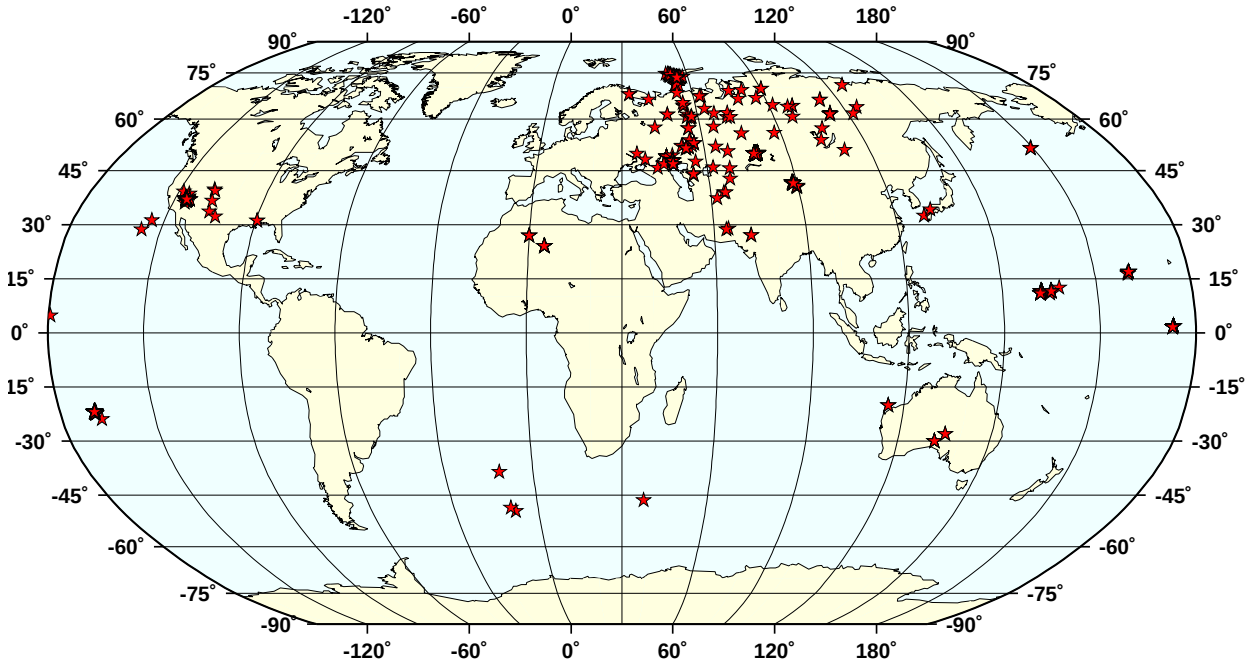
Selected Seismograms from Nuclear Explosions

Selected Seismograms from Nuclear Explosions



September 9, 1999

U.S. Nuclear Explosions

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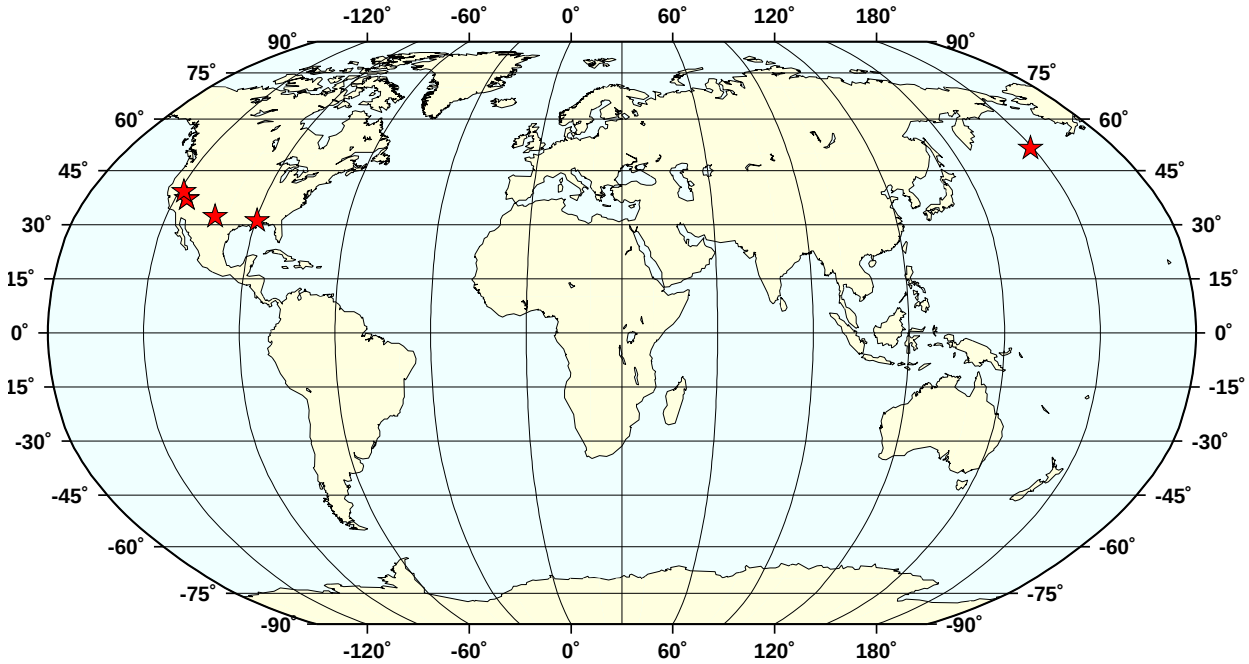
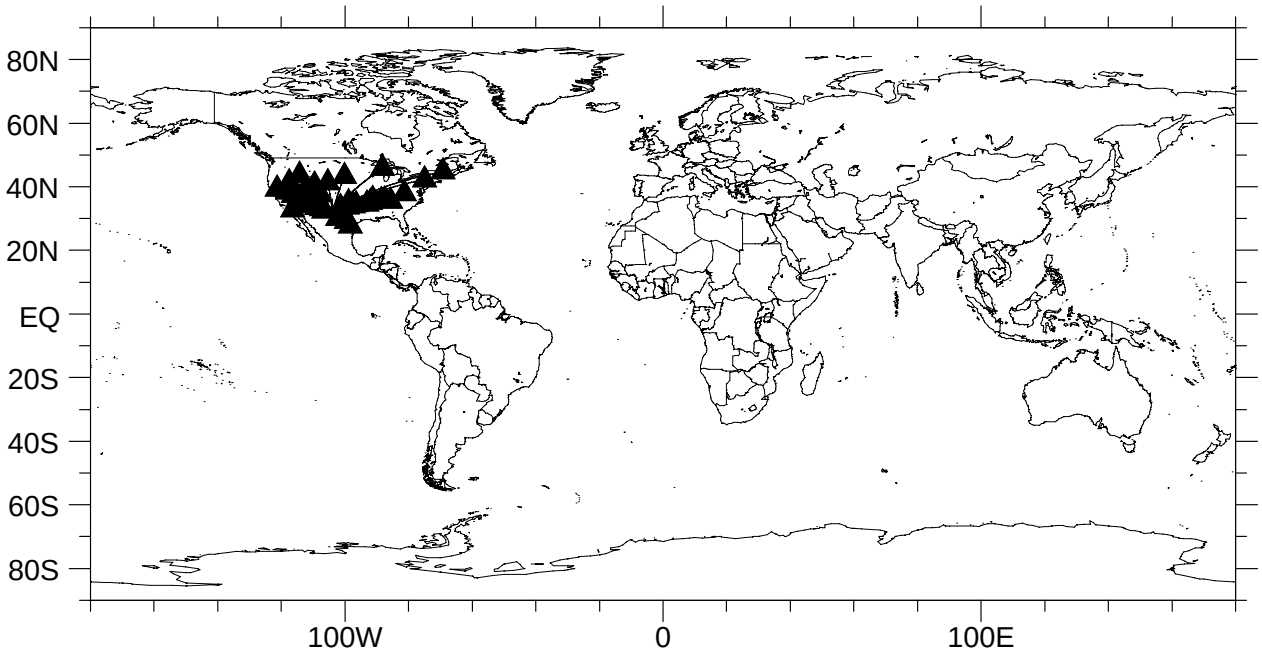


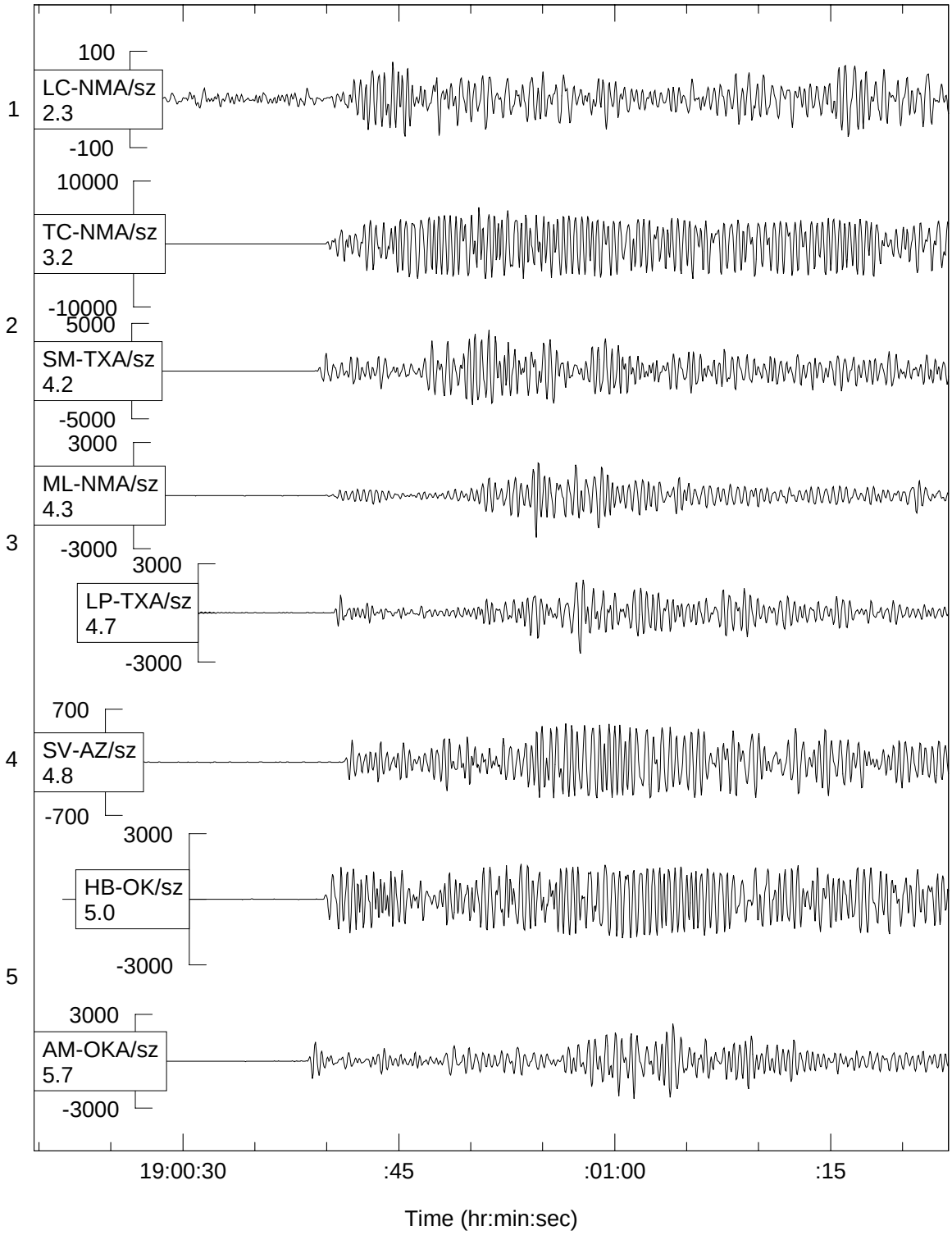
Event Name	Date	Time	Latitude	Longitude	mb	yield
Gnome	12/10/61	19:00:00.0	32.2636	-103.8658		3
Hard Hat	02/15/62	18:00:00.1	37.2263	-116.0593	5.30	5.7
Bilby	09/13/63	17:00:00.1	37.0604	-116.0217	5.80	249
Shoal	10/26/63	17:00:00.1	39.2002	-118.3803	4.90	12
Salmon	10/22/64	16:00:00.0	31.1421	-89.5699	4.60	5.3
Long Shot	10/29/65	21:00:00.1	51.4381	179.1826	6.10	80

Gnome (1961/12/10)

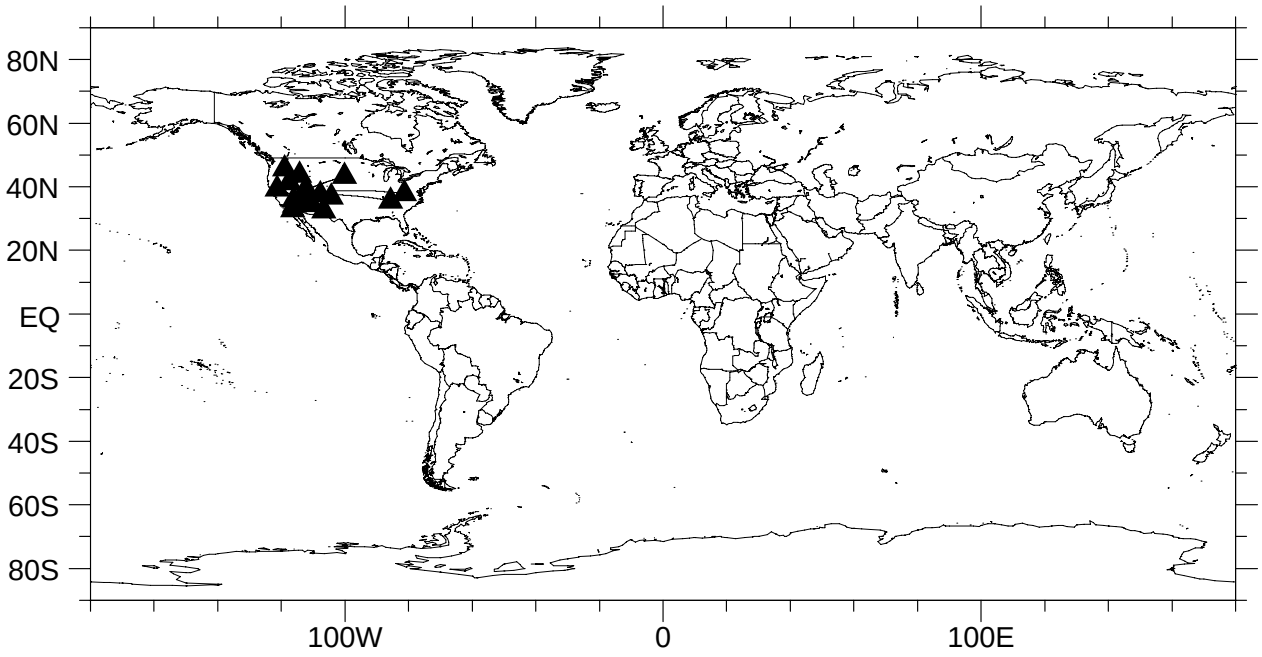


Map shows source-station paths for Gnome explosion on 1961/12/10, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Gnome (1961/12/10)

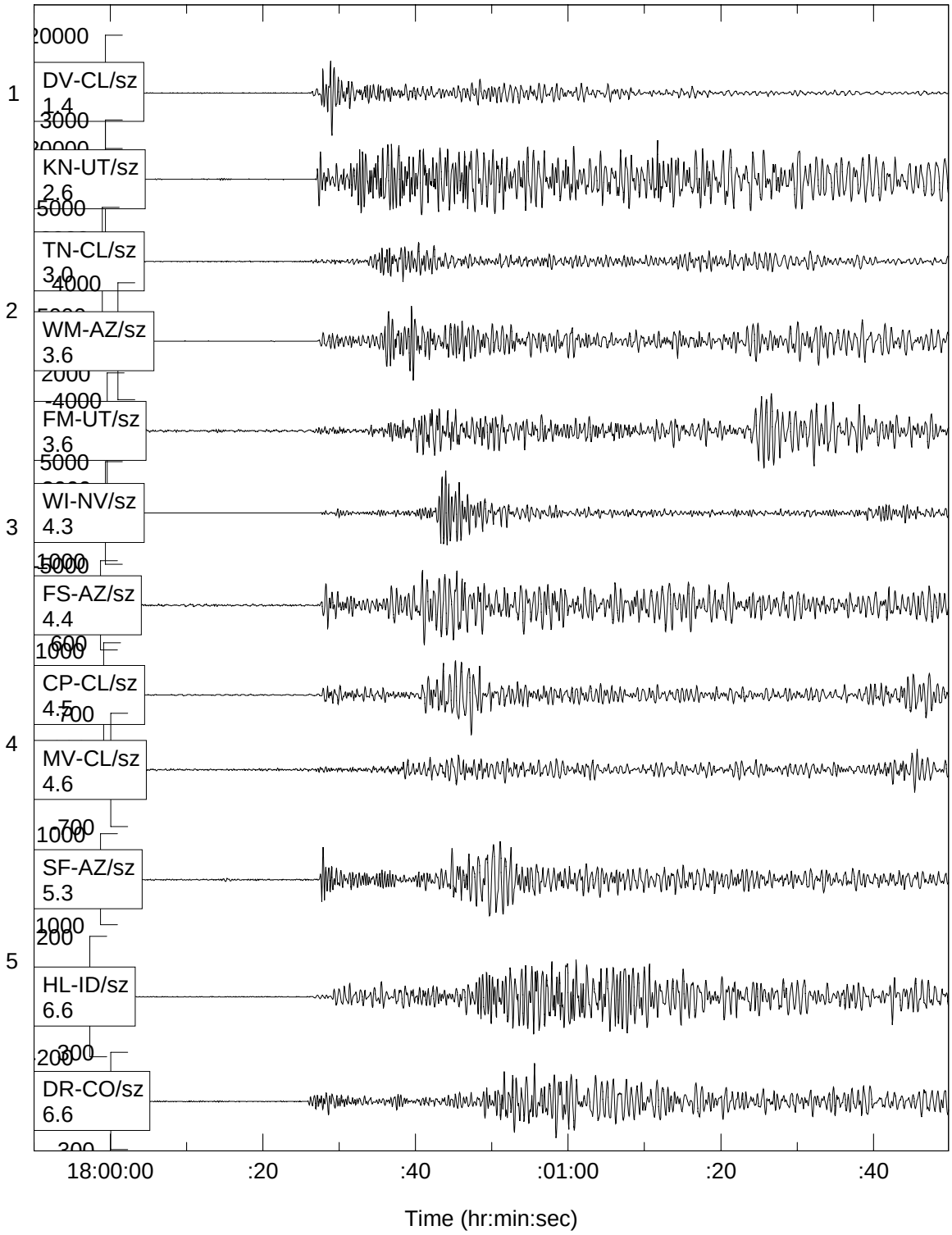


Hard hat (1962/02/15)

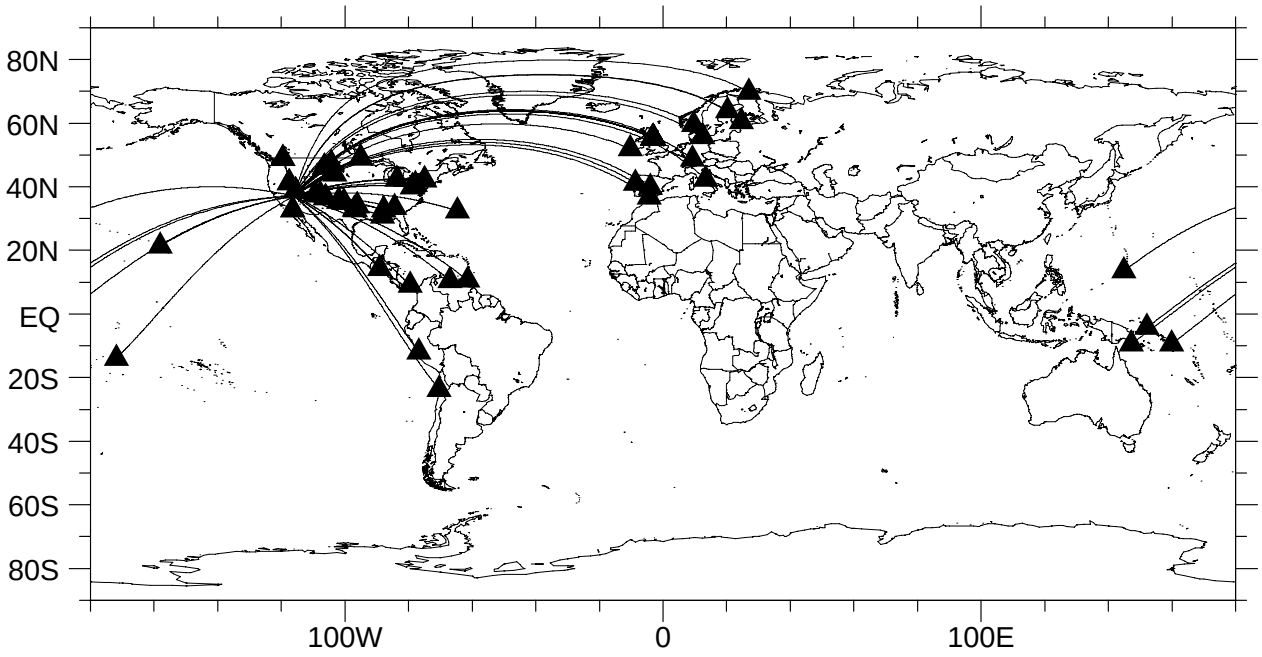


Map shows source-station paths for Hard Hat explosion on 1962/02/15, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Hard hat (1962/02/15)

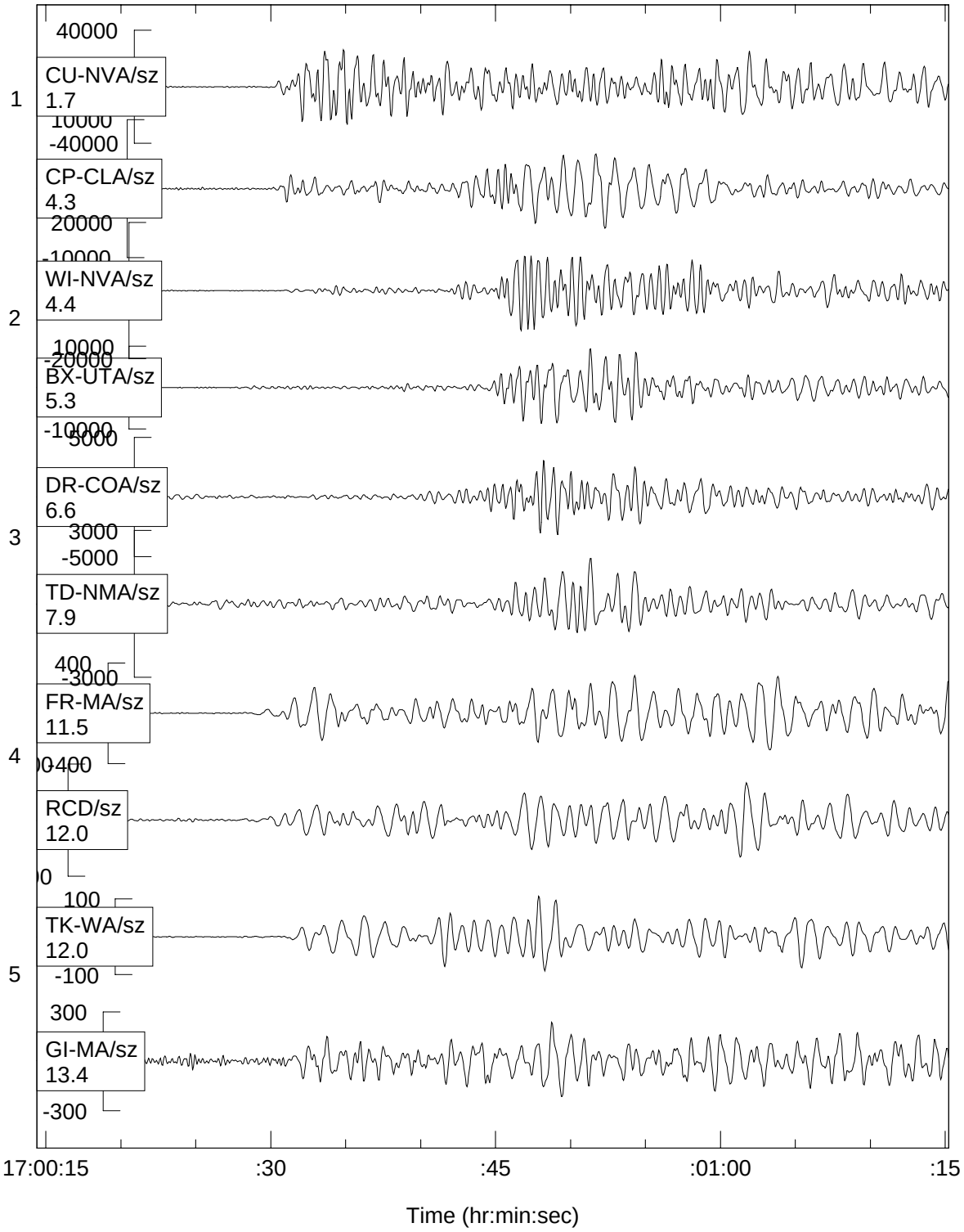


Bilby (1963/09/13)

