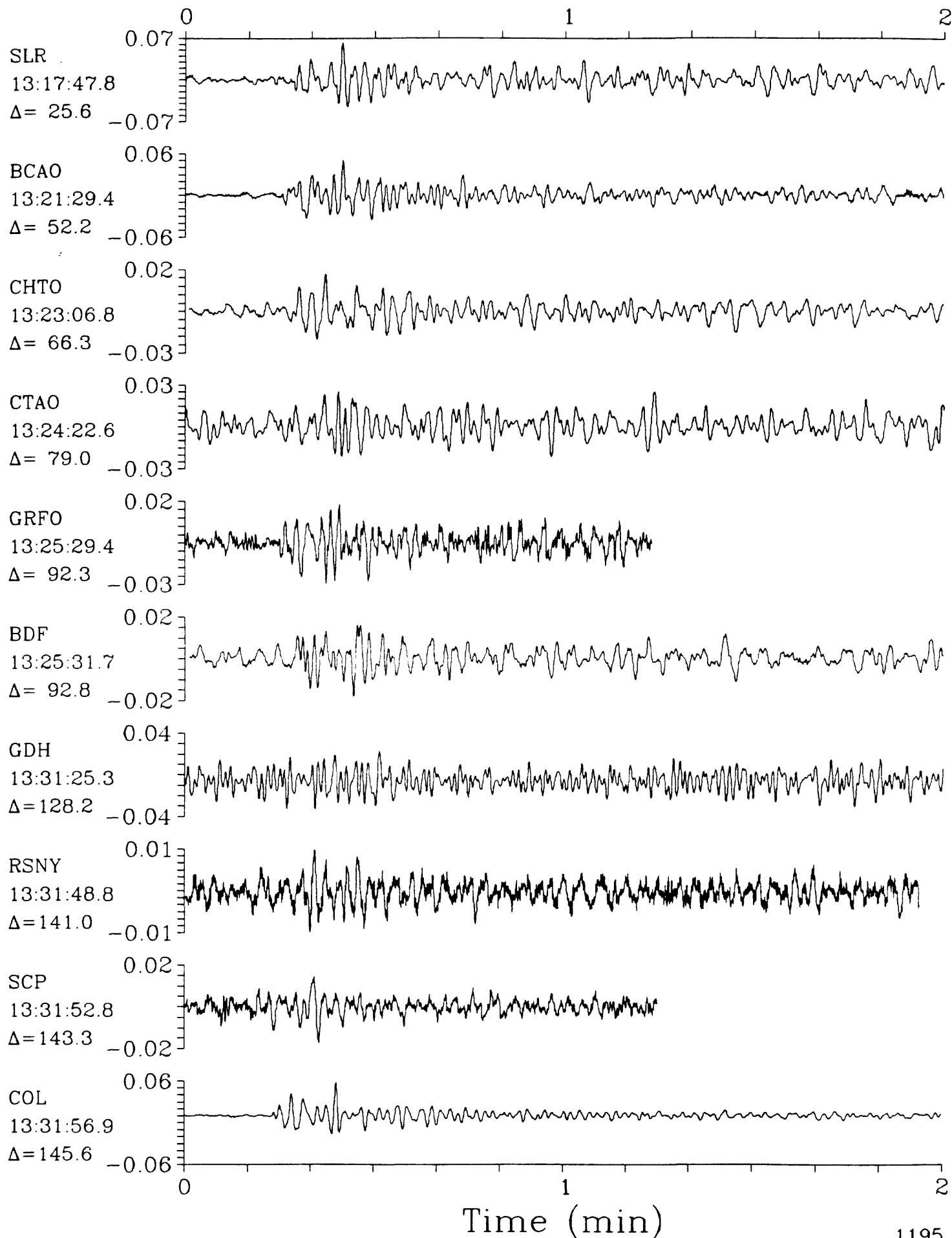
Atlantic-Indian Rise



SPZ

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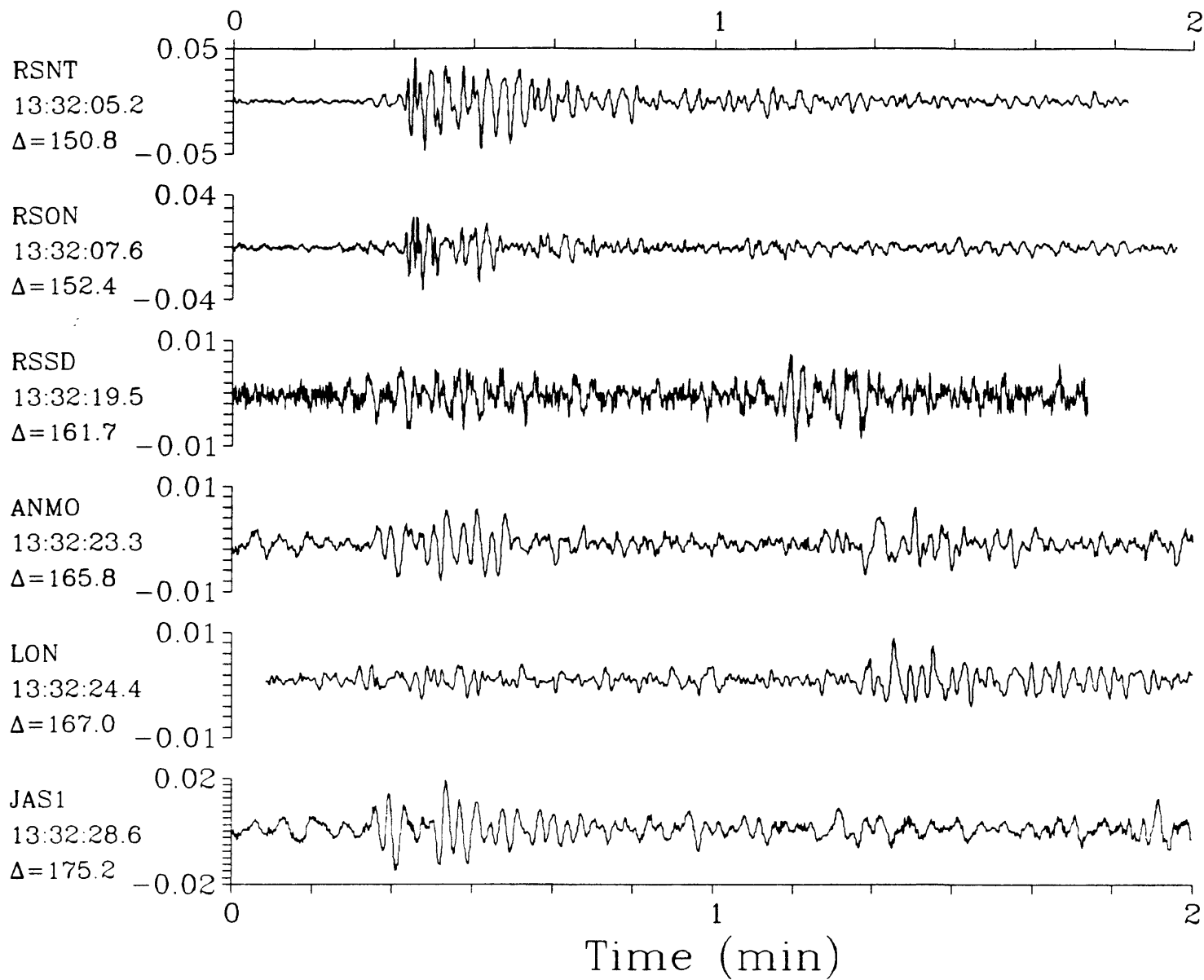
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Atlantic-Indian Rise $h=10.0$ $m_b=5.5$ $M_{sz}=5.4$ 

SPZ

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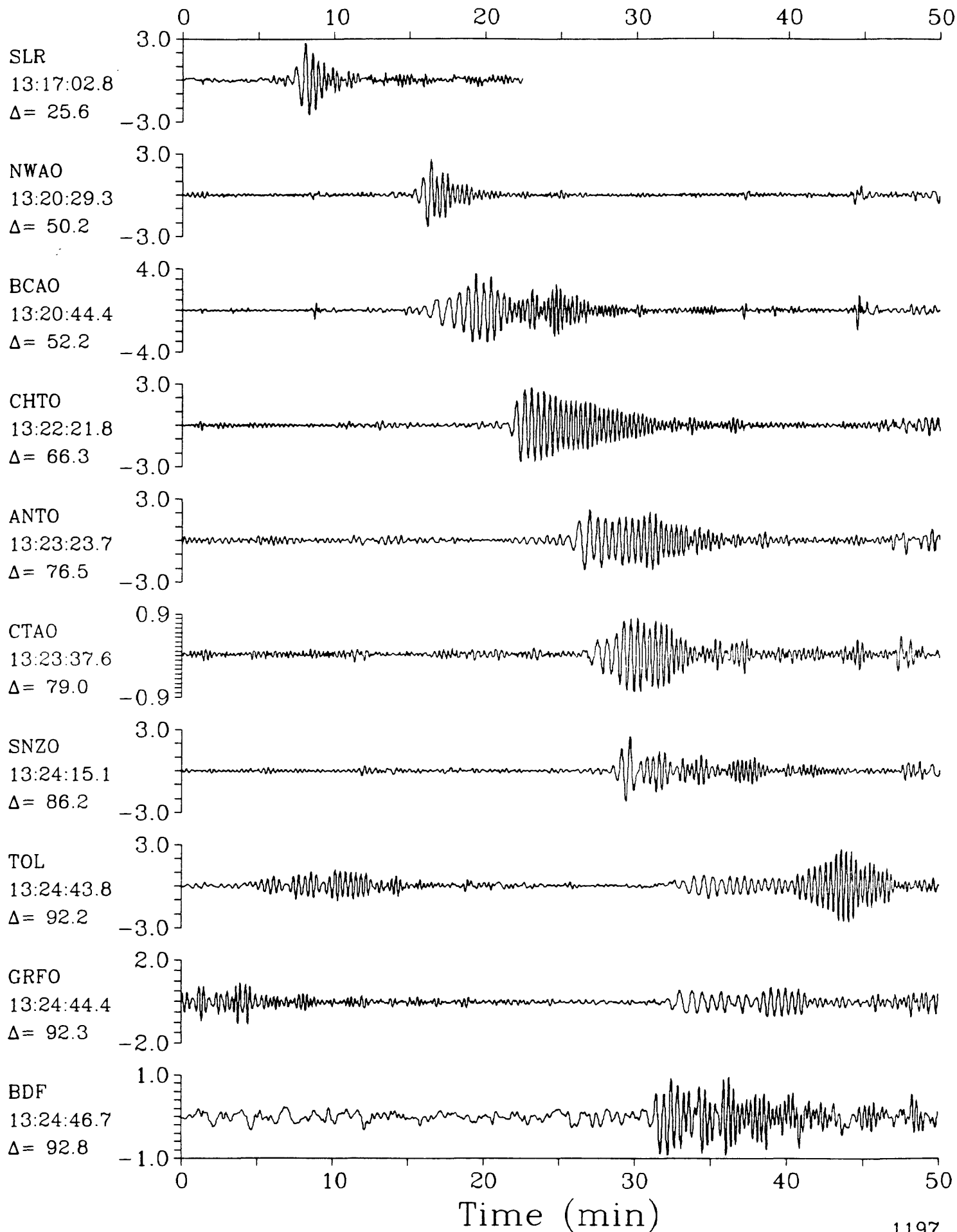
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Atlantic-Indian Rise $h=10.0$ $m_b=5.5$ $M_{sz}=5.4$ 

LPZ

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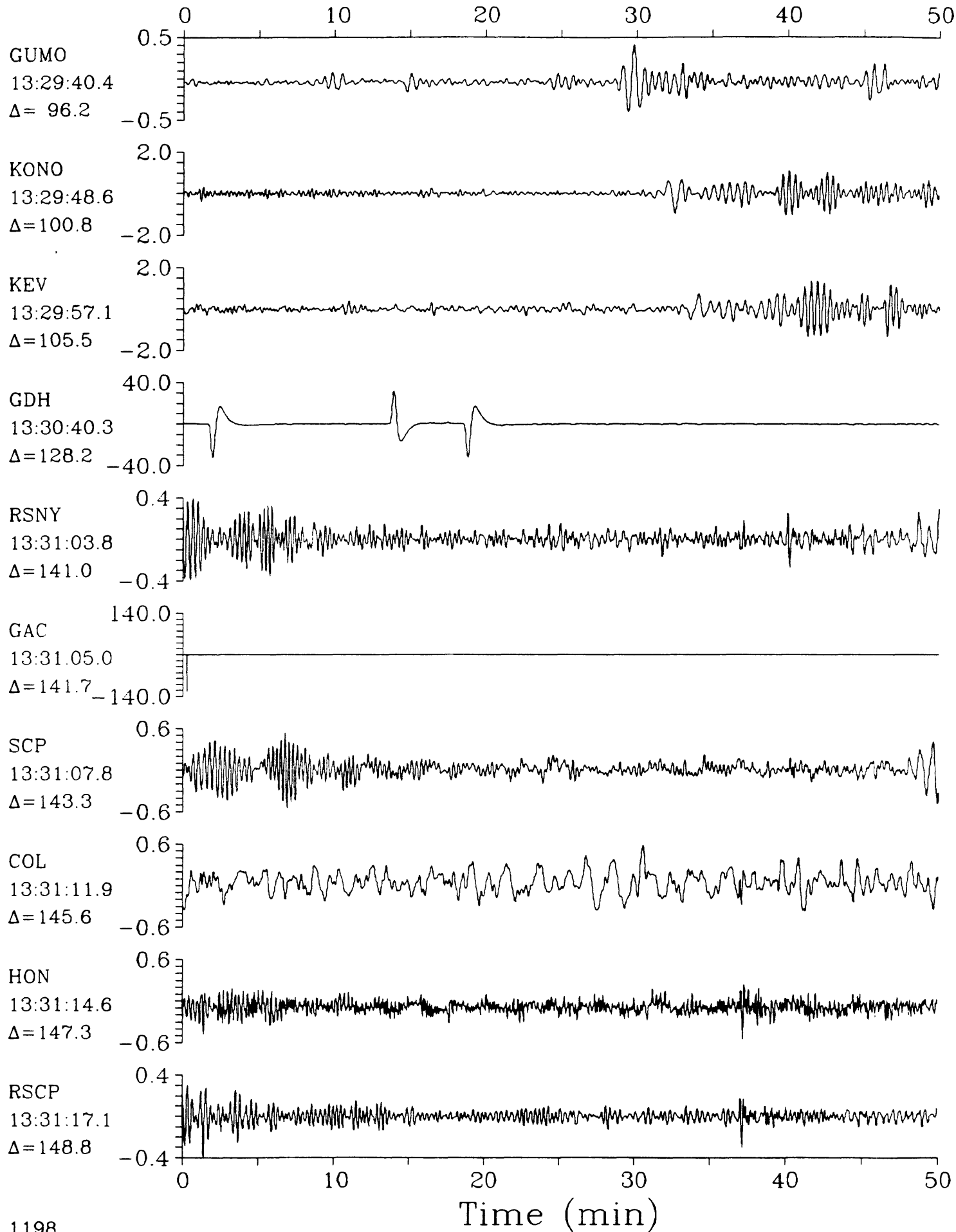
LPZ

Atlantic-Indian Rise $h=10.0$ $m_b=5.5$ $M_{sz}=5.4$ 

LPZ

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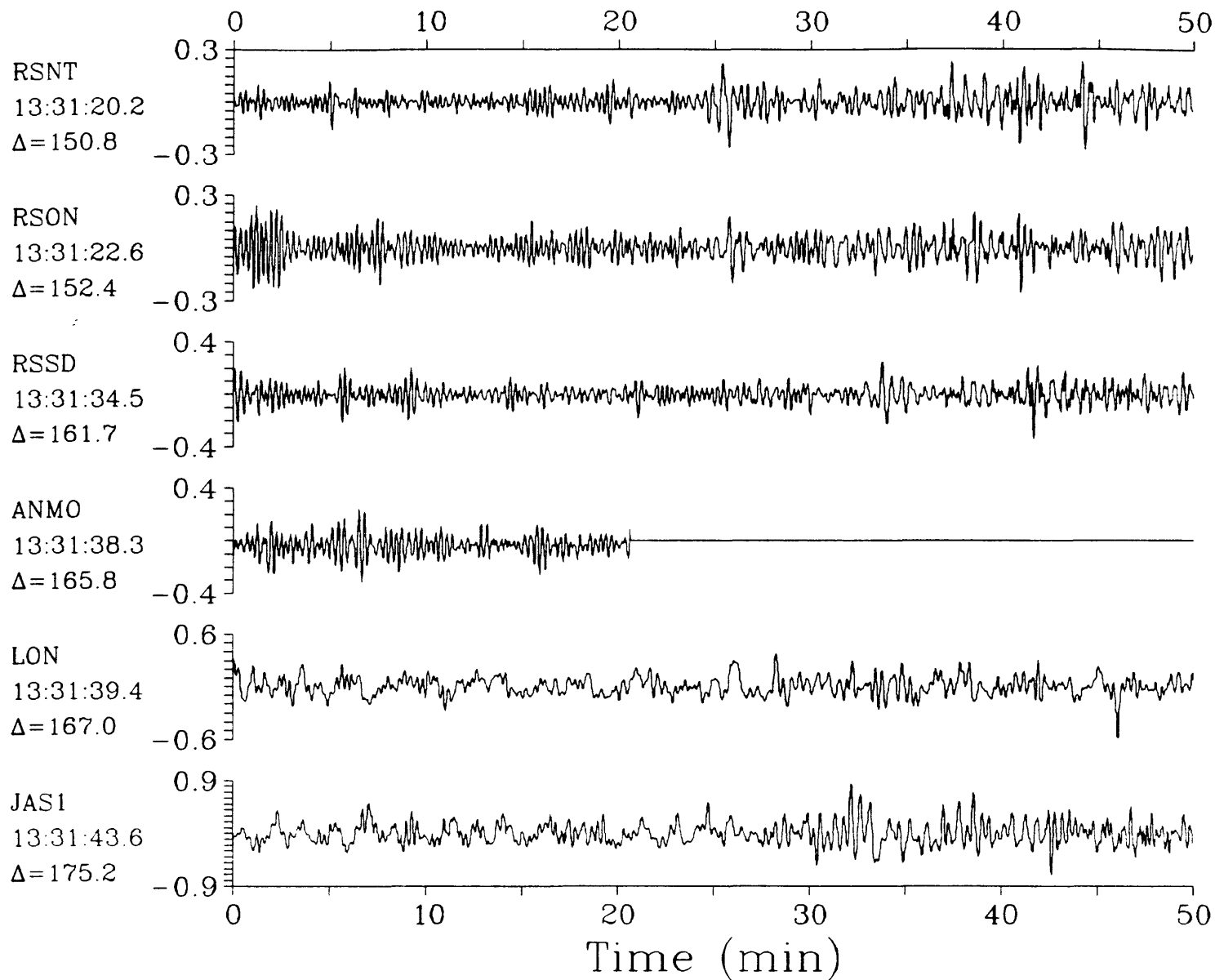
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LPZ

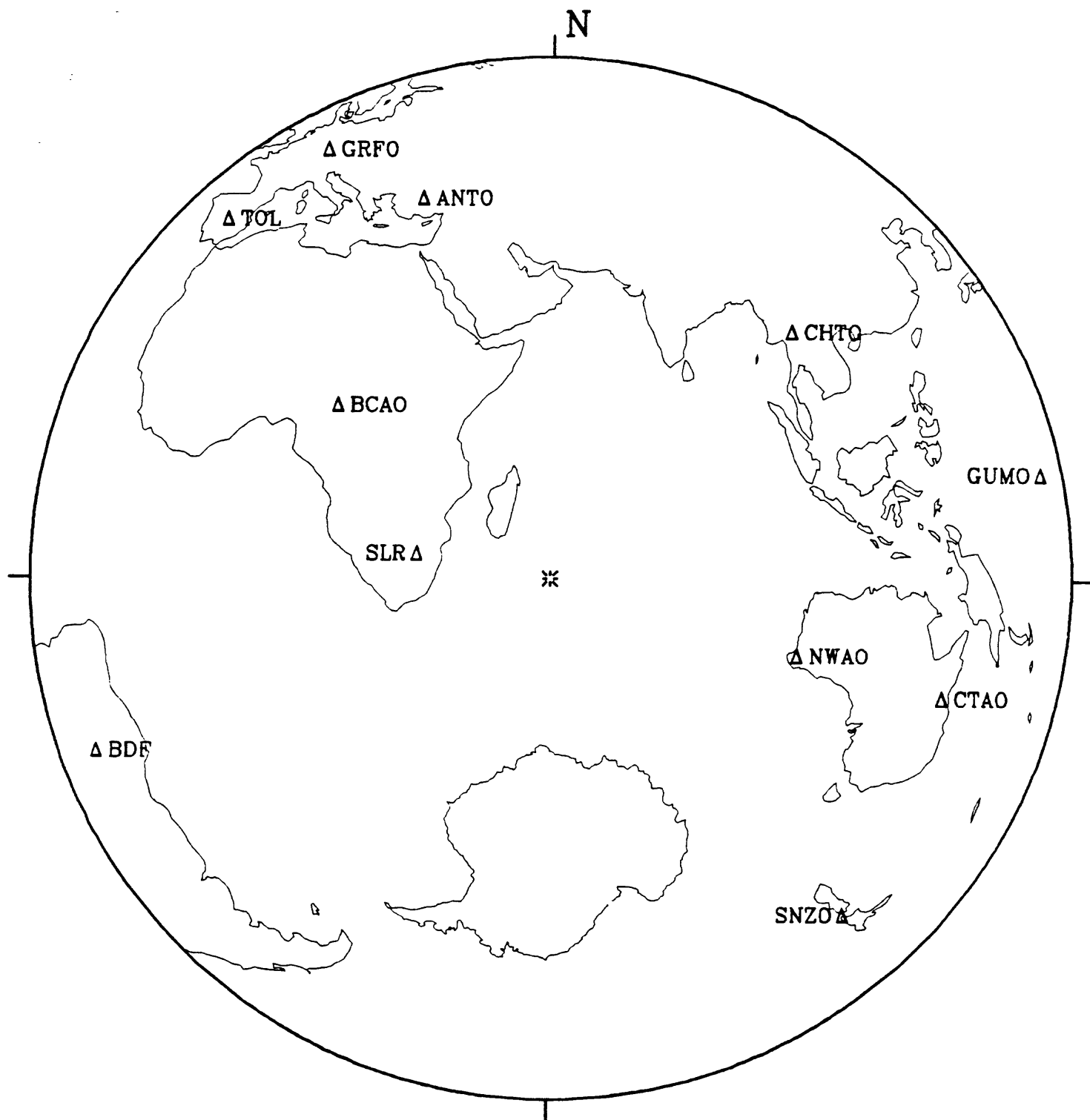
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LPZ

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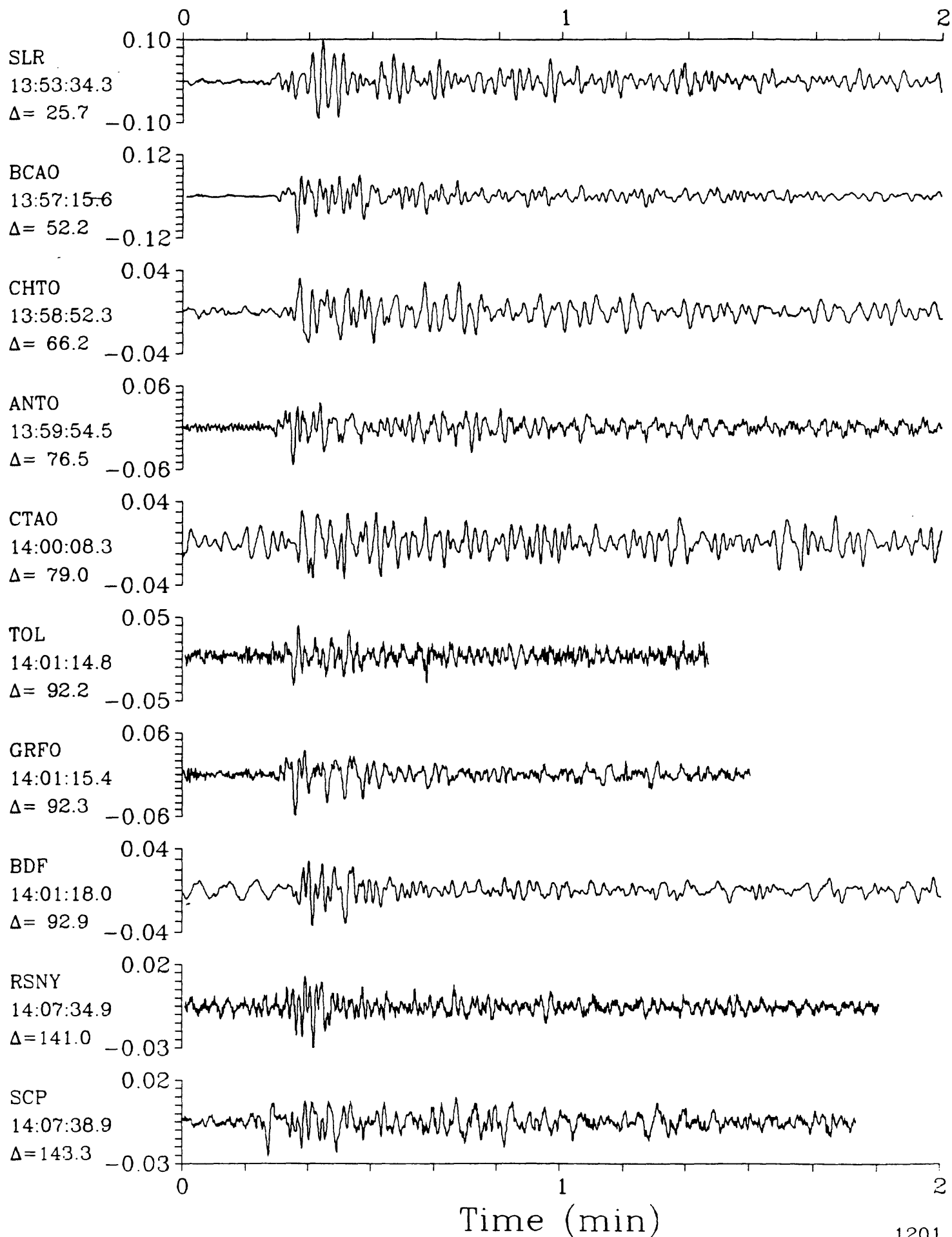
Atlantic-Indian Rise



SPZ

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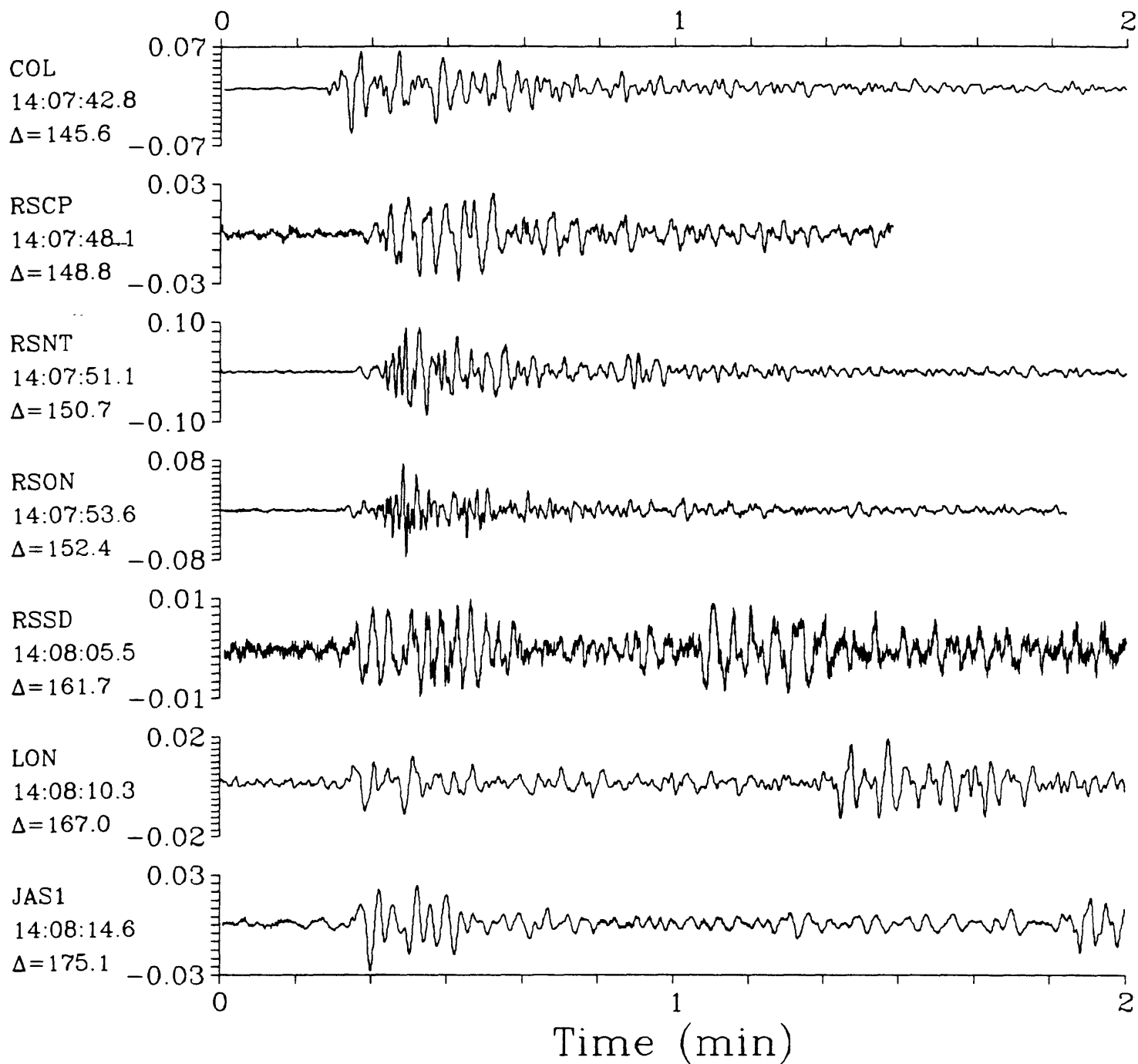
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SPZ

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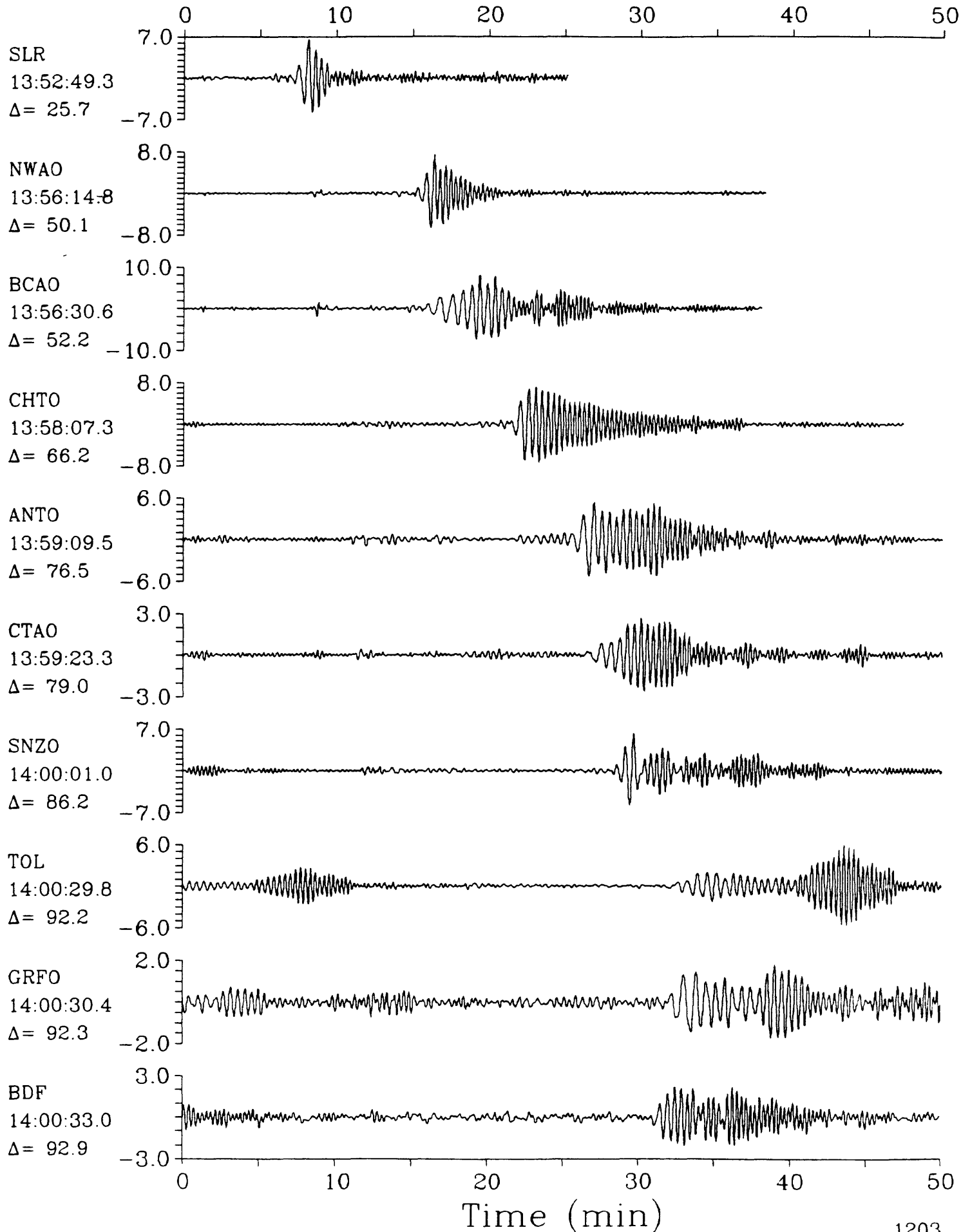
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LPZ

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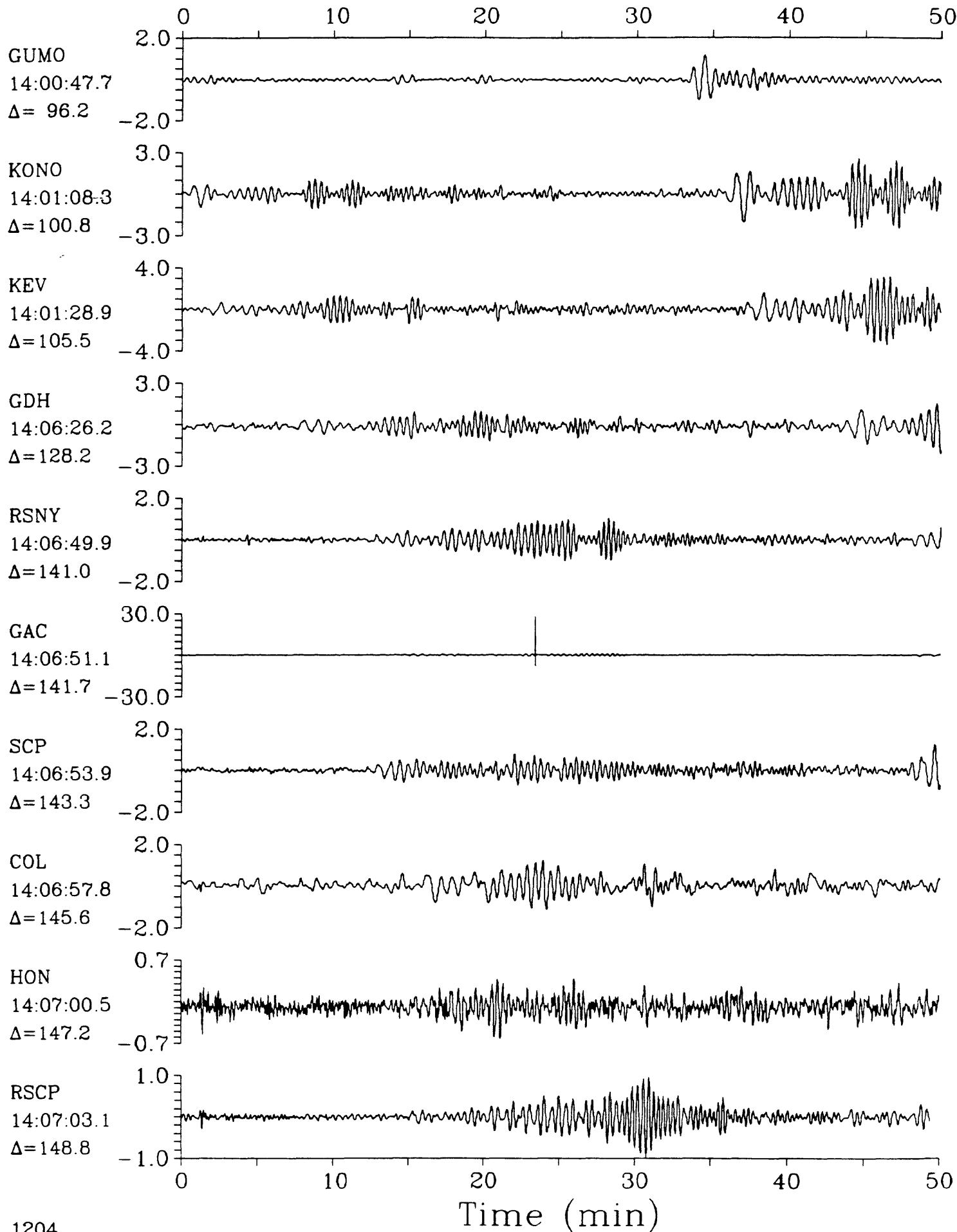
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Atlantic-Indian Rise $h=10.0$ $m_b=5.6$ $M_{sz}=5.8$ 

LPZ

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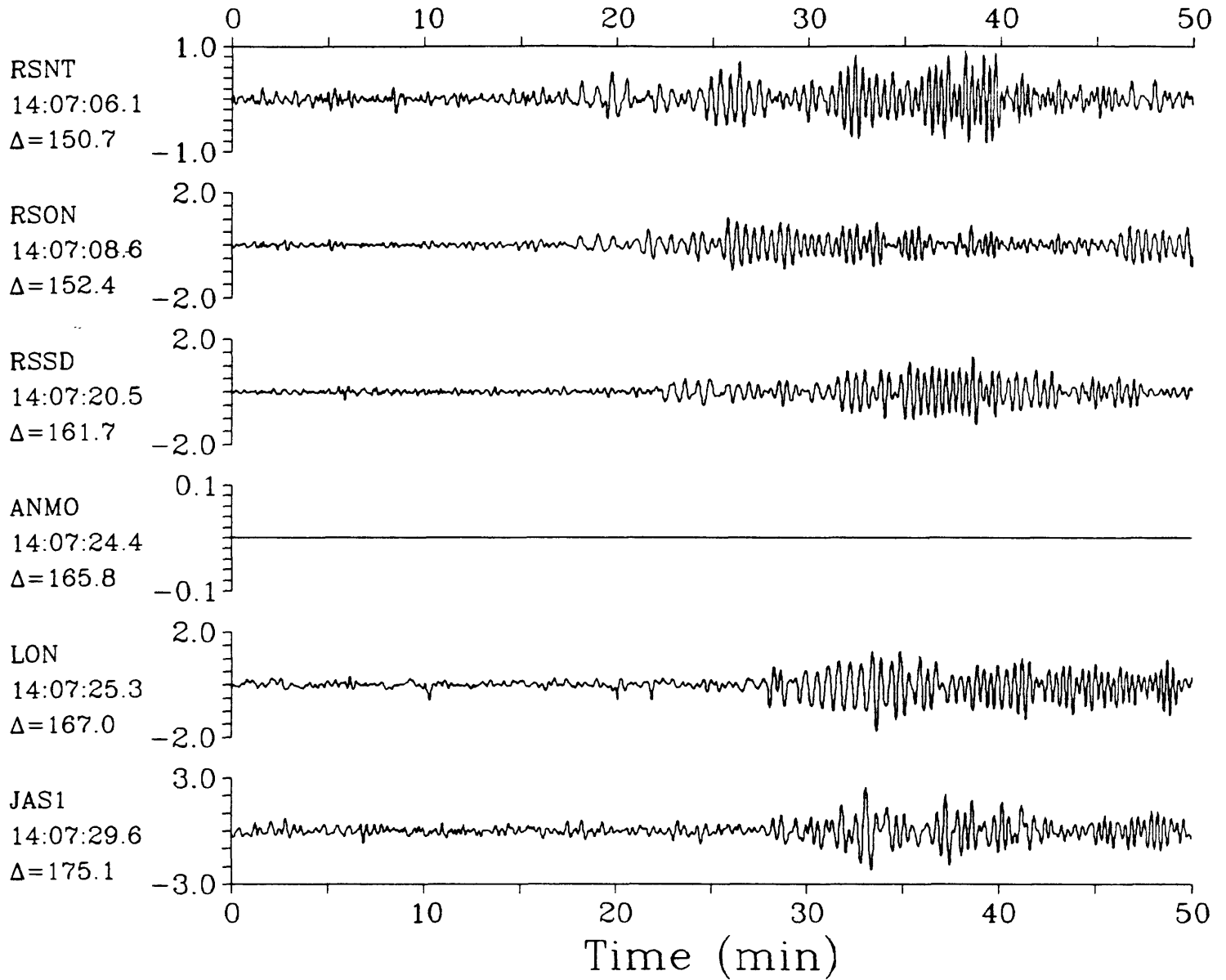
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LPZ

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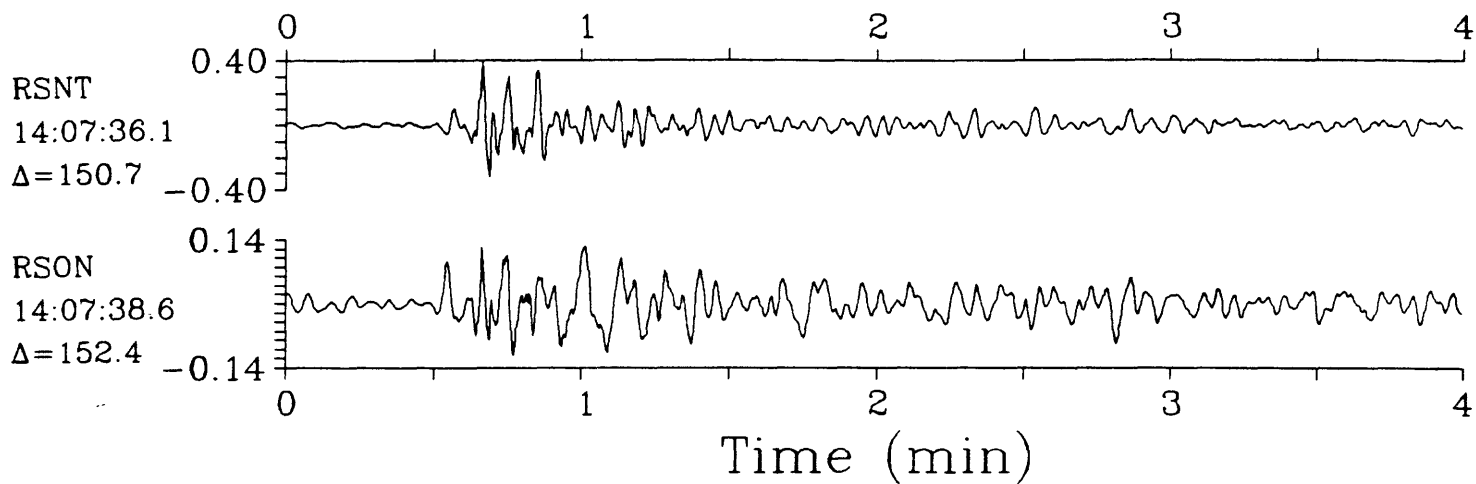
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Atlantic-Indian Rise $h=10.0$ $m_b=5.6$ $M_{sz}=5.8$ 

IPZ

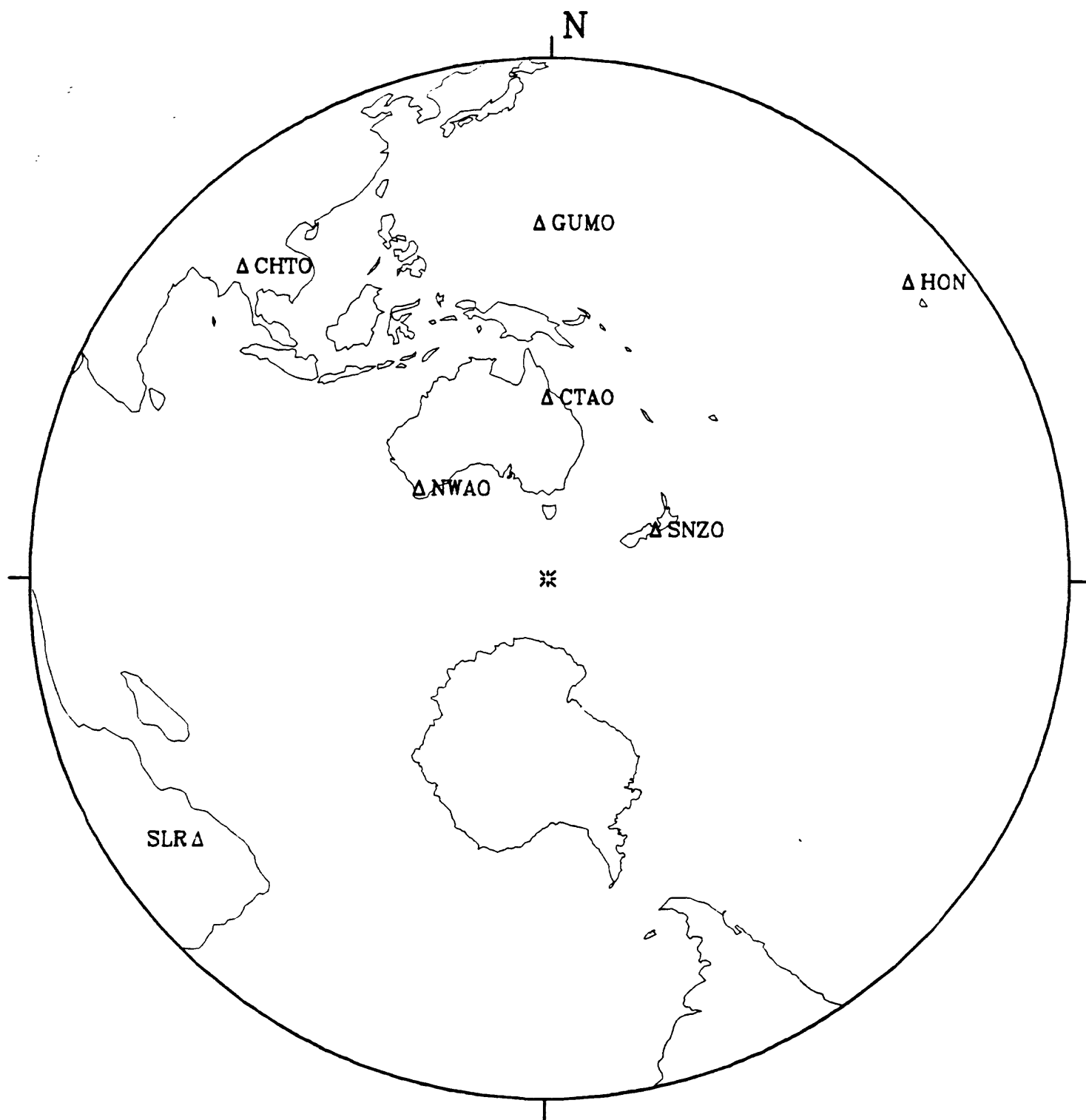
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IPZ

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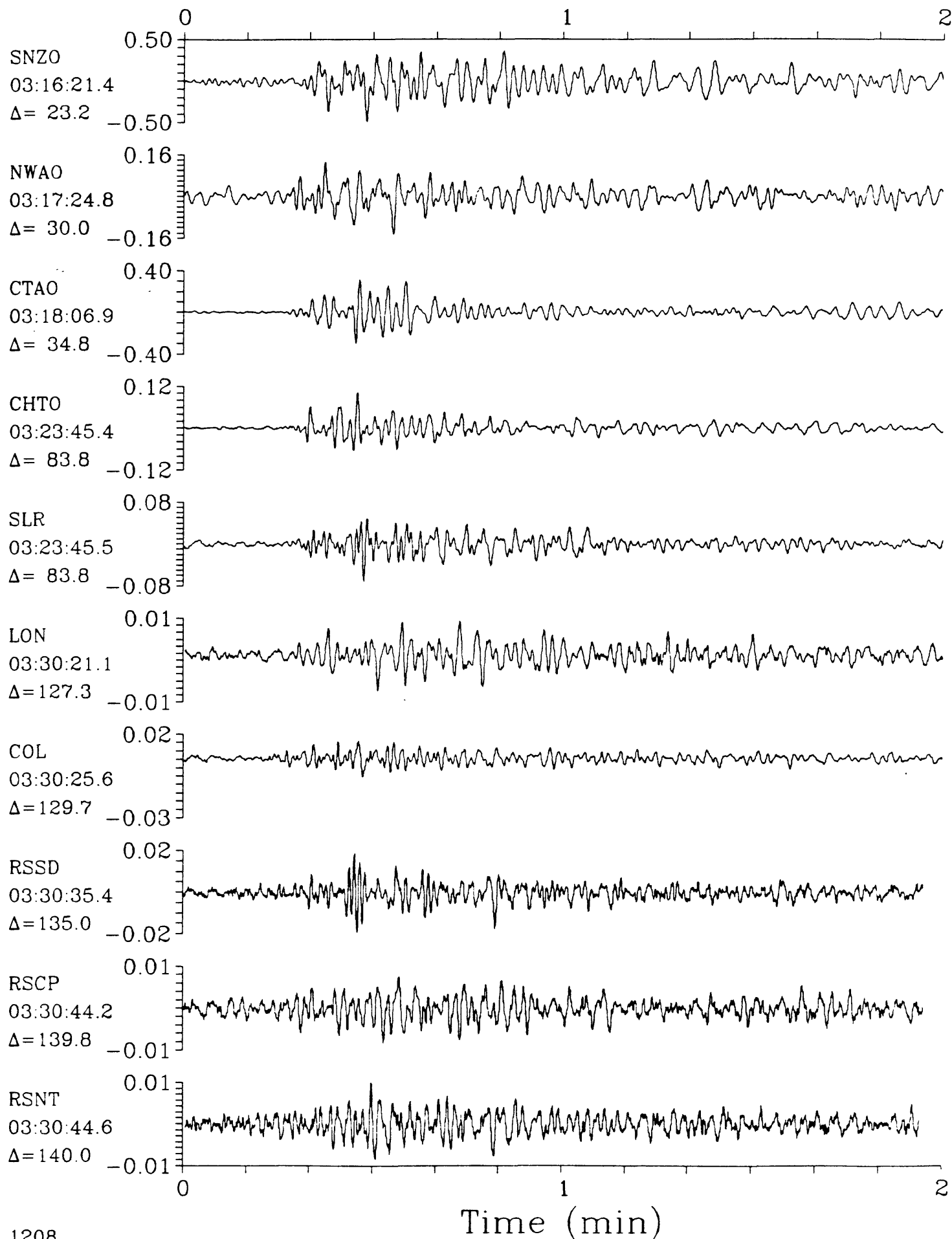
West of Macquarie Island



SPZ

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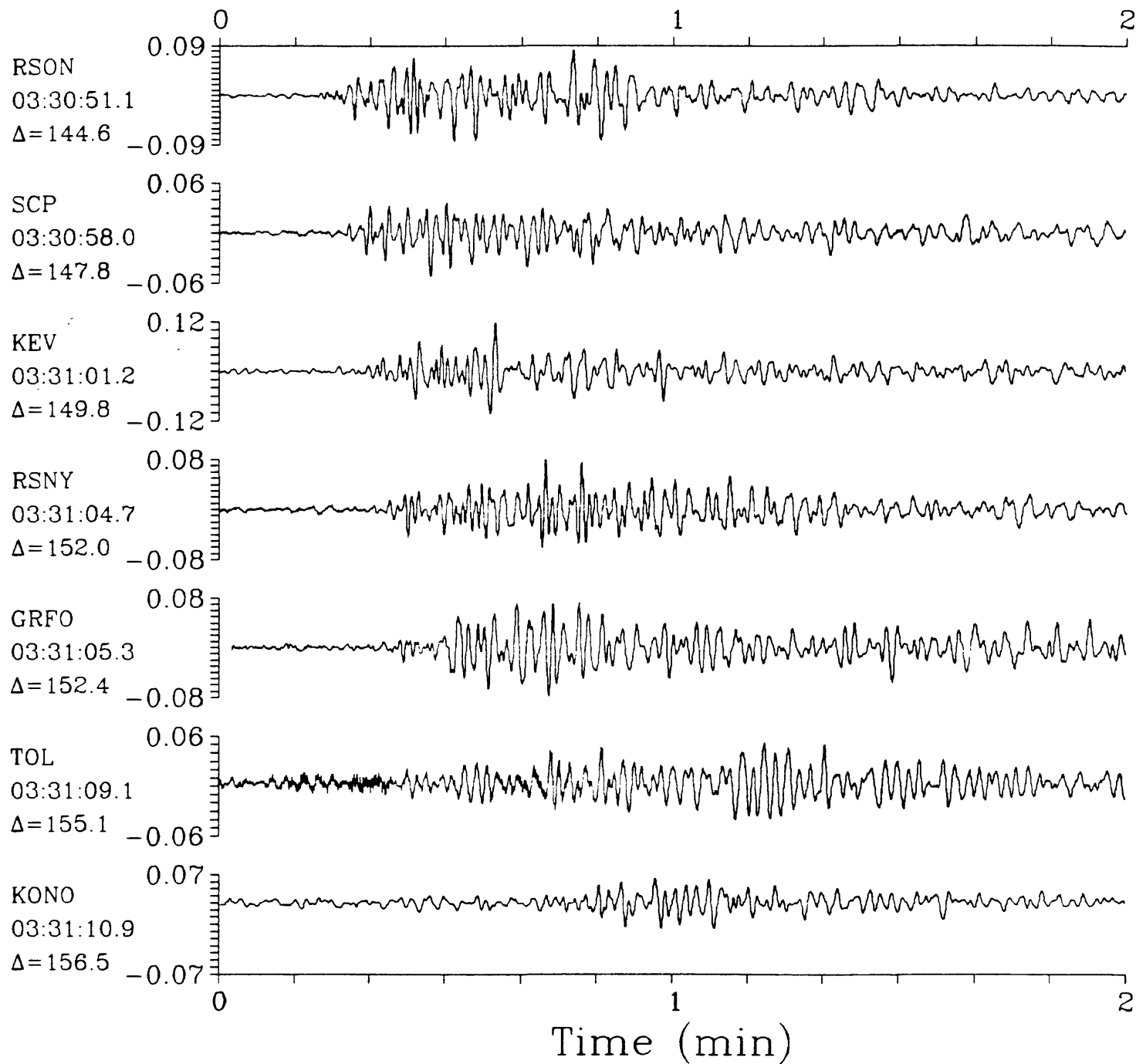
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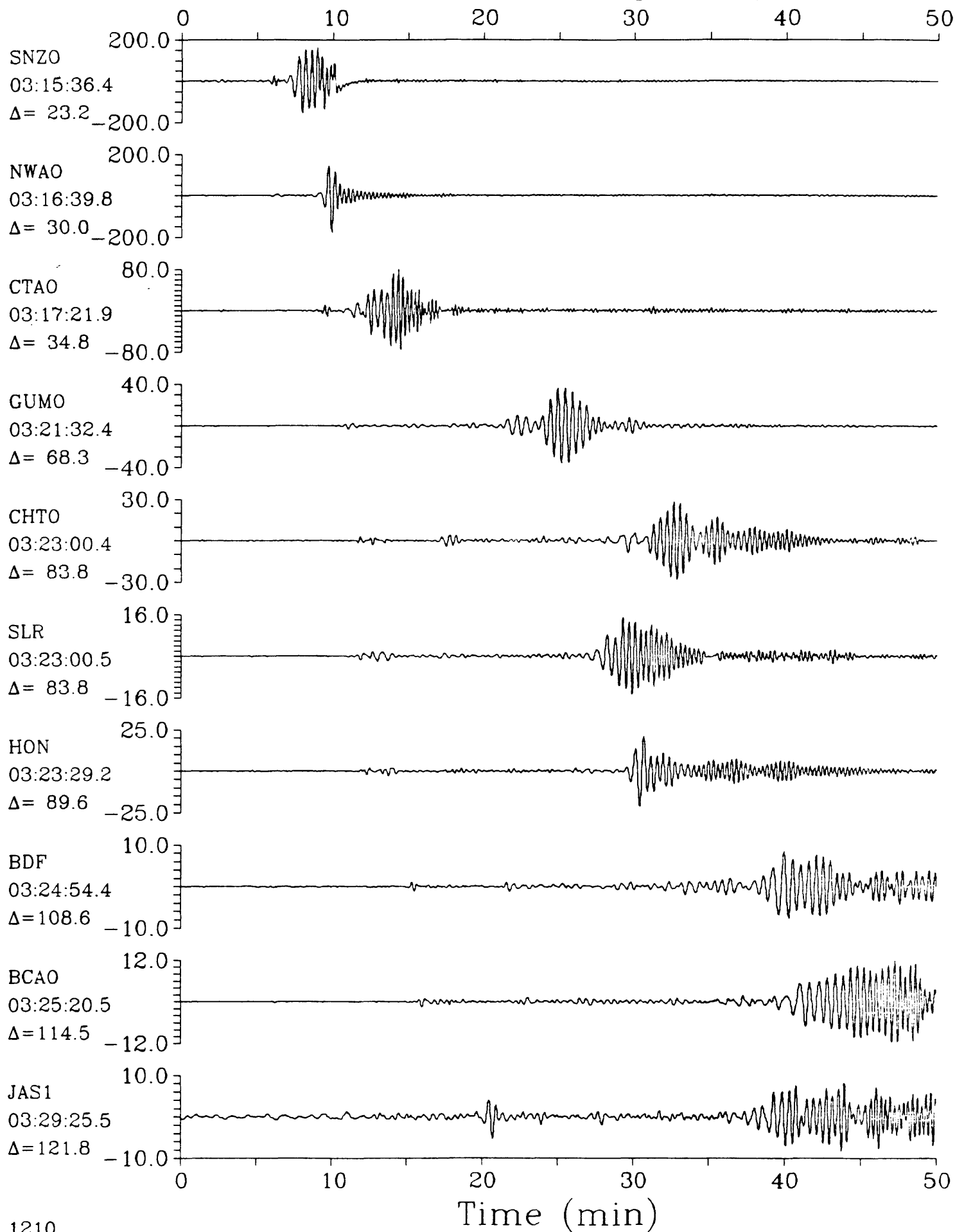
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LPZ

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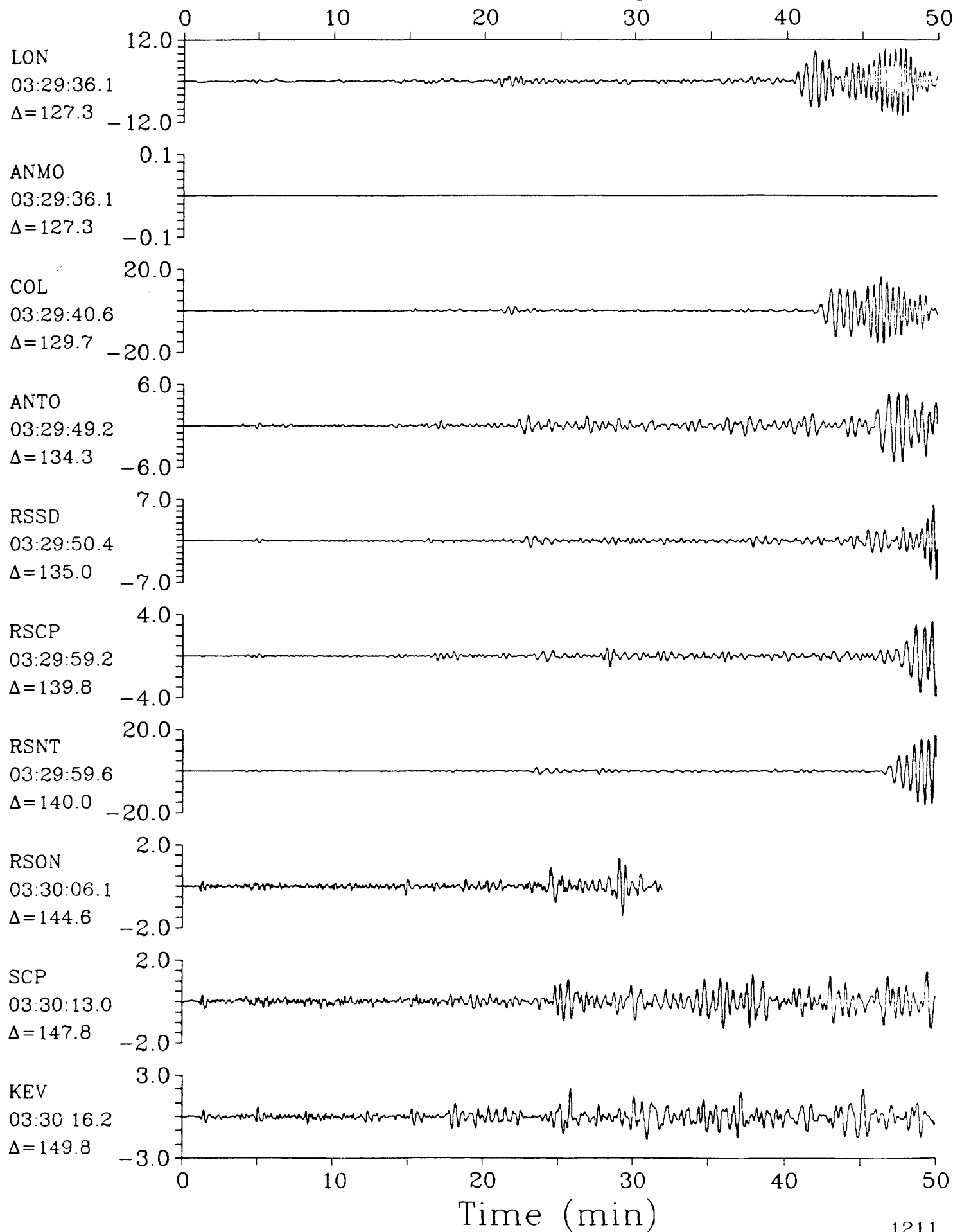
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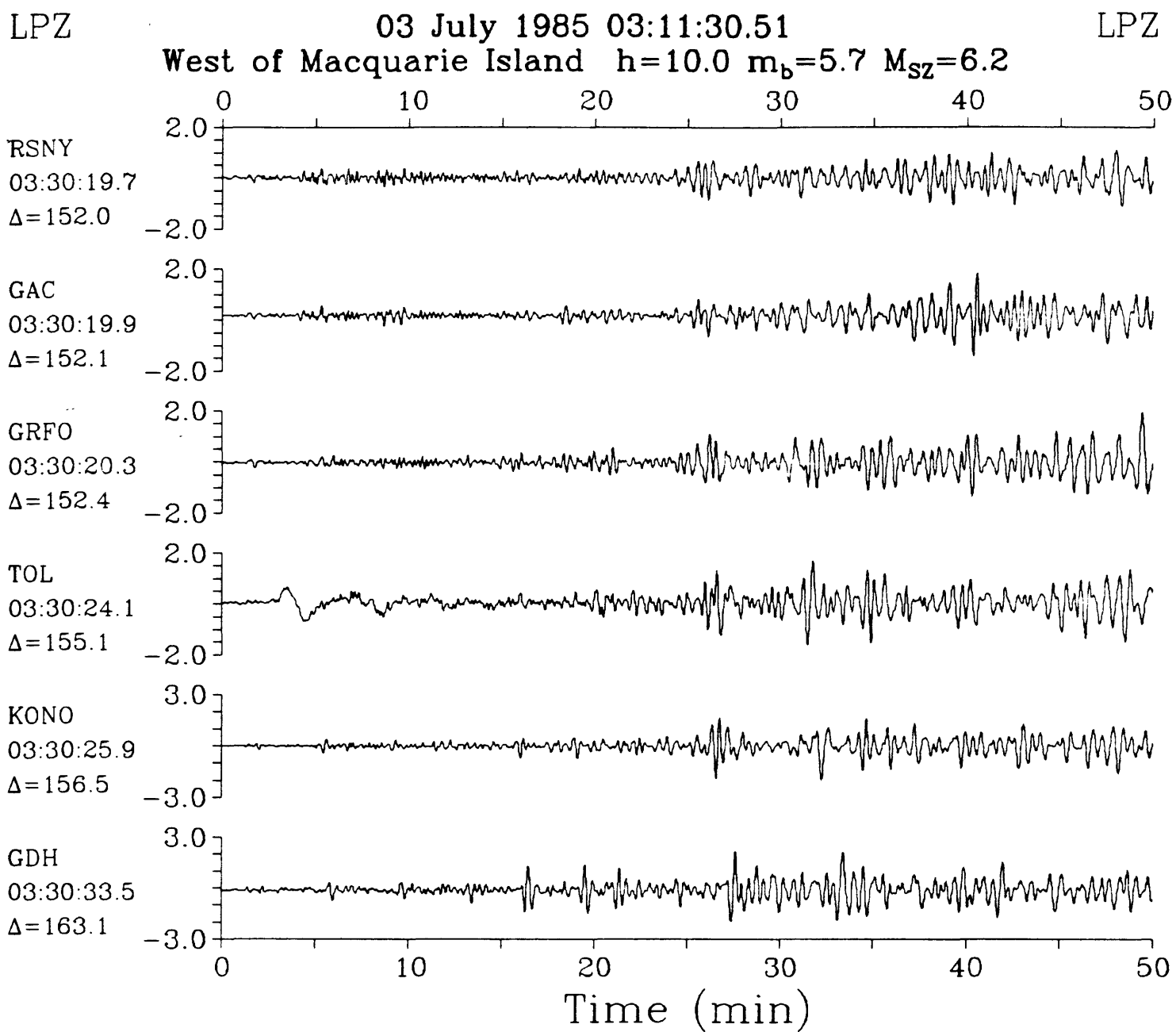
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LPZ

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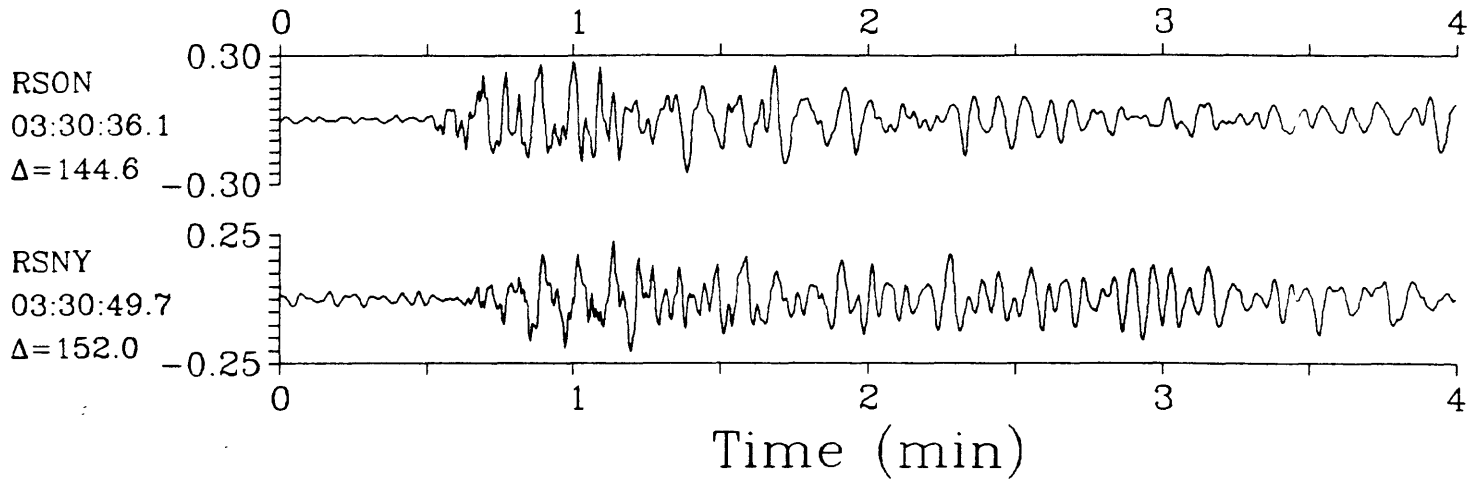
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IPZ

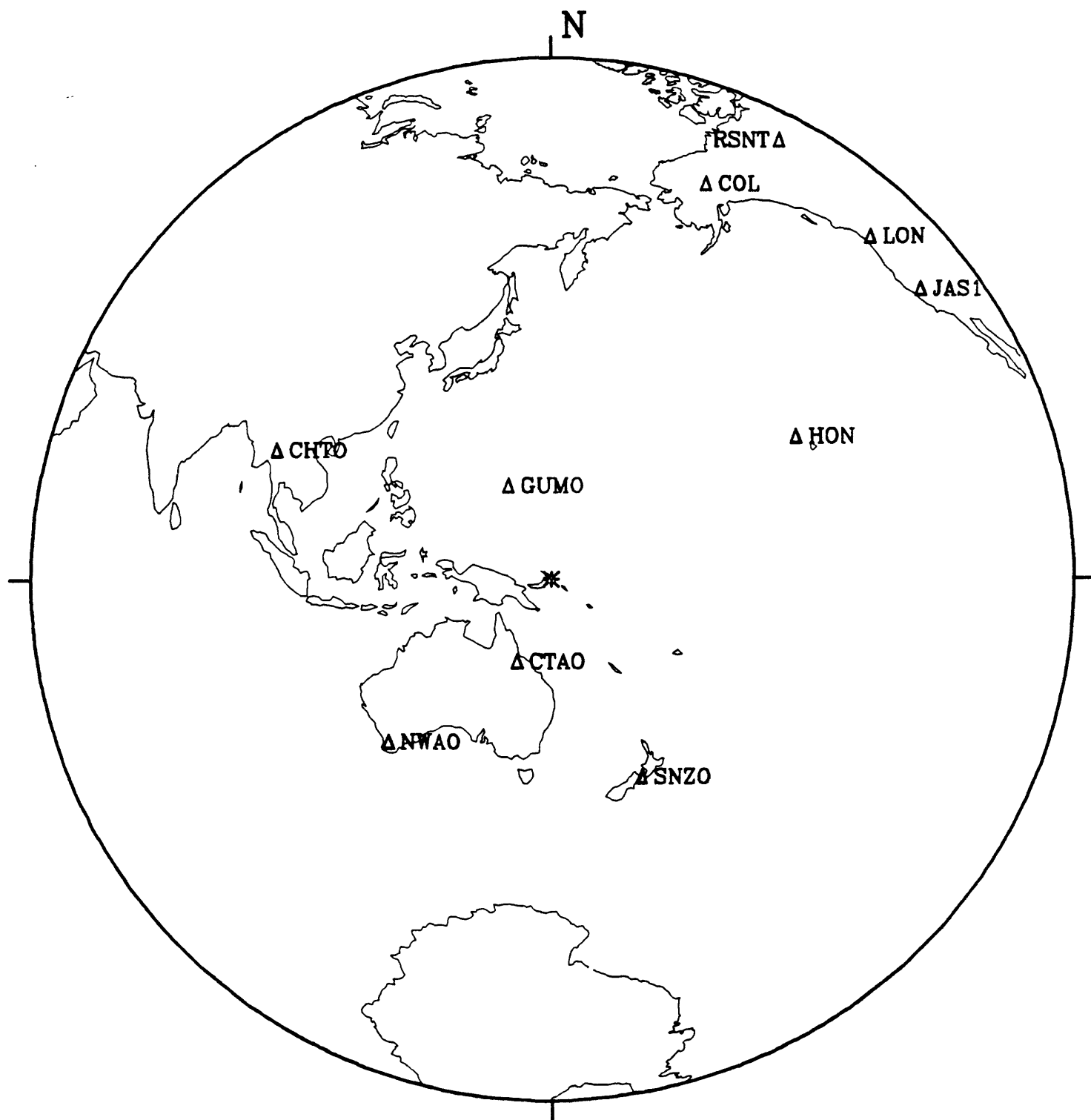
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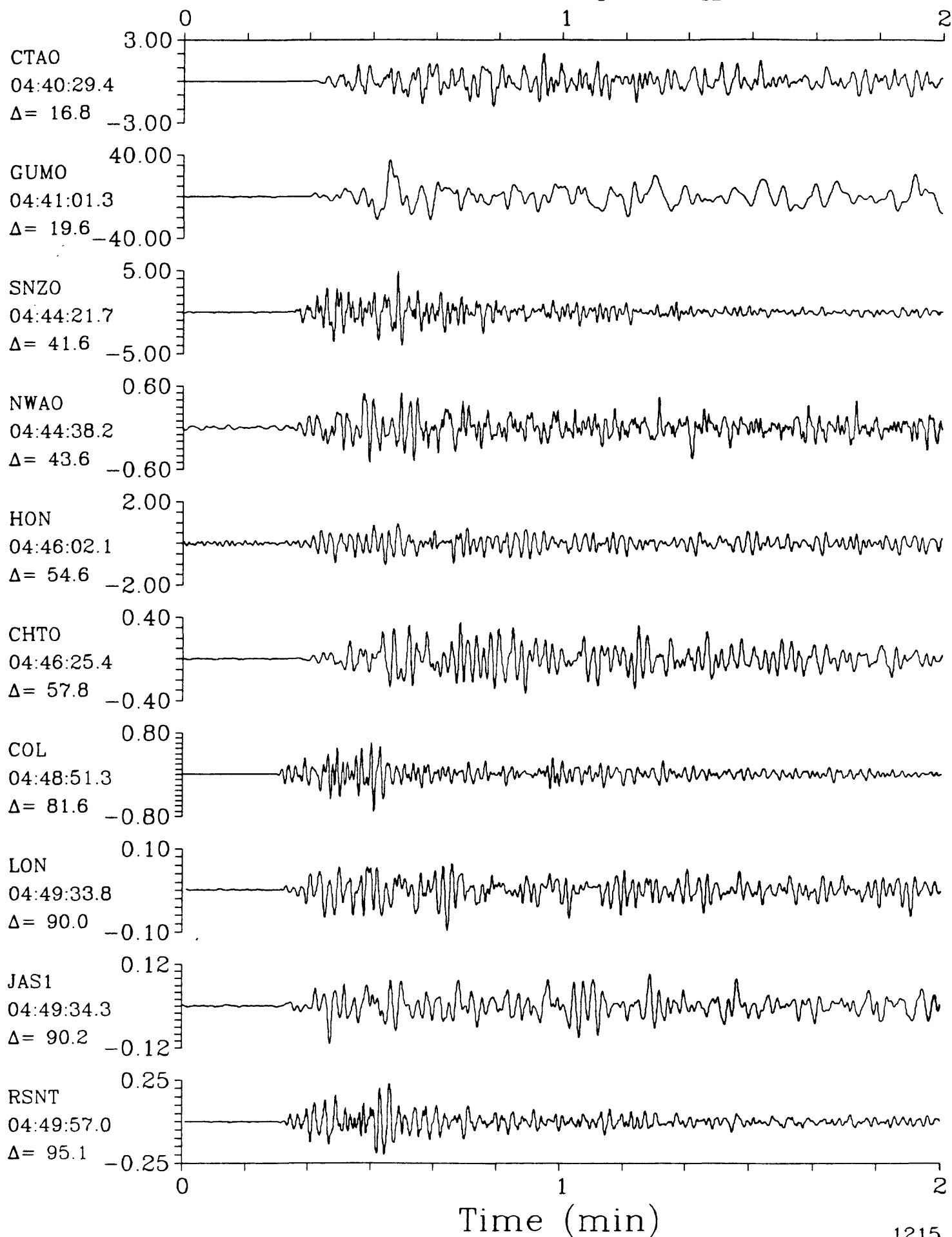
New Britain Region



SPZ

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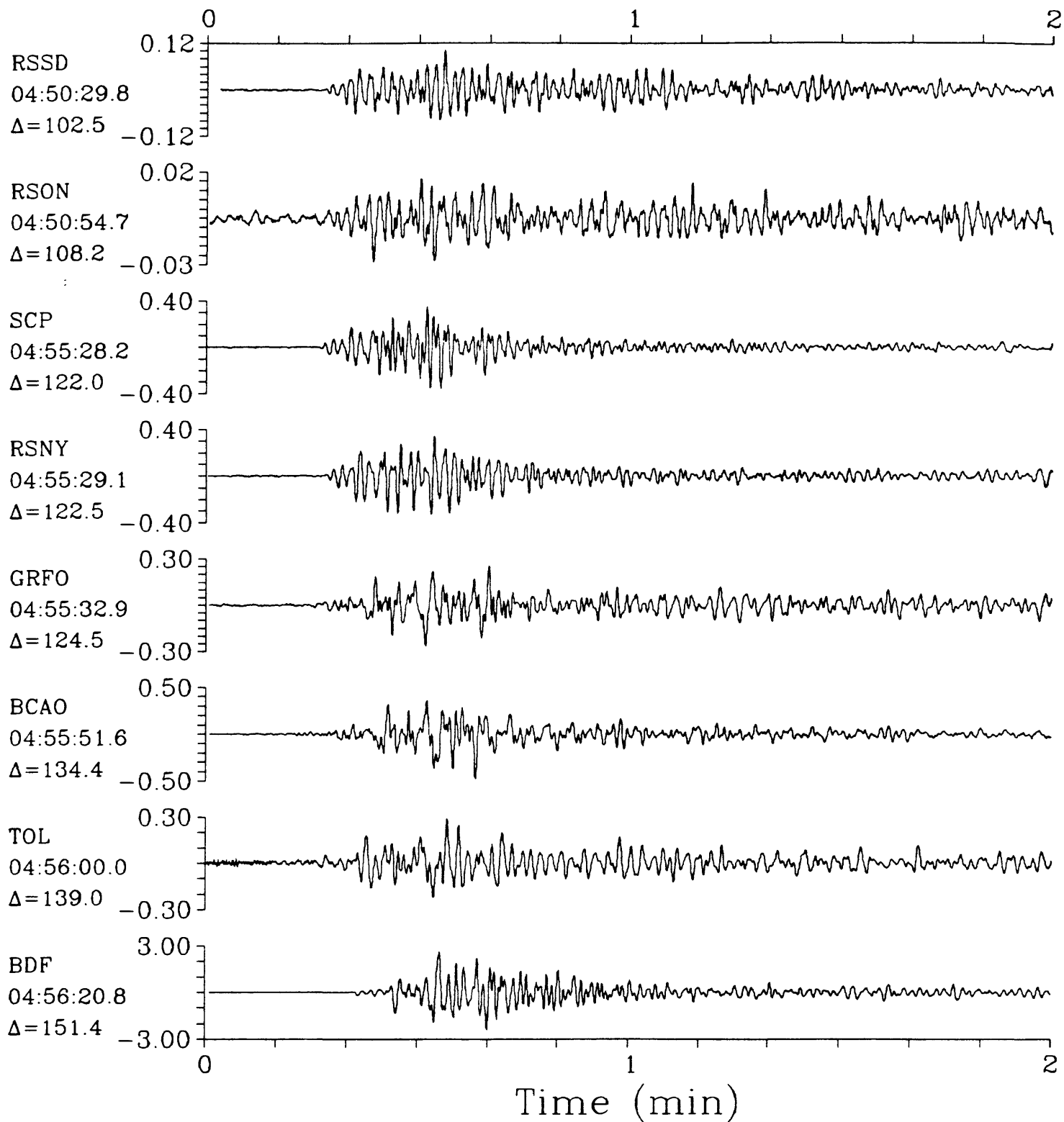
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SPZ

