

## APPENDIX

### INTRODUCTION

This document provides the following information for selected ground motions:

- Horizontal response spectra for the 11 selected and scaled ground motions compared to the corresponding target MCE spectrum.
- Individual-component response spectra and acceleration/velocity/displacement time series for each of the selected ground motions.

### CYBERSHAKE GROUND MOTIONS, SITE LADT

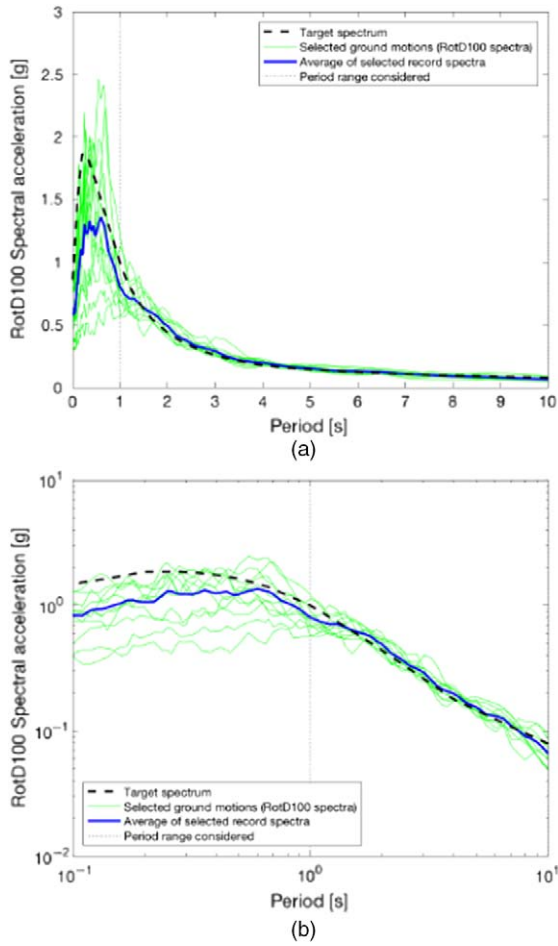
#### SUMMARY OF ALL RECORDS

**Table A1.** Basic information of selected records

Fault	Station name	Magnitude	Distance (km)	$V_{S30}$ (m/s)	Scaling factor	5%–75% significant duration (s)
Newport Inglewood Connected alt 2	LADT <sup>a</sup>	7.25	11.1	390	1	7.2
Puente Hills	LADT	7.25	5.4	390	1	4.6
Puente Hills	LADT	7.35	5.4	390	1	8.2
Newport Inglewood Connected alt 2	LADT	7.45	11.1	390	1	7.7
Sierra Madre	LADT	7.45	19.1	390	1	10.6
Newport Inglewood Connected alt 1	LADT	7.25	13.3	390	1	5.3
Newport-Inglewood, alt 2	LADT	7.45	11.1	390	1	10.0
Newport Inglewood Connected alt 2	LADT	7.65	11.1	390	1	6.7
Puente Hills	LADT	7.15	5.4	390	1	3.6
S. San Andreas; PK + CH + CC + BB + NM + SM	LADT	8.15	55.7	390	1	22.4
S. San Andreas; CH + CC + BB + NM + SM + NSB + SSB	LADT	8.15	55.7	390	1	18.5