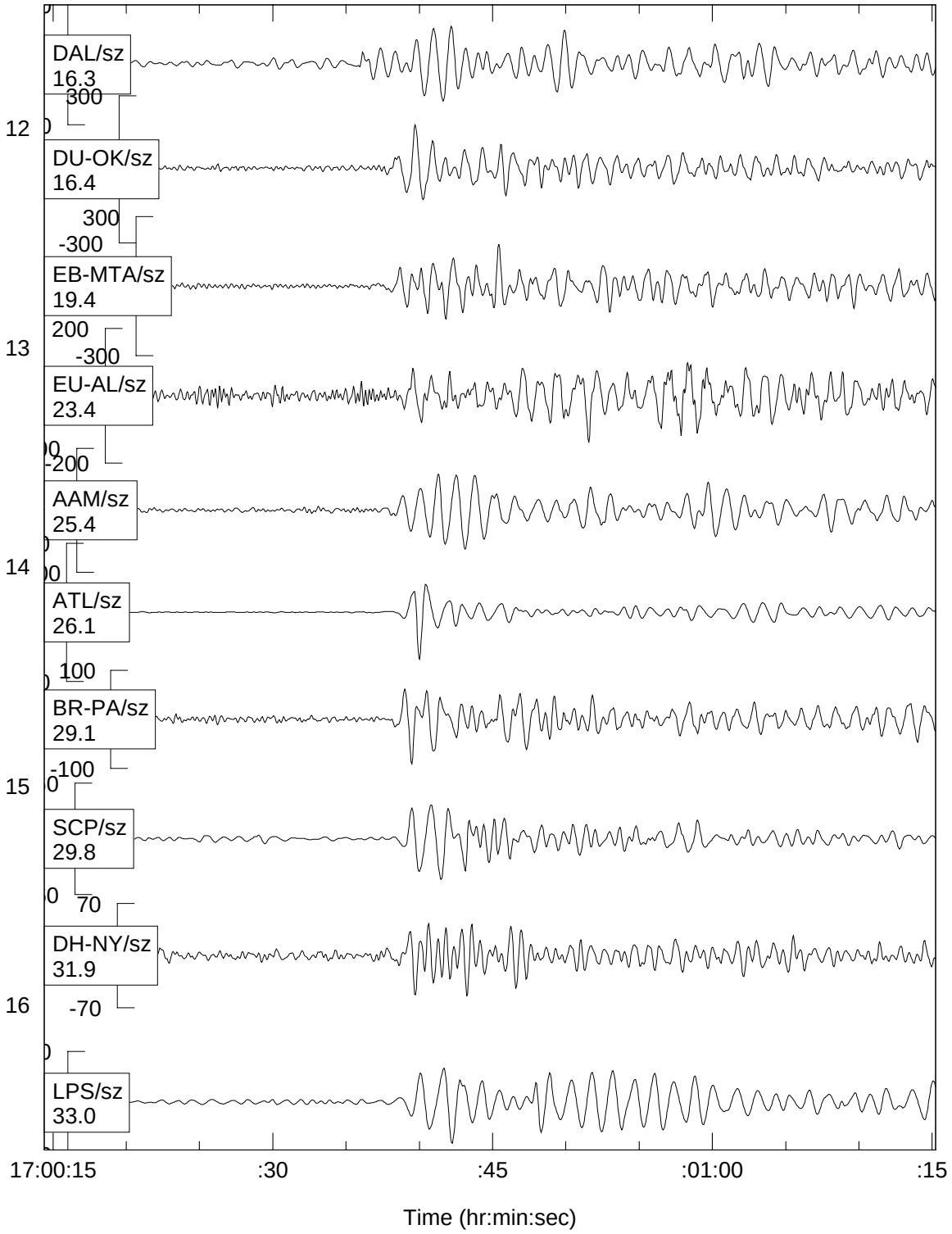


Map shows source-station paths for Bilby explosion on 1963/09/13, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

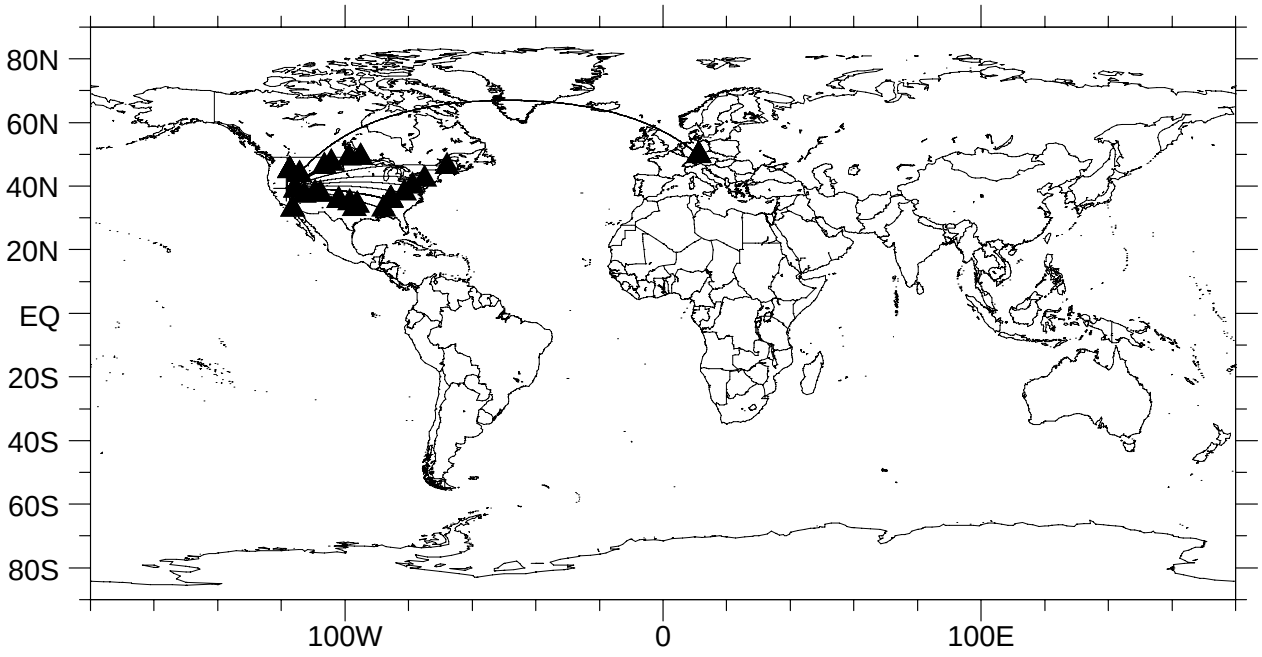
Bilby (1963/09/13)



Bilby (1963/09/13)

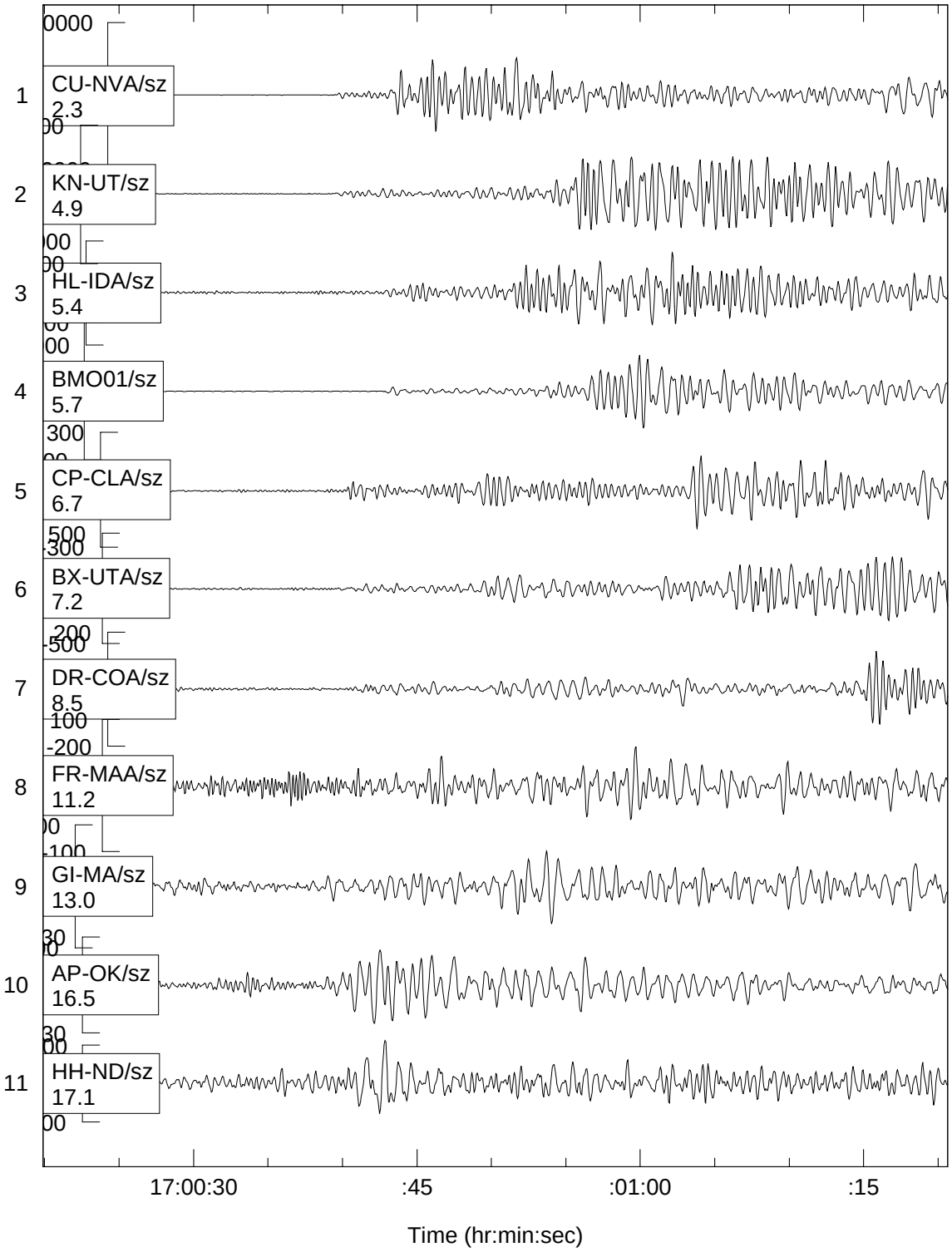


Shoal (1963/10/26)

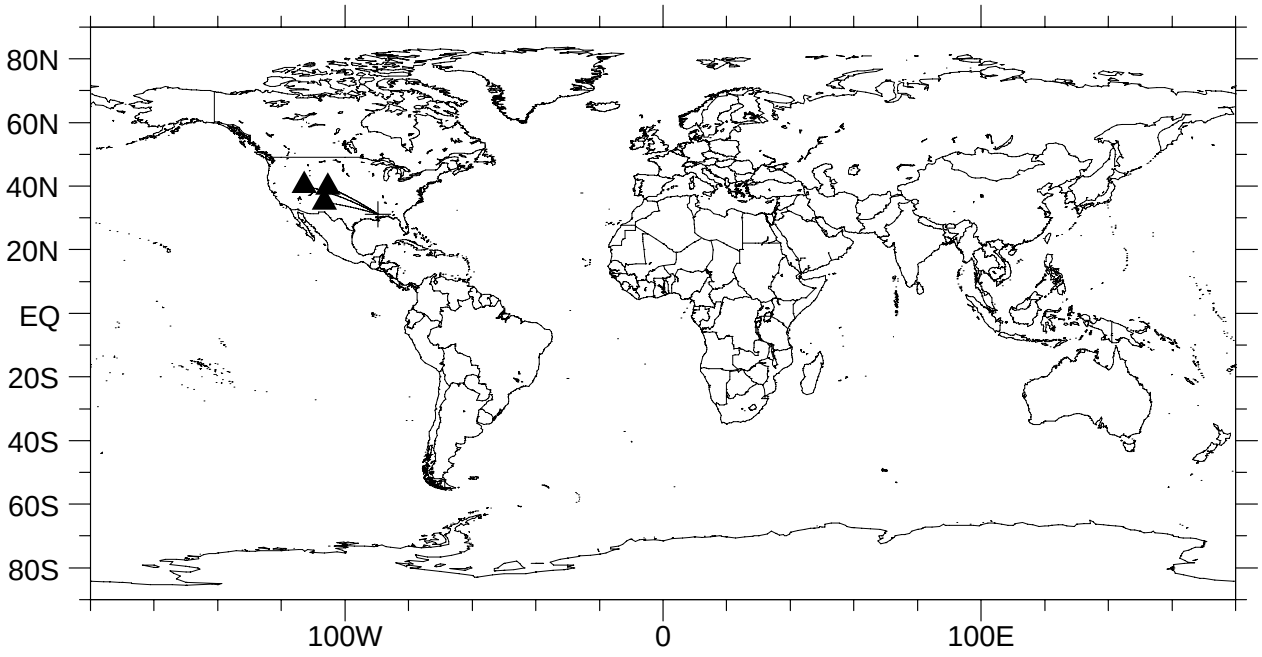


Map shows source-station paths for Shoal explosion on 1963/10/26, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Shoal (1963/10/26)

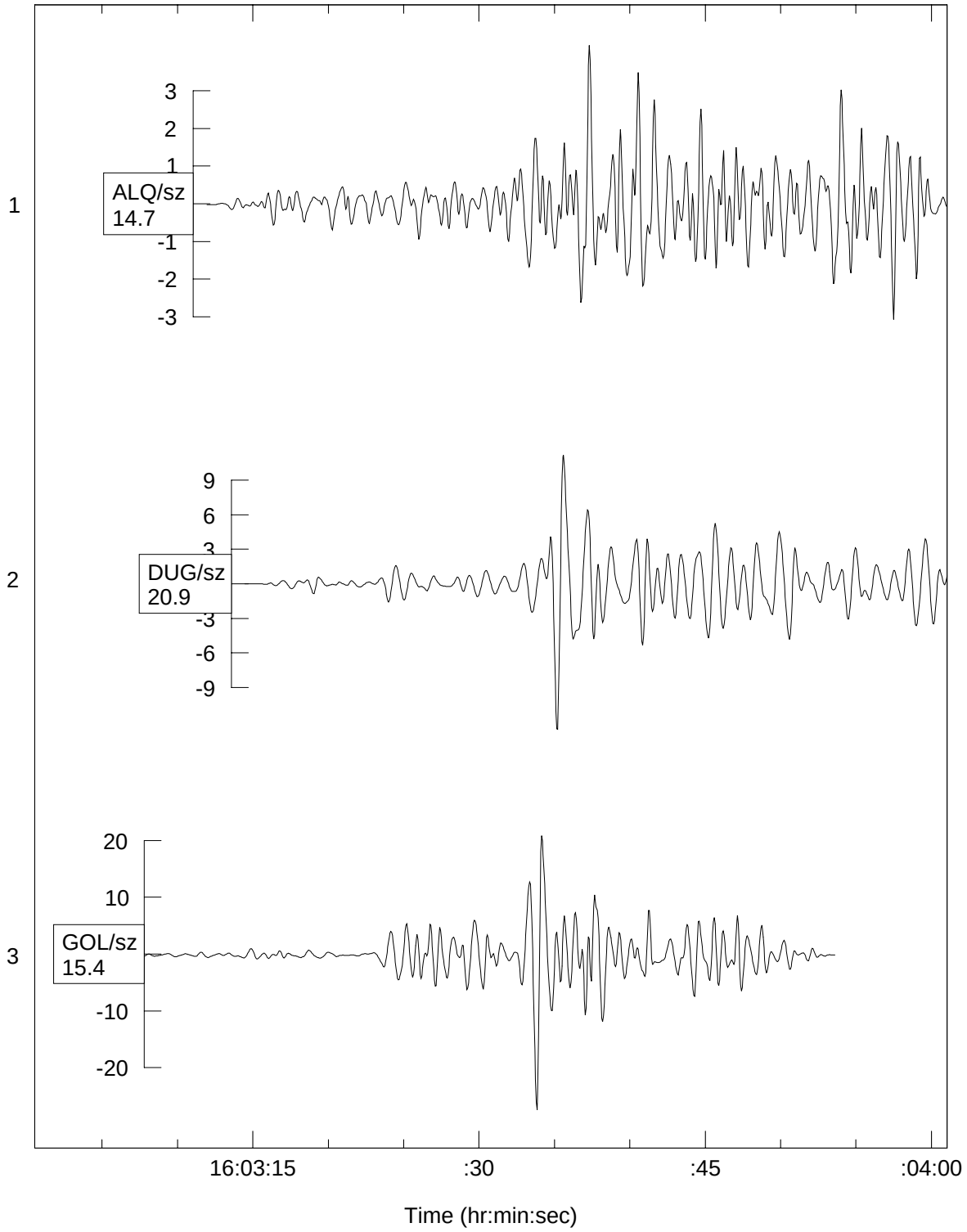


Salmon (1964/10/22)

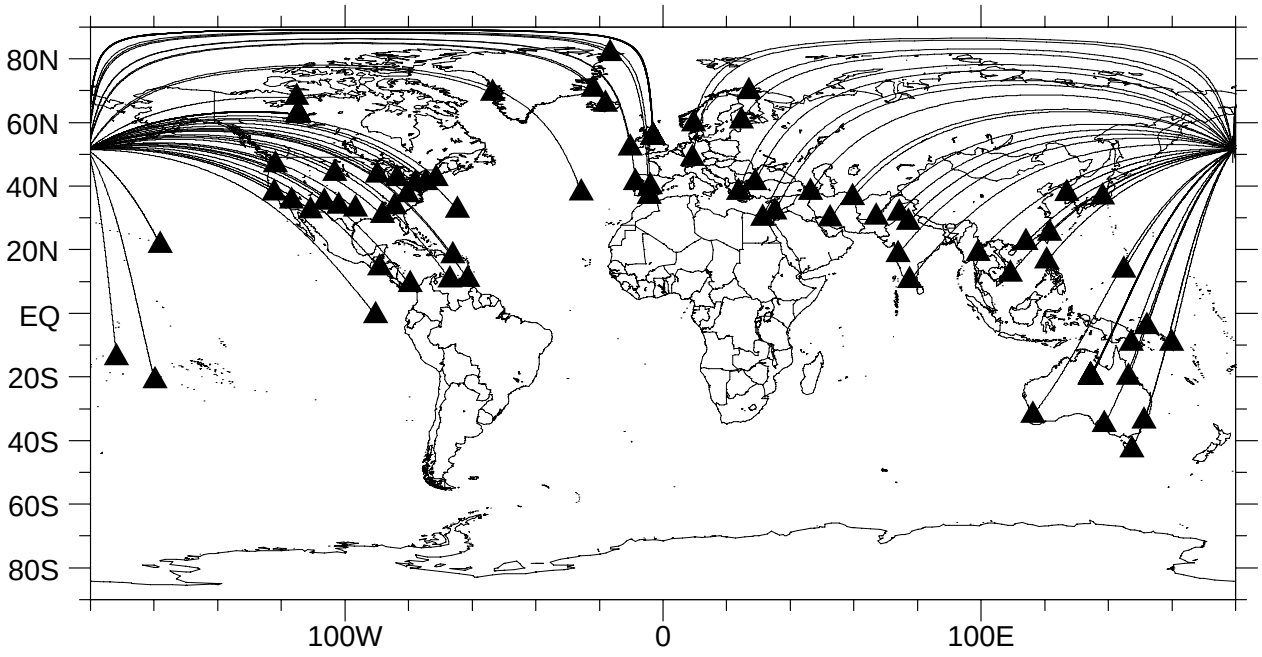


Map shows source-station paths for Salmon explosion on 1964/10/22, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Salmon (1964/10/22)

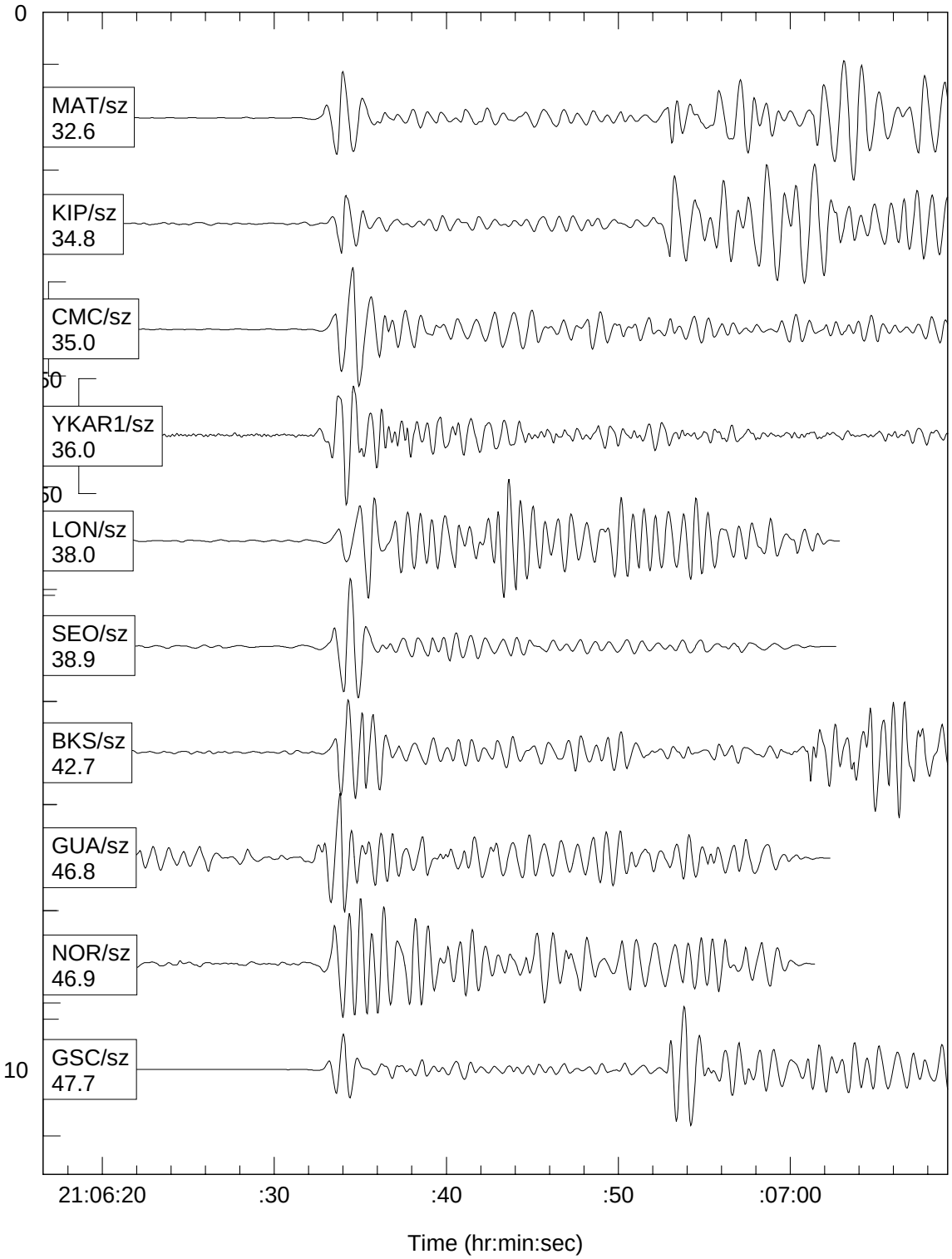


Long Shot (1965/10/29))

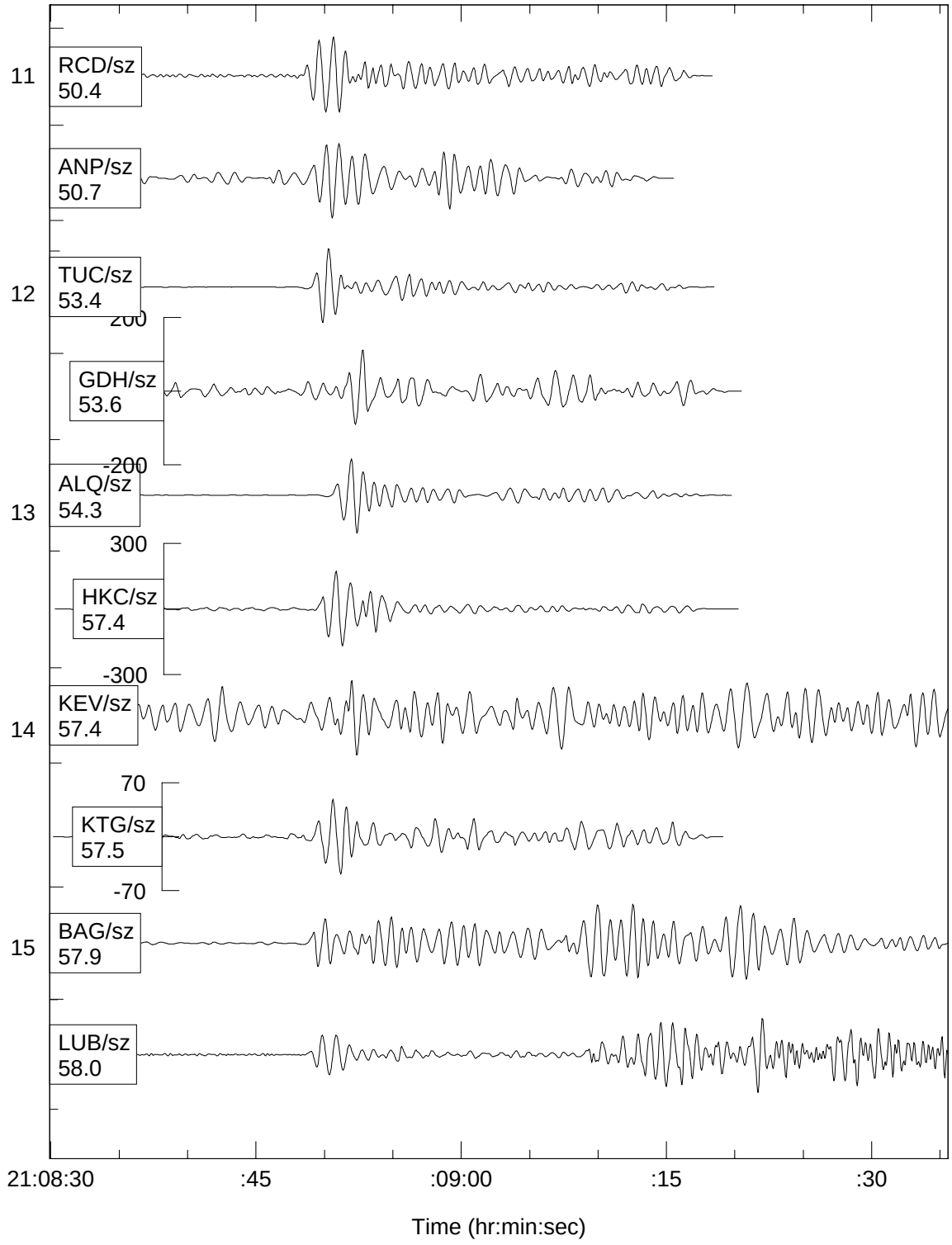


Map shows source-station paths for Long Shot explosion on 1965/10/29, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Long Shot (1965/10/29))