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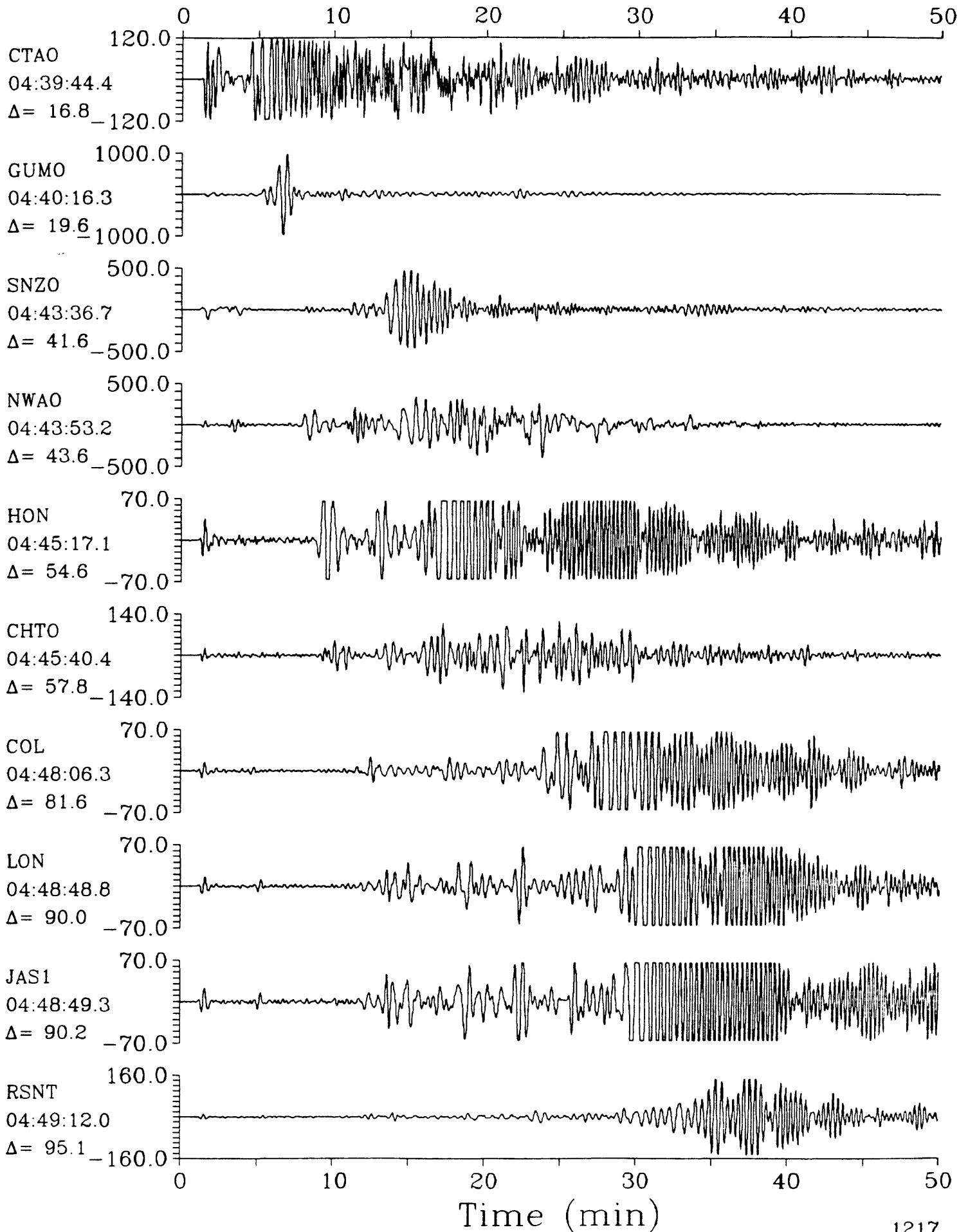
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LPZ

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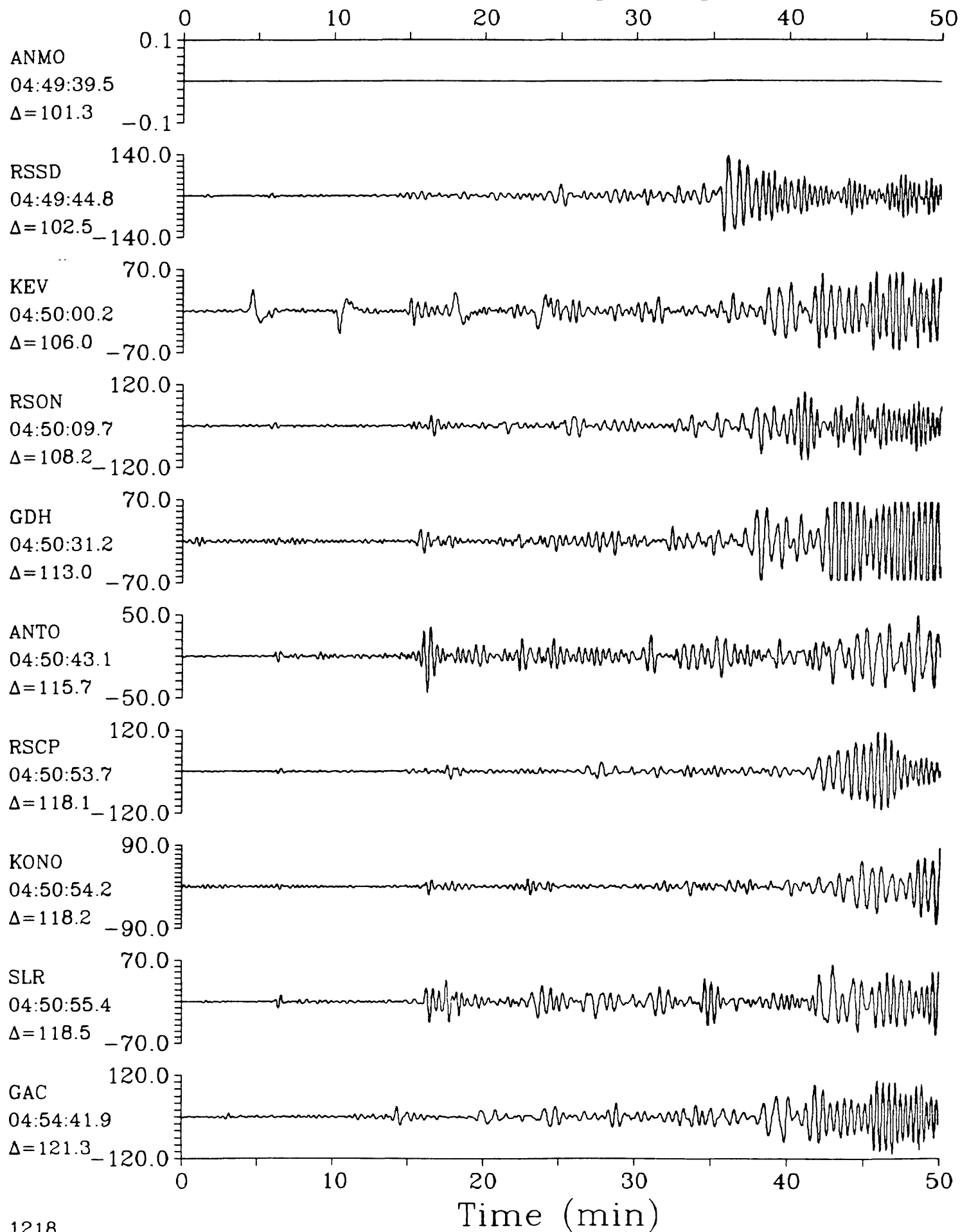
LPZ

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LPZ

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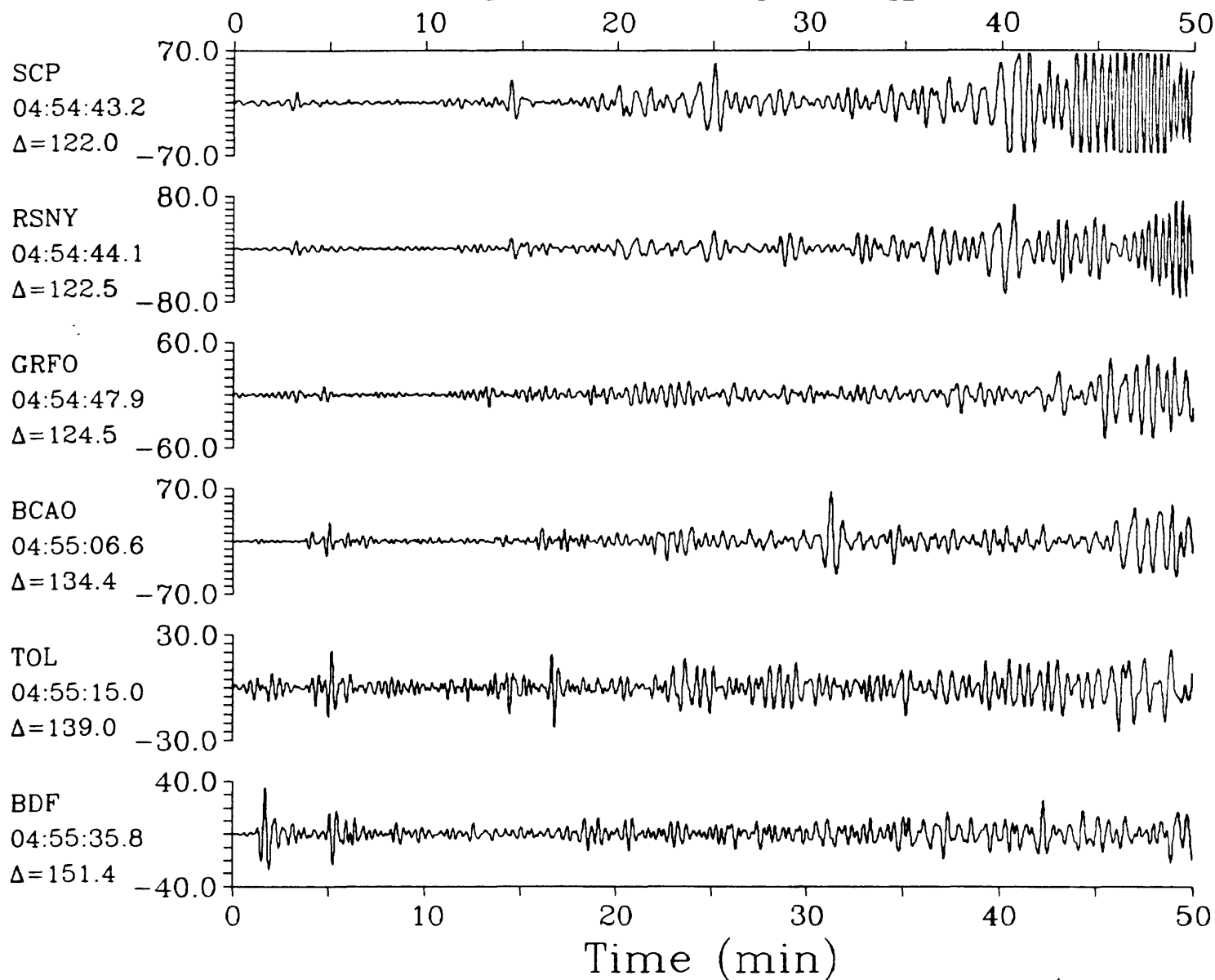
LPZ

New Britain Region $h=41.1$ $m_b=6.2$ $M_{sz}=7.2$ 

LPZ

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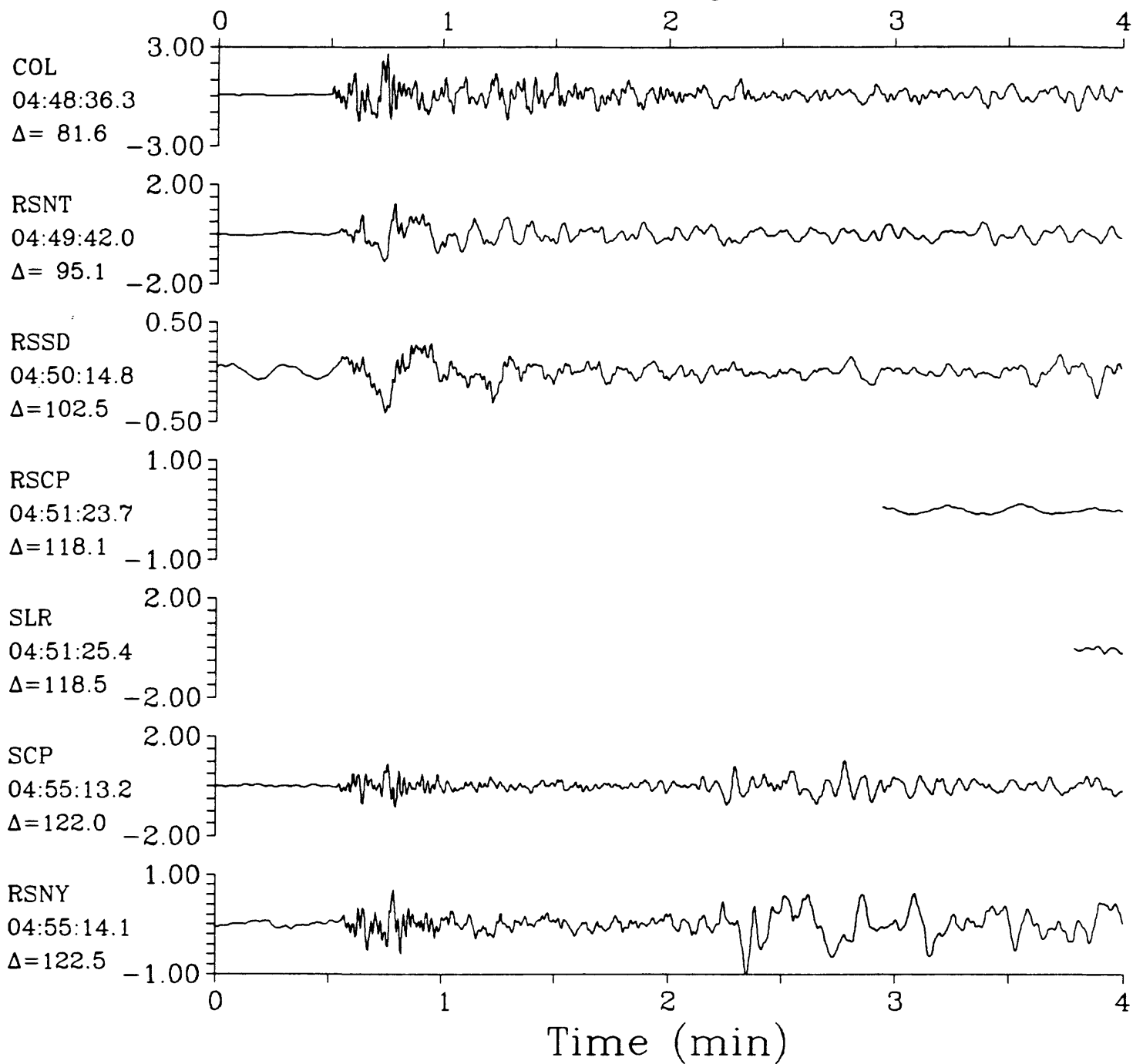
LPZ

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IPZ

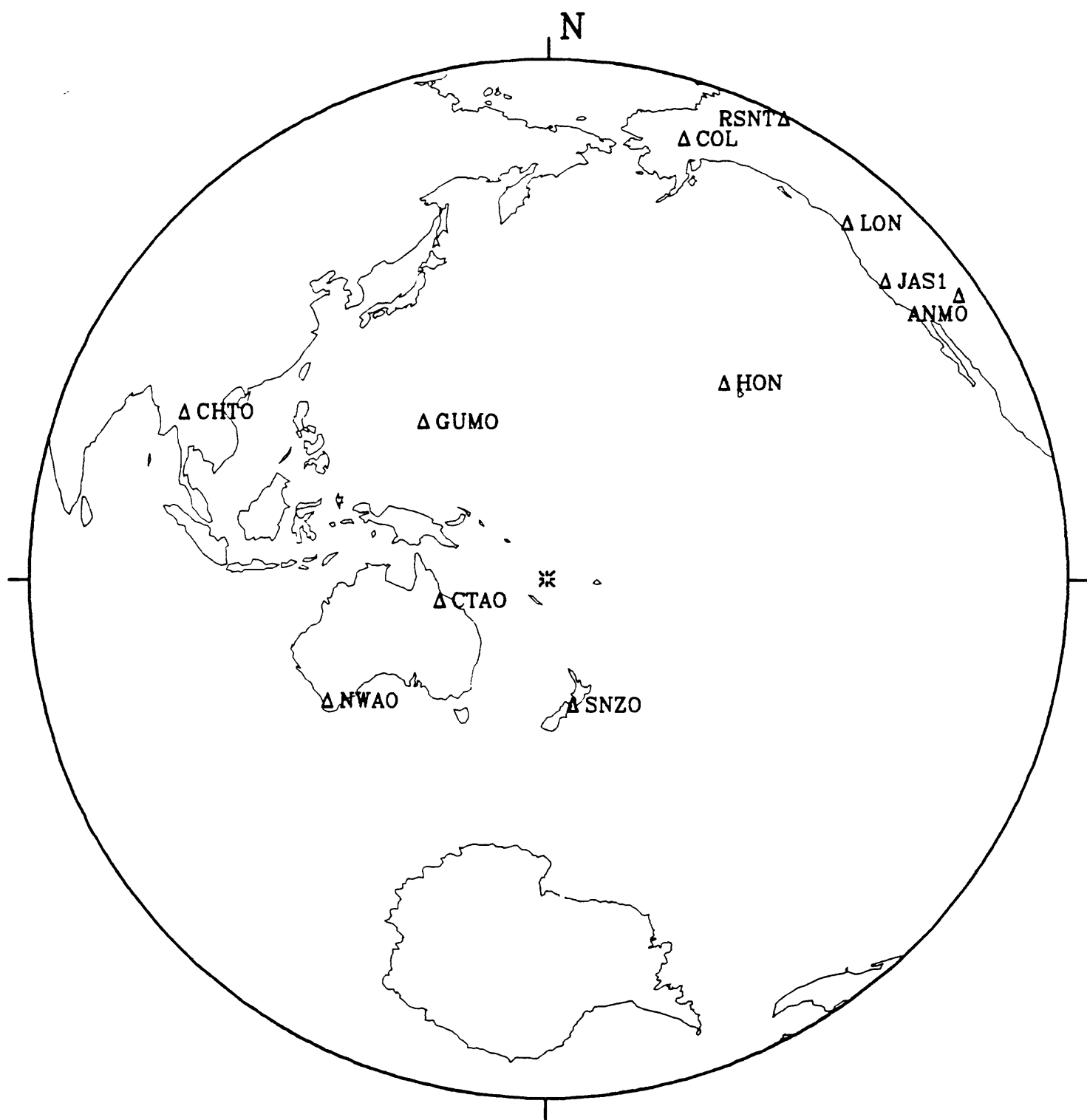
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IPZ

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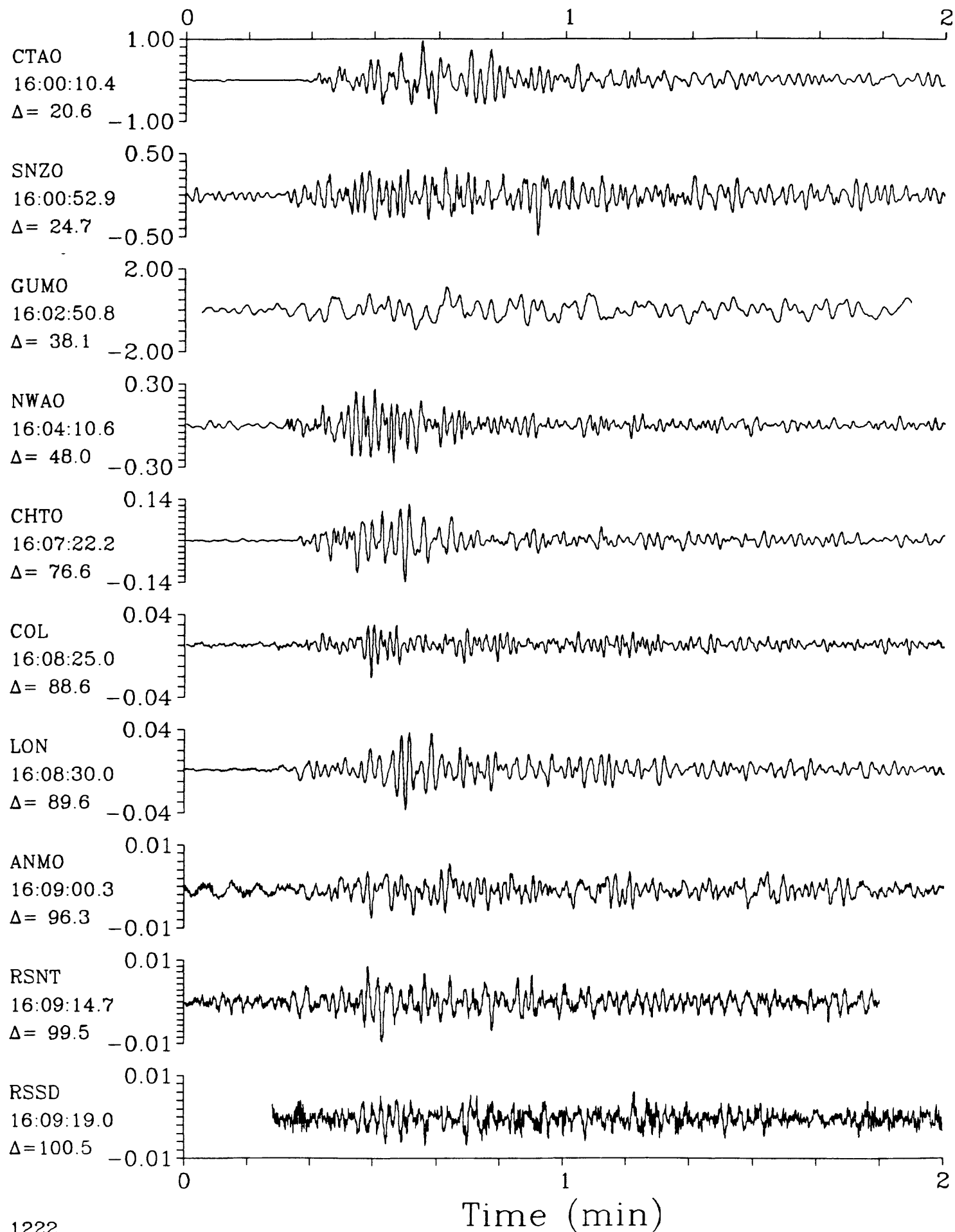
Vanuatu Islands



SPZ

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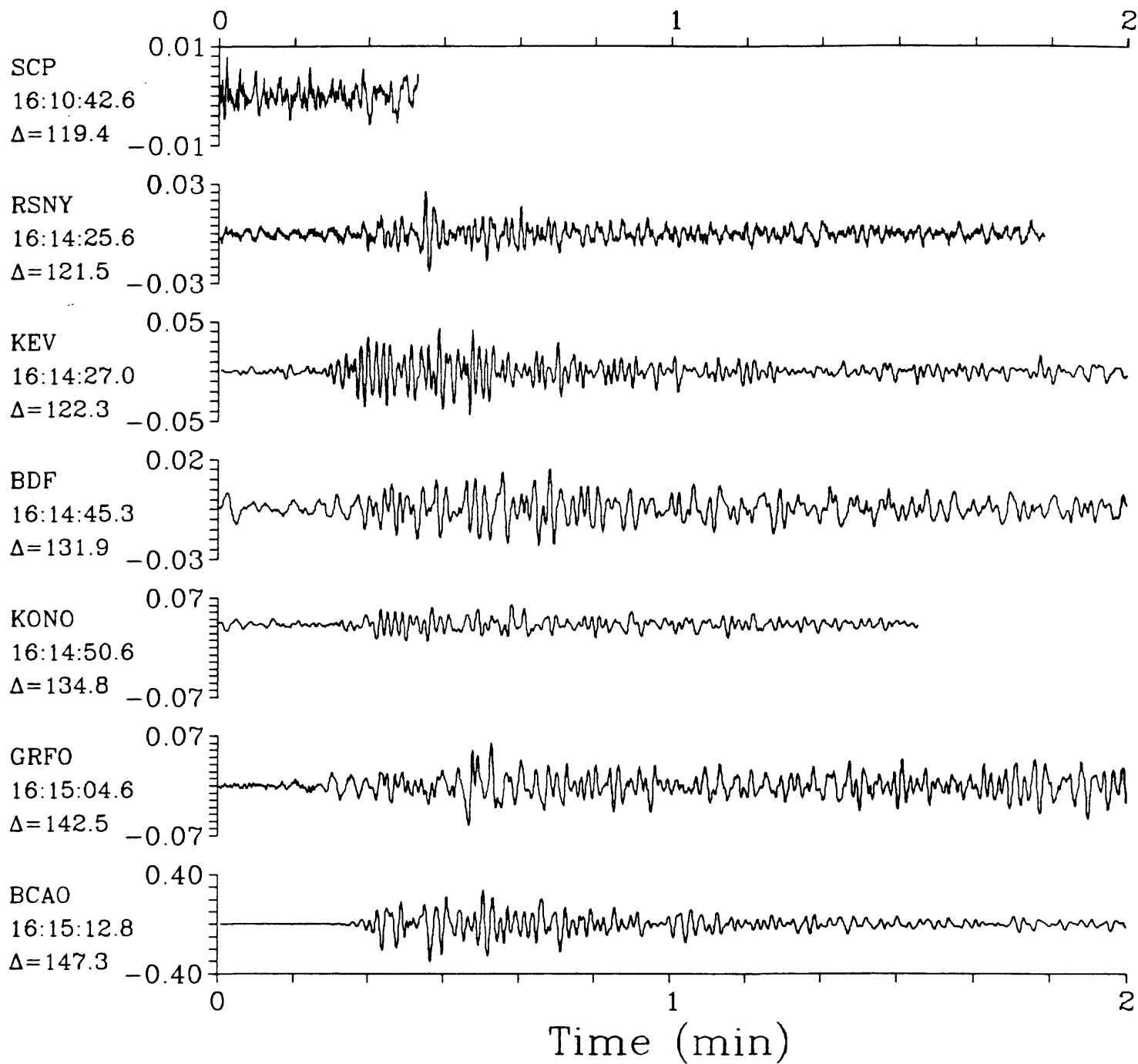
SPZ

Vanuatu Islands $h=28.4$ $m_b=5.8$ $M_{SZ}=6.4$ 

SPZ

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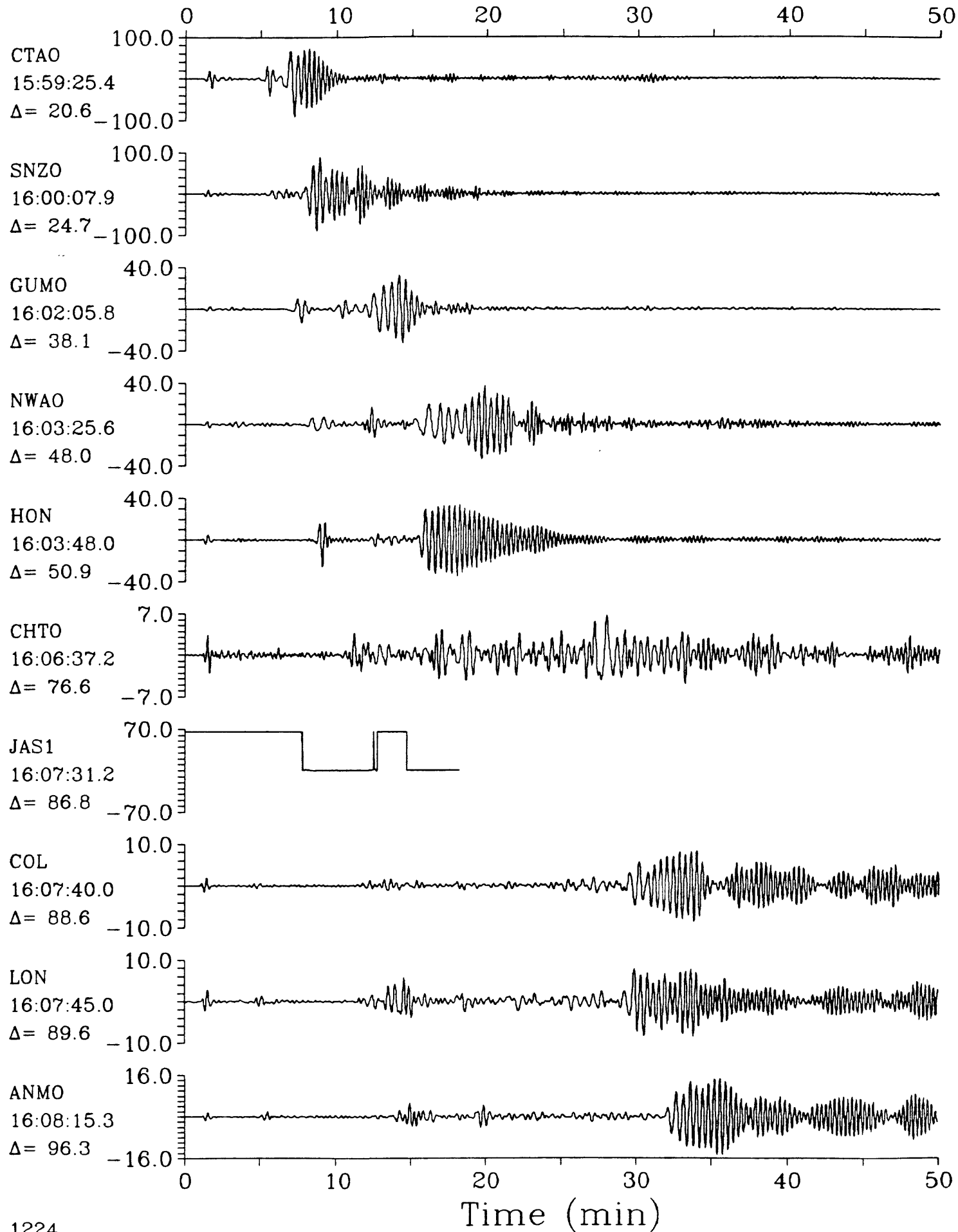
SPZ

Vanuatu Islands $h=28.4$ $m_b=5.8$ $M_{SZ}=6.4$ 

LPZ

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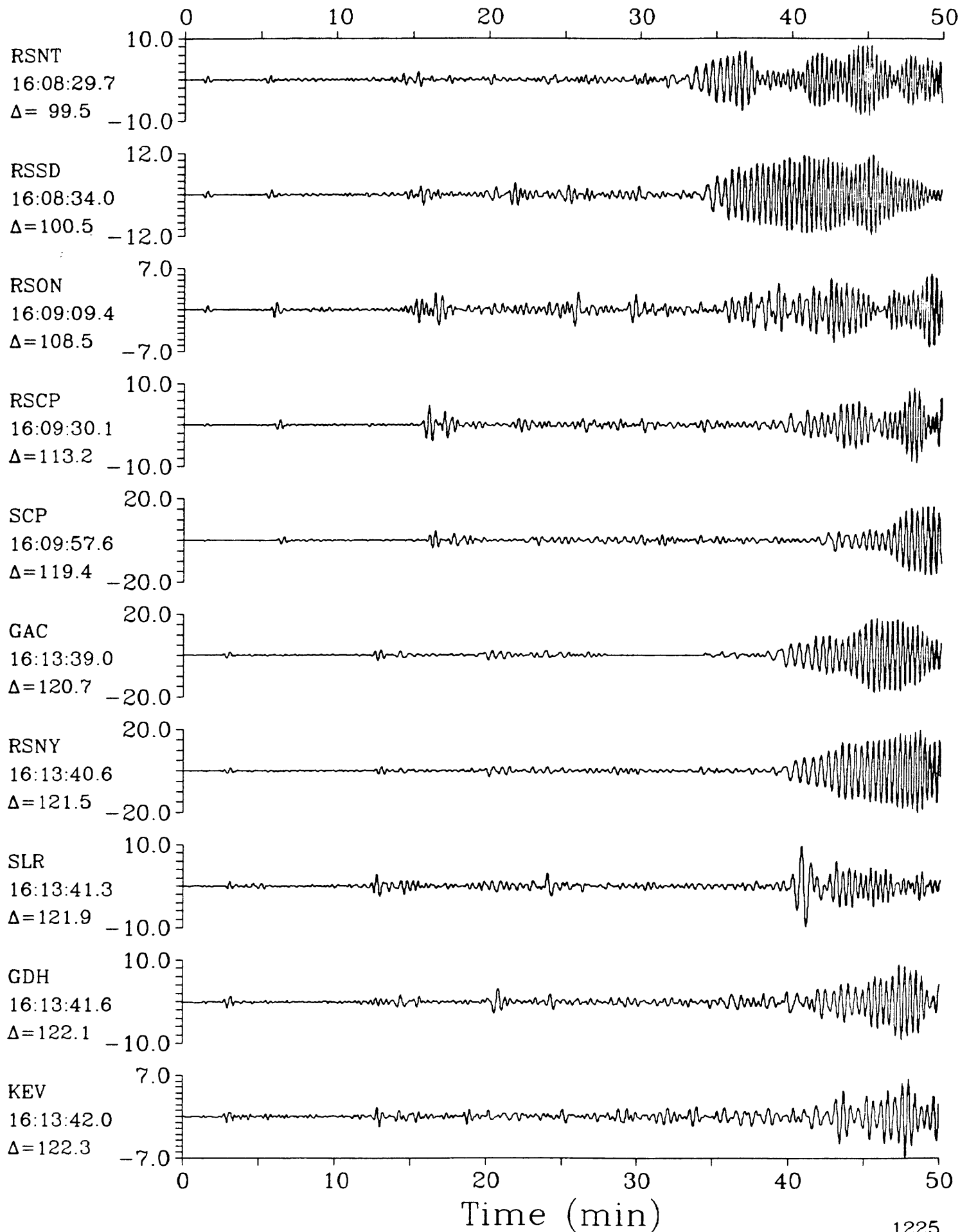
LPZ

Vanuatu Islands $h=28.4$ $m_b=5.8$ $M_{sz}=6.4$ 

LPZ

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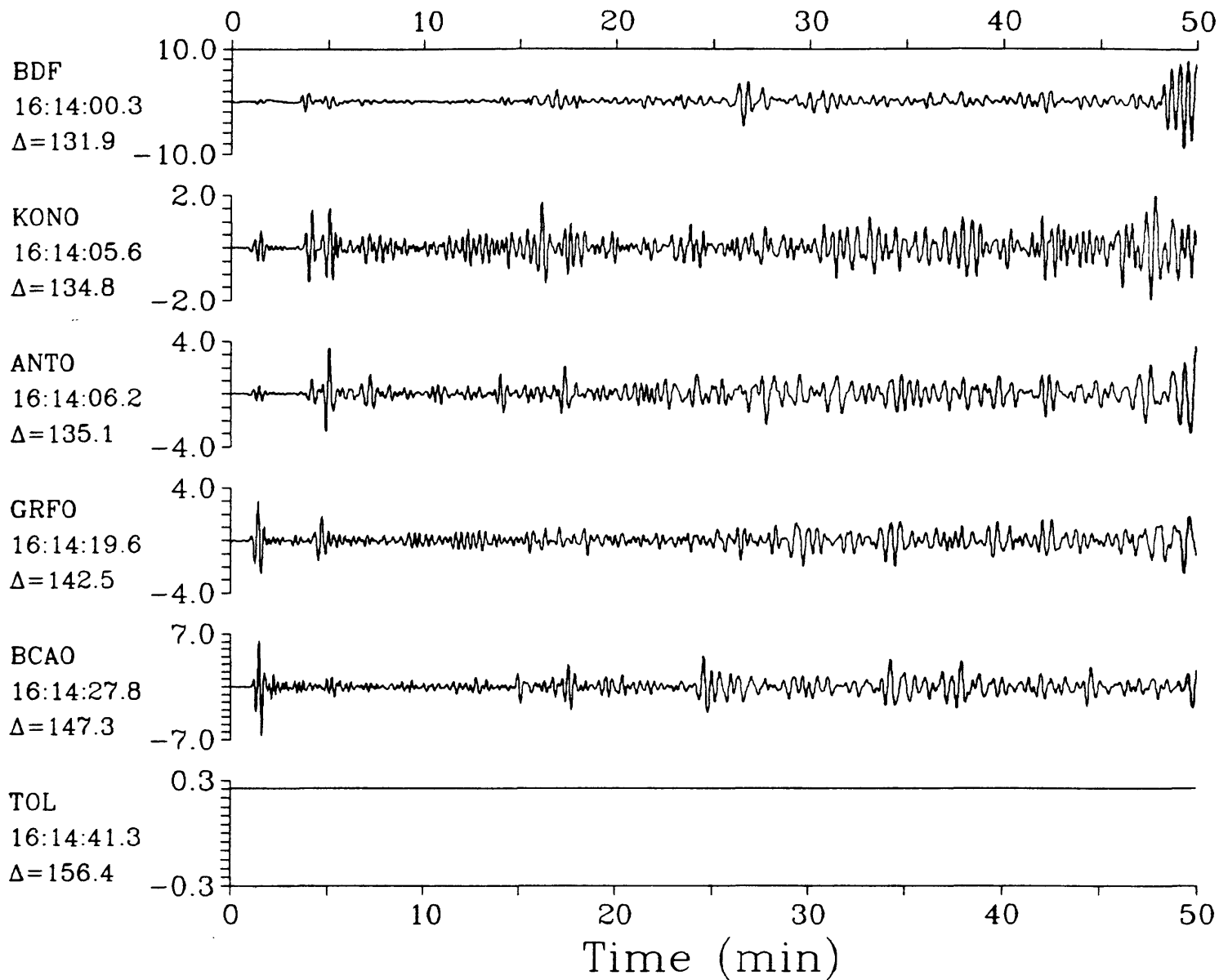
LPZ

Vanuatu Islands $h=28.4$ $m_b=5.8$ $M_{SZ}=6.4$ 

LPZ

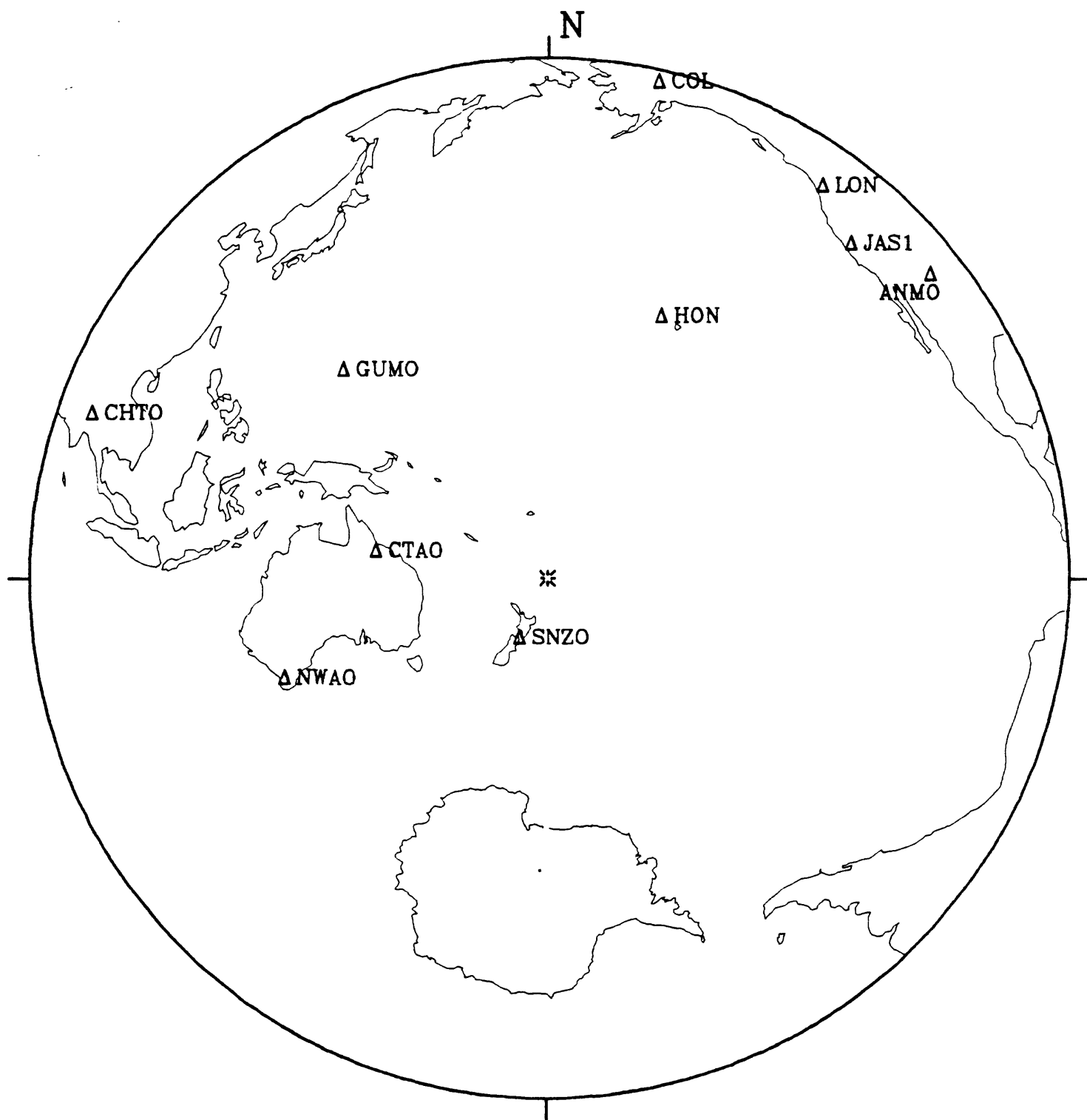
03 July 1985 15:55:49.00

LPZ

Vanuatu Islands $h=28.4$ $m_b=5.8$ $M_{SZ}=6.4$ 

03 July 1985 19:08:54.98

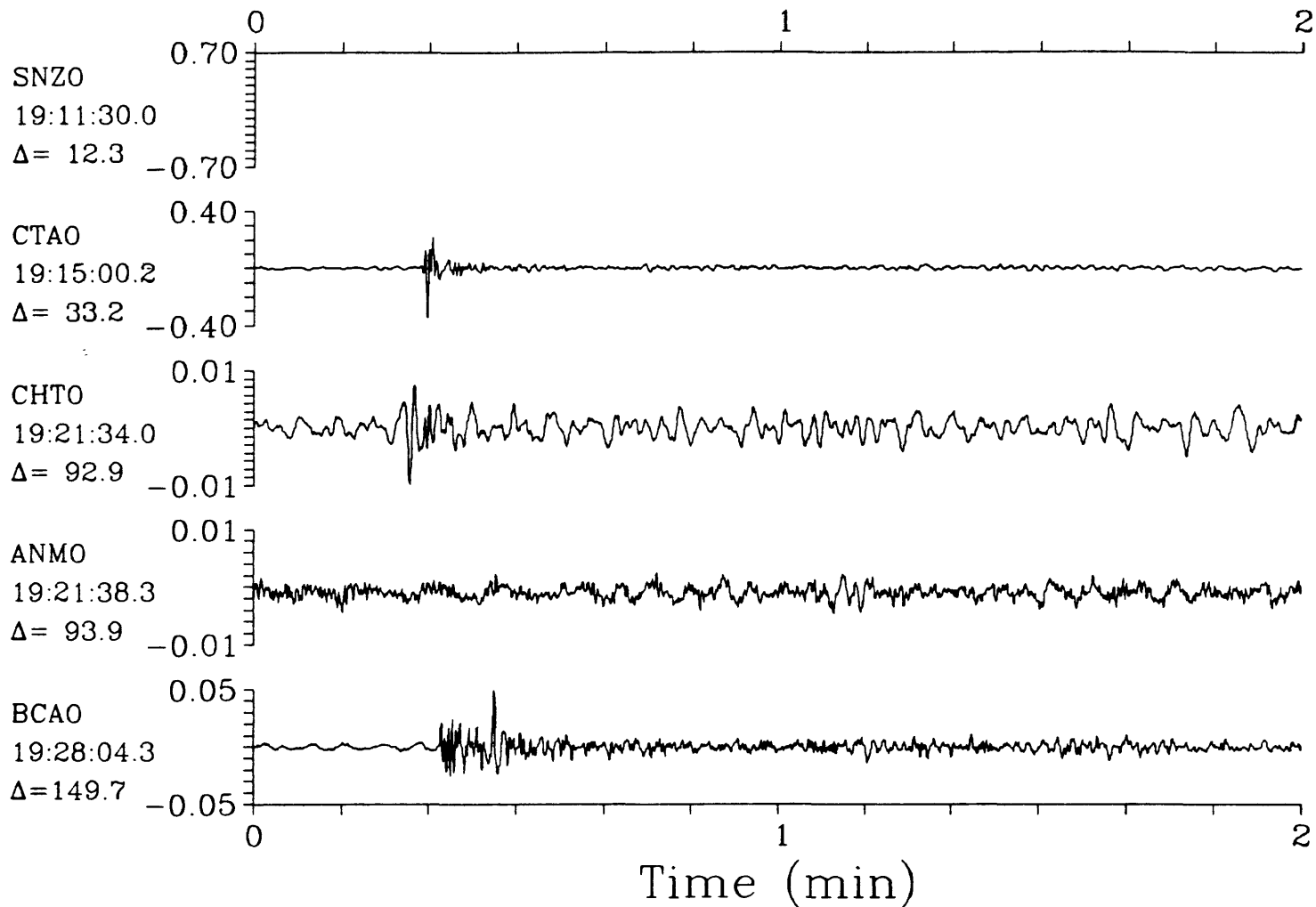
Kermadec Islands



SPZ

03 July 1985 19:08:54.98
Kermadec Islands $h=173.1$ $m_b=5.5$

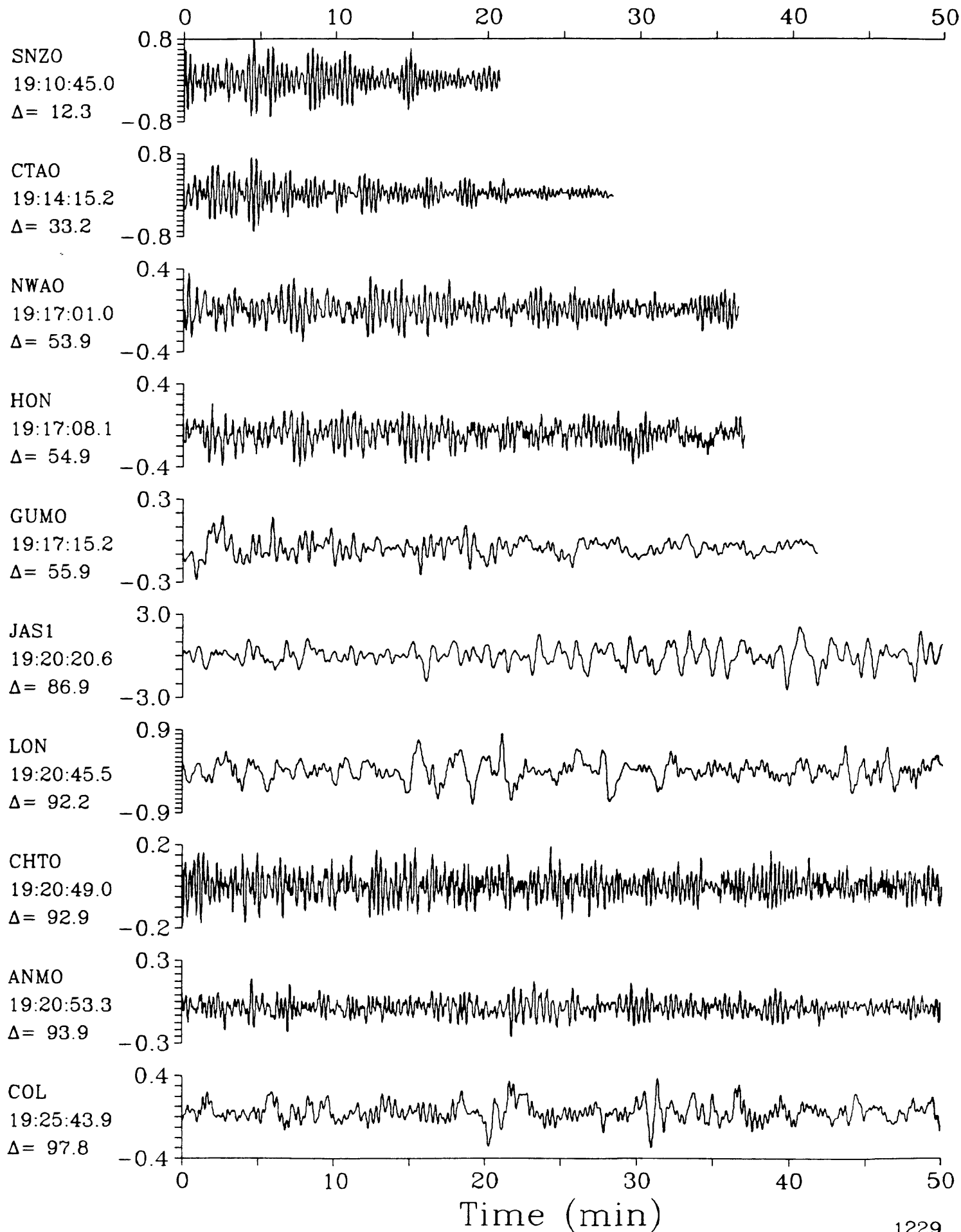
SPZ



LPZ

03 July 1985 19:08:54.98
Kermadec Islands $h=173.1$ $m_b=5.5$

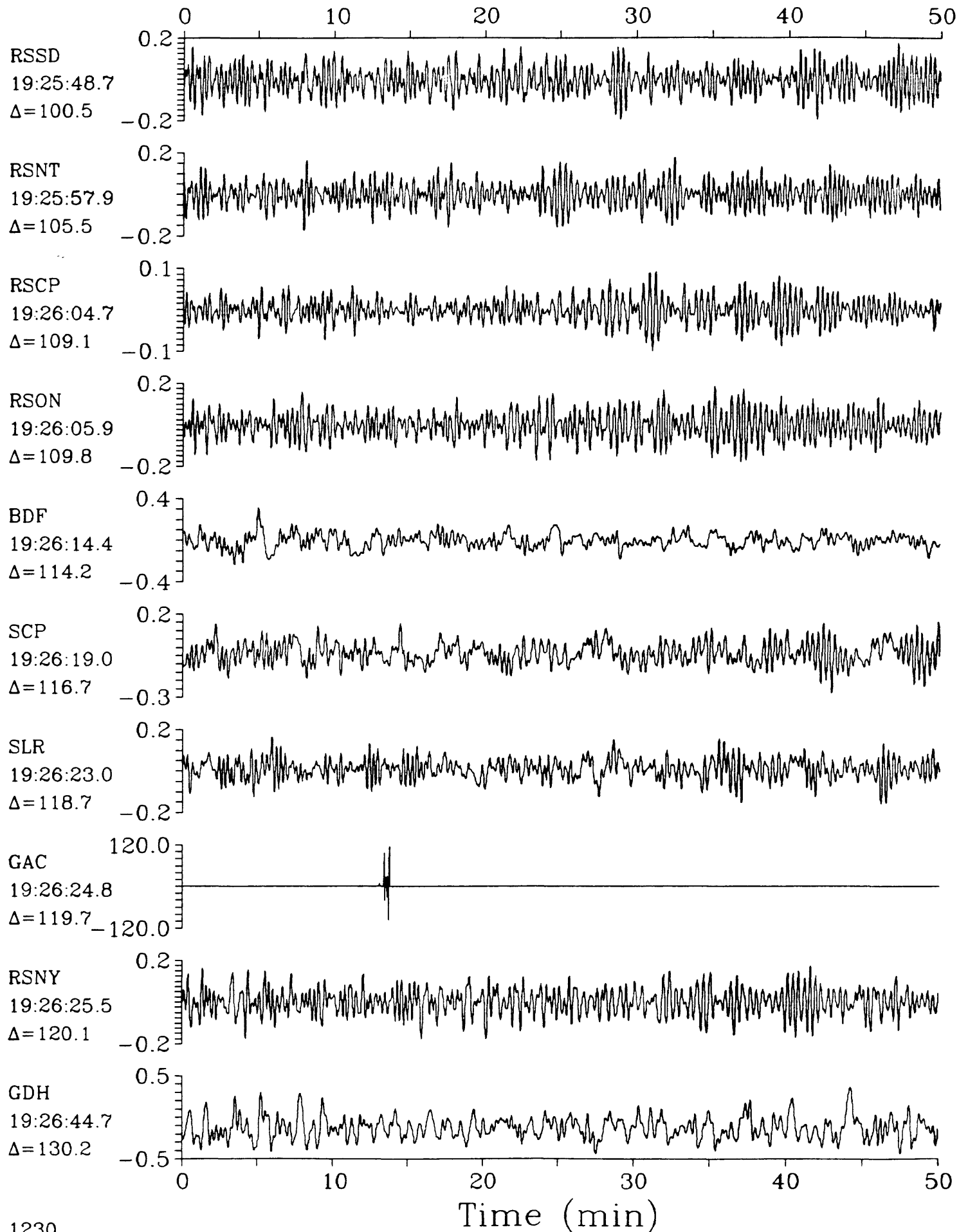
LPZ



LPZ

03 July 1985 19:08:54.98
Kermadec Islands $h=173.1$ $m_b=5.5$

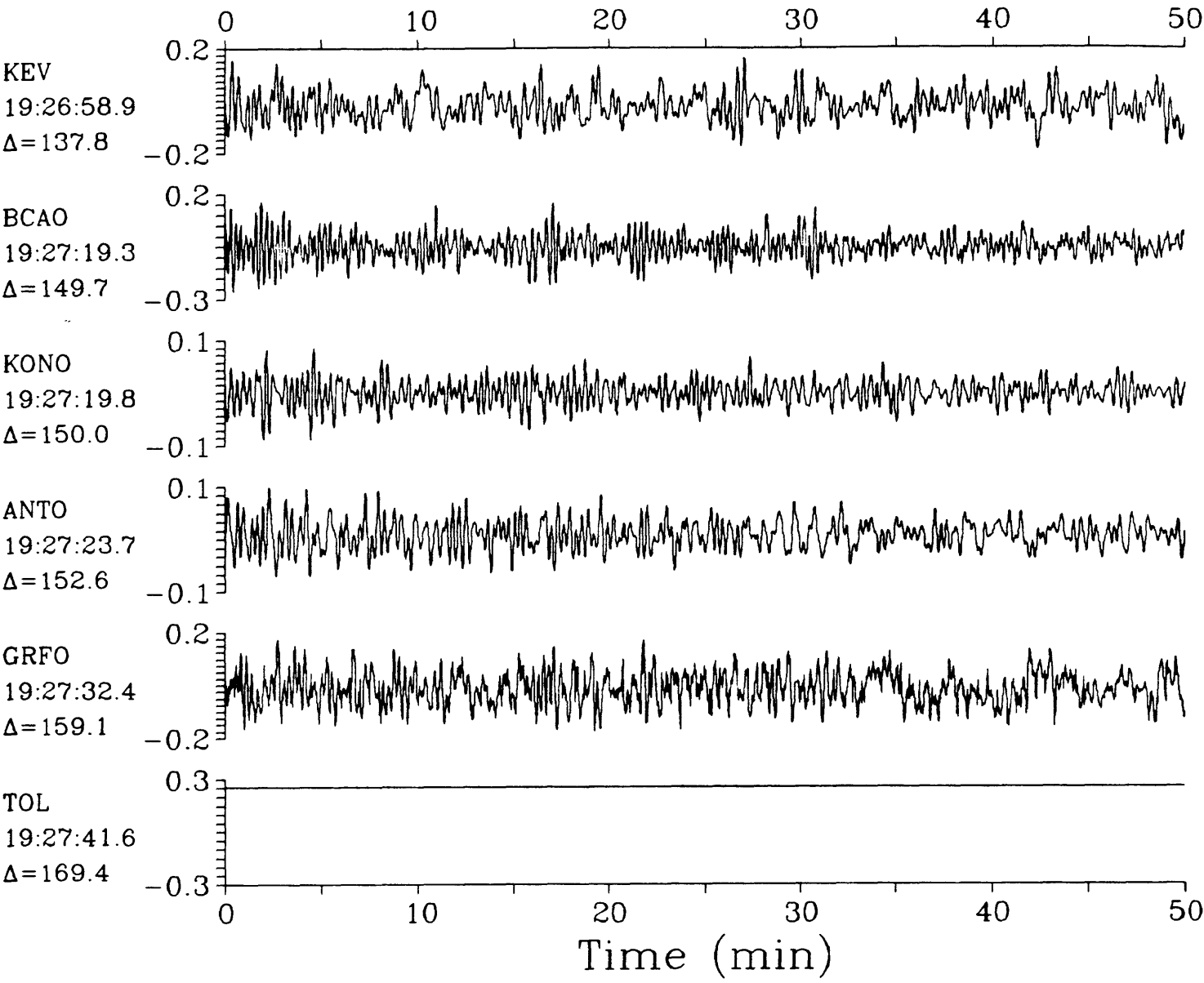
LPZ



LPZ

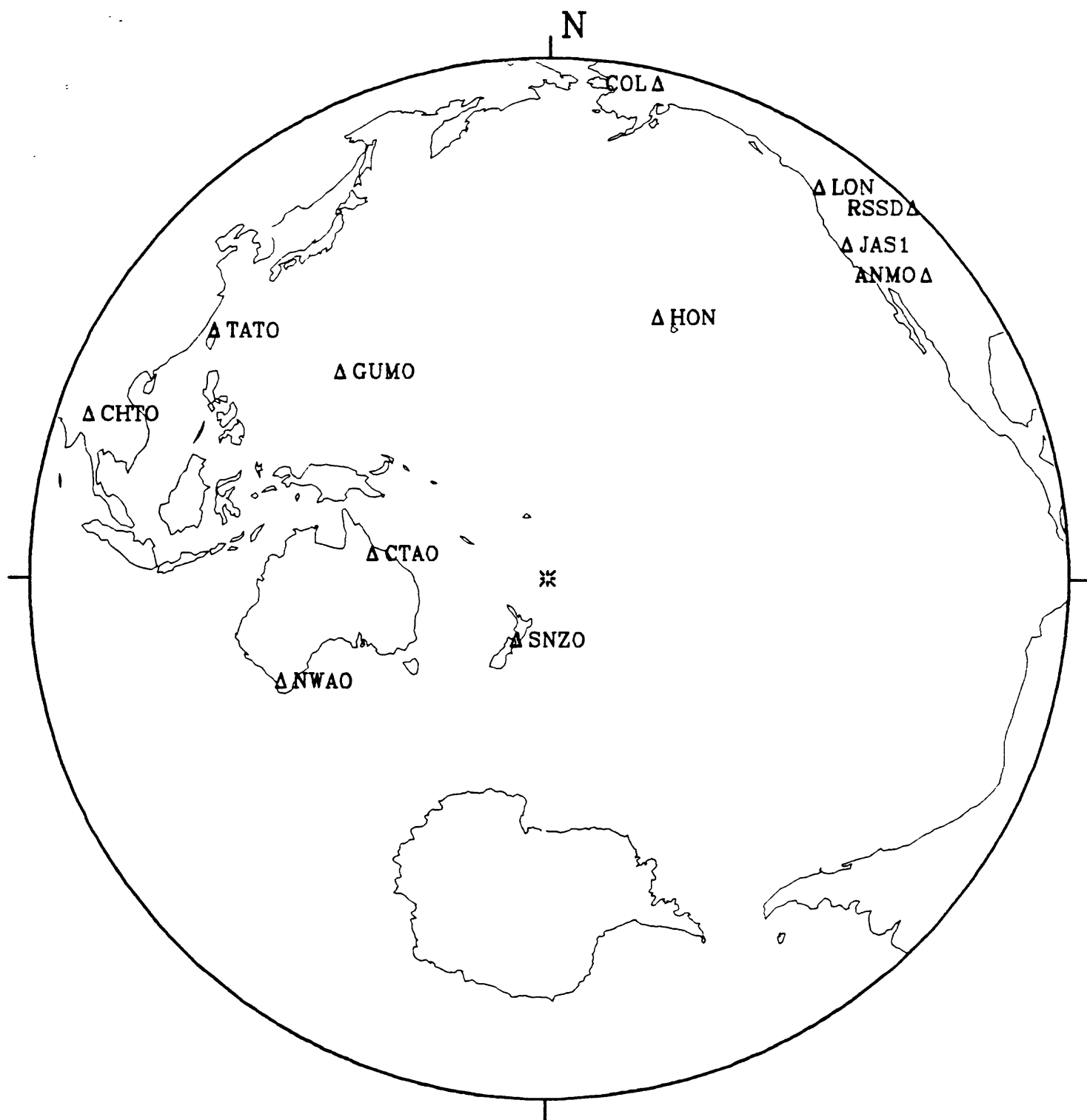
03 July 1985 19:08:54.98
Kermadec Islands $h=173.1$ $m_b=5.5$

LPZ



06 July 1985 03:37:18.26

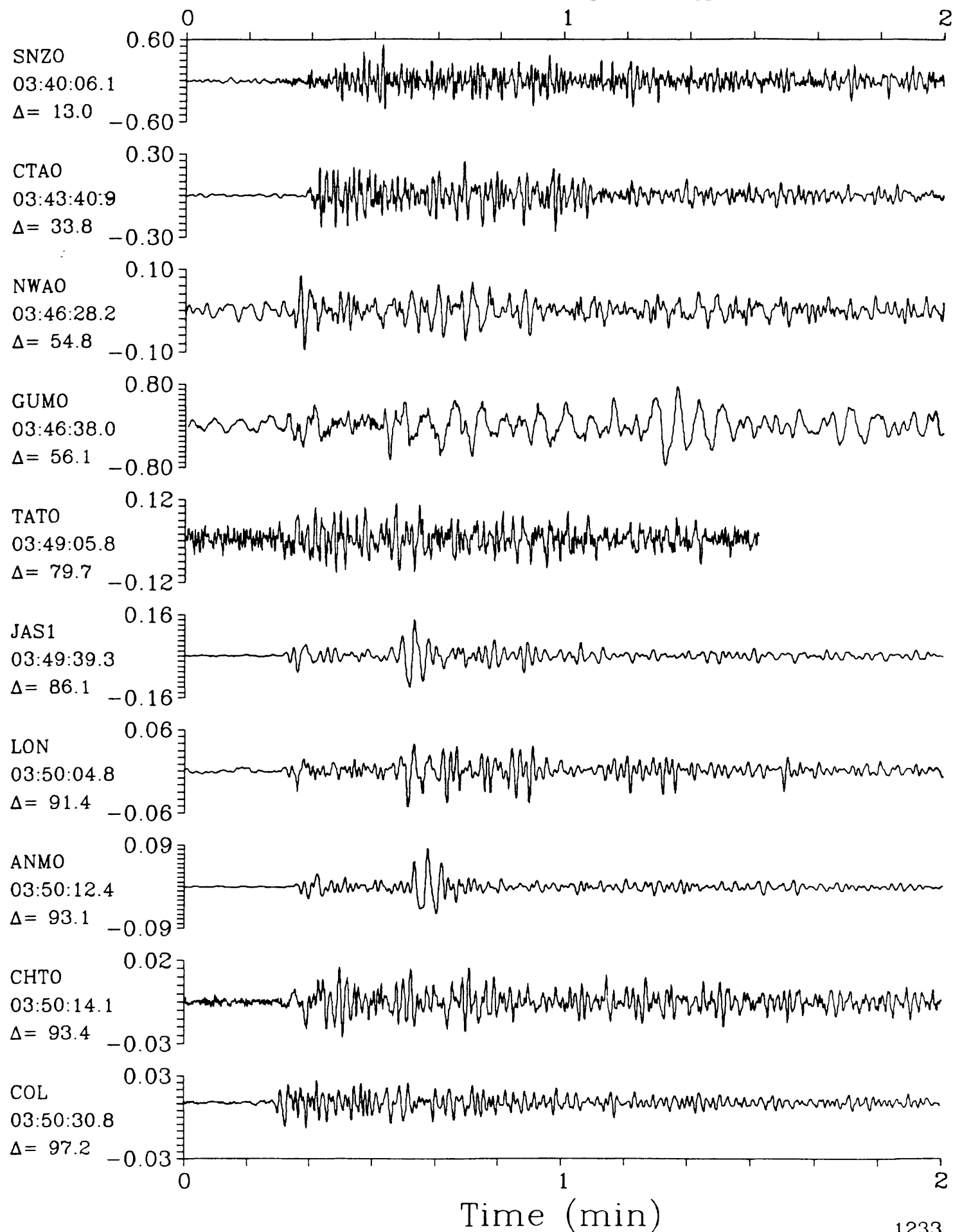
Kermadec Islands



SPZ

06 July 1985 03:37:18.26

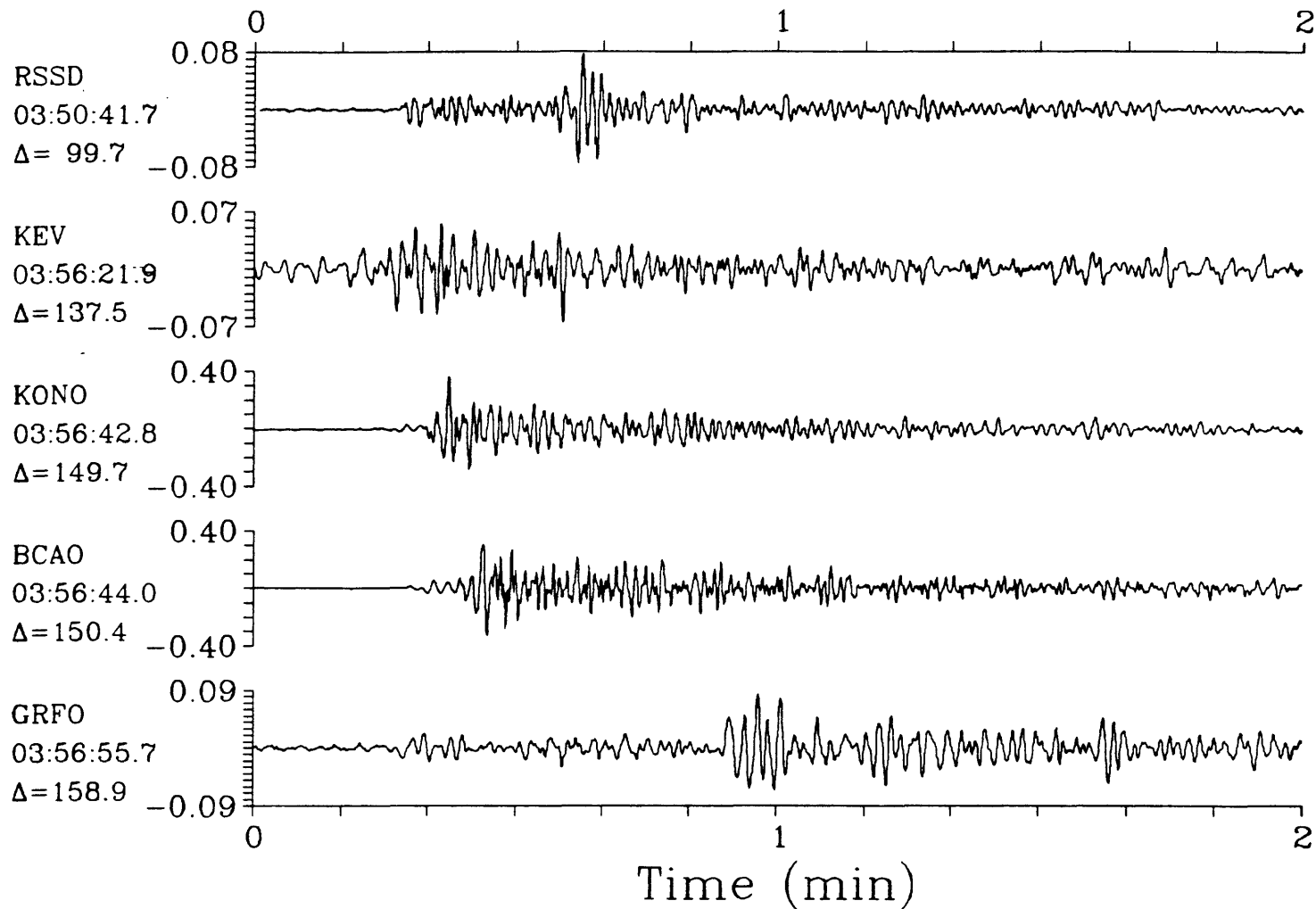
SPZ

Kermadec Islands $h=51.0$ $m_b=5.7$ $M_{SZ}=5.9$ 

SPZ

06 July 1985 03:37:18.26

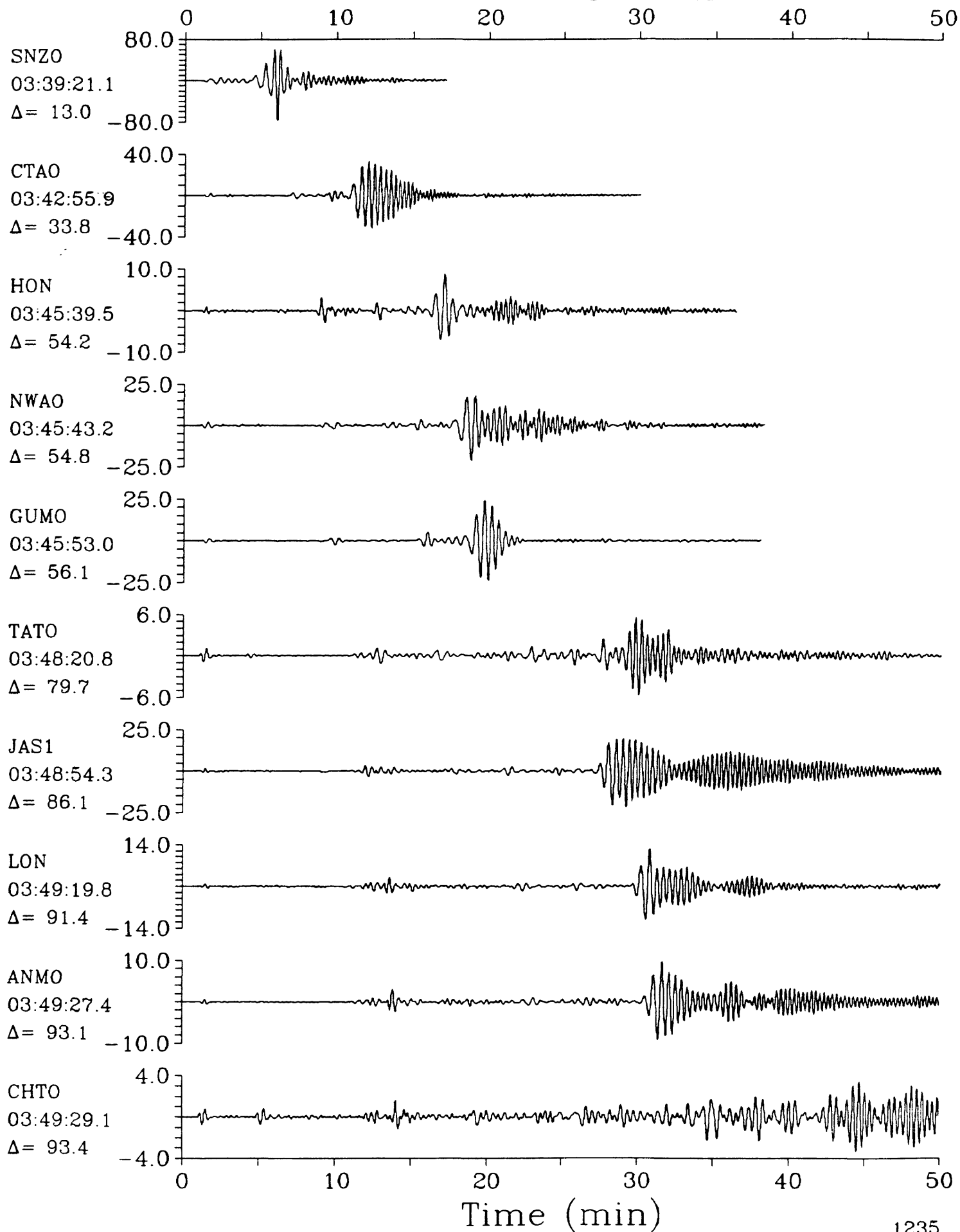
SPZ

Kermadec Islands $h=51.0$ $m_b=5.7$ $M_{sz}=5.9$ 

LPZ

06 July 1985 03:37:18.26

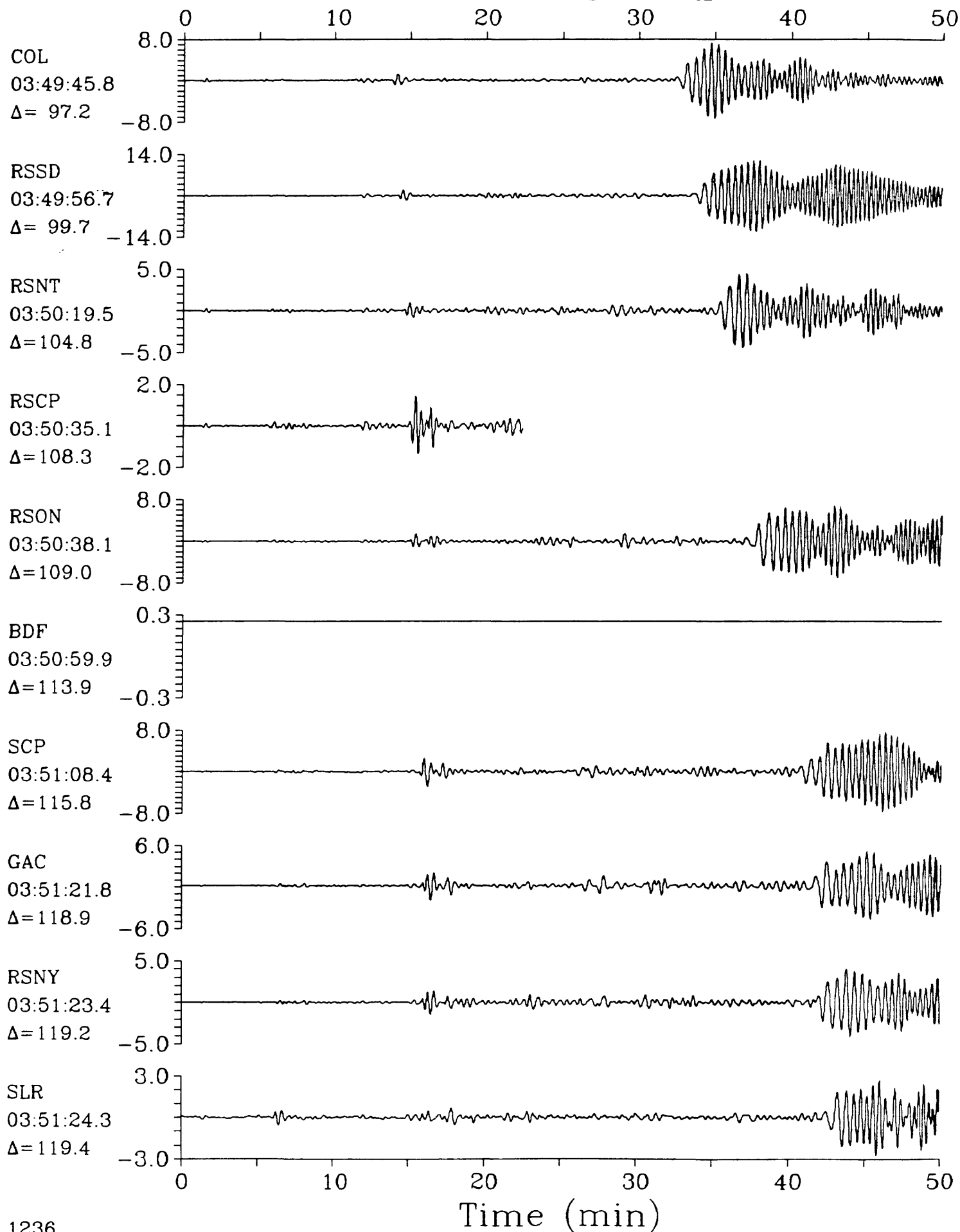
LPZ

Kermadec Islands $h=51.0$ $m_b=5.7$ $M_{sz}=5.9$ 

LPZ

06 July 1985 03:37:18.26

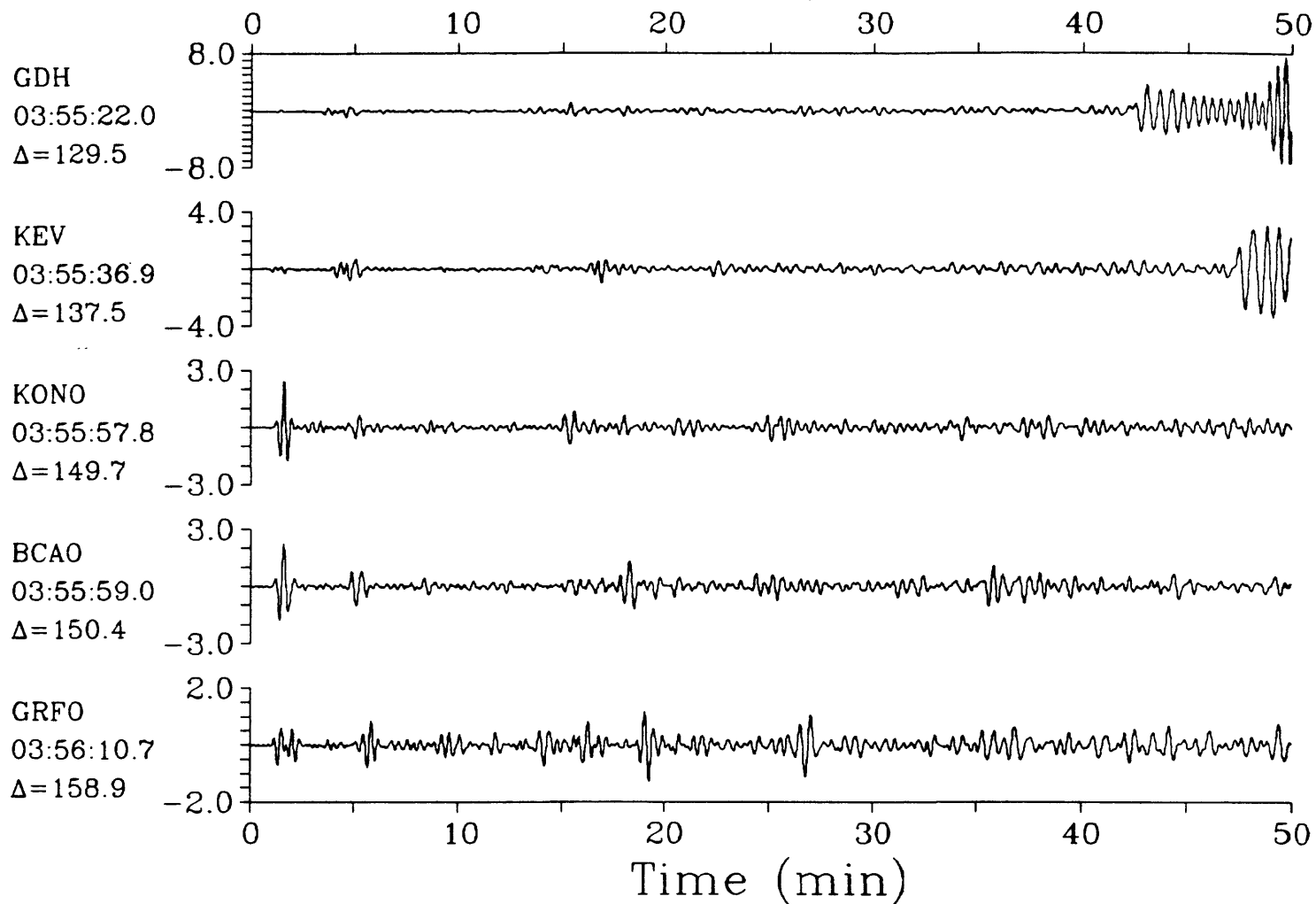
LPZ

Kermadec Islands $h=51.0$ $m_b=5.7$ $M_{SZ}=5.9$ 

LPZ

06 July 1985 03:37:18.26

LPZ

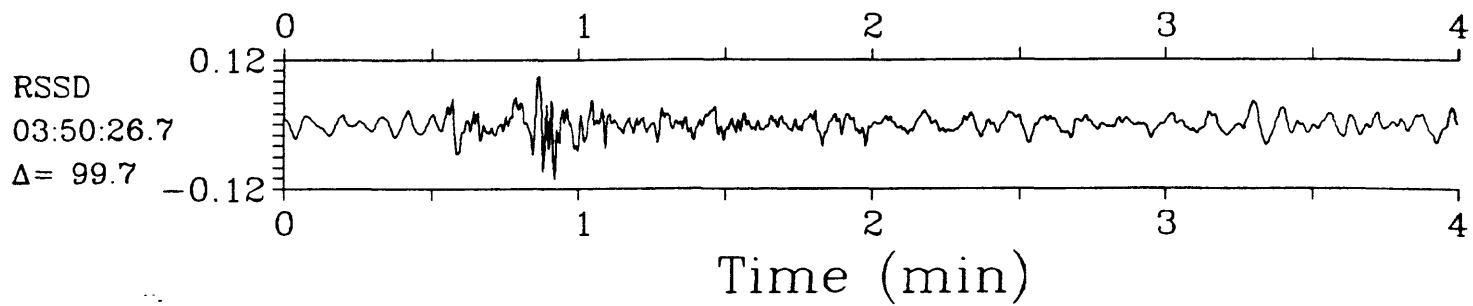
Kermadec Islands $h=51.0$ $m_b=5.7$ $M_{sz}=5.9$ 