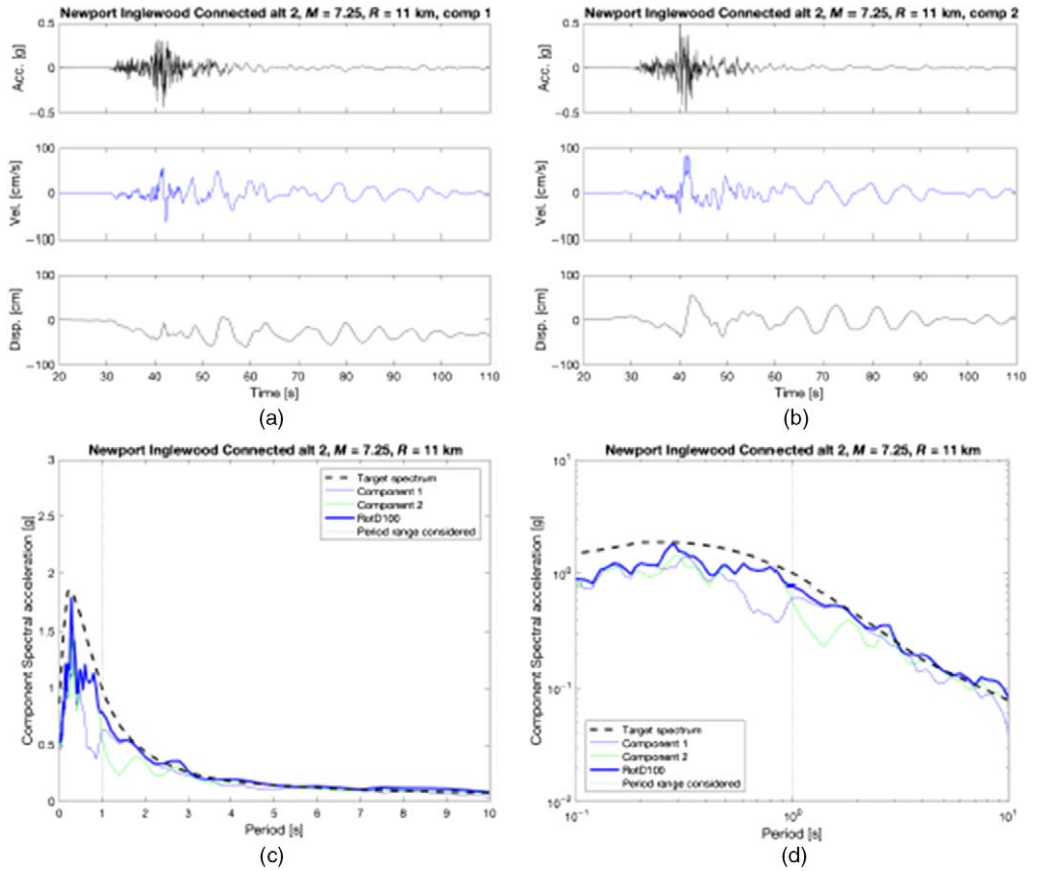
<sup>a</sup> LADT = Los Angeles downtown.