Long Shot (1965/10/29))



British Nuclear Explosions

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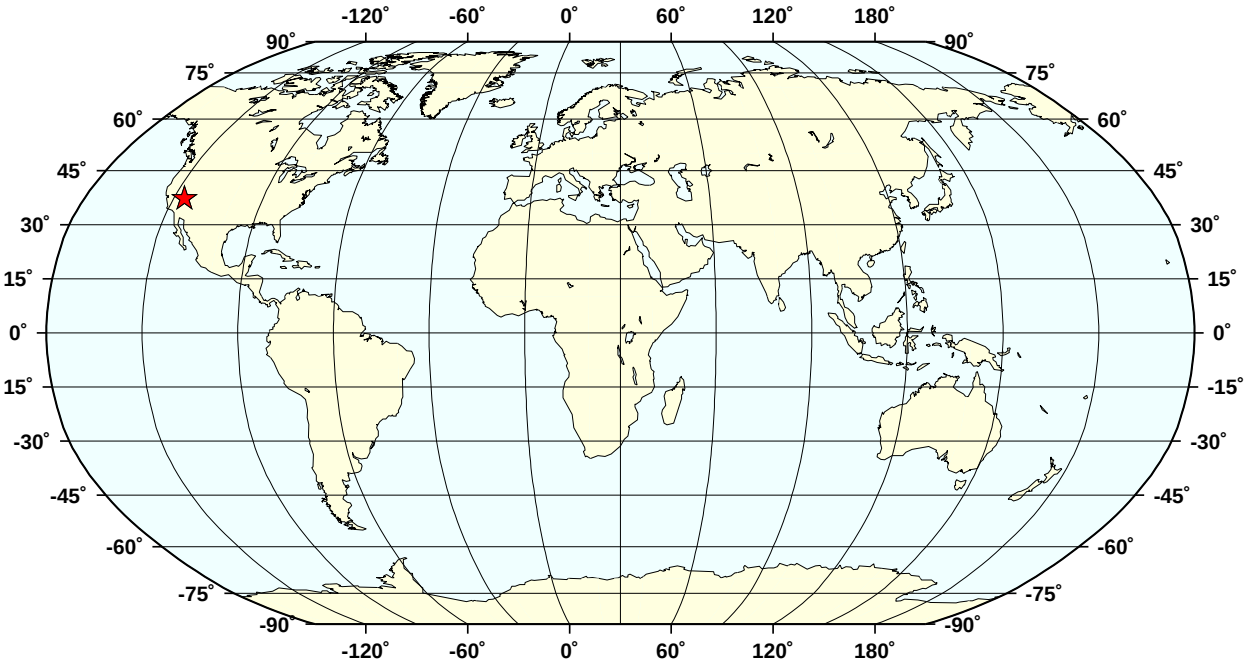
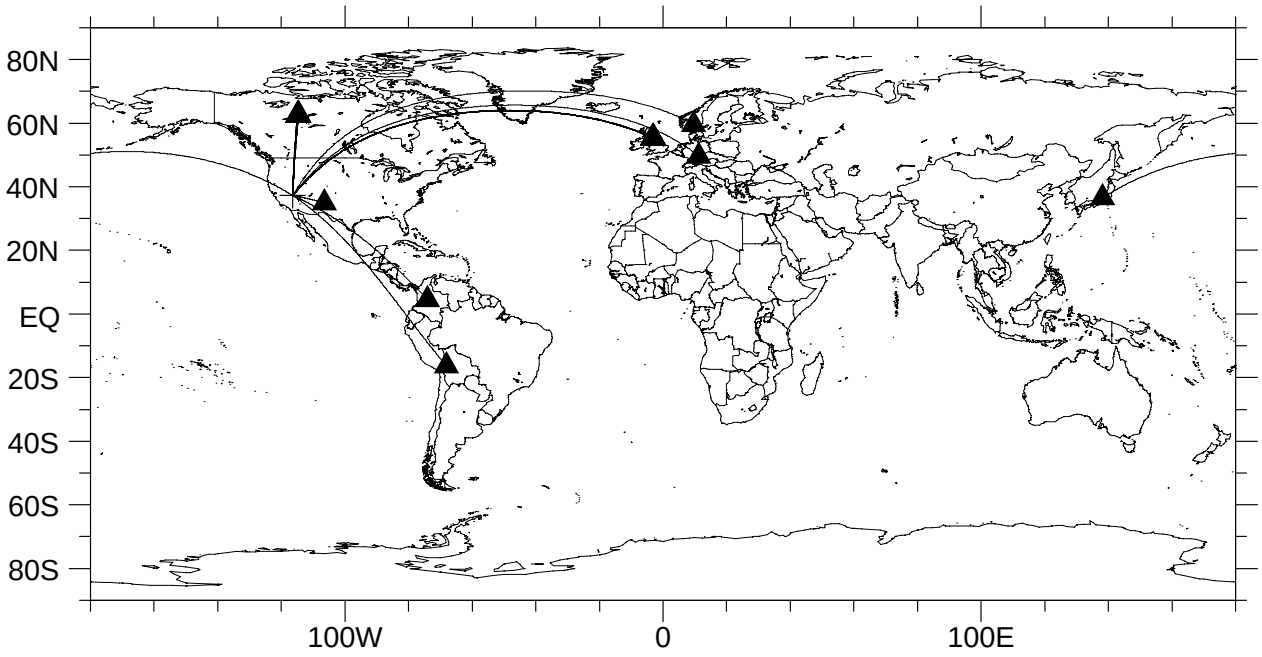


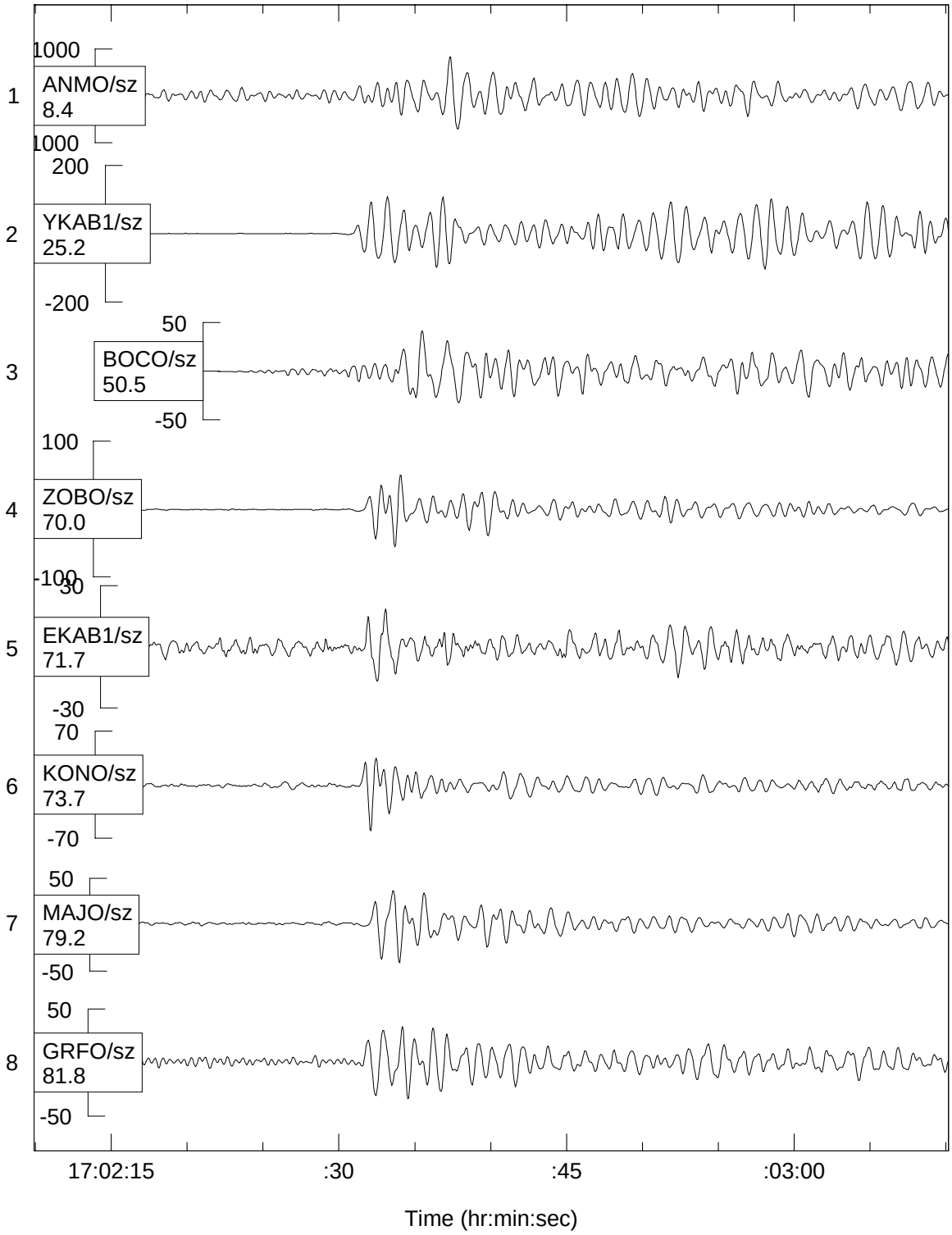
Event Name	Date	Time	Latitude	Longitude	mb	yield	max_yield
Colwick	04/26/80	17:00:00.1	37.2484	-116.4224	5.80	20	150
Houston	11/14/90	19:17:00.7	37.2274	-116.3712	5.70	20	150

Colwick (1980/04/26)

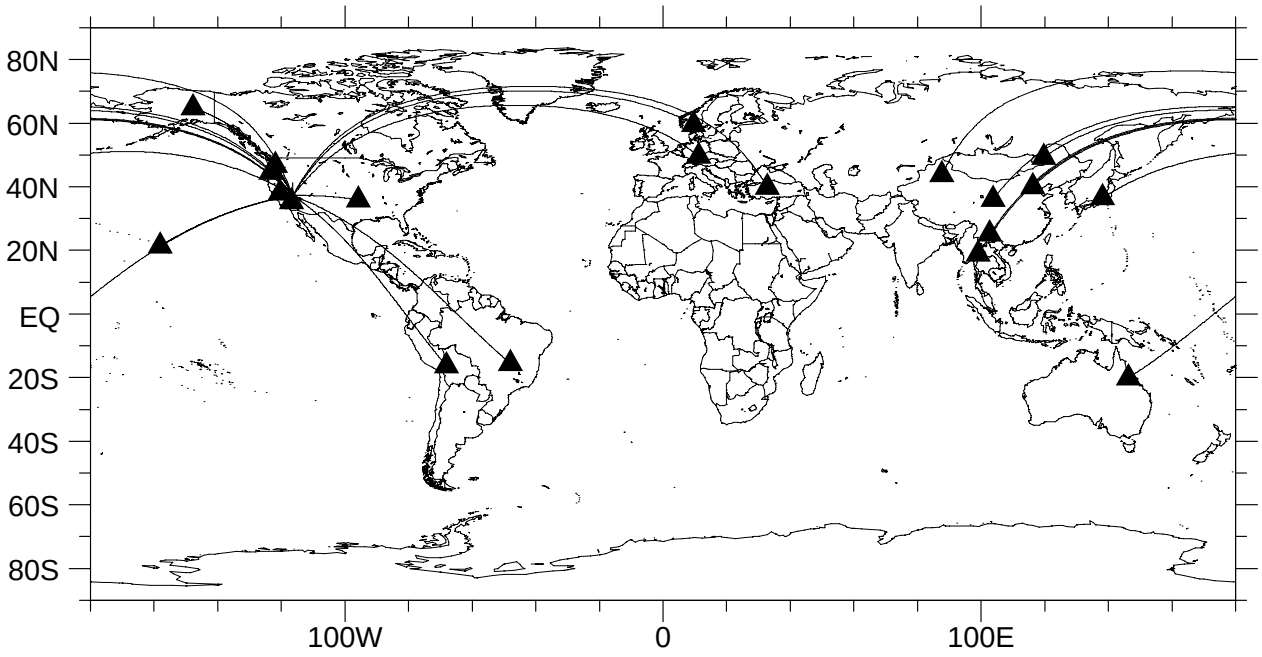


Map shows source-station paths for Colwick explosion on 1980/04/26, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Colwick (1980/04/26)

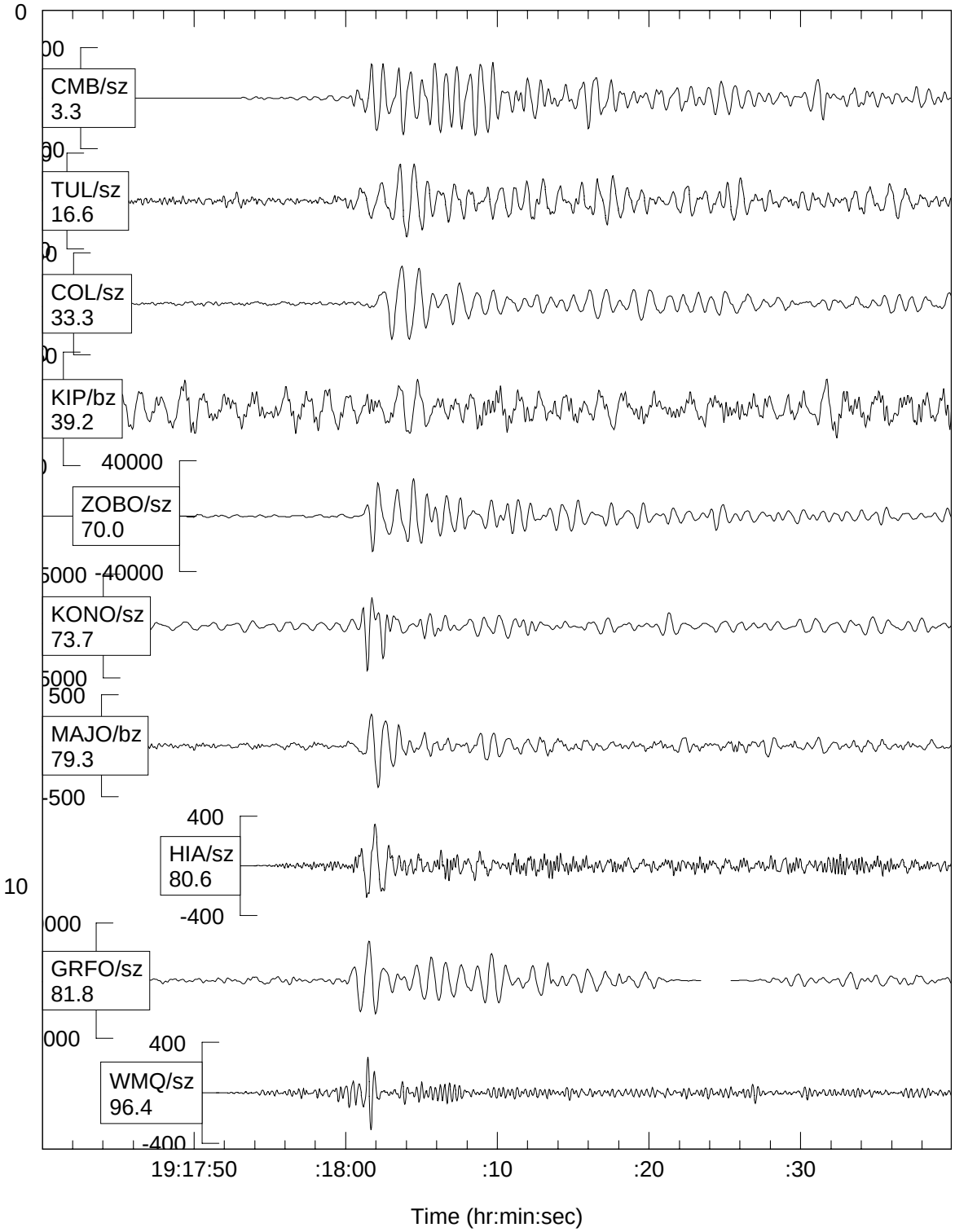


Houston (1990/11/14)



Map shows source-station paths for Houston explosion on 1990/11/14, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Houston (1990/11/14)



Soviet Nuclear Explosions

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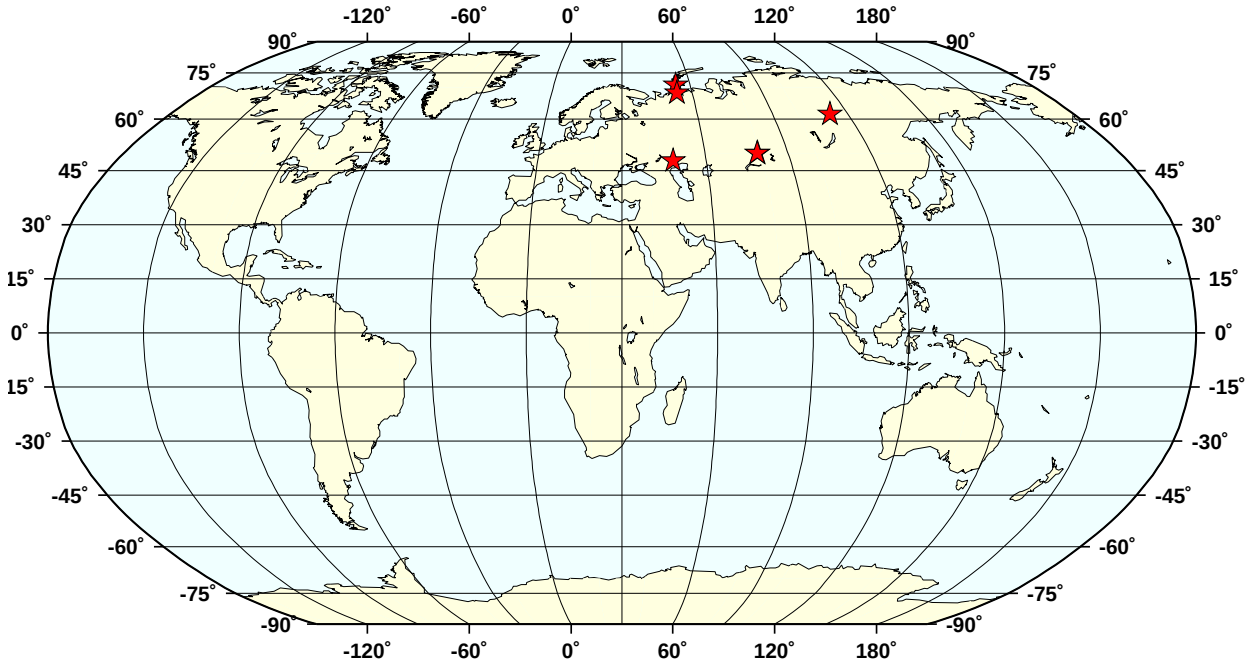
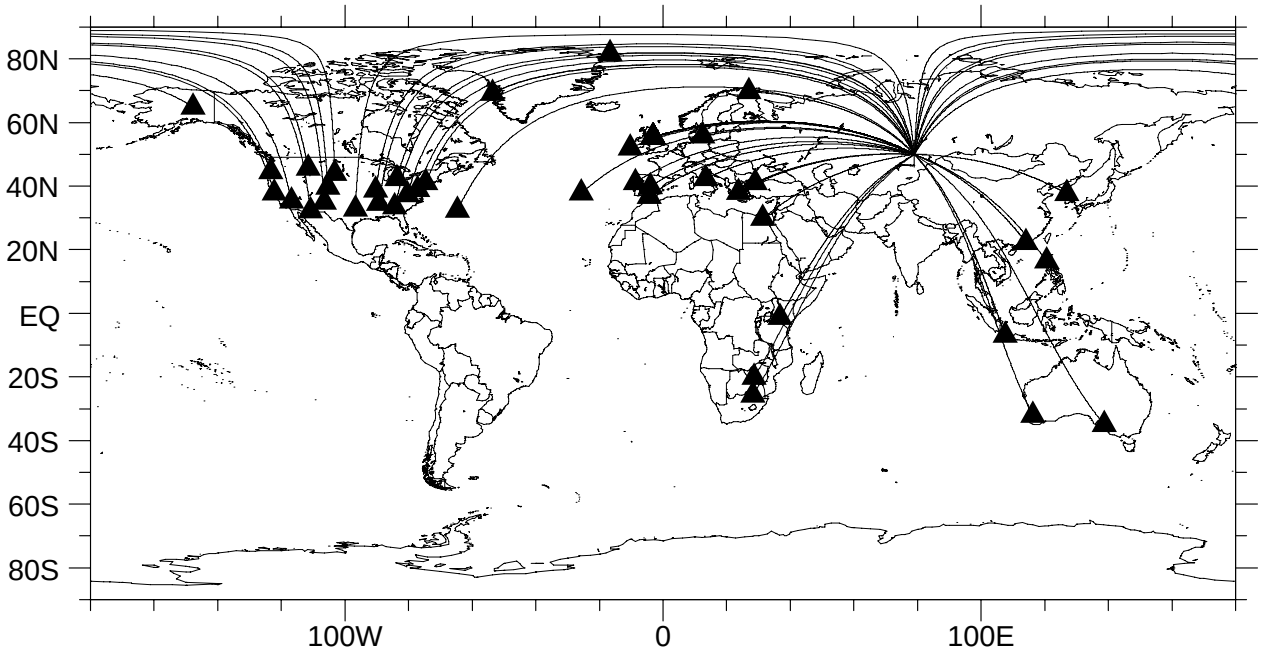


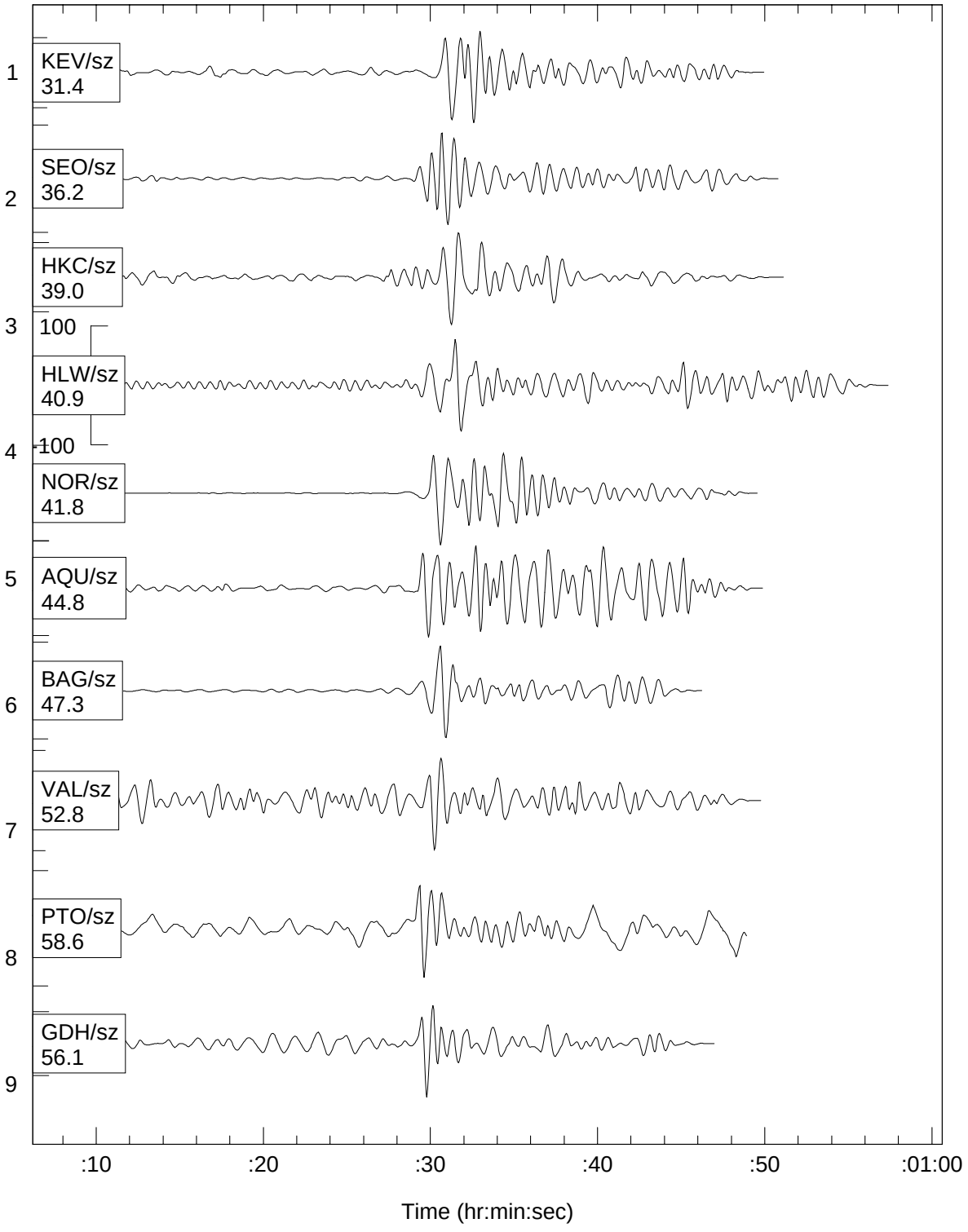
Event Name	Date	Time	Latitude	Longitude	mb	yield	max_yield
PNE:Chagan 1004	01/15/65	06:00:00.8	49.9350	79.0090	5.80	140	
	11/02/72	01:27:00.2	49.9270	78.8173	6.20	165	
	10/18/75	08:59:56.8	70.8380	53.6730	6.70	150	1500
PNE:Azgir A-4	07/29/76	05:00:00.5	47.8700	48.1500	5.90	58	
PNE:Pyrite	05/25/81	05:00:00.3	68.2000	53.5000	5.50	37.6	
PNE:Neva 2-1	07/07/87	00:00:00.0	61.5000	112.8500	5.10	15	