IPZ

06 July 1985 03:37:18.26

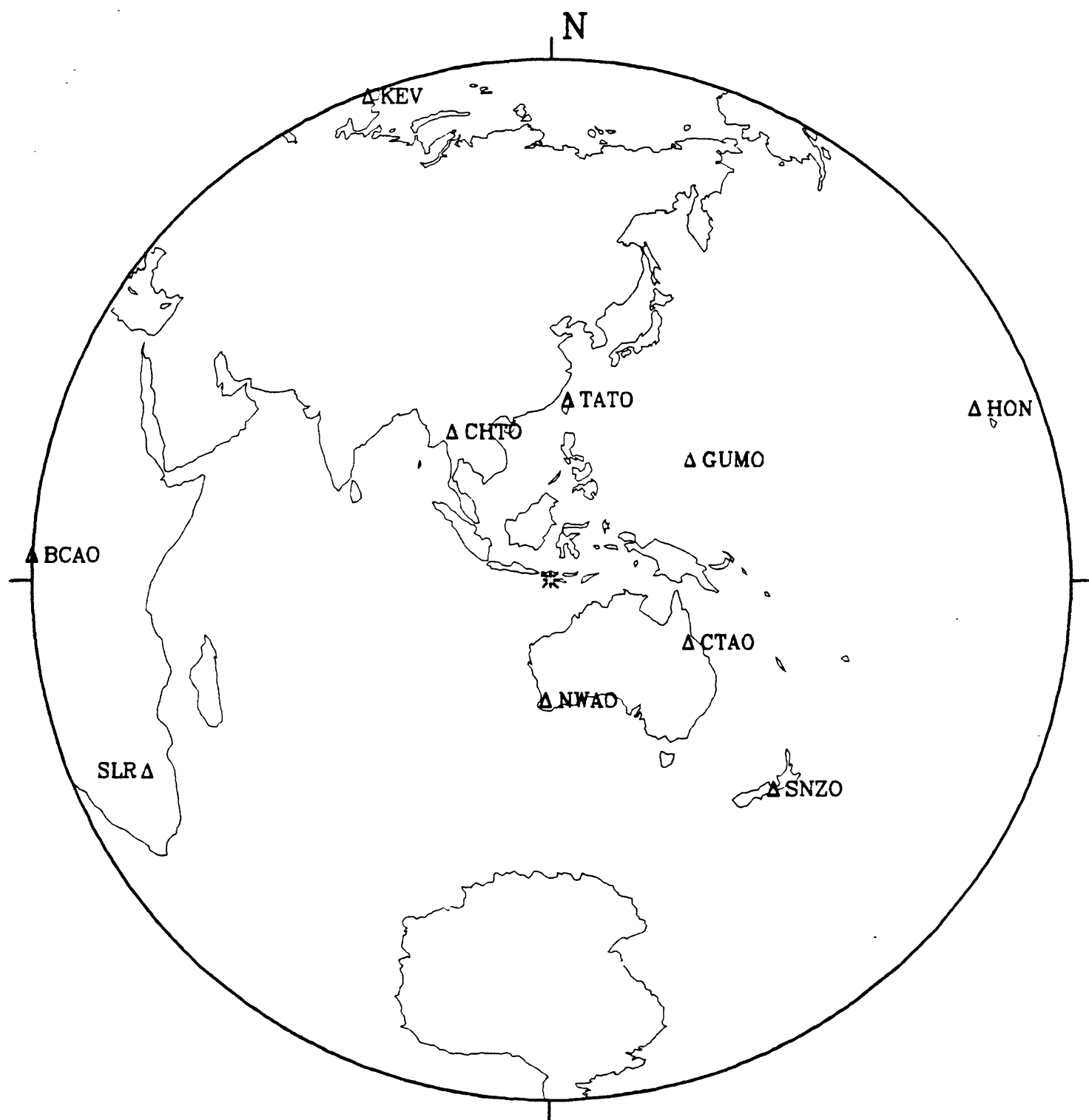
IPZ

Kermadec Islands $h=51.0$ $m_b=5.7$ $M_{sz}=5.9$



06 July 1985 14:37:22.25

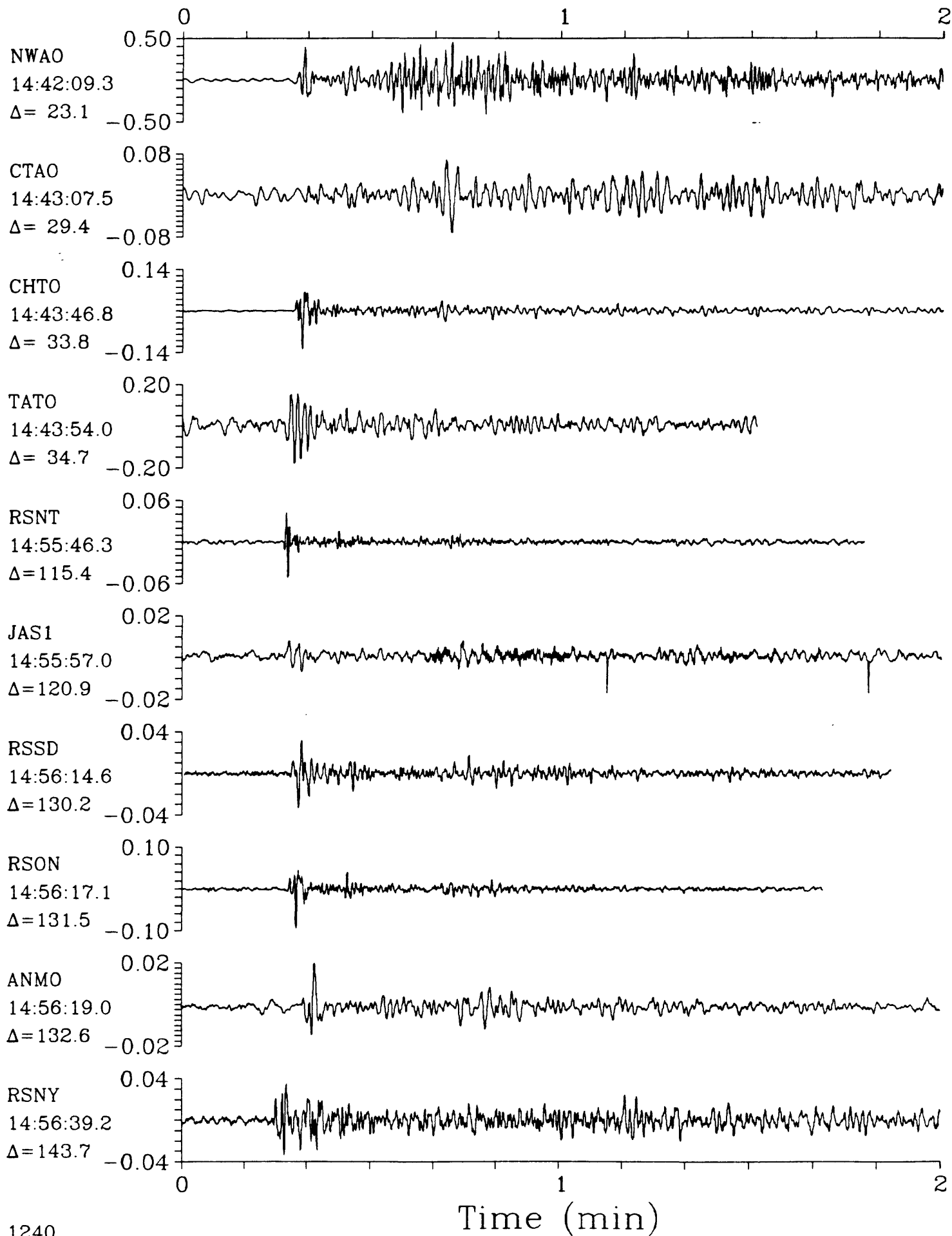
Sumbawa Island Region



SPZ

06 July 1985 14:37:22.25

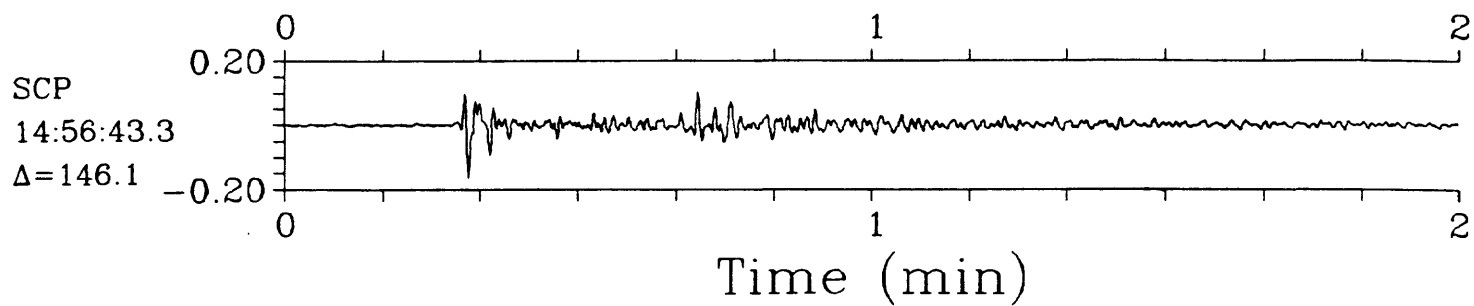
SPZ

Sumbawa Island Region $h=33.0$ $m_b=5.6$ $M_{SZ}=4.7$ 

SPZ

06 July 1985 14:37:22.25

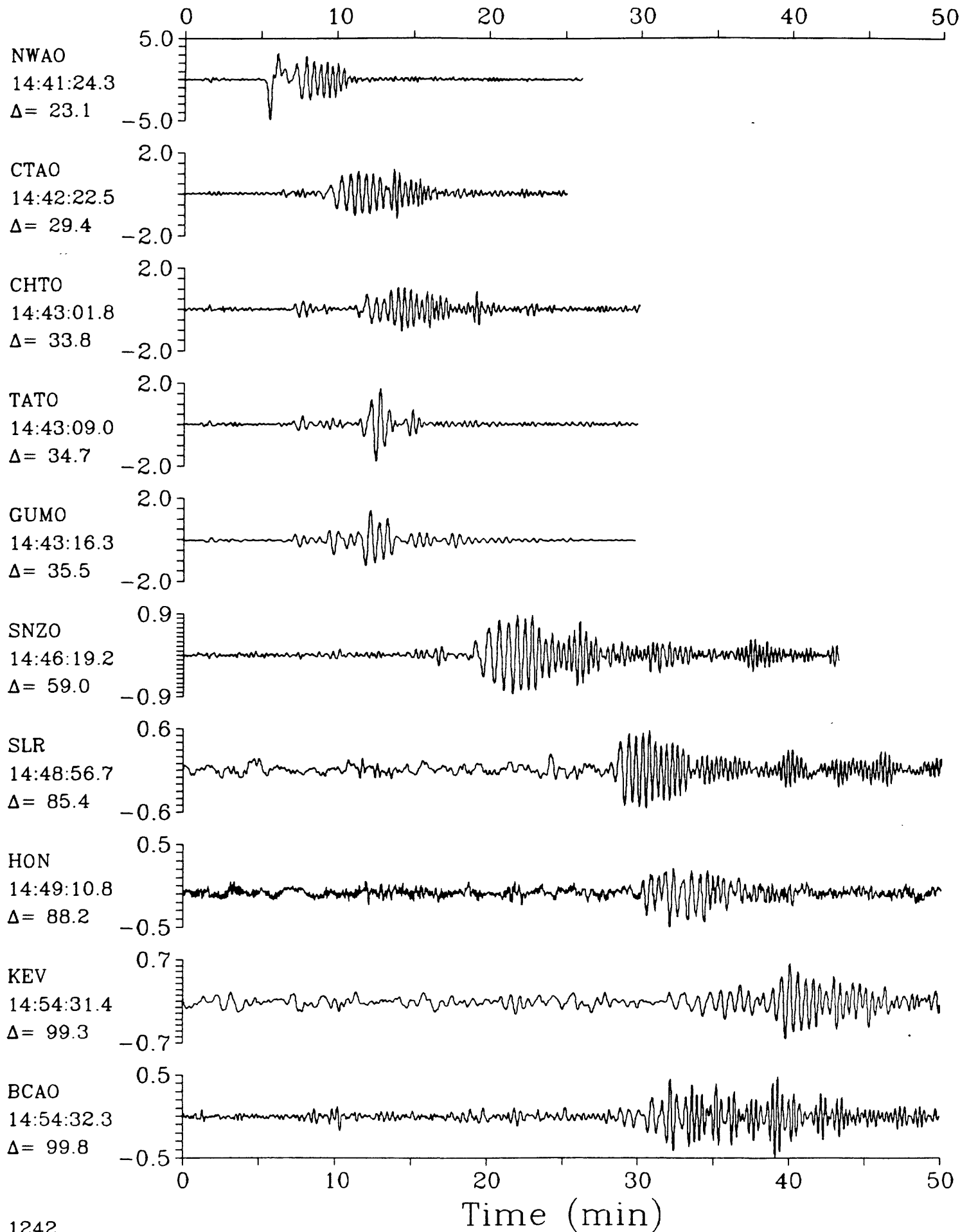
SPZ

Sumbawa Island Region $h=33.0$ $m_b=5.6$ $M_{sz}=4.7$ 

LPZ

06 July 1985 14:37:22.25

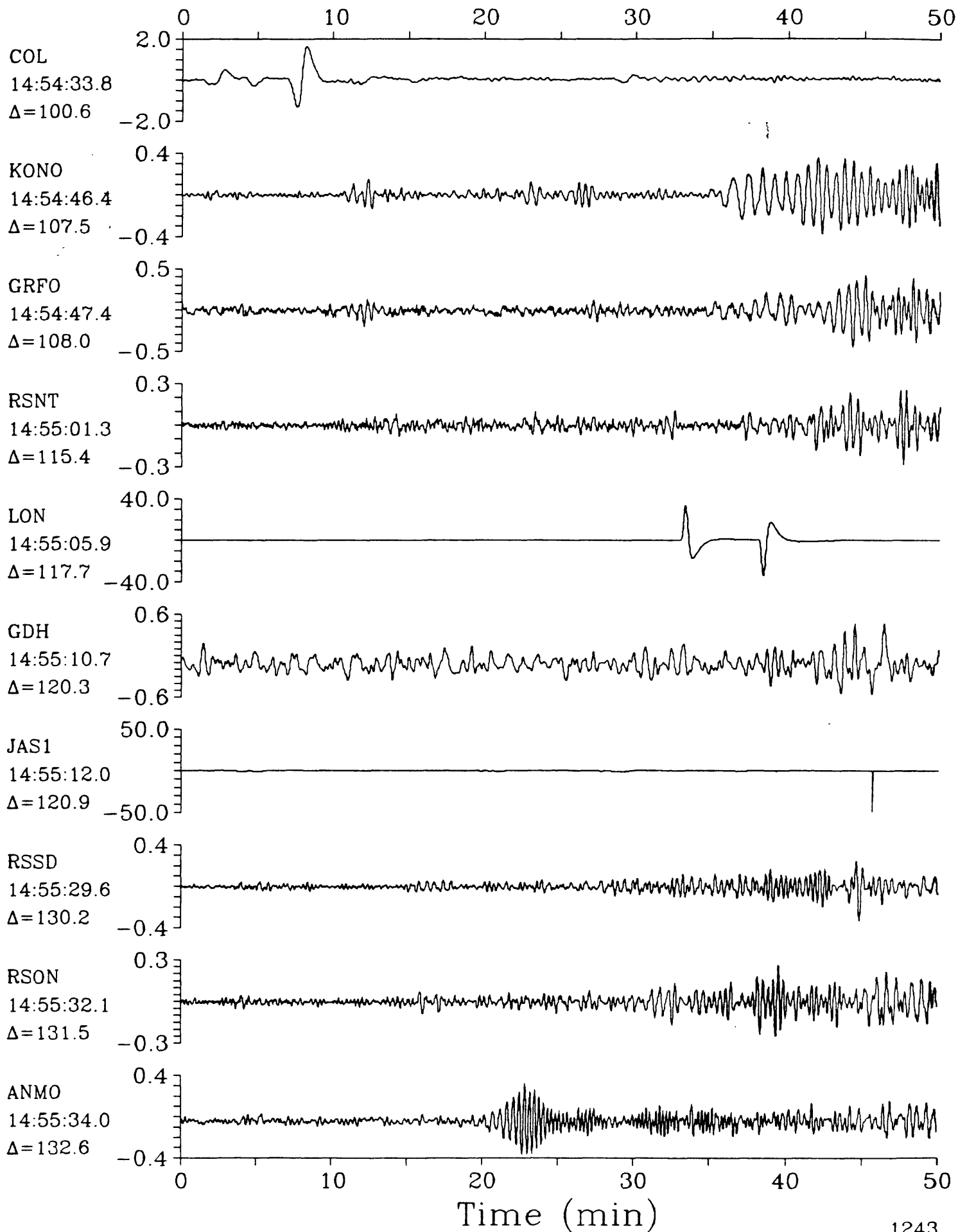
LPZ

Sumbawa Island Region $h=33.0$ $m_b=5.6$ $M_{sz}=4.7$ 

LPZ

06 July 1985 14:37:22.25

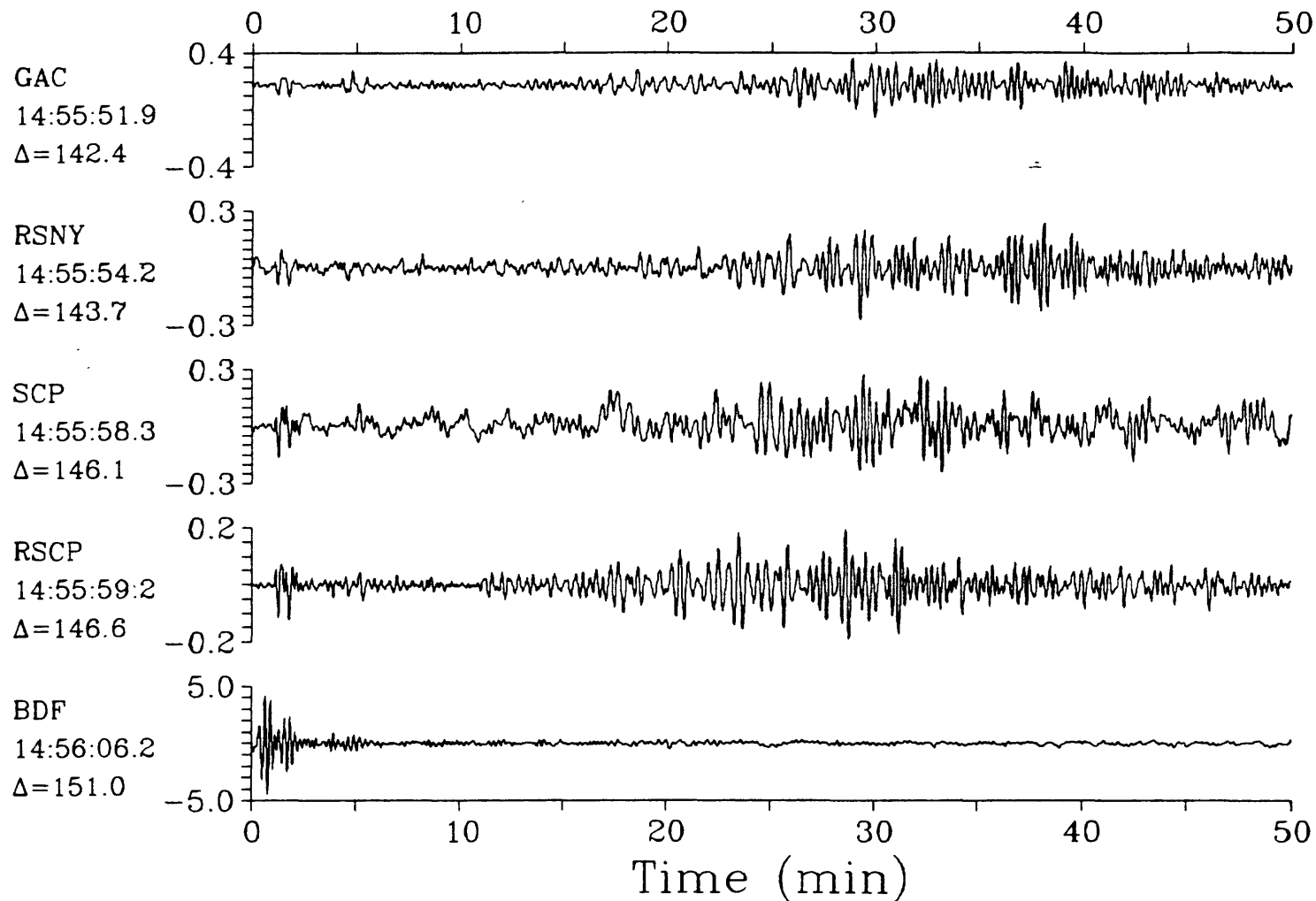
LPZ

Sumbawa Island Region $h=33.0$ $m_b=5.6$ $M_{sz}=4.7$ 

LPZ

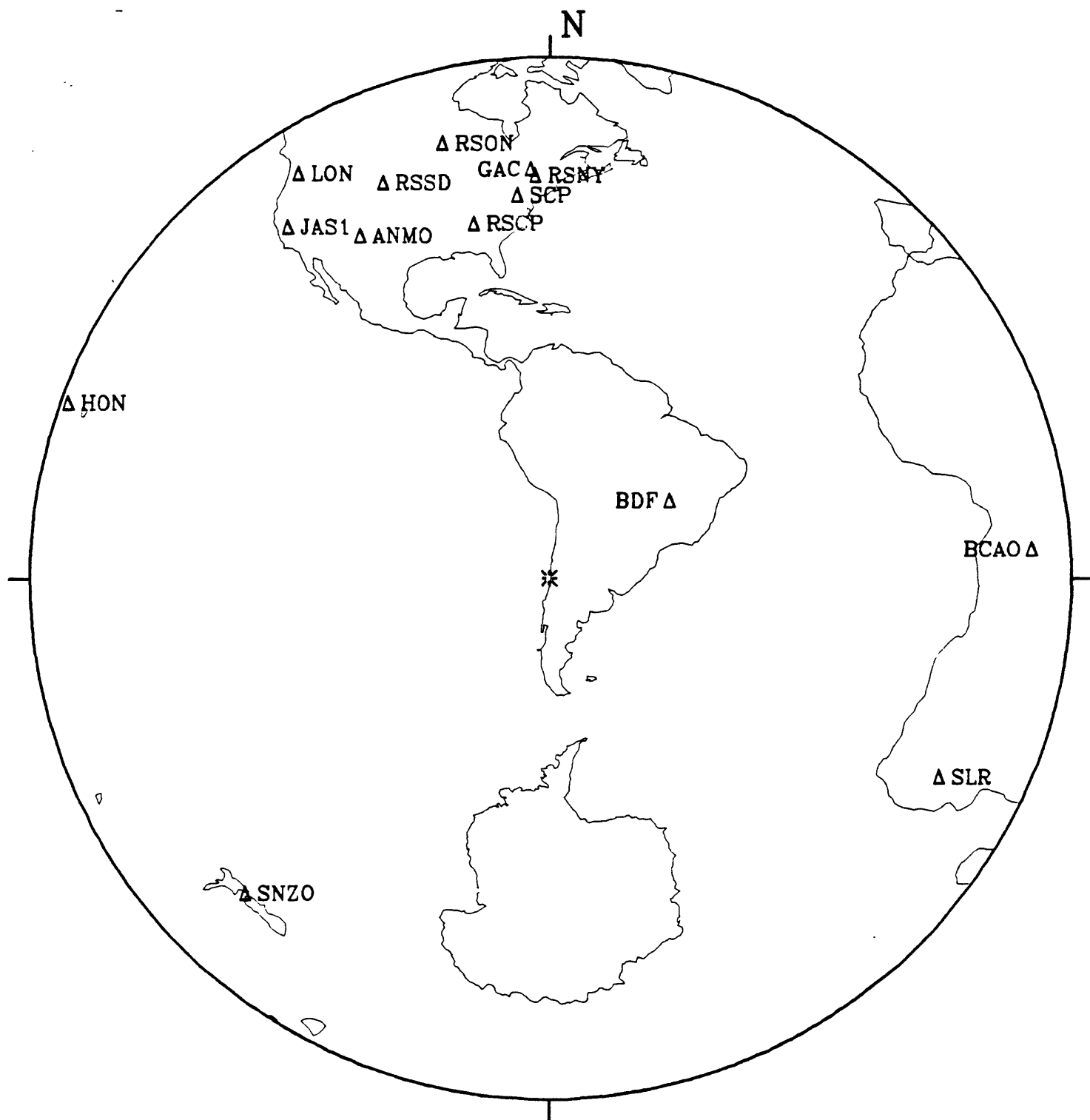
06 July 1985 14:37:22.25

LPZ

Sumbawa Island Region $h=33.0$ $m_b=5.6$ $M_{sz}=4.7$ 

07 July 1985 11:25:12.04

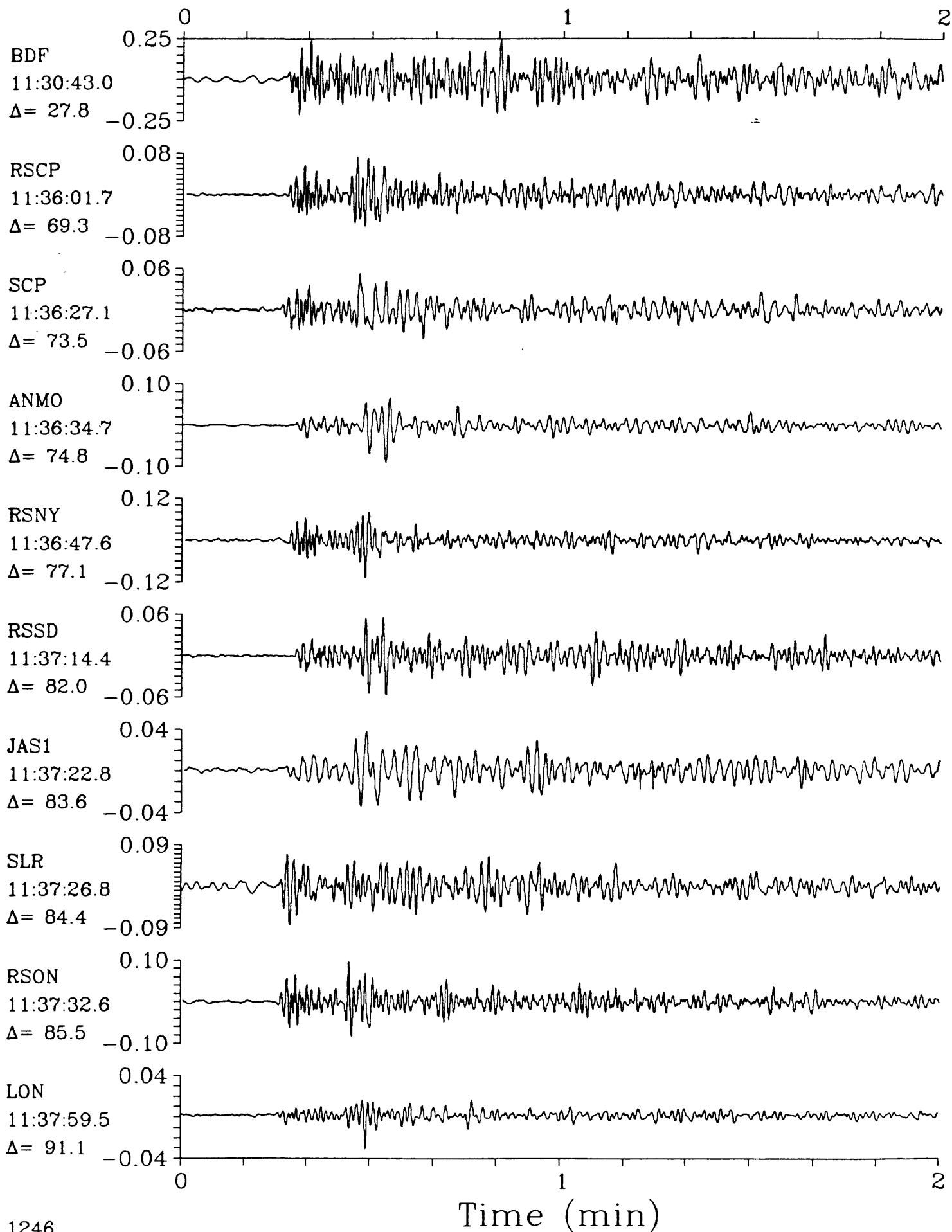
Near Coast of Central Chile



SPZ

07 July 1985 11:25:12.04

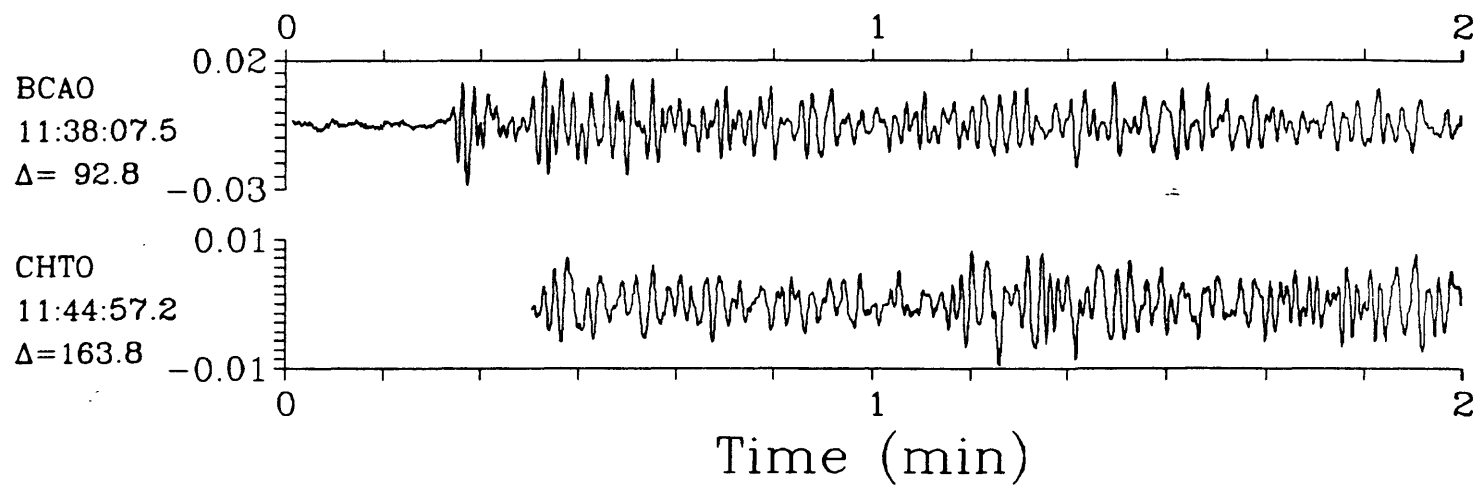
SPZ

Near Coast of Central Chile $h=31.7$ $m_b=5.4$ $M_{sz}=5.9$ 

SPZ

07 July 1985 11:25:12.04

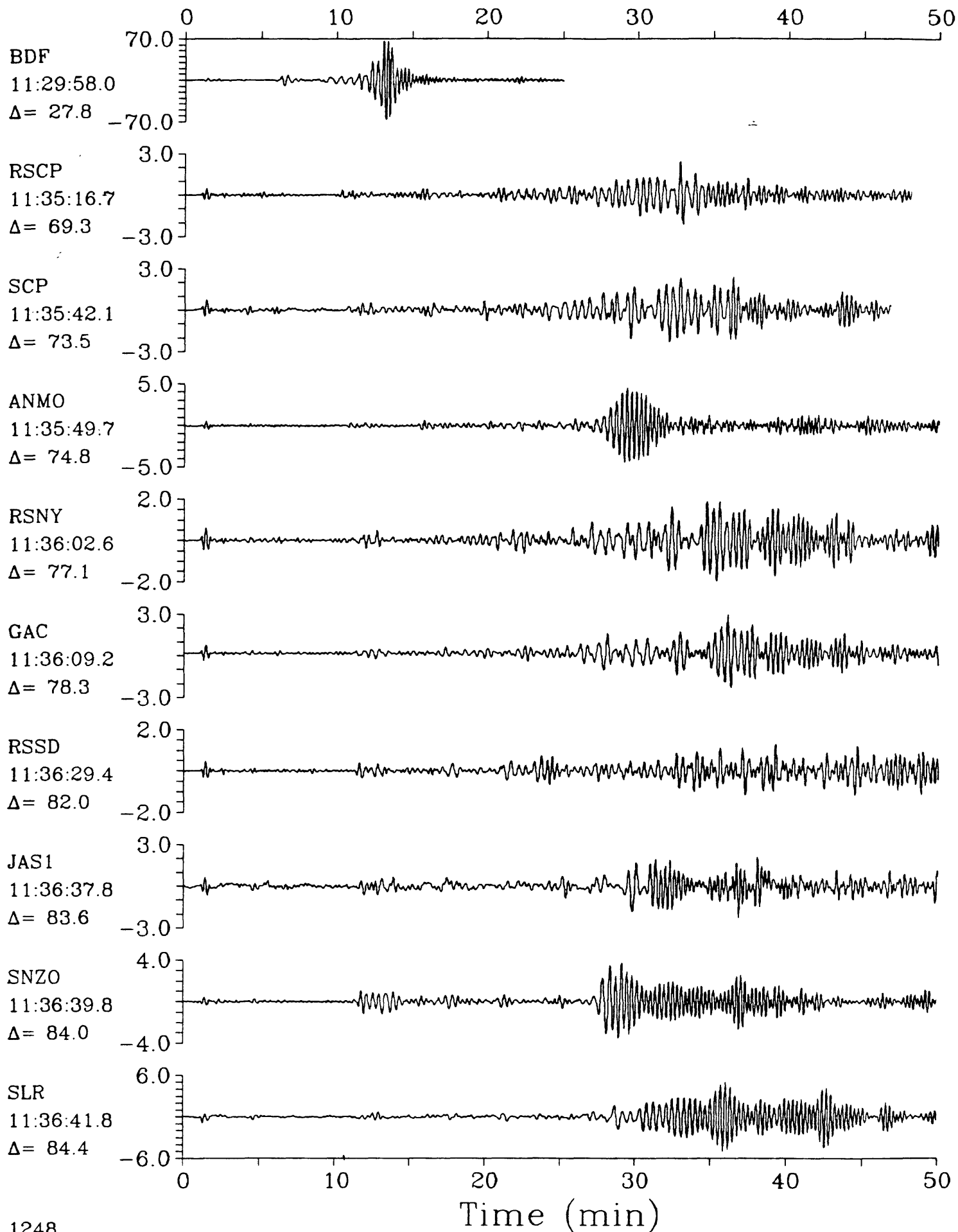
SPZ

Near Coast of Central Chile $h=31.7$ $m_b=5.4$ $M_{sz}=5.9$ 

LPZ

07 July 1985 11:25:12.04

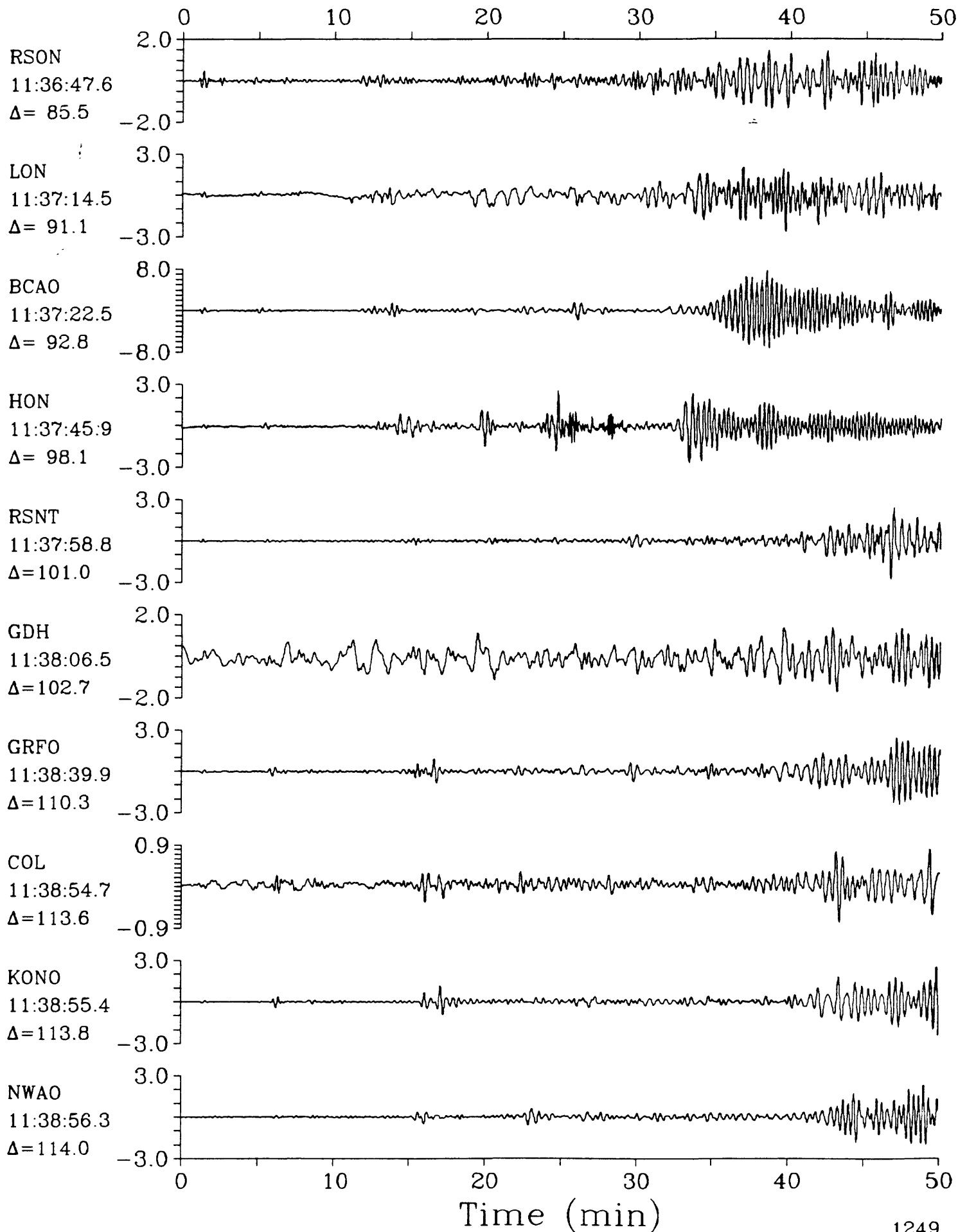
LPZ

Near Coast of Central Chile $h=31.7$ $m_b=5.4$ $M_{sz}=5.9$ 

LPZ

07 July 1985 11:25:12.04

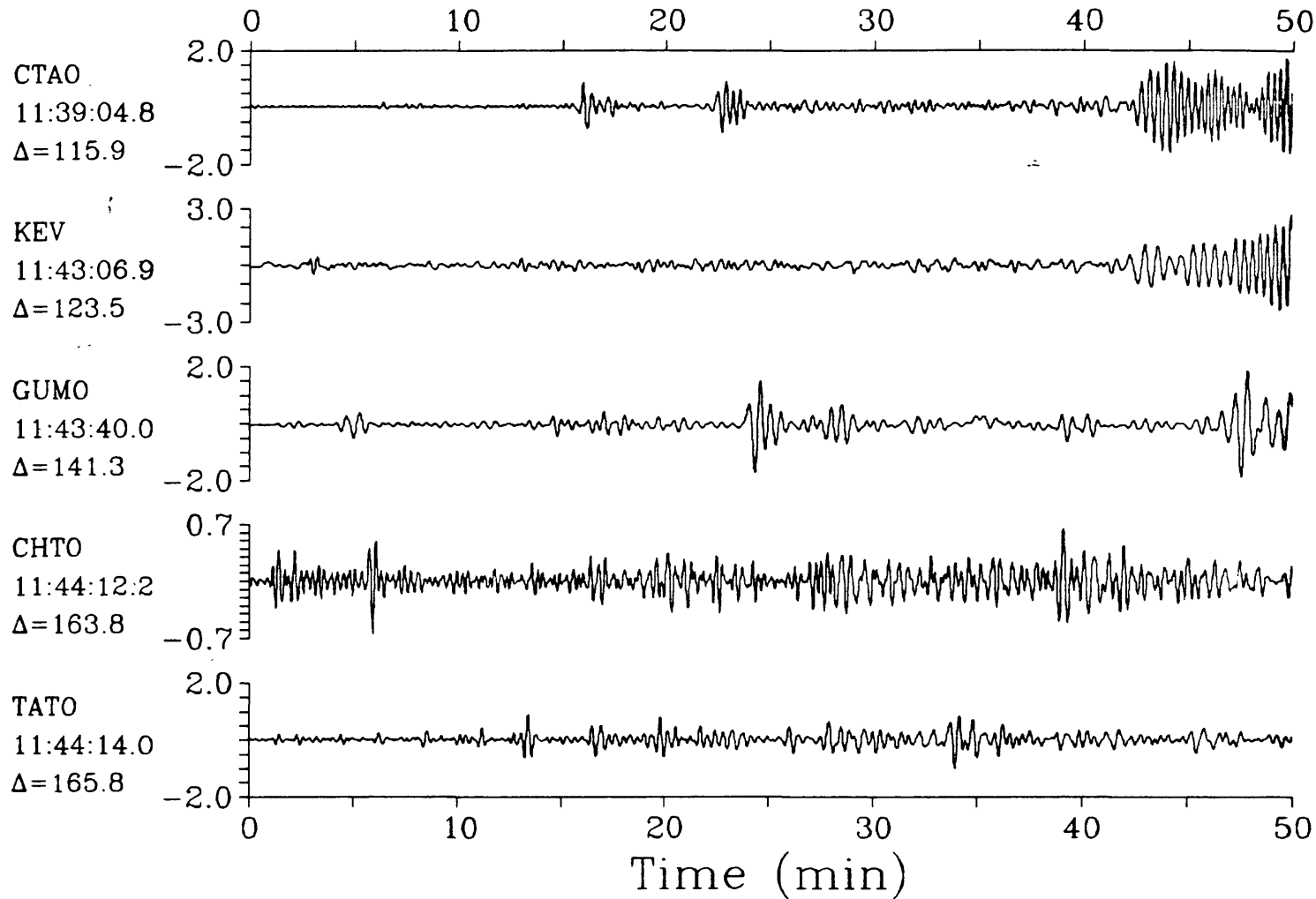
LPZ

Near Coast of Central Chile $h=31.7$ $m_b=5.4$ $M_{sz}=5.9$ 

LPZ

07 July 1985 11:25:12.04

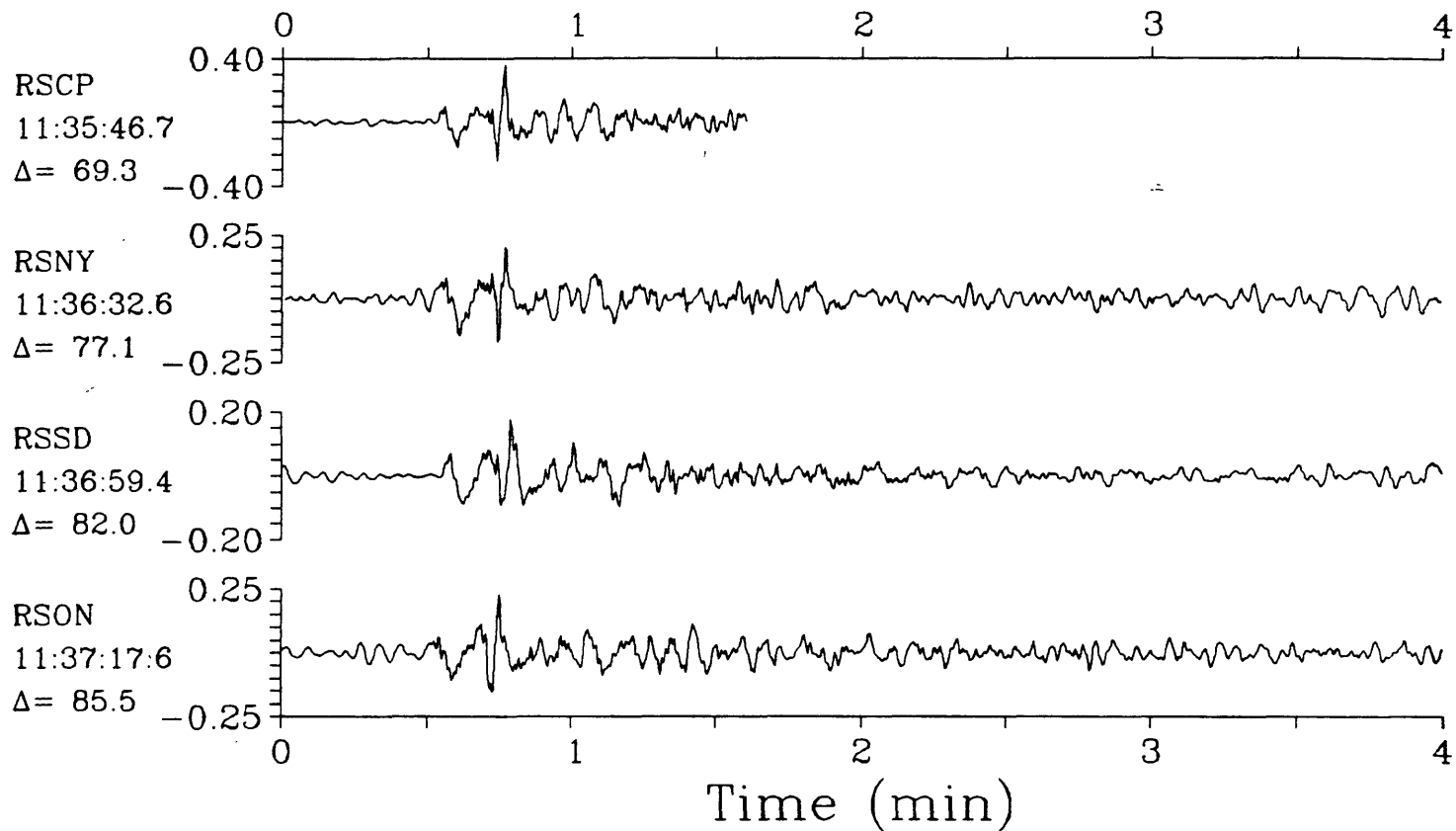
LPZ

Near Coast of Central Chile $h=31.7$ $m_b=5.4$ $M_{sz}=5.9$ 

IPZ

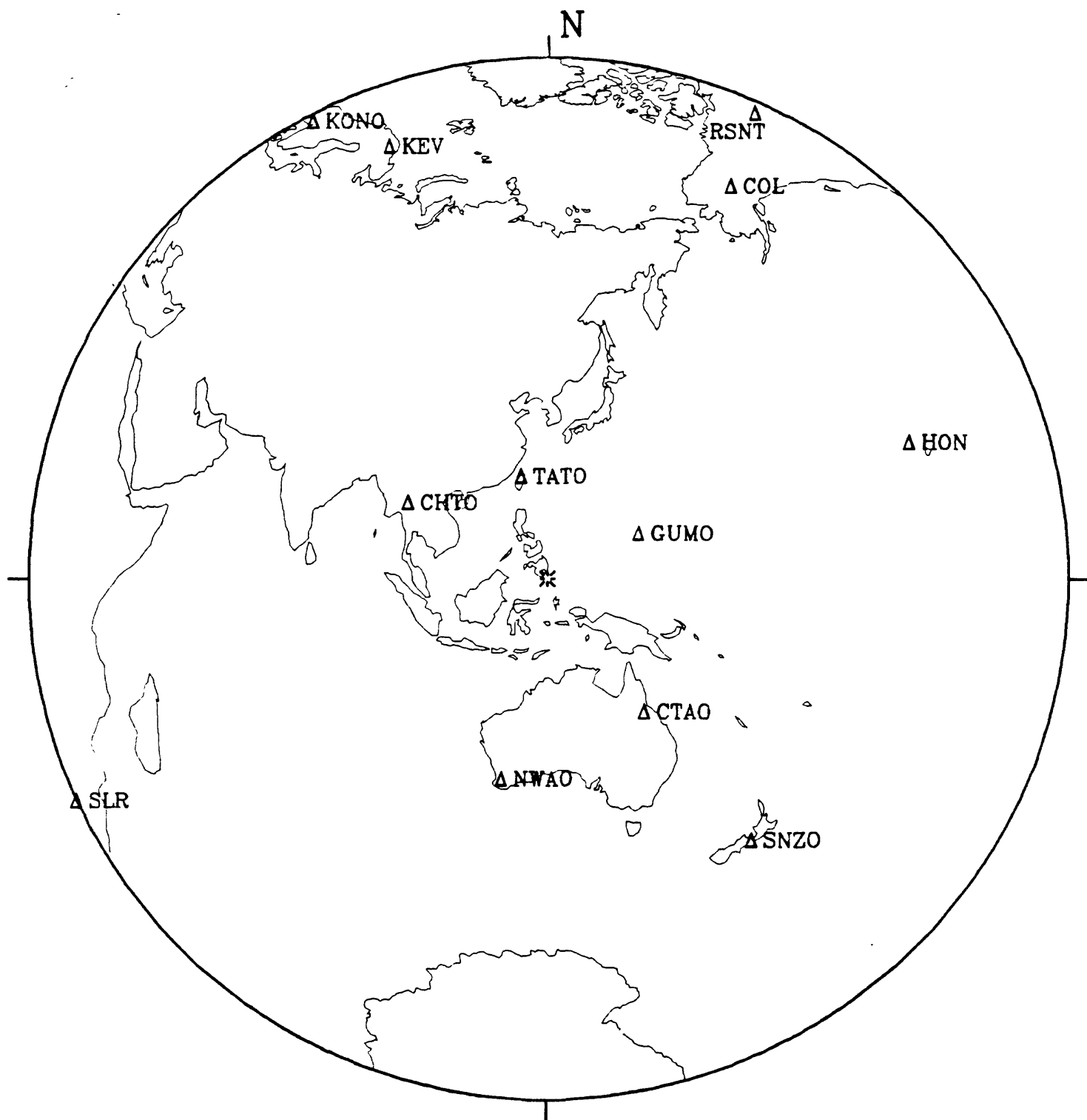
07 July 1985 11:25:12.04

IPZ

Near Coast of Central Chile $h=31.7$ $m_b=5.4$ $M_{sz}=5.9$ 

08 July 1985 18:48:28.91

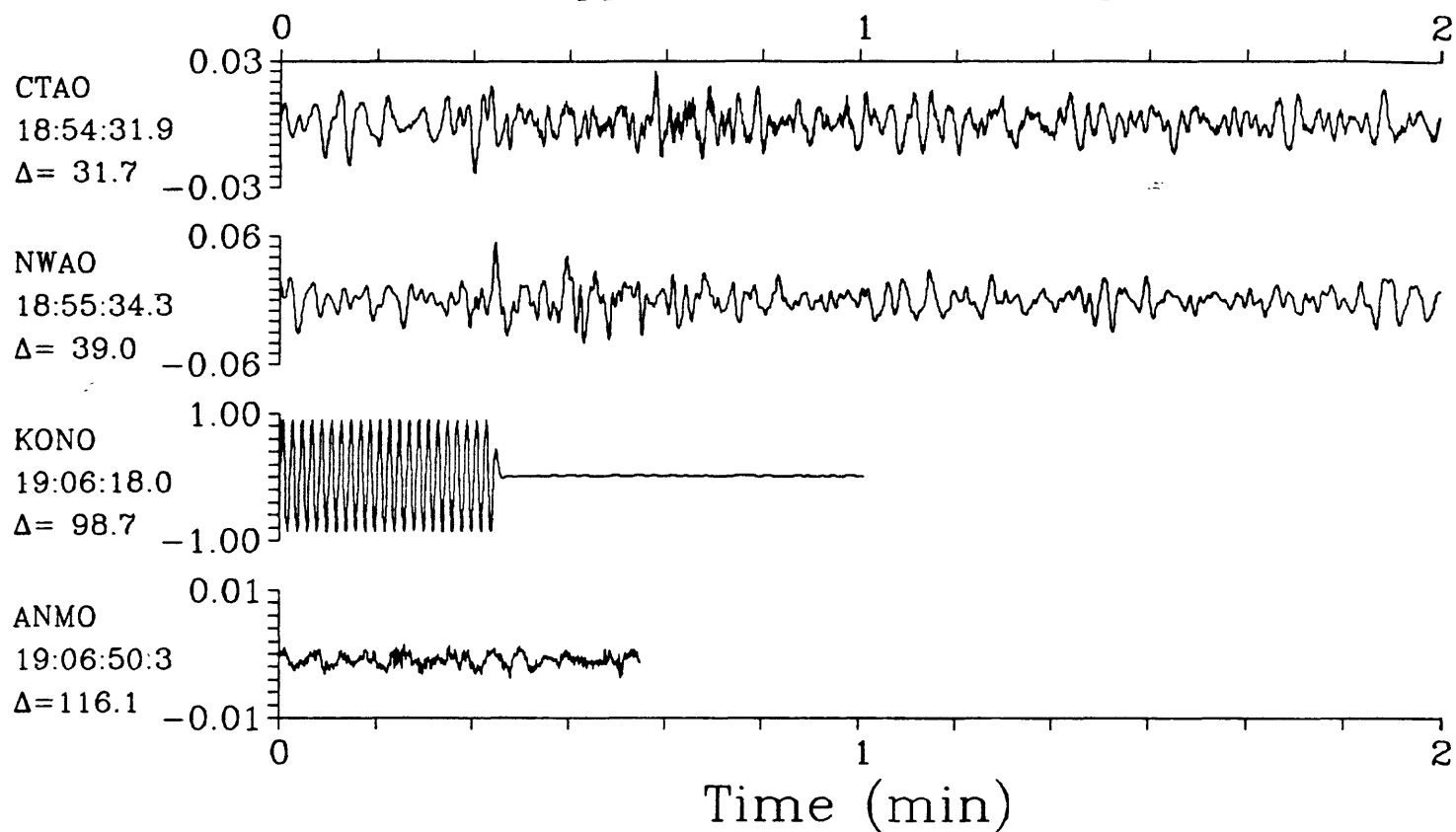
Mindanao, Philippine Islands



SPZ

08 July 1985 18:48:28.91

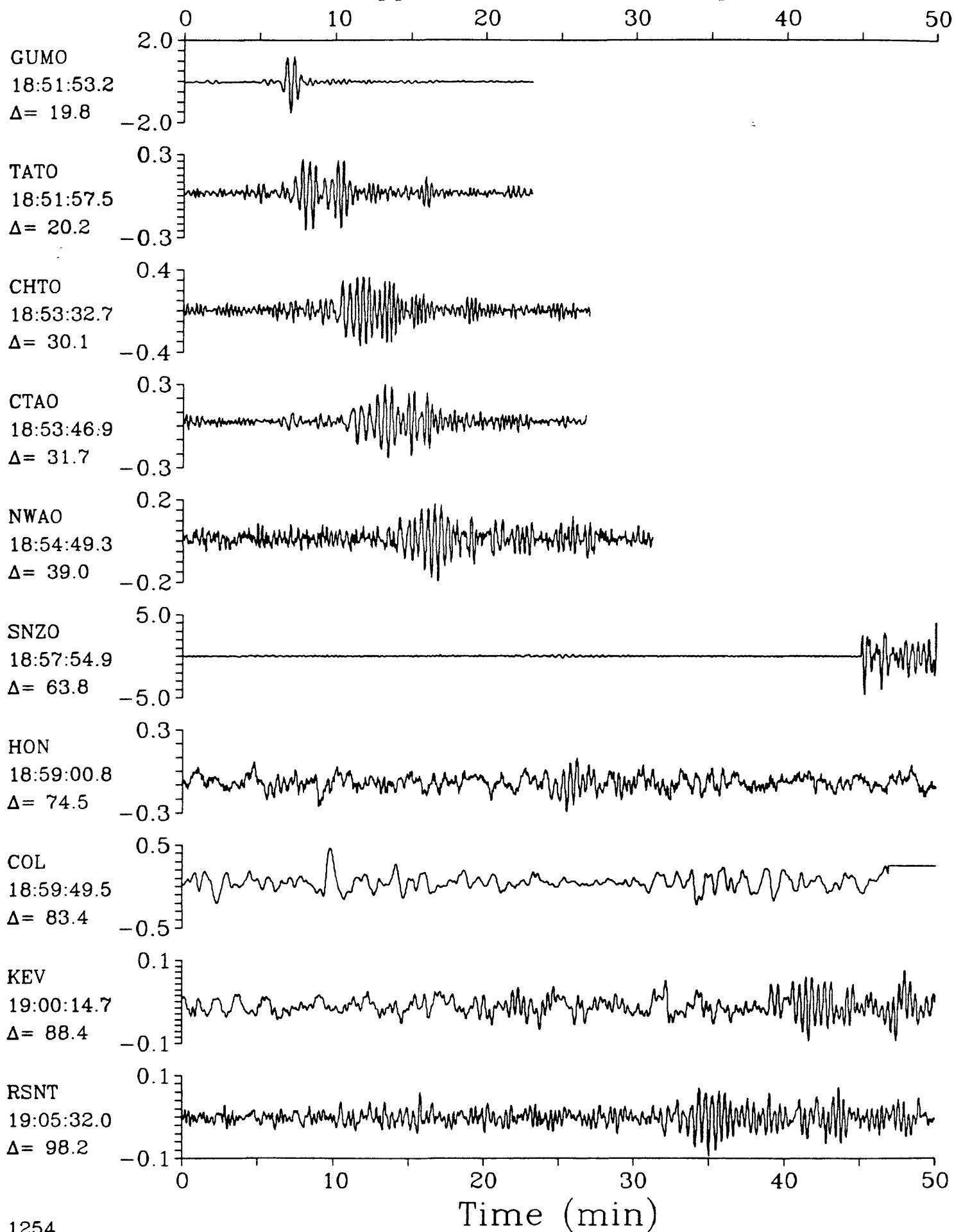
CPZ

Mindanao, Philippine Islands $h=65.2$ $m_b=5.5$ 

LPZ

08 July 1985 18:48:28.91

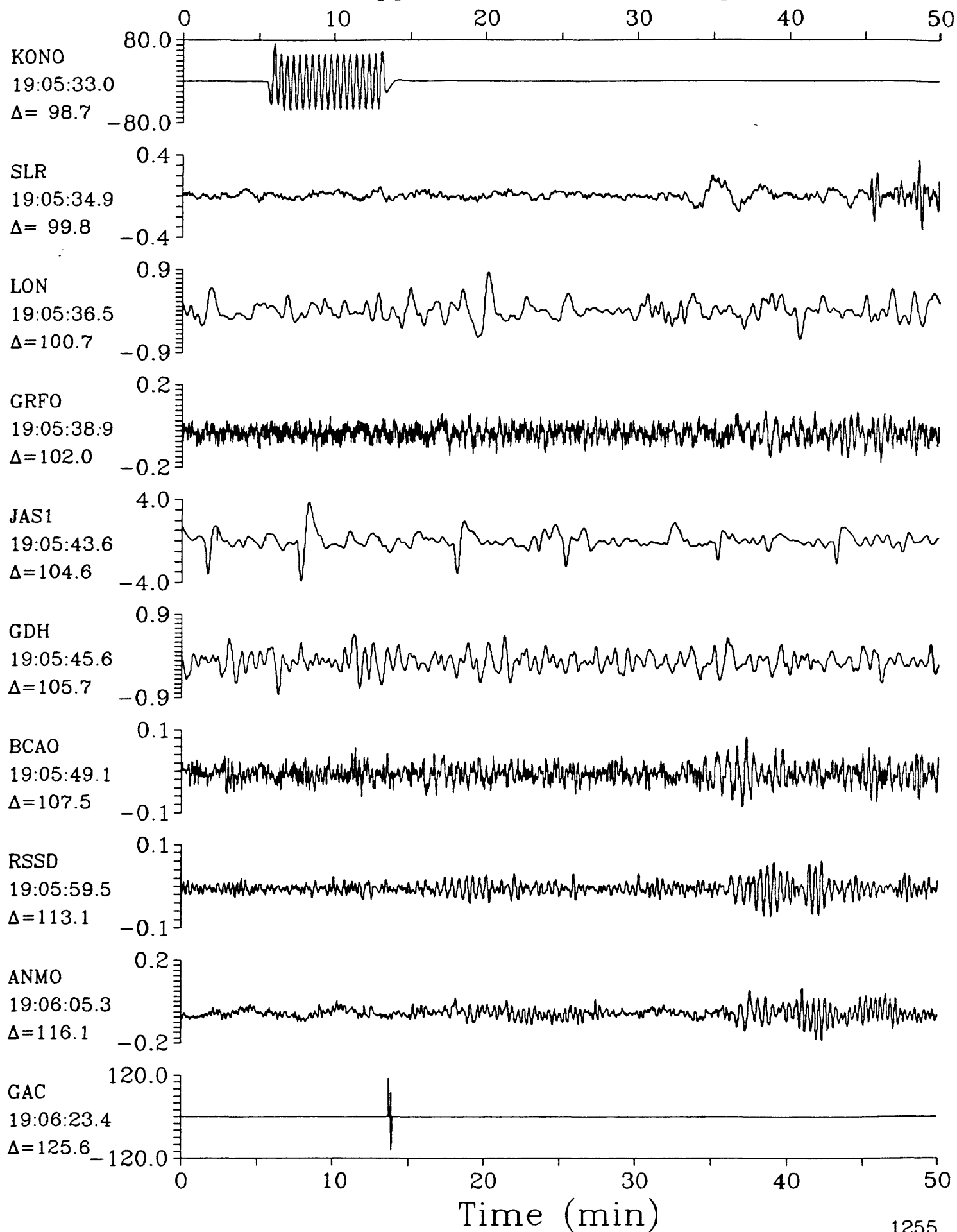
LPZ

Mindanao, Philippine Islands $h=65.2$ $m_b=5.5$ 

LPZ

08 July 1985 18:48:28.91

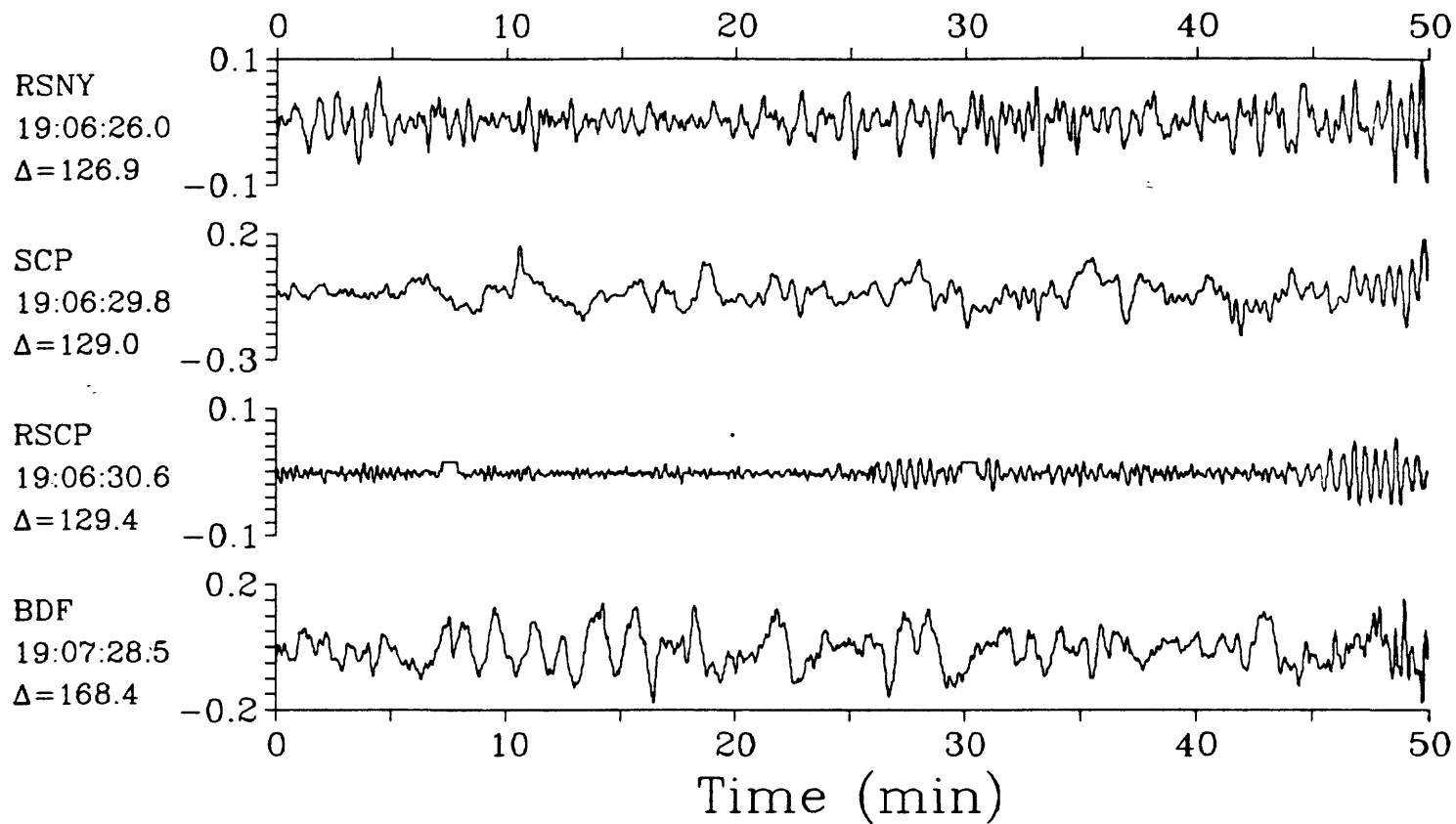
LPZ

Mindanao, Philippine Islands $h=65.2$ $m_b=5.5$ 

LPZ

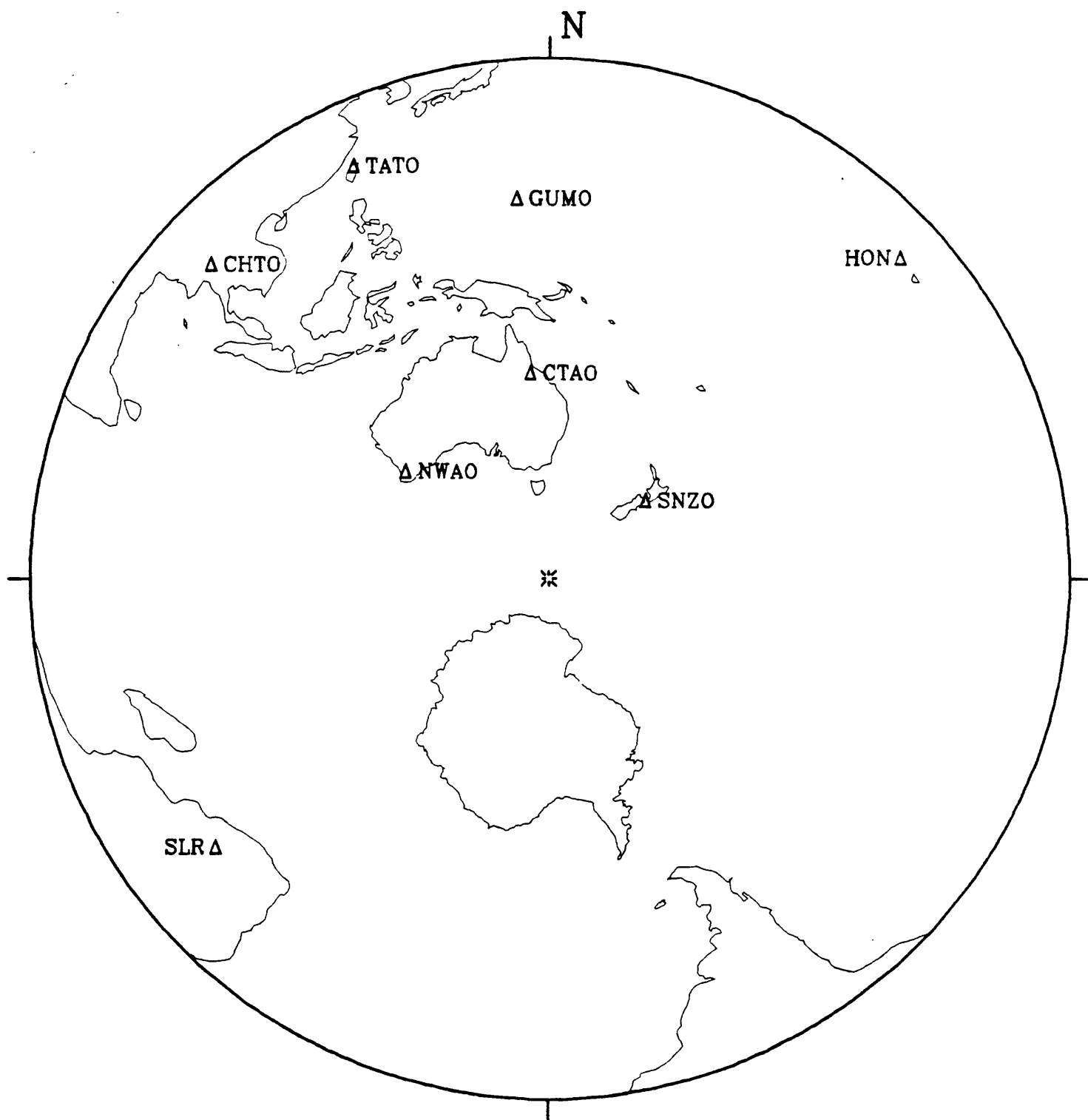
08 July 1985 18:48:28.91

LPZ

Mindanao, Philippine Islands $h=65.2$ $m_b=5.5$ 

08 July 1985 19:37:36.19

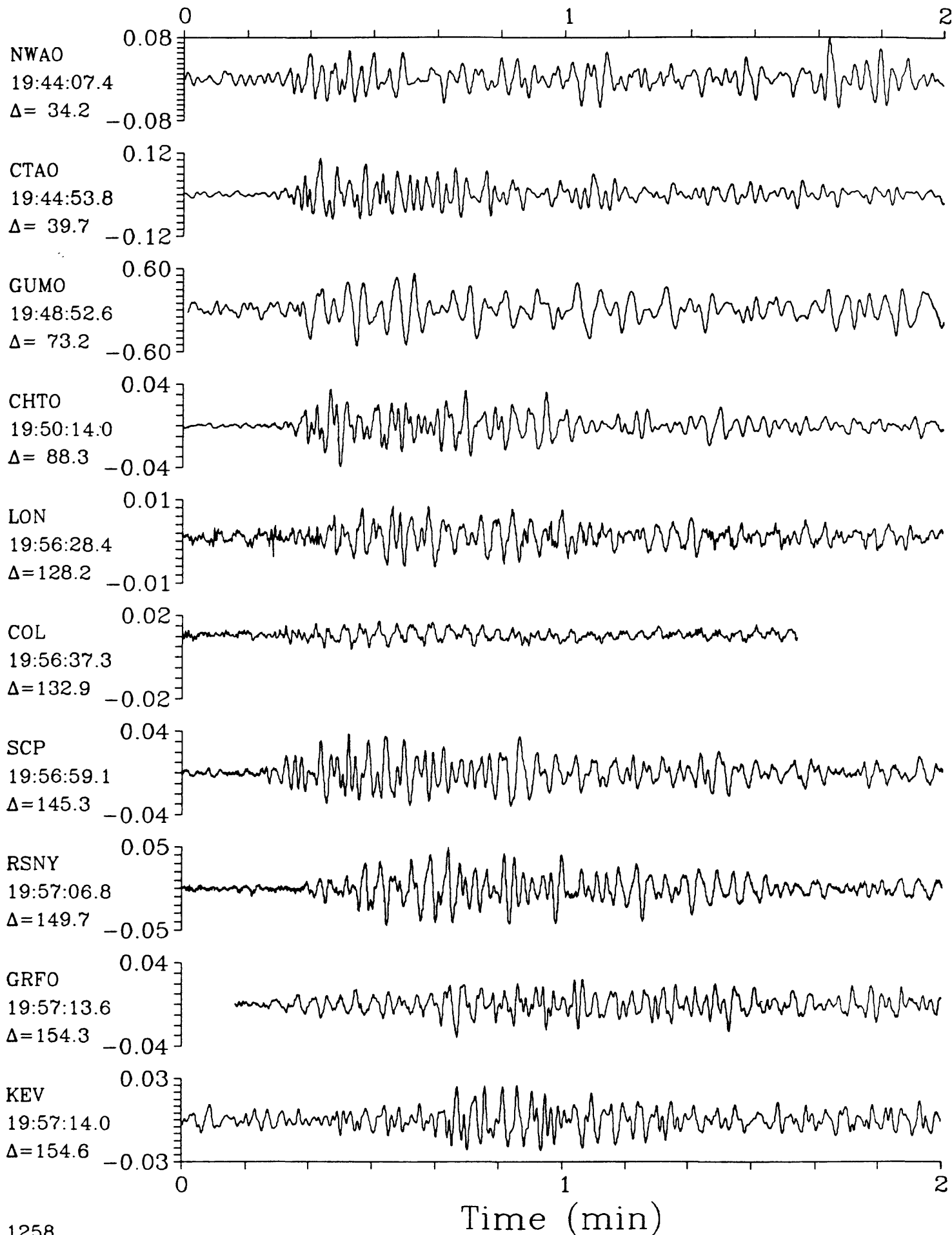
West of Macquarie Island



SPZ

08 July 1985 19:37:36.19

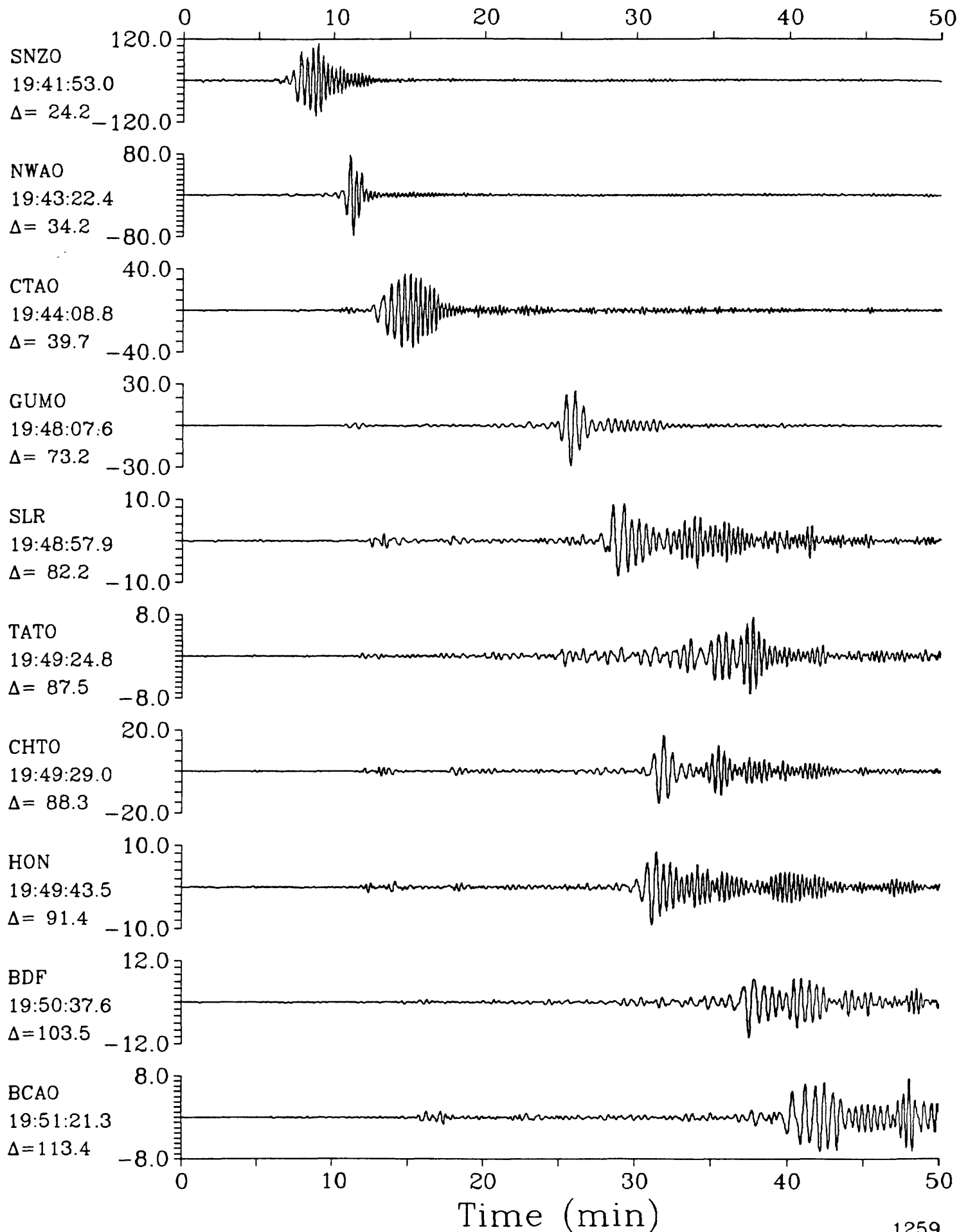
SPZ

West of Macquarie Island $h=10.0$ $m_b=5.4$ $M_{sz}=6.1$ 

LPZ

08 July 1985 19:37:36.19

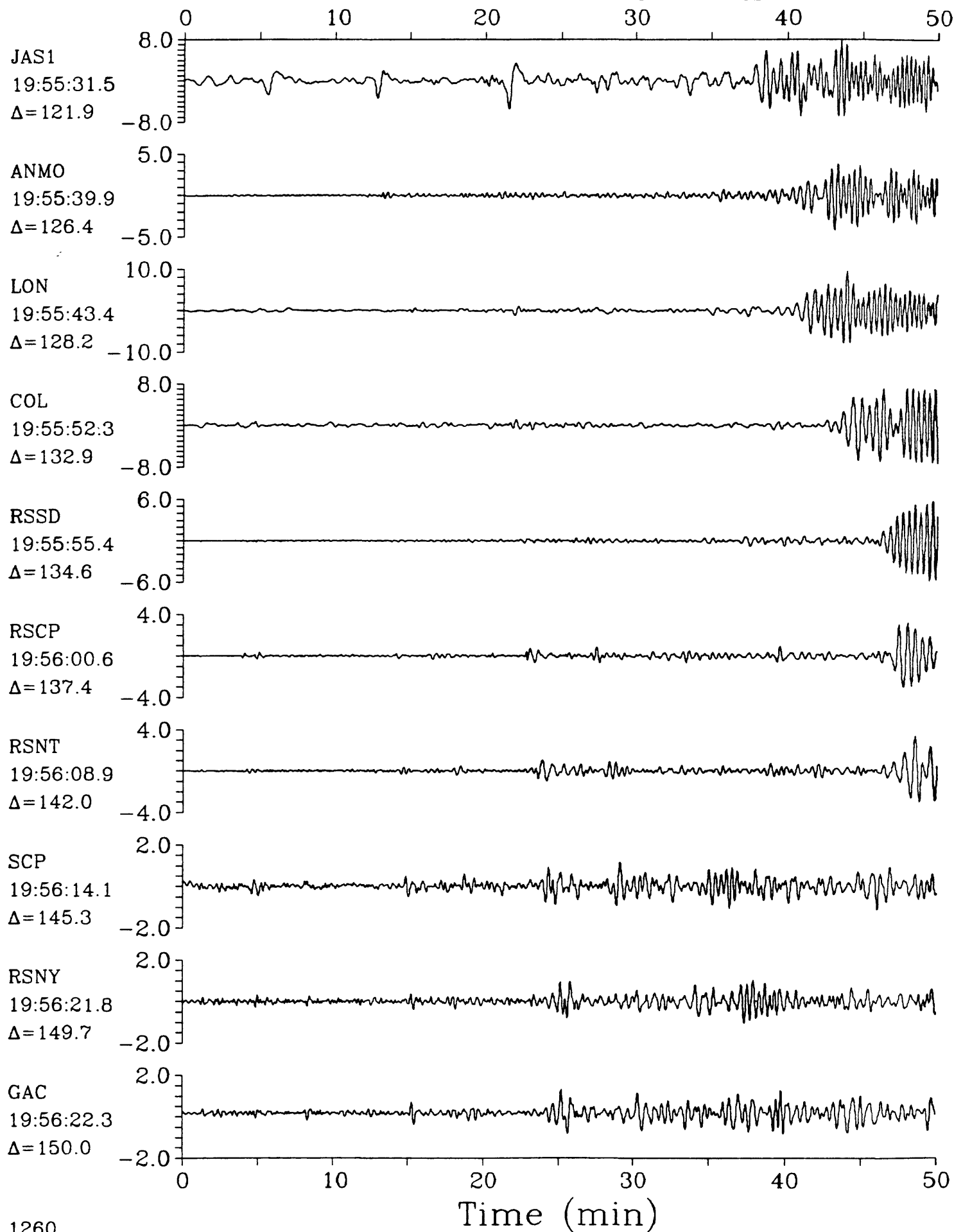
LPZ

West of Macquarie Island $h=10.0$ $m_b=5.4$ $M_{sz}=6.1$ 

LPZ

08 July 1985 19:37:36.19

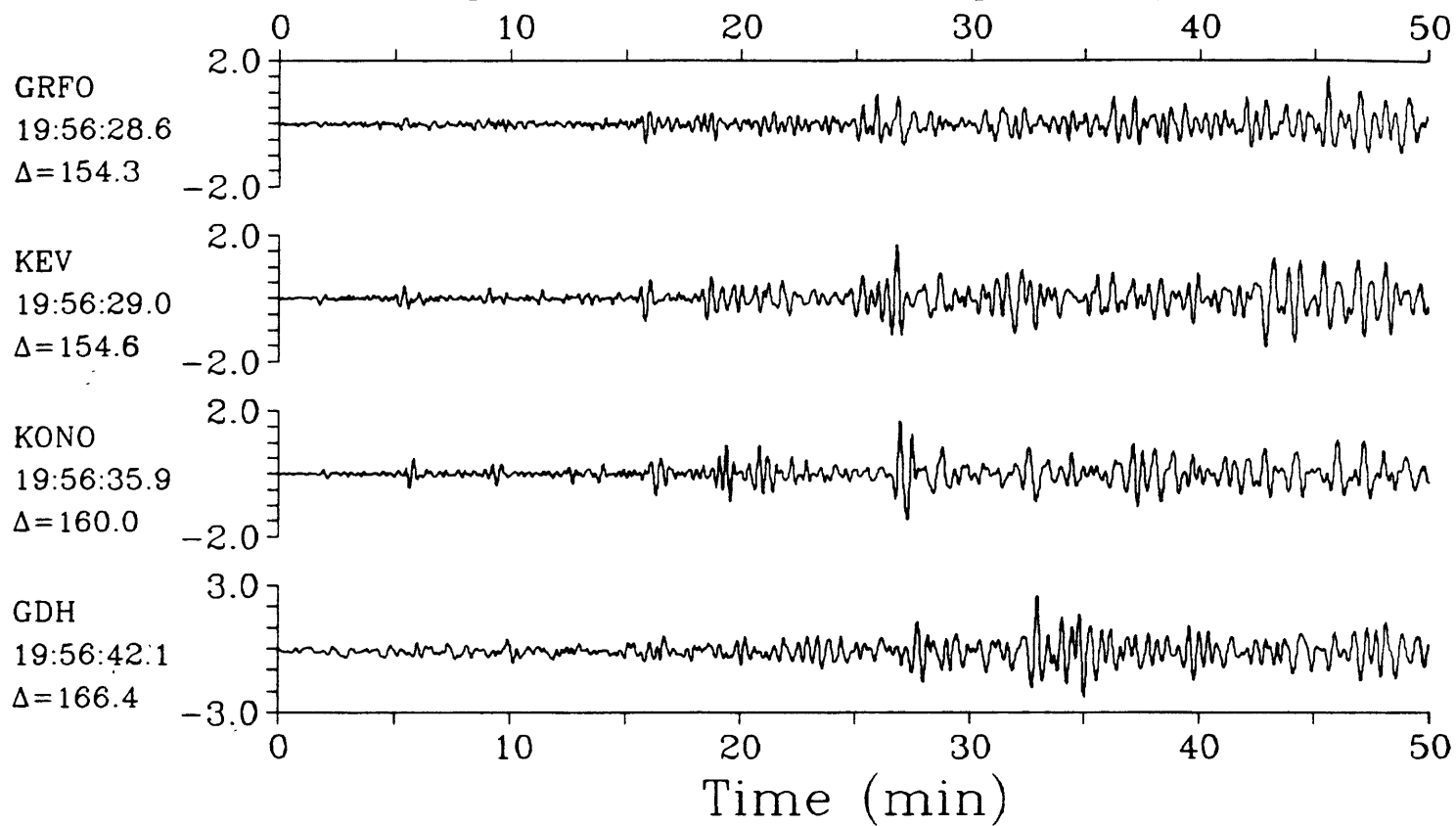
LPZ

West of Macquarie Island $h=10.0$ $m_b=5.4$ $M_{SZ}=6.1$ 

LPZ

08 July 1985 19:37:36.19

LPZ

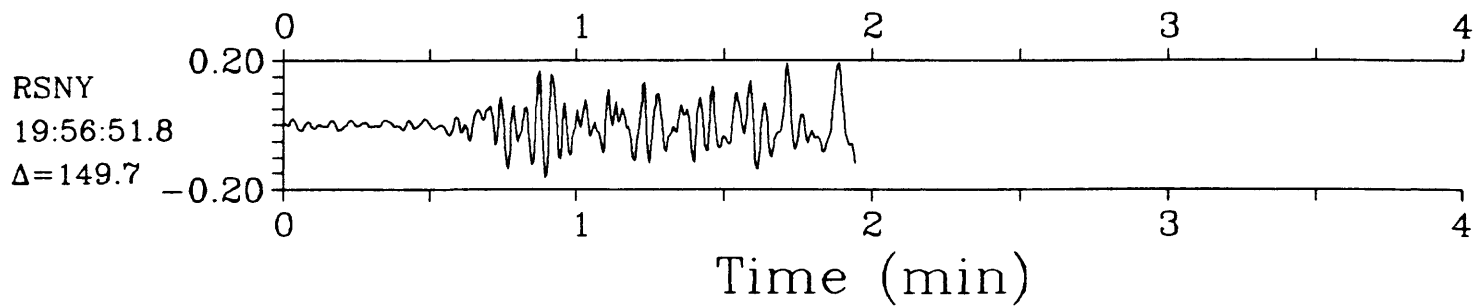
West of Macquarie Island $h=10.0$ $m_b=5.4$ $M_{sz}=6.1$ 