## ALL RECORDS' RESPONSE SPECTRA

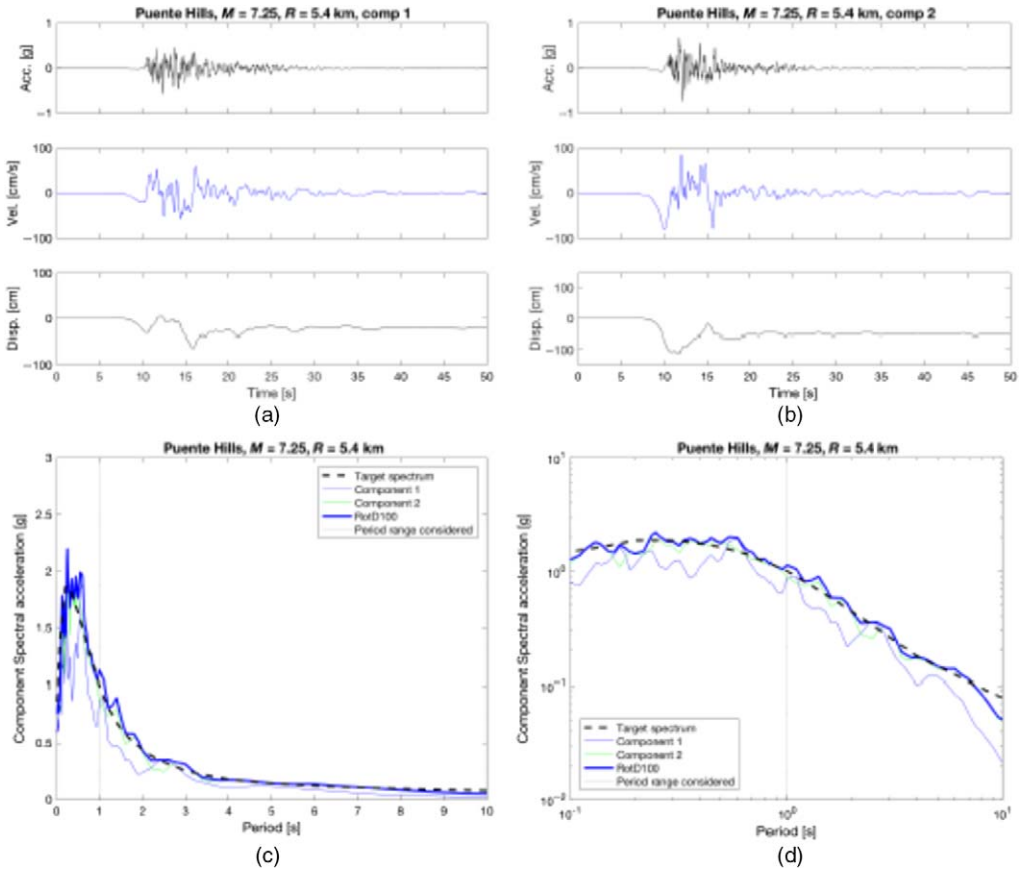


**Figure A1.** All records: (a) response spectra in linear scale; (b) response spectra in log scale.

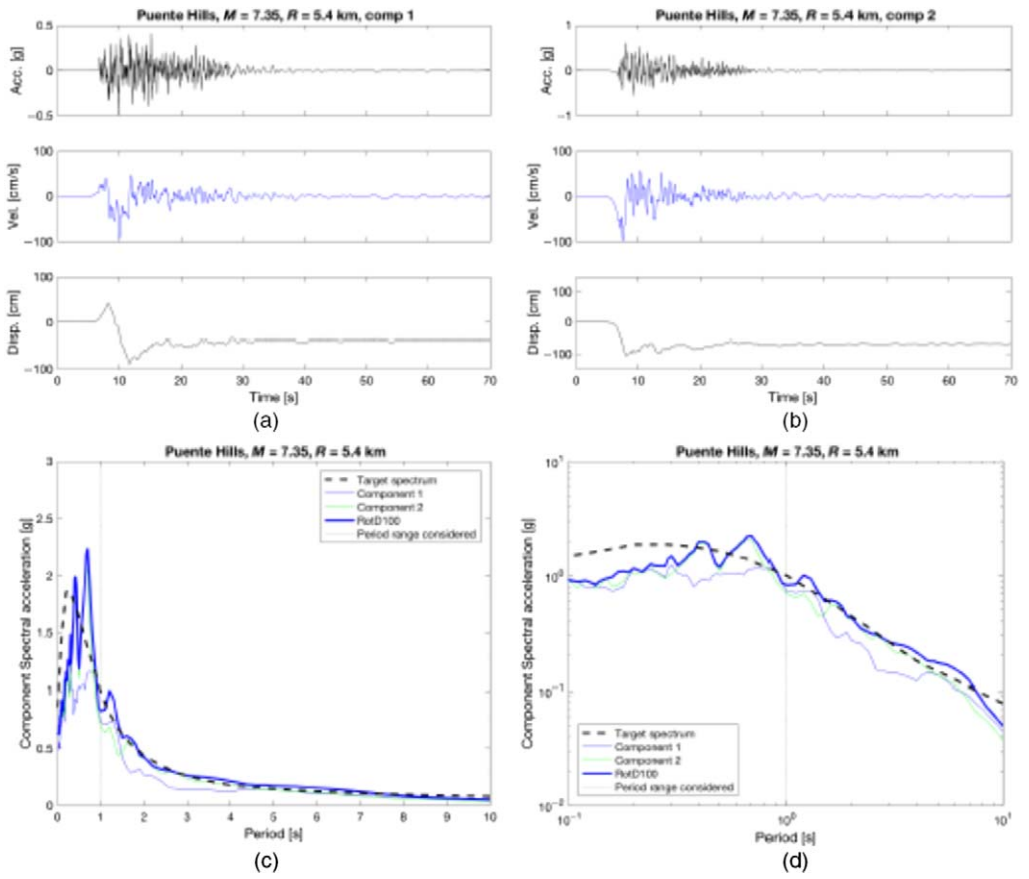