“Chagan” cratering shot, 140 kT, 1965/01/15

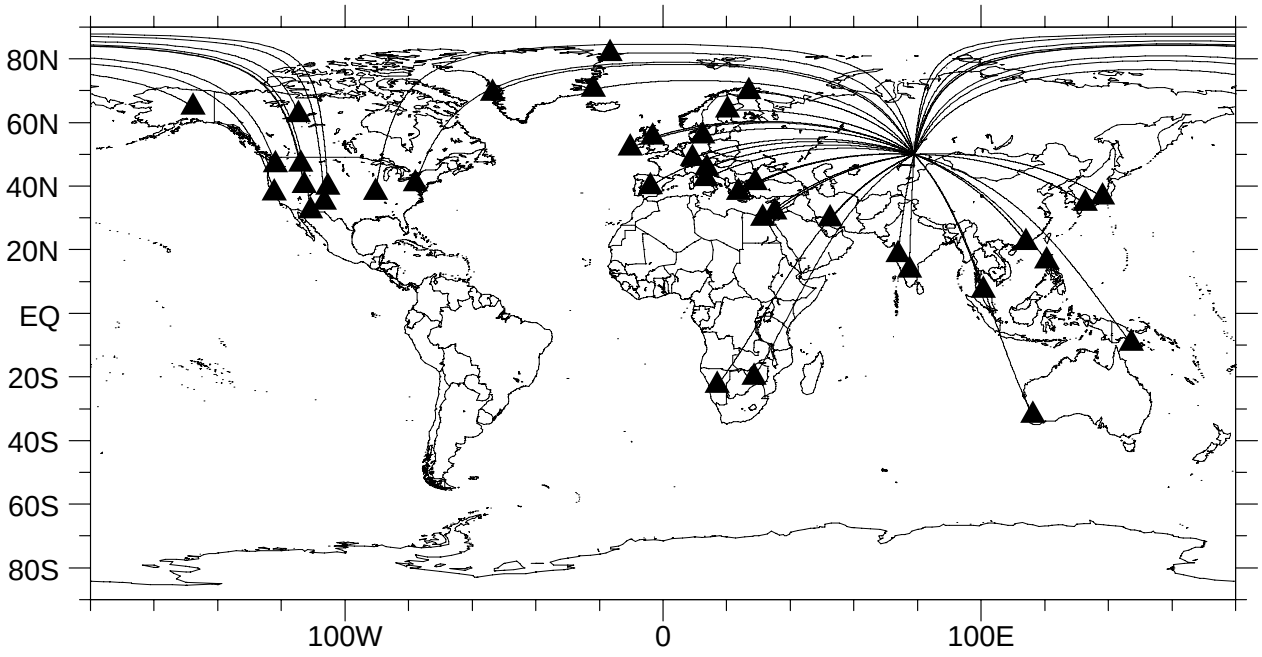


Map shows source-station paths for Chagan explosion on 1965/01/15, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

“Chagan” cratering shot, 140 kT, 1965/01/15

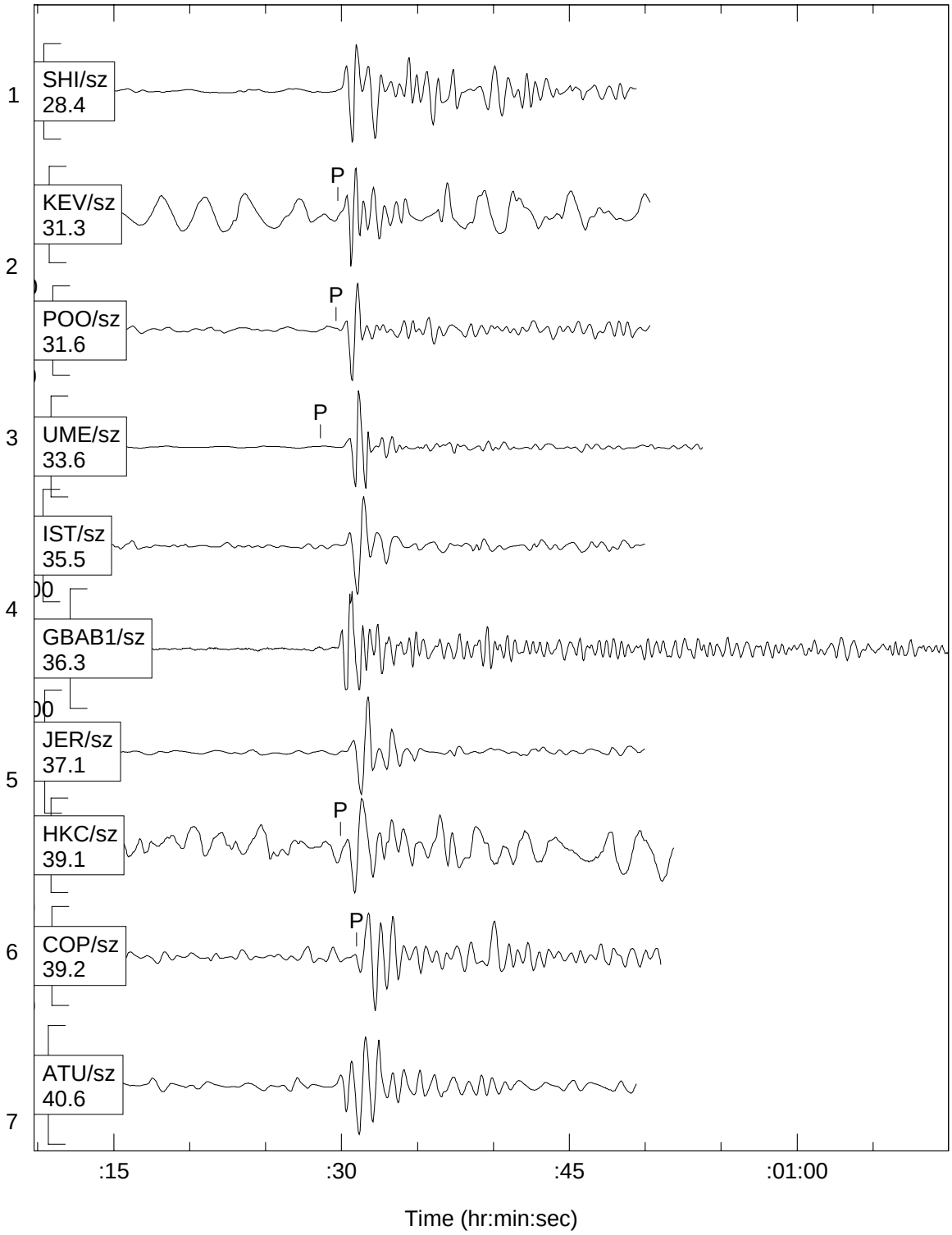


Largest STS underground explosion, 165 kT, 1972/11/02

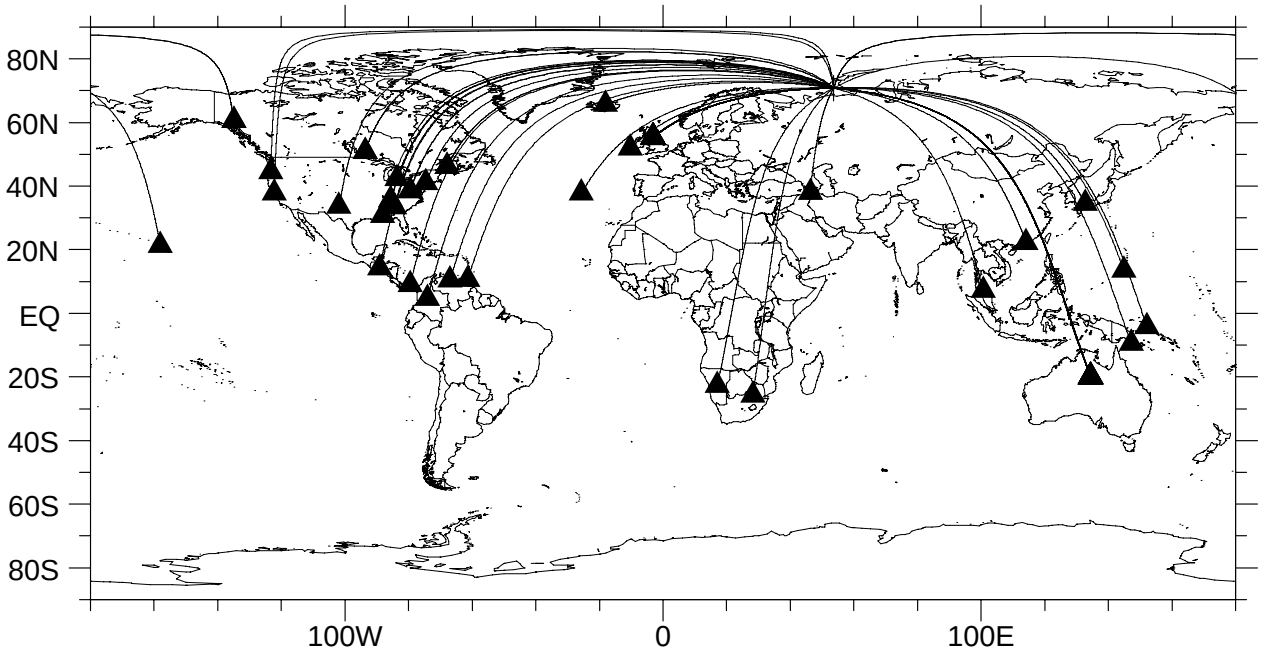


Map shows source-station paths for STS explosion on 1972/11/02, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Largest STS underground explosion, 165 kT, 1972/11/02

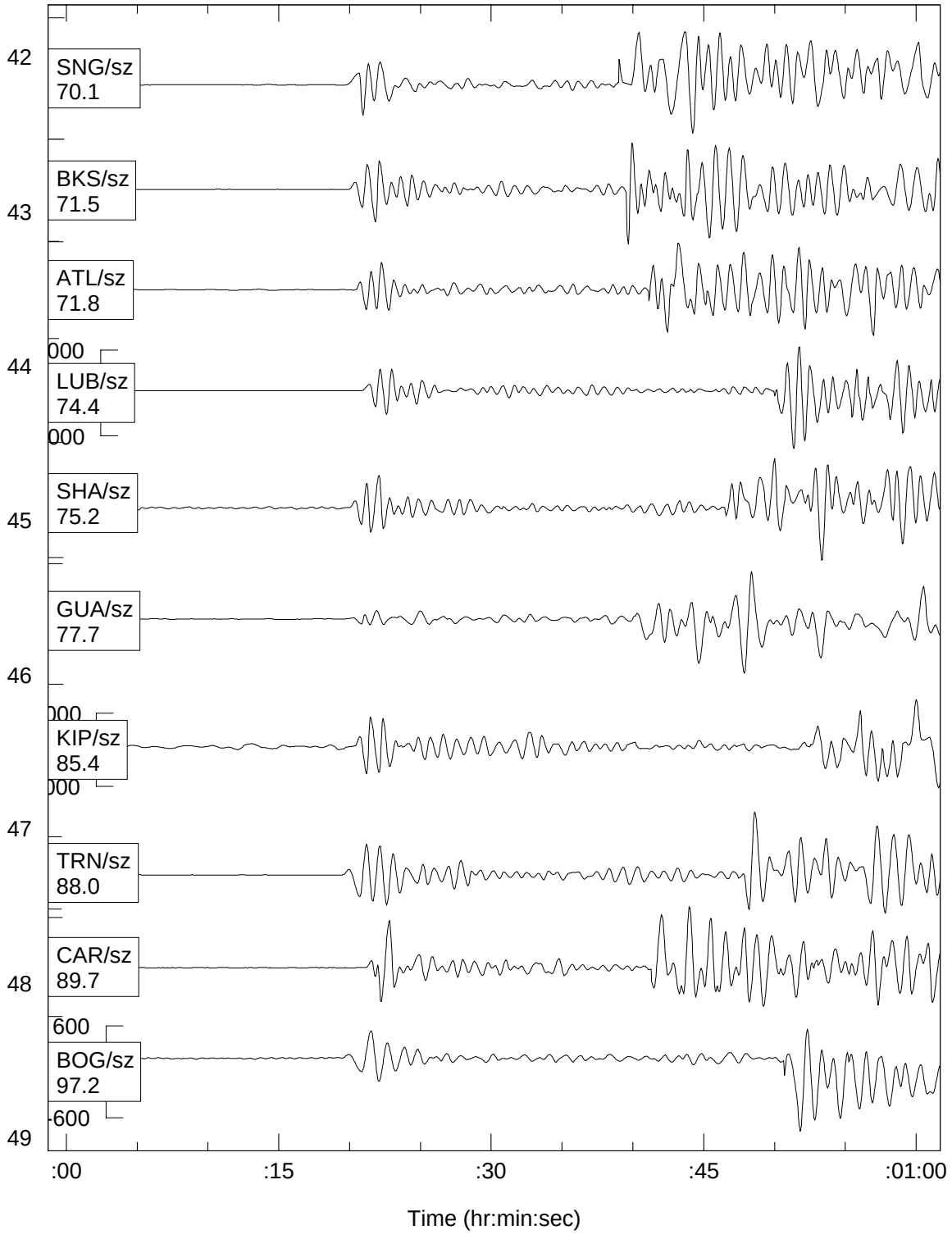


Novaya Zemlya double explosion, mb 6.7, 1975/10/18

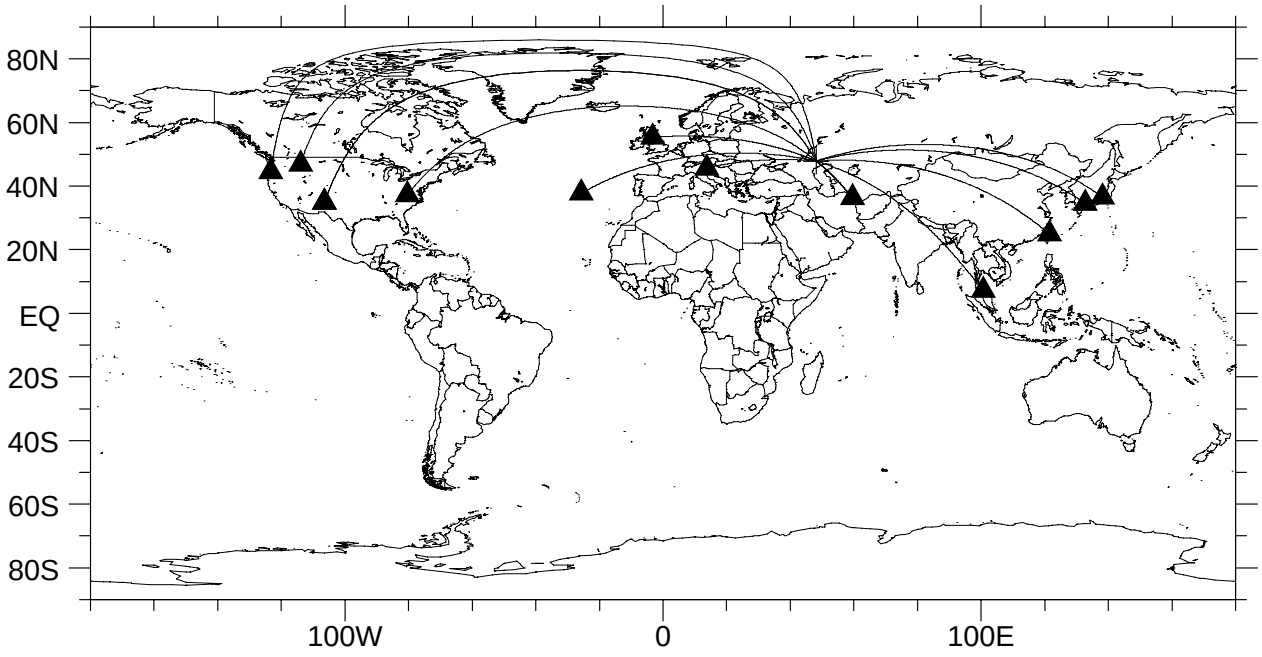


Map shows source-station paths for Novaya Zemlya explosion on 1975/10/18, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Novaya Zemlya double explosion, mb 6.7, 1975/10/18

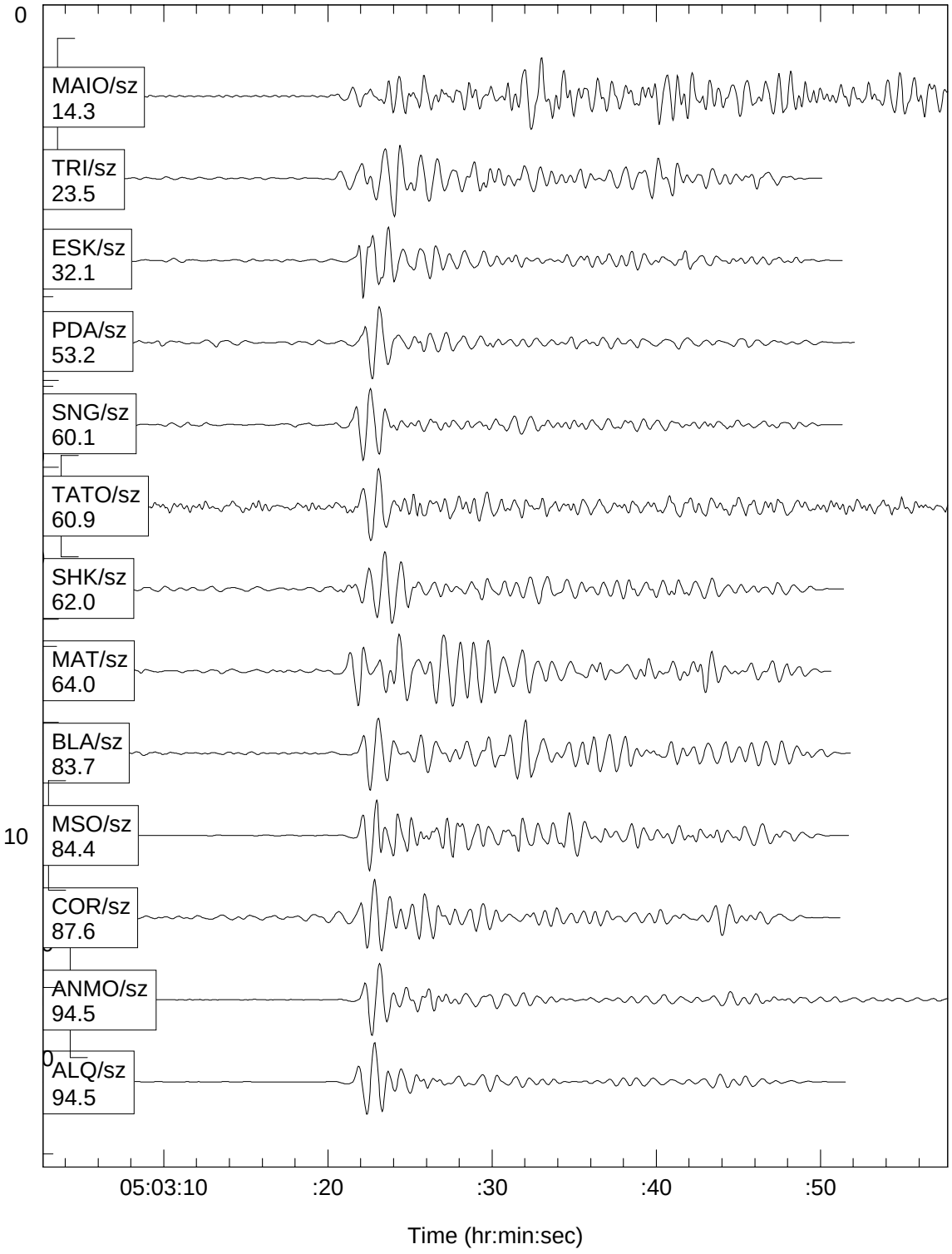


Azgir (1976/07/29)

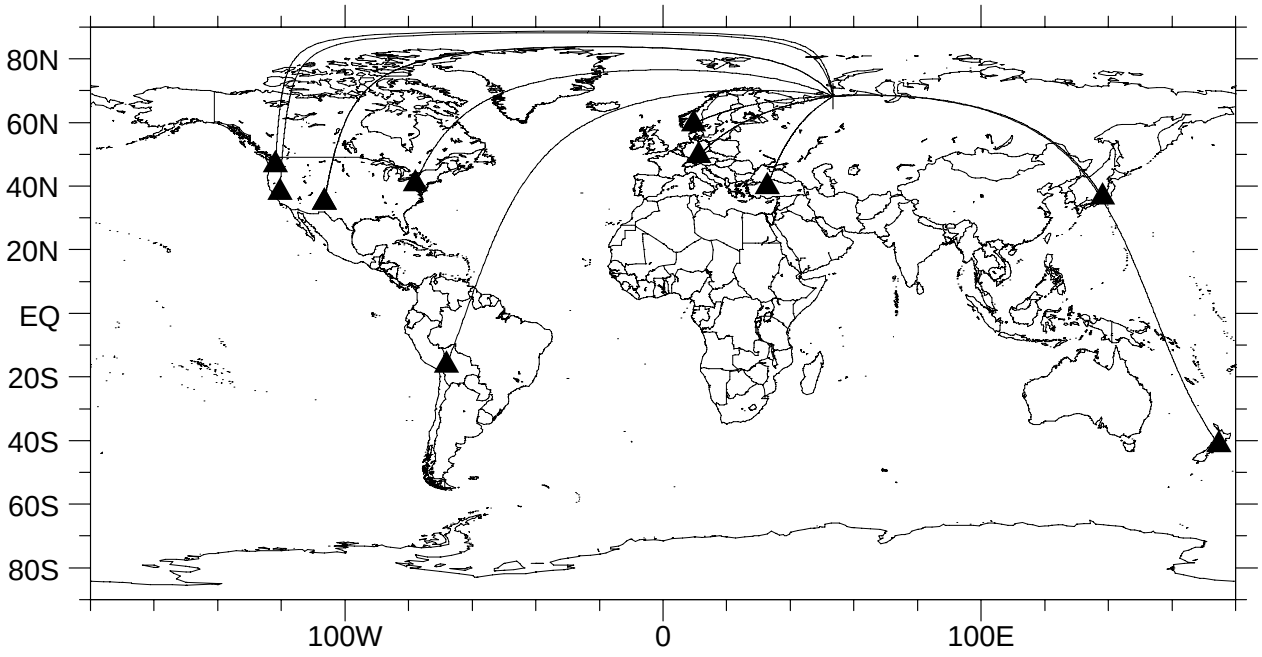


Map shows source-station paths for Azgir explosion on 1976/07/29, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Azgir (1976/07/29)