IPZ

08 July 1985 19:37:36.19

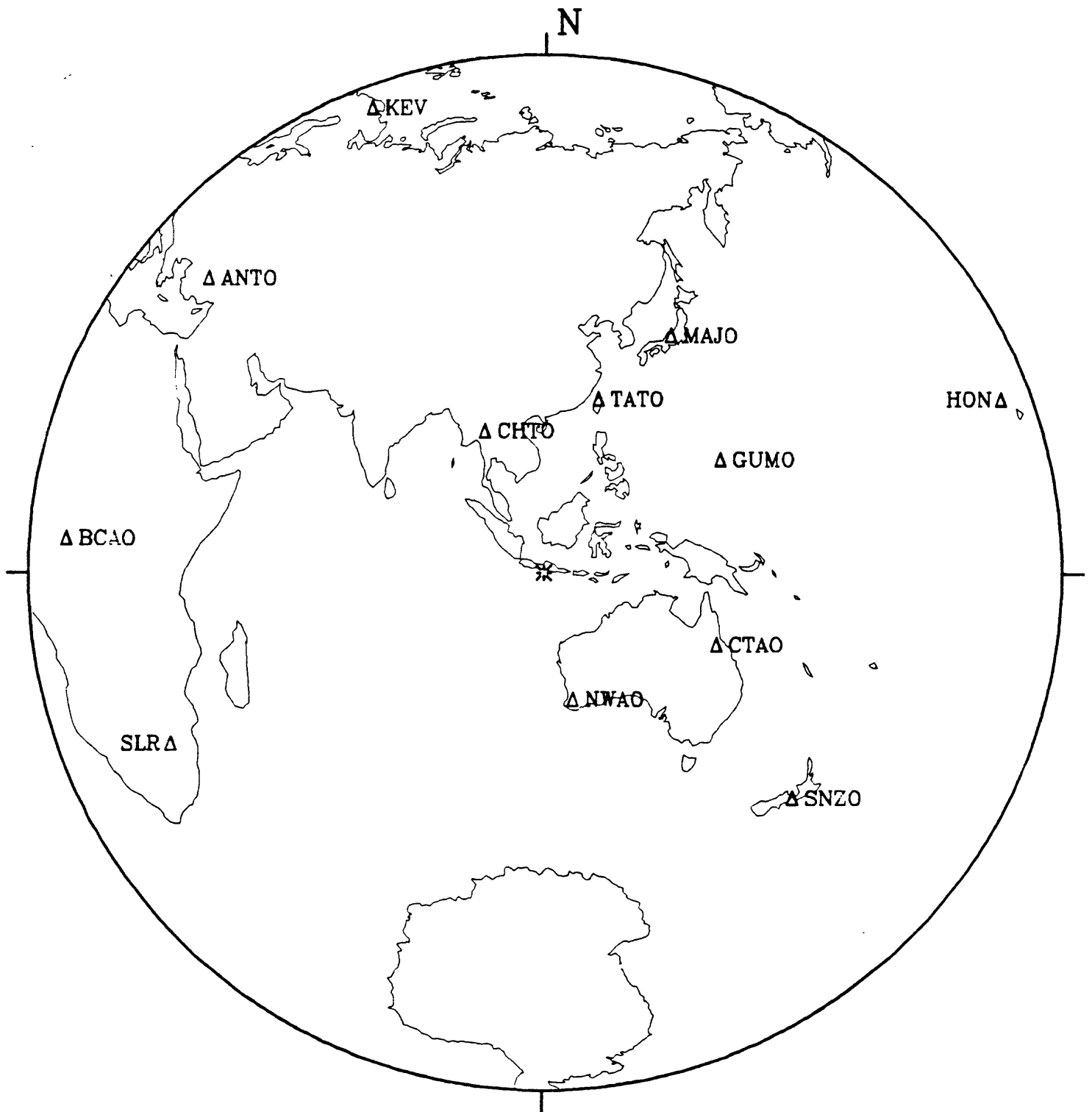
IPZ

West of Macquarie Island $h=10.0$ $m_b=5.4$ $M_{sz}=6.1$



09 July 1985 13:27:00.28

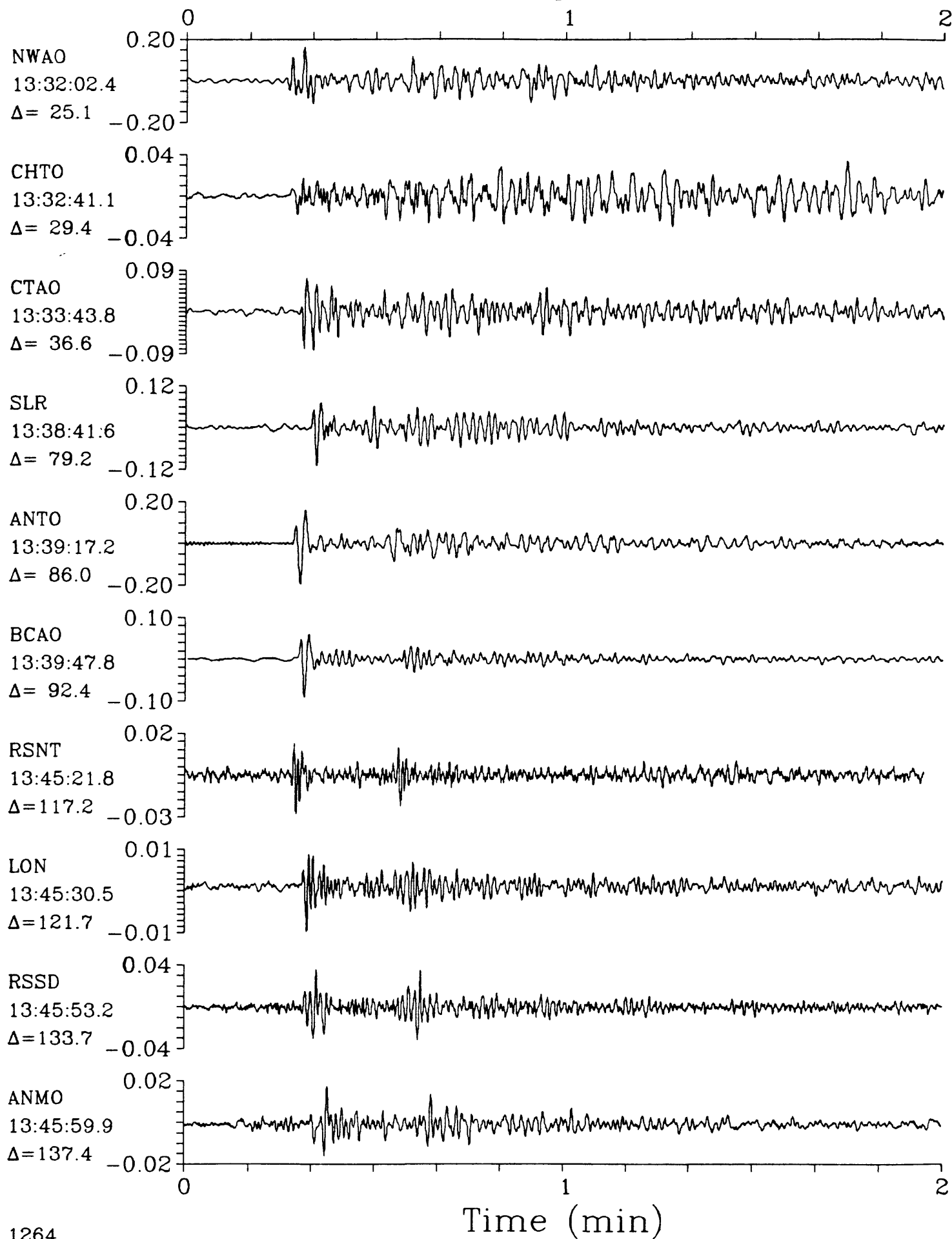
Java



SPZ

09 July 1985 13:27:00.28

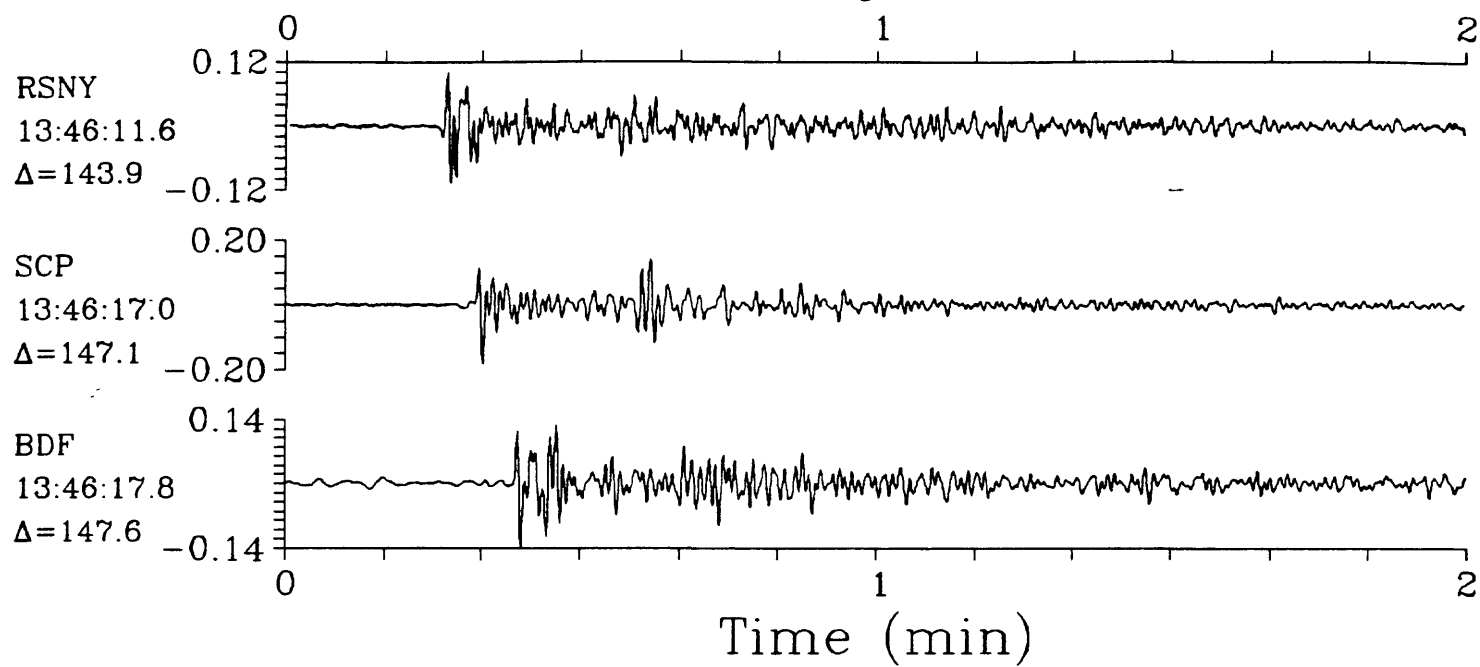
SPZ

Java h=81.1 m_b=5.6

SPZ

09 July 1985 13:27:00.28

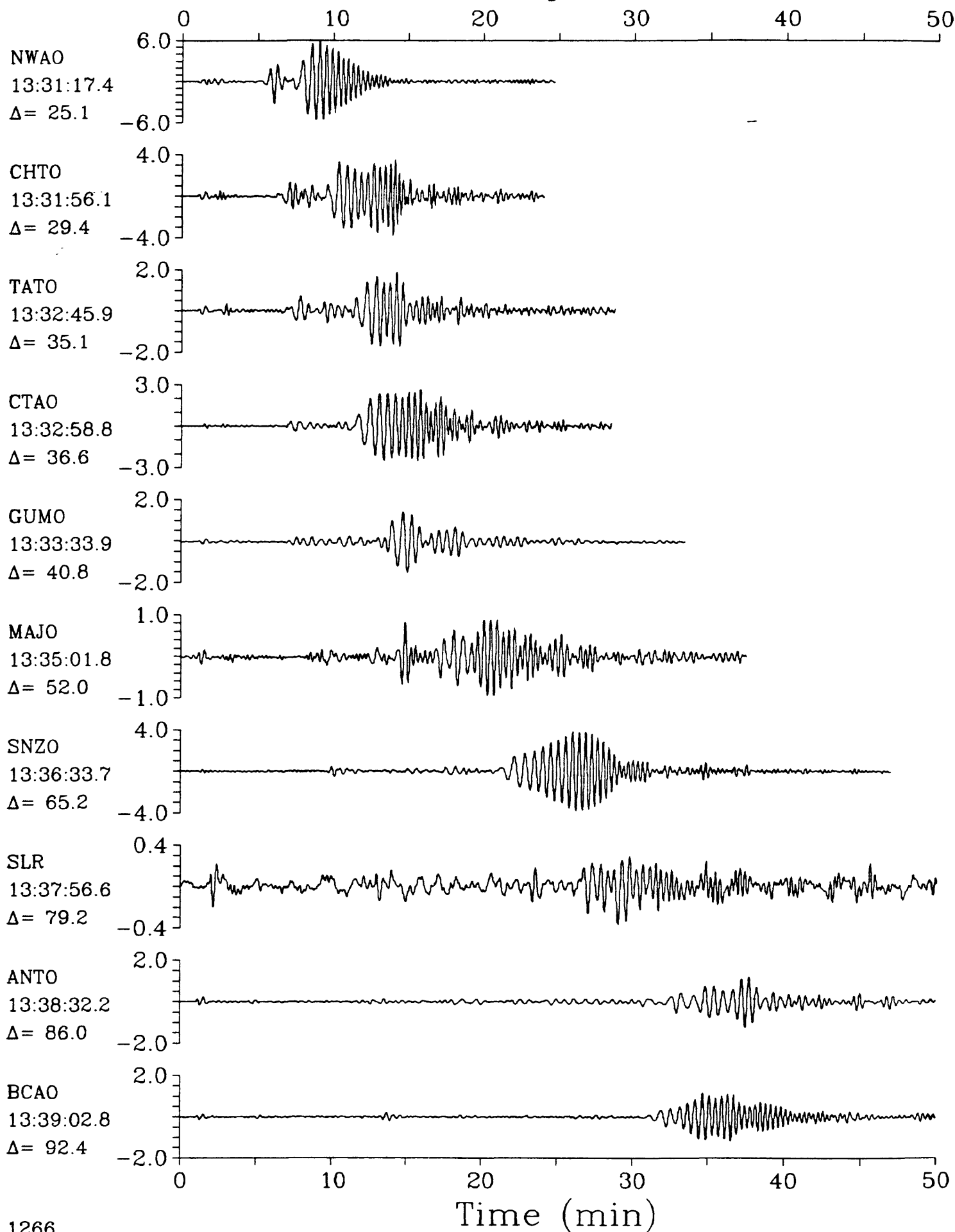
SPZ

Java h=81.1 m_b=5.6

LPZ

09 July 1985 13:27:00.28

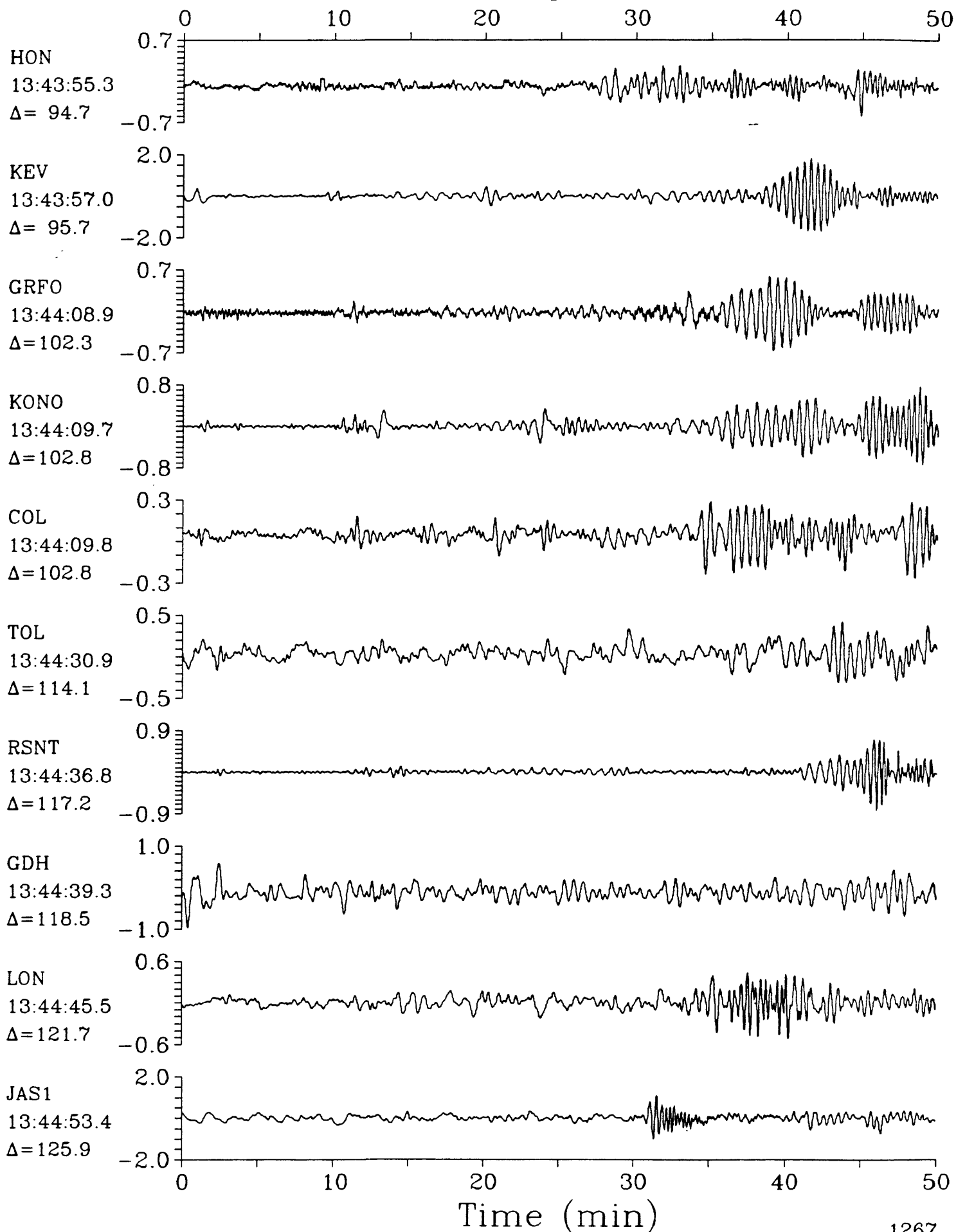
LPZ

Java h=81.1 m_b=5.6

LPZ

09 July 1985 13:27:00.28

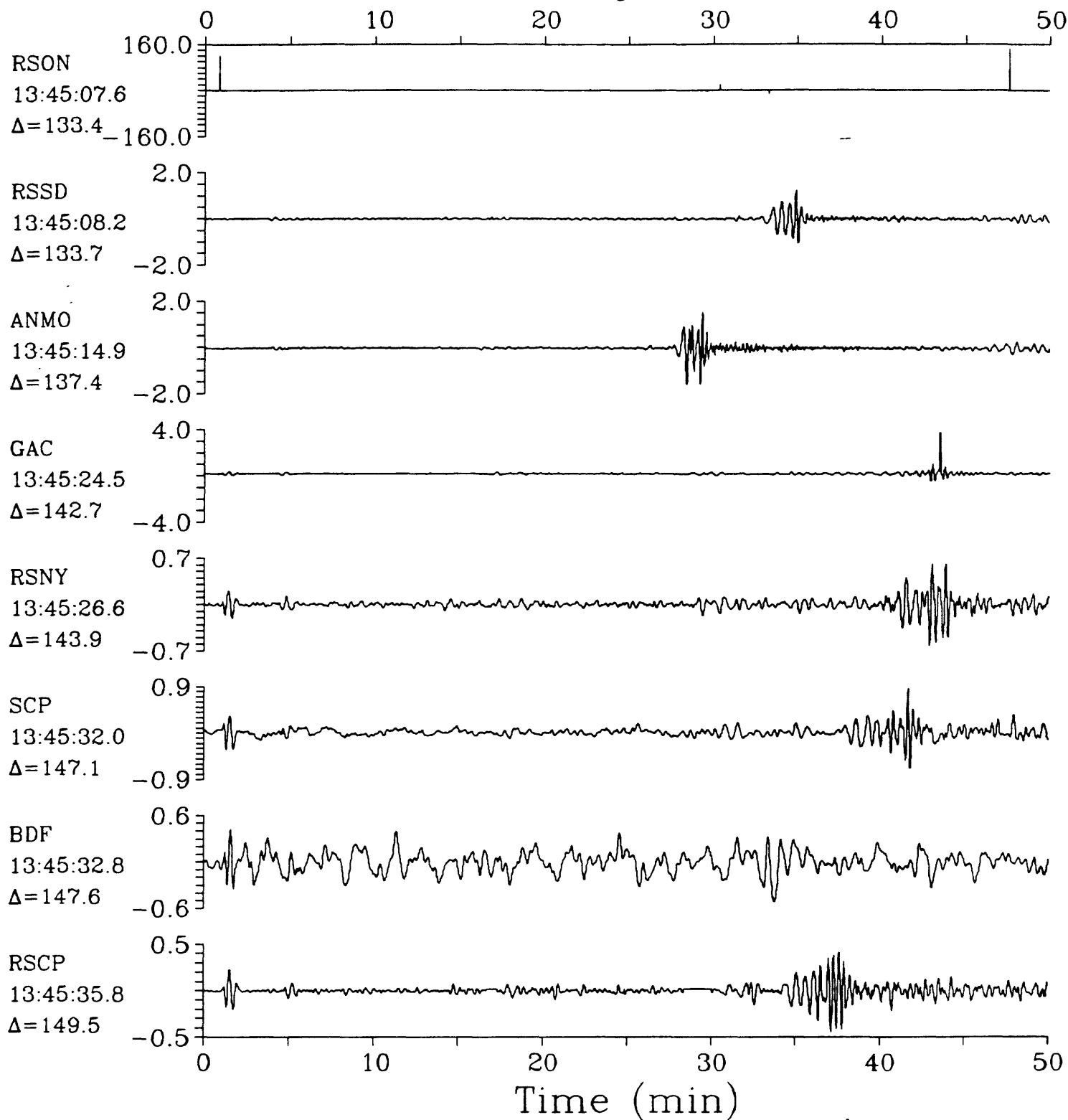
LPZ

Java h=81.1 m_b=5.6

LPZ

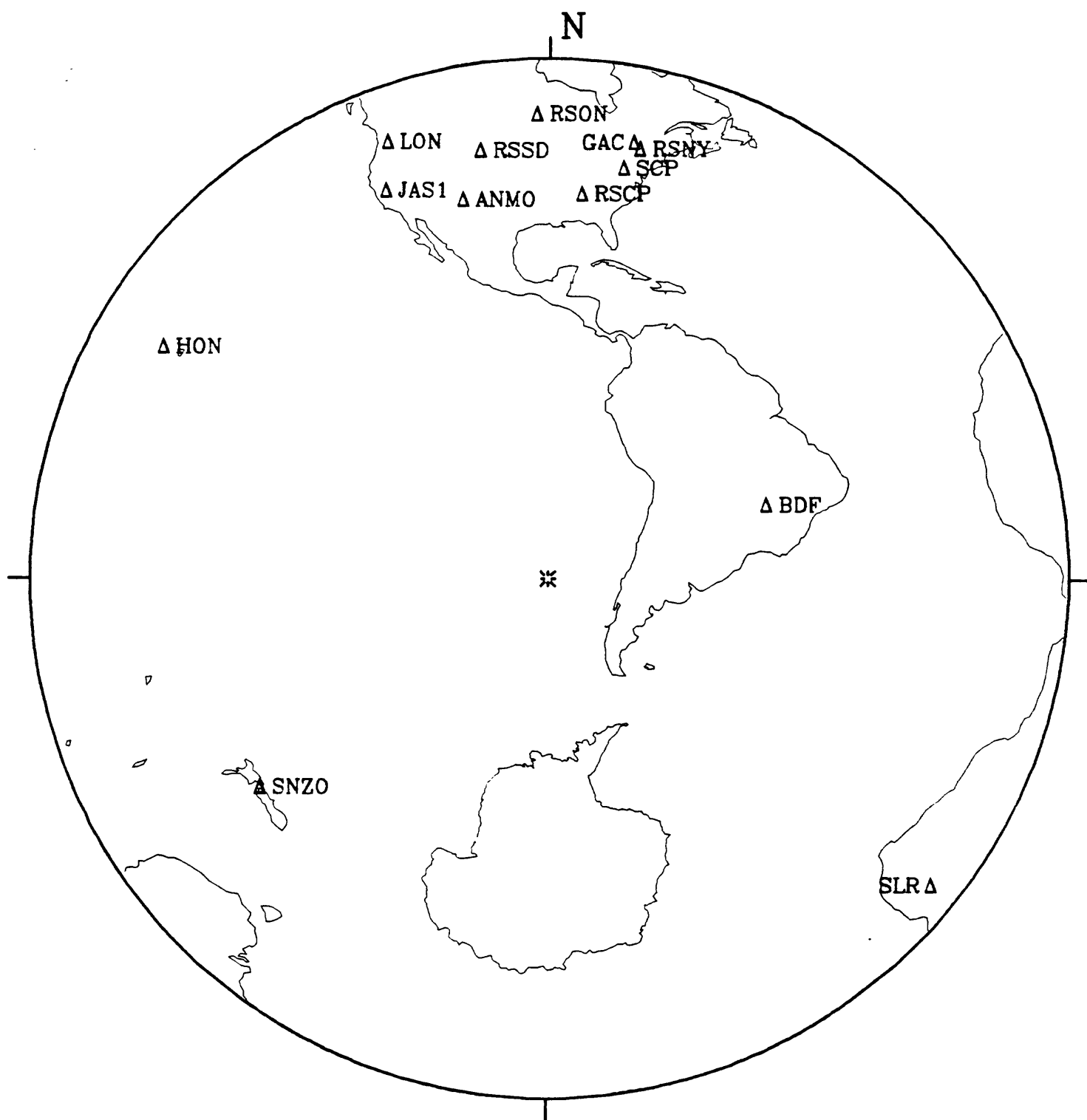
09 July 1985 13:27:00.28

LPZ

Java h=81.1 m_b=5.6

10 July 1985 05:06:33.18

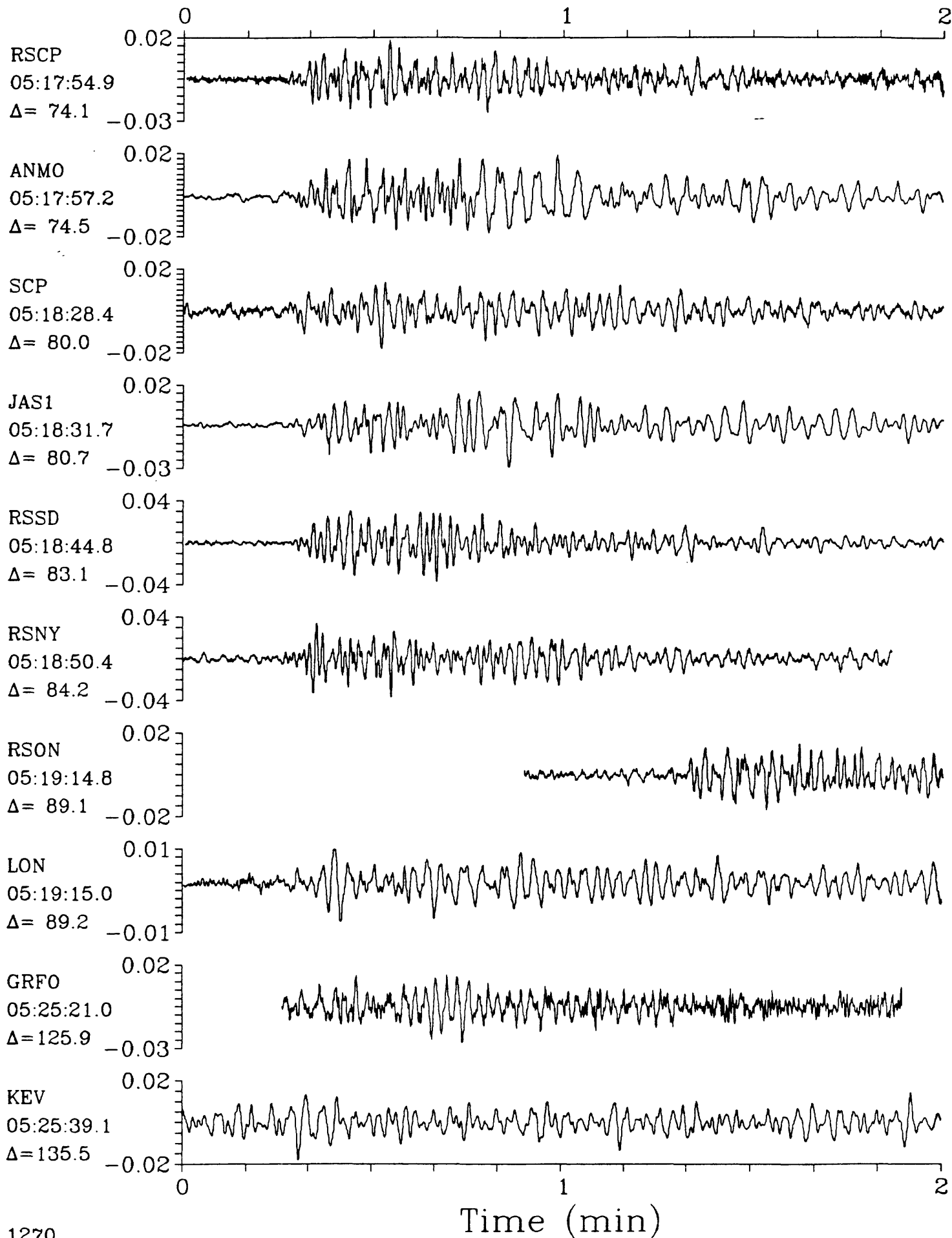
West Chile Rise



SPZ

10 July 1985 05:06:33.18

SPZ

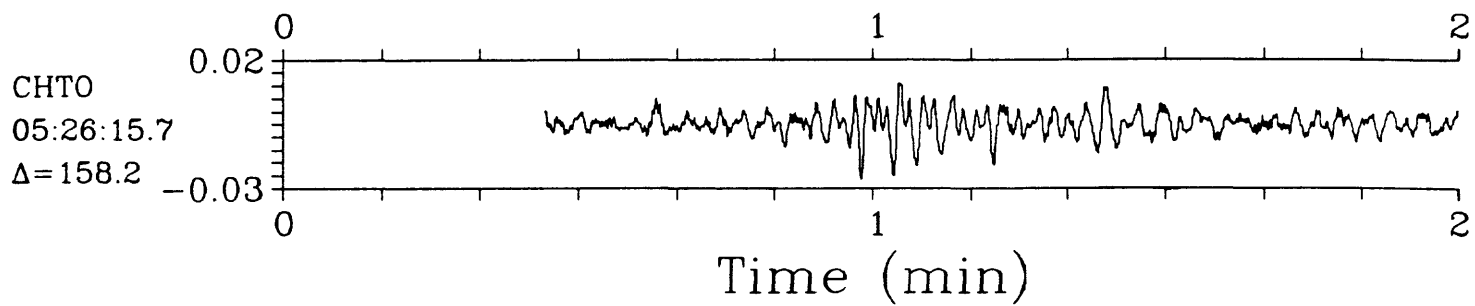
West Chile Rise $h=10.0$ $m_b=5.3$ $M_{sz}=5.7$ 

SPZ

10 July 1985 05:06:33.18

SPZ

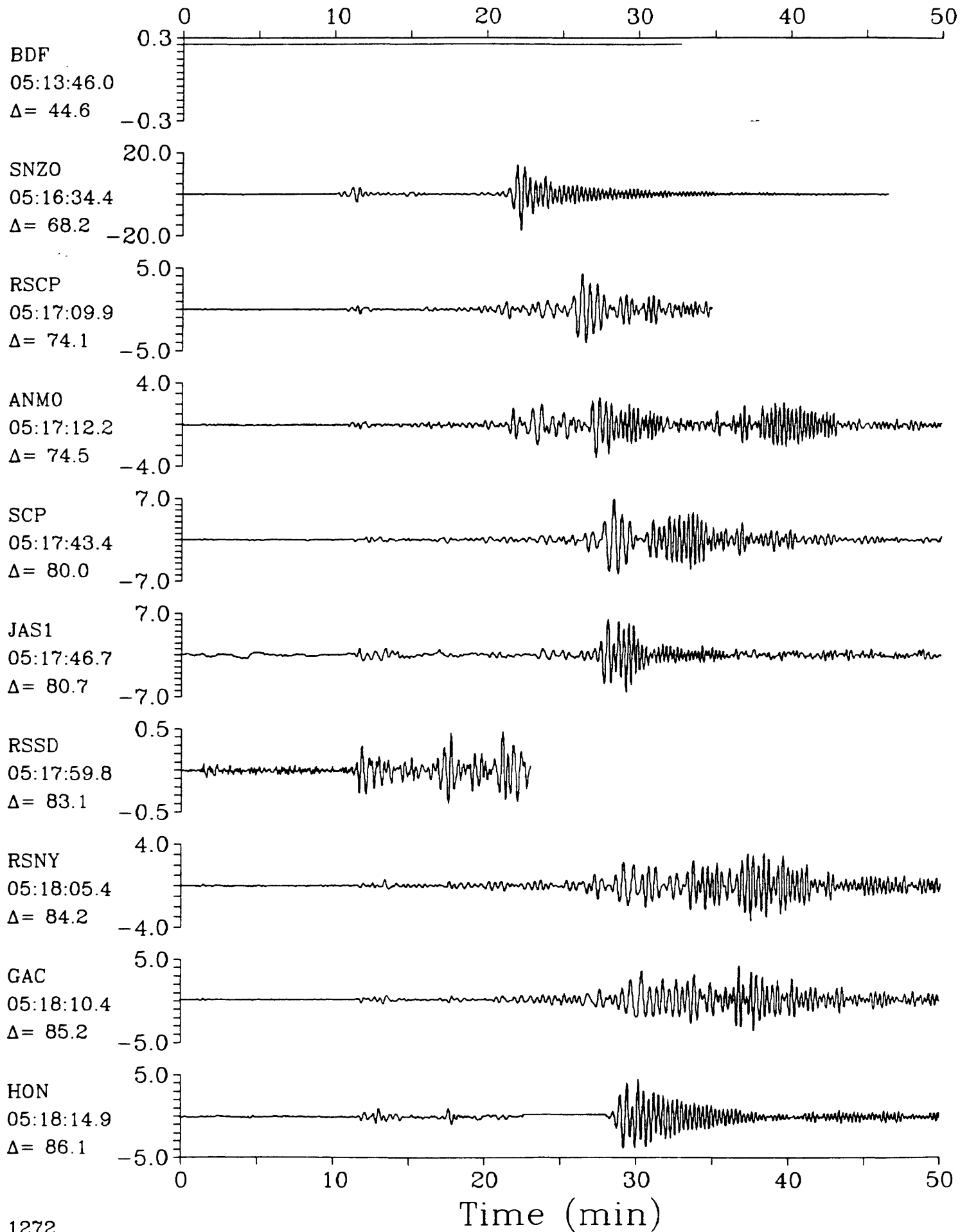
West Chile Rise $h=10.0$ $m_b=5.3$ $M_{sz}=5.7$



LPZ

10 July 1985 05:06:33.18

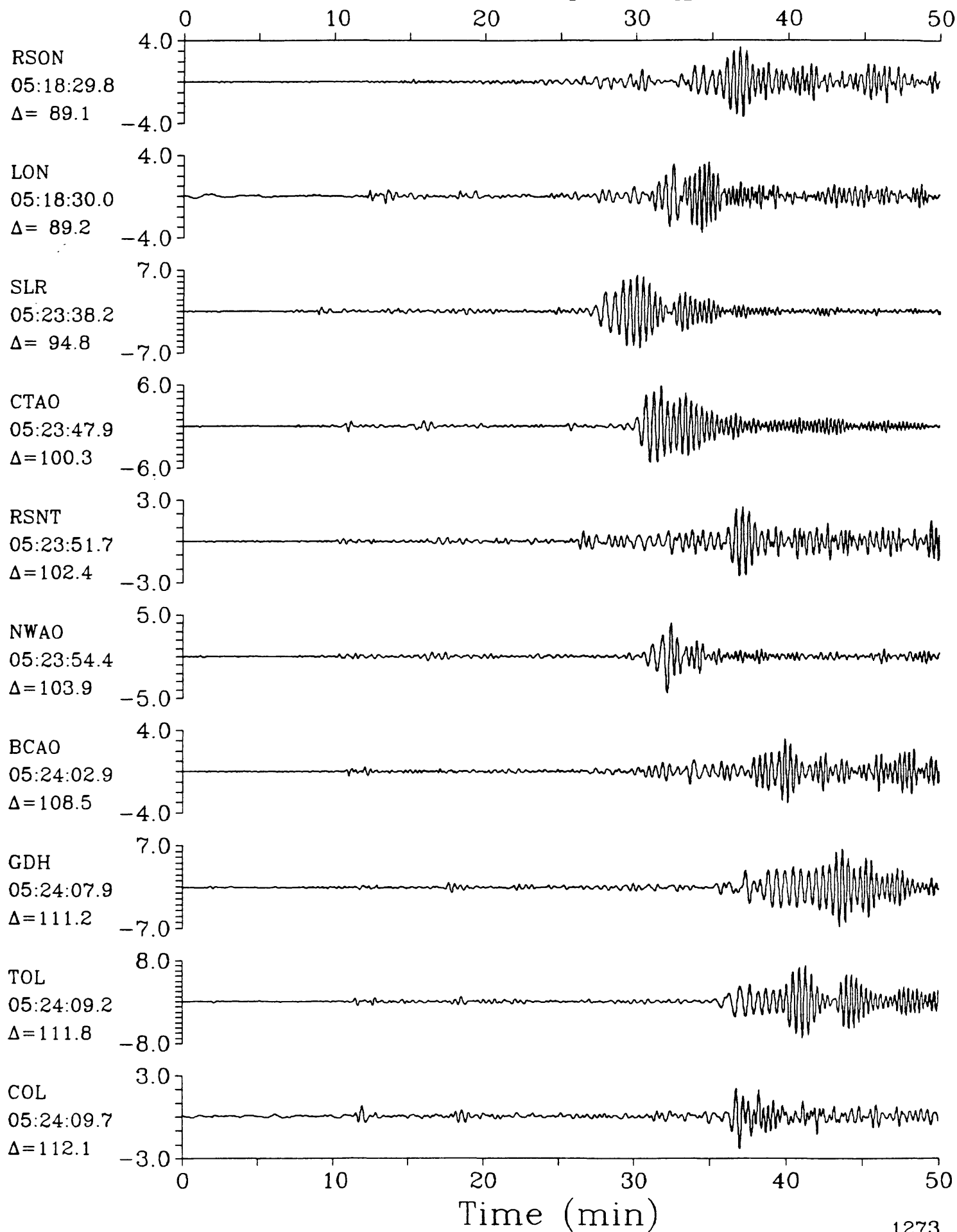
LPZ

West Chile Rise $h=10.0$ $m_b=5.3$ $M_{sz}=5.7$ 

LPZ

10 July 1985 05:06:33.18

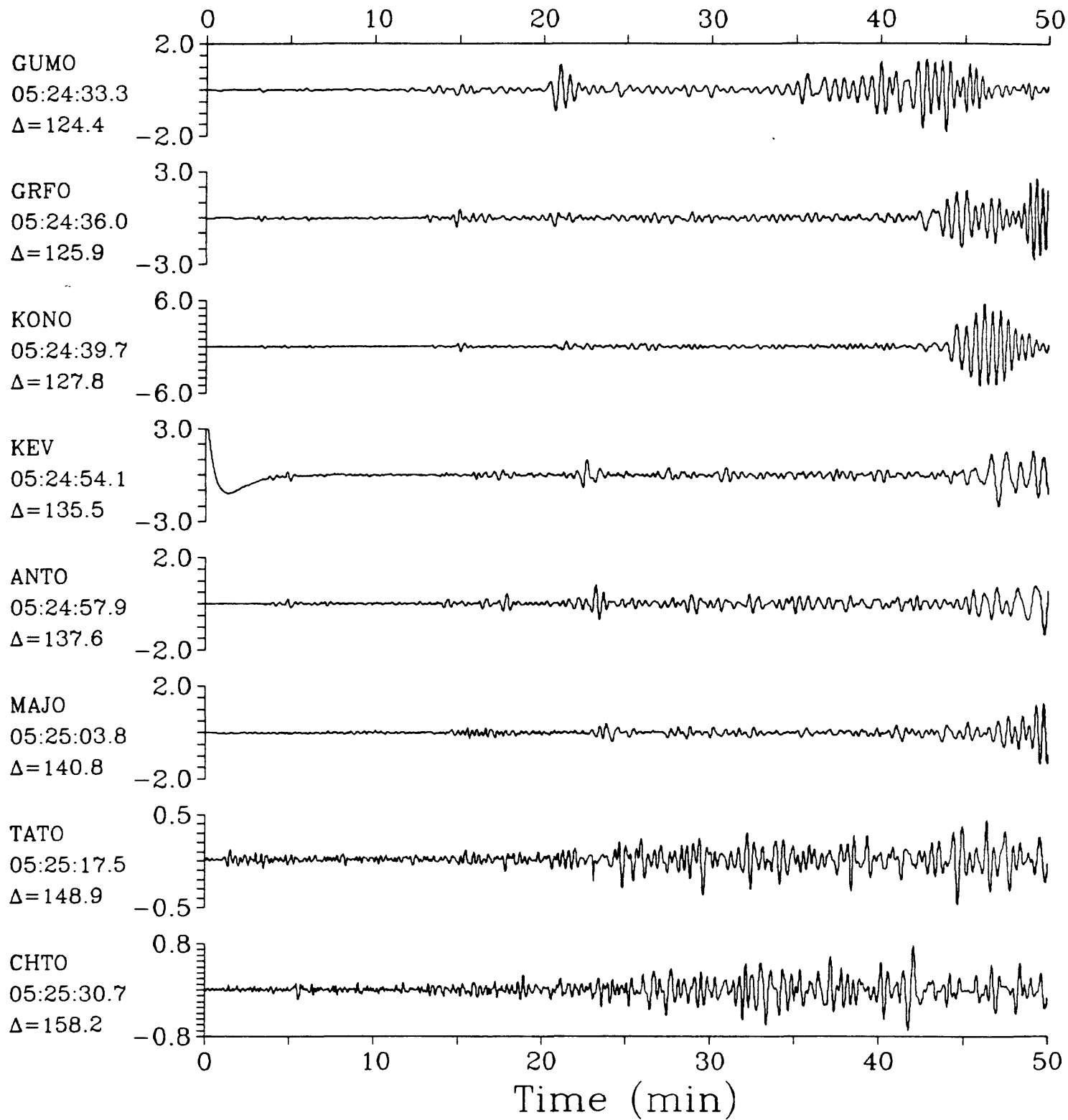
LPZ

West Chile Rise $h=10.0$ $m_b=5.3$ $M_{sz}=5.7$ 

LPZ

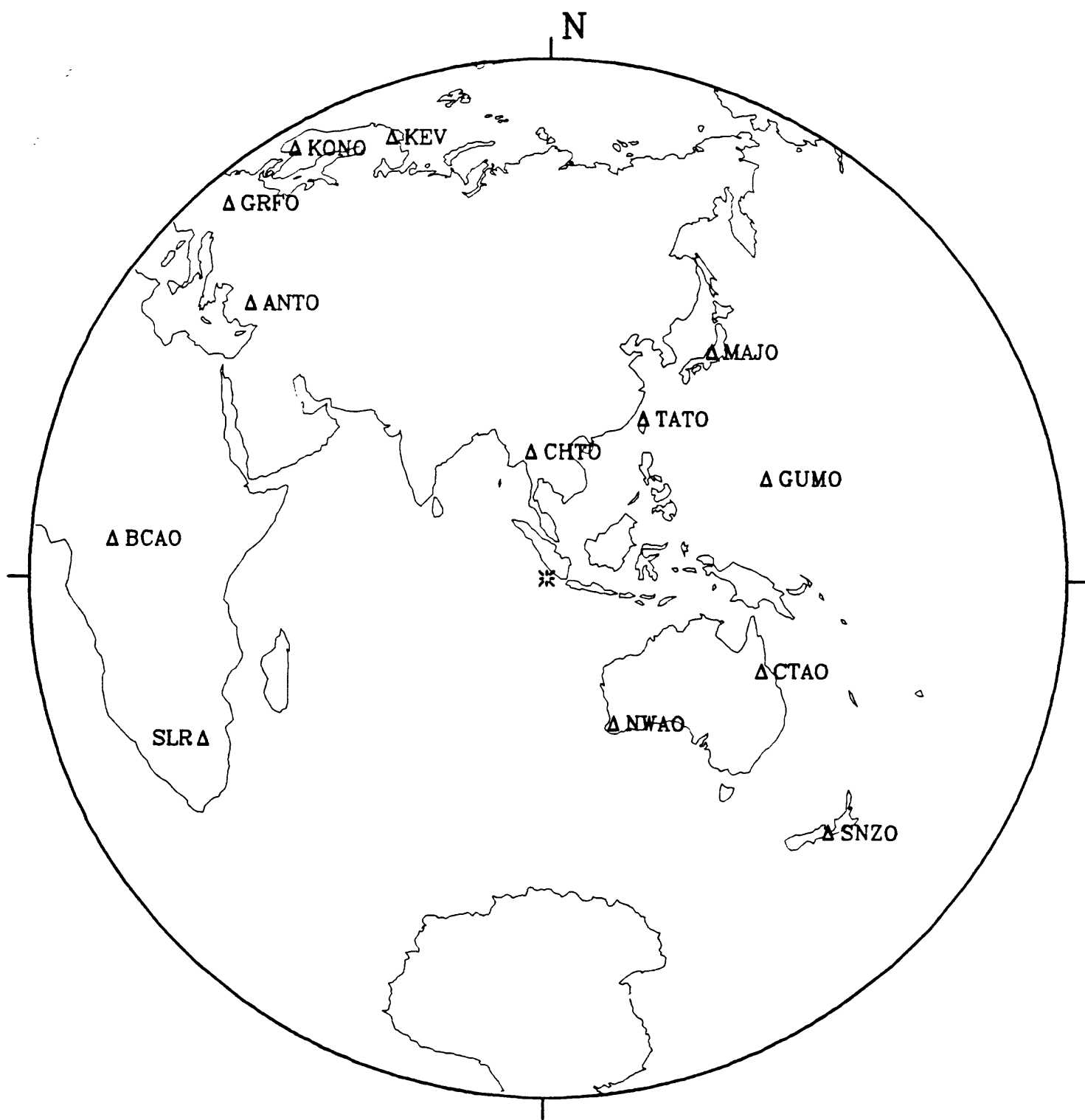
10 July 1985 05:06:33.18

LPZ

West Chile Rise $h=10.0$ $m_b=5.3$ $M_{sz}=5.7$ 

12 July 1985 06:11:49.14

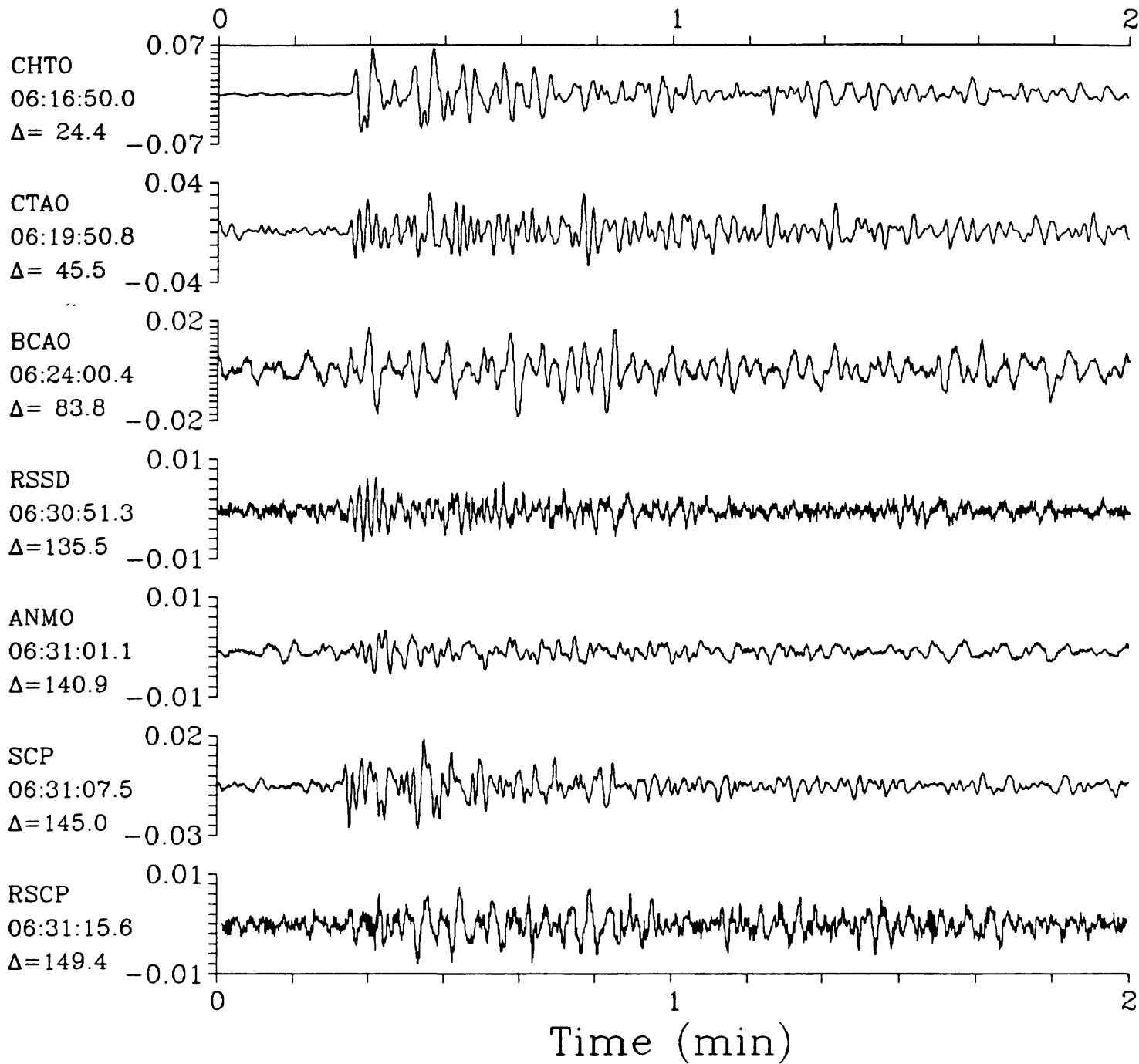
Southwest of Sumatra



SPZ

12 July 1985 06:11:49.14

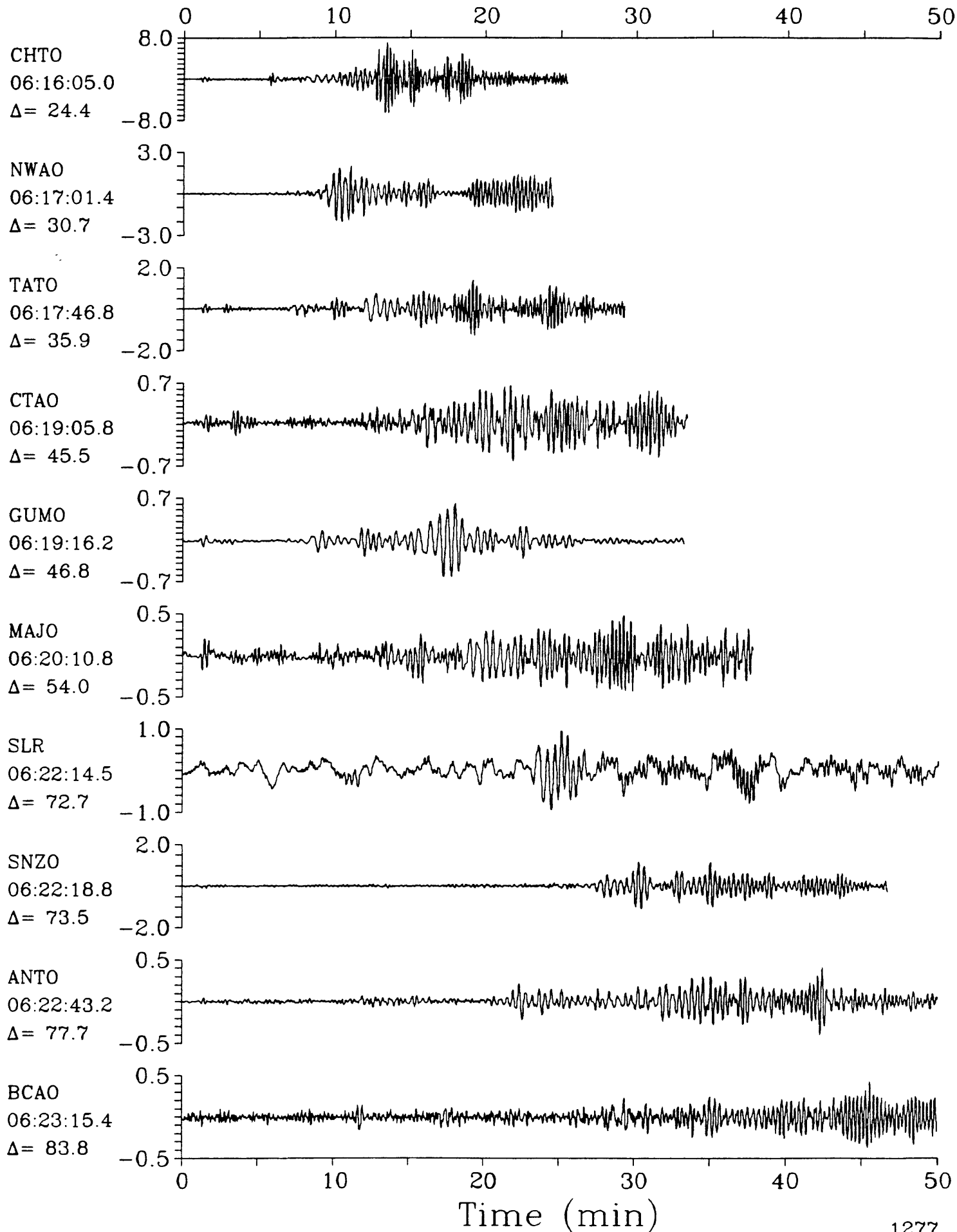
SPZ

Southwest of Sumatera $h=33.0$ $m_b=5.5$ $M_{sz}=5.3$ 

LPZ

12 July 1985 06:11:49.14

LPZ

Southwest of Sumatera $h=33.0$ $m_b=5.5$ $M_{sz}=5.3$ 

LPZ

12 July 1985 06:11:49.14

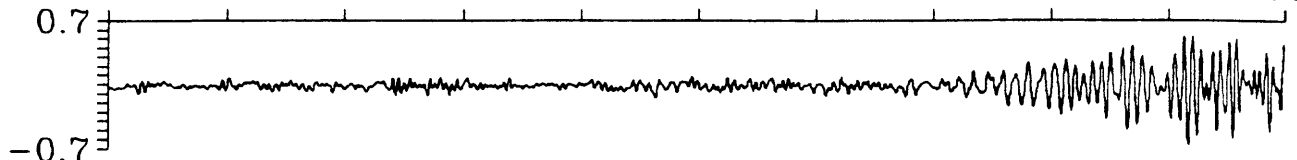
LPZ

Southwest of Sumatra $h=33.0$ $m_b=5.5$ $M_{sz}=5.3$

0 10 20 30 40 50

KEV

06:23:46.4

 $\Delta=90.0$ 

GRFO

06:28:50.1

 $\Delta=94.6$ 

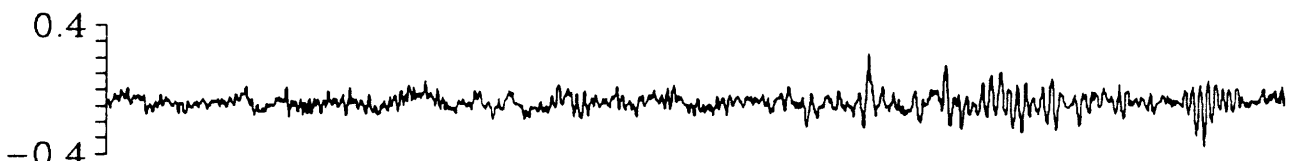
KONO

06:28:52.4

 $\Delta=95.9$ 

HON

06:29:02.3

 $\Delta=101.5$ 

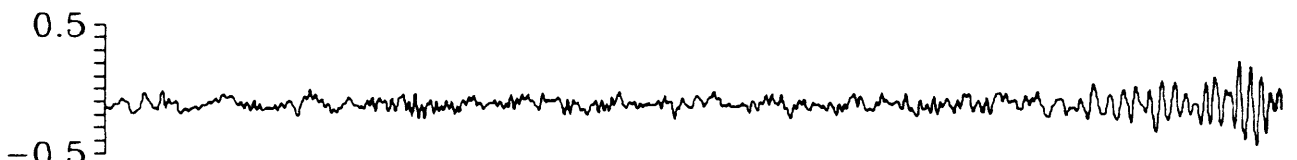
COL

06:29:06.2

 $\Delta=103.7$ 

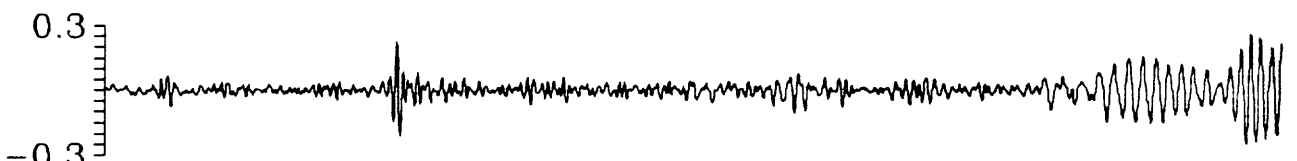
GDH

06:29:26.4

 $\Delta=114.4$ 

RSNT

06:29:31.9

 $\Delta=117.3$ 

LON

06:29:45.6

 $\Delta=124.5$ 

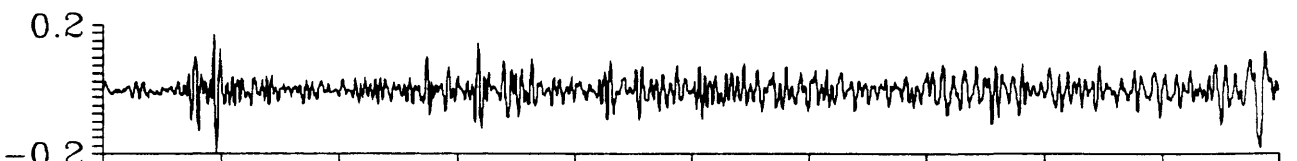
JAS1

06:29:56.0

 $\Delta=130.0$ 

RSO

06:30:01.9

 $\Delta=133.1$ 

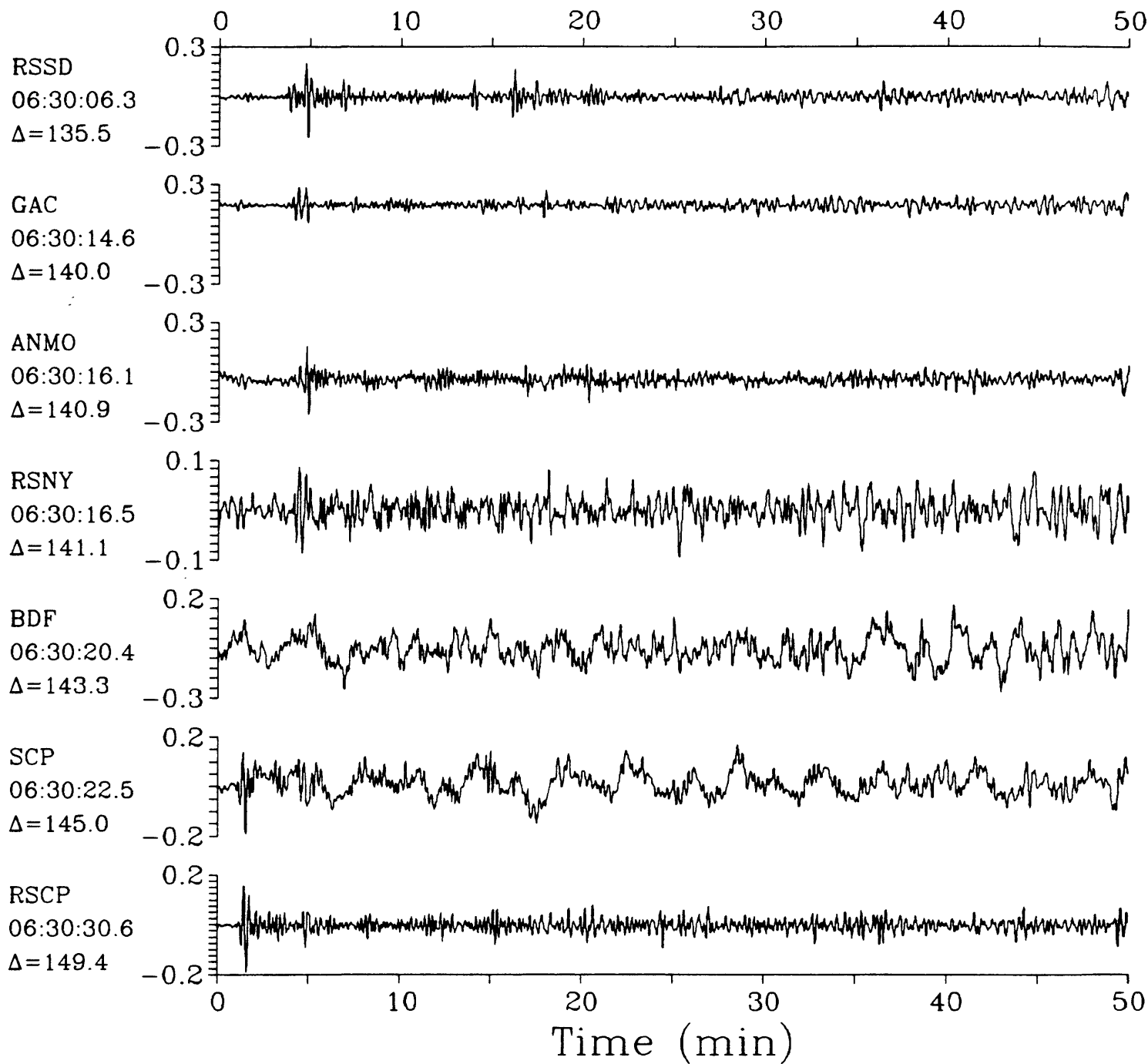
0 10 20 30 40 50

Time (min)