## INDIVIDUAL RECORD TIME SERIES AND RESPONSE SPECTRA



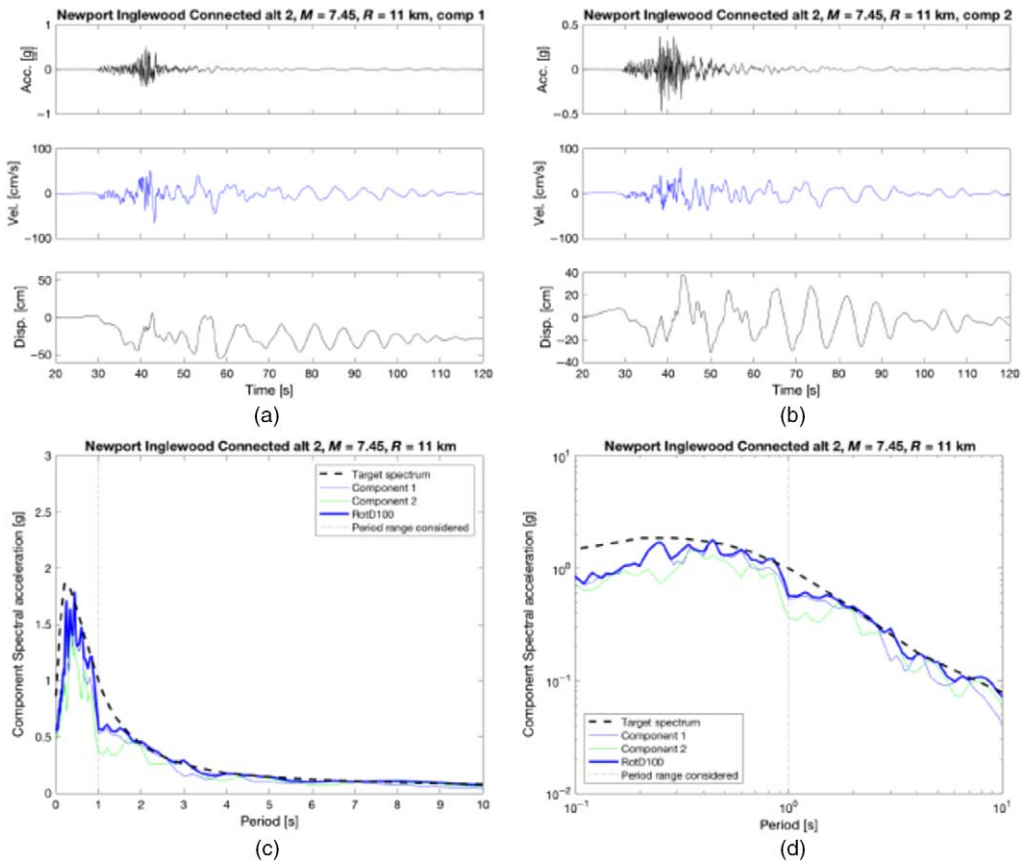
**Figure A2.** Record 1: (a) component 1, (b) component 2, (c) response spectra in linear scale, and (d) response spectra in log scale.