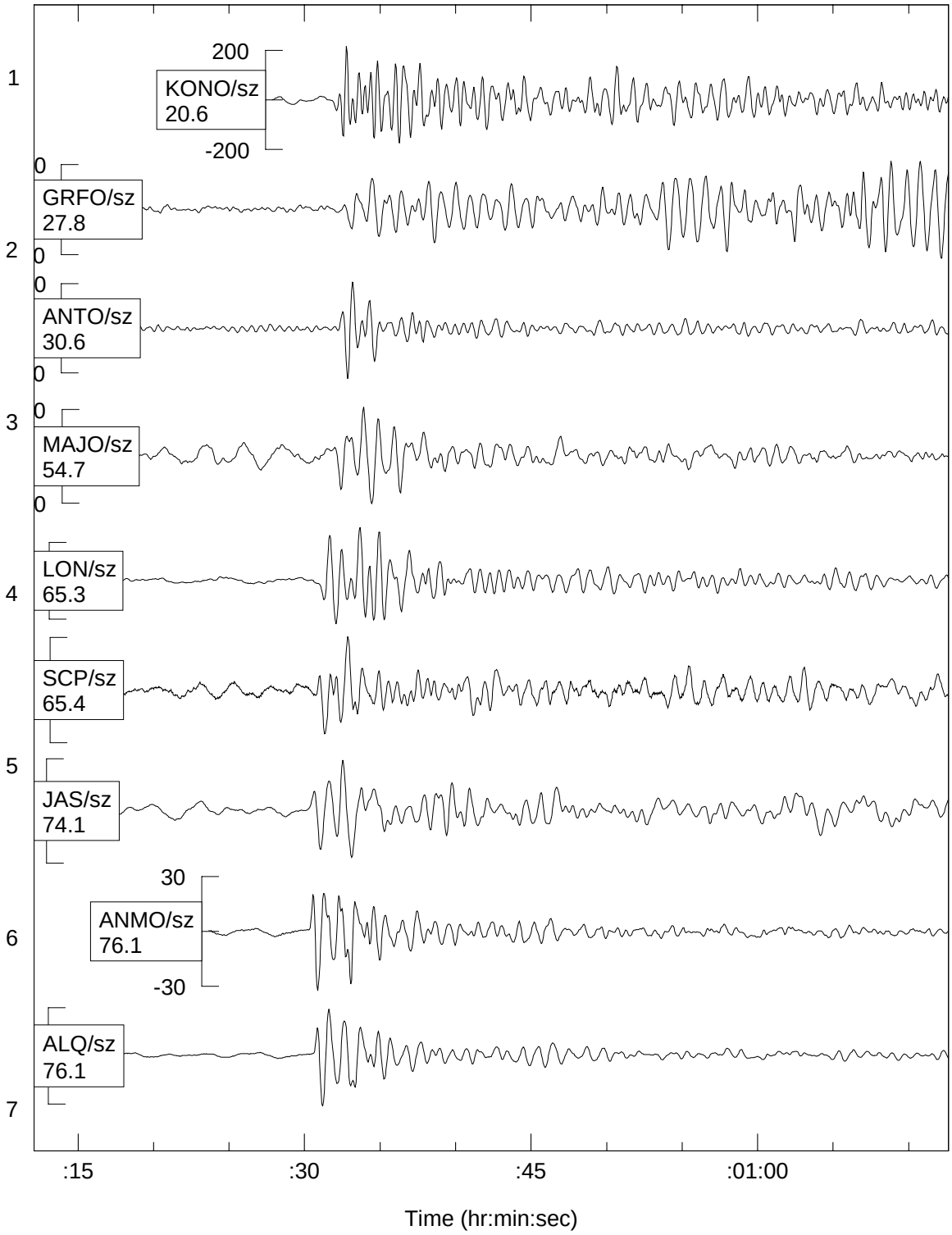


Gas Well Fire Quenched, 38 kT, 1981/05/25

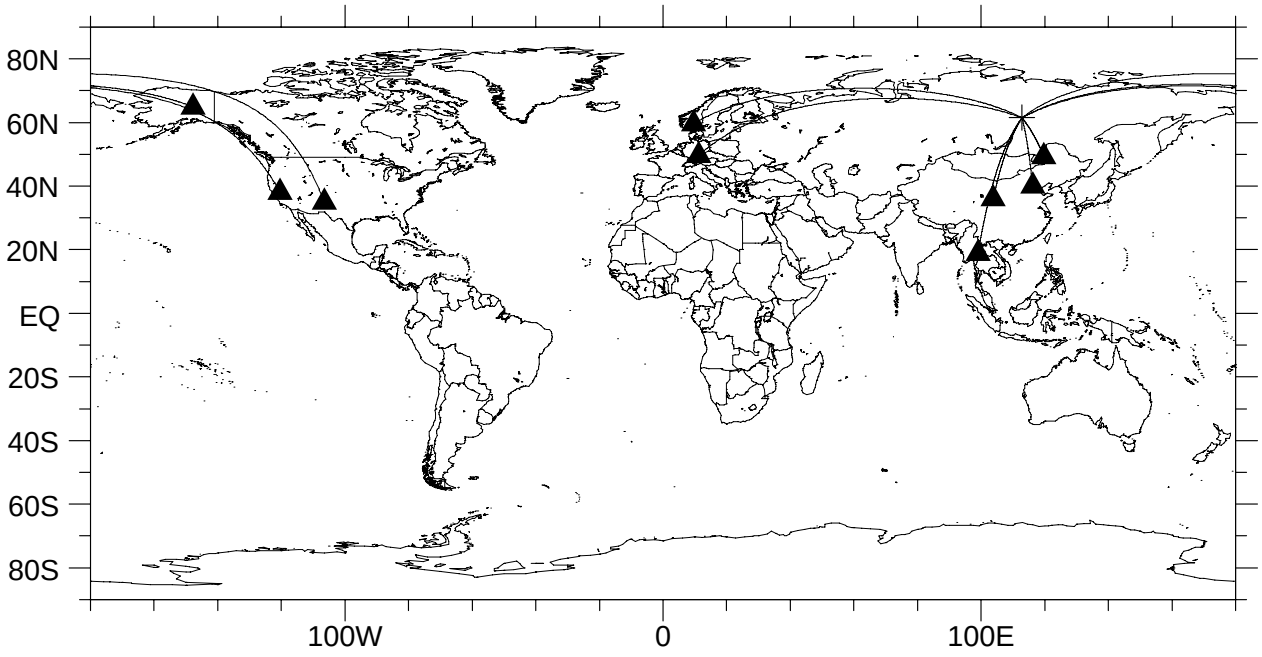


Map shows source-station paths for Pyrite explosion on 1981/05/25, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Gas Well Fire Quenched, 38 kT, 1981/05/25

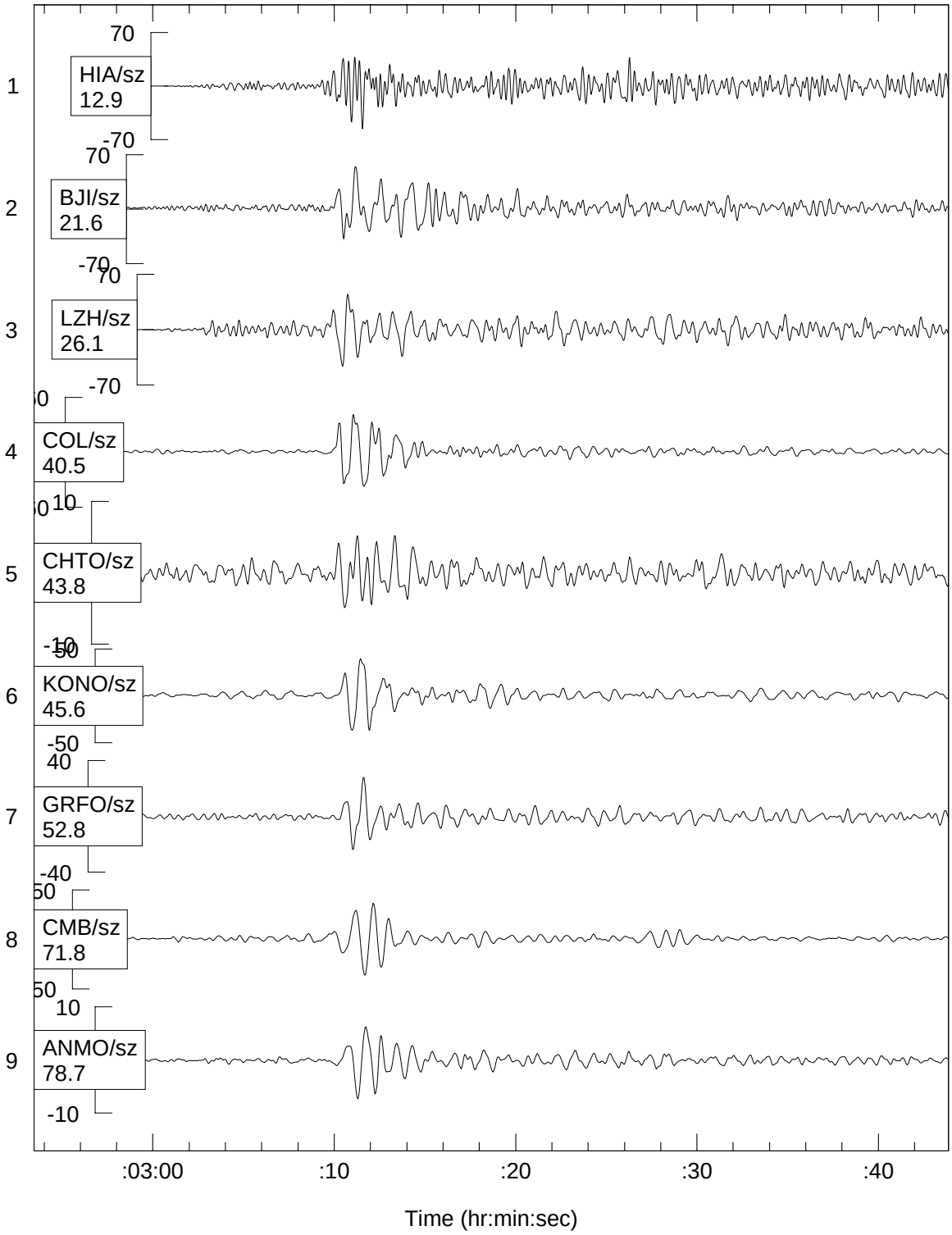


Neva (1987/07/07)



Map shows source-station paths for Neva explosion on 1987/07/07, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Neva (1987/07/07)



Pakistan Nuclear Explosions

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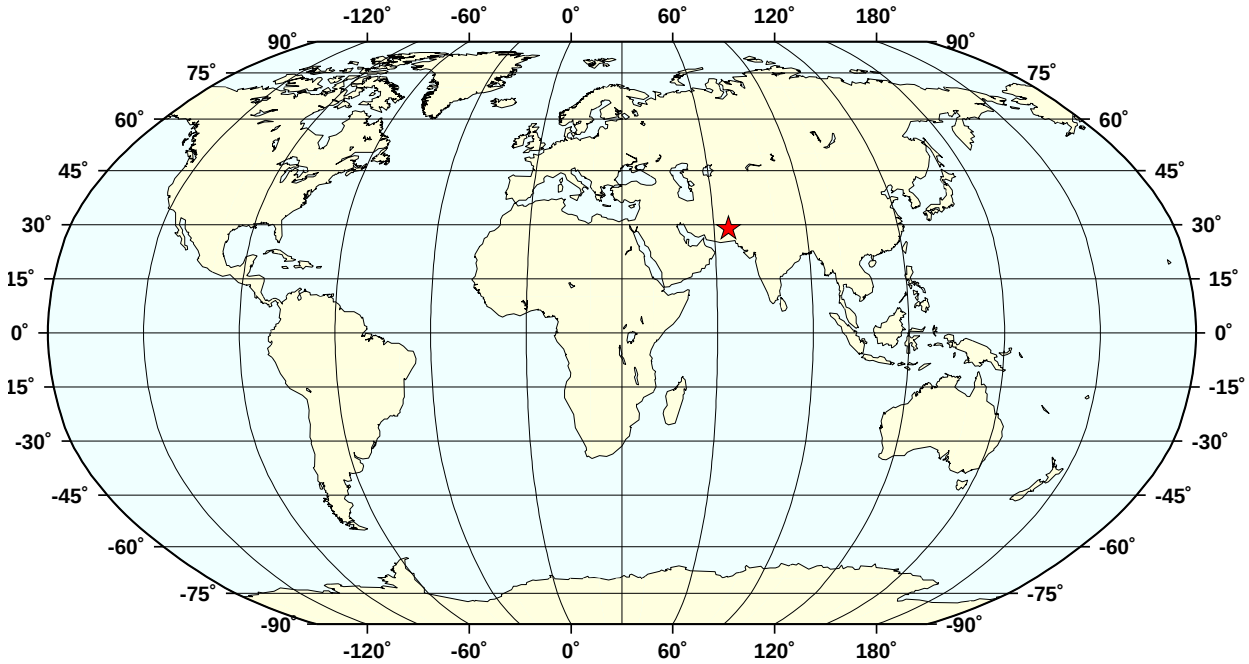
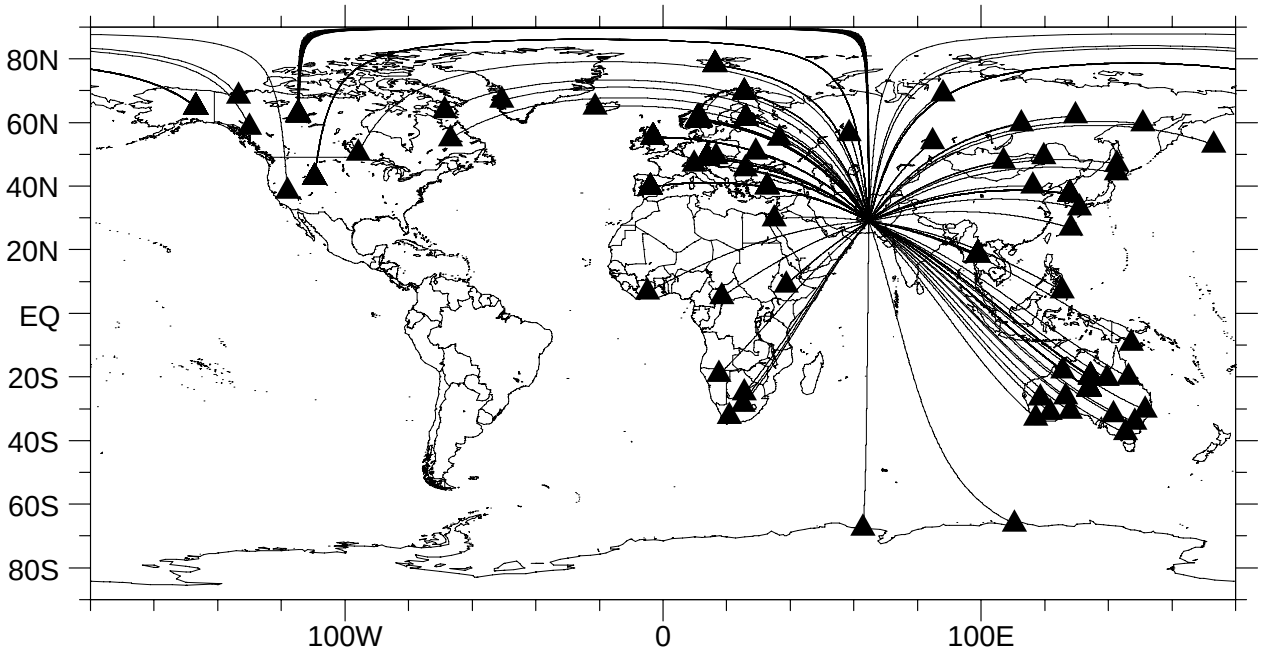


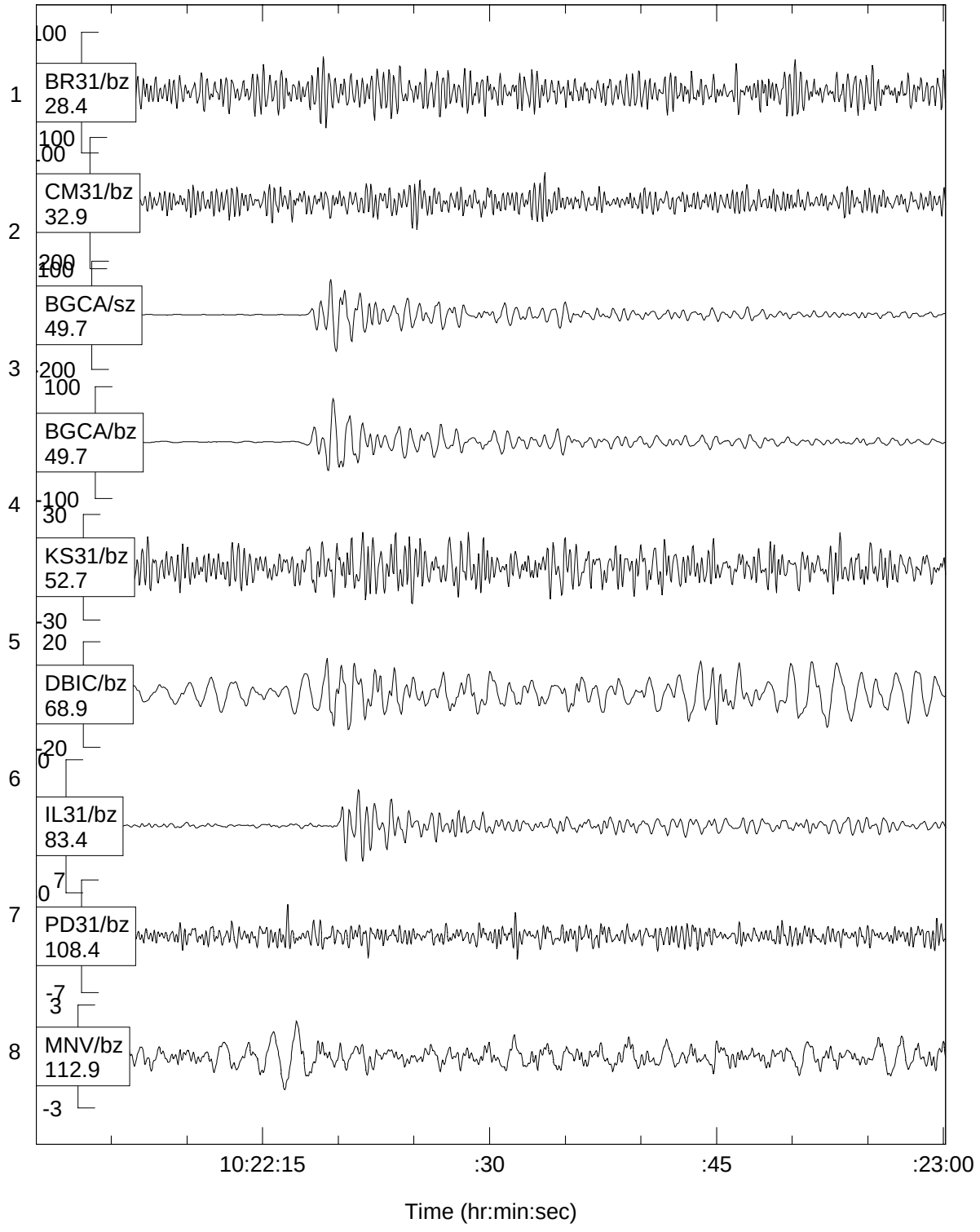
Date	Time	Latitude	Longitude	mb
05/28/98	10:16:15.8	28.9500	64.7200	4.90

Pakistan (1998/05/28)

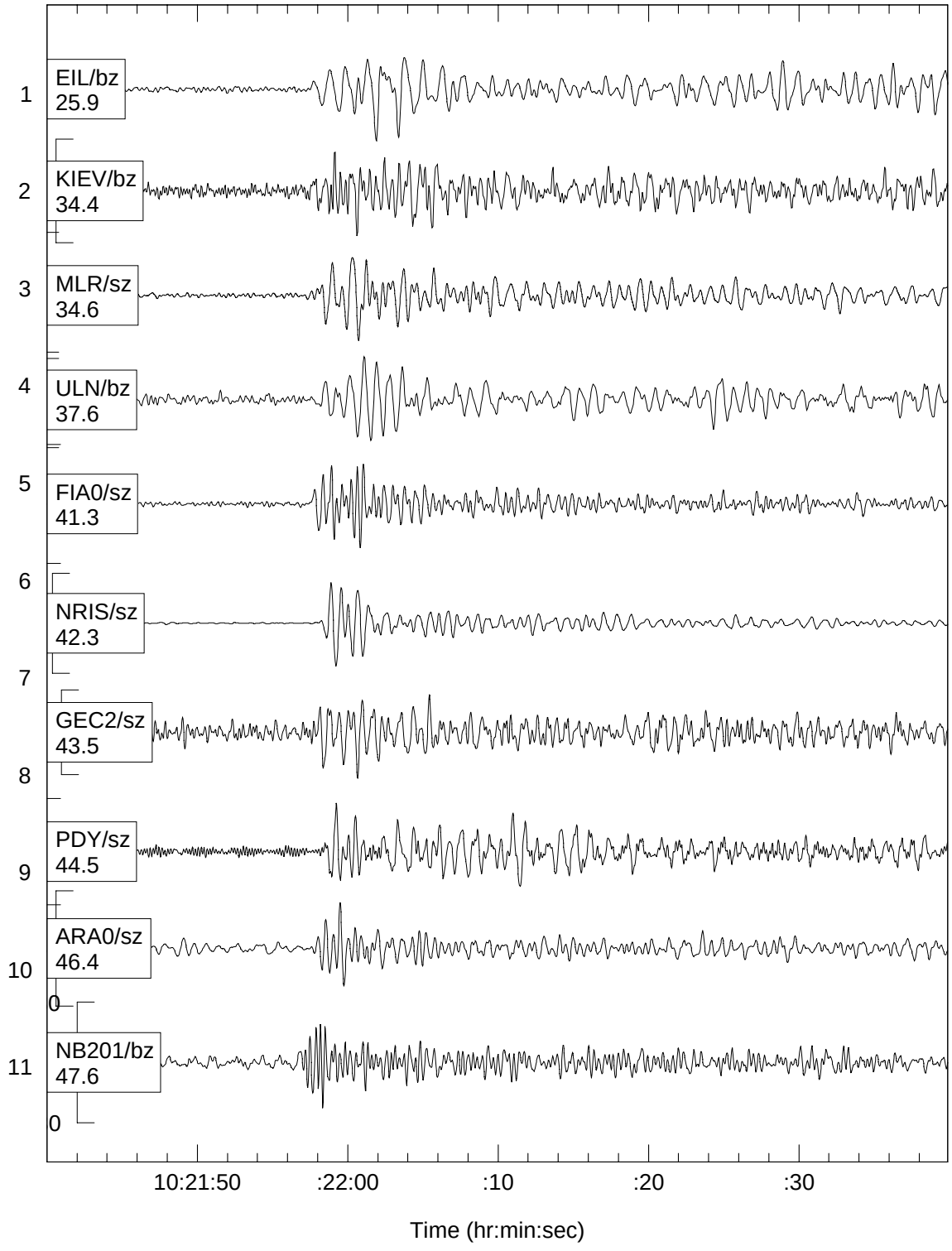


Map shows source-station paths for Pakistan explosion on 1998/05/28, followed by waveform samples. Stations include IMS stations that provide data to the PIDC through AFTAC as well as others, shown in separate figures. Stations are ordered by distance (shown in degrees beneath station name).