LPZ

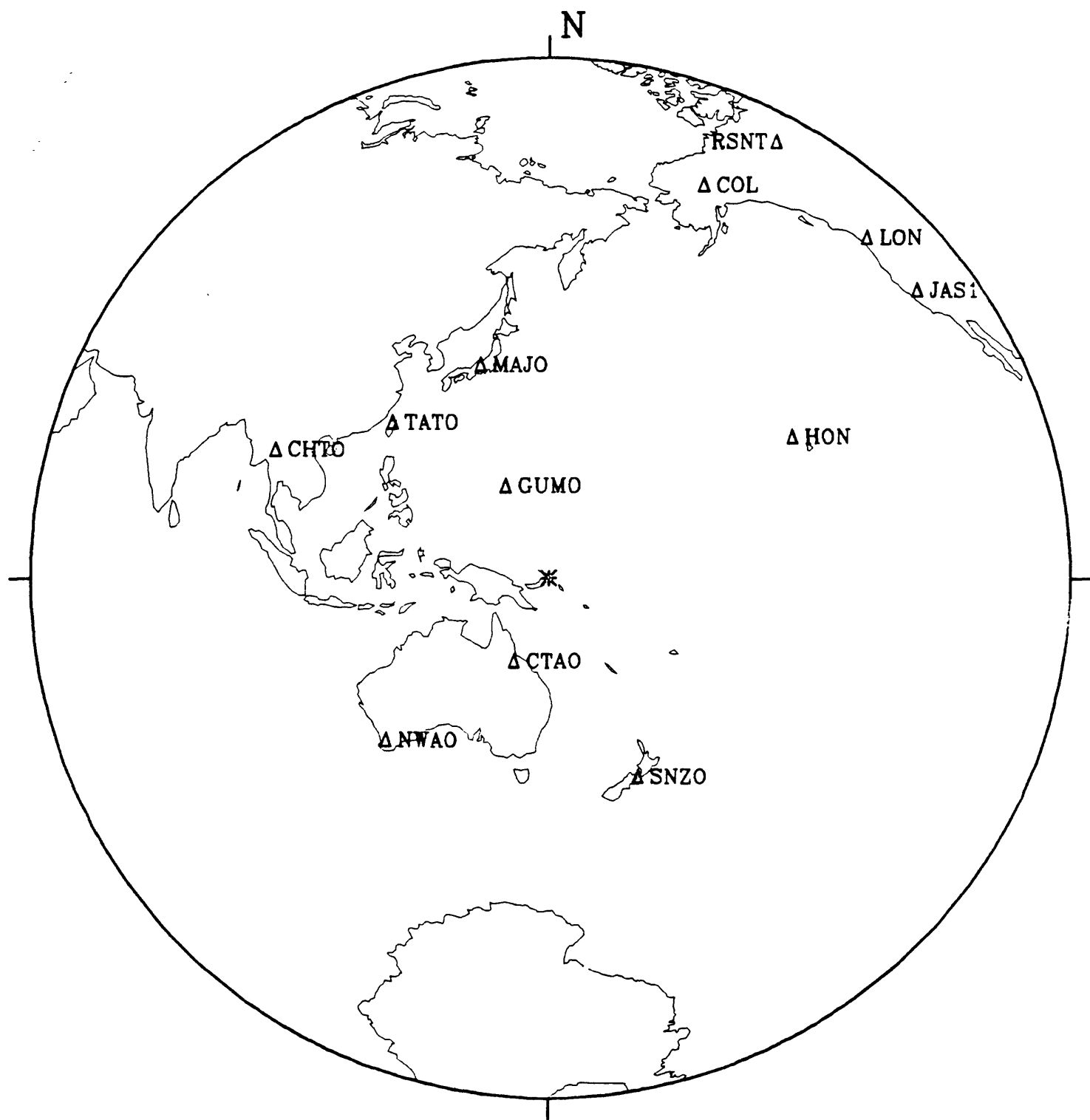
12 July 1985 06:11:49.14

LPZ

Southwest of Sumatera $h=33.0$ $m_b=5.5$ $M_{sz}=5.3$ 

17 July 1985 08:09:29.24

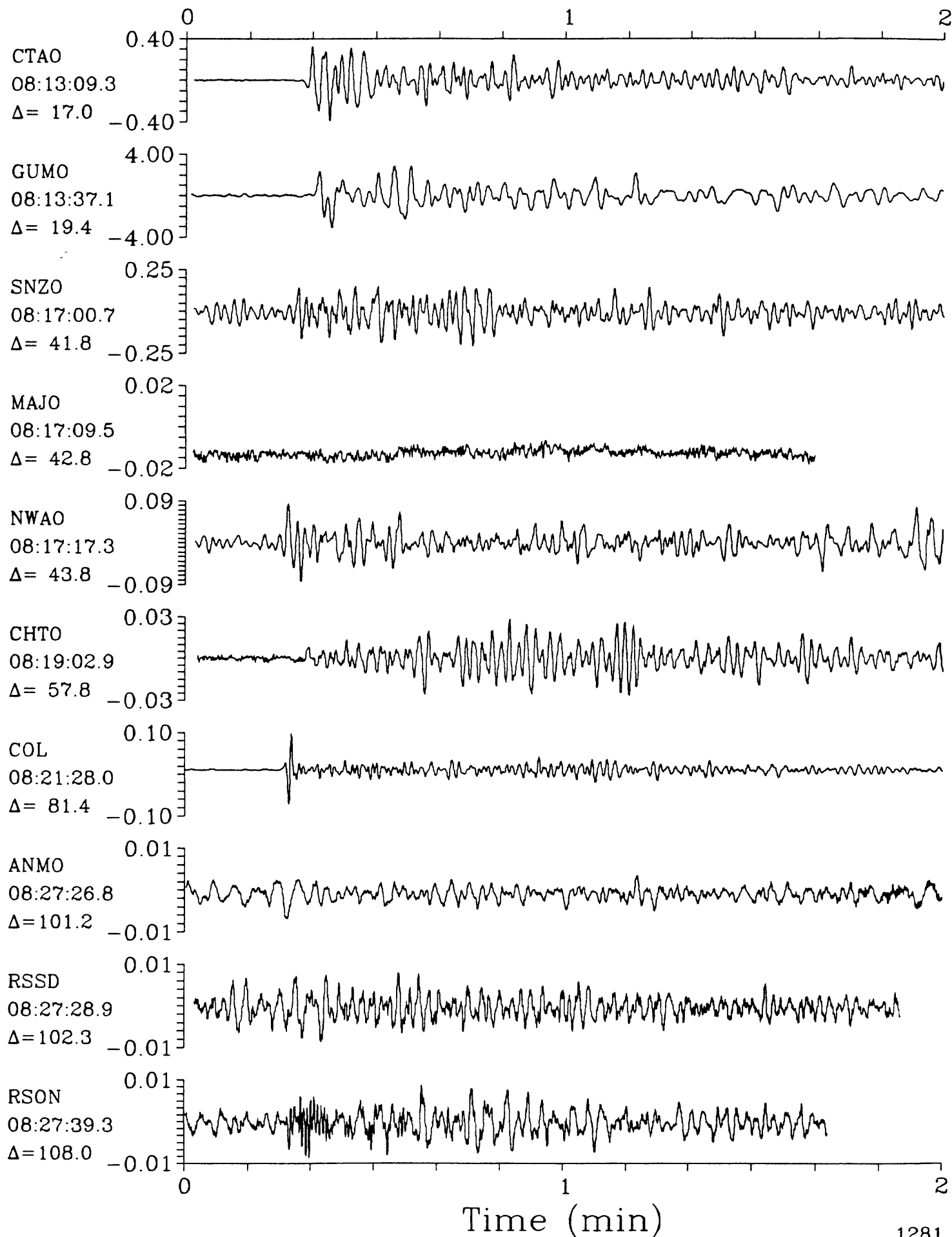
New Britain Region

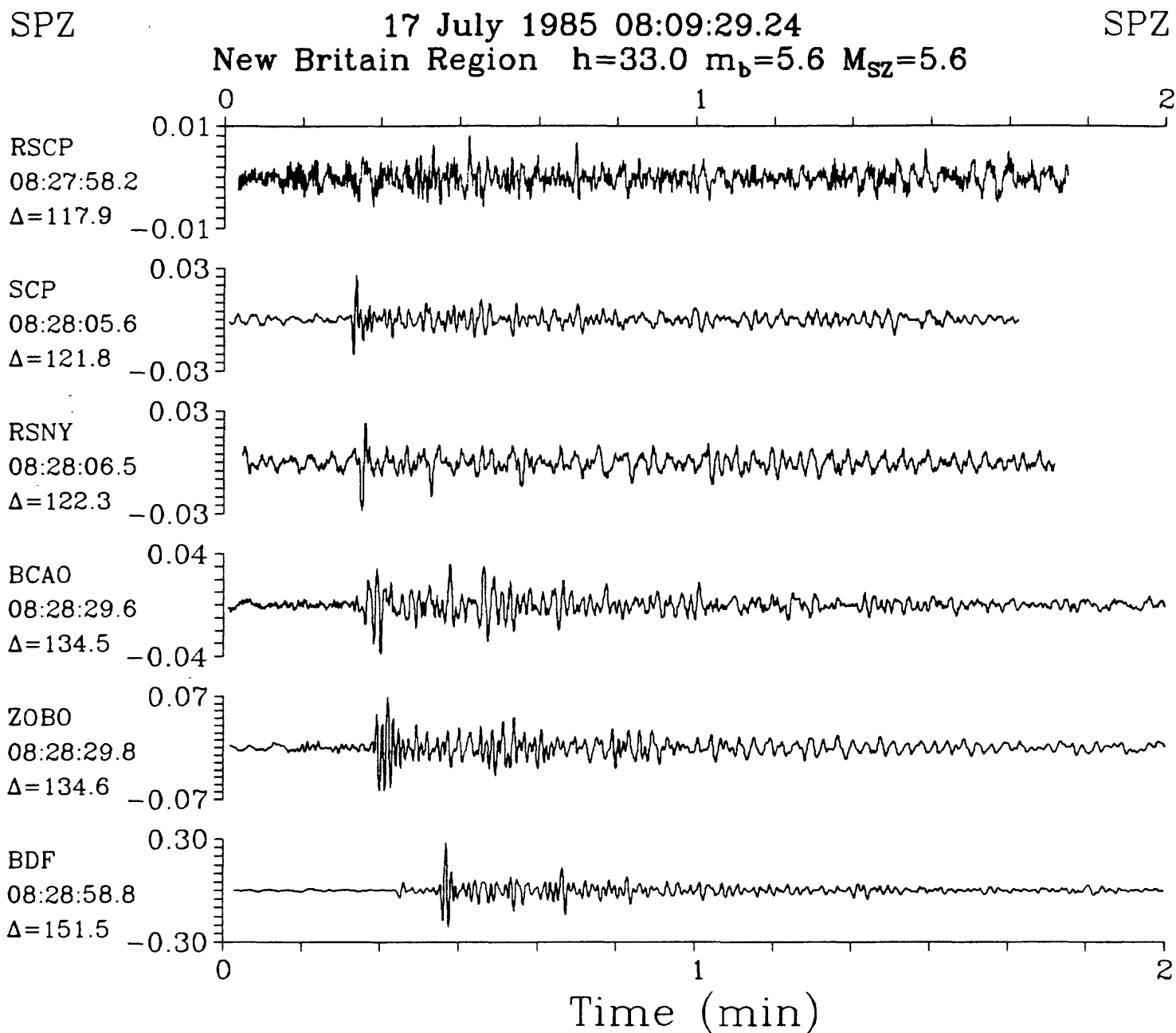


SPZ

17 July 1985 08:09:29.24

SPZ

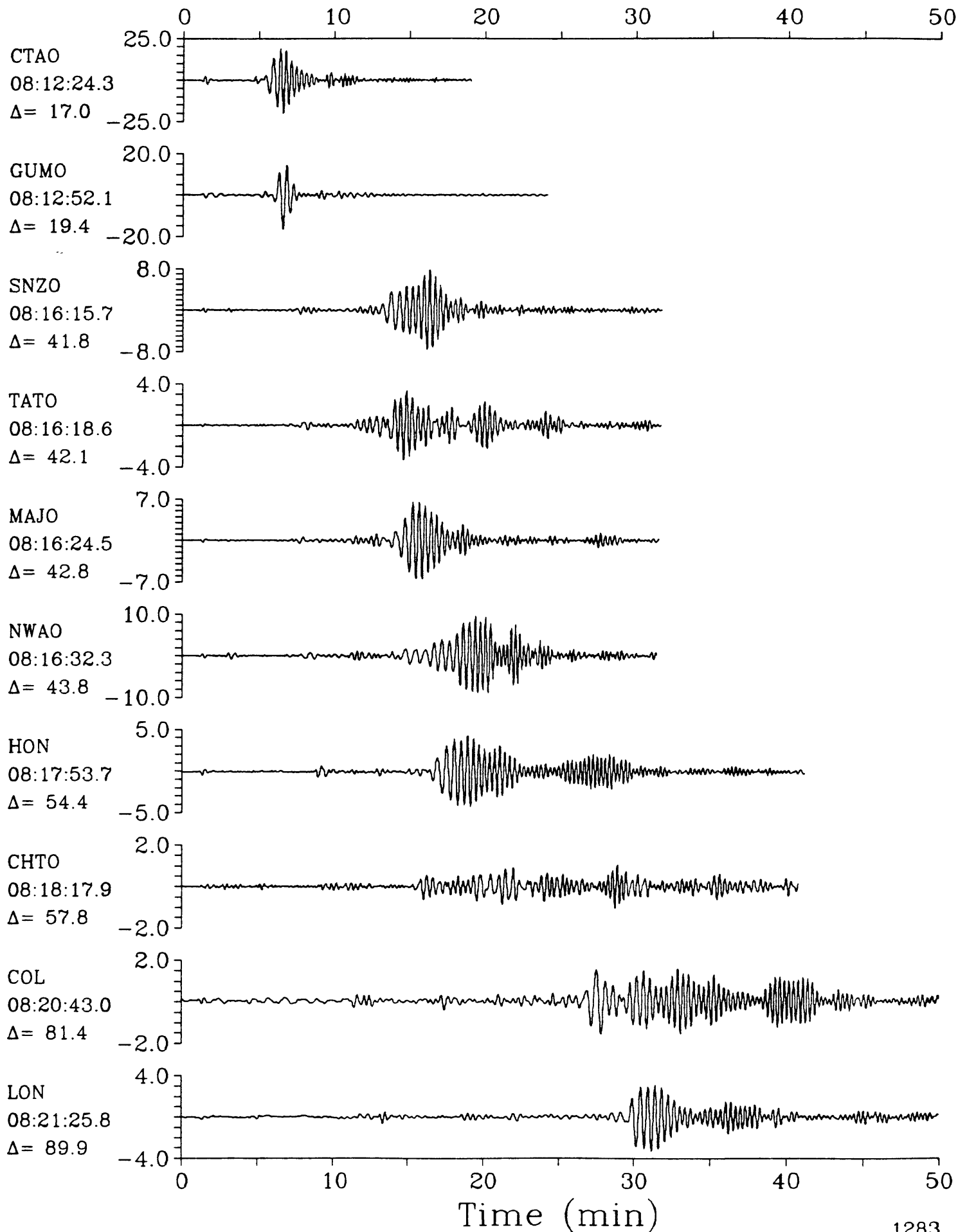
New Britain Region $h=33.0$ $m_b=5.6$ $M_{sz}=5.6$ 



LPZ

17 July 1985 08:09:29.24

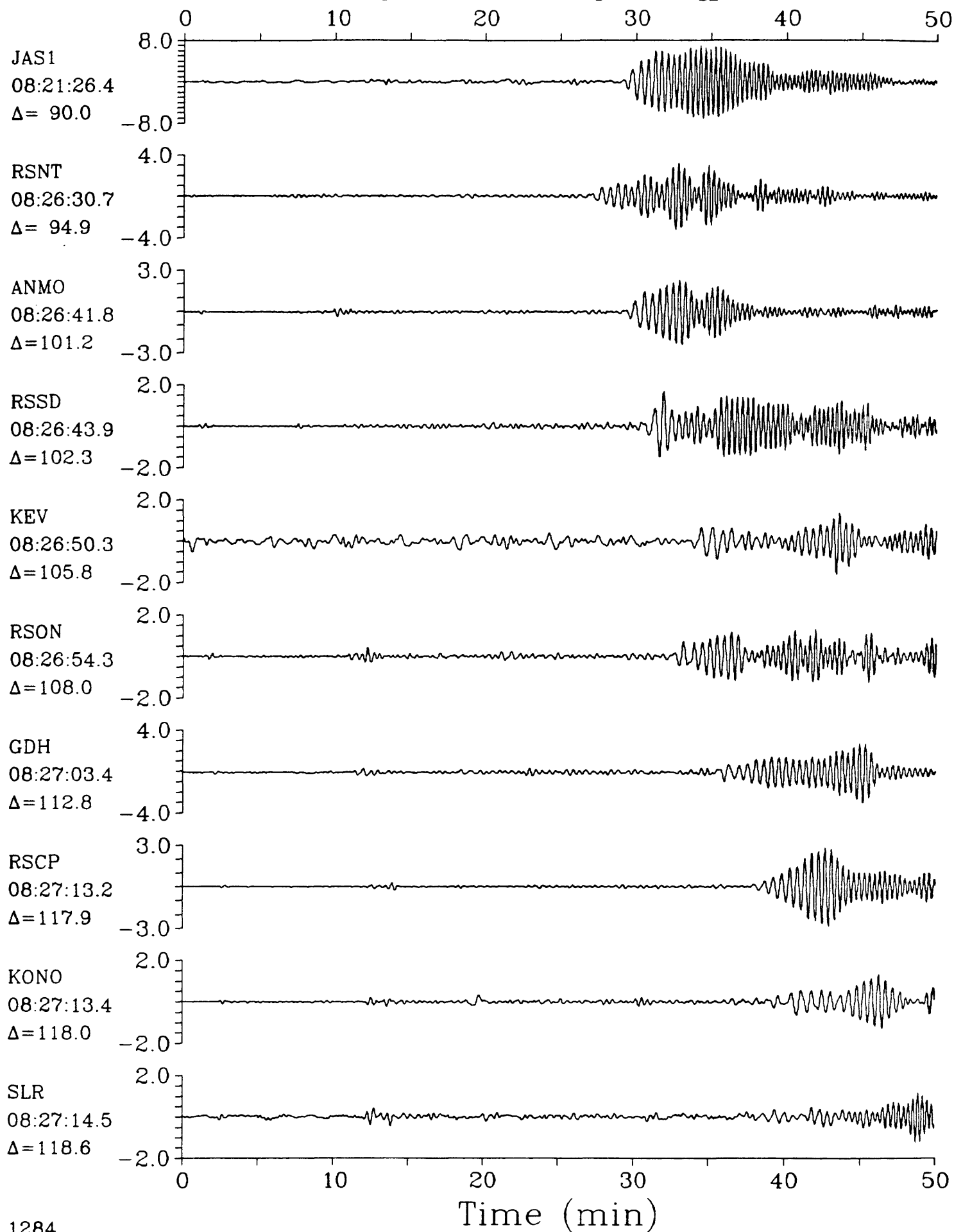
LPZ

New Britain Region $h=33.0$ $m_b=5.6$ $M_{sz}=5.6$ 

LPZ

17 July 1985 08:09:29.24

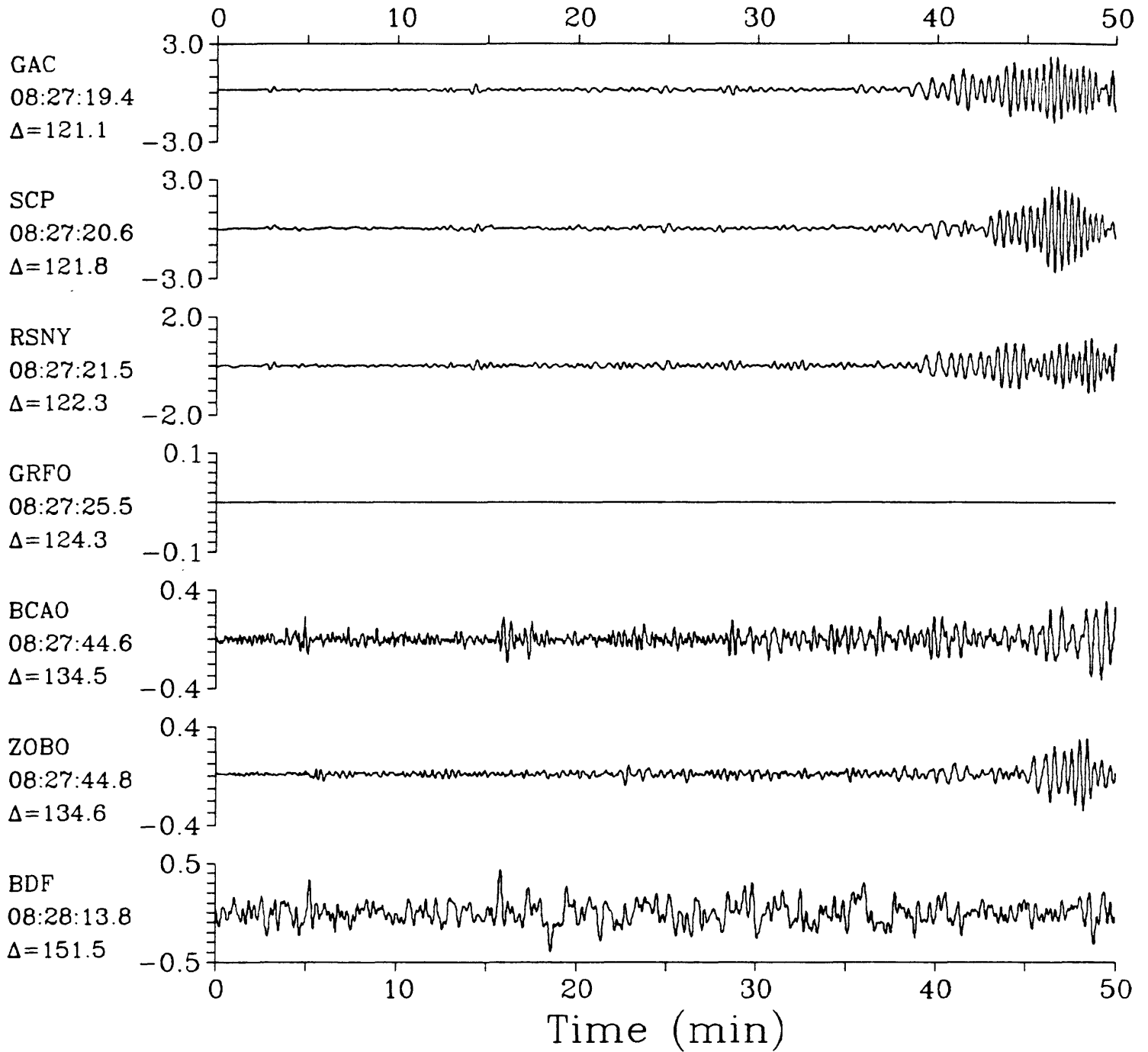
LPZ

New Britain Region $h=33.0$ $m_b=5.6$ $M_{sz}=5.6$ 

LPZ

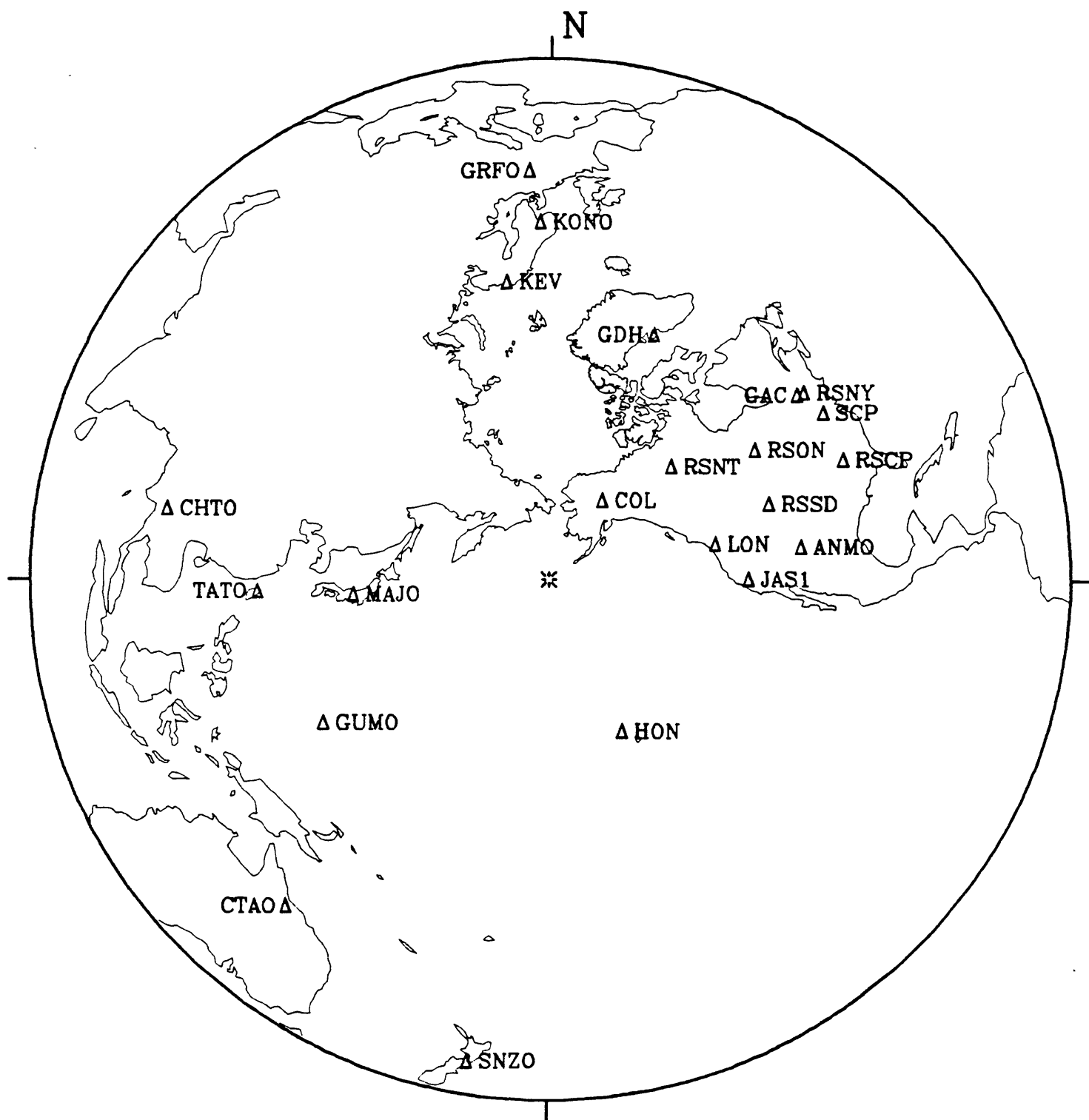
17 July 1985 08:09:29.24

LPZ

New Britain Region $h=33.0$ $m_b=5.6$ $M_{sz}=5.6$ 

17 July 1985 19:31:30.31

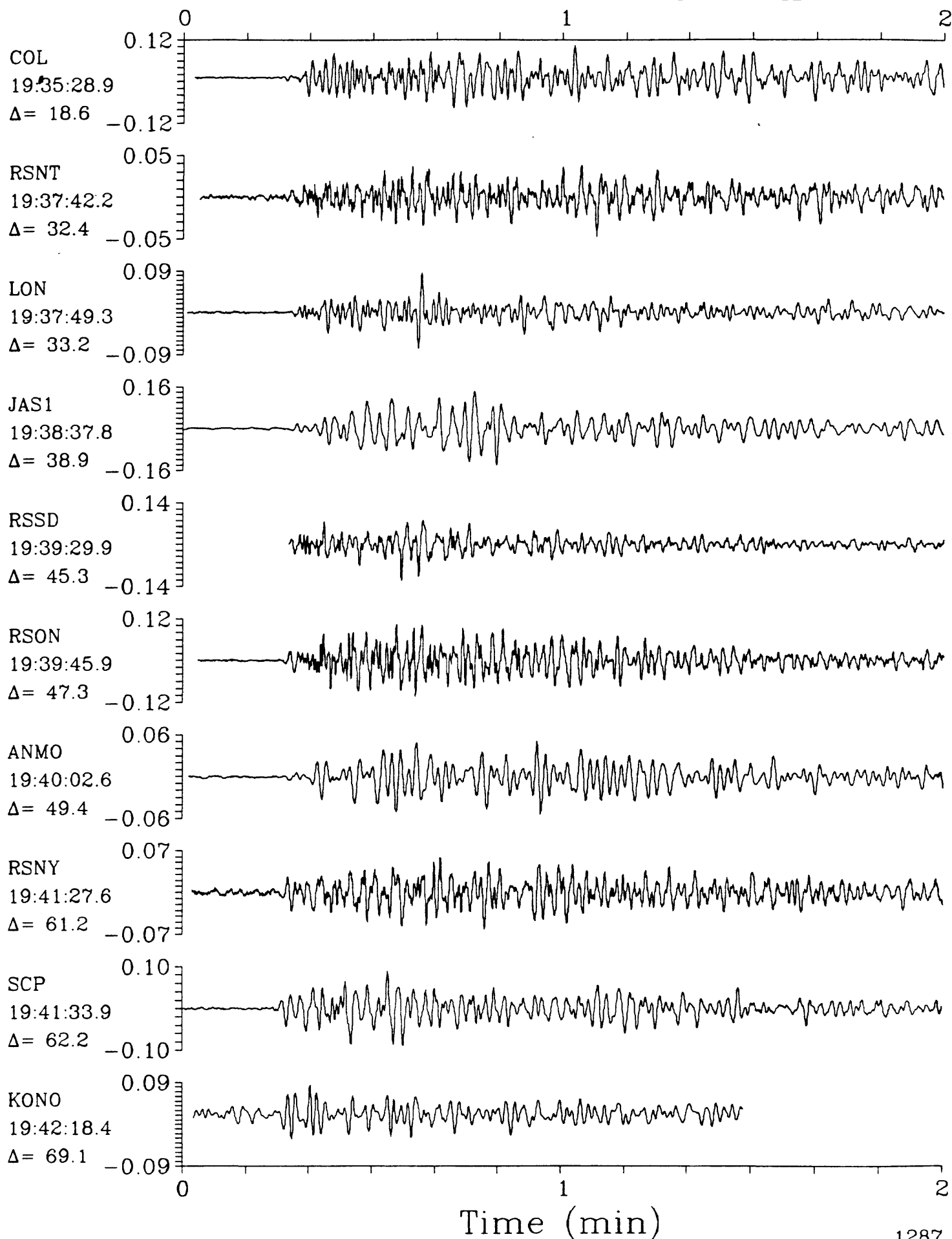
Andreanof Islands, Aleutian Is.



SPZ

17 July 1985 19:31:30.31

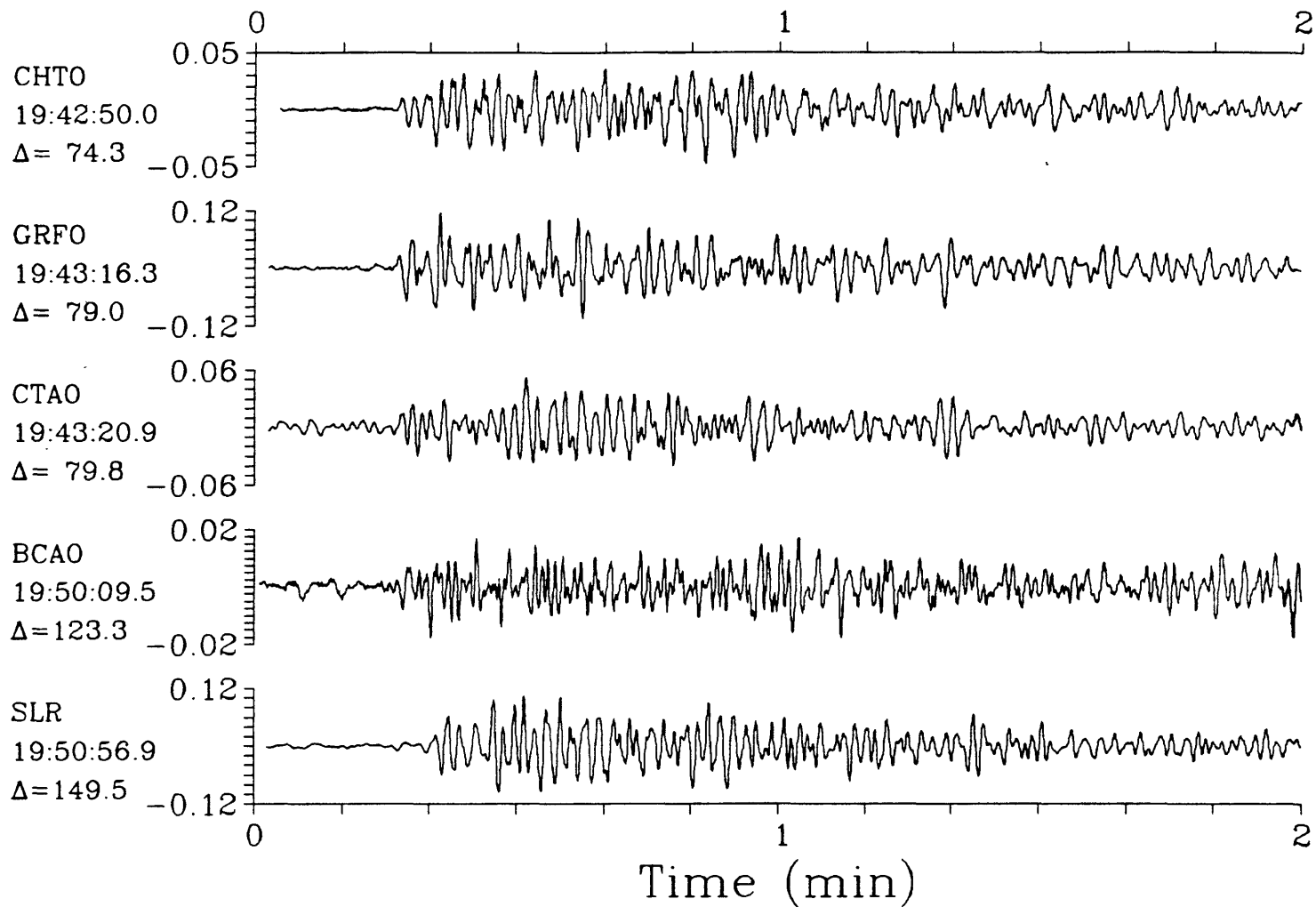
SPZ

Andreanof Islands, Aleutian Is. $h=33.0$ $m_b=5.5$ $M_{sz}=5.9$ 

SPZ

17 July 1985 19:31:30.31

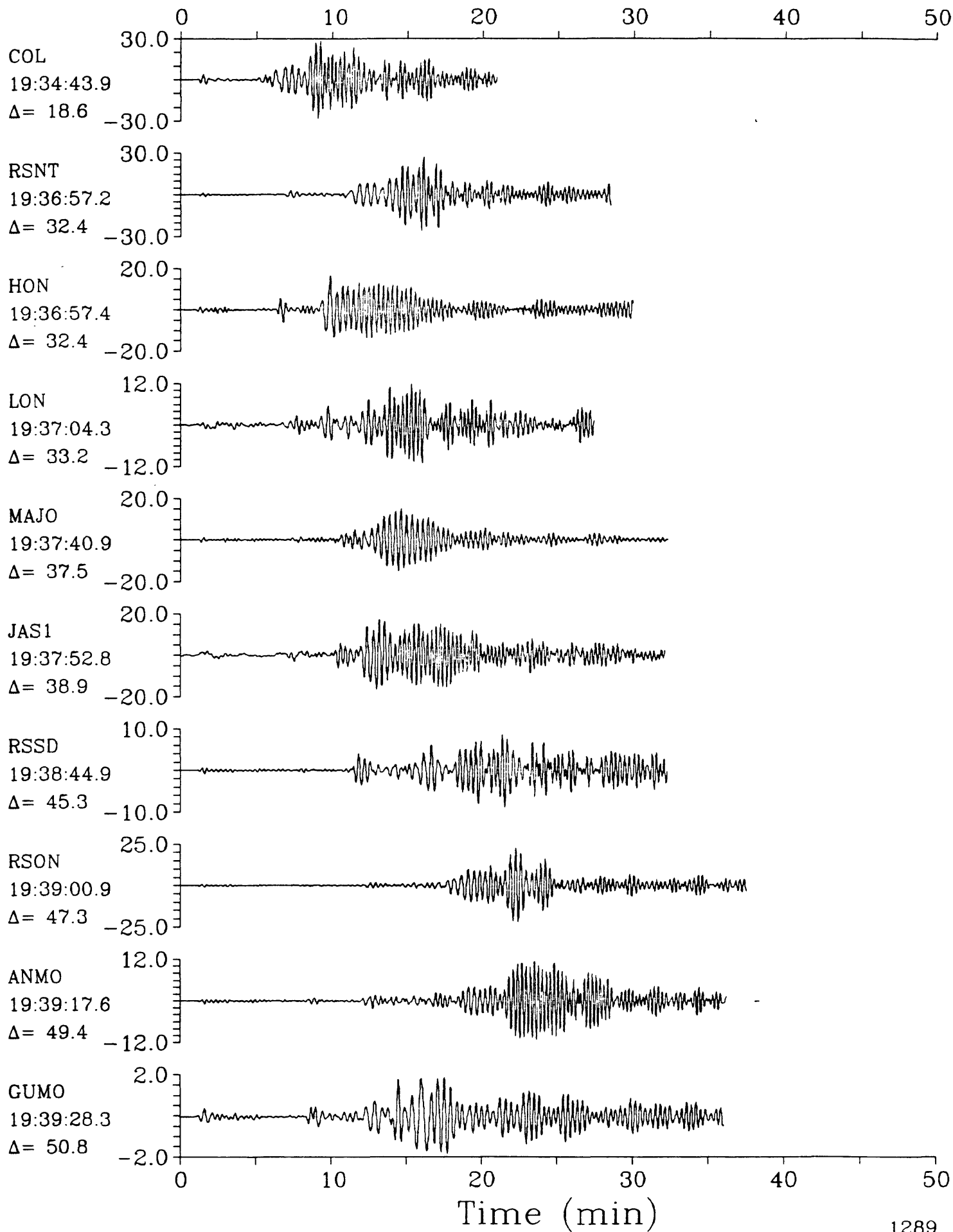
SPZ

Andreanof Islands, Aleutian Is. $h=33.0$ $m_b=5.5$ $M_{sz}=5.9$ 

LPZ

17 July 1985 19:31:30.31

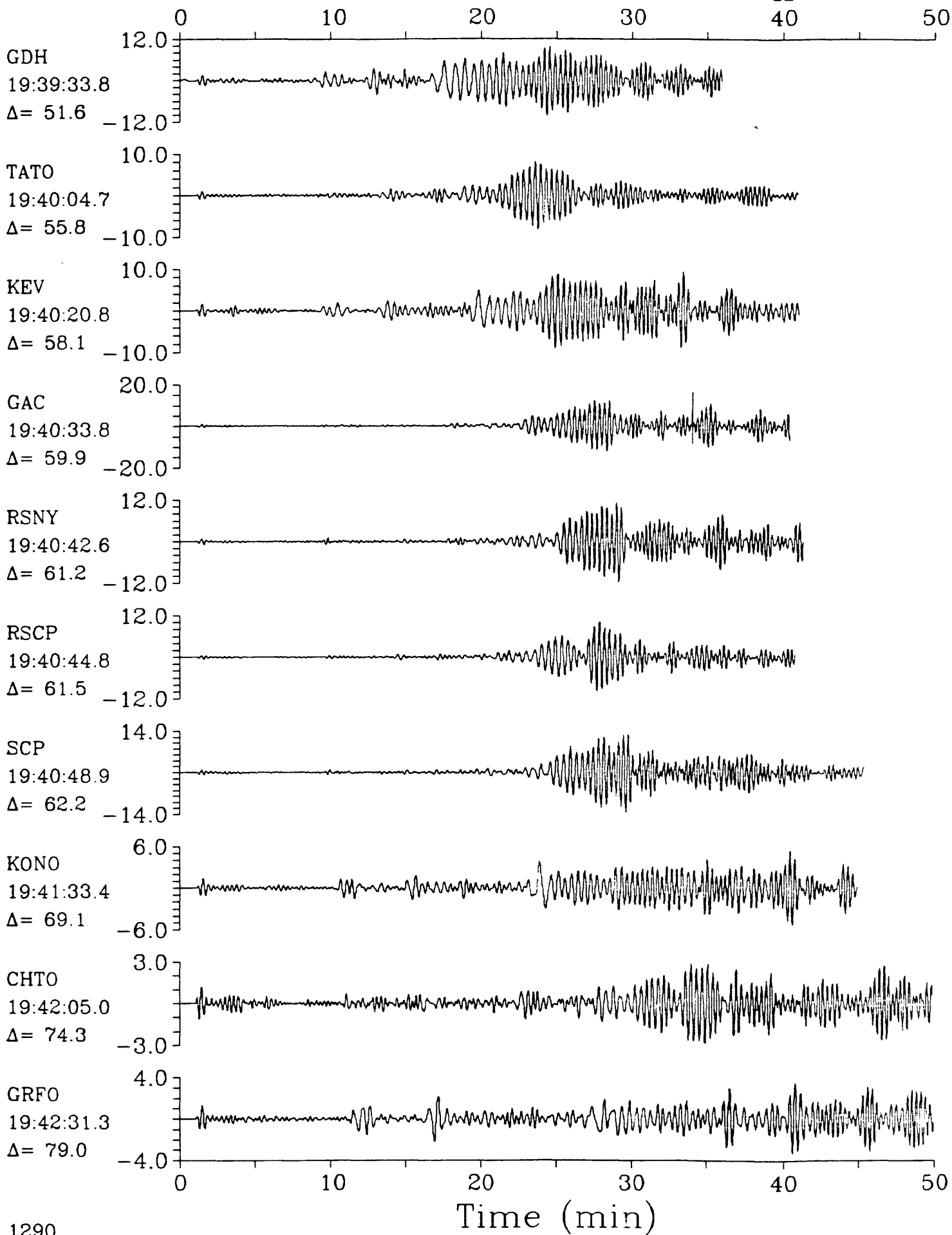
LPZ

Andreanof Islands, Aleutian Is. $h=33.0$ $m_b=5.5$ $M_{sz}=5.9$ 

LPZ

17 July 1985 19:31:30.31

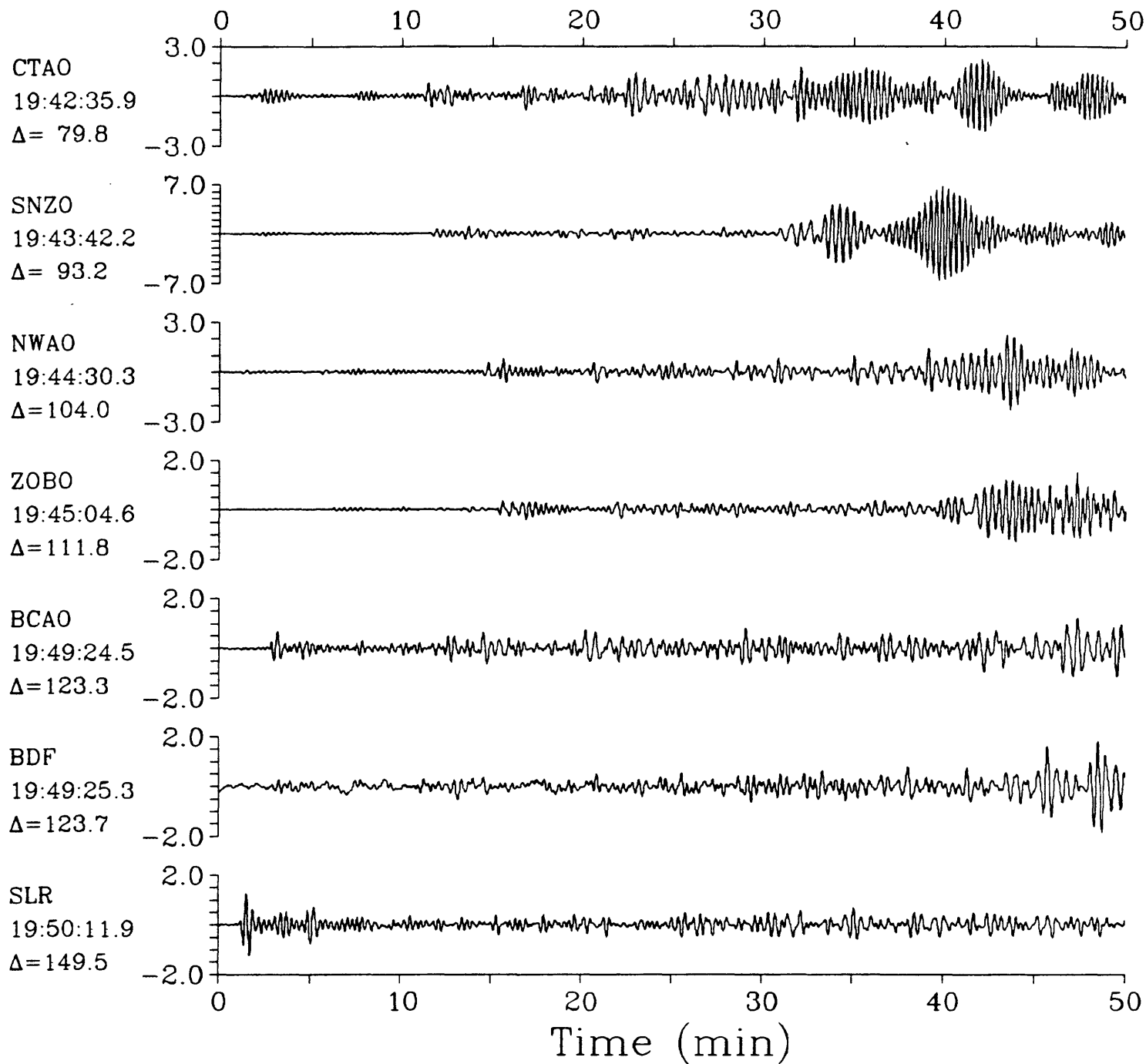
LPZ

Andreanof Islands, Aleutian Is. $h=33.0$ $m_b=5.5$ $M_{sz}=5.9$ 

LPZ

17 July 1985 19:31:30.31

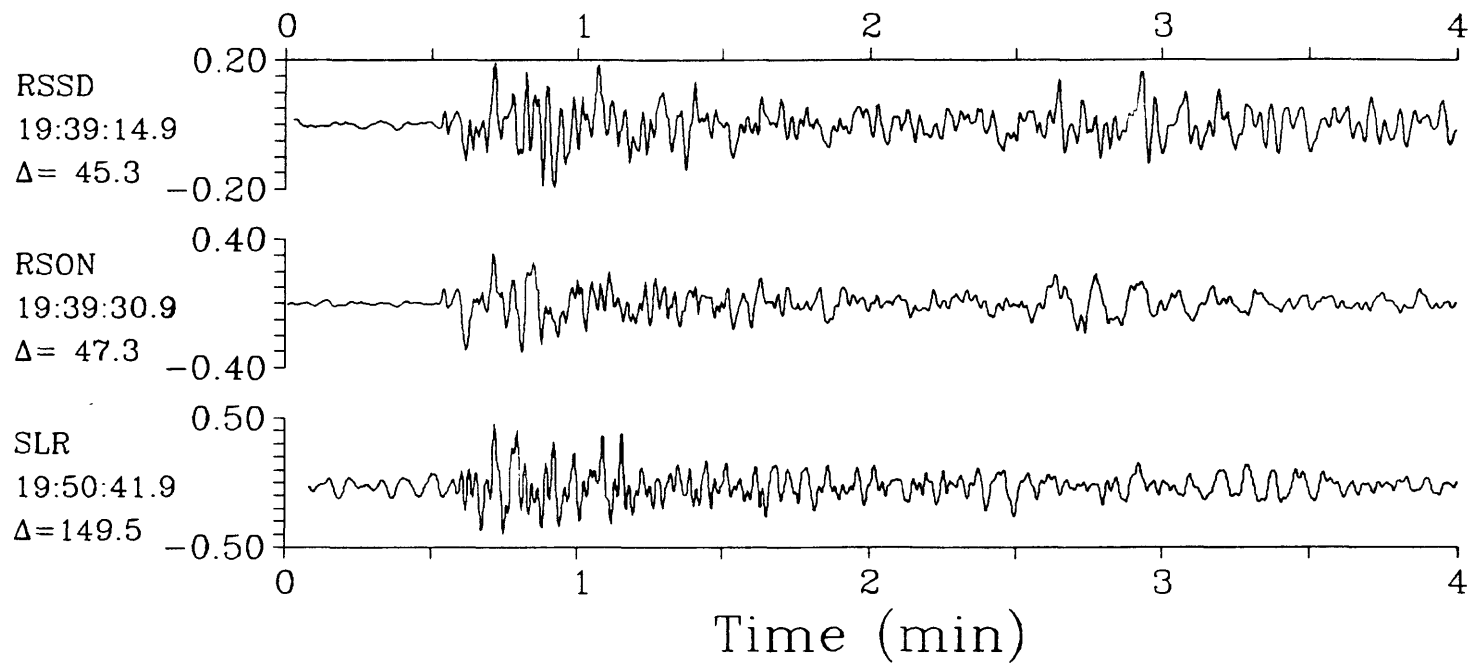
LPZ

Andreanof Islands, Aleutian Is. $h=33.0$ $m_b=5.5$ $M_{sz}=5.9$ 

IPZ

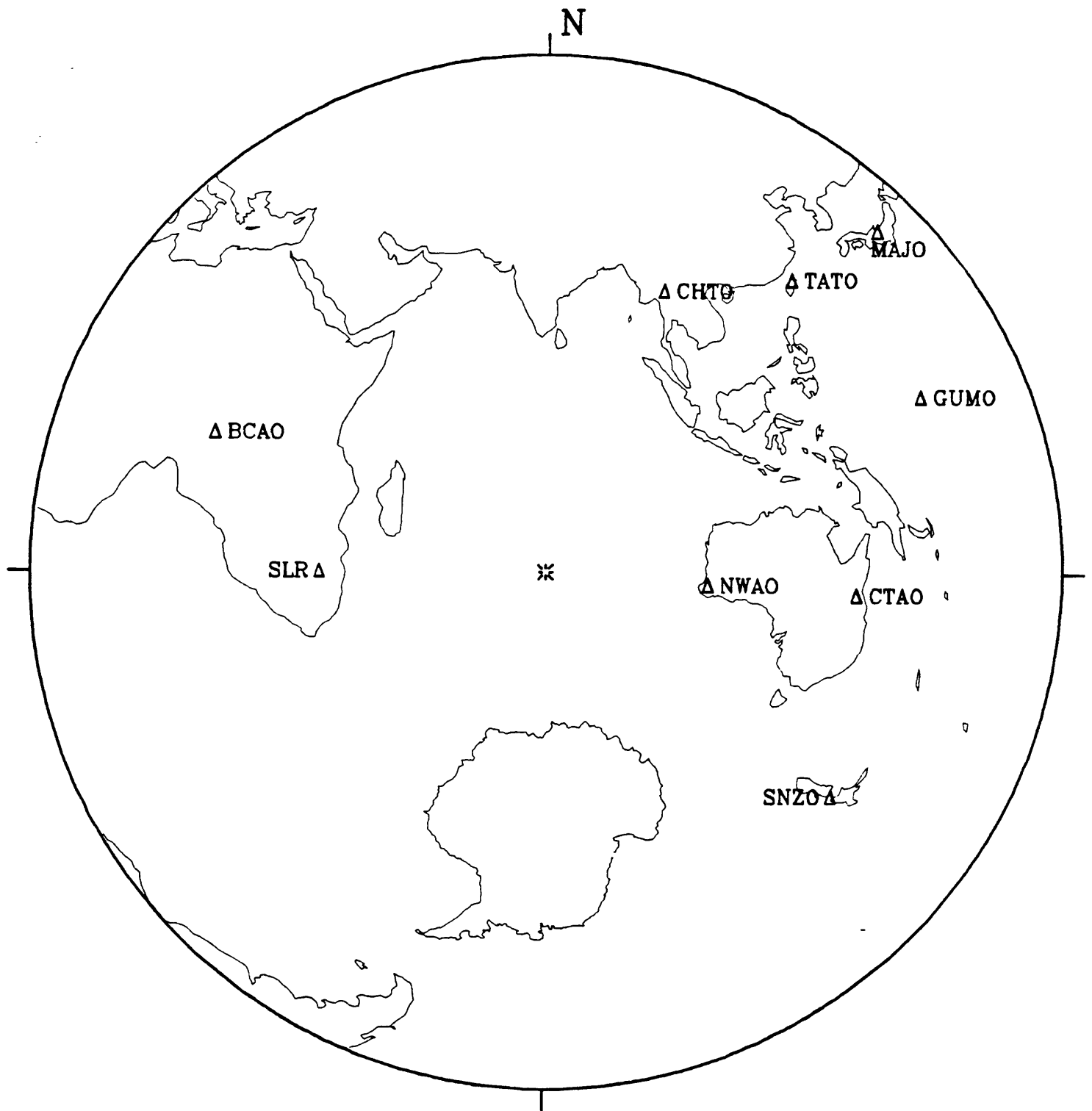
17 July 1985 19:31:30.31

IPZ

Andreanof Islands, Aleutian Is. $h=33.0$ $m_b=5.5$ $M_{sz}=5.9$ 

18 July 1985 00:25:25.91

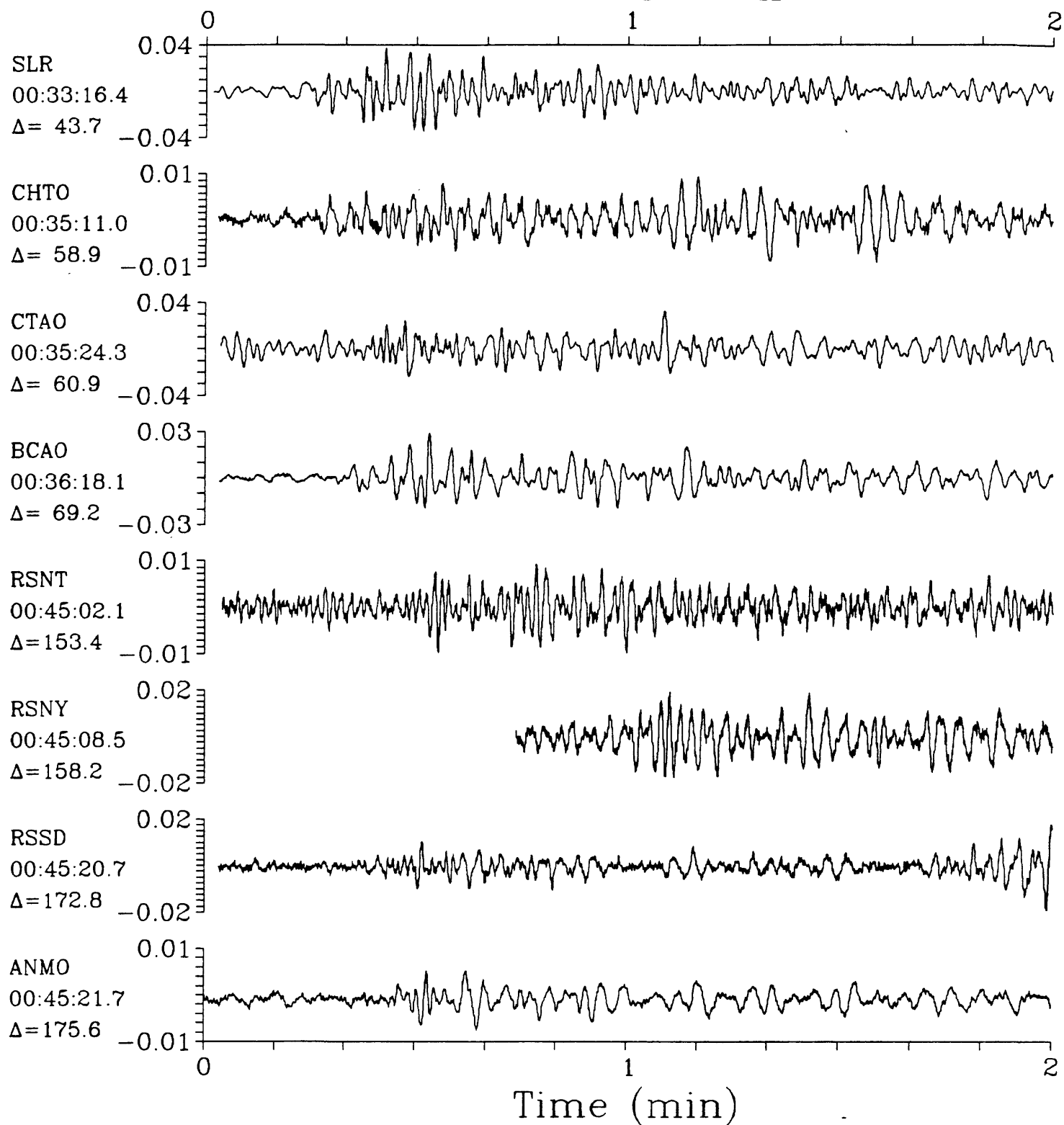
Mid-Indian Rise



SPZ

18 July 1985 00:25:25.91

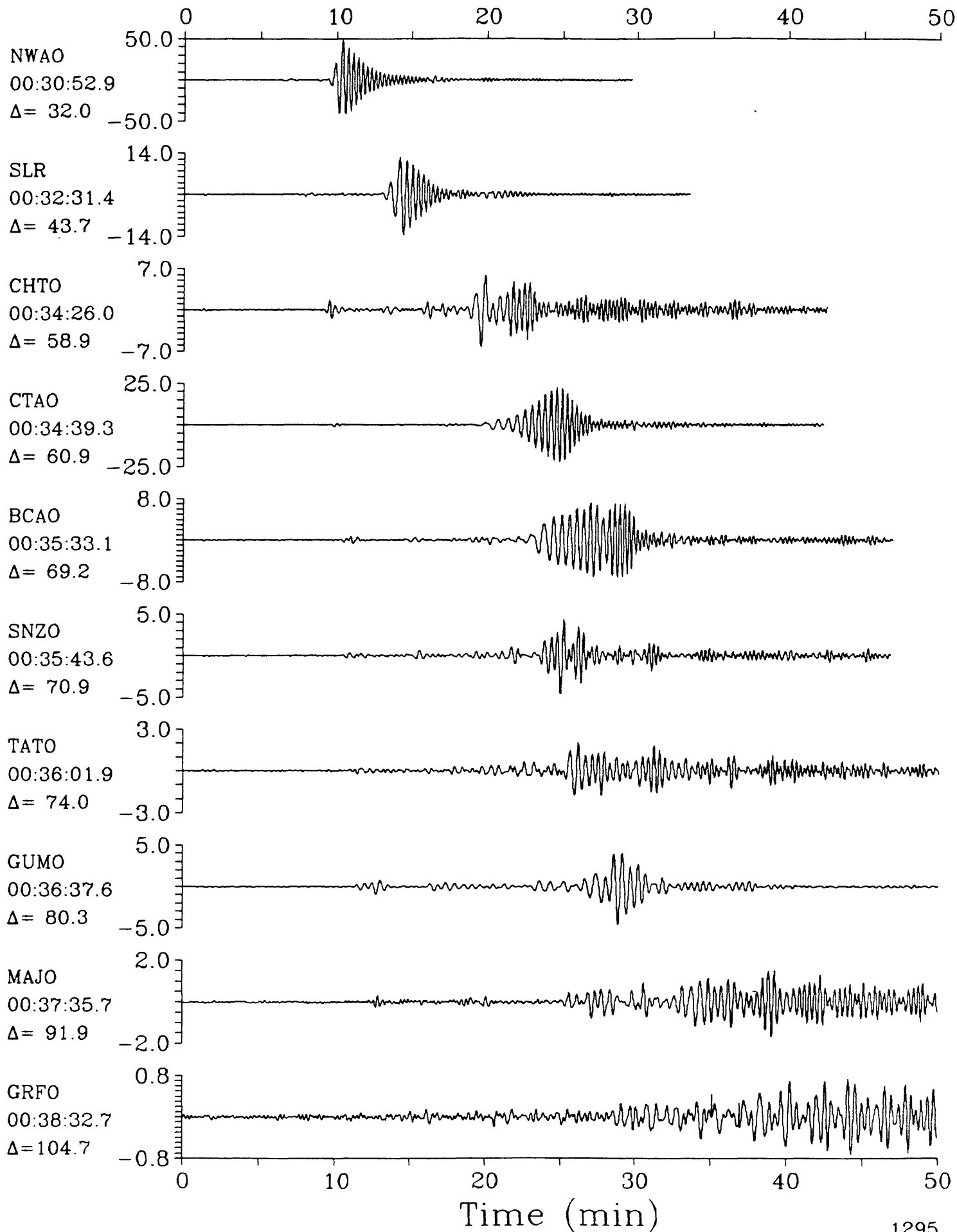
SPZ

Mid-Indian Rise $h=10.0$ $m_b=5.3$ $M_{sz}=5.8$ 

LPZ

18 July 1985 00:25:25.91

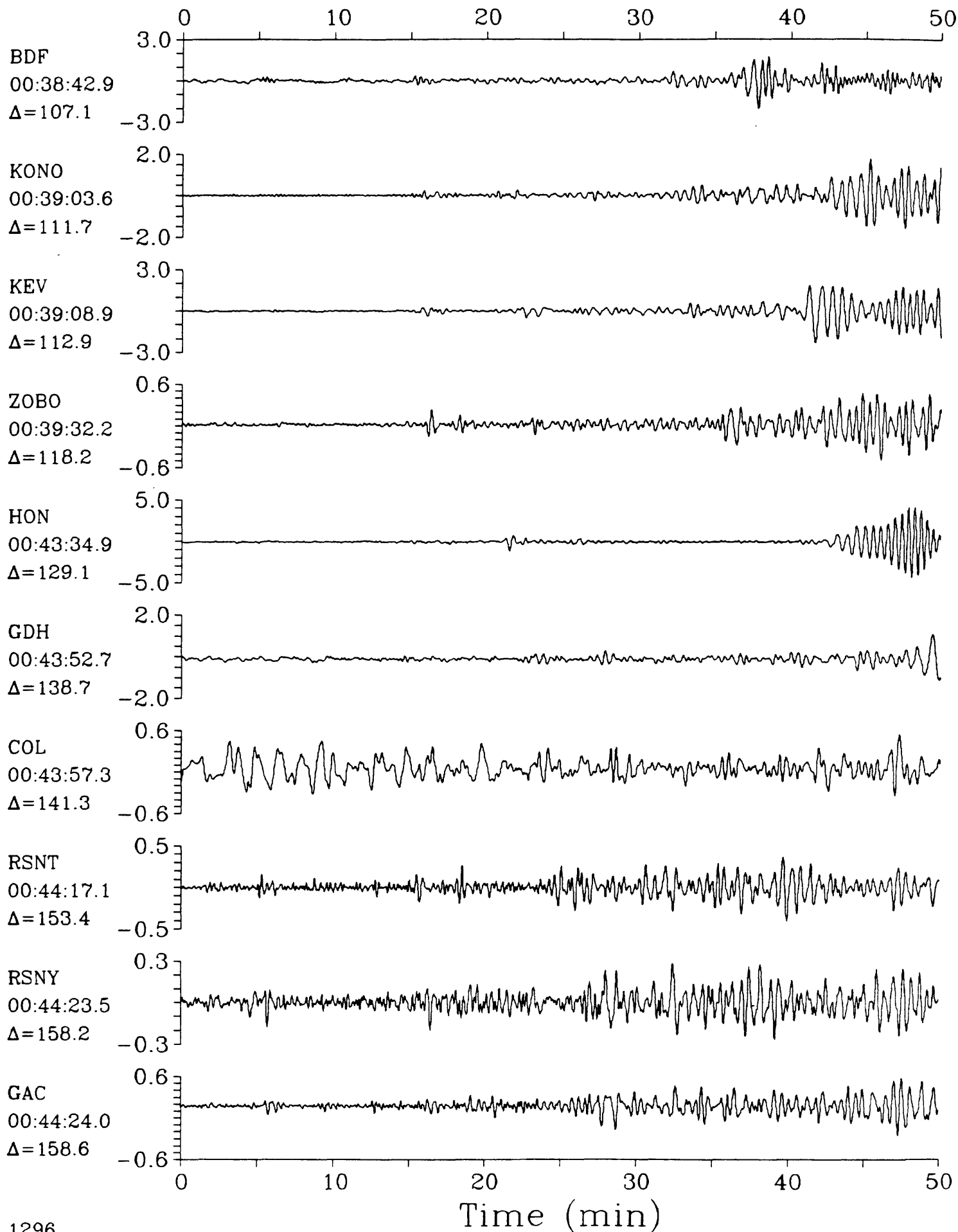
LPZ

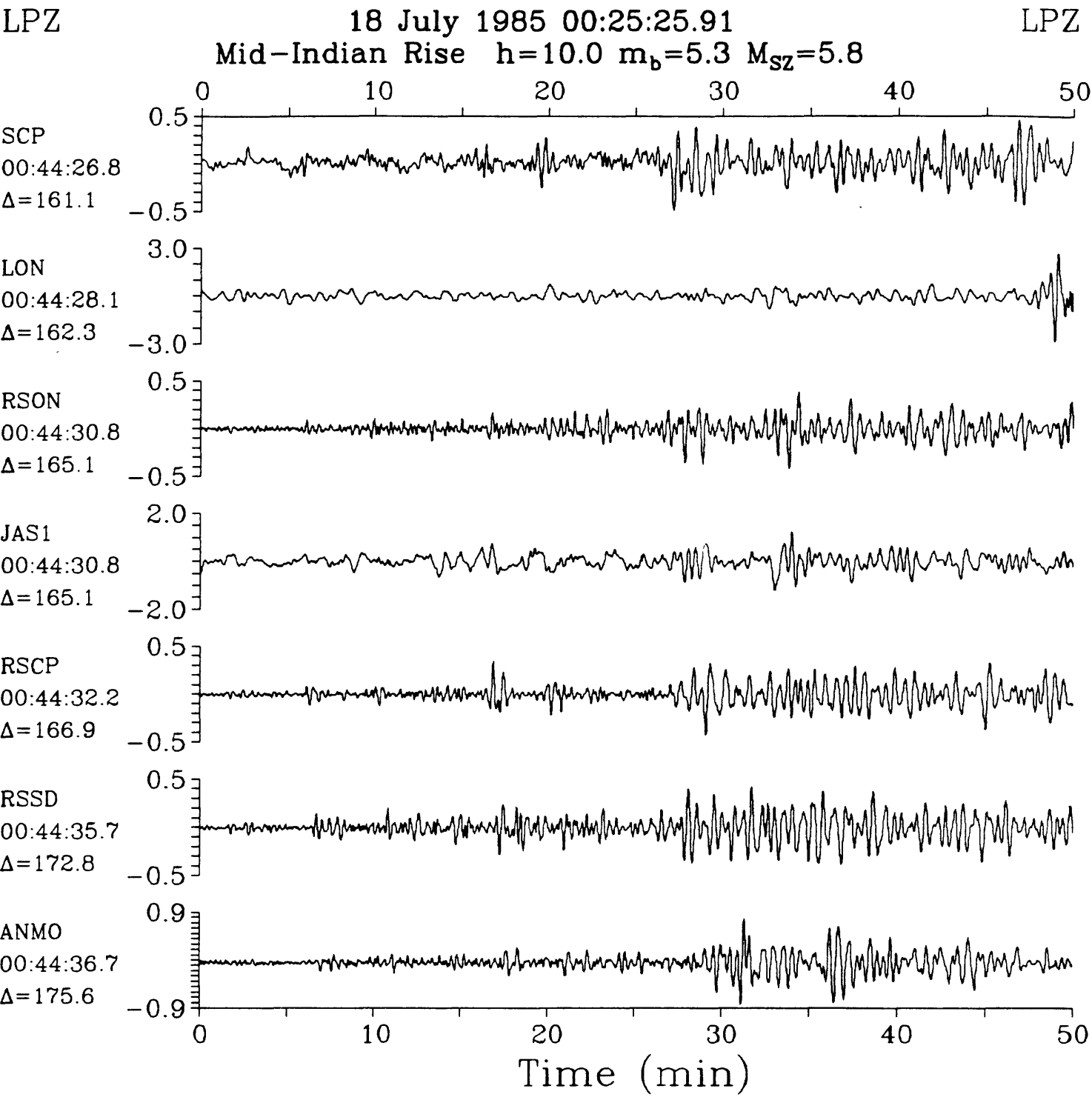
Mid-Indian Rise $h=10.0$ $m_b=5.3$ $M_{sz}=5.8$ 

LPZ

18 July 1985 00:25:25.91

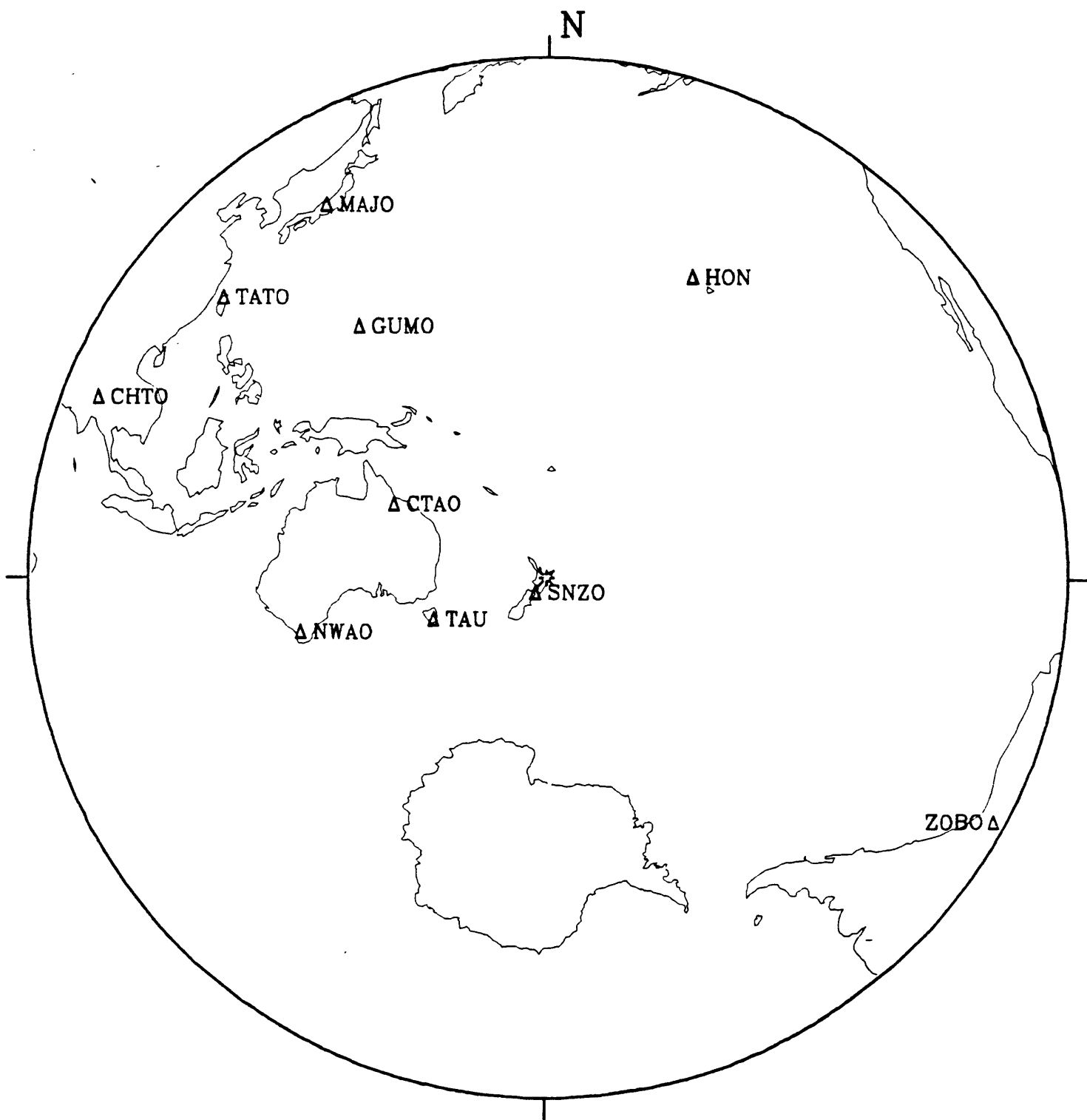
LPZ

Mid-Indian Rise $h=10.0$ $m_b=5.3$ $M_{sz}=5.8$ 



19 July 1985 14:33:59.02

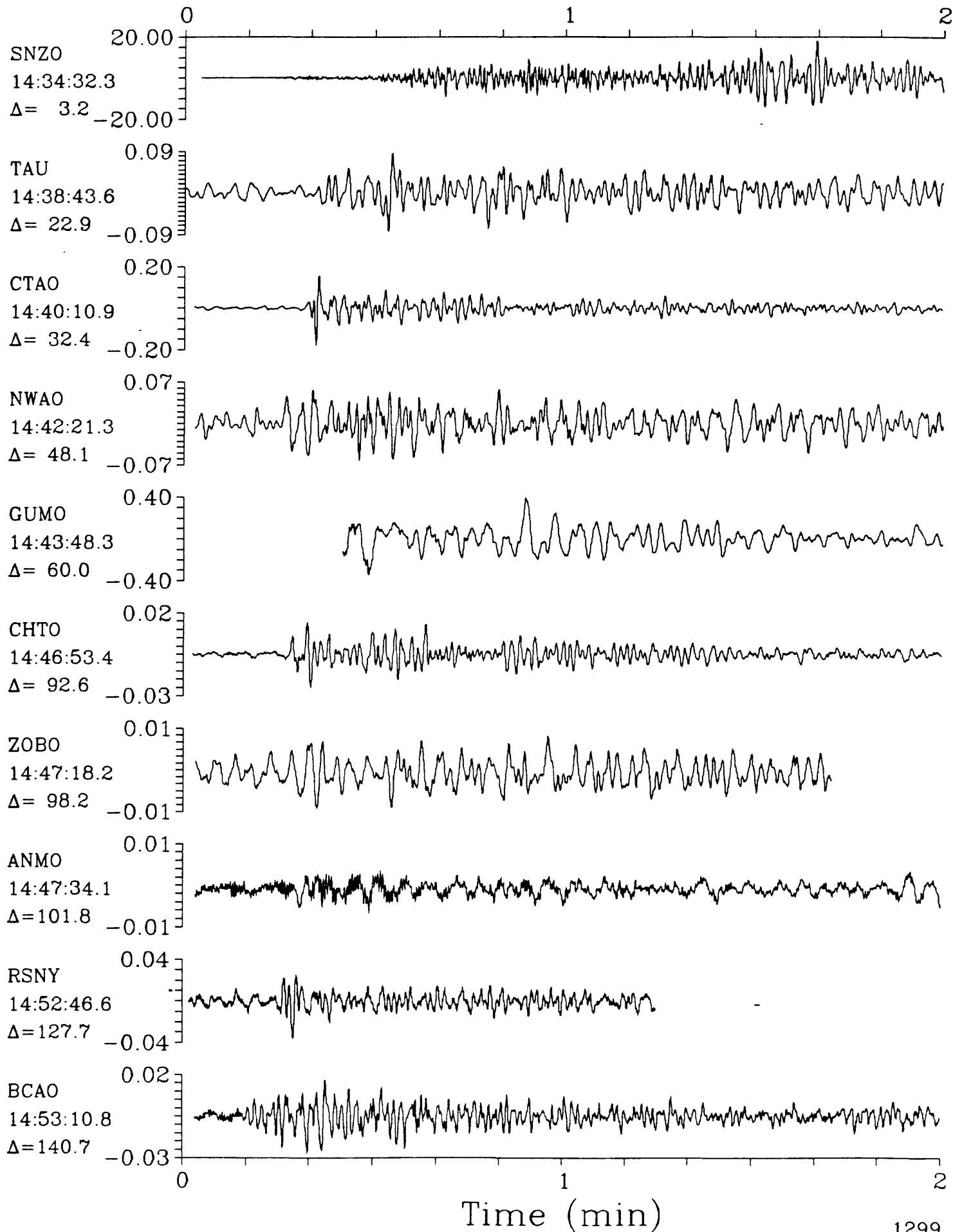
North Island, New Zealand



SPZ

19 July 1985 14:33:59.02

SPZ

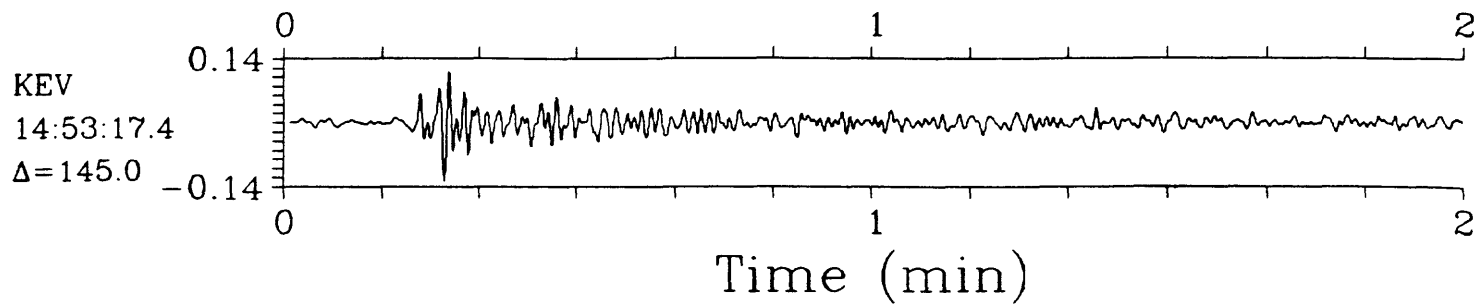
North Island, New Zealand $h=33.0$ $m_b=5.6$ $M_{sz}=5.8$ 

SPZ

19 July 1985 14:33:59.02

SPZ

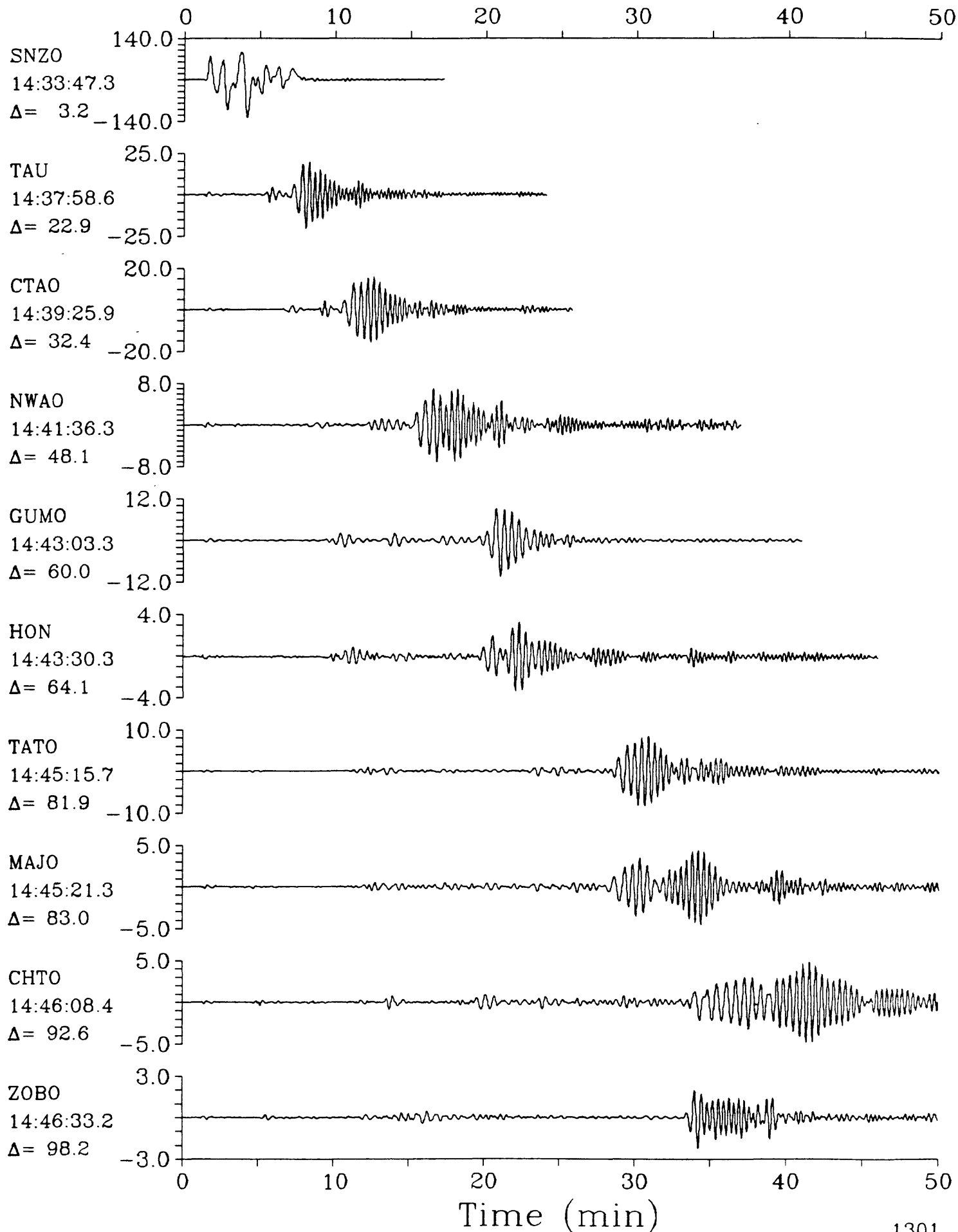
North Island, New Zealand $h=33.0$ $m_b=5.6$ $M_{sz}=5.8$