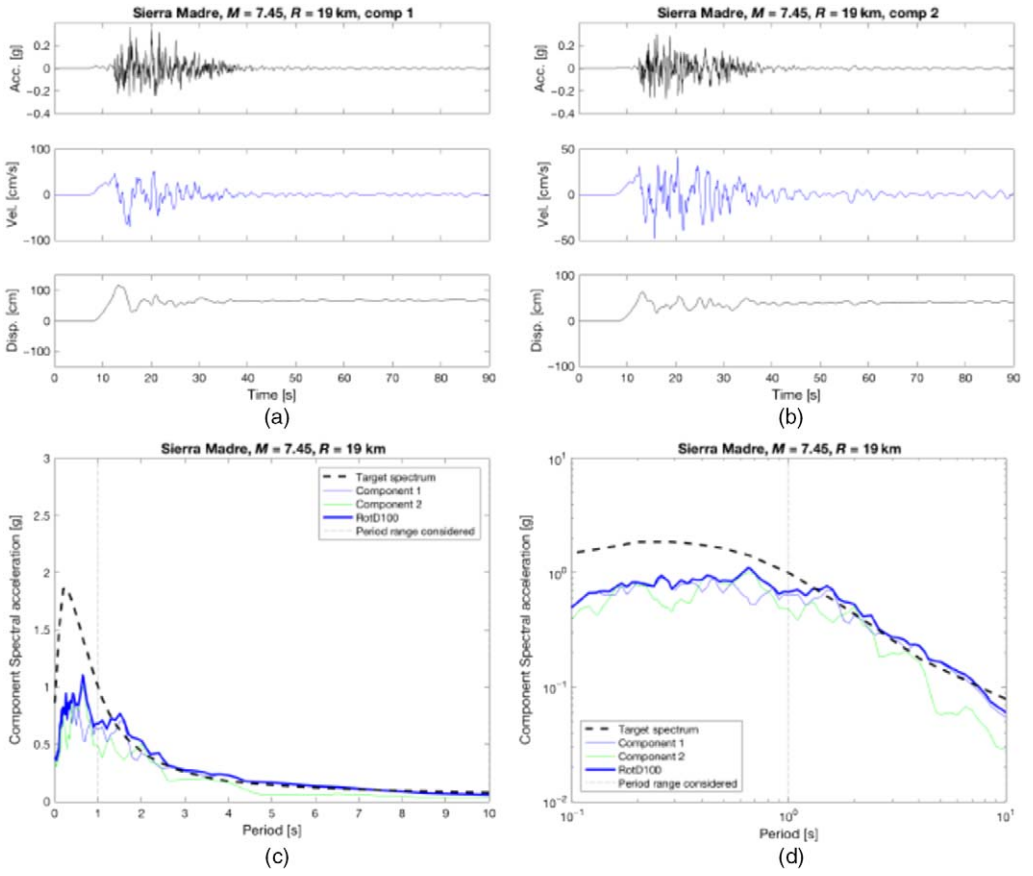
**Figure A3.** Record 2: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



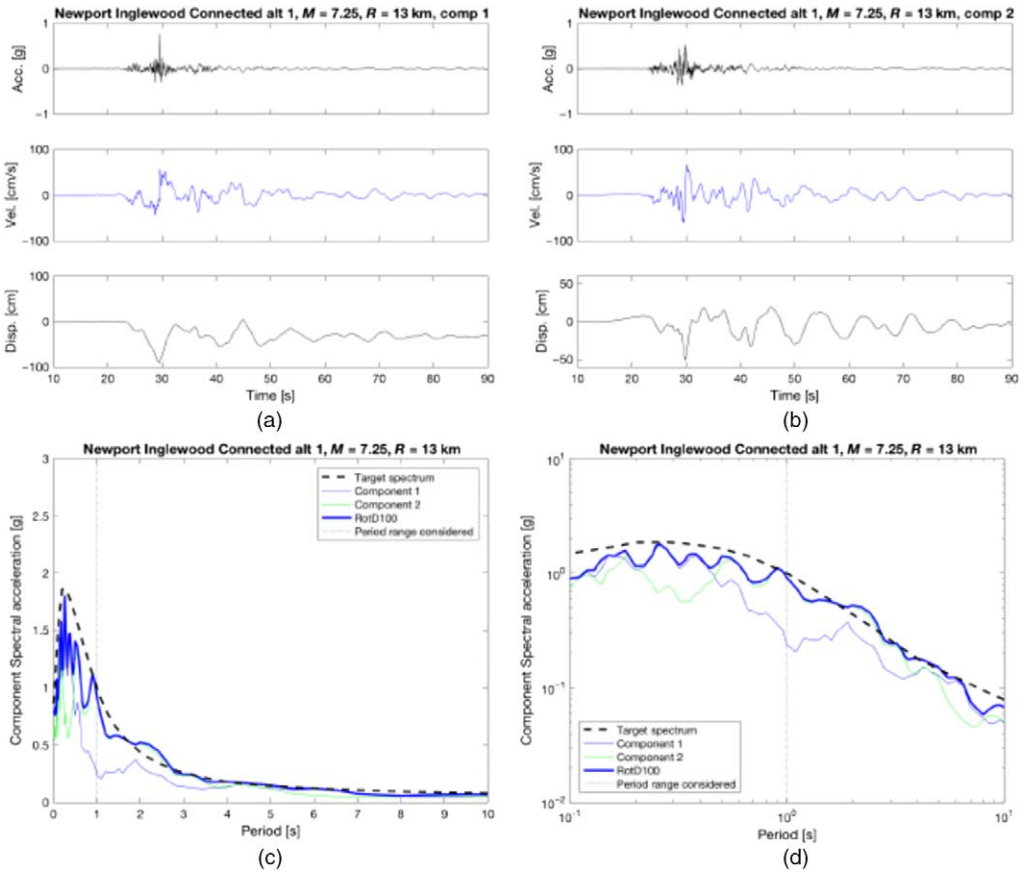
**Figure A4.** Record 3: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A5.** Record 4: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