Pakistan (1998/05/28)



Pakistan (1998/05/28)



Indian Nuclear Explosions

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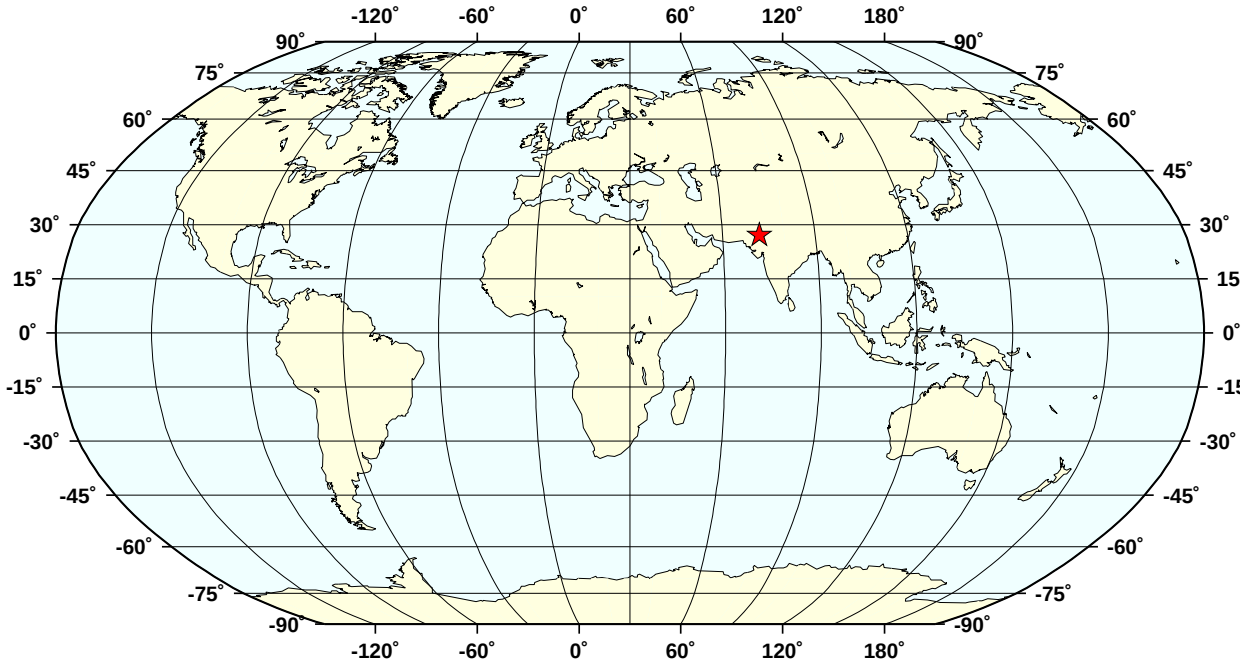
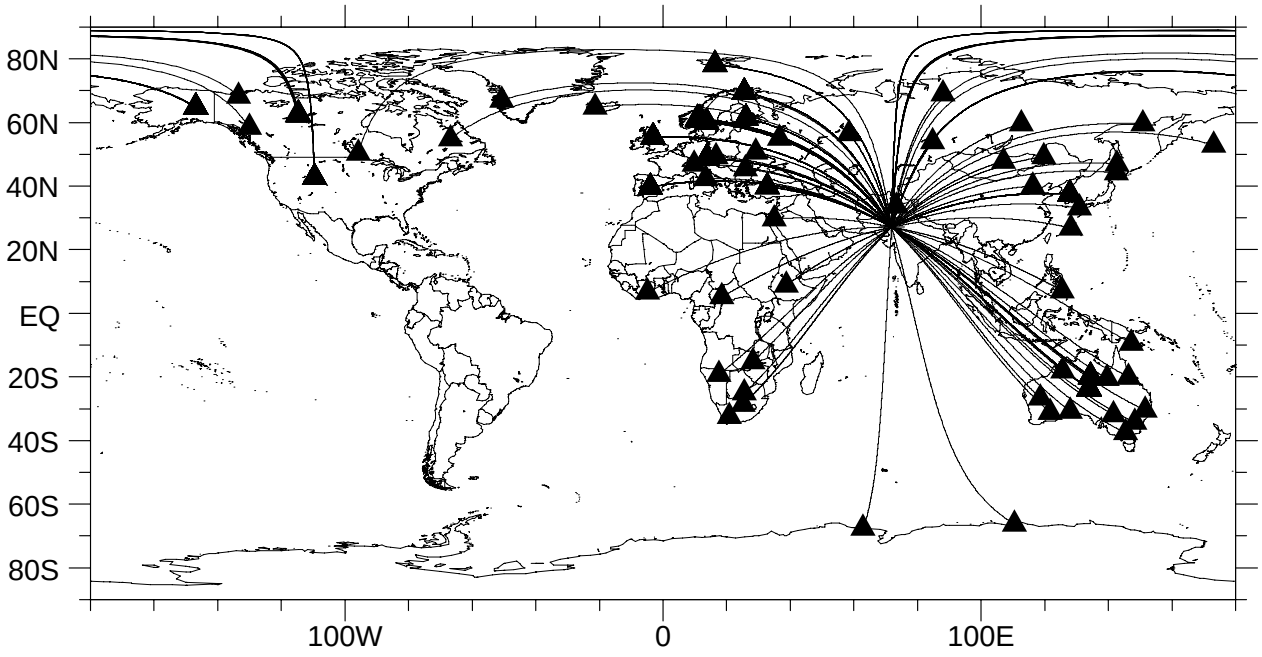


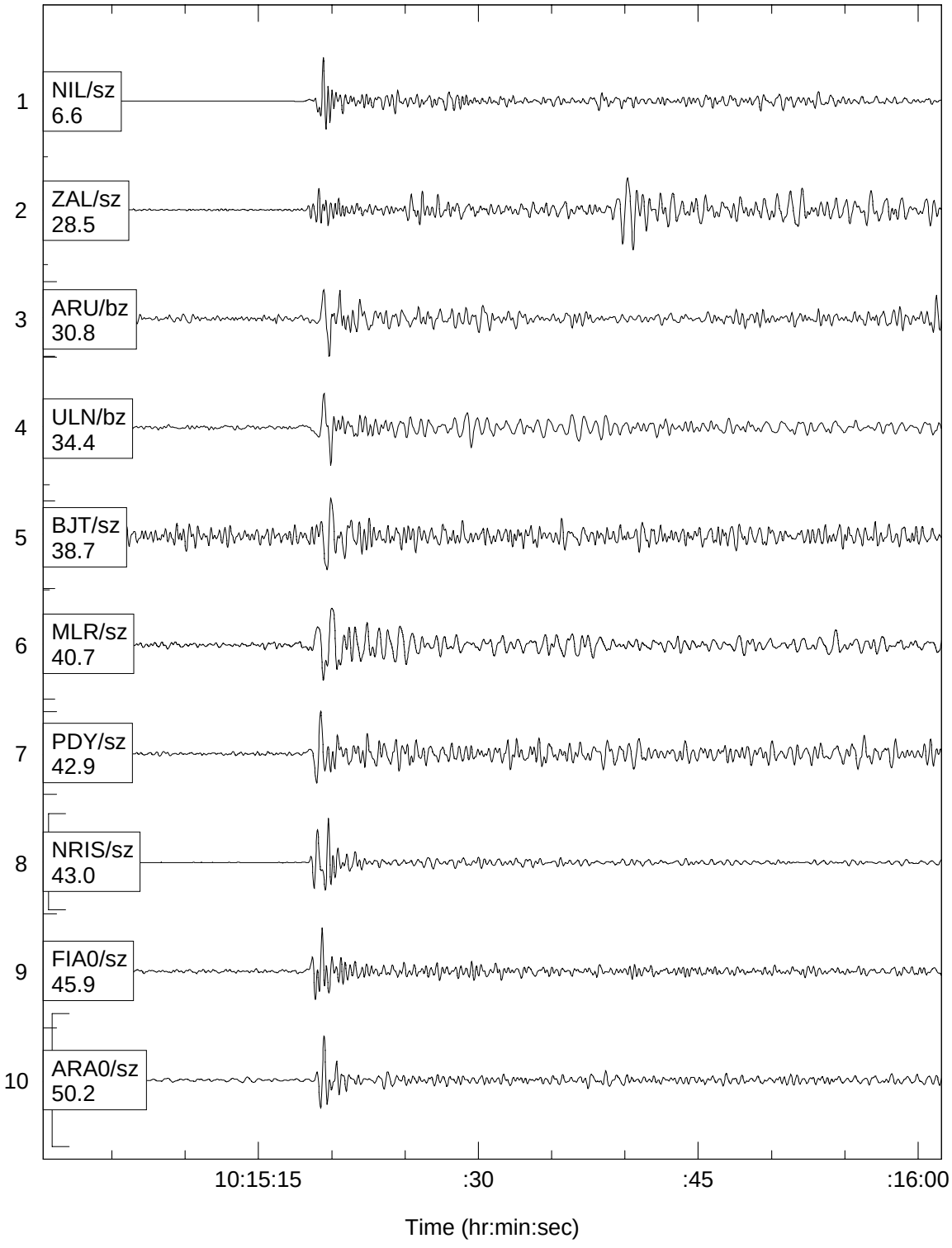
Event Name	Date	Time	Latitude	Longitude	mb
Shakti-1	05/11/98	10:13:42.0	27.1000	71.8600	5.20

India (1998/05/11)

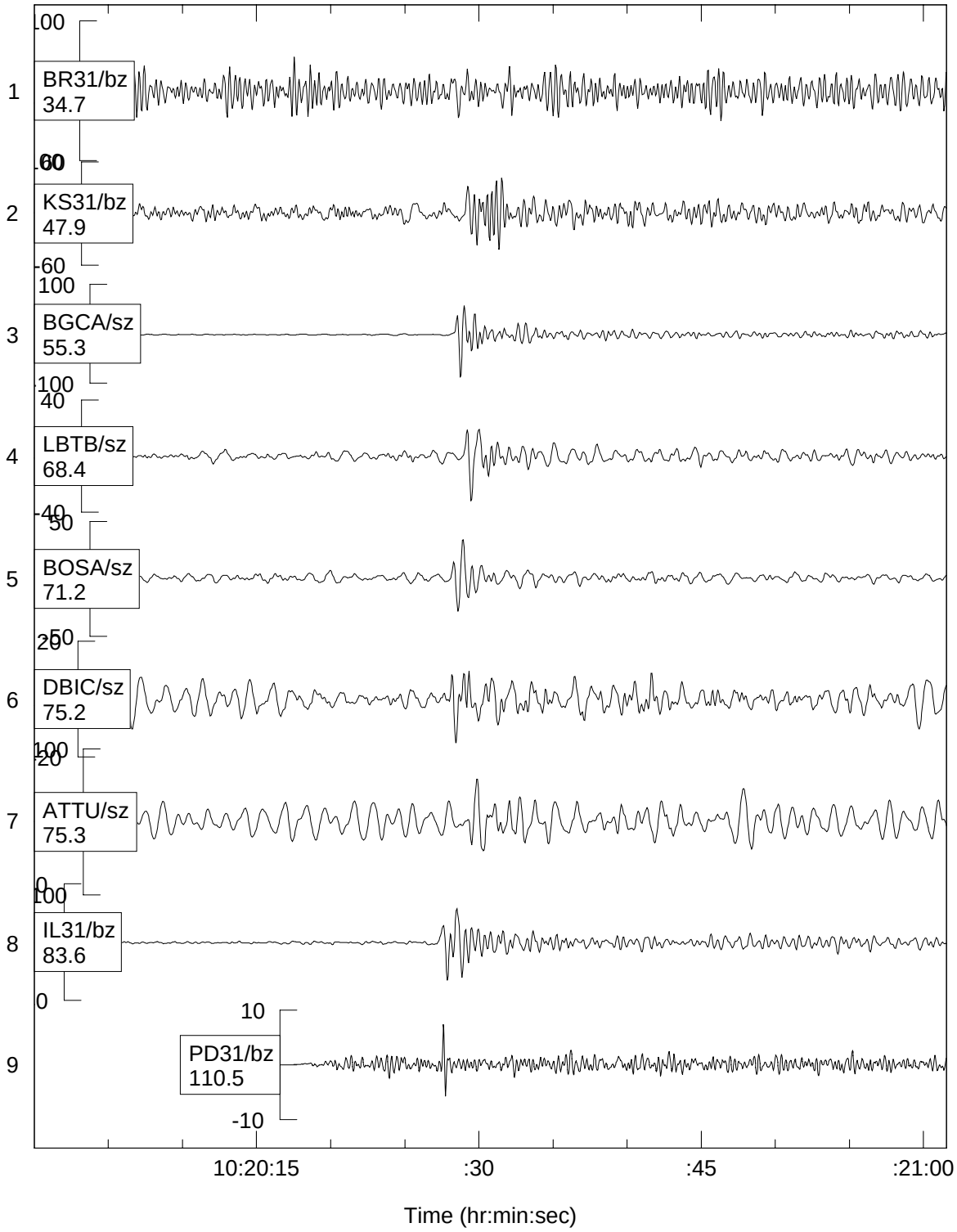


Map shows source-station paths for India explosion on 1998/05/11, followed by waveform samples. Stations include IMS stations that provide data to the PIDC through AFTAC as well as others, shown in separate figures. Stations are ordered by distance (shown in degrees beneath station name).

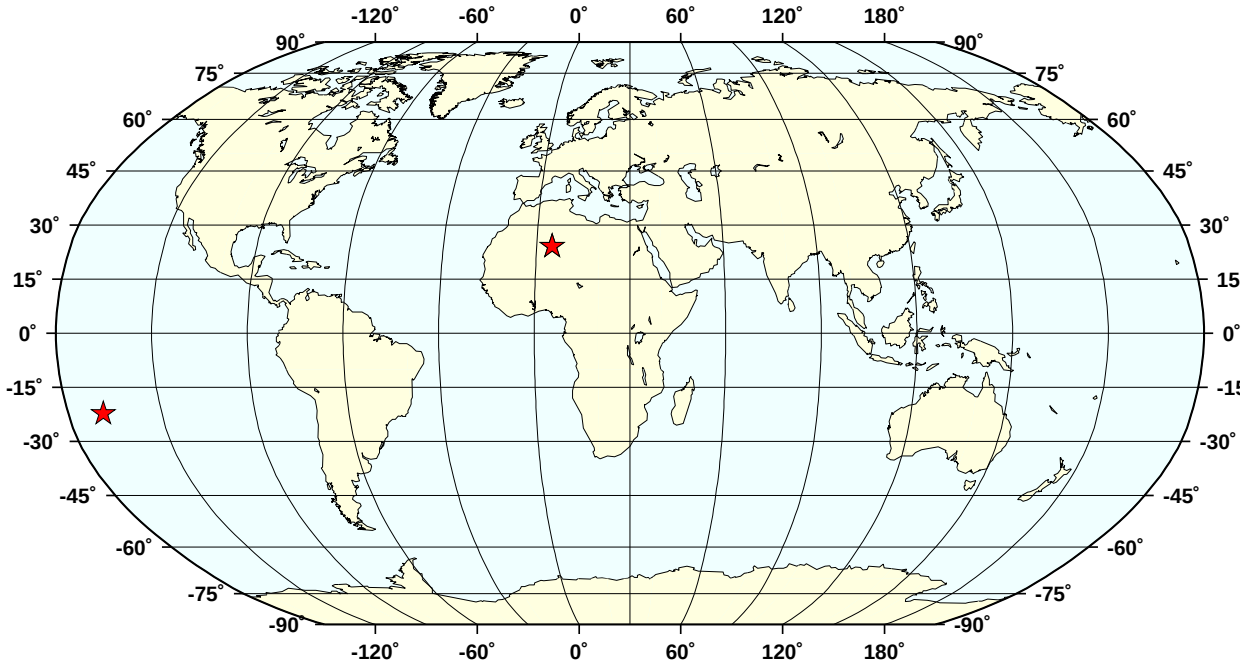
India (1998/05/11)



India (1998/05/11)

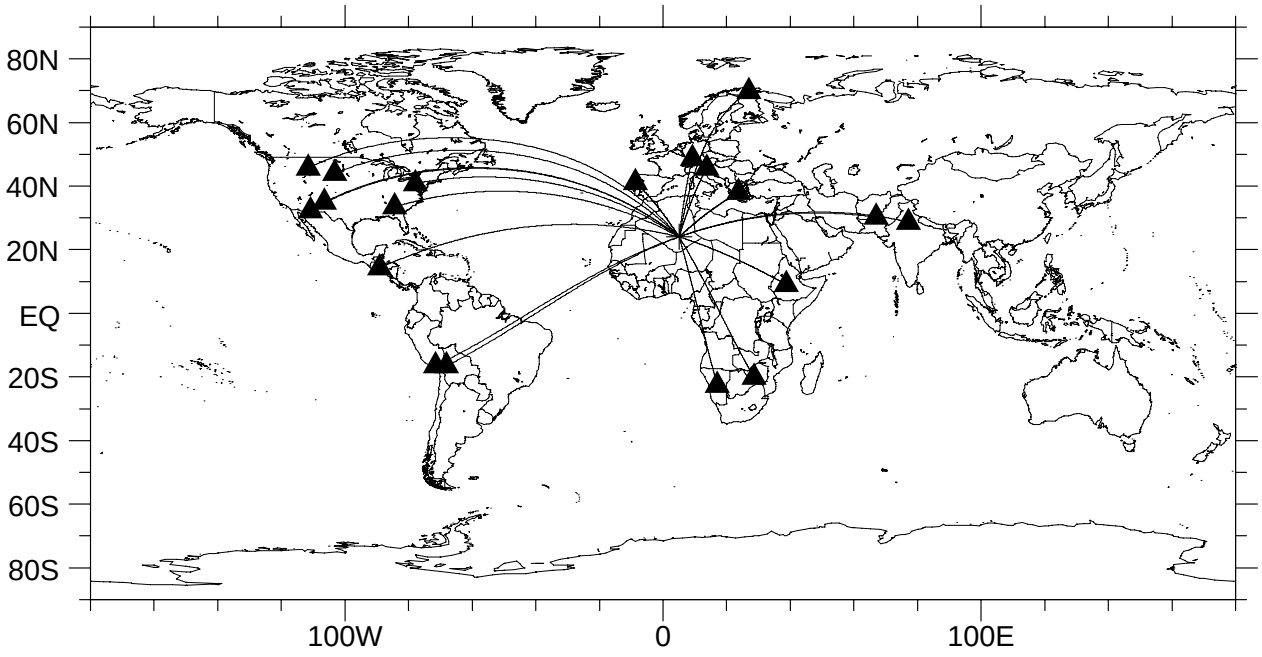


French Nuclear Explosions



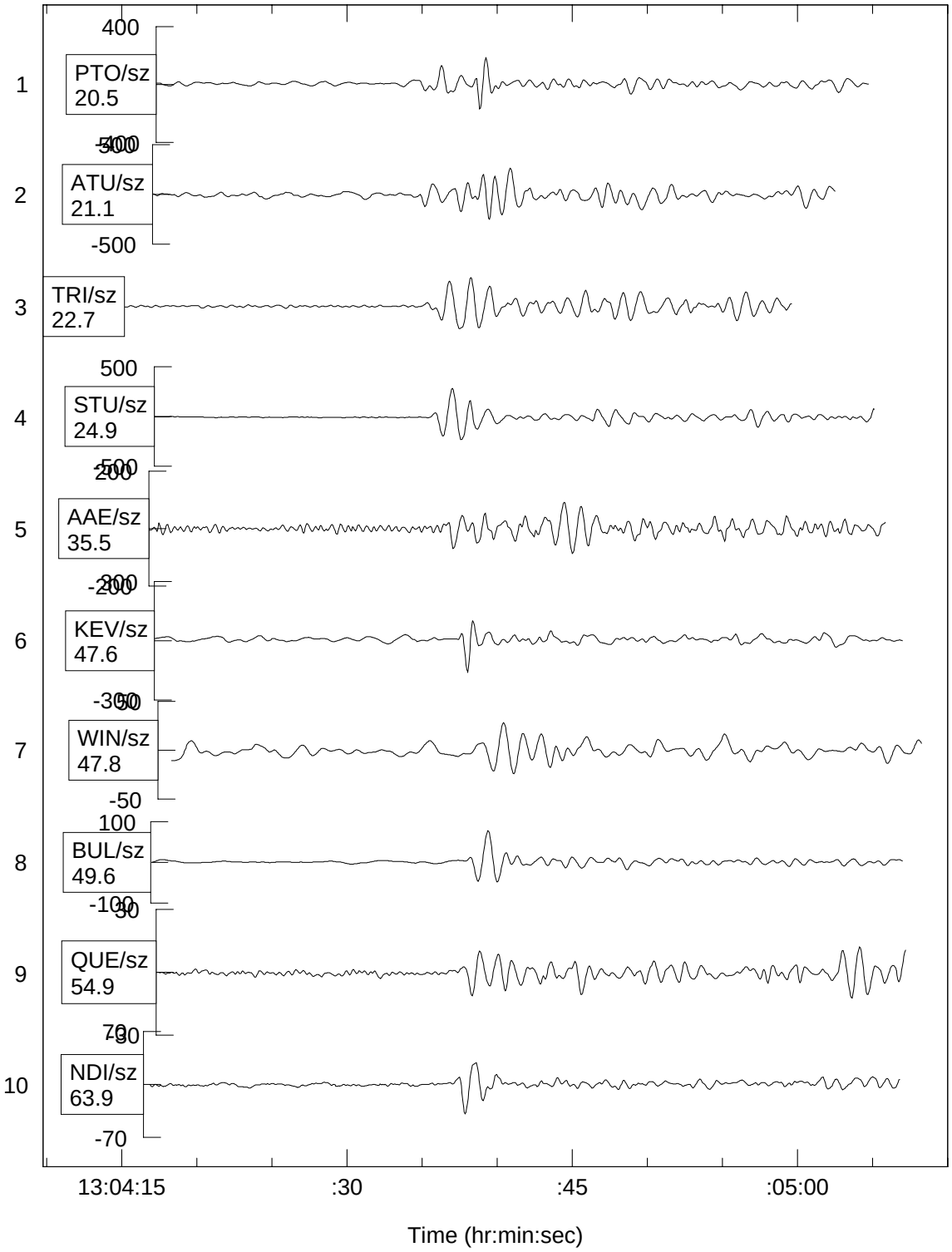
Event Name	Date	Time	Latitude	Longitude	mb	yield
Rubis	10/20/63	13:00:00.1	24.0355	5.0386	5.60	20
Saphir	02/27/65	11:30:00.0	24.0587	5.0311	5.80	20
	01/27/96	21:29:57.8	-22.2400	-138.8200	5.30	

Rubis (1963/10/20)

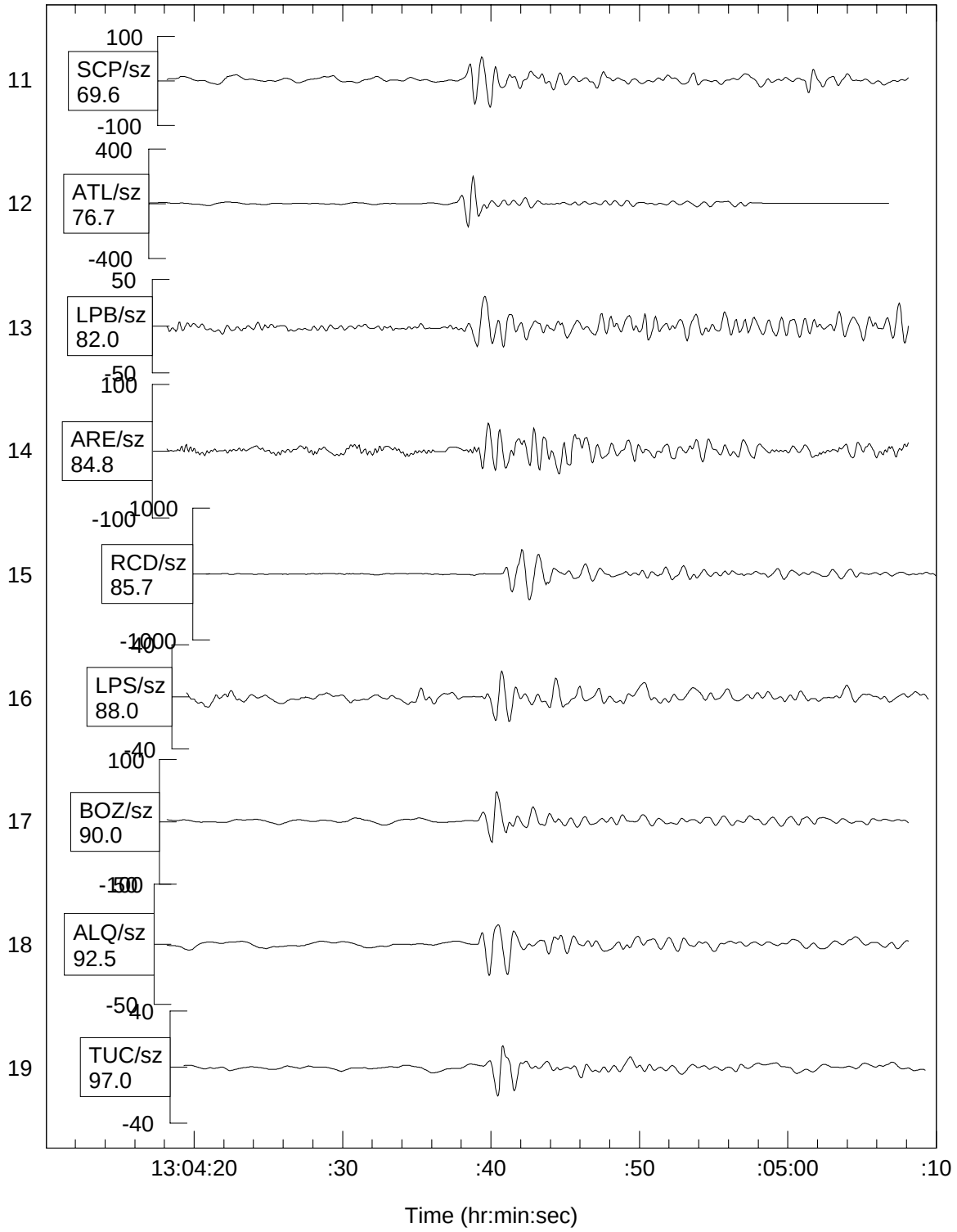


Map shows source-station paths for Rubis explosion on 1963/10/20, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

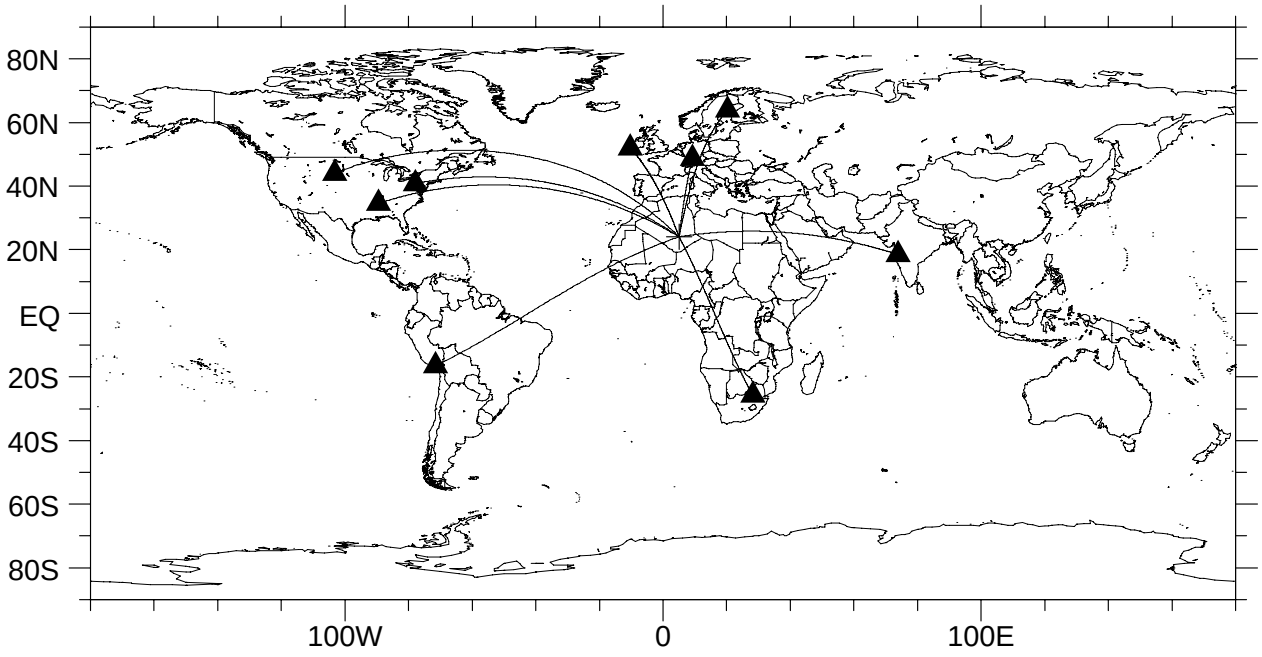
Rubis (1963/10/20)