LPZ

19 July 1985 14:33:59.02

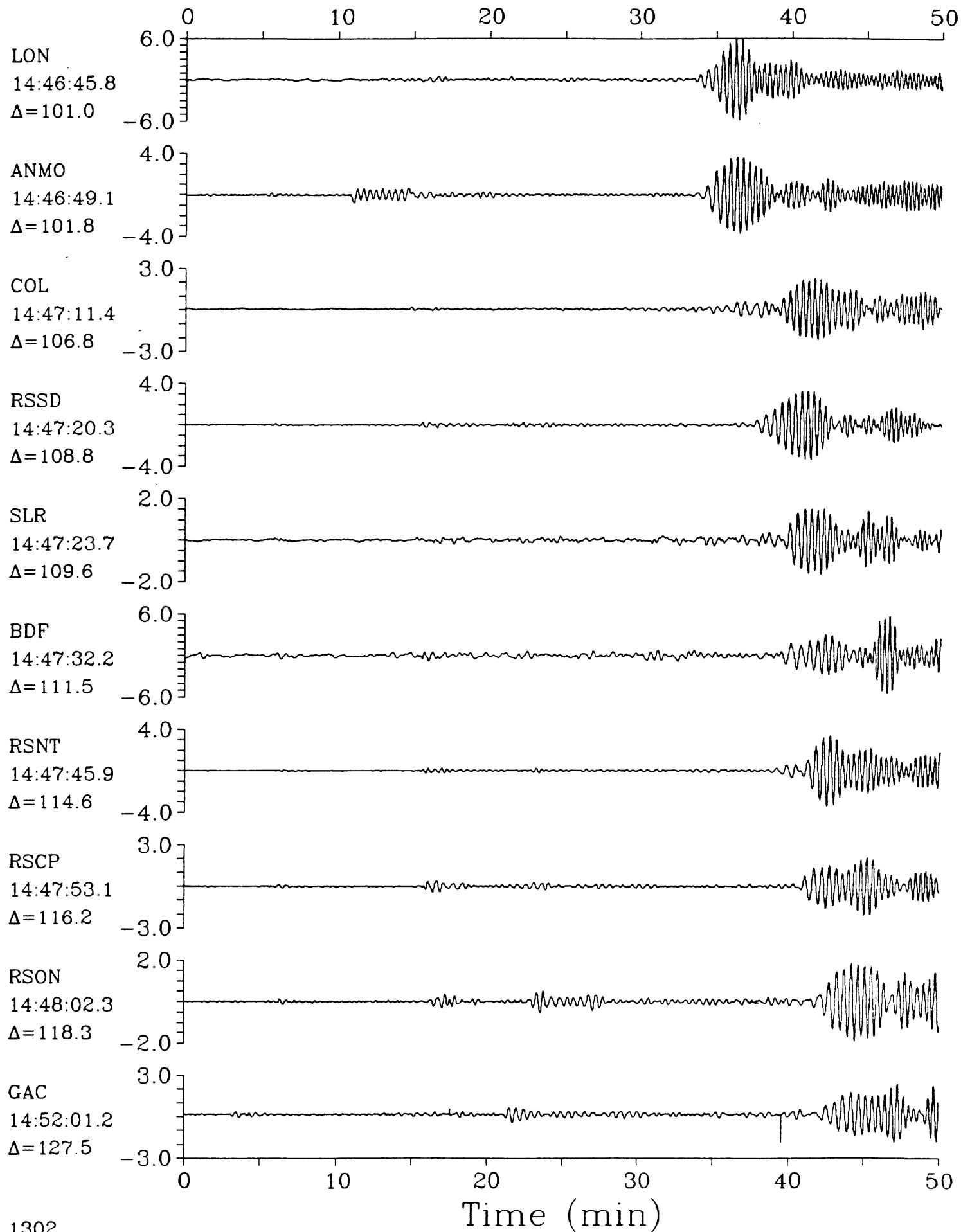
LPZ

North Island, New Zealand $h=33.0$ $m_b=5.6$ $M_{sz}=5.8$ 

LPZ

19 July 1985 14:33:59.02

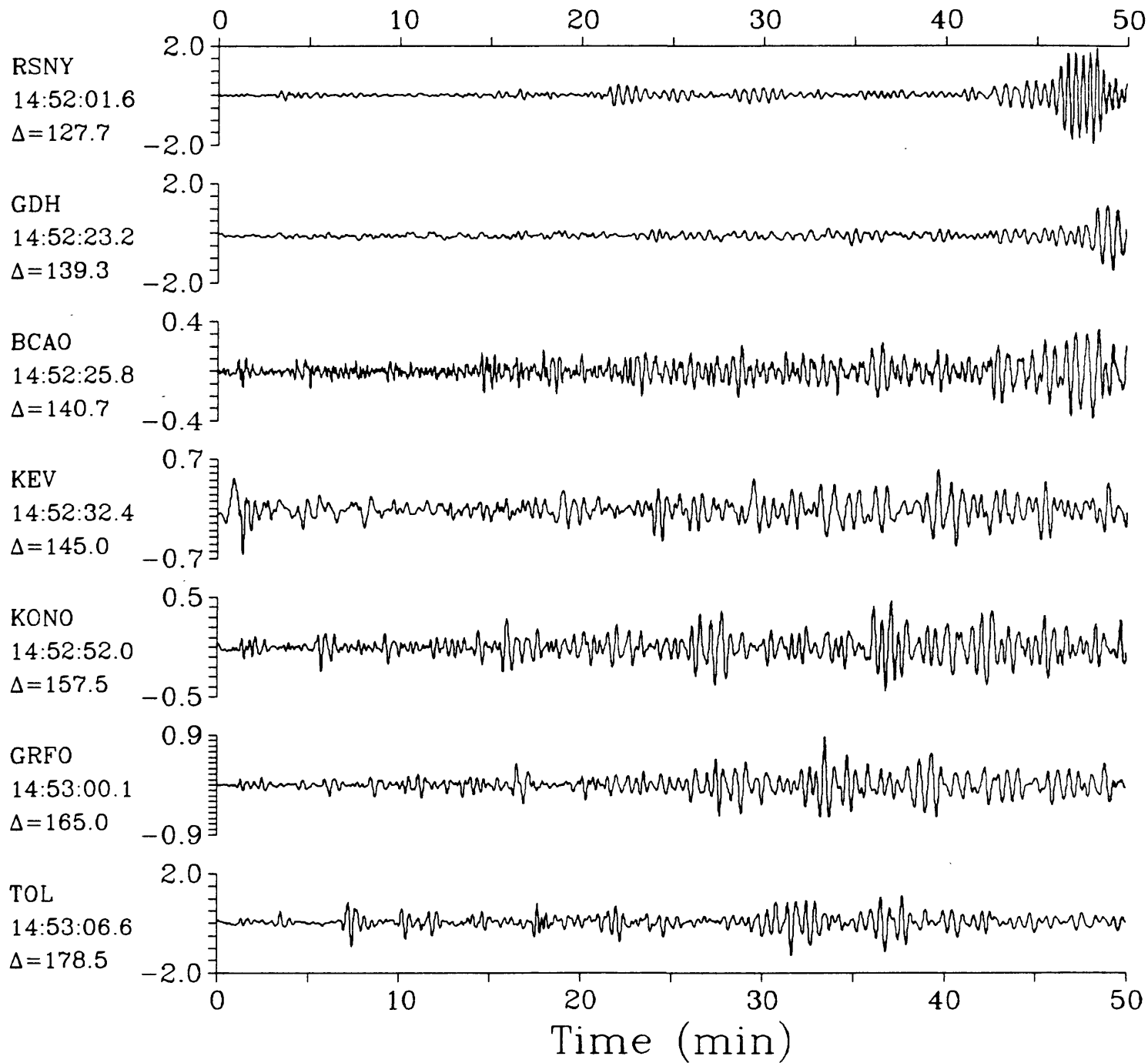
LPZ

North Island, New Zealand $h=33.0$ $m_b=5.6$ $M_{sz}=5.8$ 

LPZ

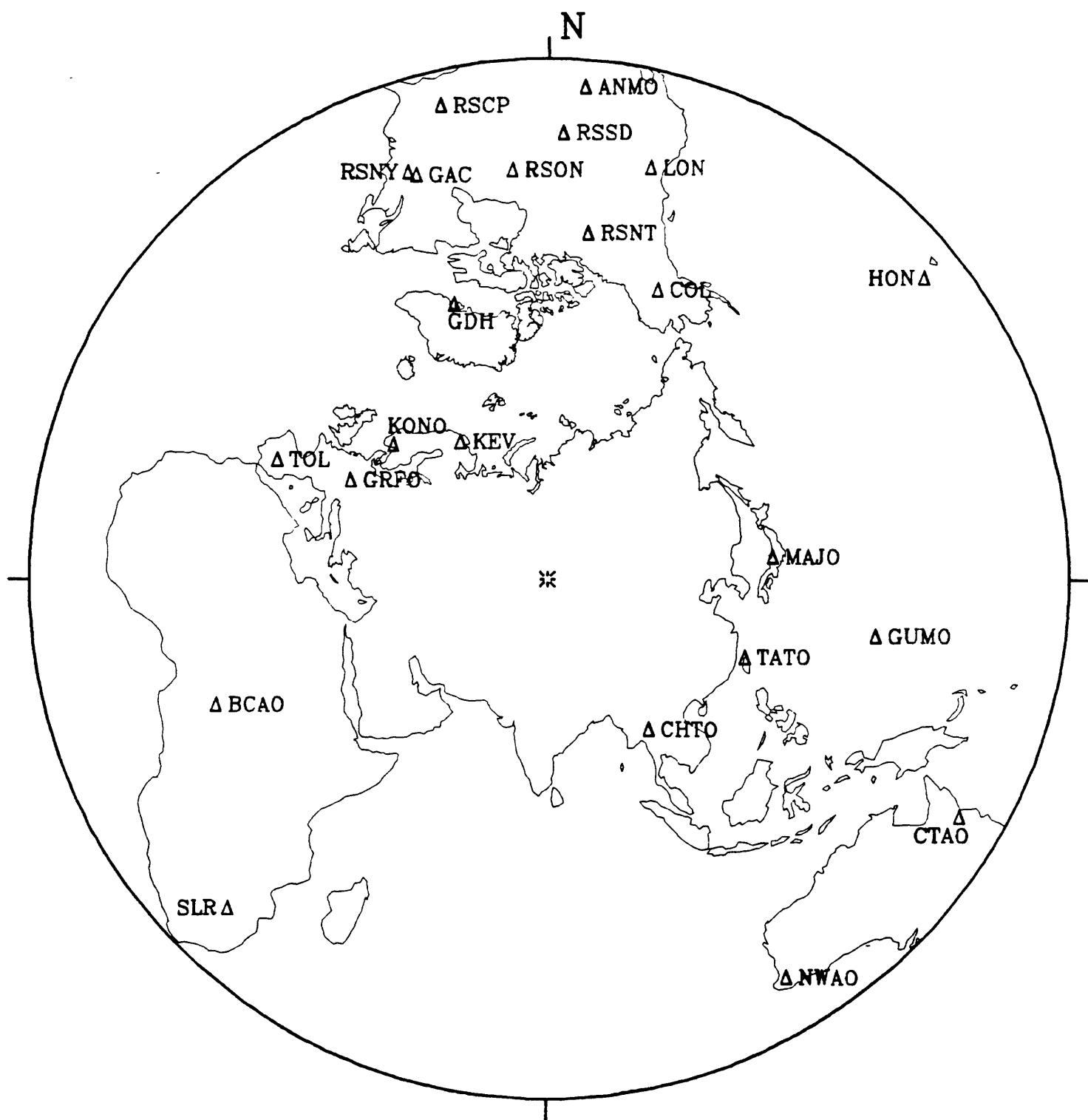
19 July 1985 14:33:59.02

LPZ

North Island, New Zealand $h=33.0$ $m_b=5.6$ $M_{sz}=5.8$ 

20 July 1985 00:53:14.56

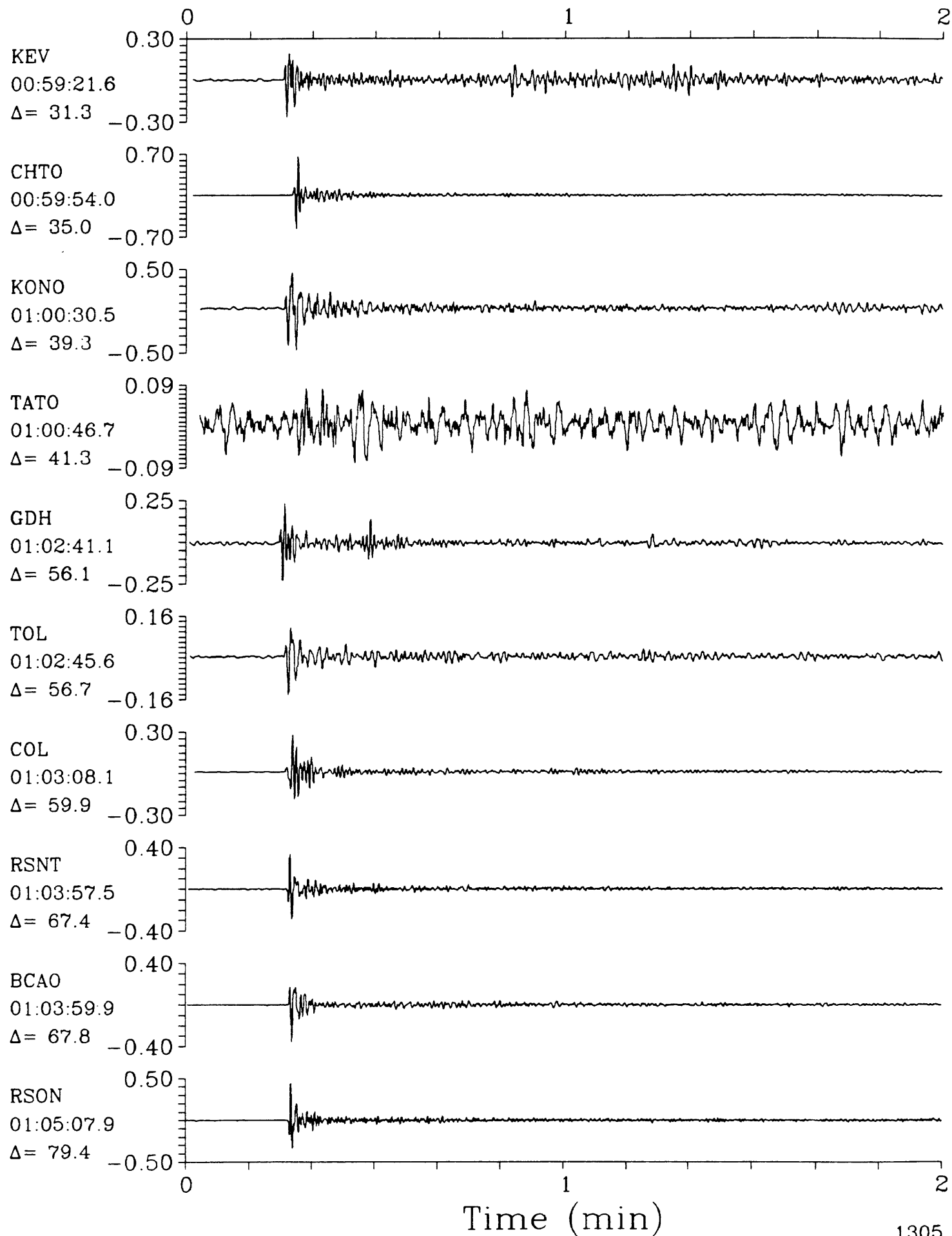
Eastern Kazakh SSR



SPZ

20 July 1985 00:53:14.56

SPZ

Eastern Kazakh SSR $h=0.0$ $m_b=5.9$ $M_{sz}=4.2$ 

SPZ

20 July 1985 00:53:14.56

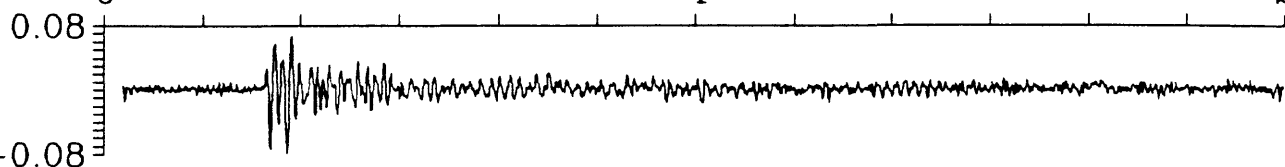
SPZ

Eastern Kazakh SSR $h=0.0$ $m_b=5.9$ $M_{SZ}=4.2$

0 1 2

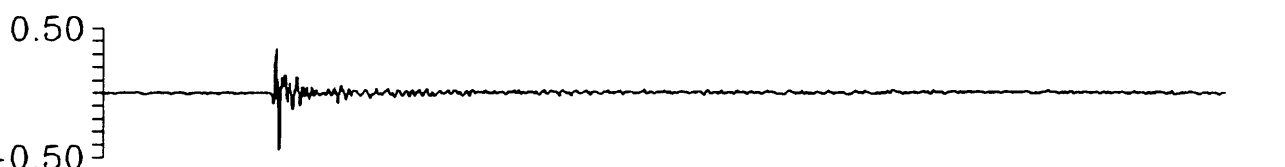
LON

01:05:22.1

 $\Delta=82.0$ 

RSNY

01:05:27.5

 $\Delta=83.1$ 

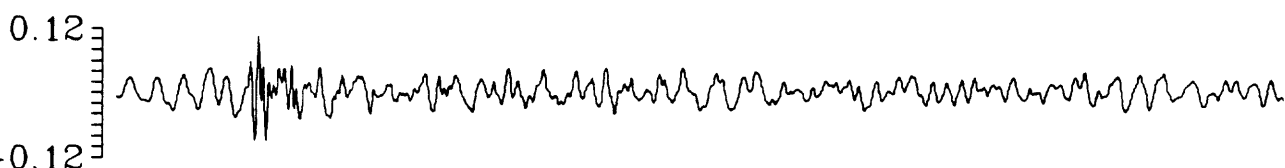
RSSD

01:05:44.0

 $\Delta=86.3$ 

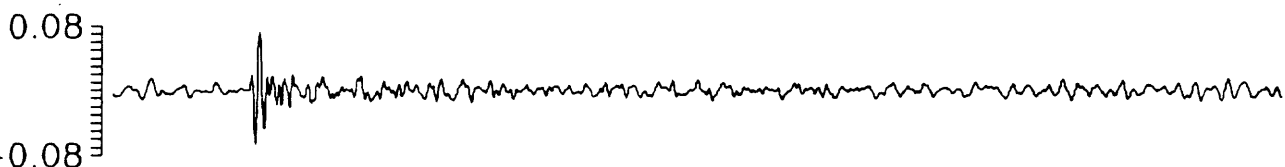
NWA0

01:05:58.4

 $\Delta=89.3$ 

CTAO

01:06:09.3

 $\Delta=91.6$ 

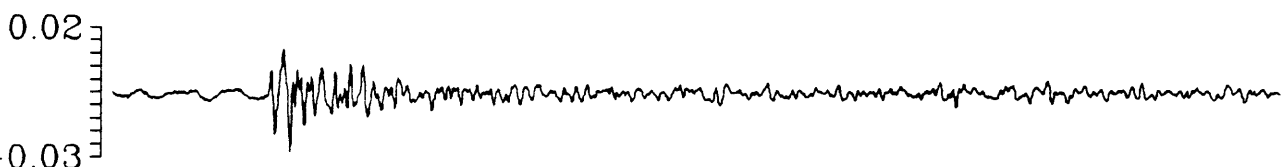
RSCP

01:06:19.2

 $\Delta=93.7$ 

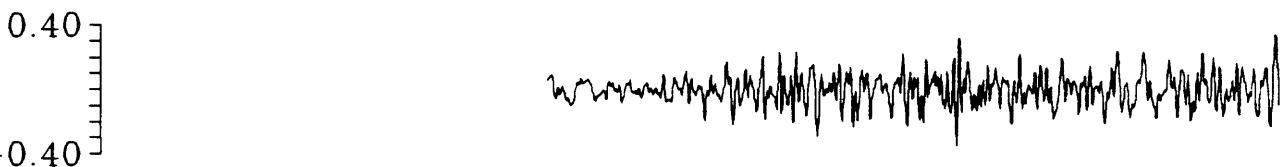
ANMO

01:06:26.4

 $\Delta=95.3$ 

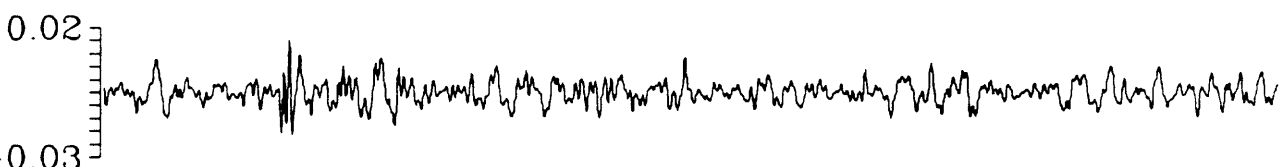
SNZO

01:11:59.6

 $\Delta=123.5$ 

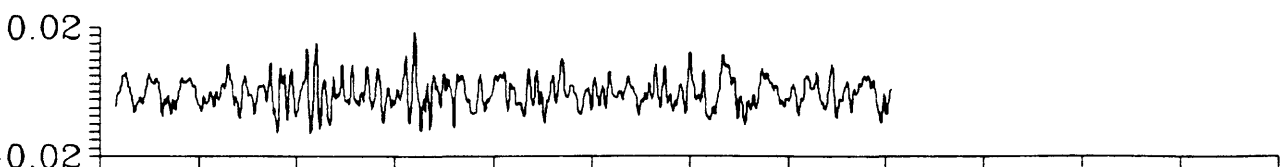
BDF

01:12:02.9

 $\Delta=125.3$ 

ZOBO

01:12:25.2

 $\Delta=137.1$ 

0 1 2

Time (min)

LPZ

20 July 1985 00:53:14.56

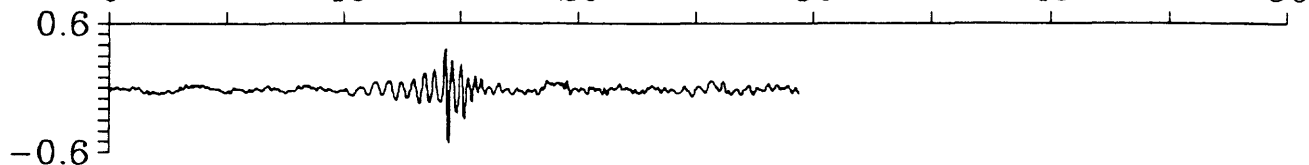
LPZ

Eastern Kazakh SSR $h=0.0$ $m_b=5.9$ $M_{sz}=4.2$

0 10 20 30 40 50

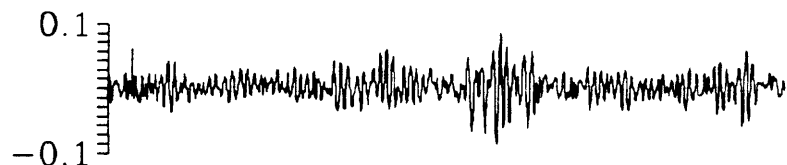
KEV

00:58:36.6

 $\Delta = 31.3$ 

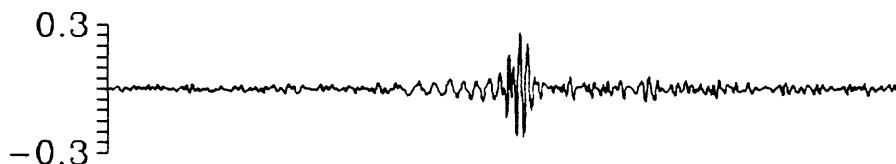
CHTO

00:59:09.0

 $\Delta = 35.0$ 

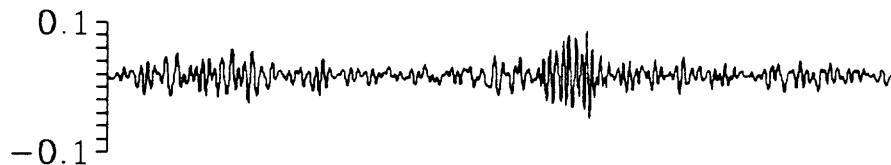
KONO

00:59:45.5

 $\Delta = 39.3$ 

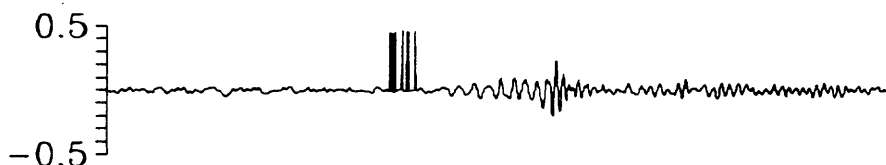
TATO

01:00:01.7

 $\Delta = 41.3$ 

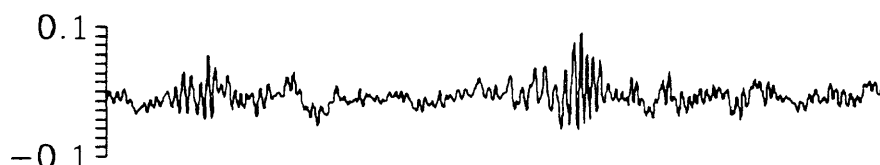
GRFO

01:00:10.0

 $\Delta = 42.3$ 

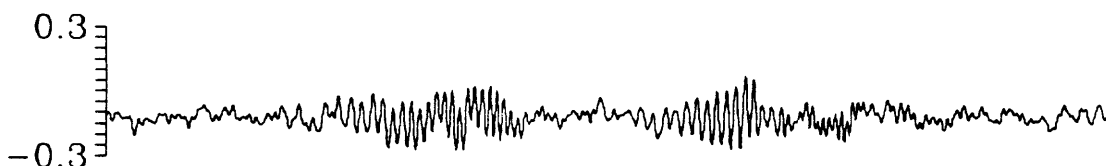
MAJO

01:00:25.2

 $\Delta = 44.1$ 

GDH

01:01:56.1

 $\Delta = 56.1$ 

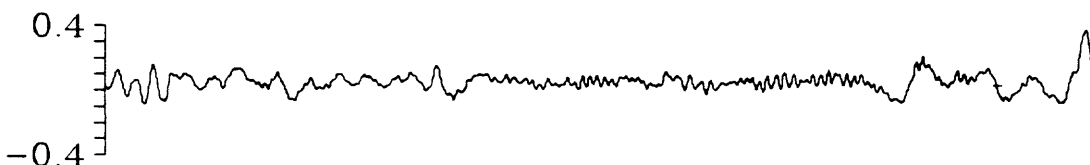
TOL

01:02:00.6

 $\Delta = 56.7$ 

COL

01:02:23.1

 $\Delta = 59.9$ 

GUMO

01:02:52.5

 $\Delta = 64.3$ 

0 10 20 30 40 50

Time (min)

LPZ

20 July 1985 00:53:14.56

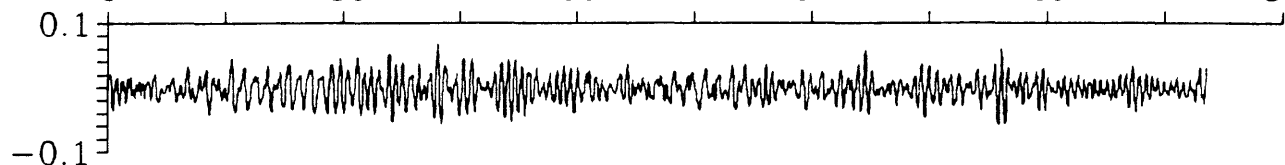
LPZ

Eastern Kazakh SSR $h=0.0$ $m_b=5.9$ $M_{sz}=4.2$

0 10 20 30 40 50

RSNT

01:03:12.5

 $\Delta = 67.4$ 

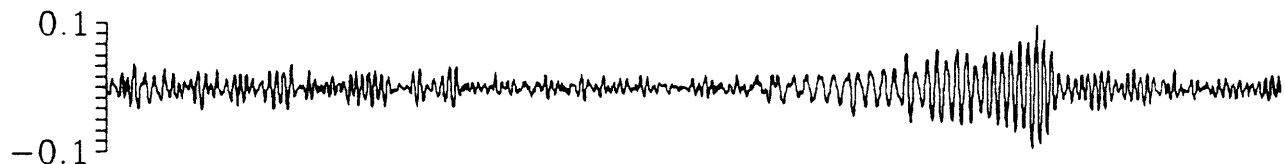
BCAO

01:03:14.9

 $\Delta = 67.8$ 

RSON

01:04:22.9

 $\Delta = 79.4$ 

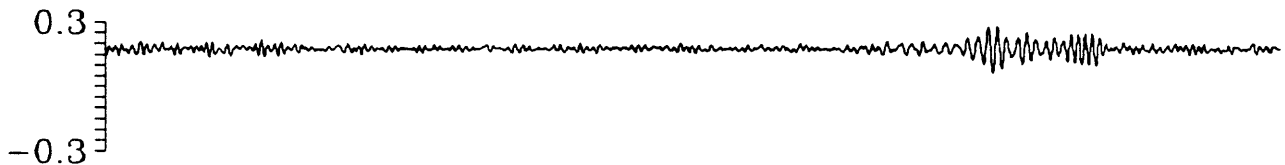
LON

01:04:37.1

 $\Delta = 82.0$ 

GAC

01:04:37.8

 $\Delta = 82.2$ 

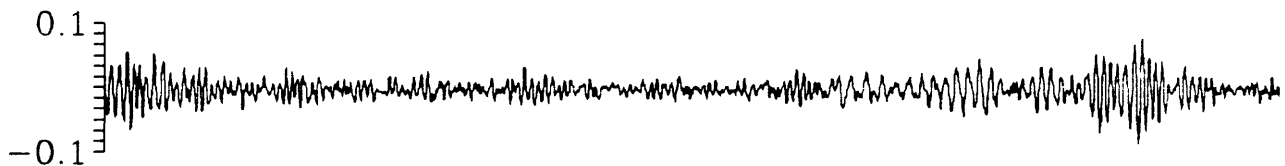
RSNY

01:04:42.5

 $\Delta = 83.1$ 

RSSD

01:04:59.0

 $\Delta = 86.3$ 

SLR

01:05:05.8

 $\Delta = 87.7$ 

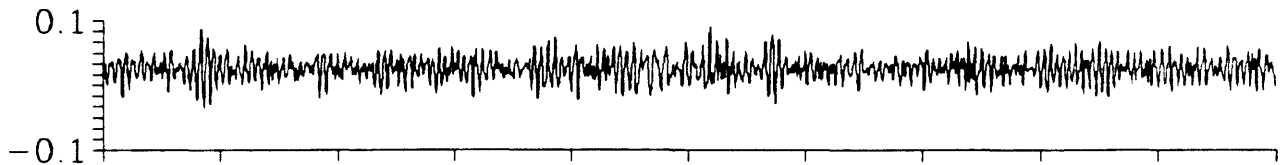
NWA0

01:05:13.4

 $\Delta = 89.3$ 

CTAO

01:05:24.3

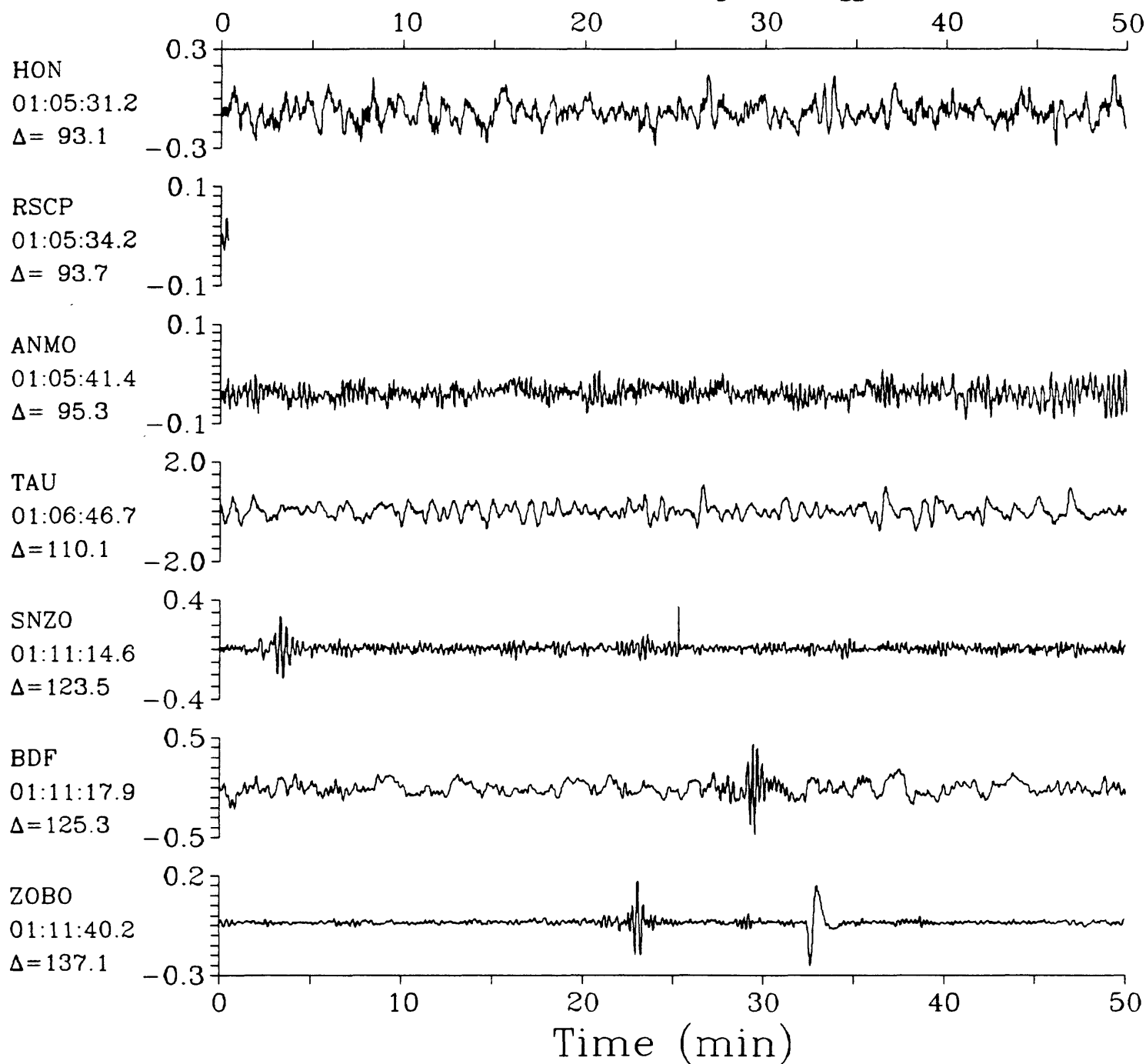
 $\Delta = 91.6$ 

Time (min)

LPZ

20 July 1985 00:53:14.56

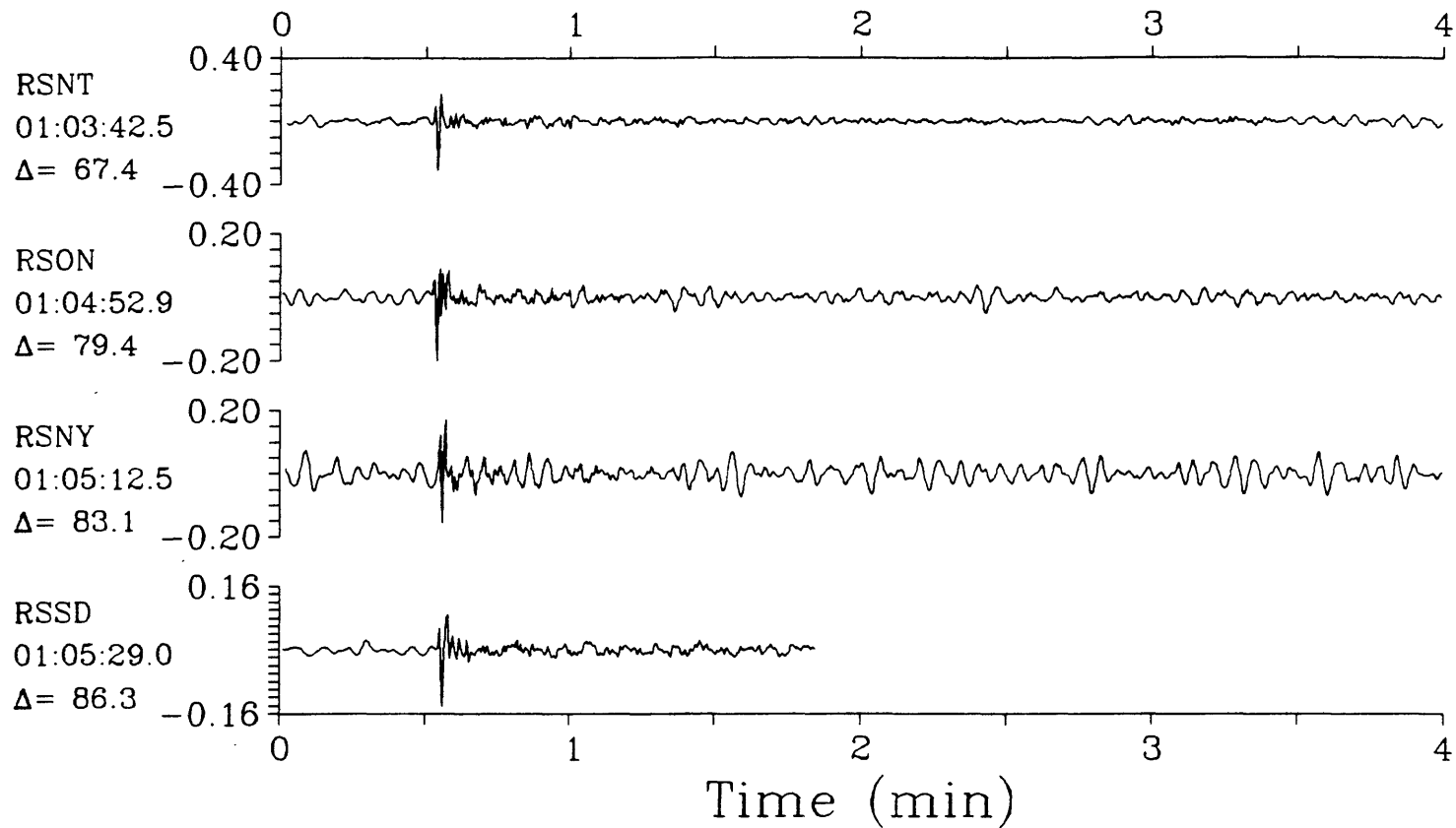
LPZ

Eastern Kazakh SSR $h=0.0$ $m_b=5.9$ $M_{SZ}=4.2$ 

IPZ

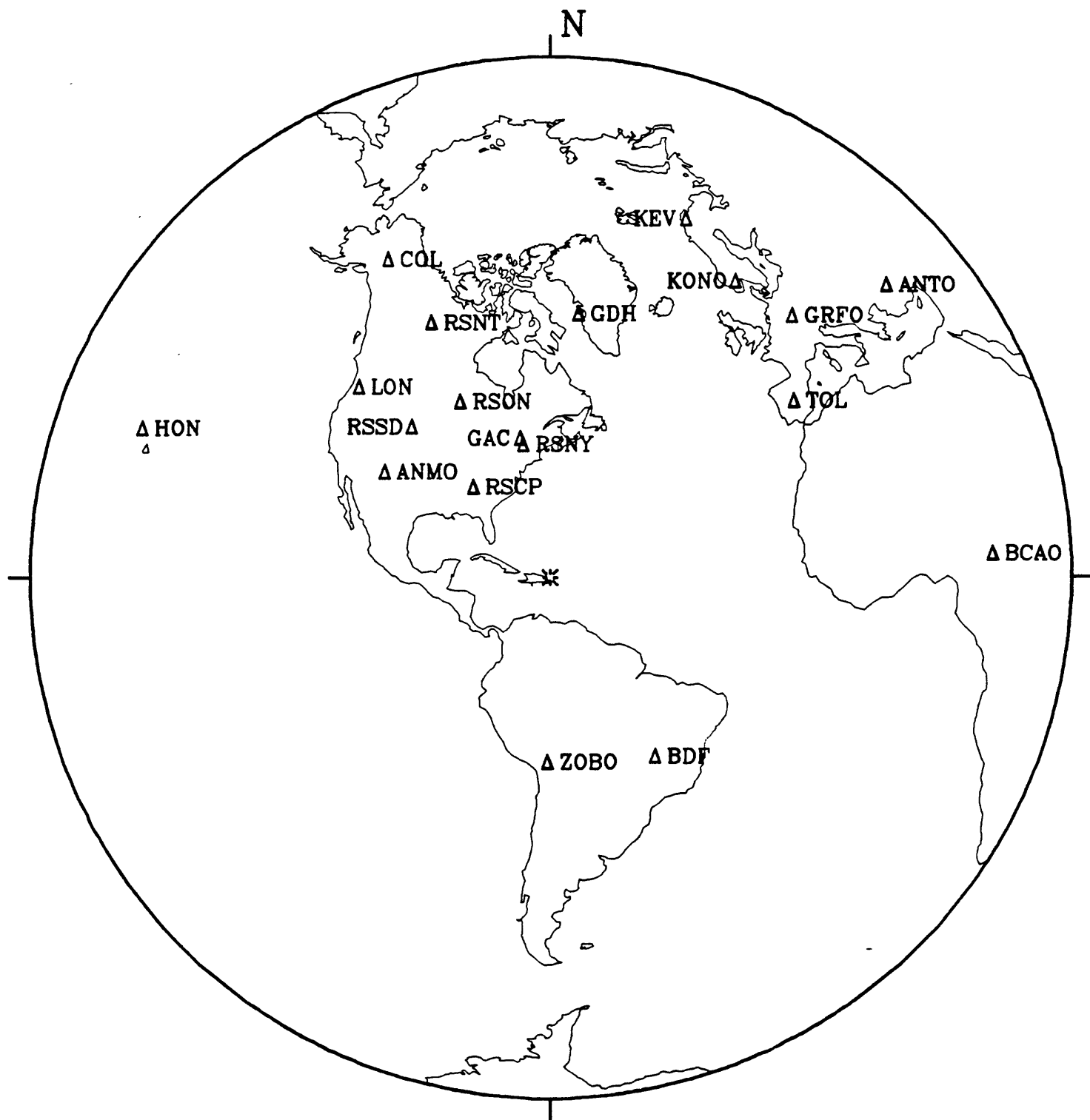
20 July 1985 00:53:14.56

IPZ

Eastern Kazakh SSR $h=0.0$ $m_b=5.9$ $M_{SZ}=4.2$ 

21 July 1985 13:10:33.34

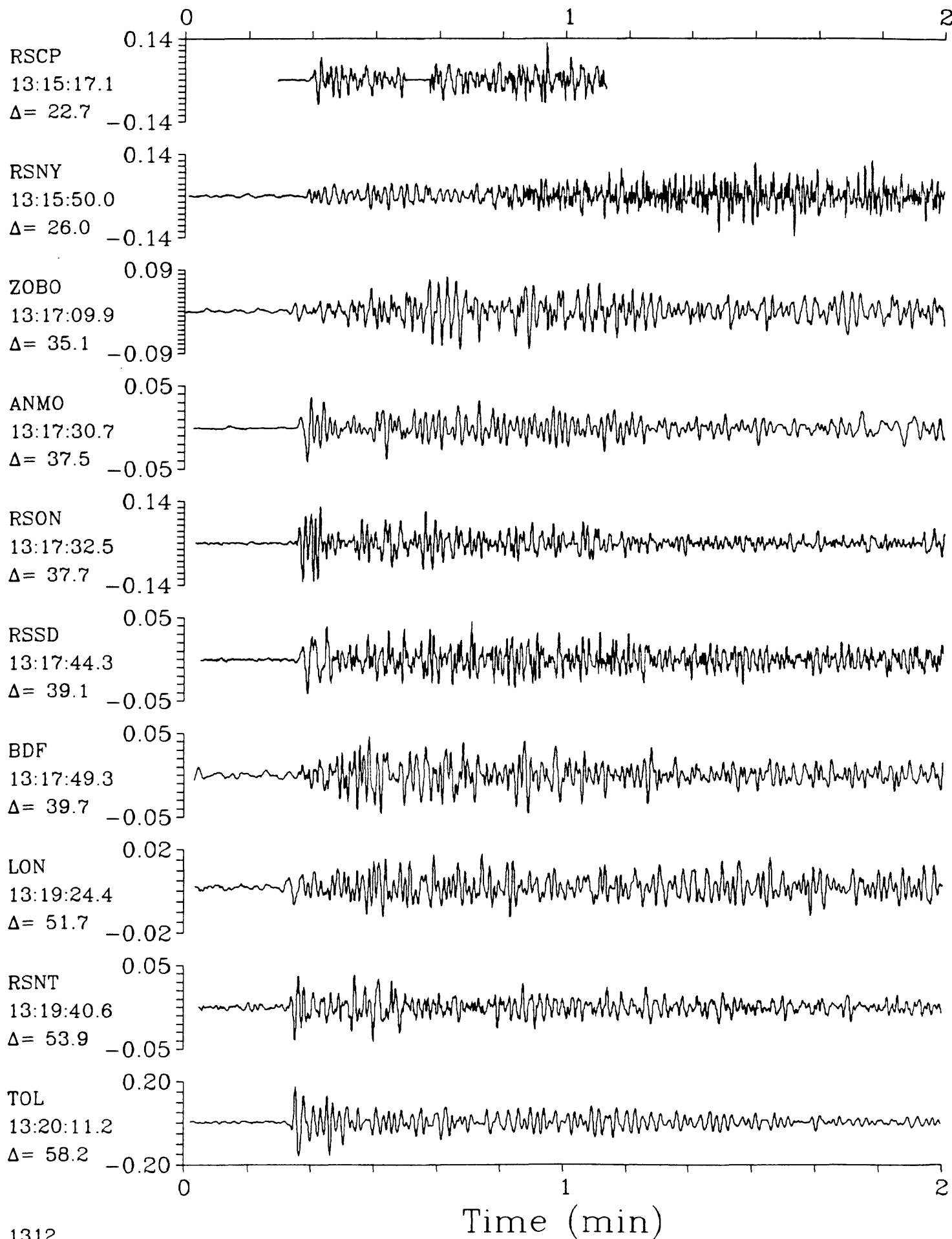
Mona Passage



SPZ

21 July 1985 13:10:33.34

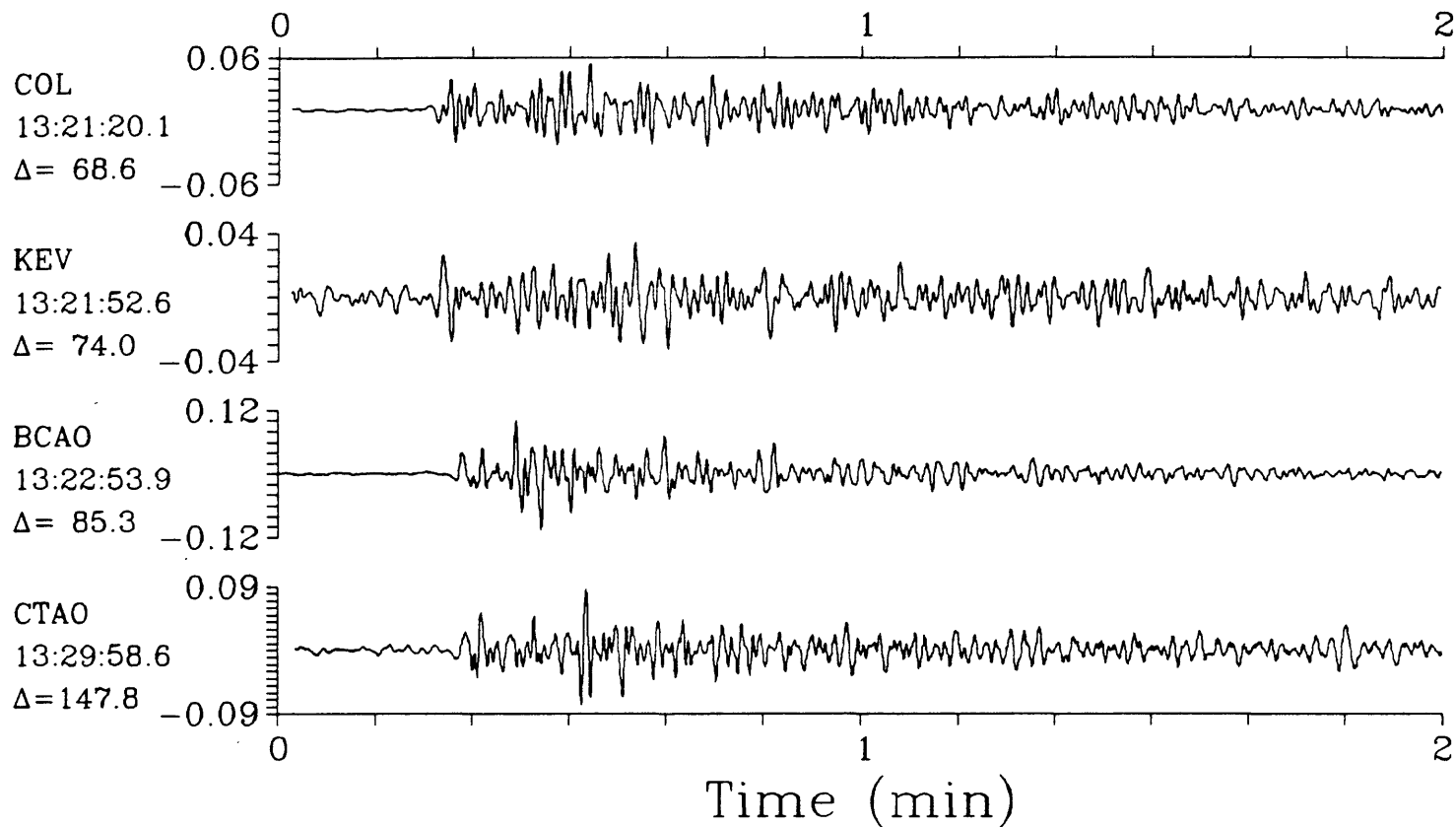
SPZ

Mona Passage $h=23.1$ $m_b=5.7$ $M_{sz}=5.4$ 

SPZ

21 July 1985 13:10:33.34

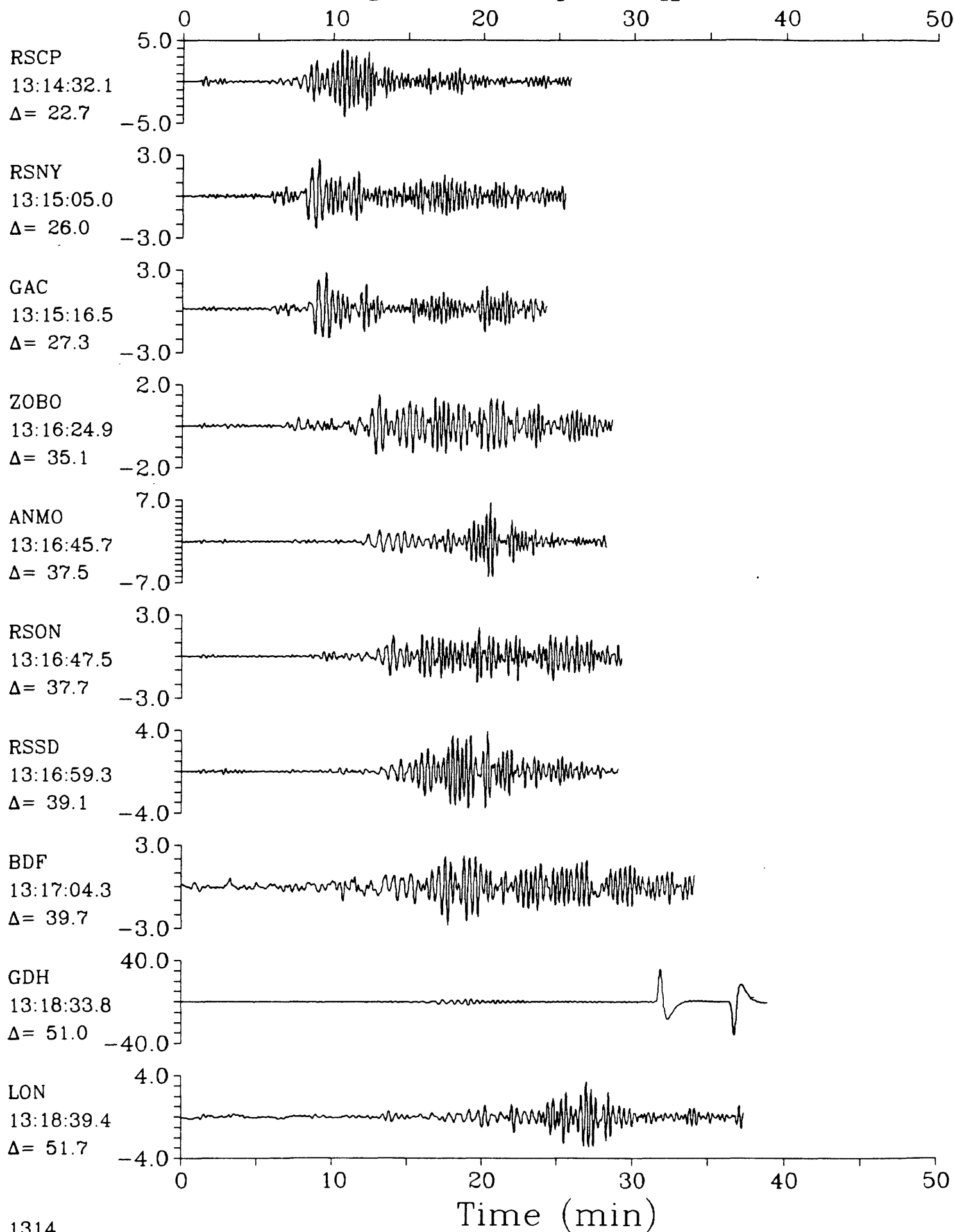
SPZ

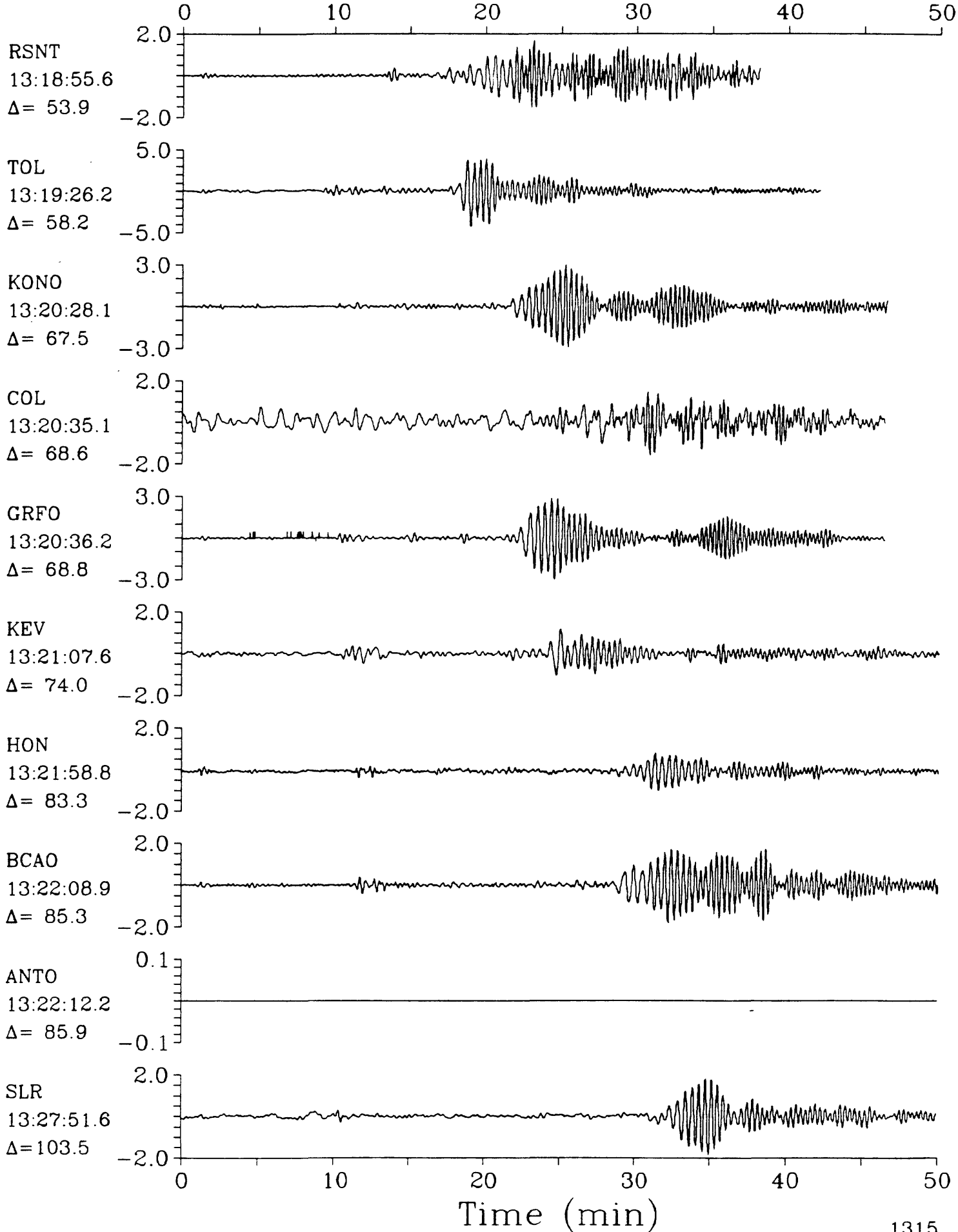
Mona Passage $h=23.1$ $m_b=5.7$ $M_{sz}=5.4$ 

LPZ

21 July 1985 13:10:33.34
Mona Passage $h=23.1$ $m_b=5.7$ $M_{sz}=5.4$

LPZ

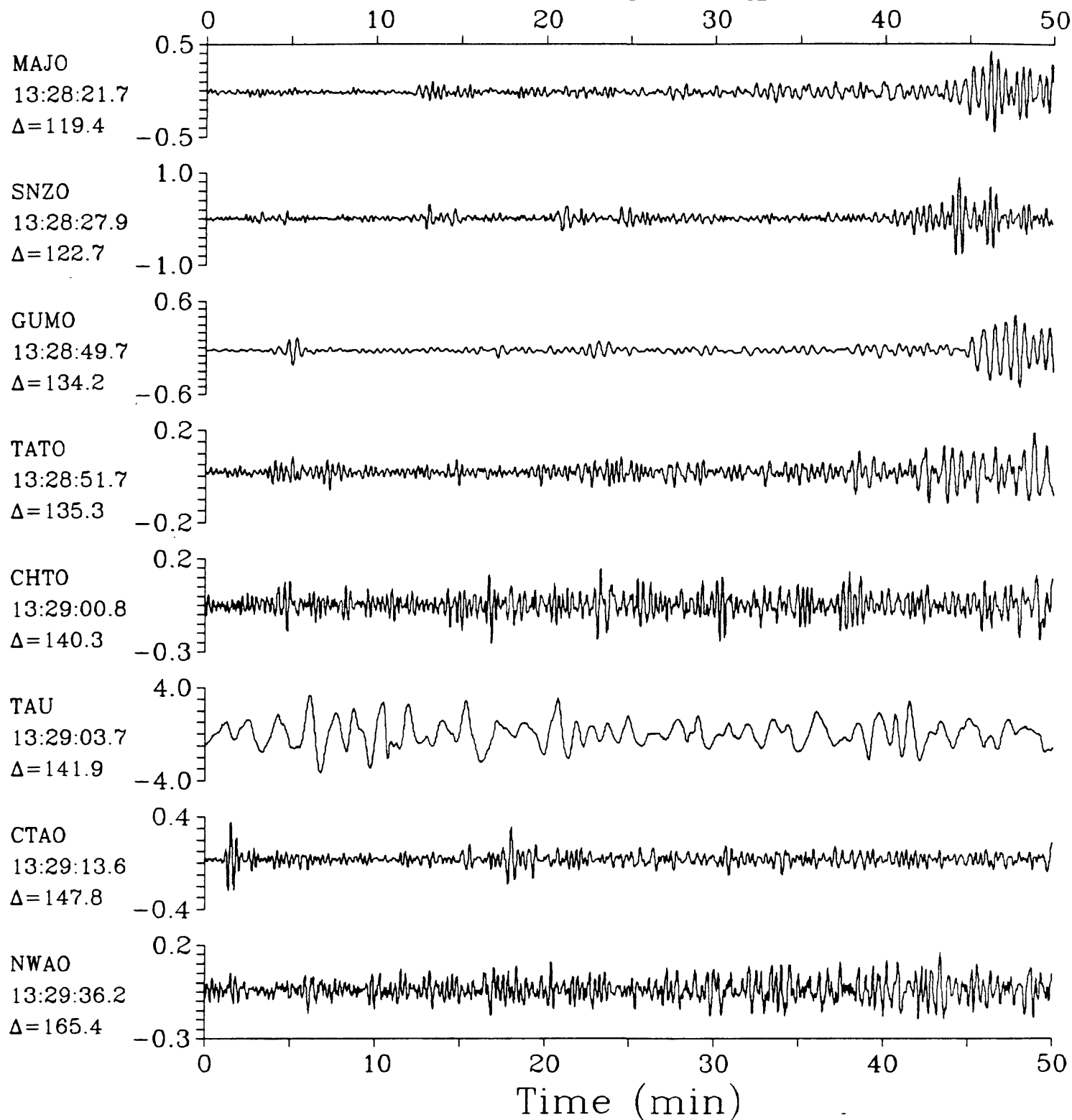




LPZ

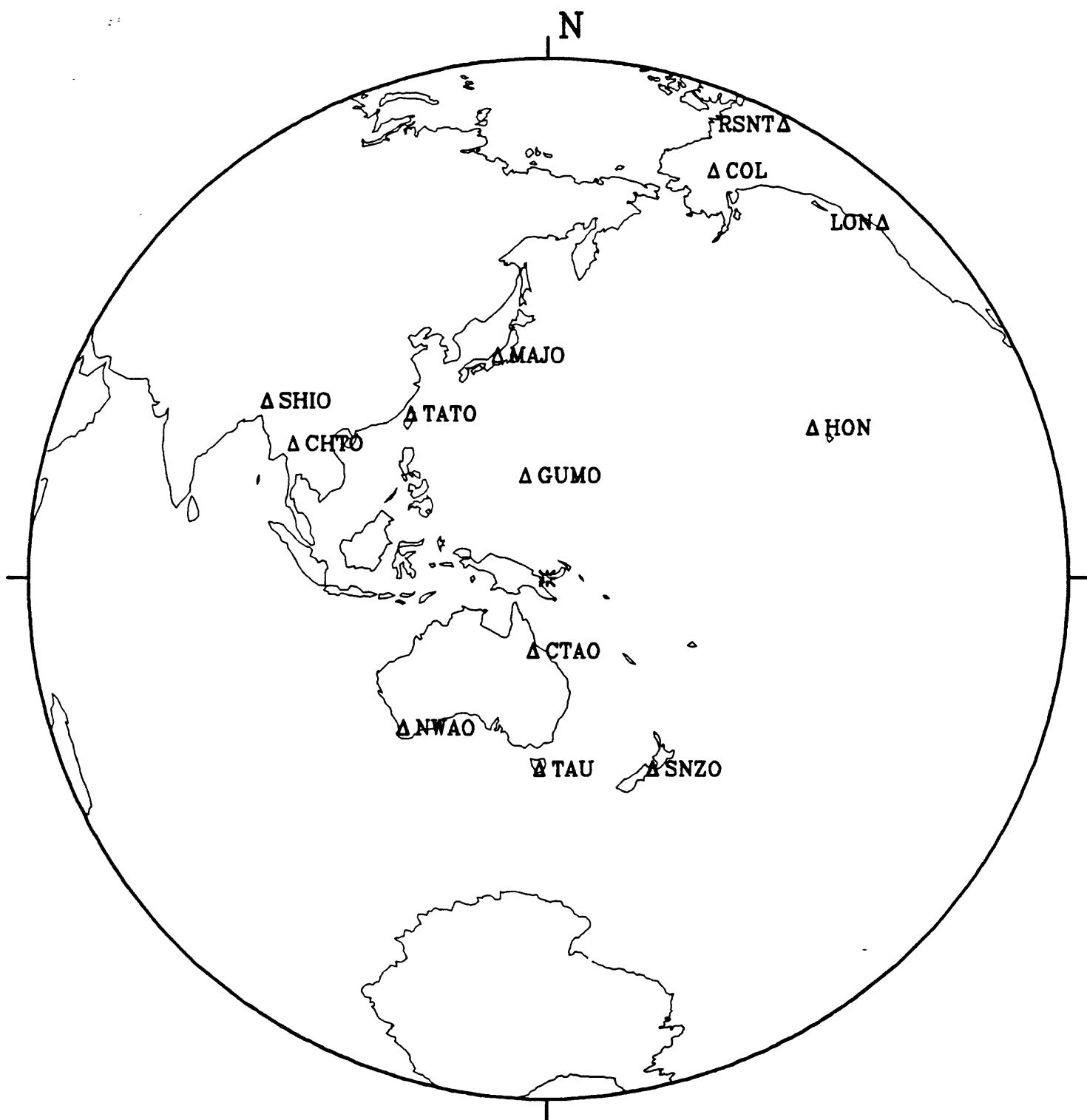
21 July 1985 13:10:33.34

LPZ

Mona Passage $h=23.1$ $m_b=5.7$ $M_{sz}=5.4$ 

22 July 1985 09:26:52.11

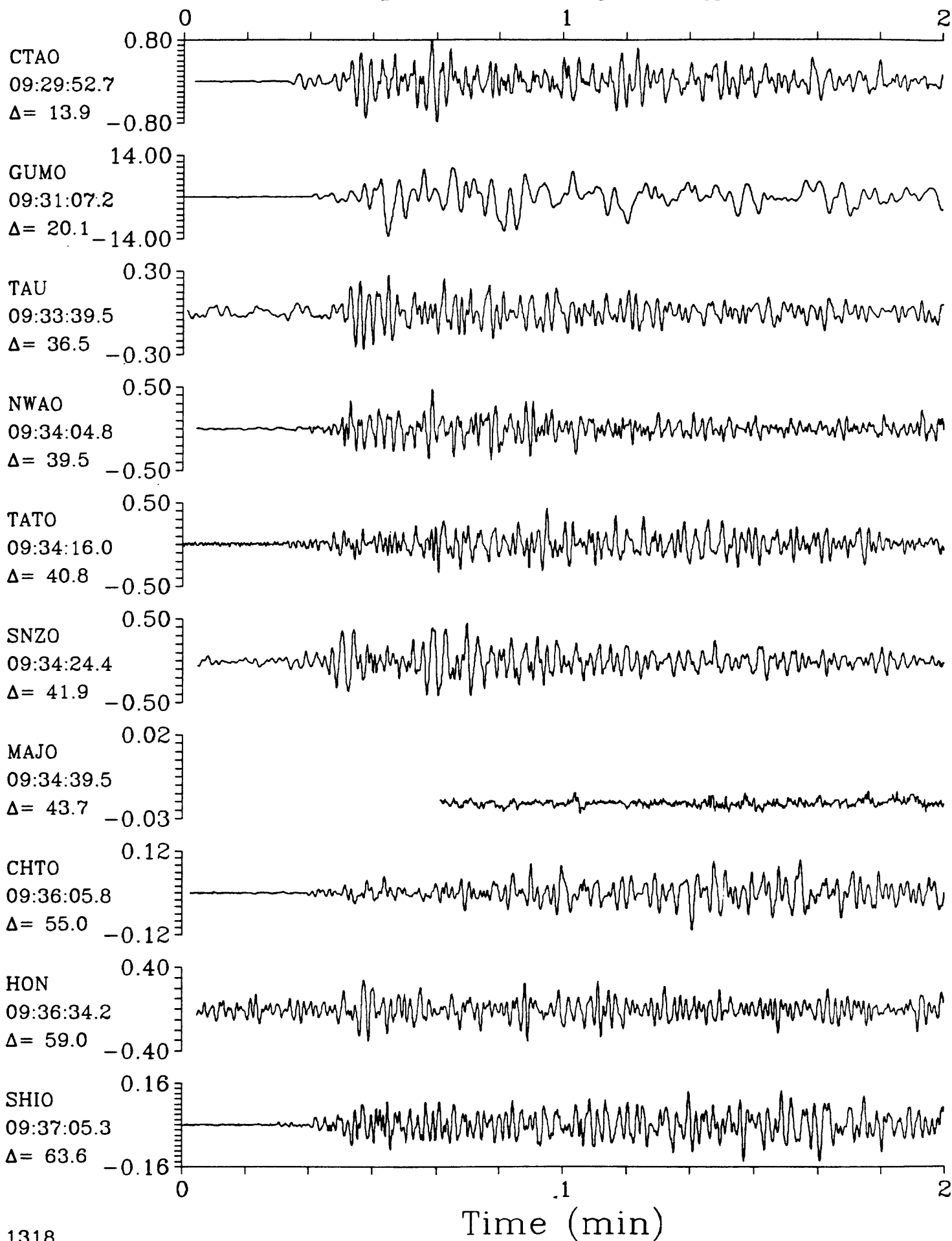
New Britain Region



SPZ

22 July 1985 09:26:52.11

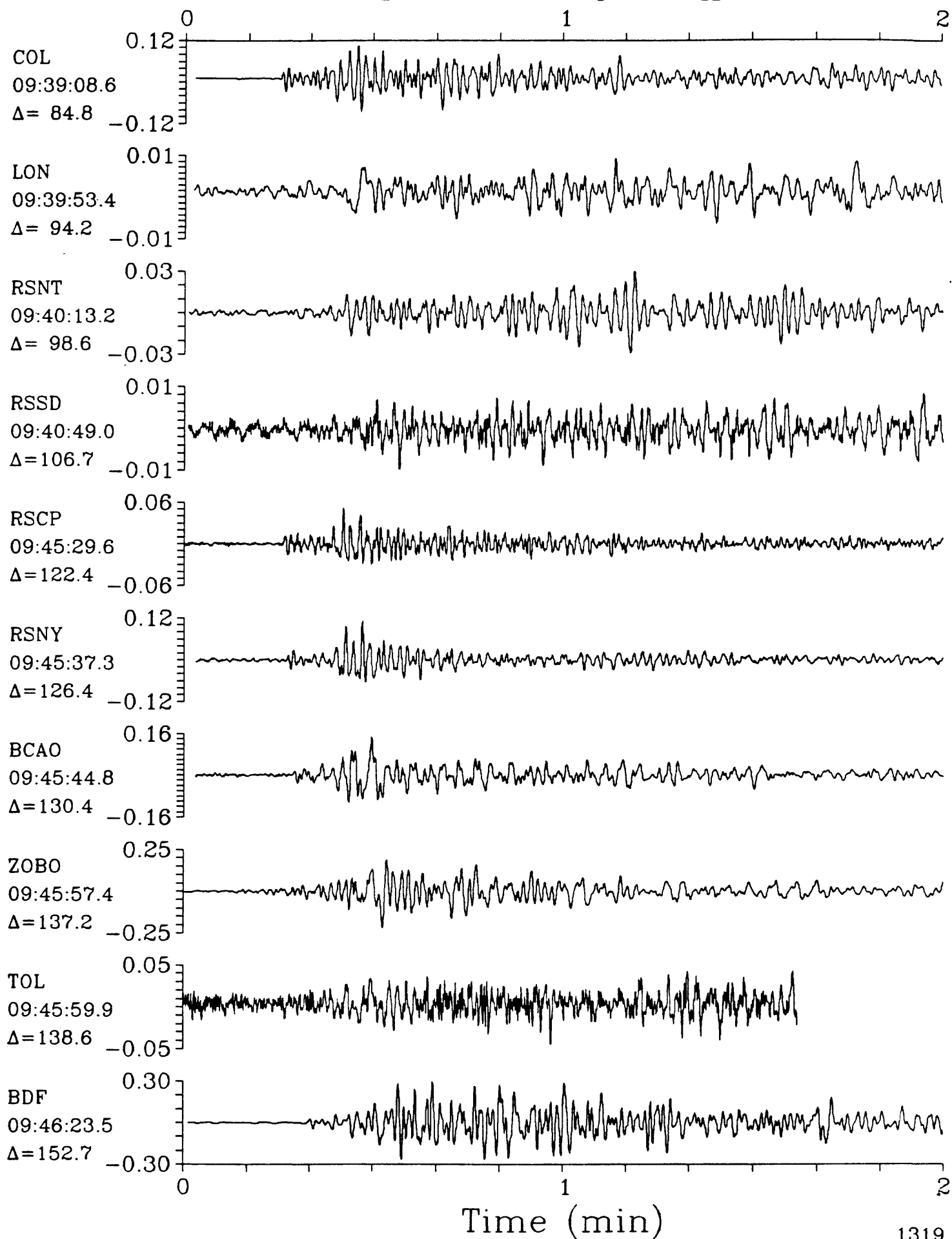
SPZ

New Britain Region $h=33.0$ $m_b=5.9$ $M_{sz}=6.9$ 

SPZ

22 July 1985 09:26:52.11

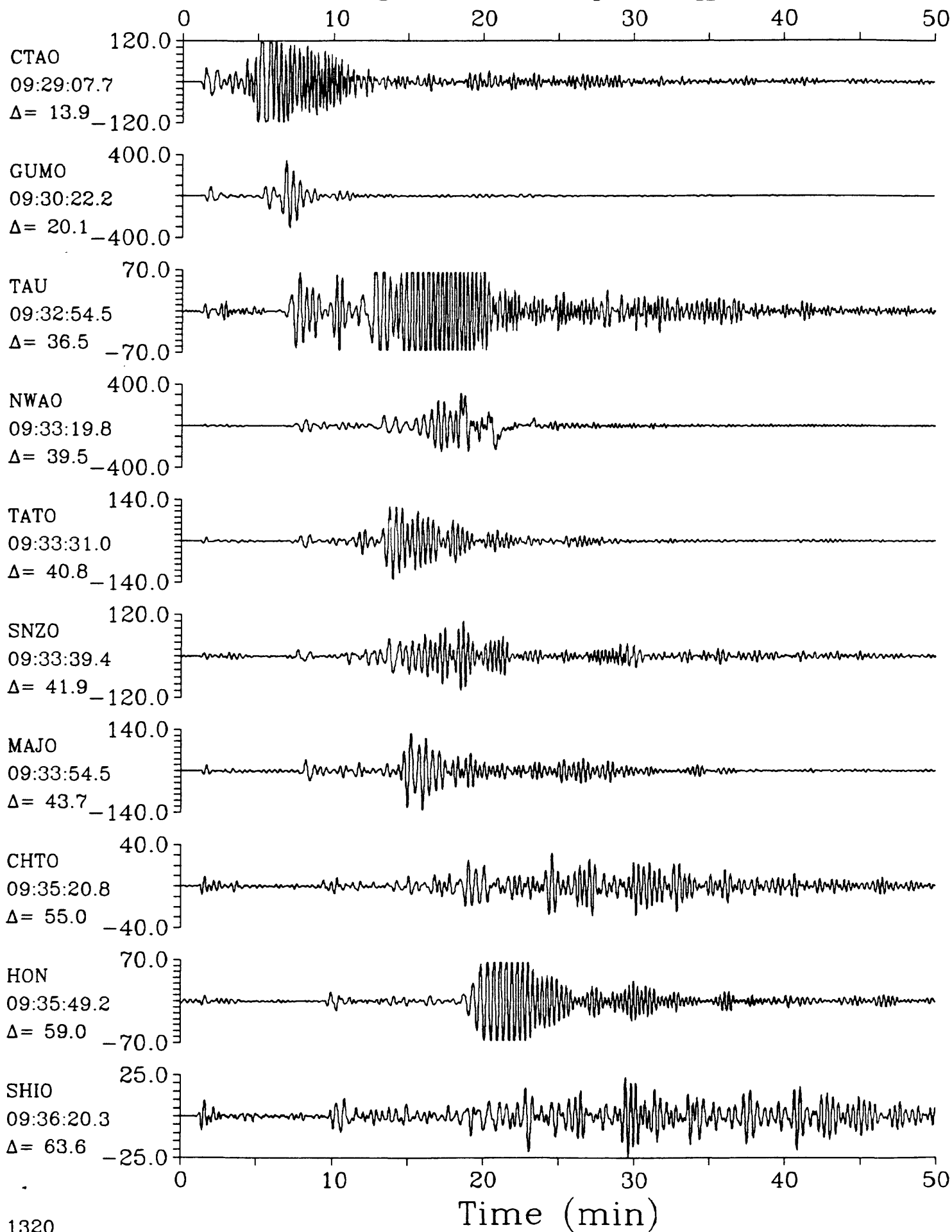
SPZ

New Britain Region $h=33.0$ $m_b=5.9$ $M_{SZ}=6.9$ 

LPZ

22 July 1985 09:26:52.11

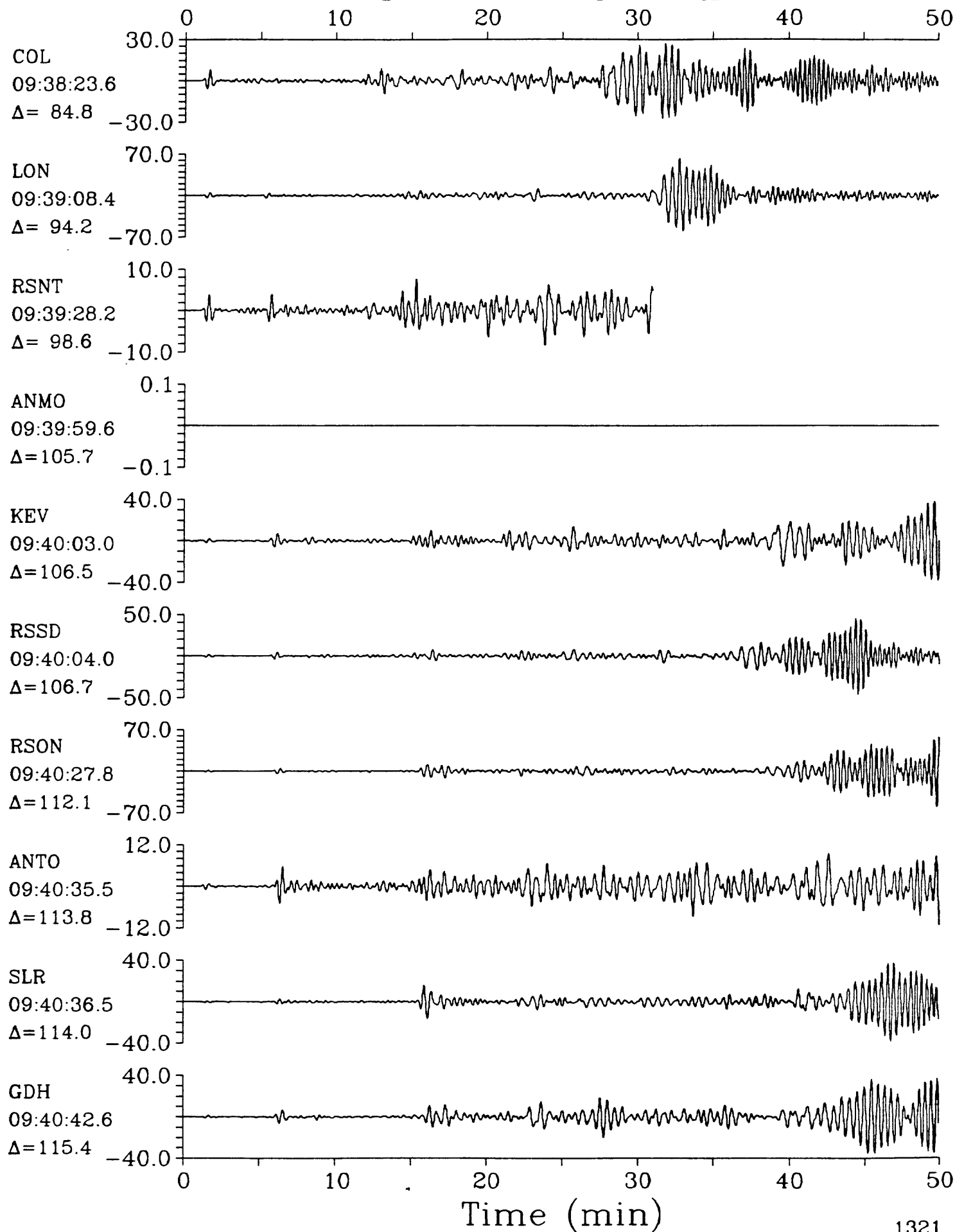
LPZ

New Britain Region $h=33.0$ $m_b=5.9$ $M_{sz}=6.9$ 

LPZ

22 July 1985 09:26:52.11

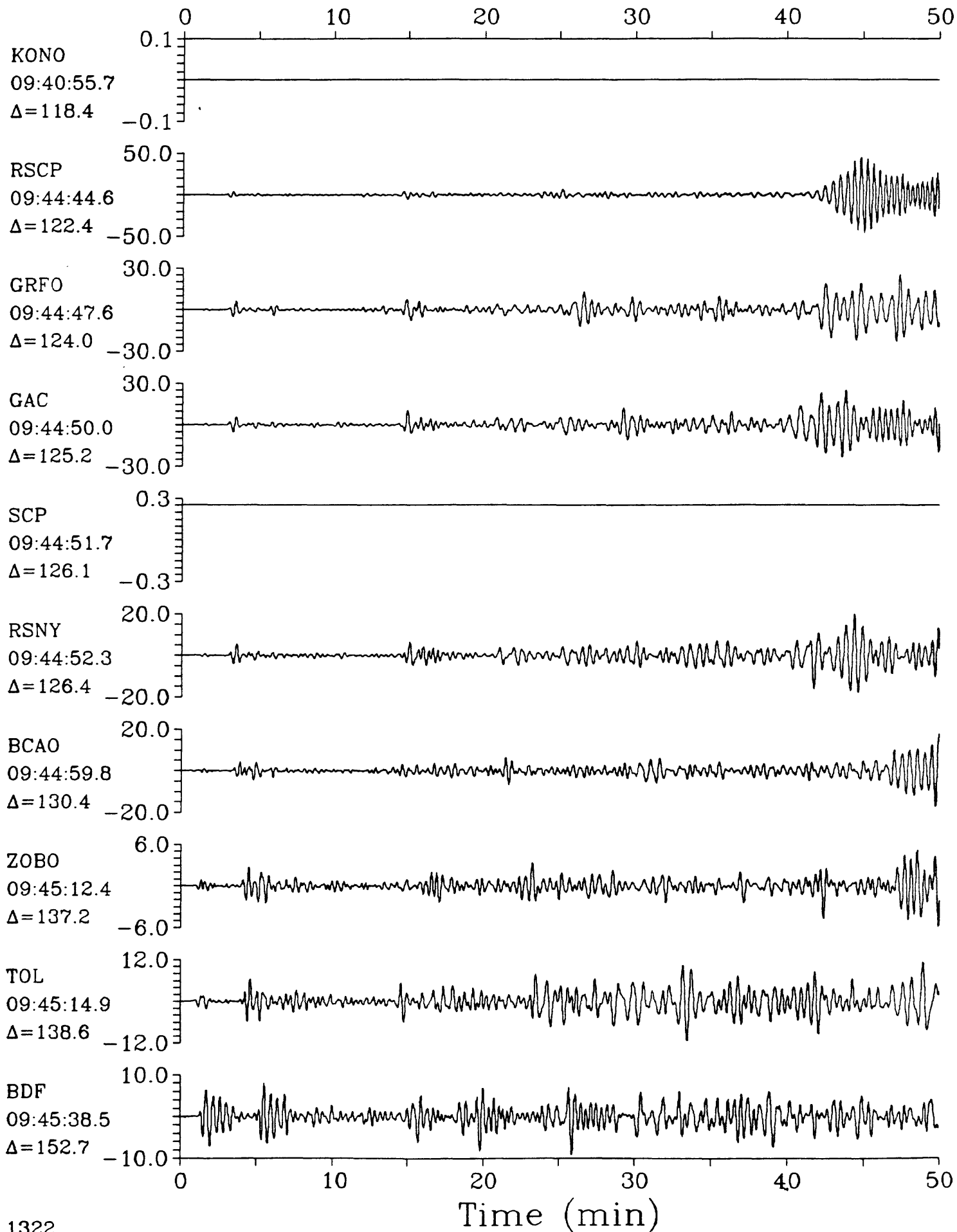
LPZ

New Britain Region $h=33.0$ $m_b=5.9$ $M_{sz}=6.9$ 

LPZ

22 July 1985 09:26:52.11

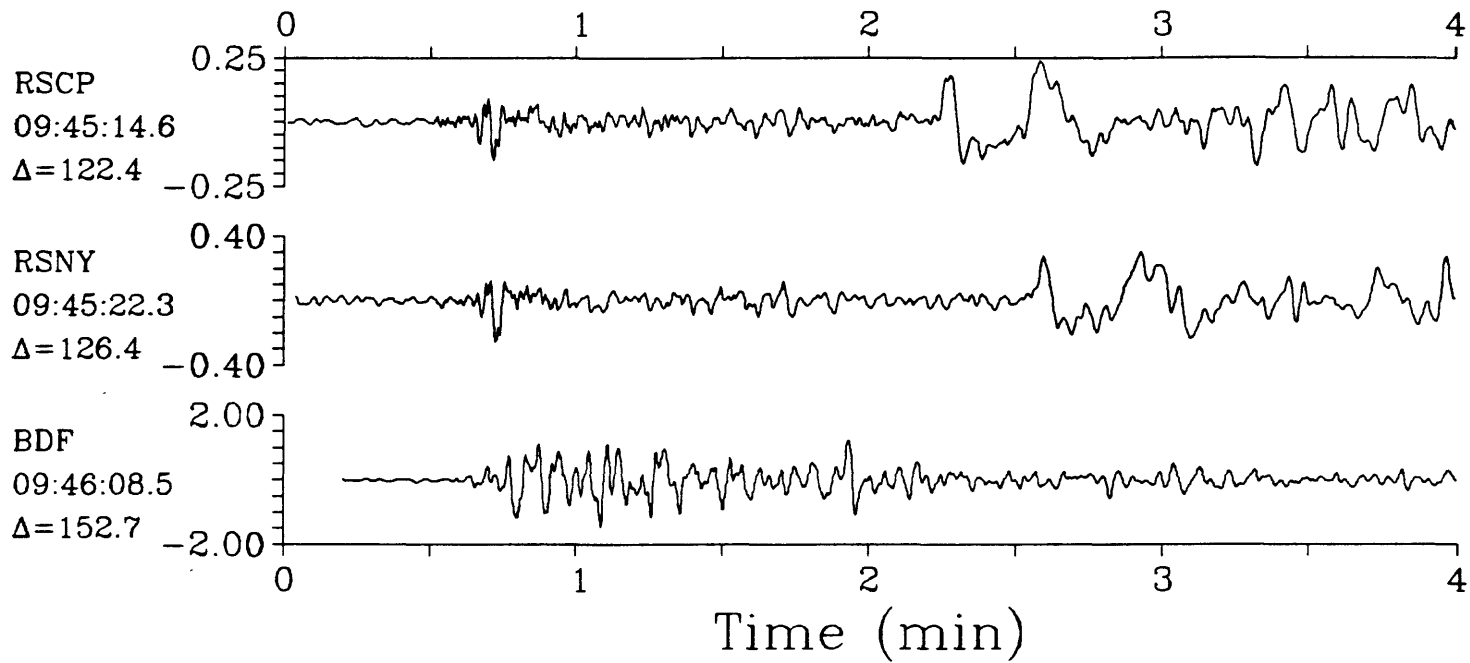
LPZ

New Britain Region $h=33.0$ $m_b=5.9$ $M_{sz}=6.9$ 

IPZ

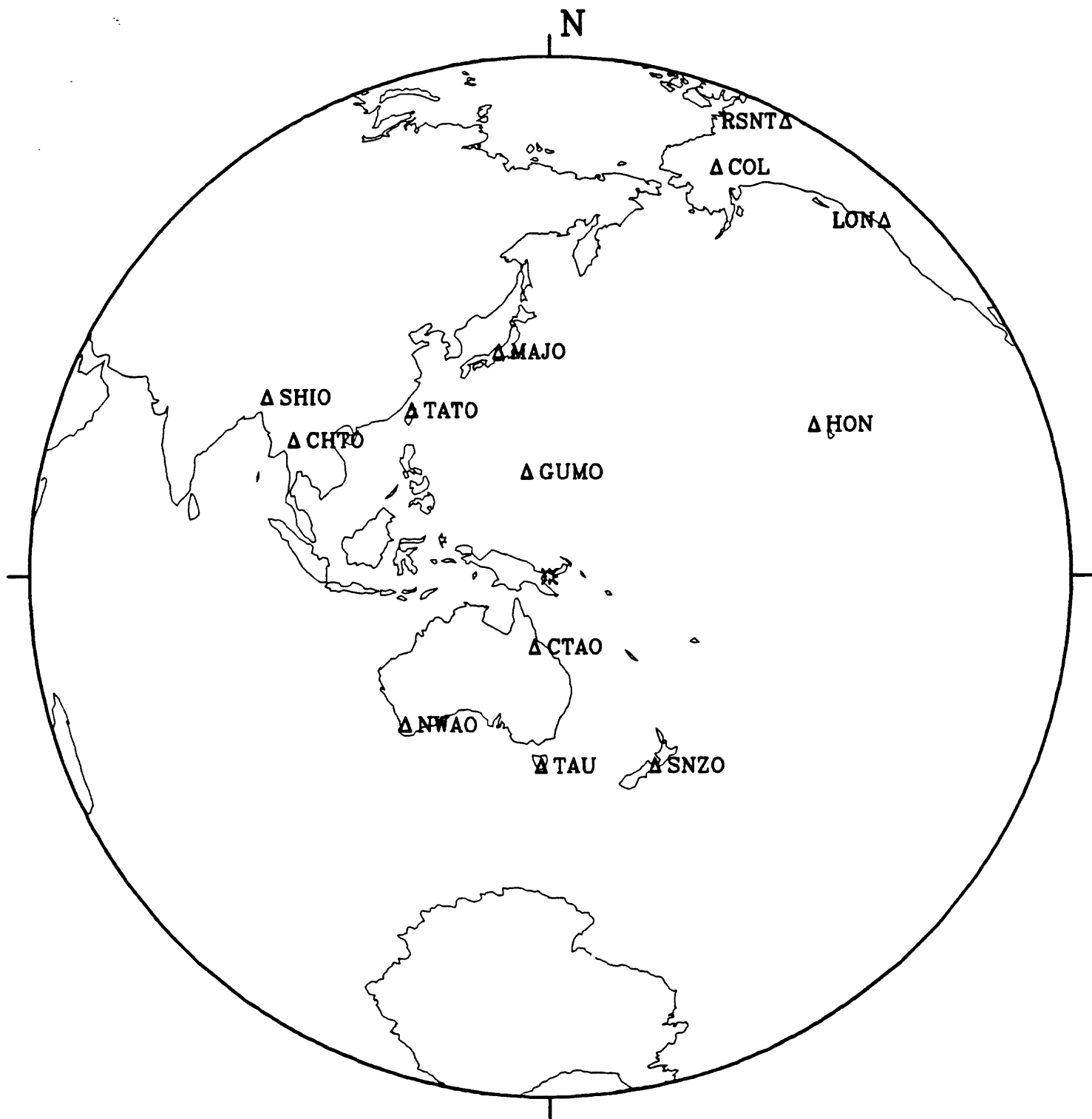
22 July 1985 09:26:52.11

IPZ

New Britain Region $h=33.0$ $m_b=5.9$ $M_{sz}=6.9$ 

22 July 1985 09:51:33.24

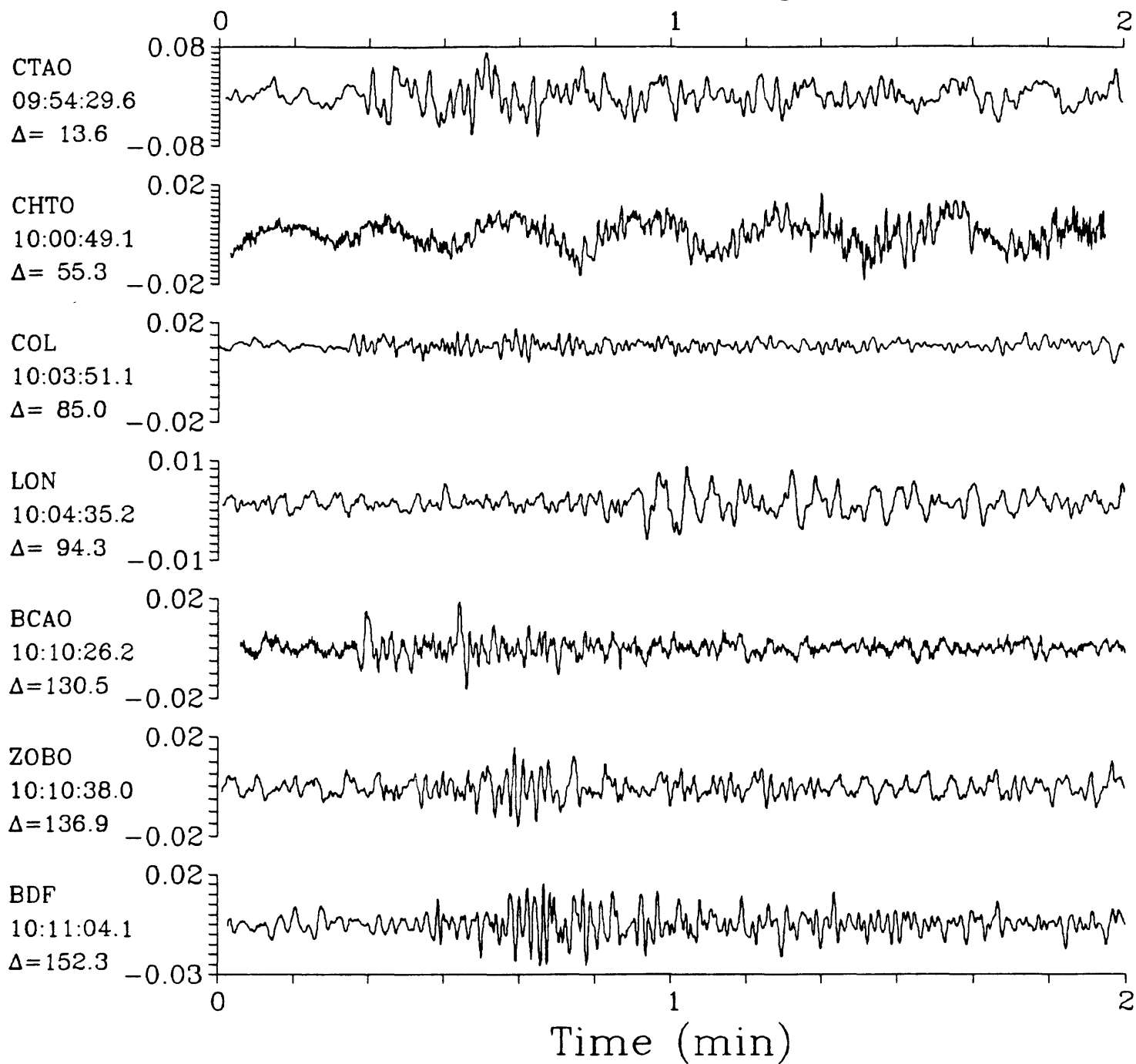
New Britain Region



SPZ

22 July 1985 09:51:33.24
New Britain Region $h=33.0$ $m_b=5.5$

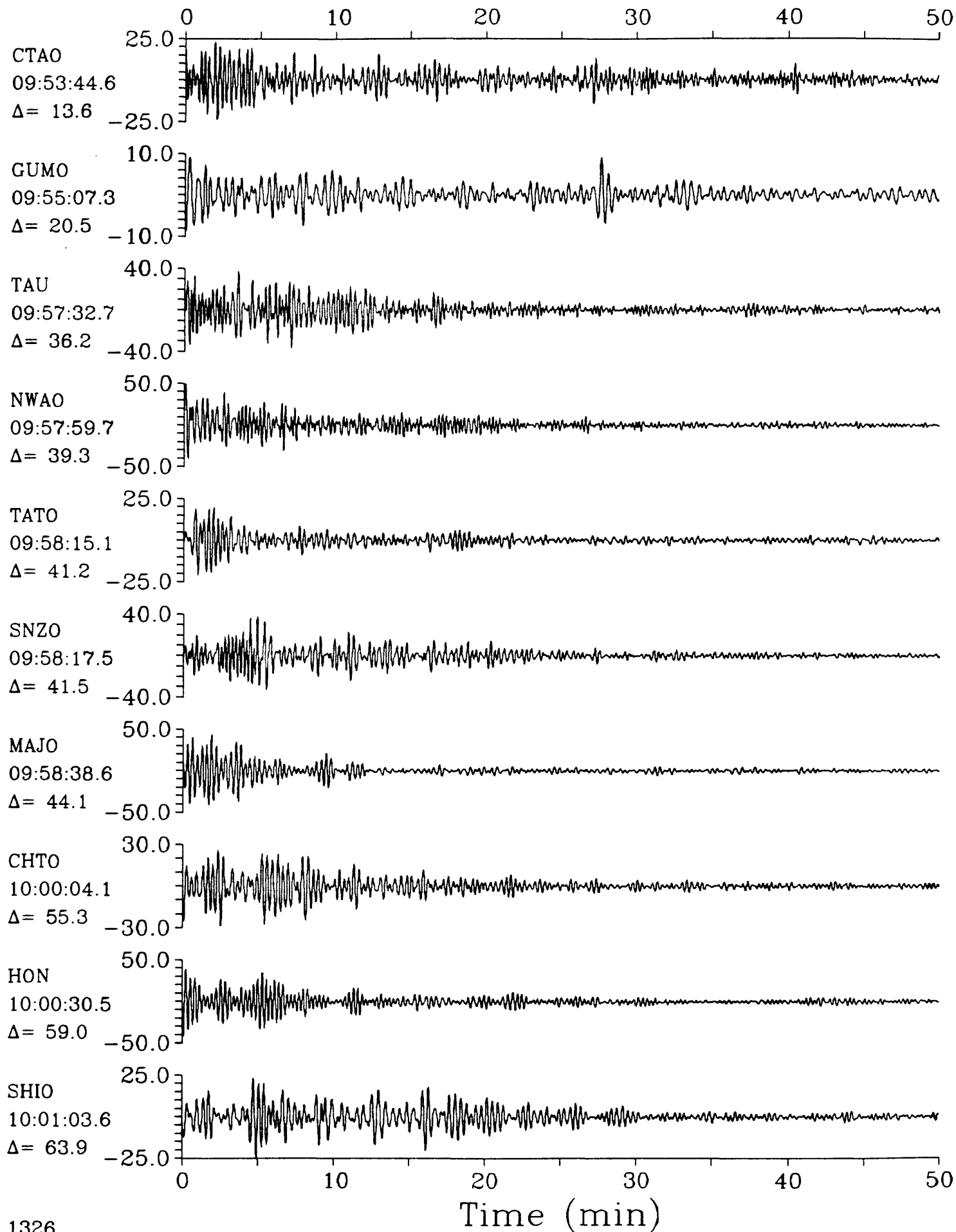
SPZ



LPZ

22 July 1985 09:51:33.24
New Britain Region $h=33.0$ $m_b=5.5$

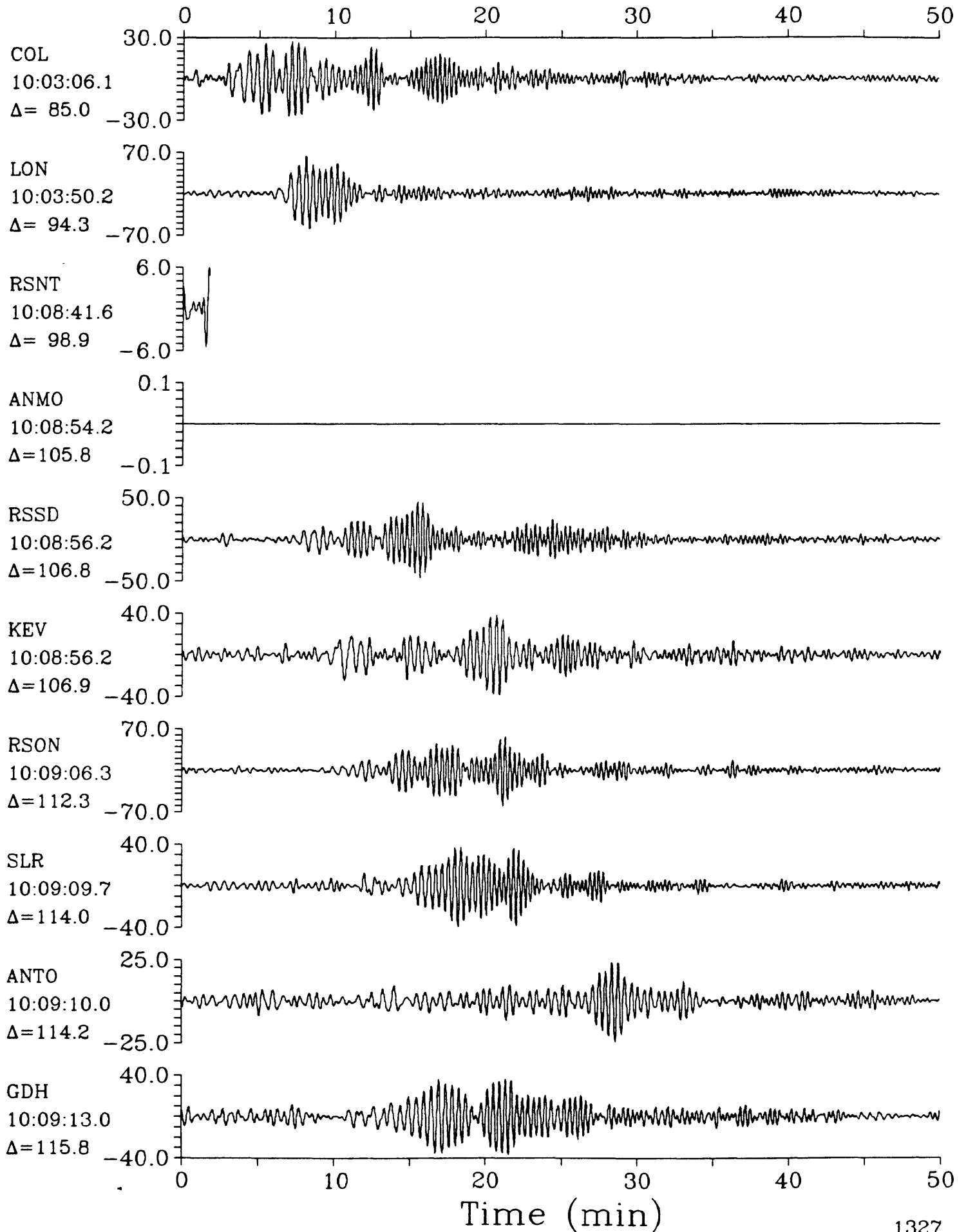
LPZ



LPZ

22 July 1985 09:51:33.24
New Britain Region $h=33.0$ $m_b=5.5$

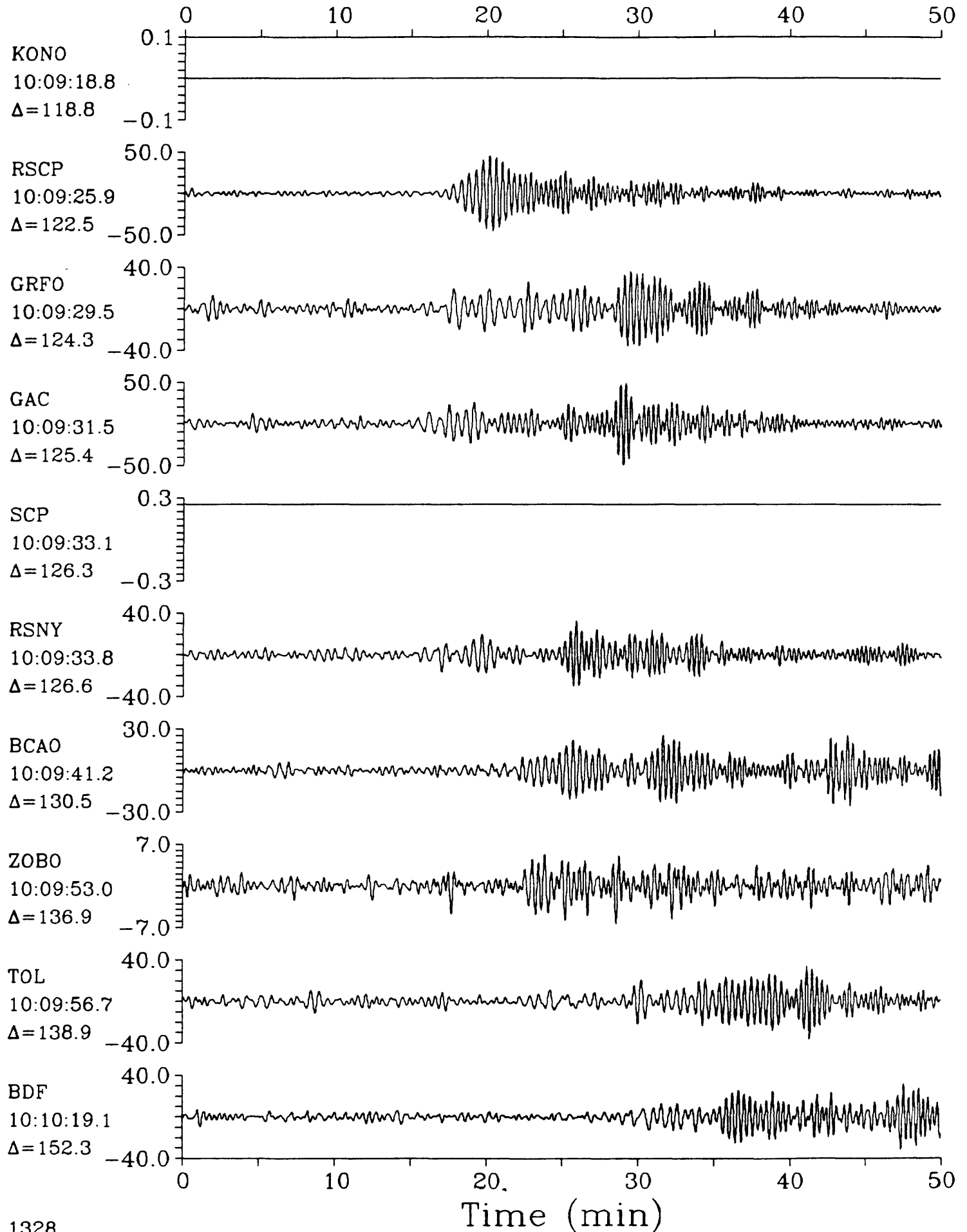
LPZ



LPZ

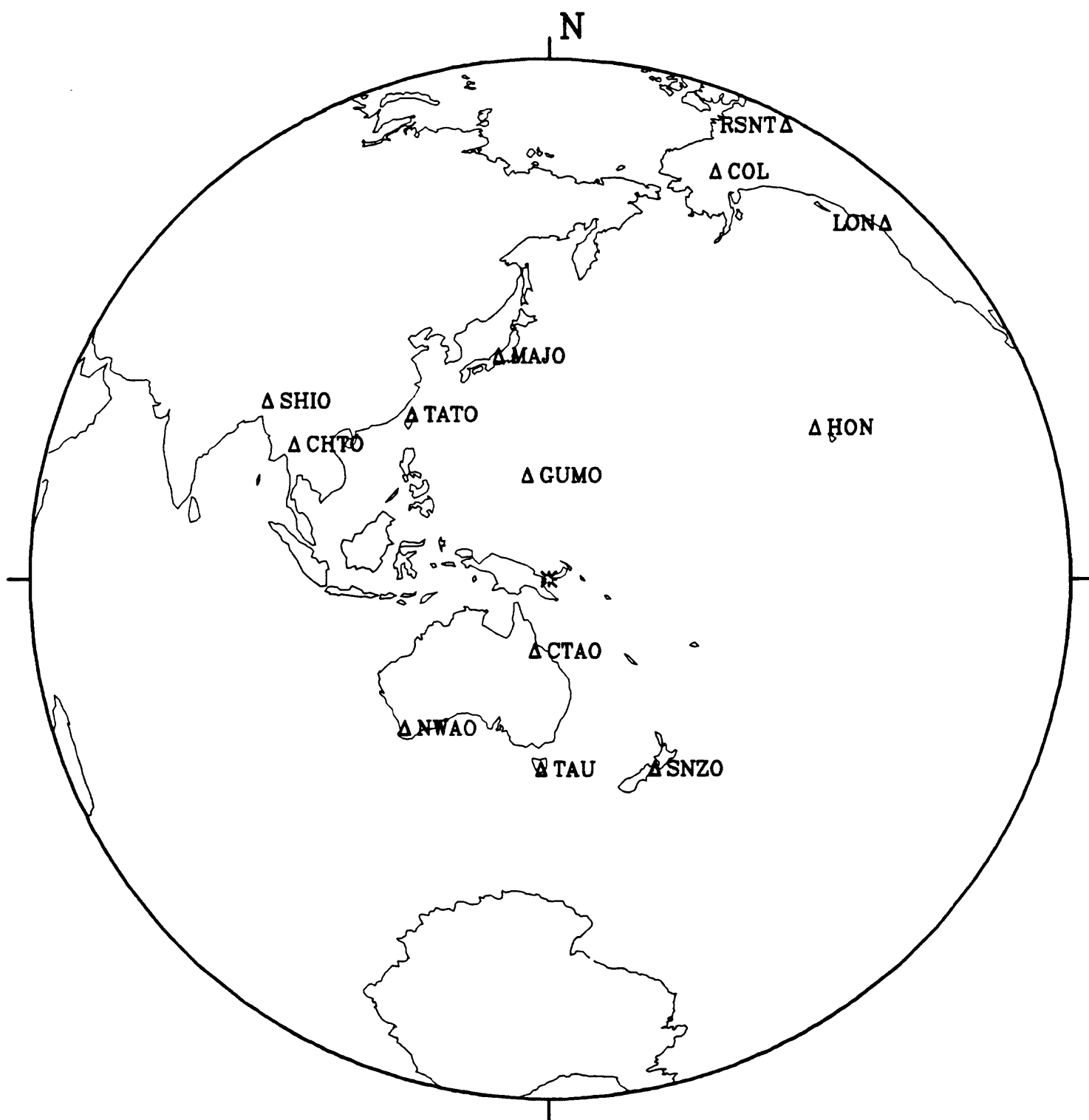
22 July 1985 09:51:33.24

LPZ

New Britain Region $h=33.0$ $m_b=5.5$ 

22 July 1985 11:25:24.97

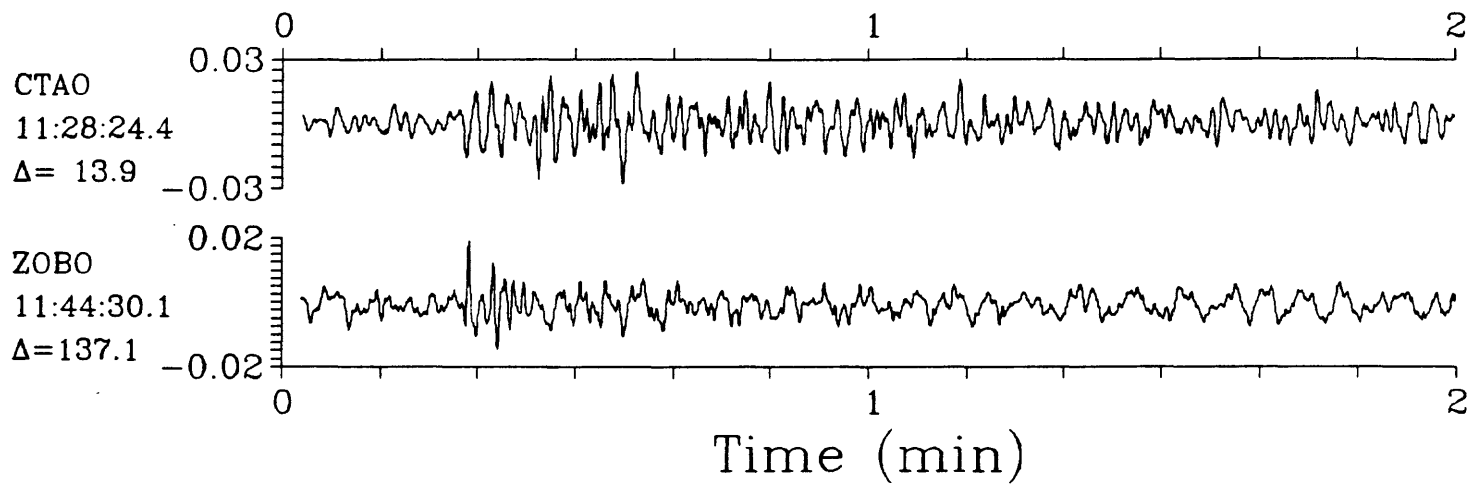
New Britain Region



SPZ

22 July 1985 11:25:24.97

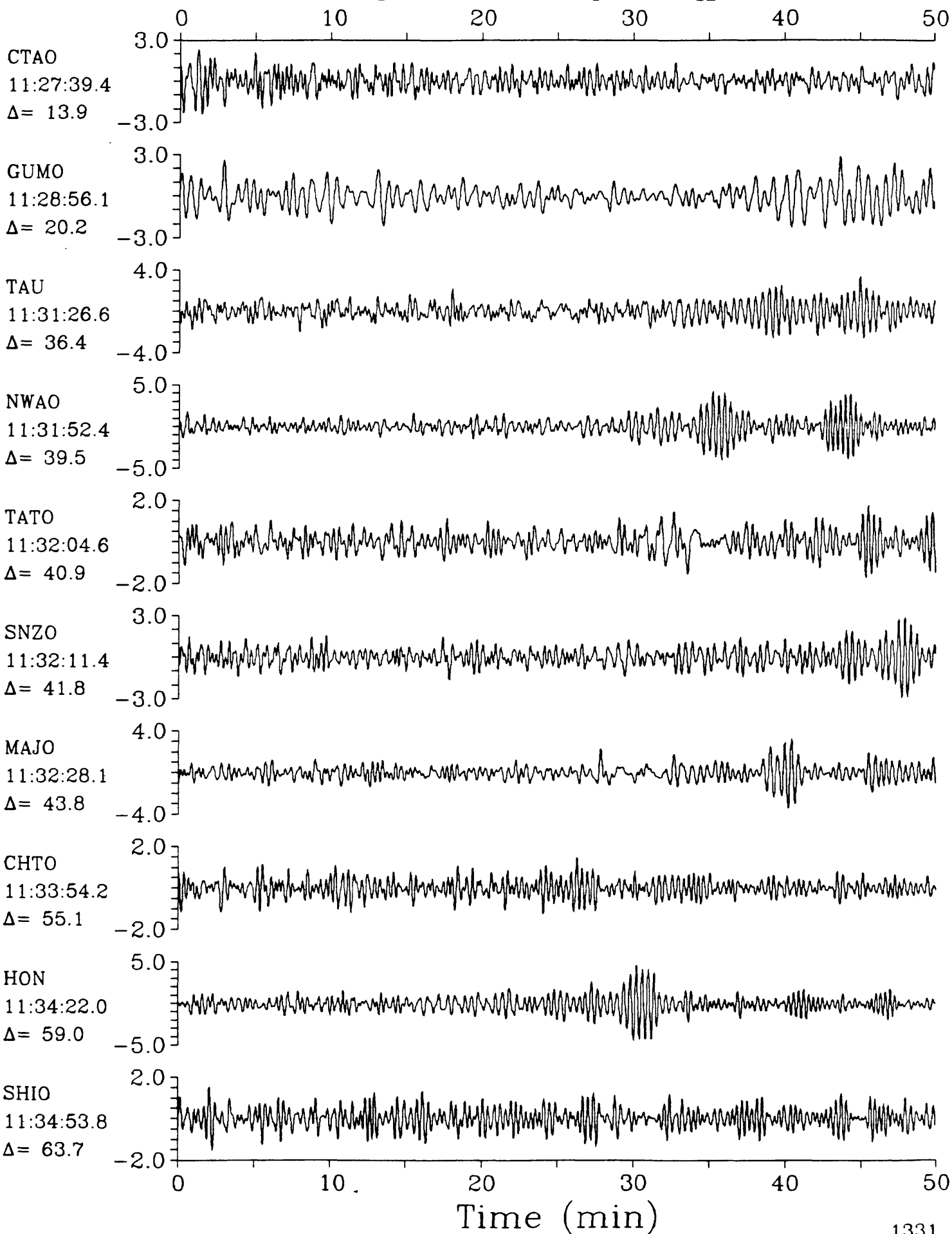
SPZ

New Britain Region $h=33.0$ $m_b=5.1$ $M_{sz}=5.6$ 

LPZ

22 July 1985 11:25:24.97

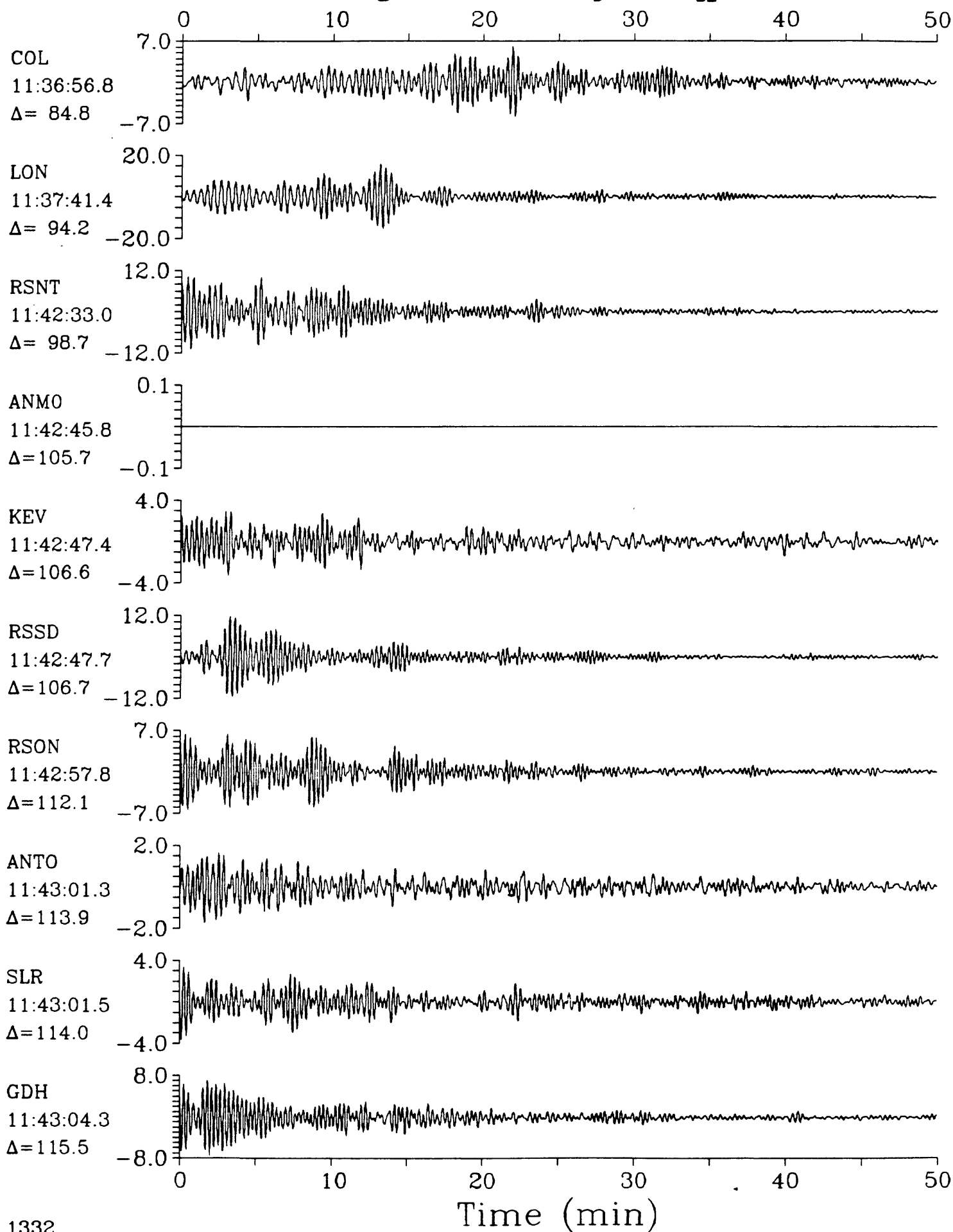
LPZ

New Britain Region $h=33.0$ $m_b=5.1$ $M_{sz}=5.6$ 

LPZ

22 July 1985 11:25:24.97

LPZ

New Britain Region $h=33.0$ $m_b=5.1$ $M_{sz}=5.6$ 

LPZ

22 July 1985 11:25:24.97

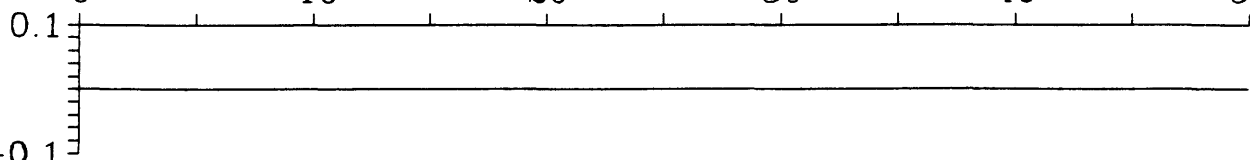
LPZ

New Britain Region $h=33.0$ $m_b=5.1$ $M_{sz}=5.6$

0 10 20 30 40 50

KONO

11:43:10.0

 $\Delta=118.5$ 

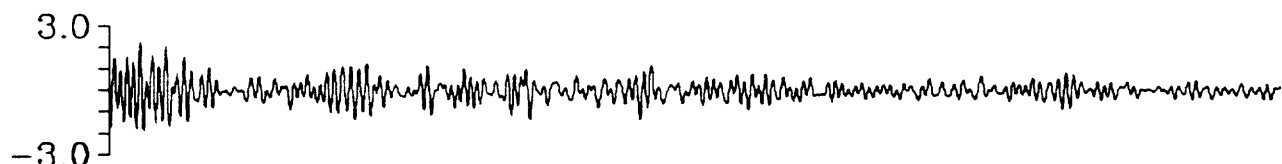
RSCP

11:43:17.5

 $\Delta=122.4$ 

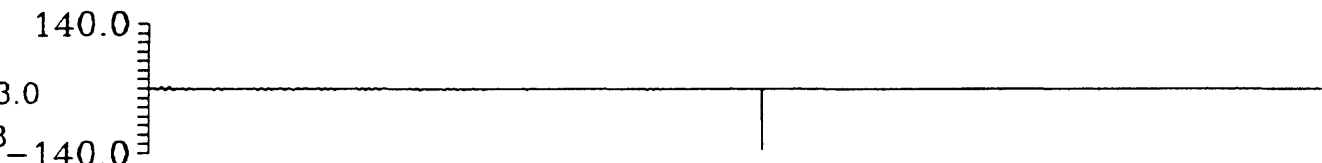
GRFO

11:43:20.6

 $\Delta=124.1$ 

GAC

11:43:23.0

 $\Delta=125.3$ 

SCP

11:43:24.6

 $\Delta=126.2$ 

RSNY

11:43:25.2

 $\Delta=126.5$ 

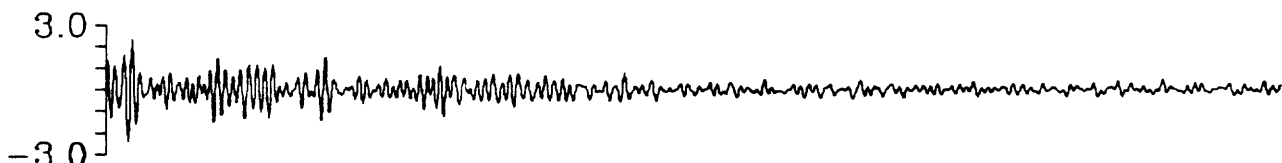
BCAO

11:43:32.7

 $\Delta=130.4$ 

ZOBO

11:43:45.1

 $\Delta=137.1$ 

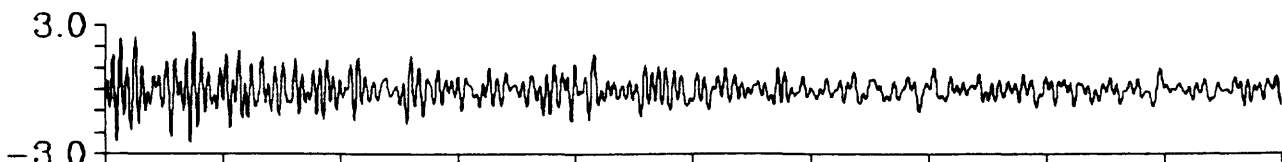
TOL

11:43:48.0

 $\Delta=138.7$ 

BDF

11:44:11.2

 $\Delta=152.6$ 

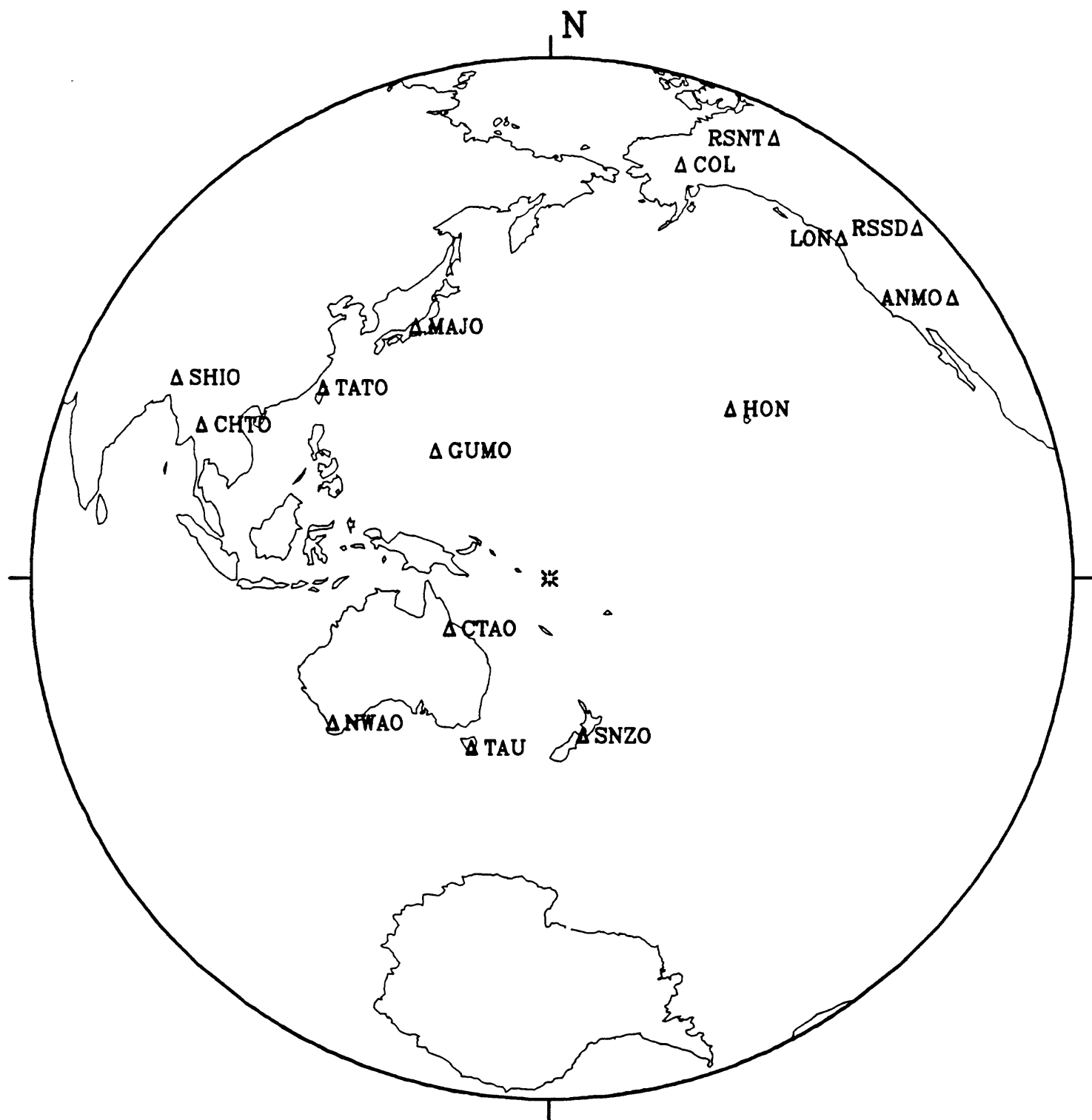
0 10 20 30 40 50

Time (min)