Rubis (1963/10/20)

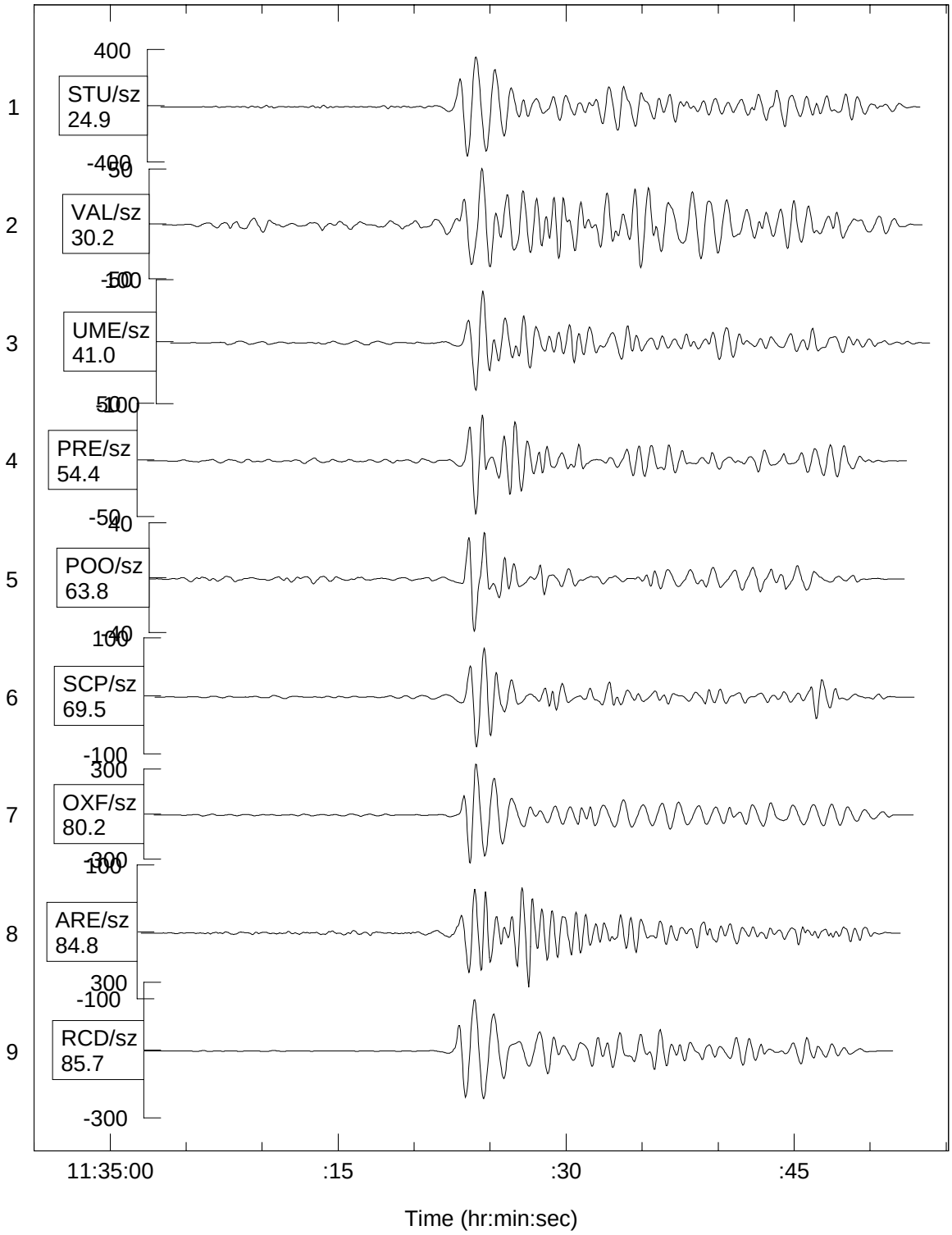


Saphir (1965/02/27)

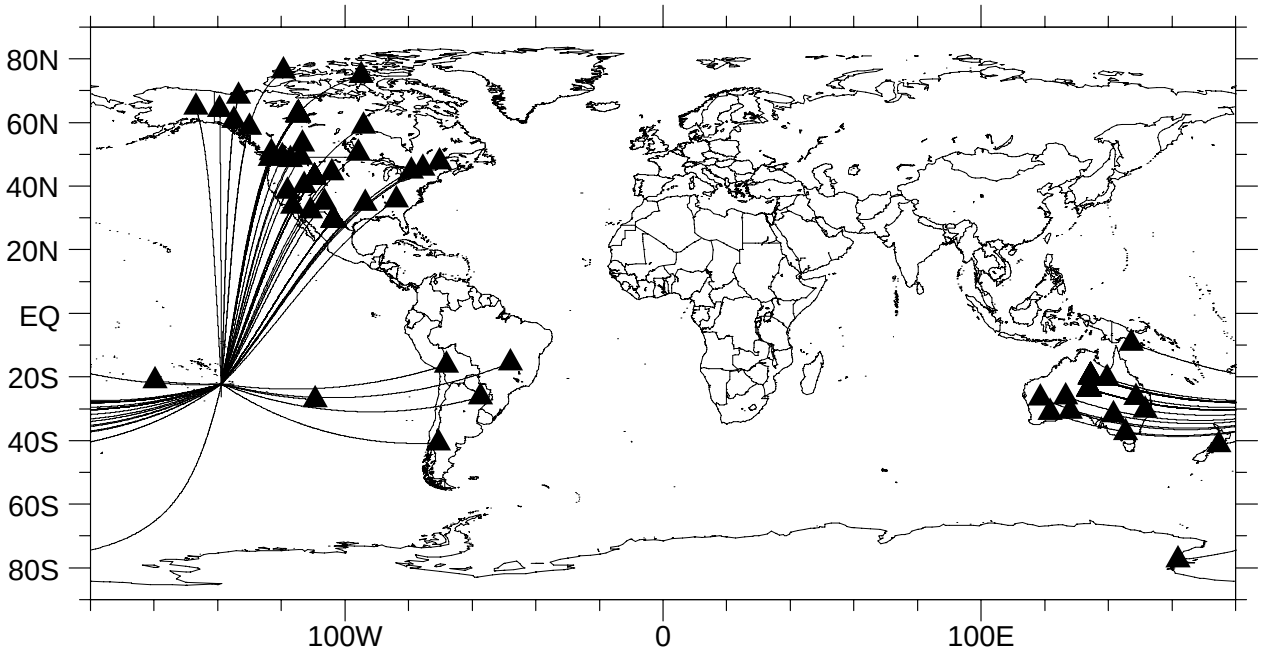


Map shows source-station paths for Saphir explosion on 1965/02/27, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

Saphir (1965/02/27)

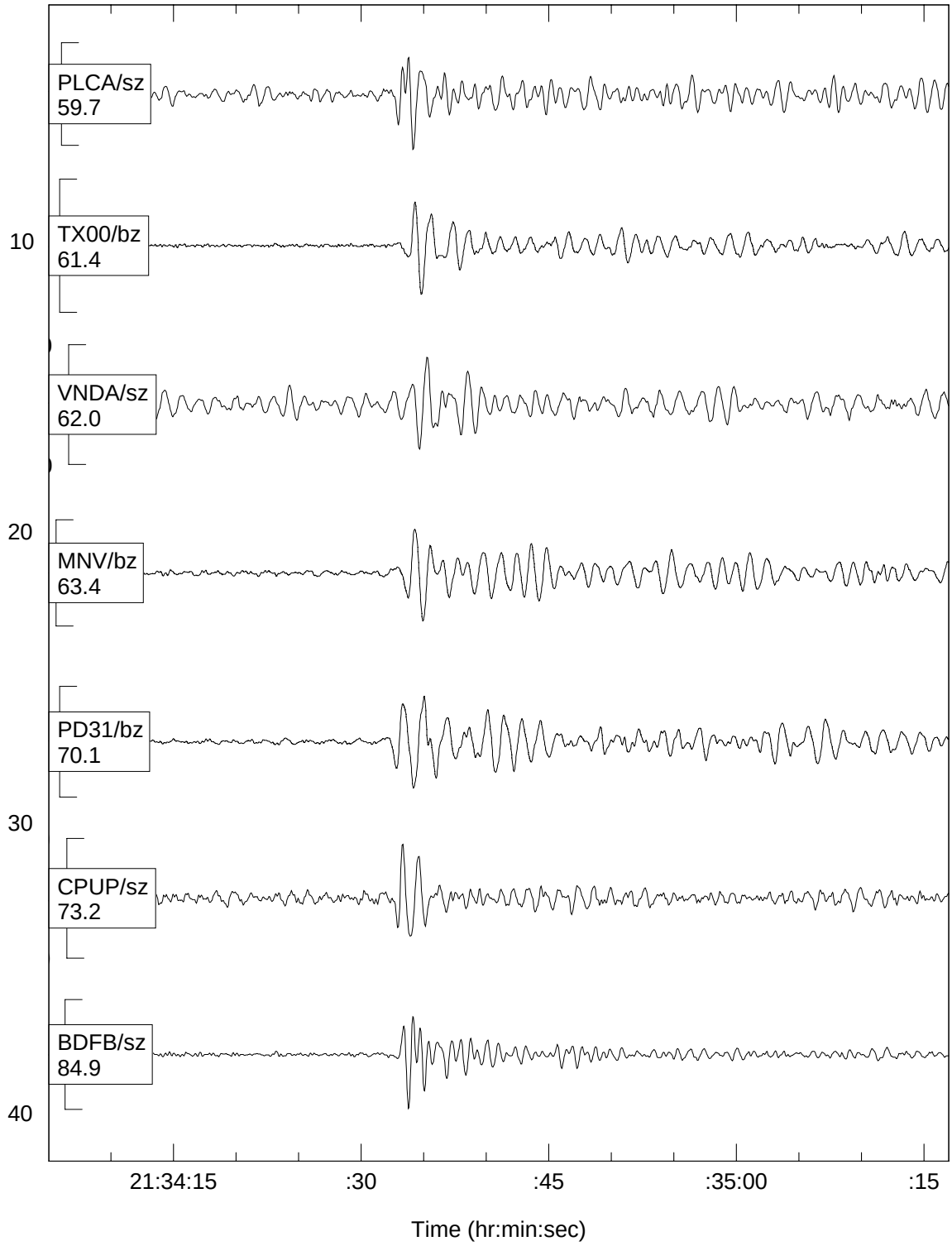


French explosion (1996/01/27)

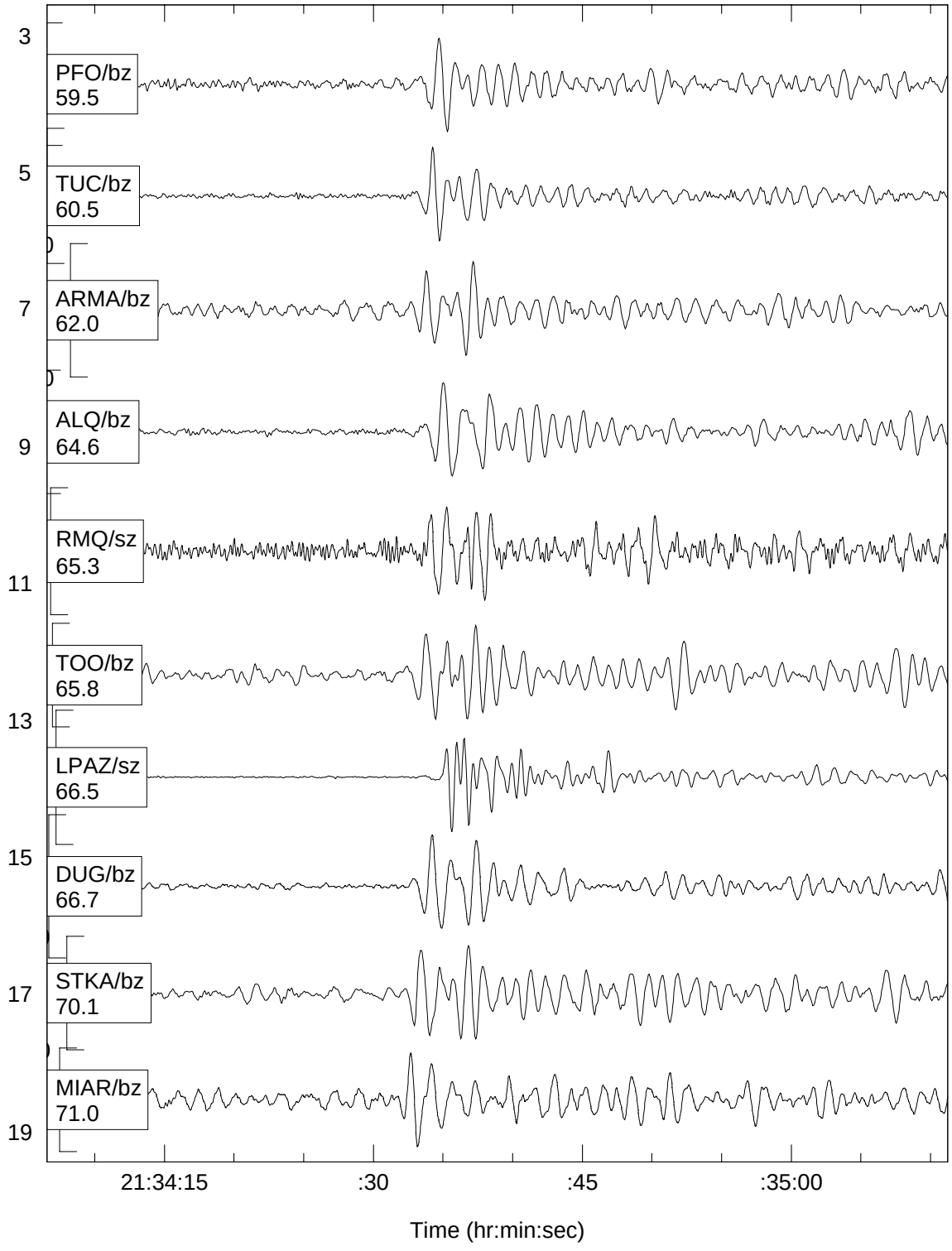


Map shows source-station paths for French explosion on 1996/01/27, followed by waveform samples. Stations include IMS stations that provide data to the PIDC through AFTAC as well as others, shown in separate figures. Stations are ordered by distance (shown in degrees beneath station name).

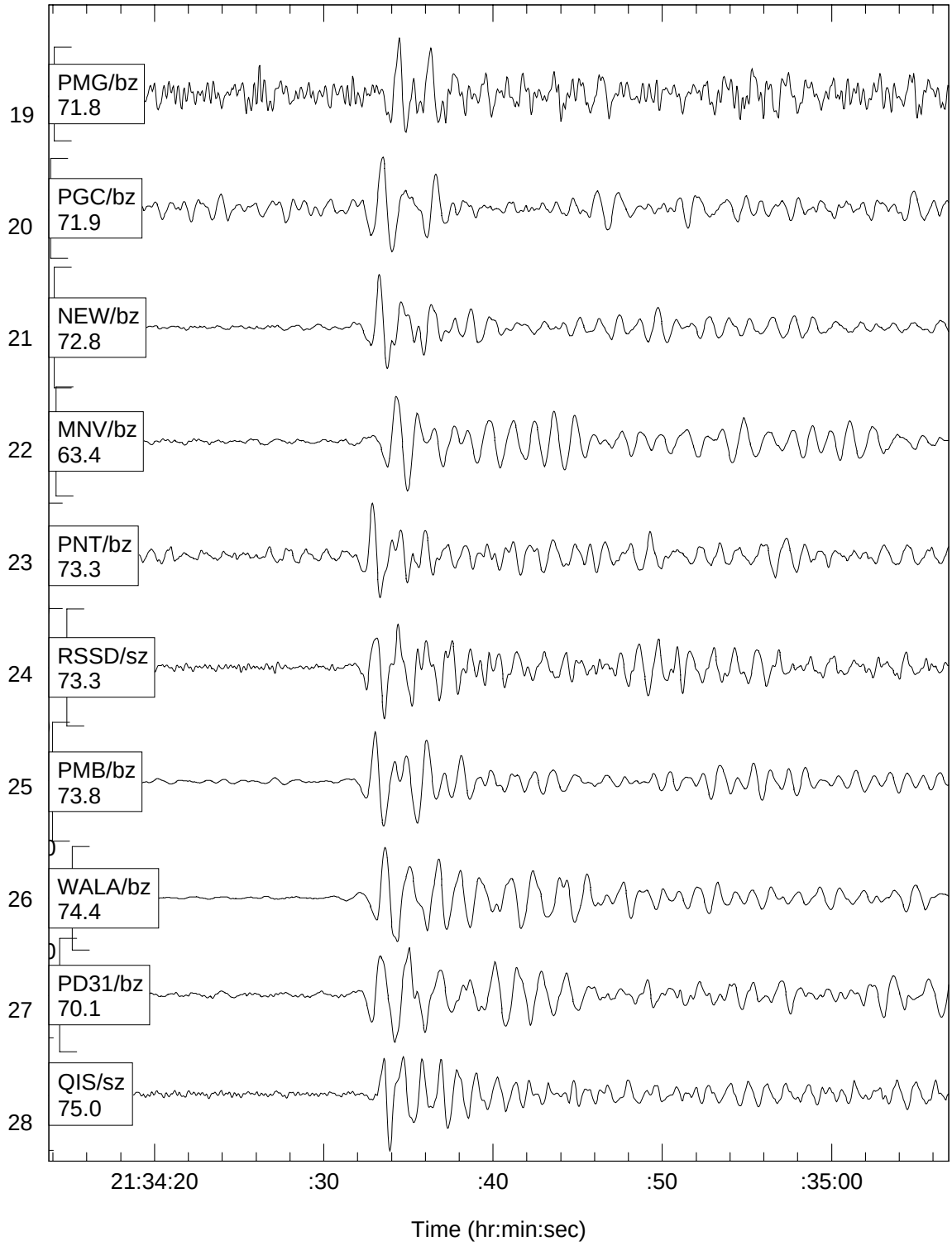
French explosion (1996/01/27)



French explosion (1996/01/27)



French explosion (1996/01/27)



Chinese Nuclear Explosions

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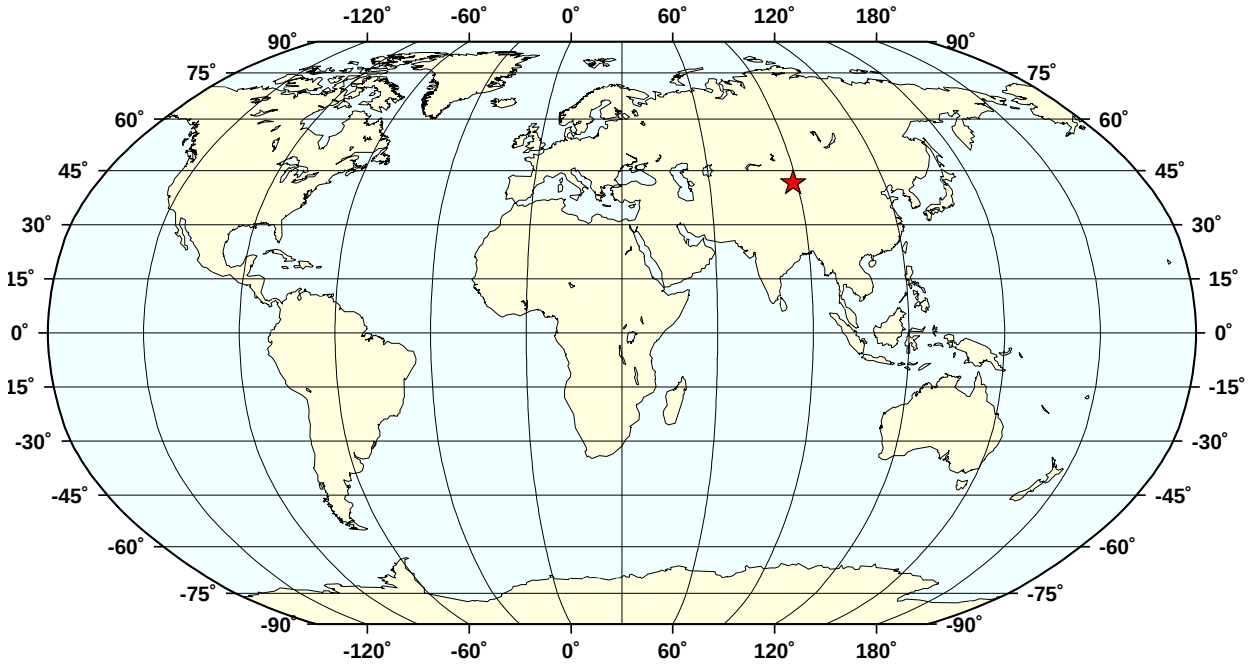
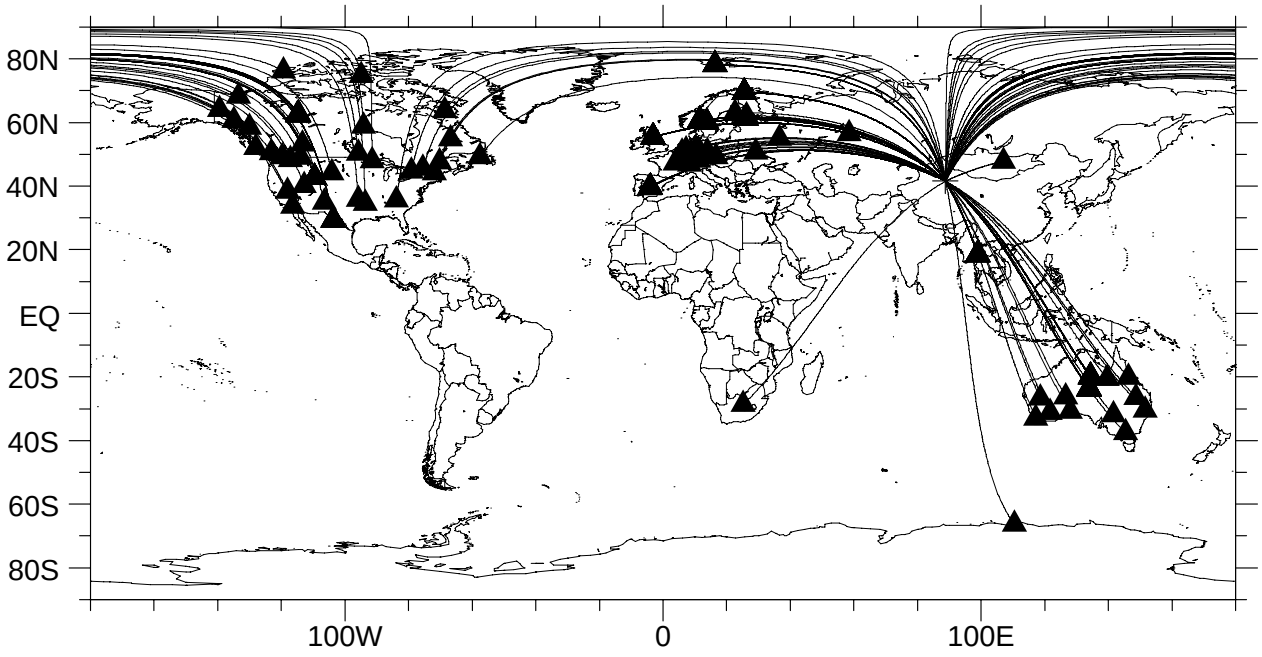