1333

26 July 1985 12:18:05.81

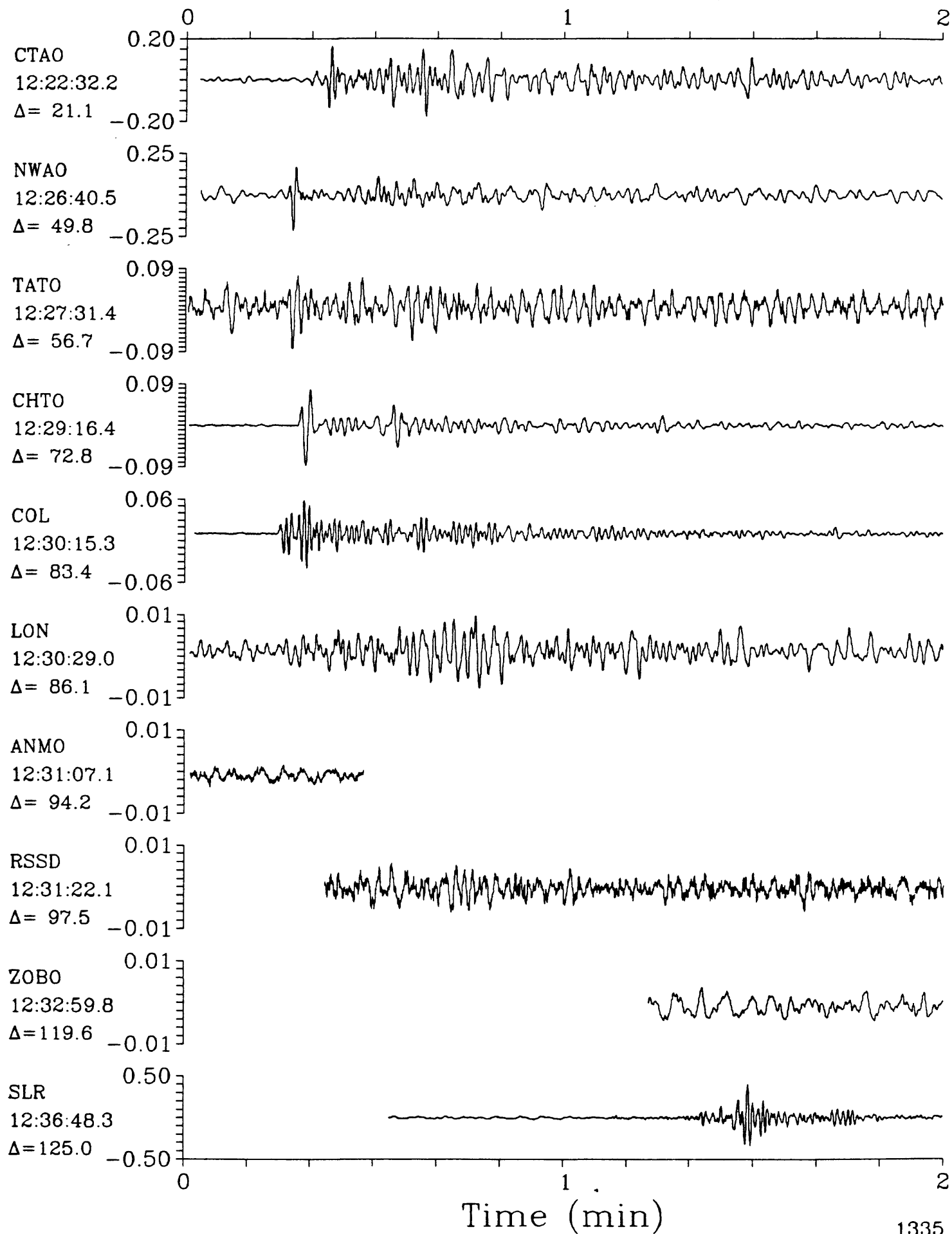
Santa Cruz Islands



SPZ

26 July 1985 12:18:05.81

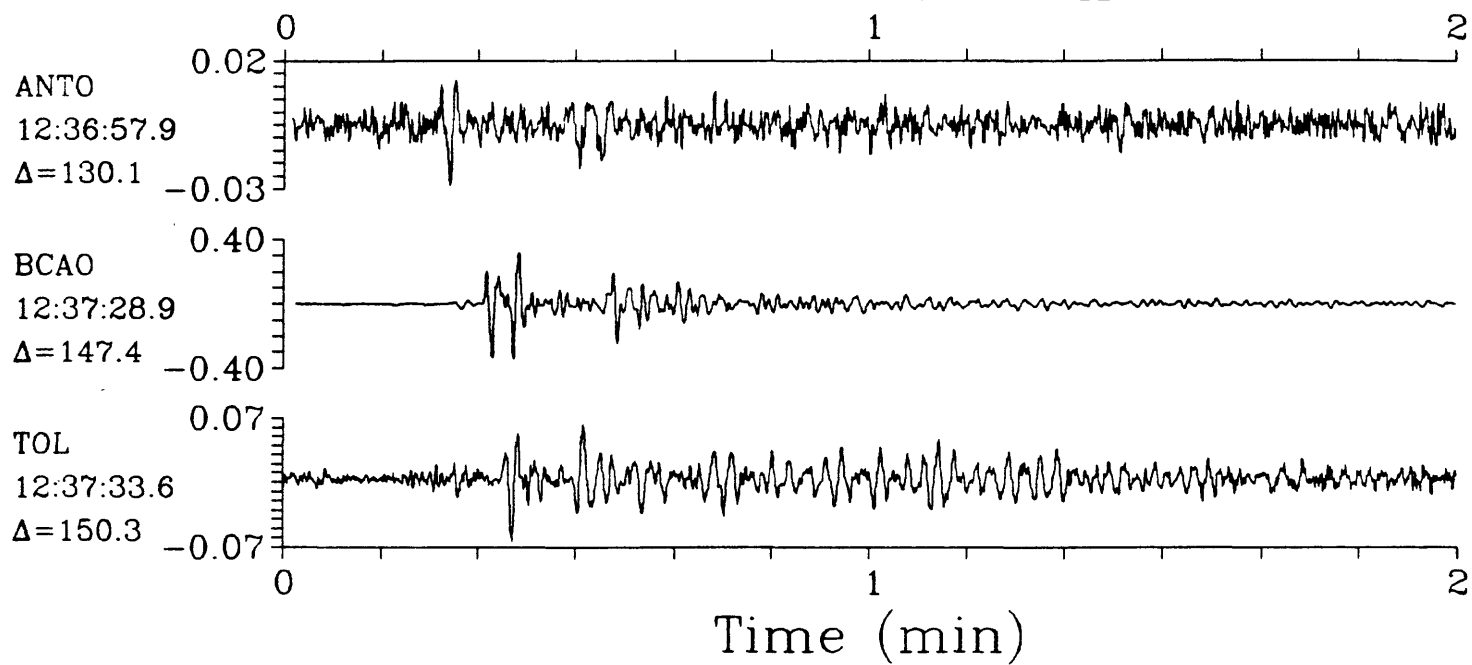
SPZ

Santa Cruz Islands $h=33.0$ $m_b=5.8$ $M_{SZ}=5.2$ 

SPZ

26 July 1985 12:18:05.81

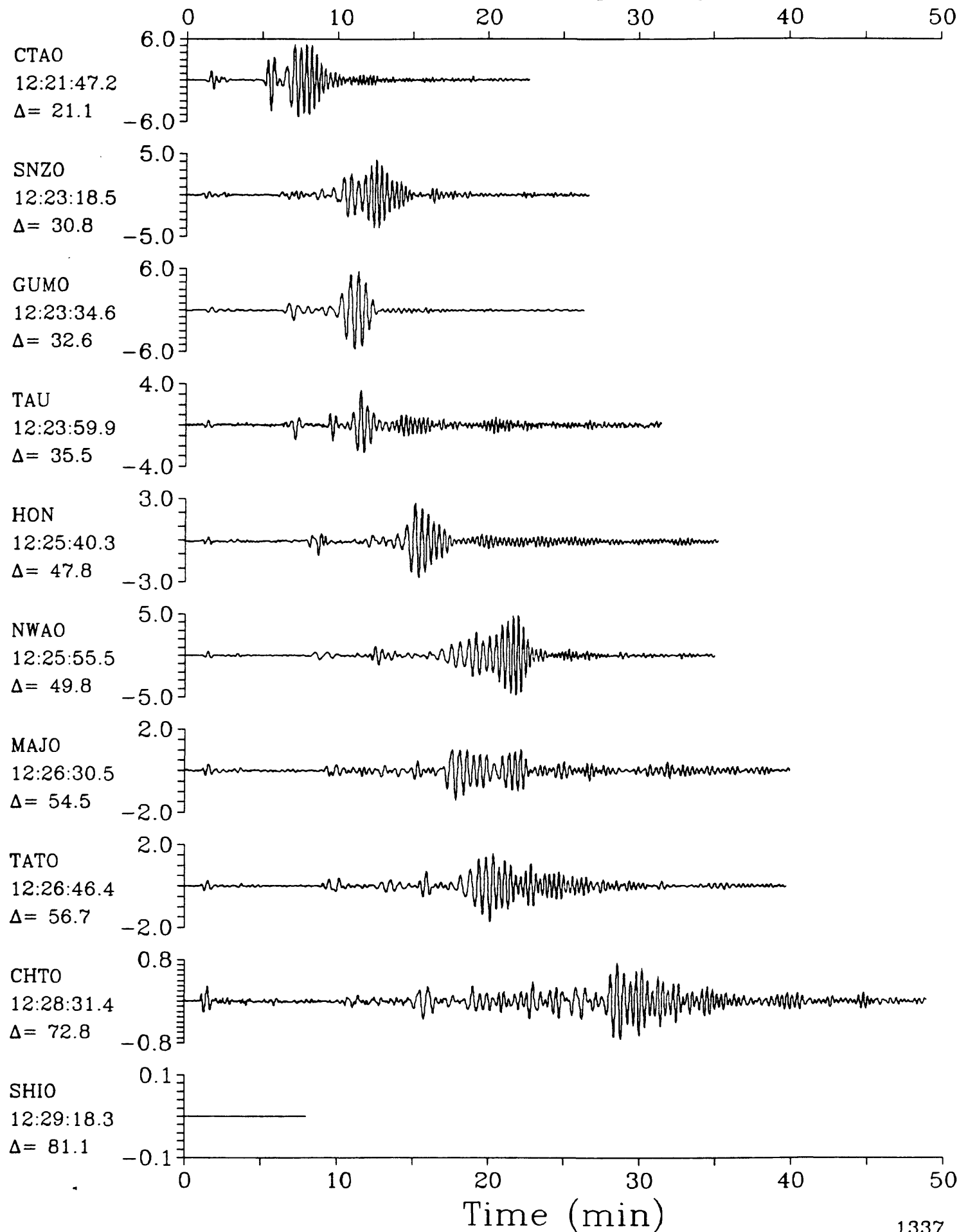
SPZ

Santa Cruz Islands $h=33.0$ $m_b=5.8$ $M_{SZ}=5.2$ 

LPZ

26 July 1985 12:18:05.81

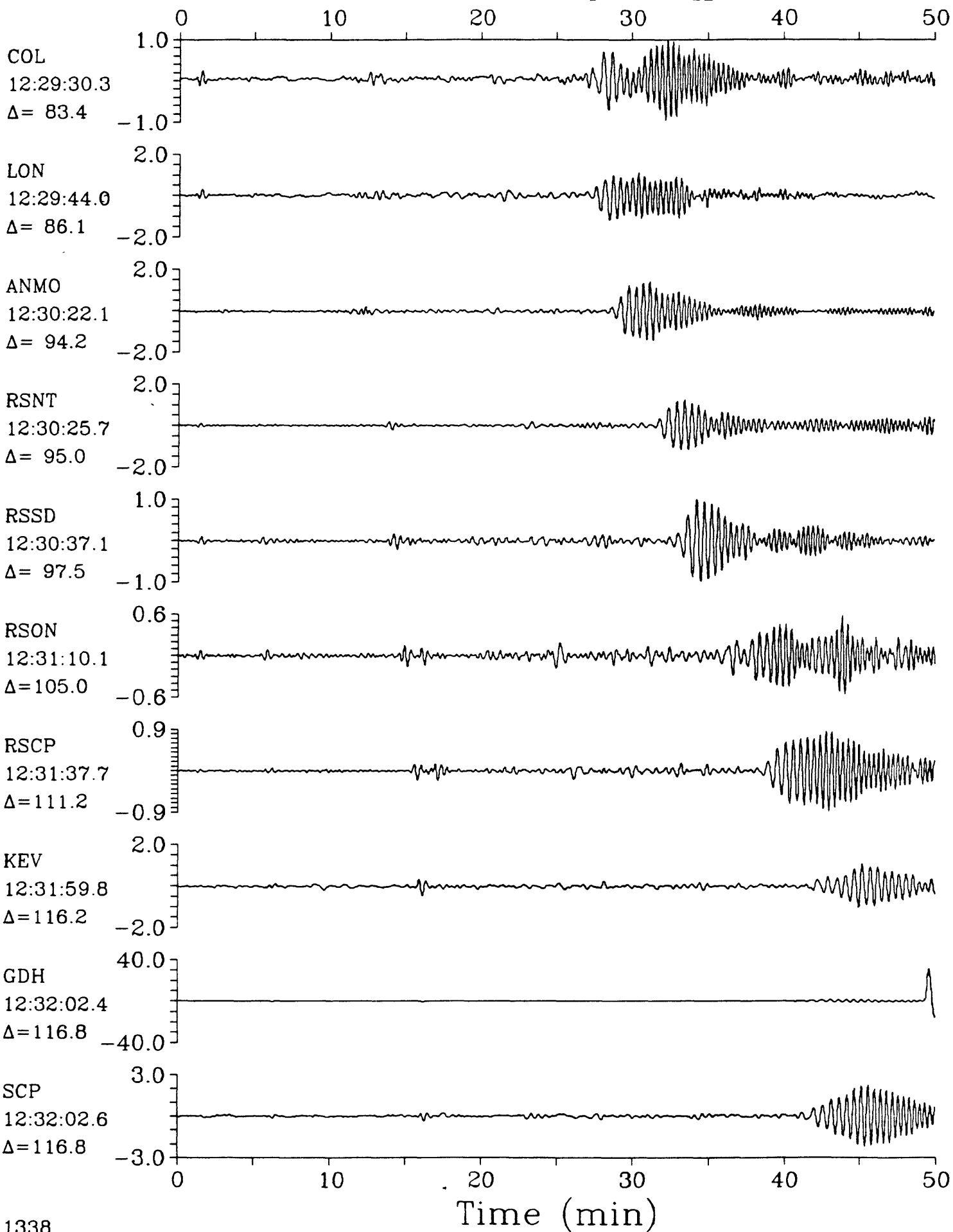
LPZ

Santa Cruz Islands $h=33.0$ $m_b=5.8$ $M_{sz}=5.2$ 

LPZ

26 July 1985 12:18:05.81

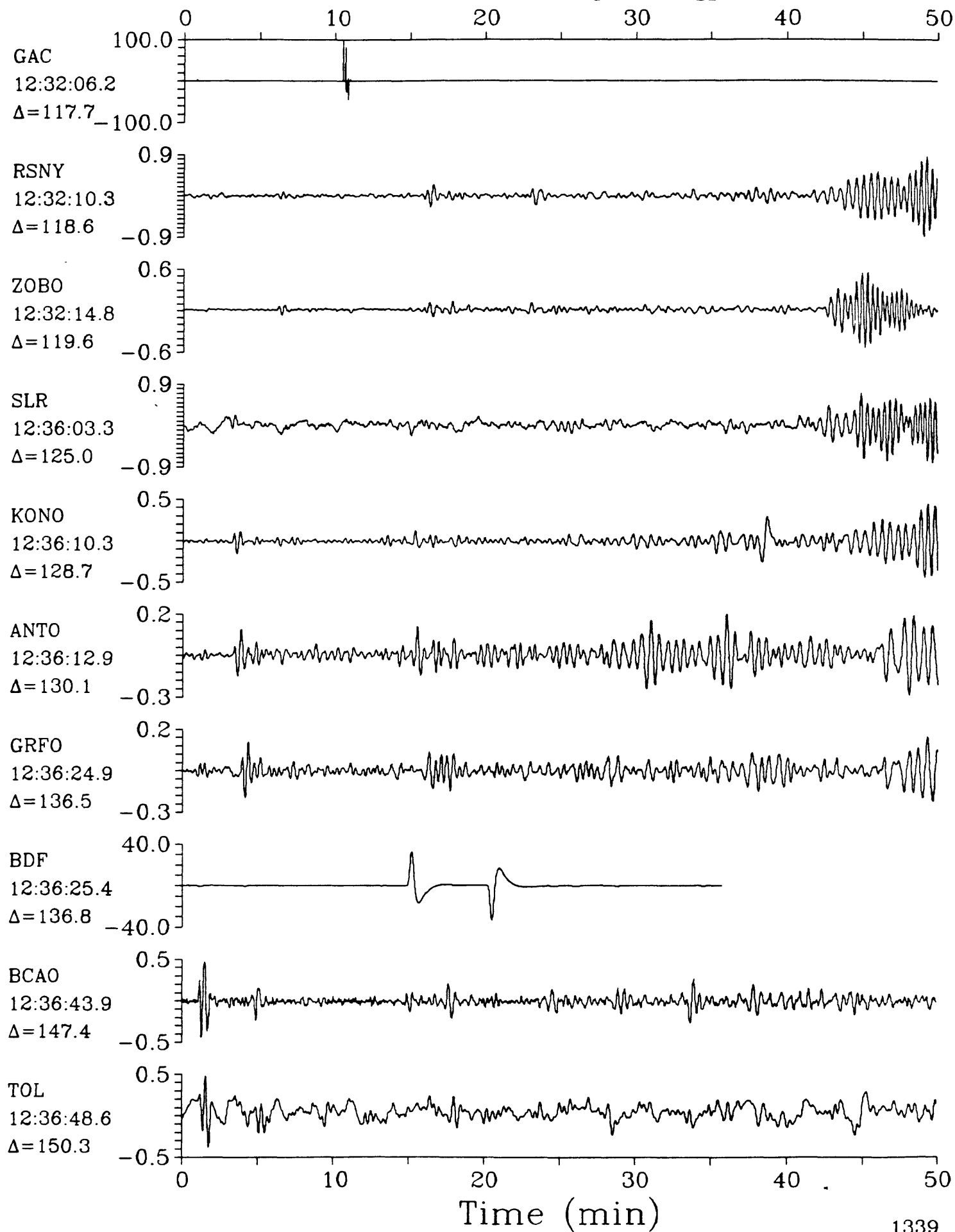
LPZ

Santa Cruz Islands $h=33.0$ $m_b=5.8$ $M_{sz}=5.2$ 

LPZ

26 July 1985 12:18:05.81

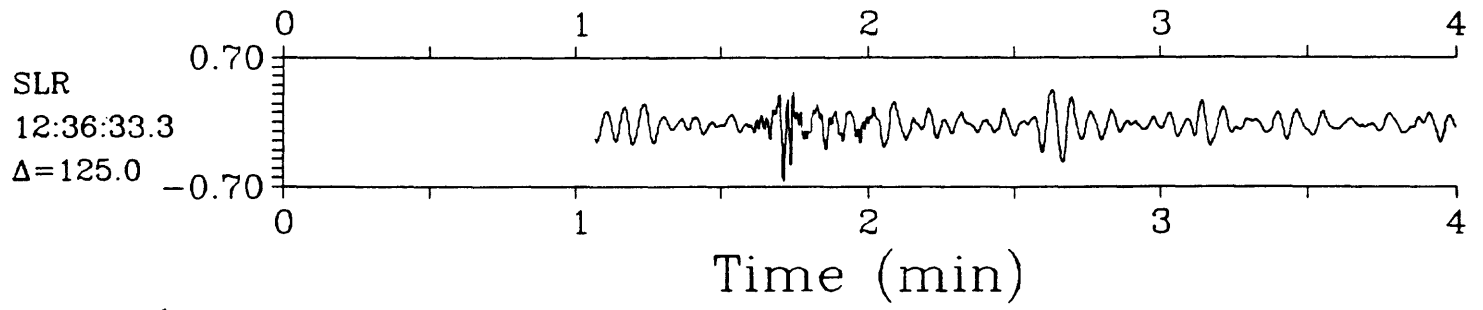
LPZ

Santa Cruz Islands $h=33.0$ $m_b=5.8$ $M_{SZ}=5.2$ 

IPZ

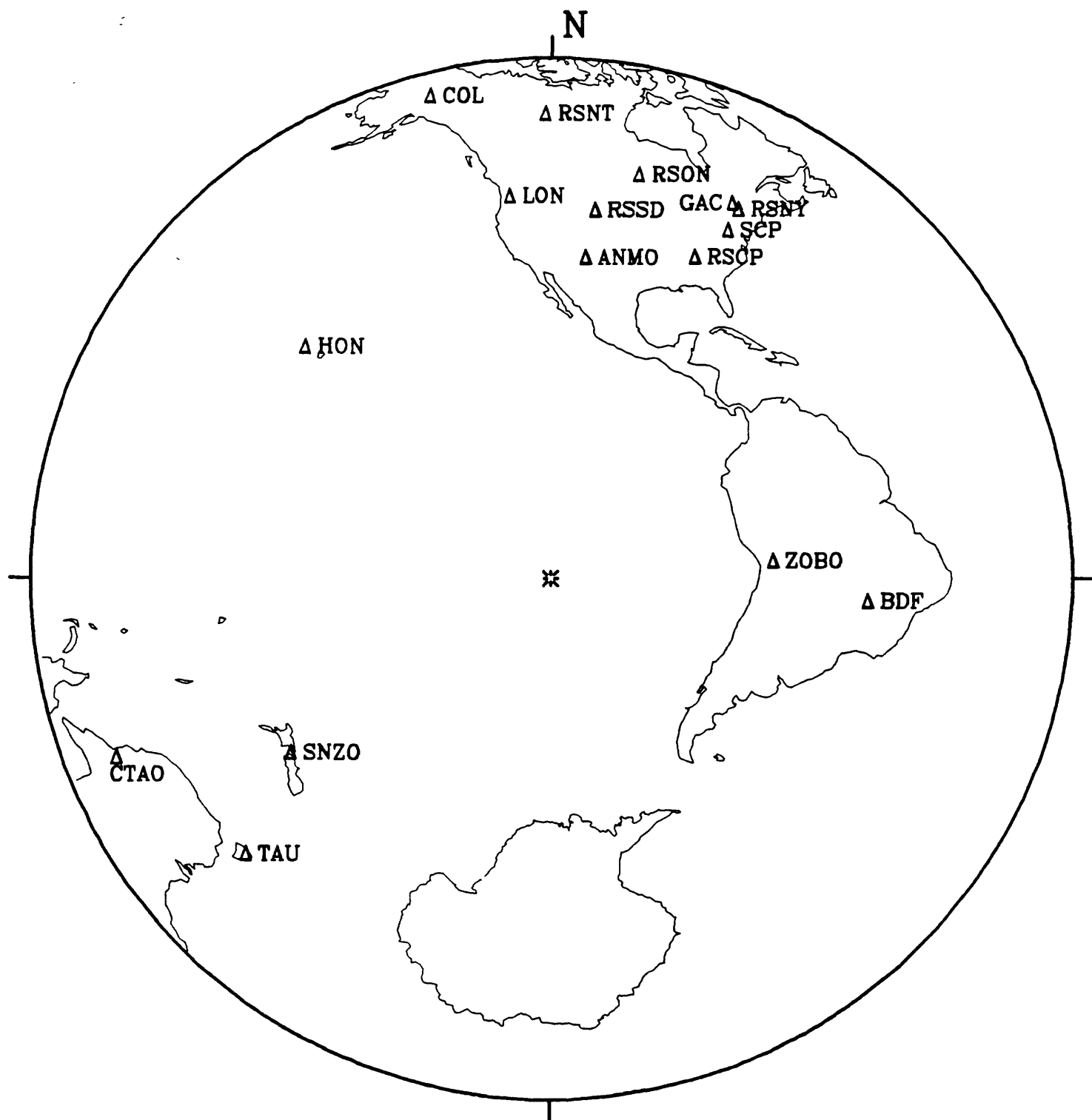
26 July 1985 12:18:05.81

IPZ

Santa Cruz Islands $h=33.0$ $m_b=5.8$ $M_{sz}=5.2$ 

27 July 1985 16:26:45.59

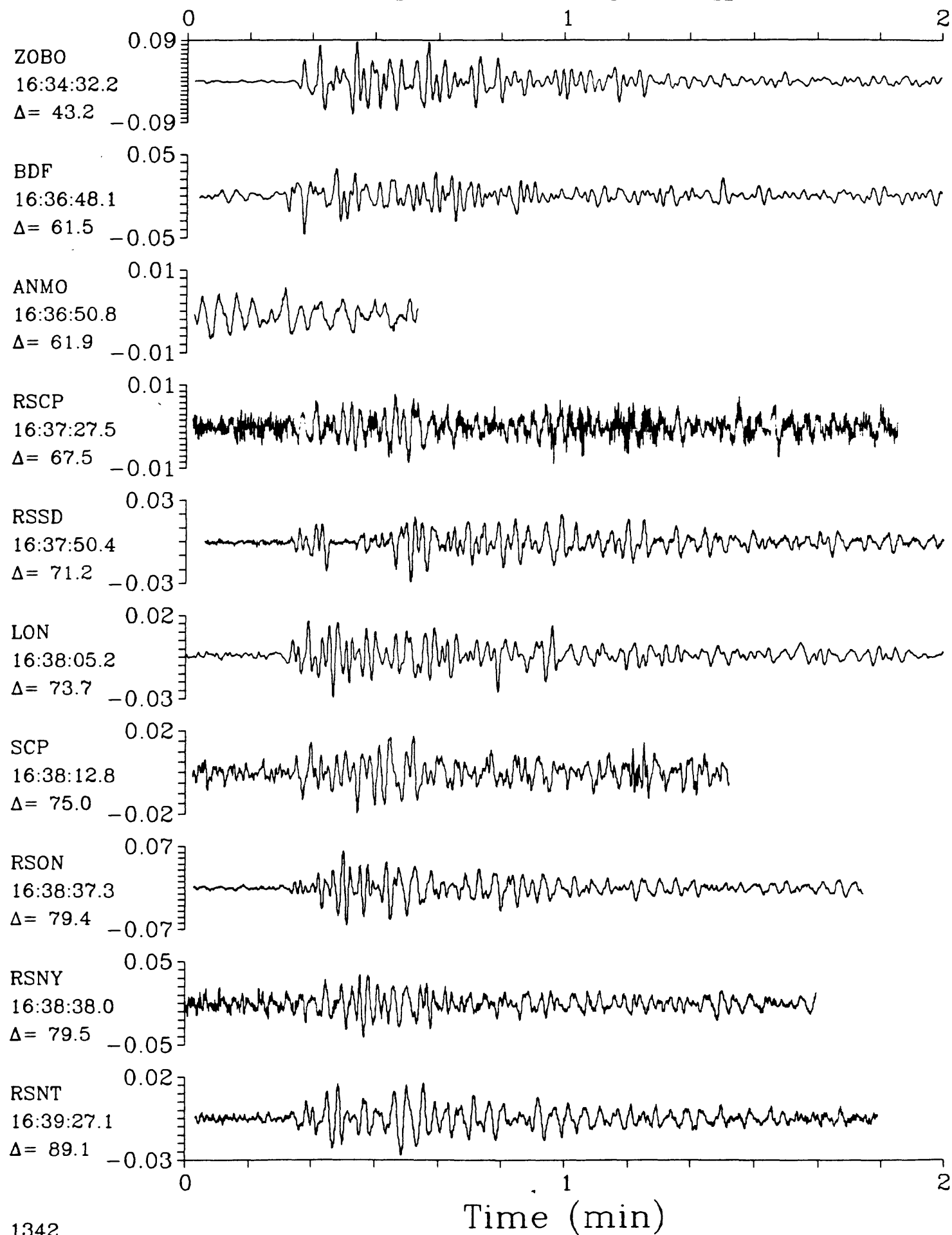
Easter Island Region



SPZ

27 July 1985 16:26:45.59

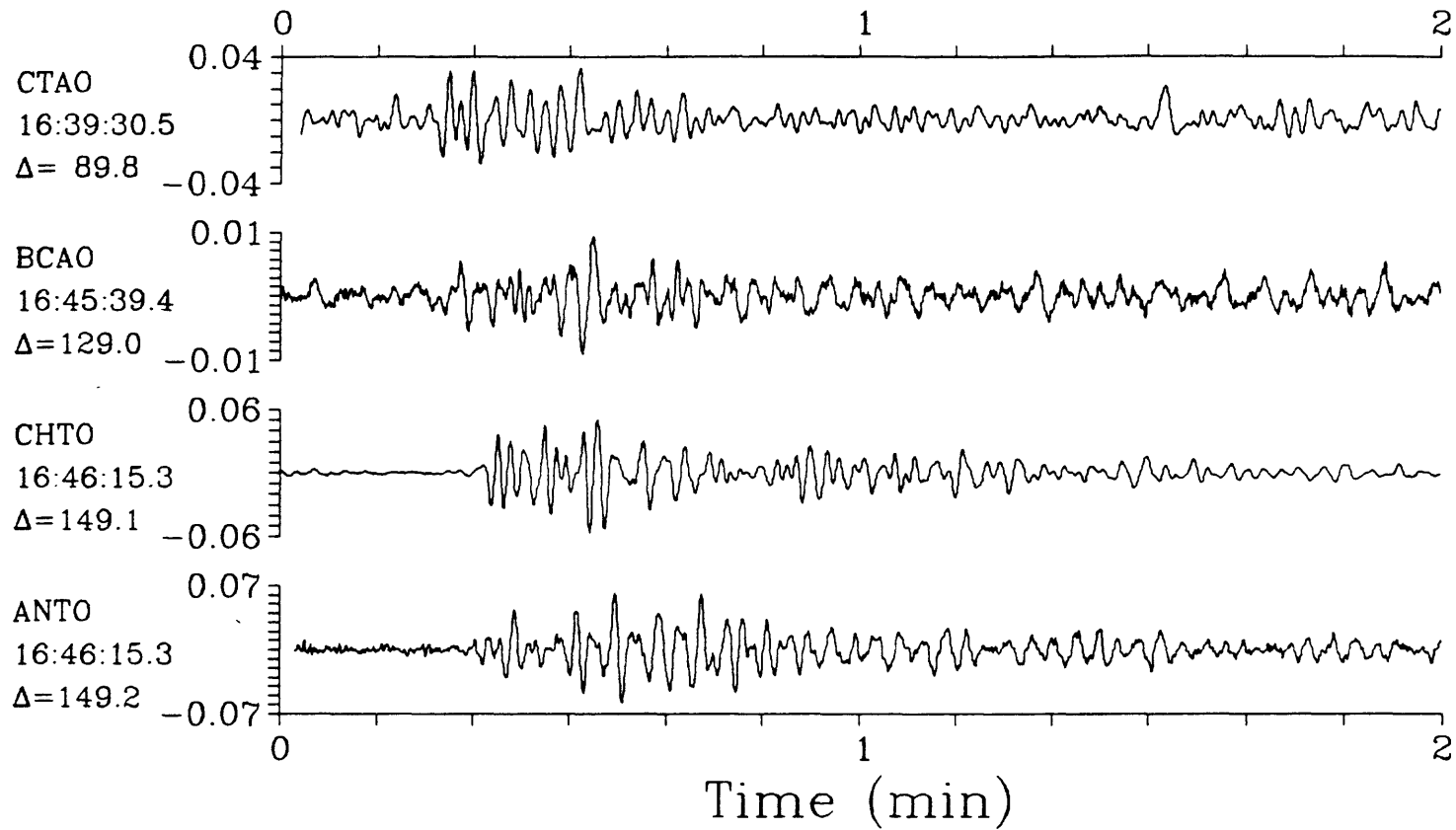
SPZ

Easter Island Region $h=10.0$ $m_b=5.4$ $M_{sz}=5.6$ 

SPZ

27 July 1985 16:26:45.59

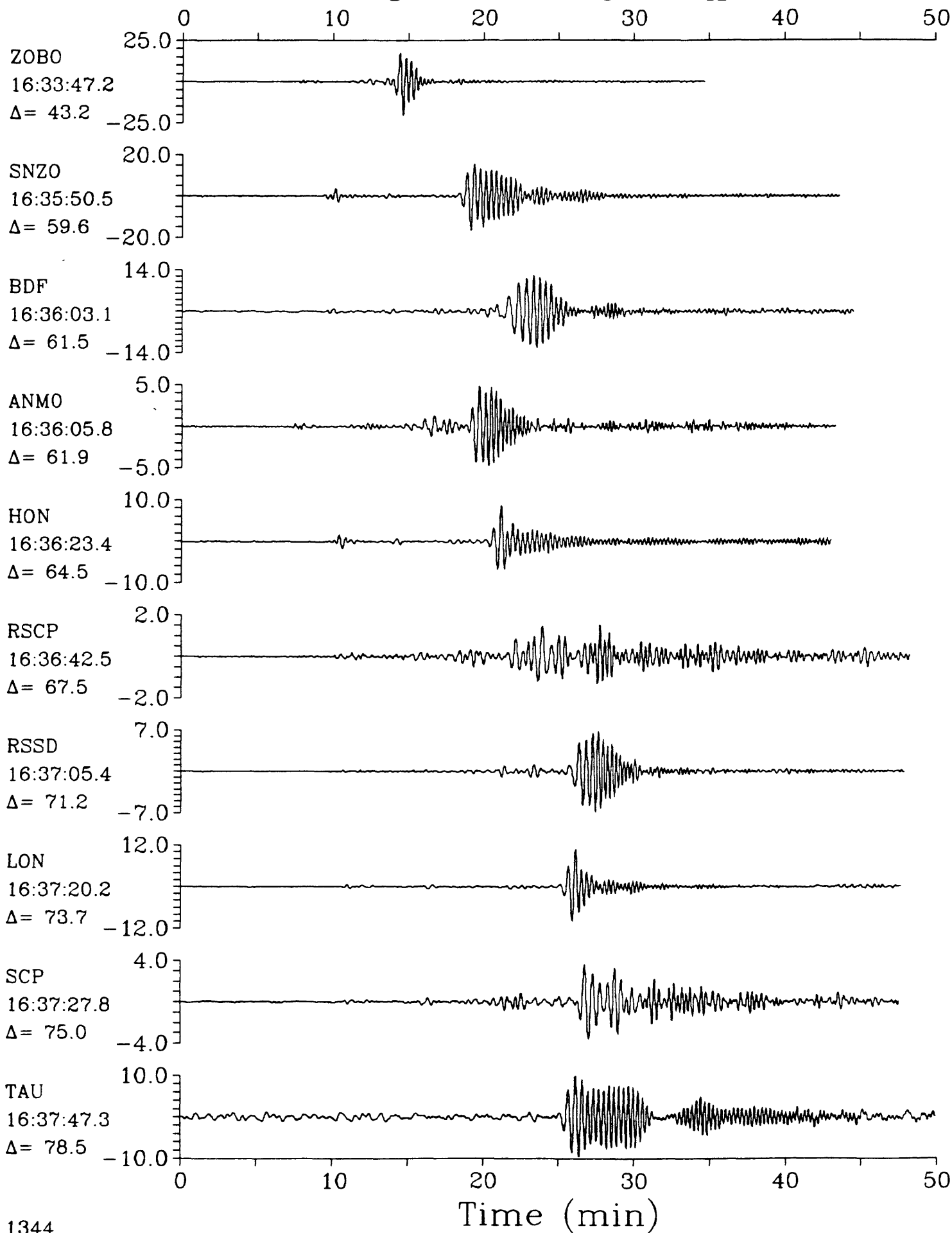
SPZ

Easter Island Region $h=10.0$ $m_b=5.4$ $M_{sz}=5.6$ 

LPZ

27 July 1985 16:26:45.59

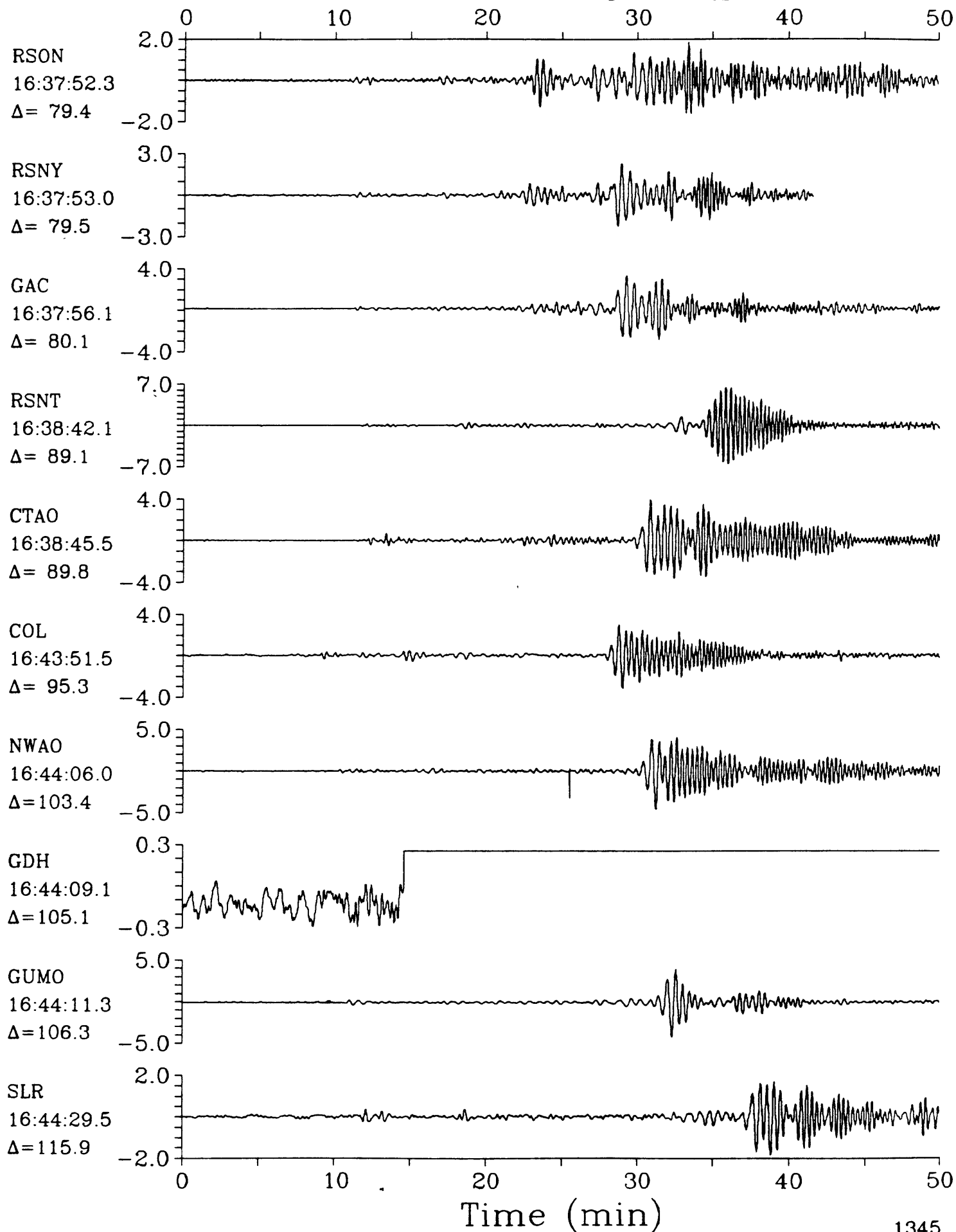
LPZ

Easter Island Region $h=10.0$ $m_b=5.4$ $M_{sz}=5.6$ 

LPZ

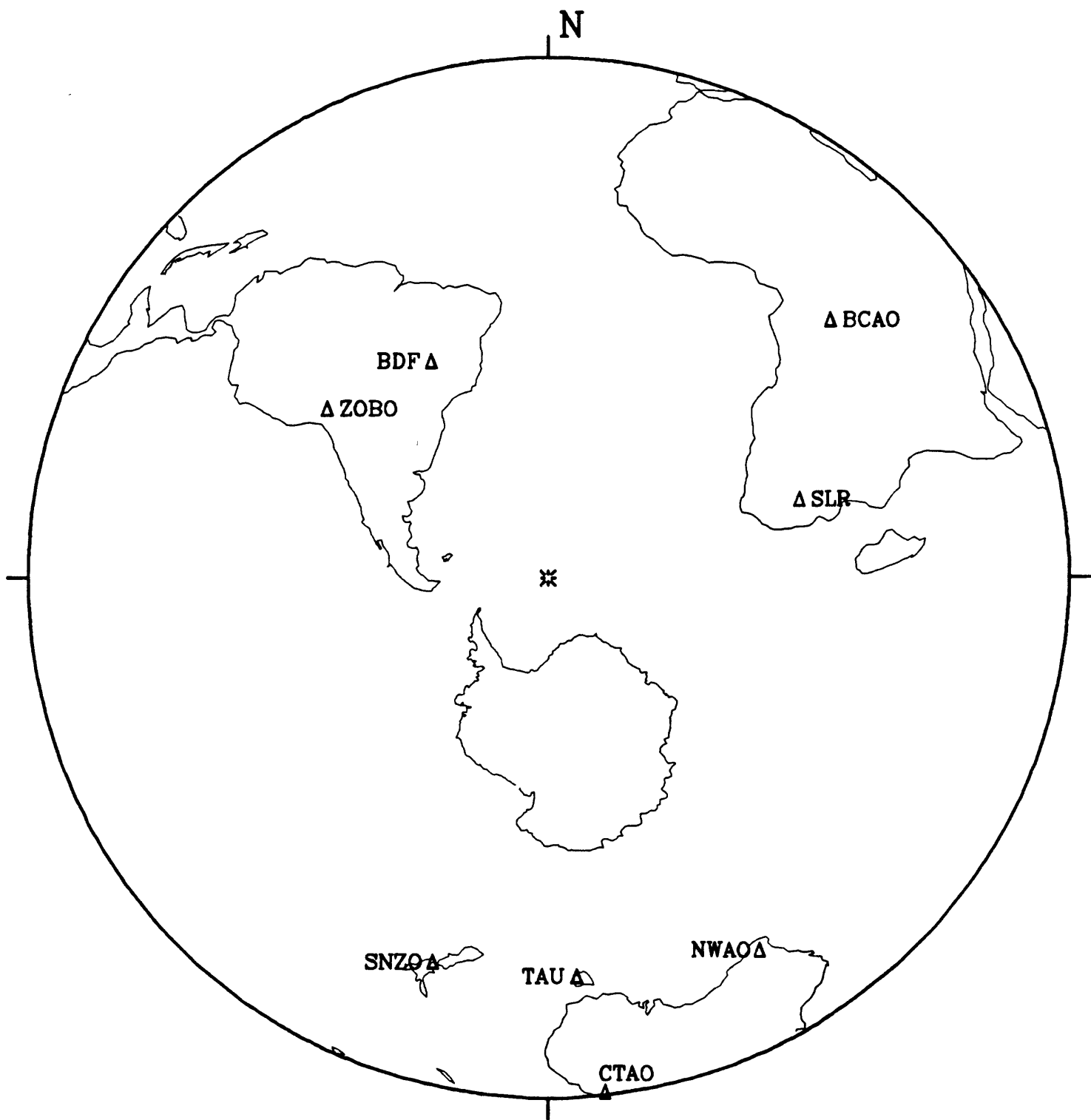
27 July 1985 16:26:45.59

LPZ

Easter Island Region $h=10.0$ $m_b=5.4$ $M_{SZ}=5.6$ 

28 July 1985 22:59:54.59

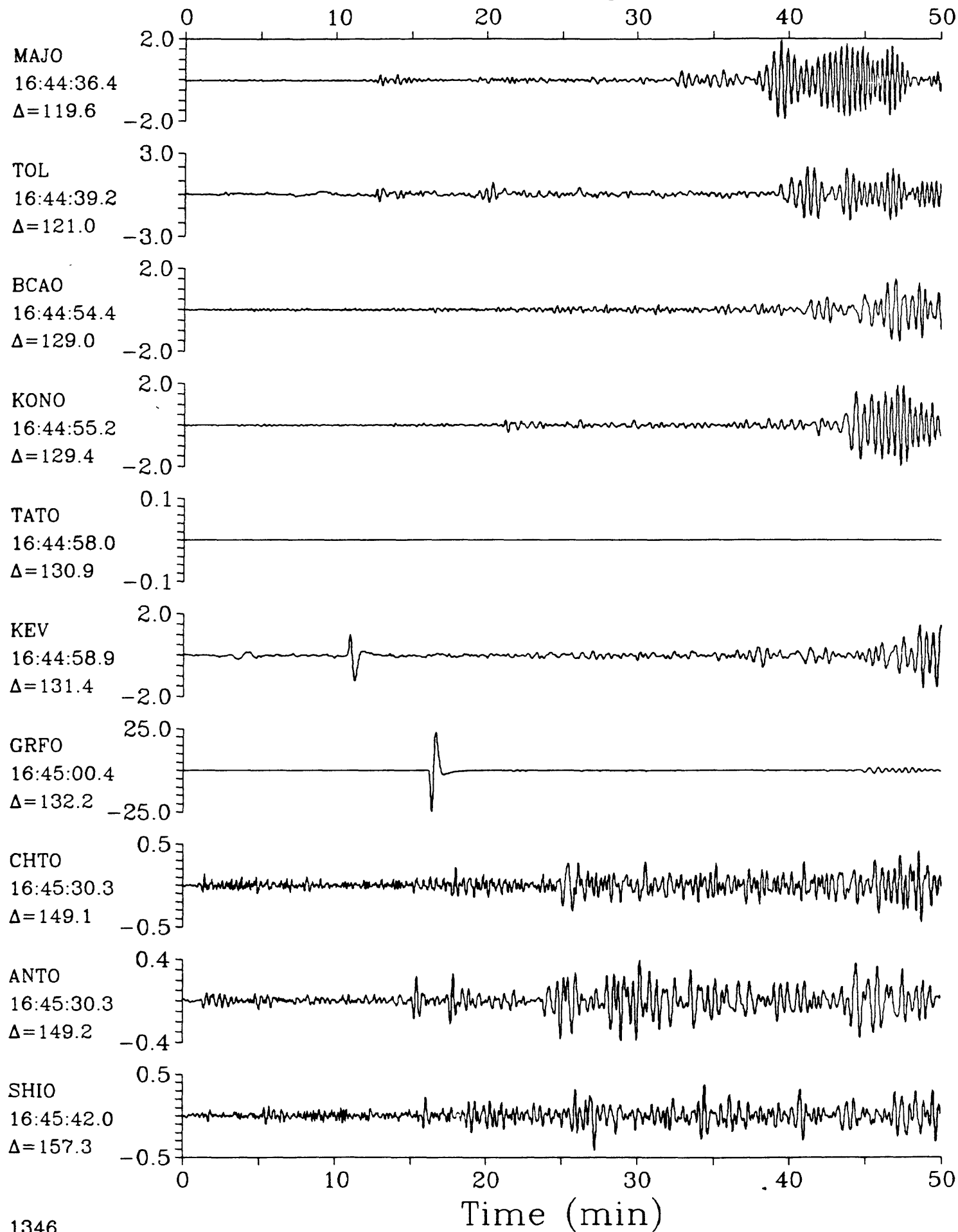
South Sandwich Islands Region



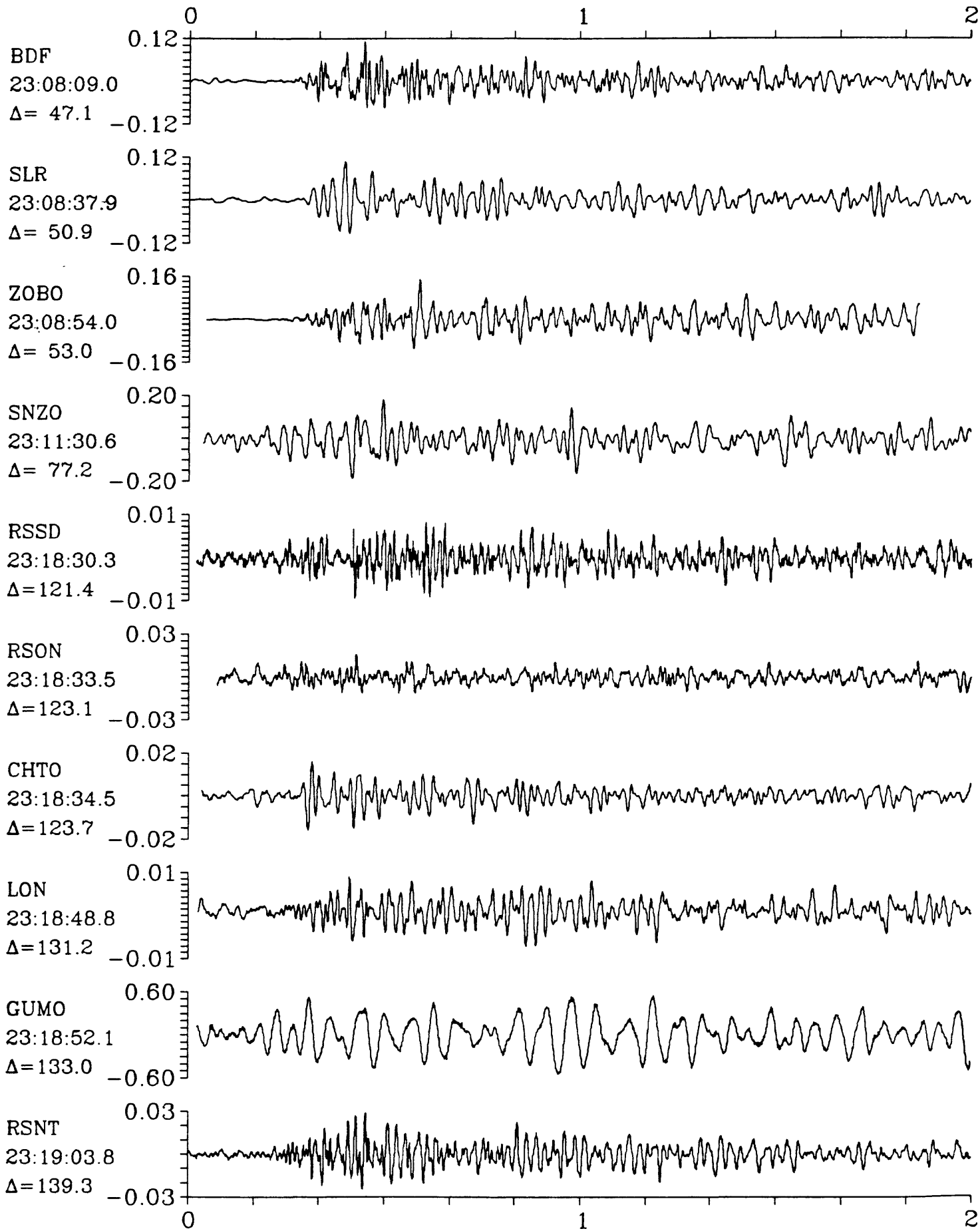
LPZ

27 July 1985 16:26:45.59

LPZ

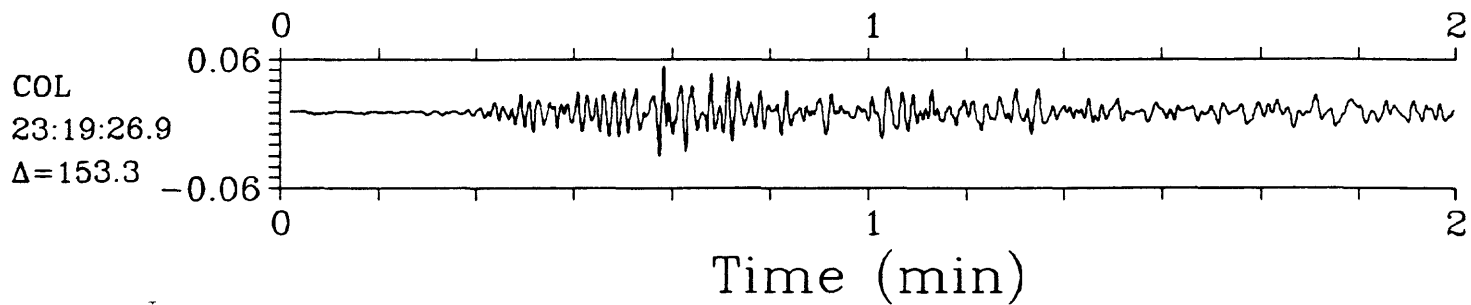
Easter Island Region $h=10.0$ $m_b=5.4$ $M_{sz}=5.6$ 

South Sandwich Islands Region $h=33.0$ $m_b=5.8$ $M_{sz}=6.4$



SPZ 28 July 1985 22:59:54.59 SPZ

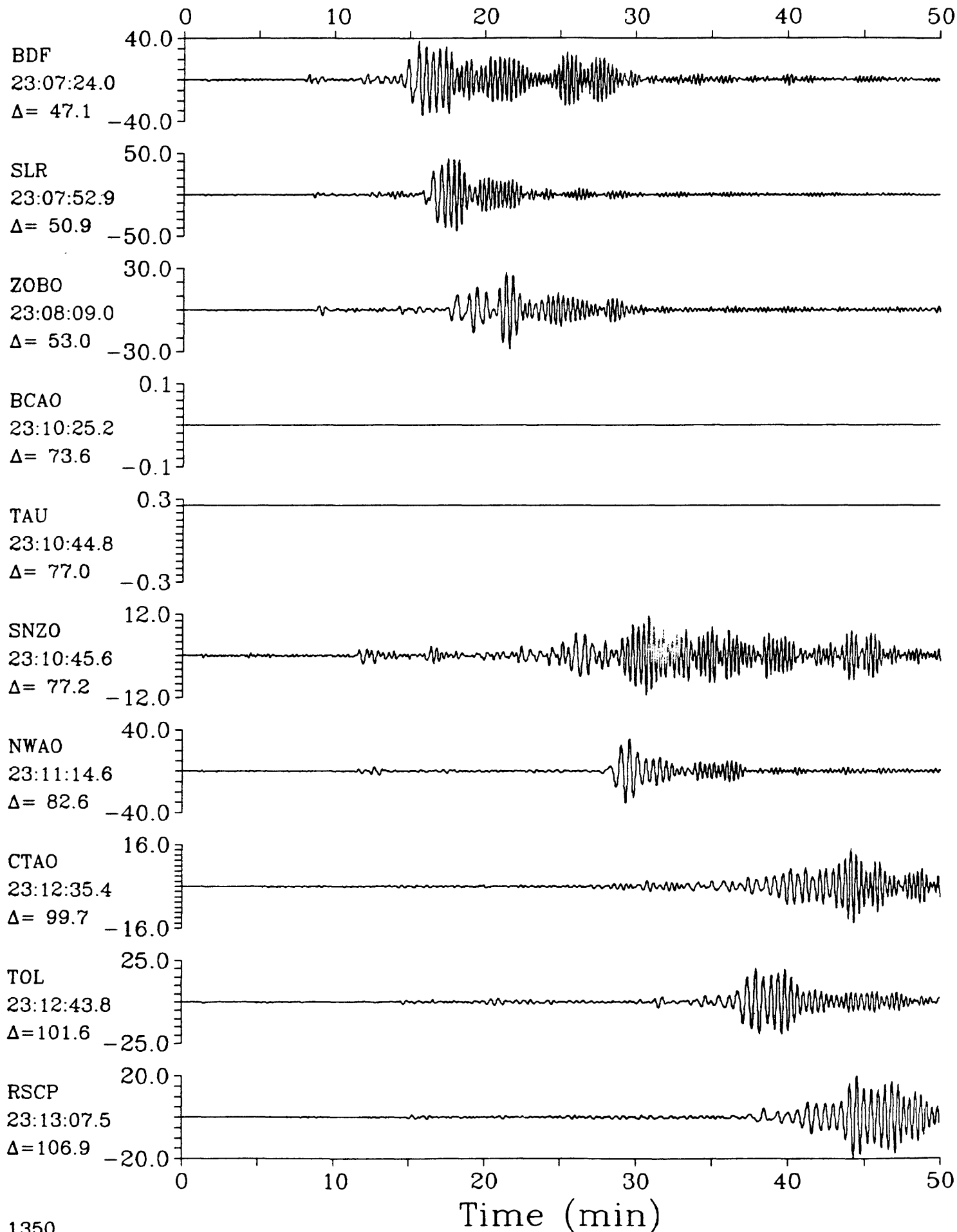
South Sandwich Islands Region $h=33.0$ $m_b=5.8$ $M_{sz}=6.4$

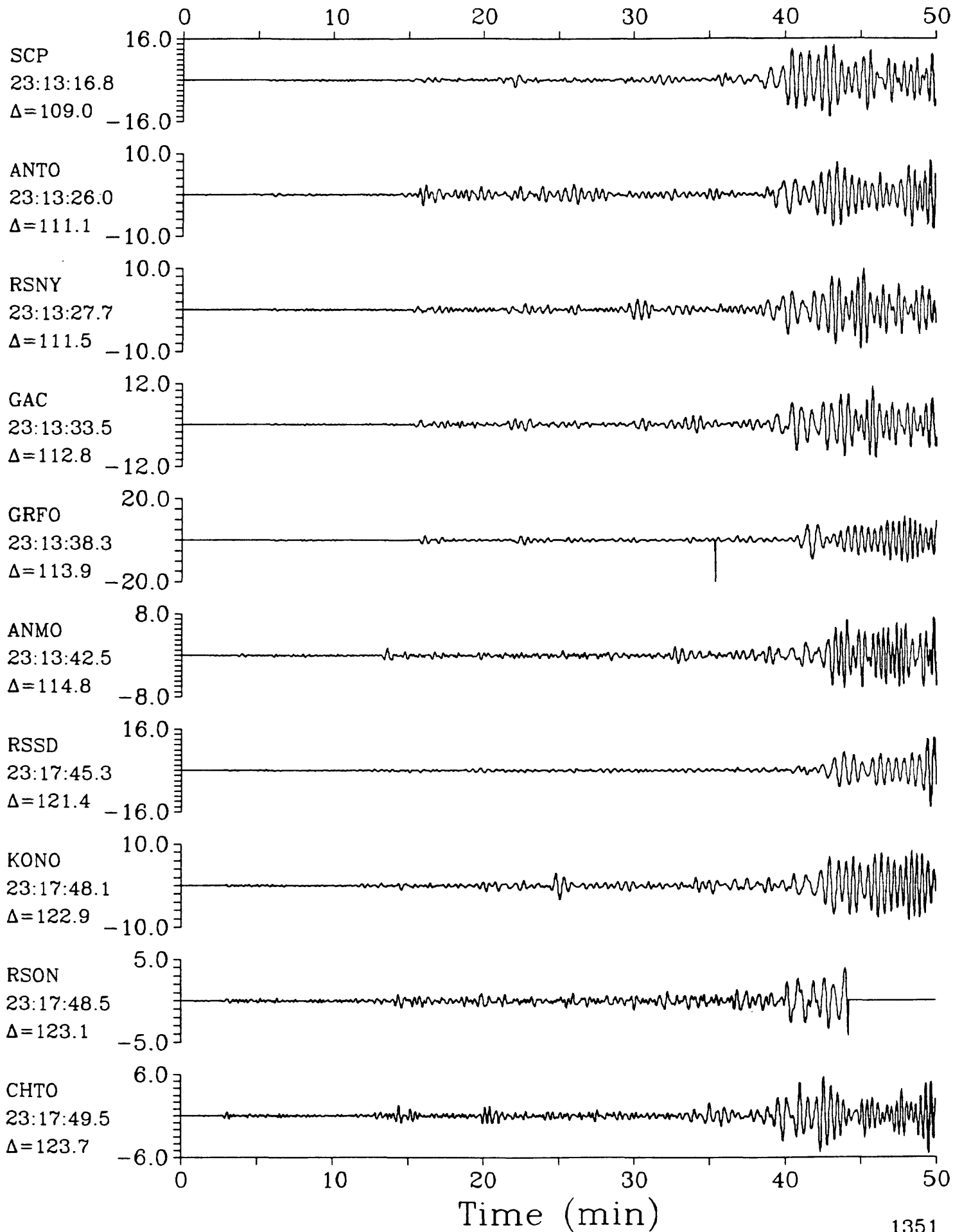


LPZ

28 July 1985 22:59:54.59

LPZ

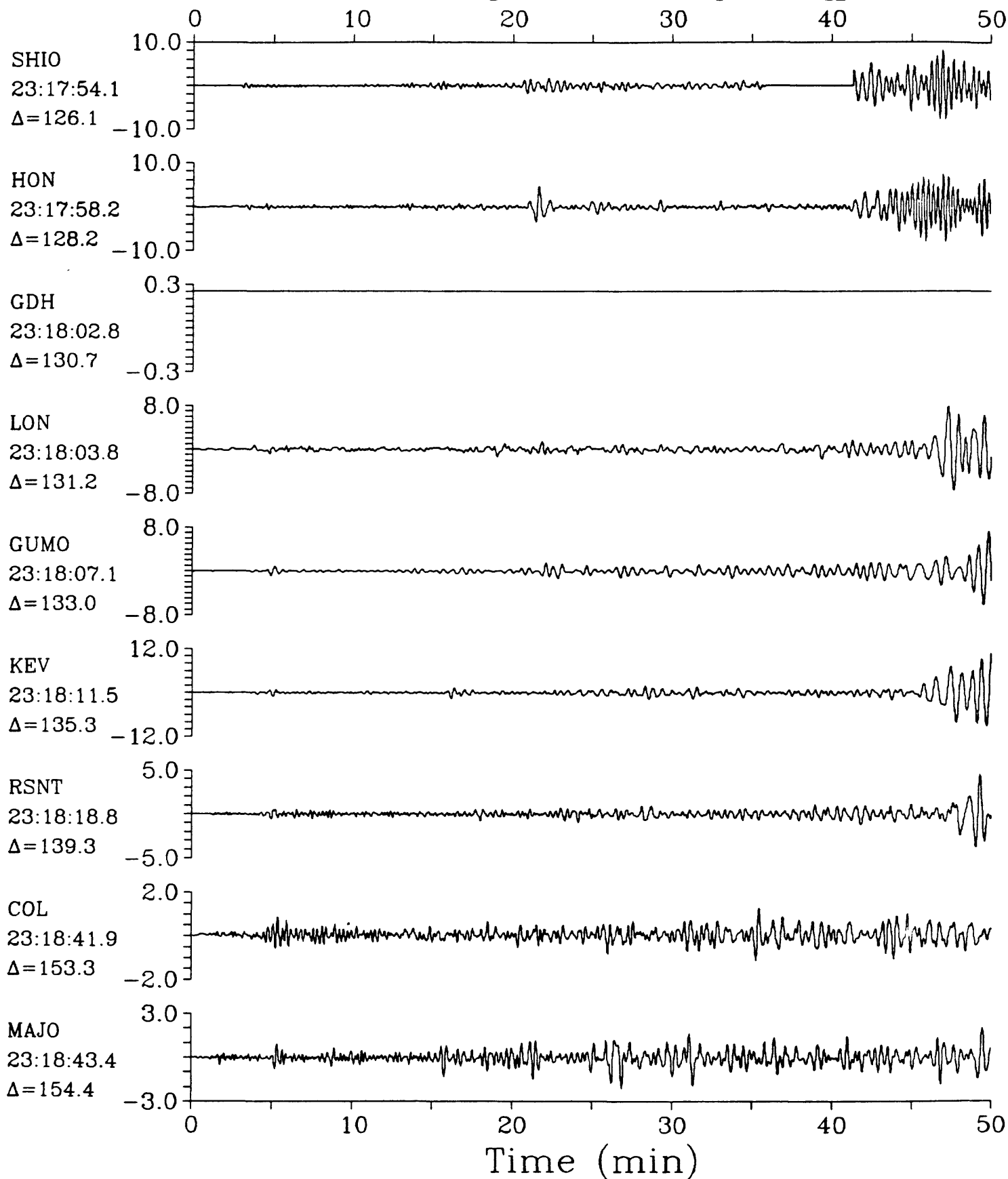
South Sandwich Islands Region $h=33.0$ $m_b=5.8$ $M_{sz}=6.4$ 



LPZ

28 July 1985 22:59:54.59

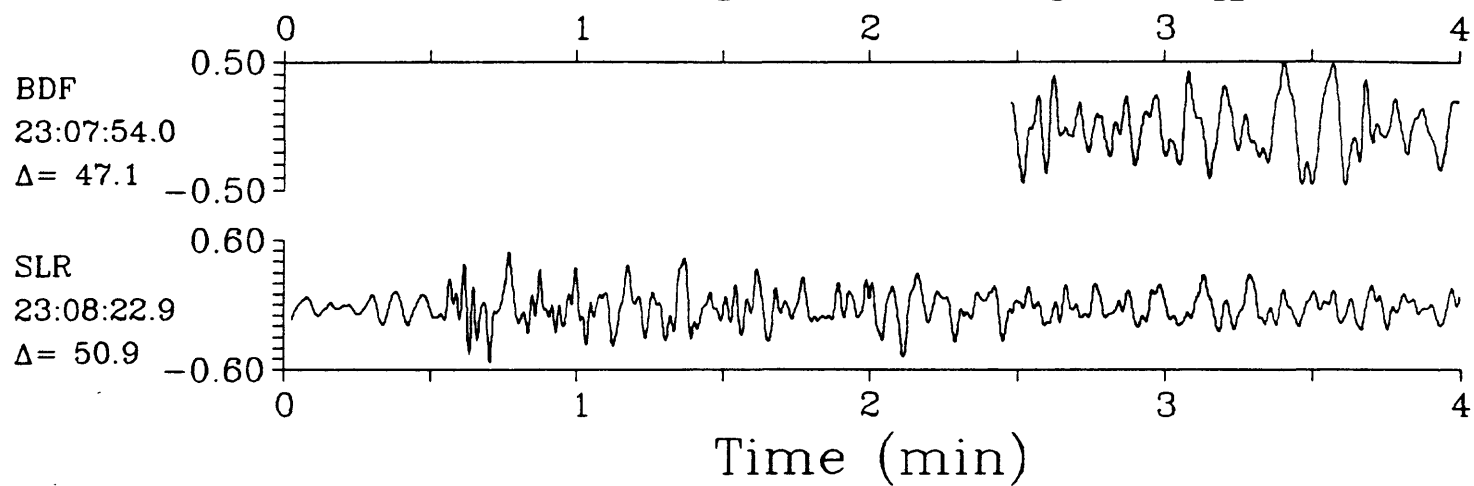
LPZ

South Sandwich Islands Region $h=33.0$ $m_b=5.8$ $M_{sz}=6.4$ 

IPZ

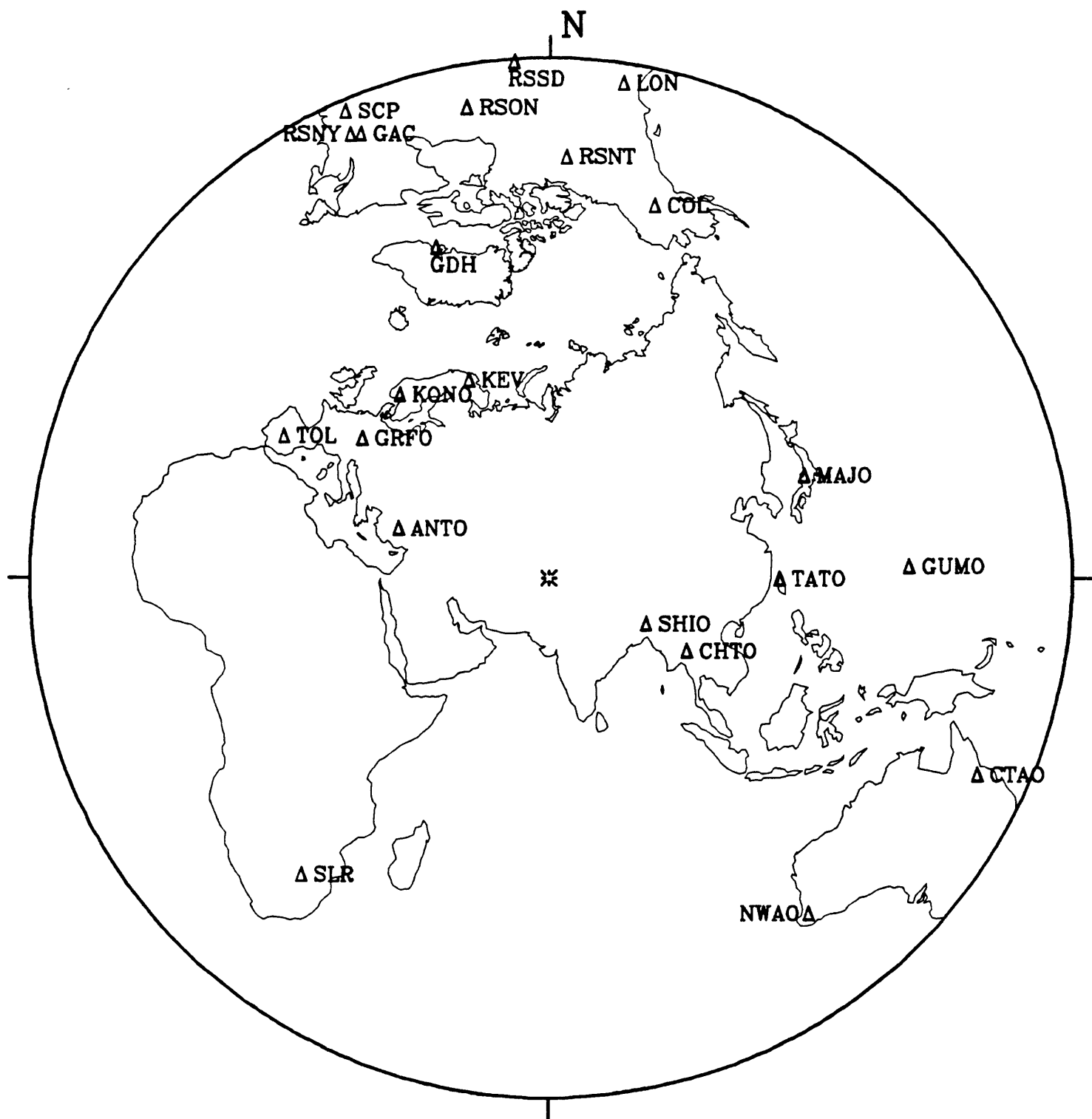
28 July 1985 22:59:54.59

IPZ

South Sandwich Islands Region $h=33.0$ $m_b=5.8$ $M_{sz}=6.4$ 

29 July 1985 07:54:44.34

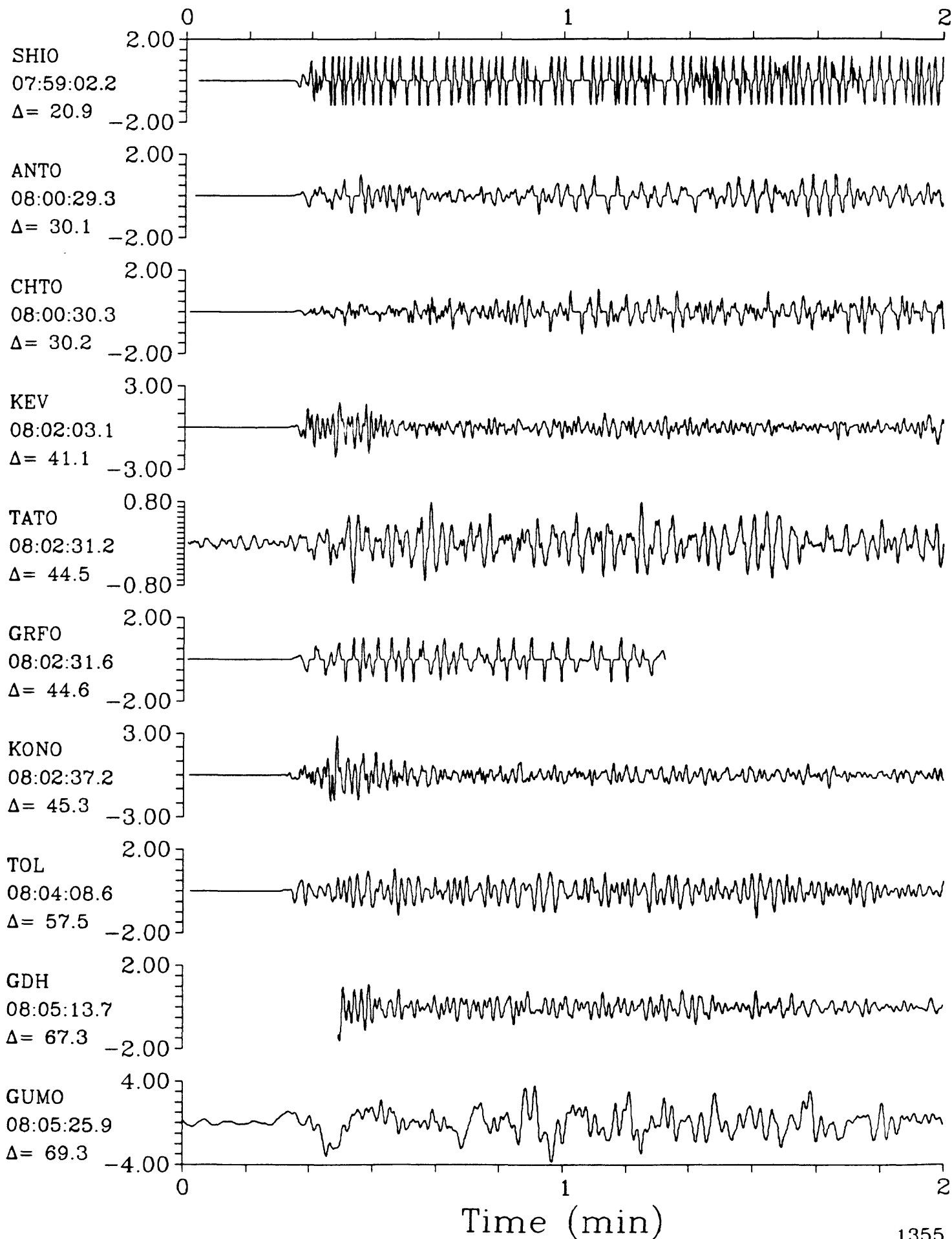
Hindu Kush Region



SPZ

29 July 1985 07:54:44.34

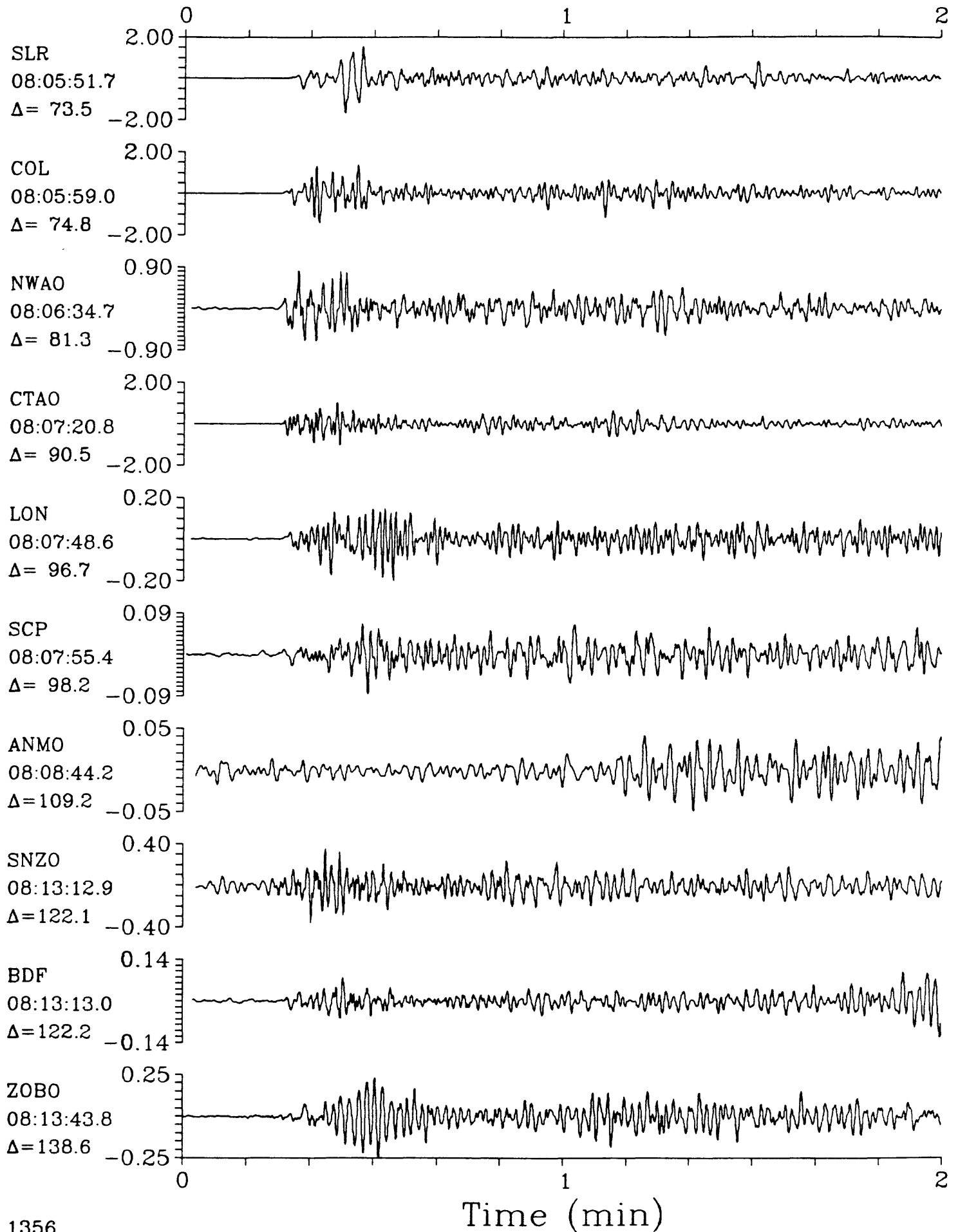
SPZ

Hindu Kush Region $h=101.1$ $m_b=6.7$ 

SPZ

29 July 1985 07:54:44.34
Hindu Kush Region $h=101.1$ $m_b=6.7$

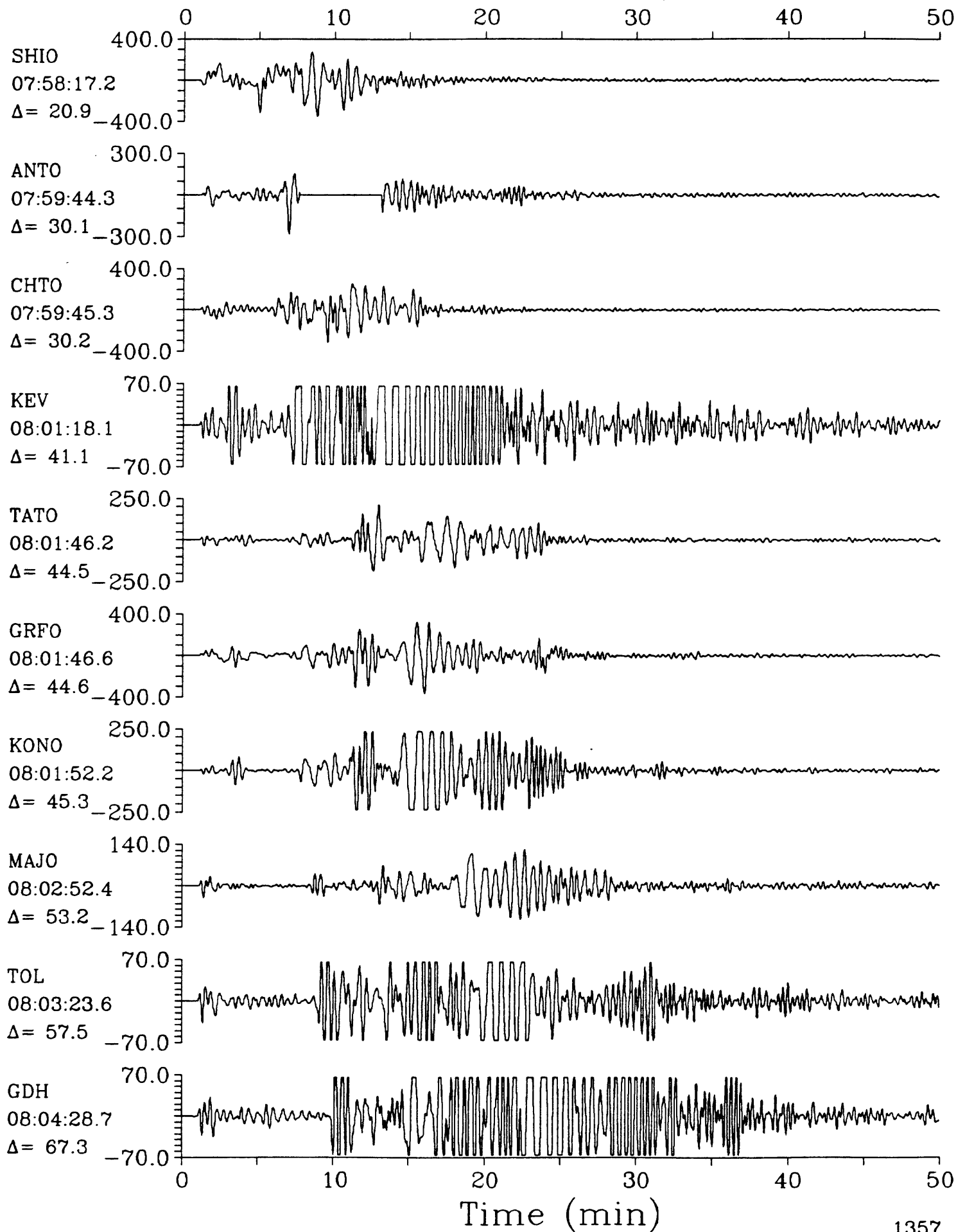
SPZ



LPZ

29 July 1985 07:54:44.34
Hindu Kush Region $h=101.1$ $m_b=6.7$

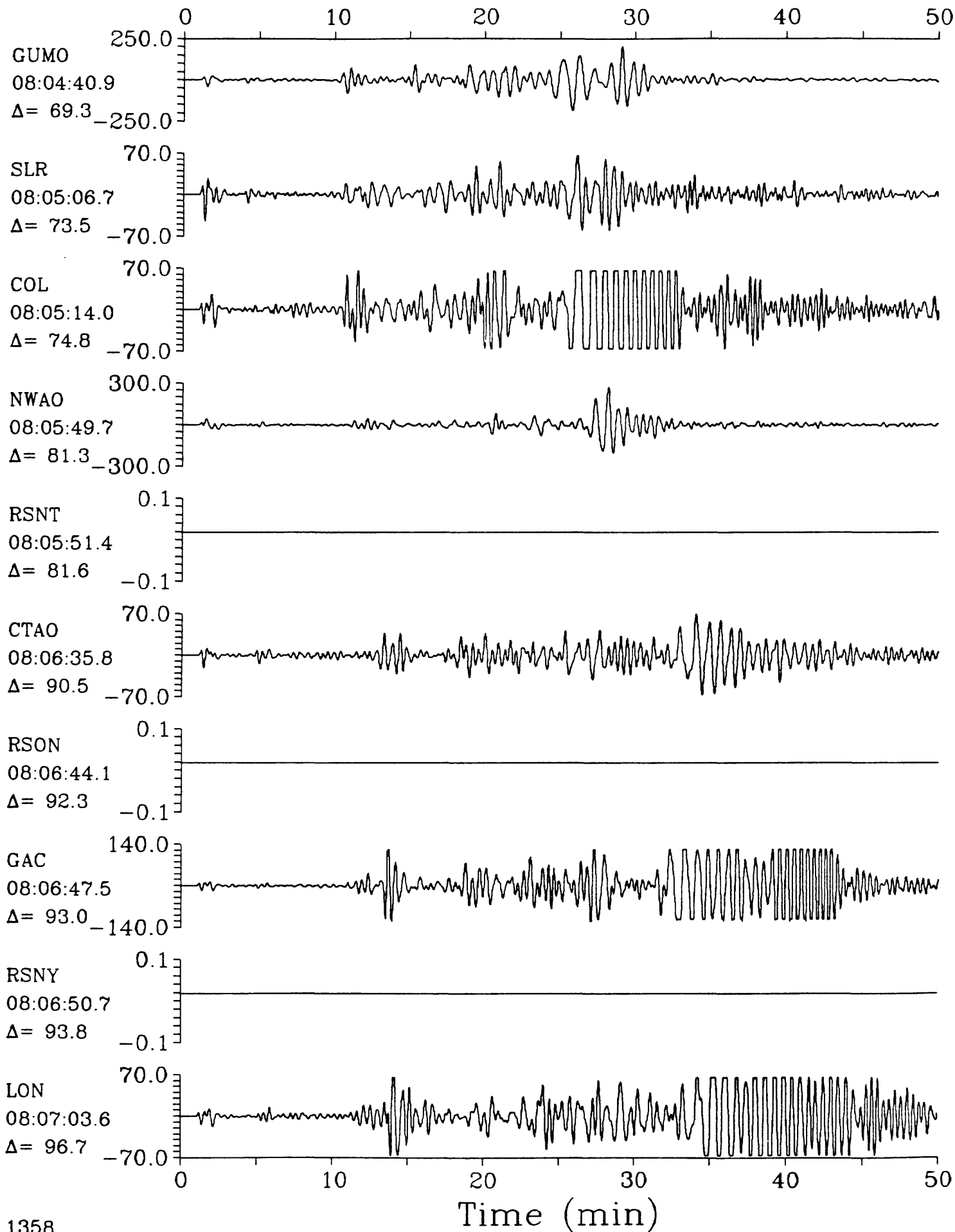
LPZ



LPZ

29 July 1985 07:54:44.34
Hindu Kush Region $h=101.1$ $m_b=6.7$

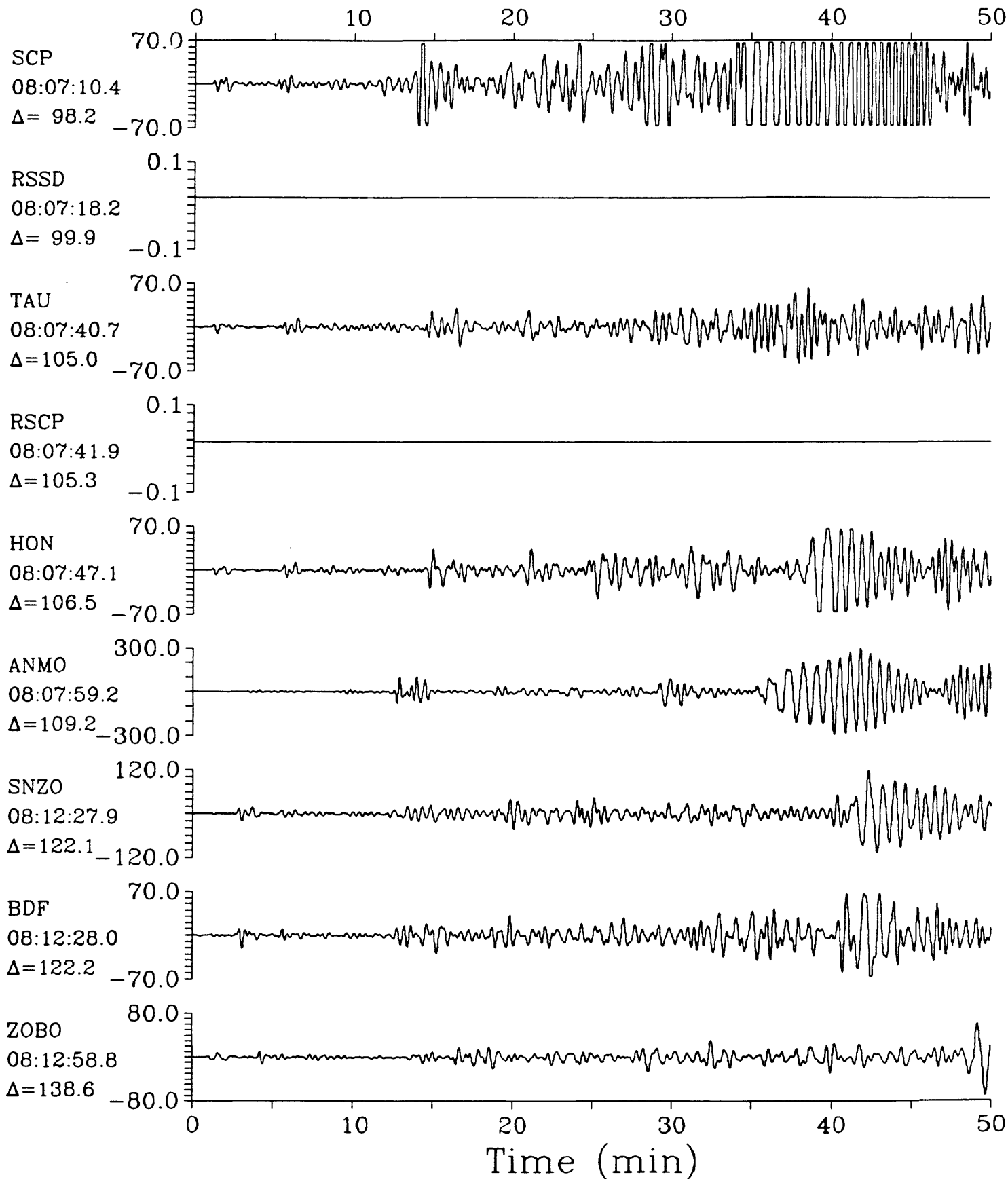
LPZ



LPZ

29 July 1985 07:54:44.34

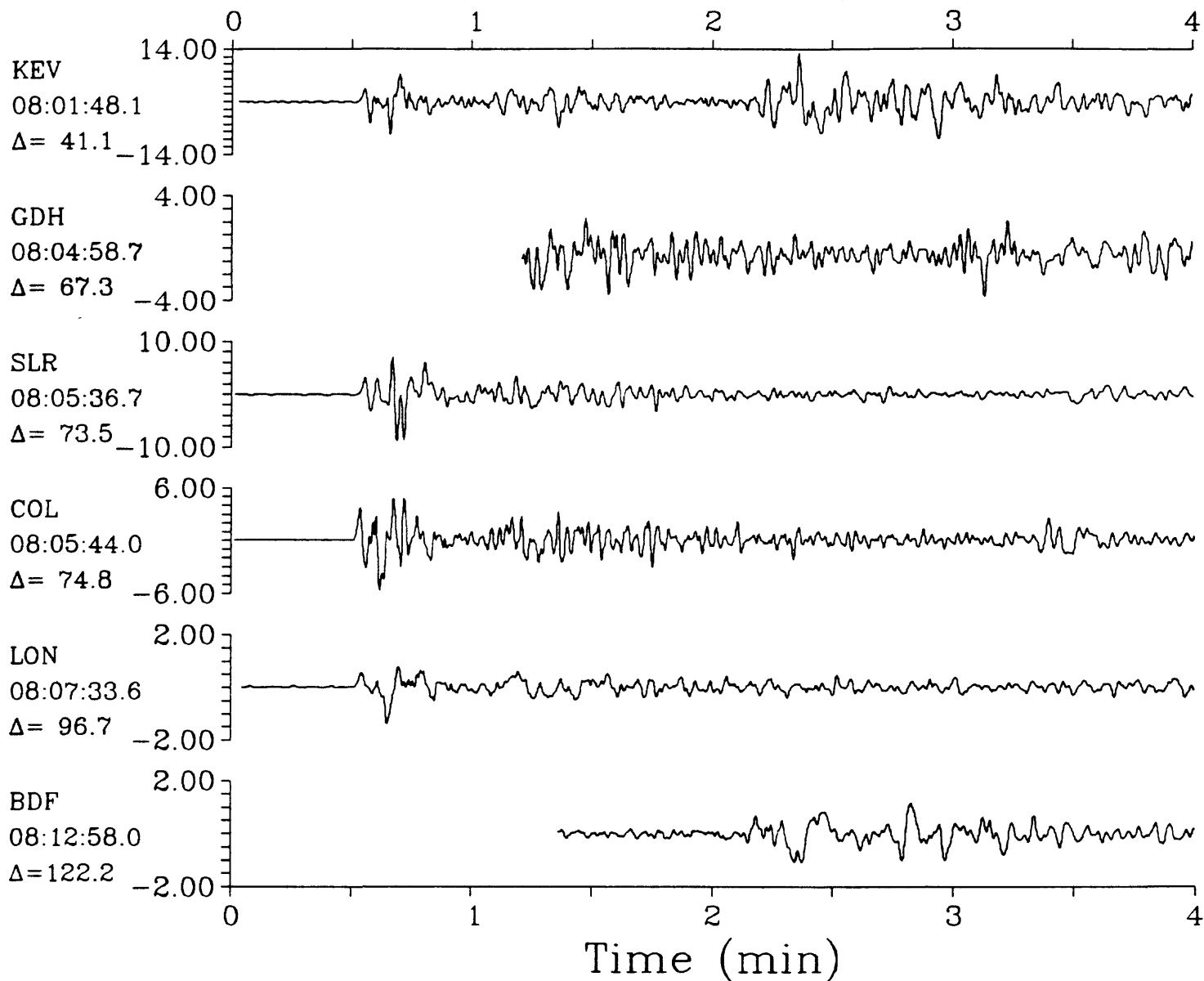
LPZ

Hindu Kush Region $h=101.1$ $m_b=6.7$ 

IPZ

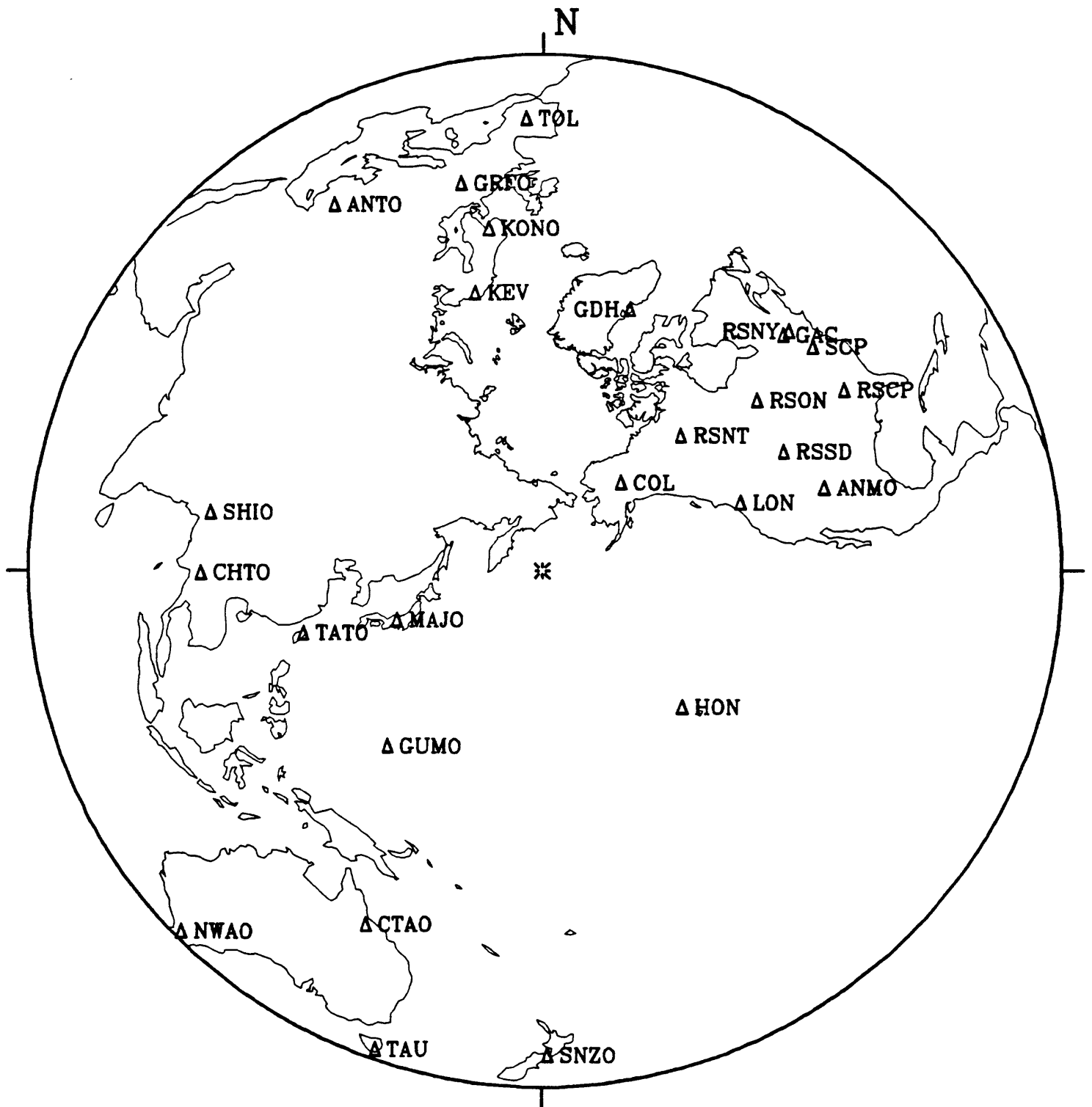
29 July 1985 07:54:44.34
Hindu Kush Region $h=101.1$ $m_b=6.7$

IPZ



31 July 1985 07:37:54.57

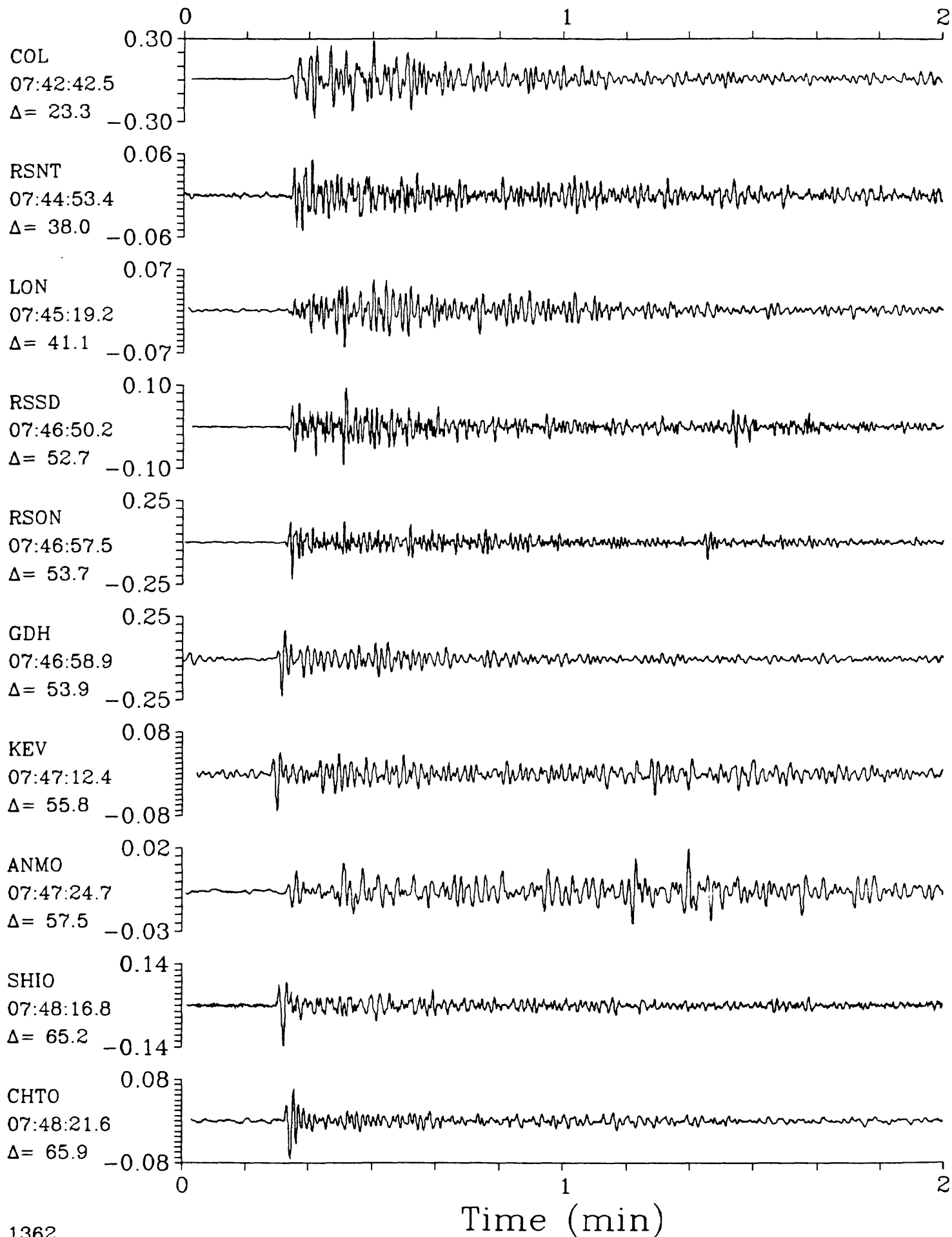
Near Islands, Aleutian Islands



SPZ

31 July 1985 07:37:54.57

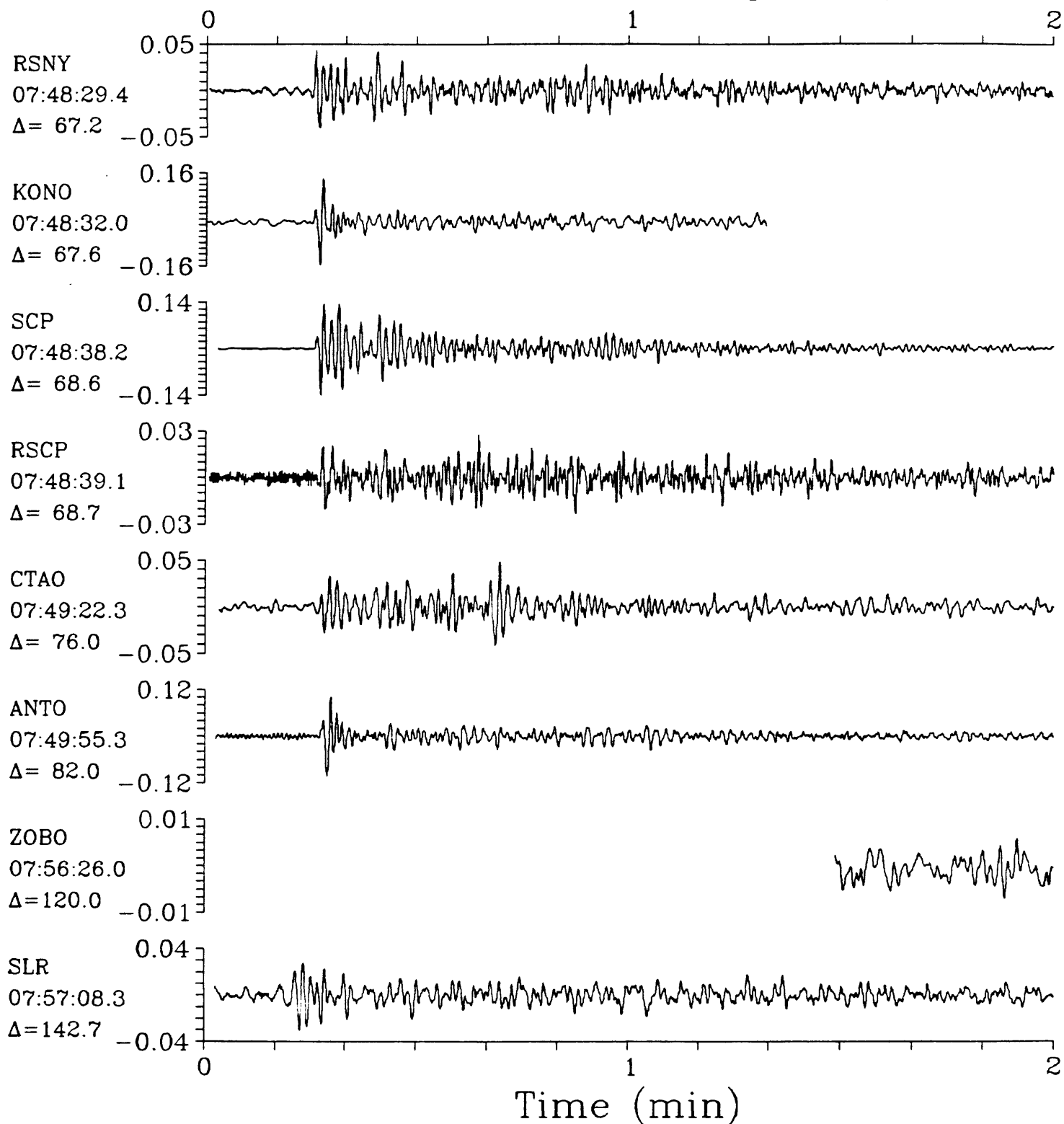
SPZ

Near Islands, Aleutian Islands $h=44.3$ $m_b=5.6$ $M_{sz}=5.0$ 

SPZ

31 July 1985 07:37:54.57

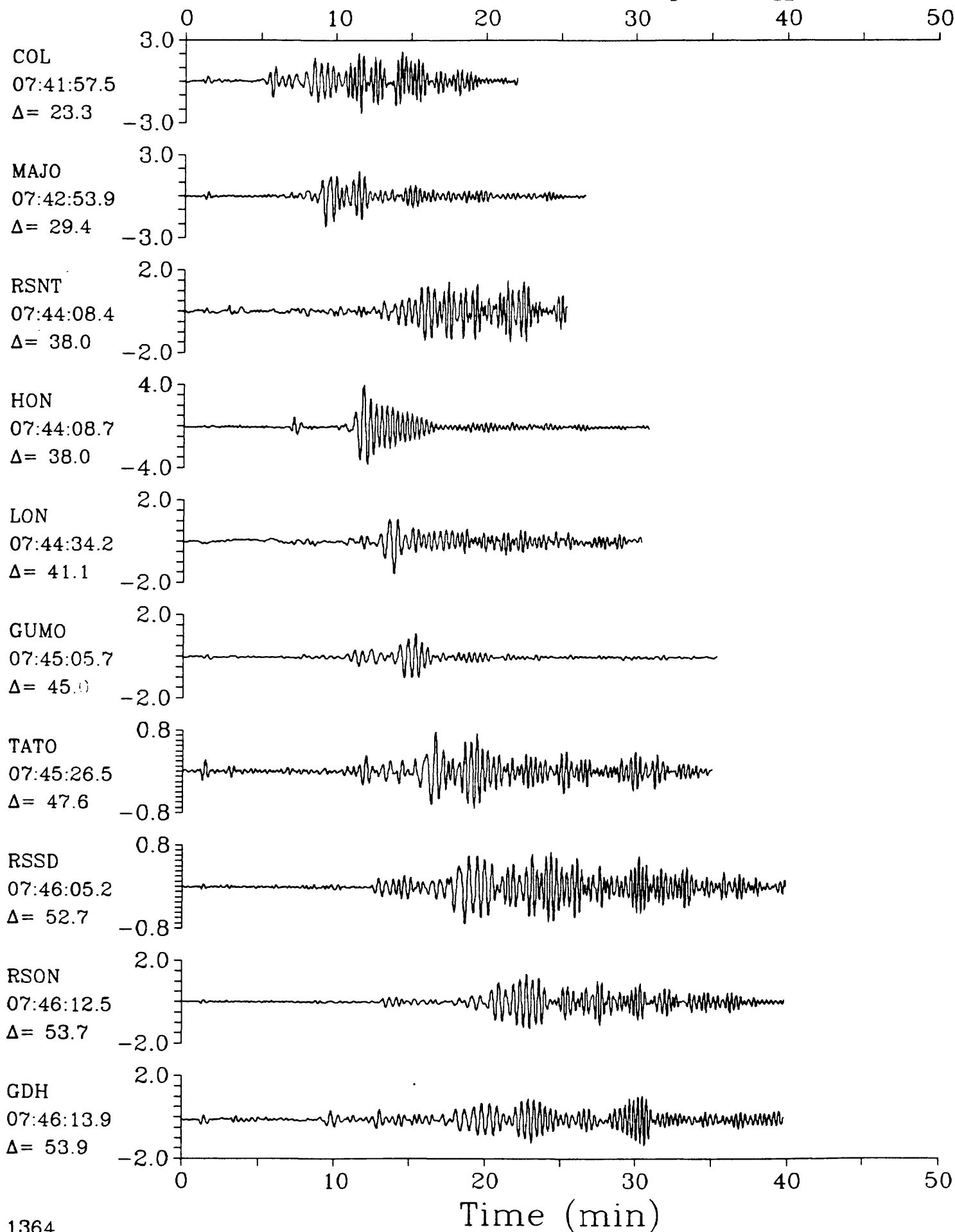
SPZ

Near Islands, Aleutian Islands $h=44.3$ $m_b=5.6$ $M_{sz}=5.0$ 

LPZ

31 July 1985 07:37:54.57

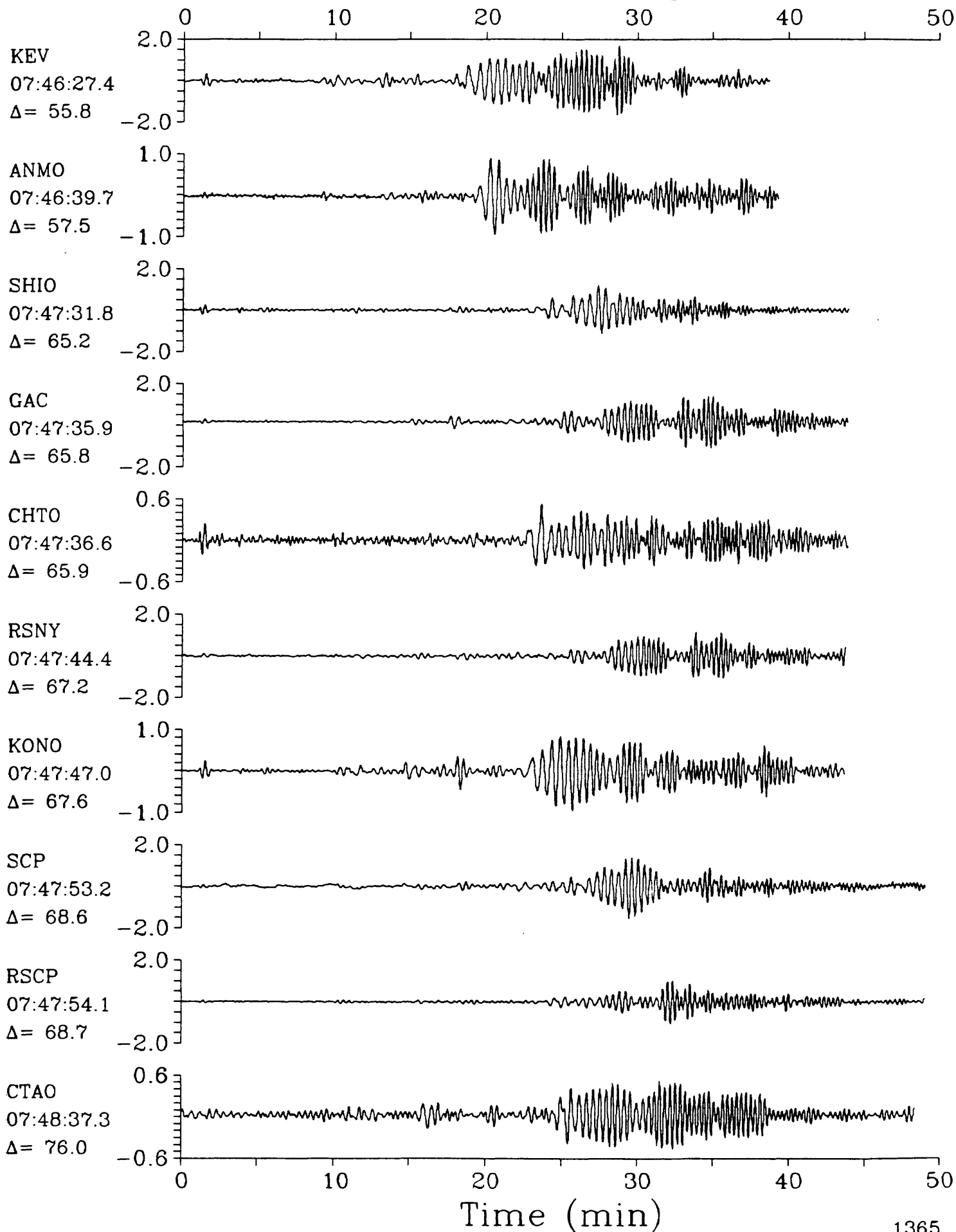
LPZ

Near Islands, Aleutian Islands $h=44.3$ $m_b=5.6$ $M_{SZ}=5.0$ 

LPZ

31 July 1985 07:37:54.57

LPZ

Near Islands, Aleutian Islands $h=44.3$ $m_b=5.6$ $M_{sz}=5.0$ 

LPZ

31 July 1985 07:37:54.57

LPZ

Near Islands, Aleutian Islands $h=44.3$ $m_b=5.6$ $M_{sz}=5.0$ 