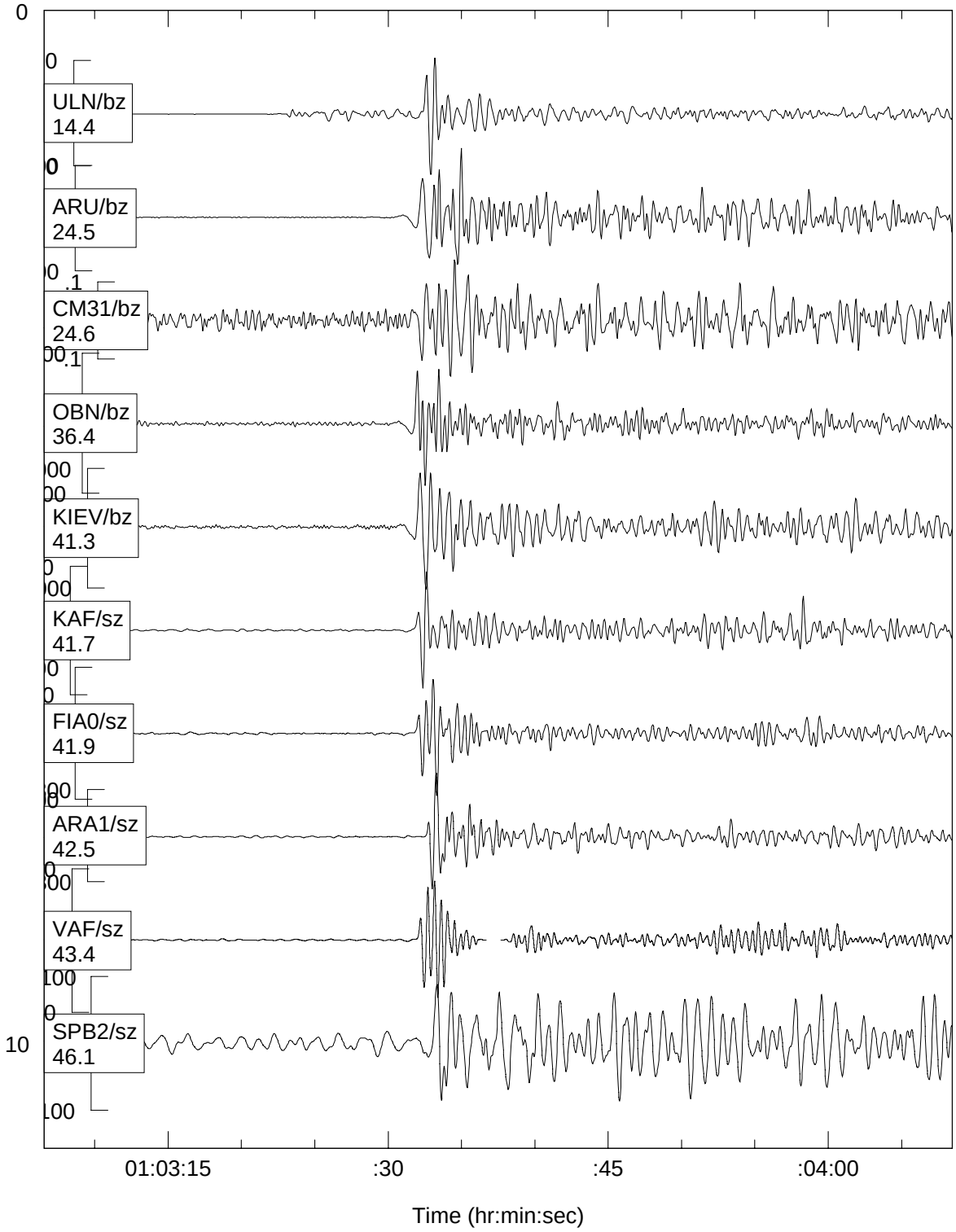
Date	Time	Latitude	Longitude	mb
08/17/95	00:59:57.7	41.5600	88.8000	6.00
06/08/96	02:55:58.0	41.6600	88.6900	5.90

China (1995/08/17)

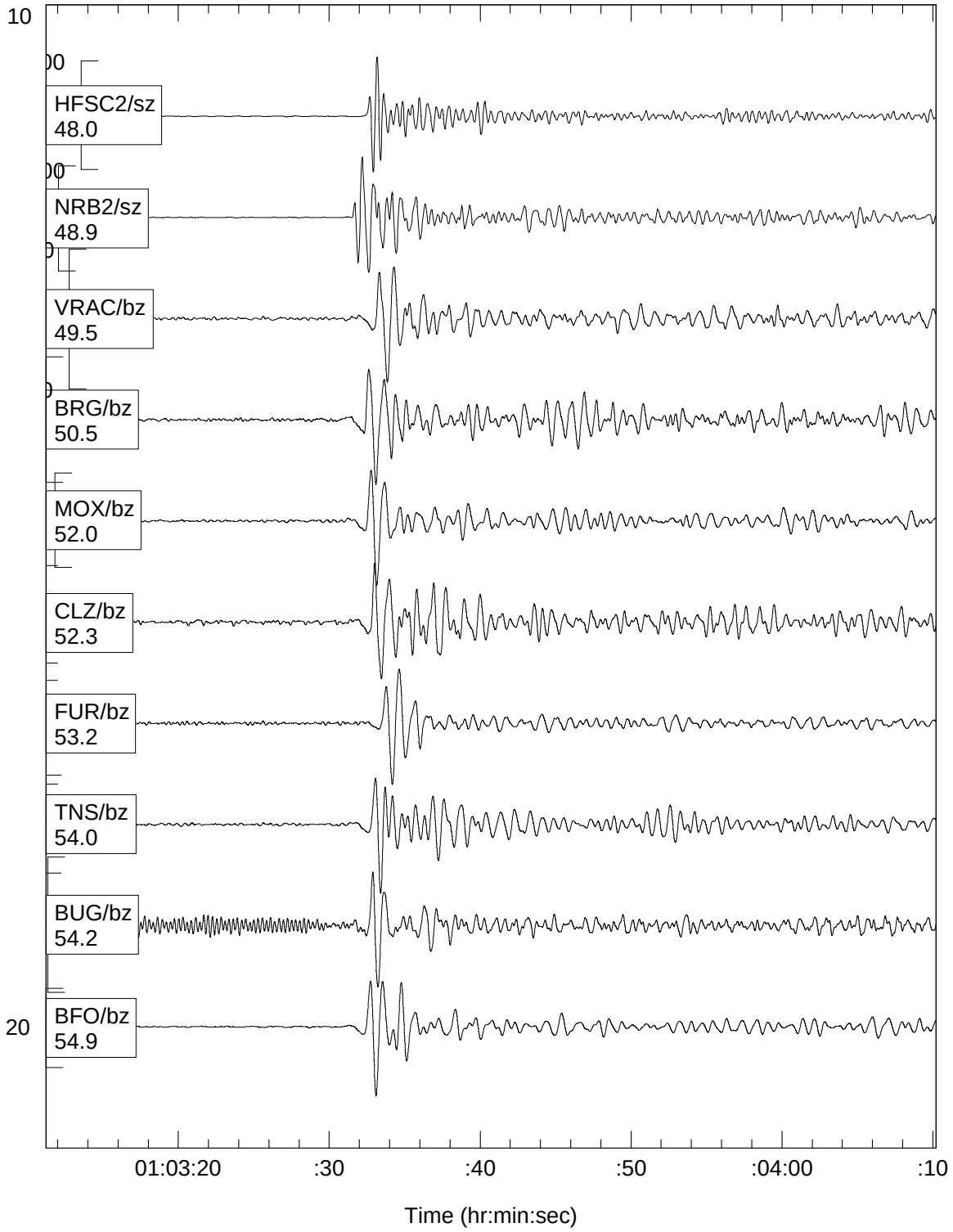


Map shows source-station paths for China explosion on 1995/08/17, followed by waveform samples. Stations are ordered by distance (shown in degrees beneath station name).

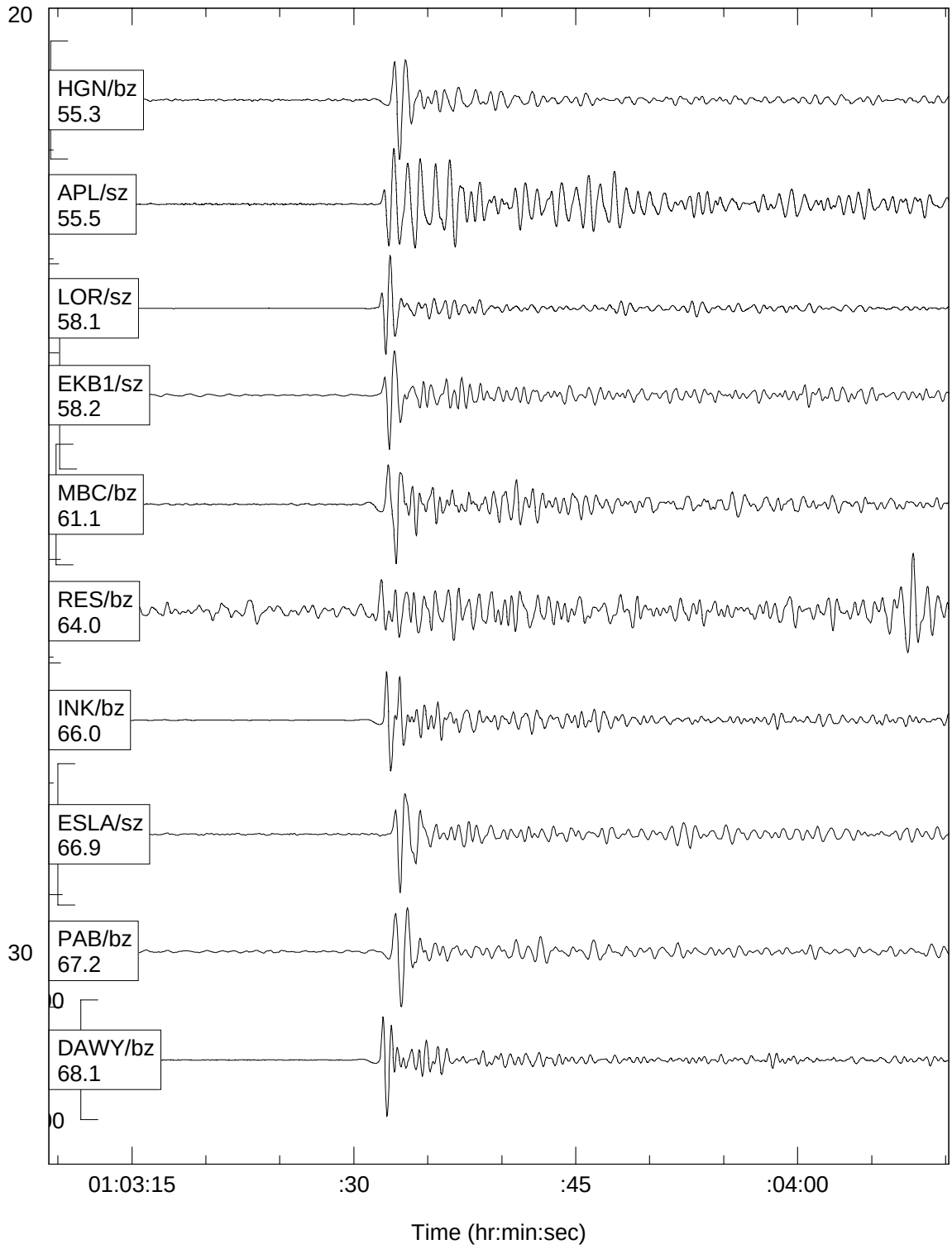
China (1995/08/17)



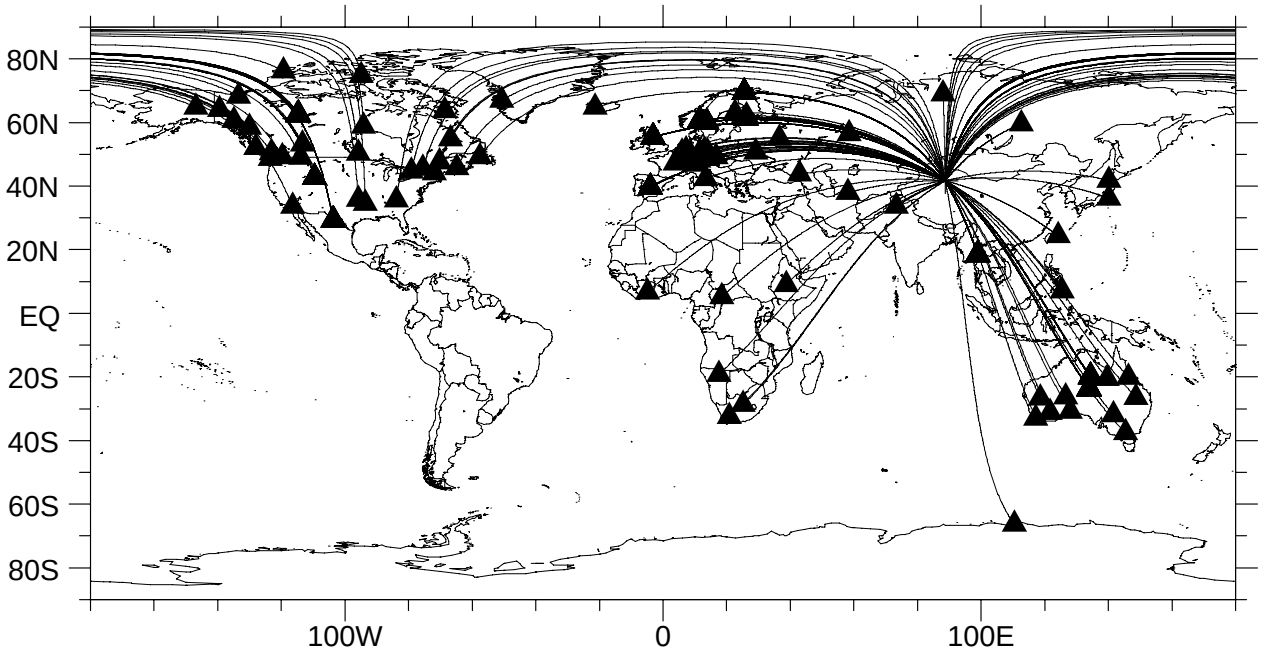
China (1995/08/17)



China (1995/08/17)

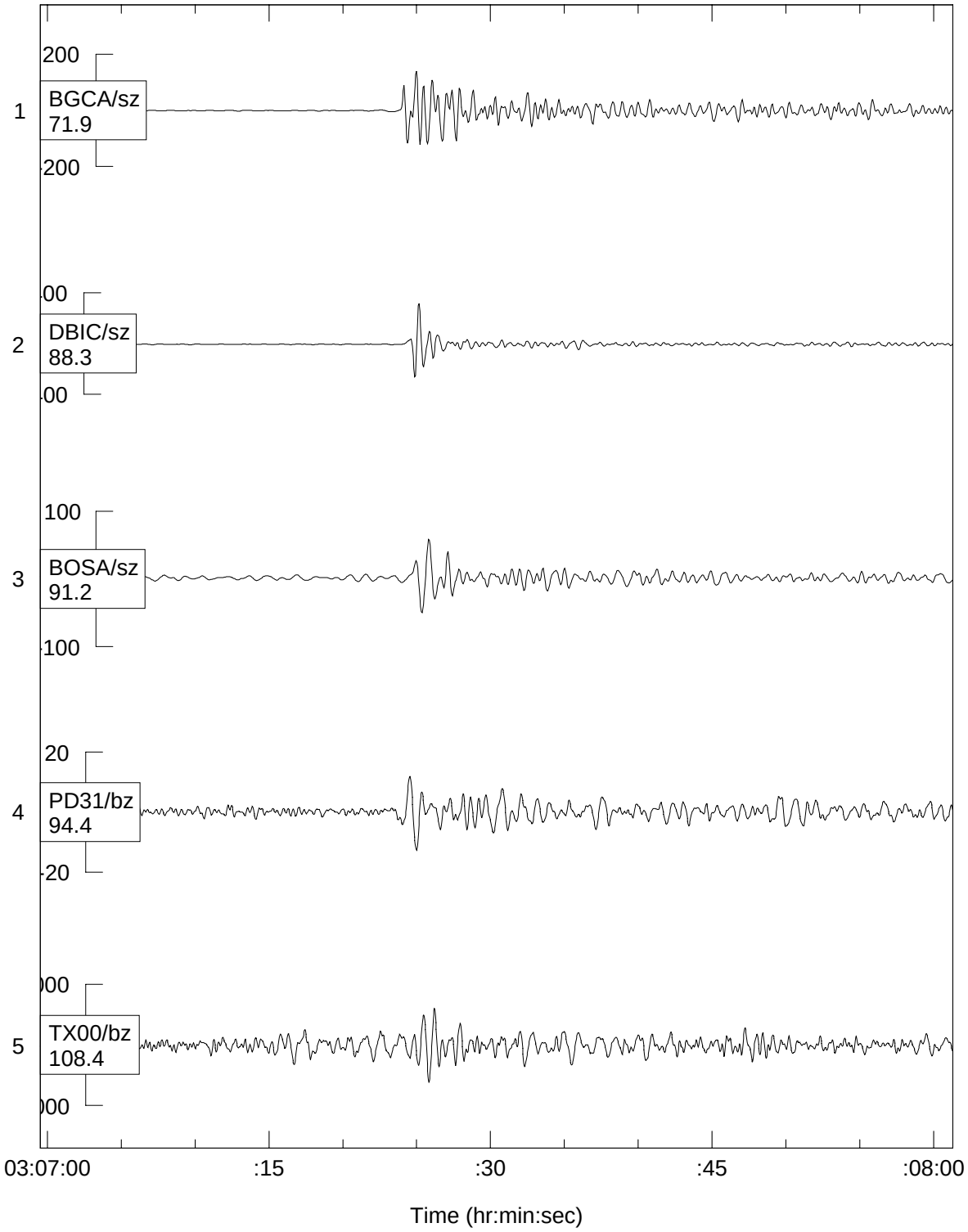


China (1996/06/08)

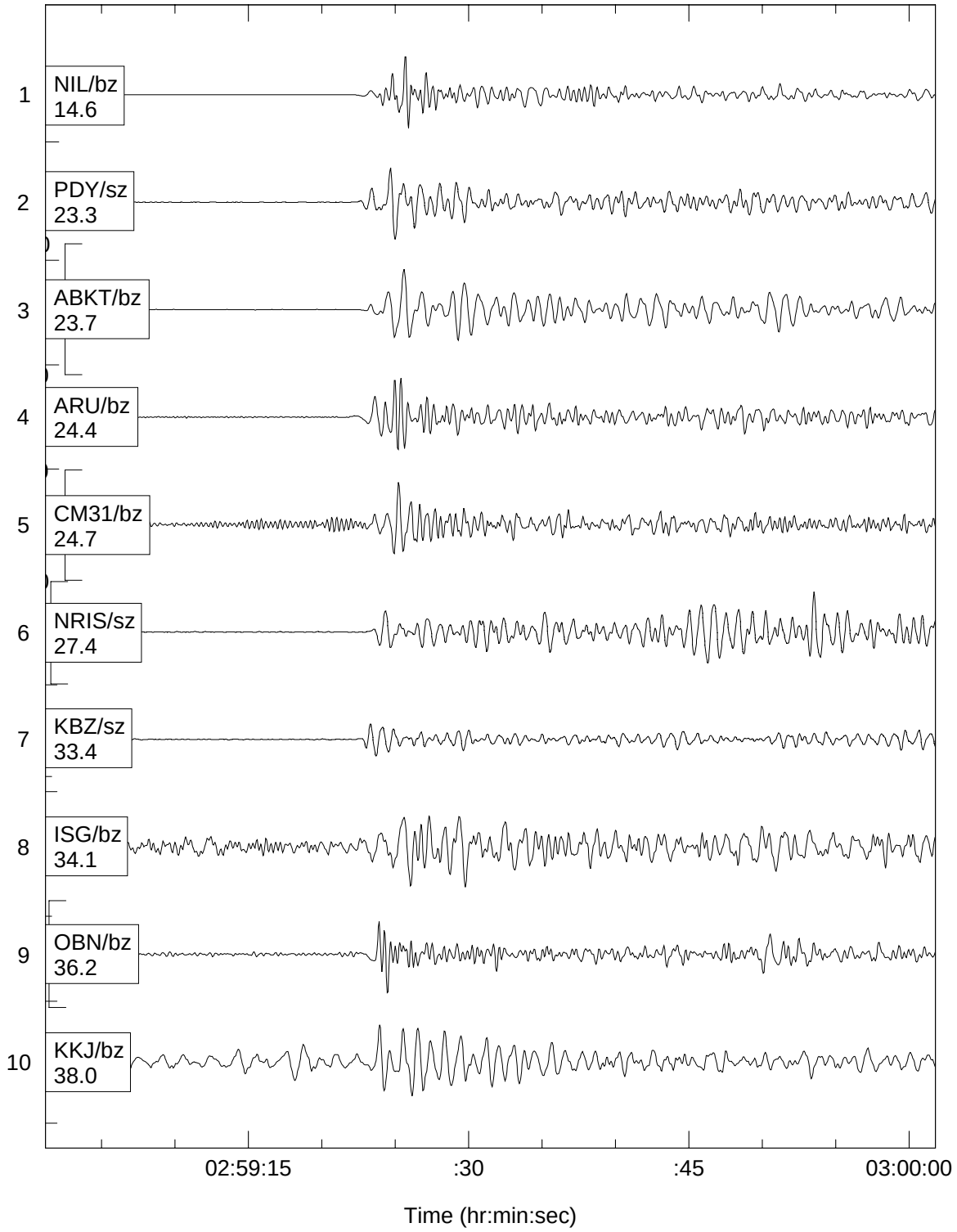


Map shows source-station paths for China explosion on 1996/06/08, followed by waveform samples. Stations include IMS stations that provide data to the PIDC through AFTAC as well as others, shown in separate figures. Stations are ordered by distance (shown in degrees beneath station name).

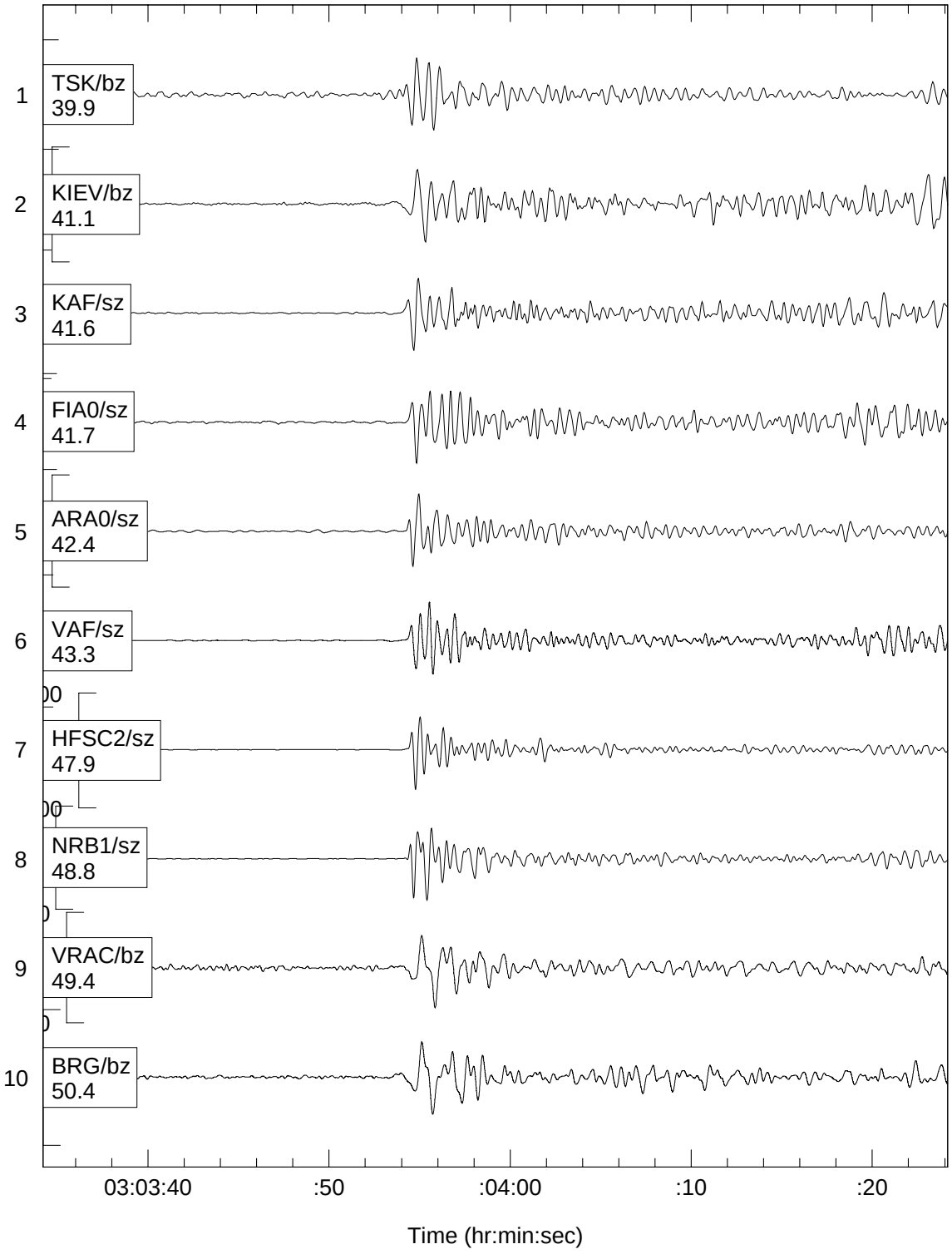
China (1996/06/08)



China (1996/06/08)



China (1996/06/08)



COLOPHON

Seismic waveforms shown in this document were extracted from the Nuclear Explosion Database of the Center for Monitoring Research. Waveforms from numerous other explosions are available, and are listed in the Nuclear Explosion Database at the PIDC web site at http://www.pidc.org/dataprodbox/prod.html. Cover photograph of Trinity was taken from the web site of Los Alamos National Laboratory. This document was prepared by Science Applications International Corporation.

FIGURE 8.27 PLUMBBOB - KEZIAH SHOT 14 SEPTEMBER 1957 500' TOWER 11 KT