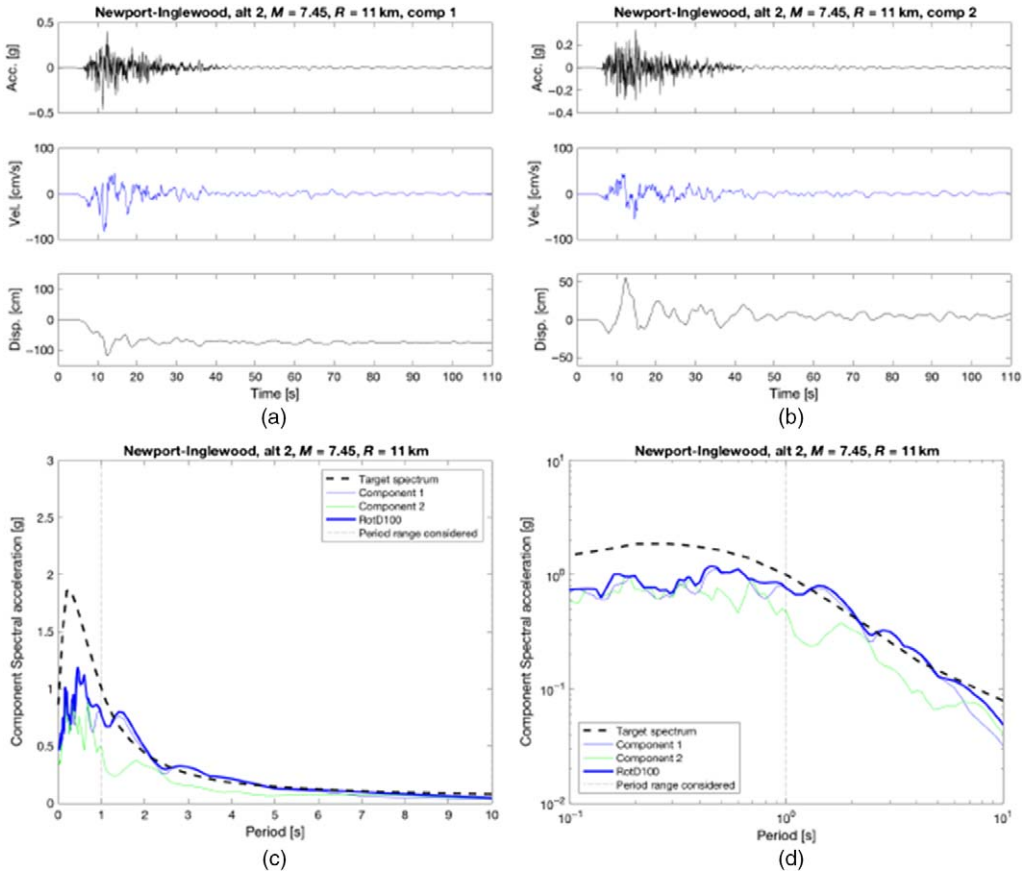


**Figure A6.** Record 5: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

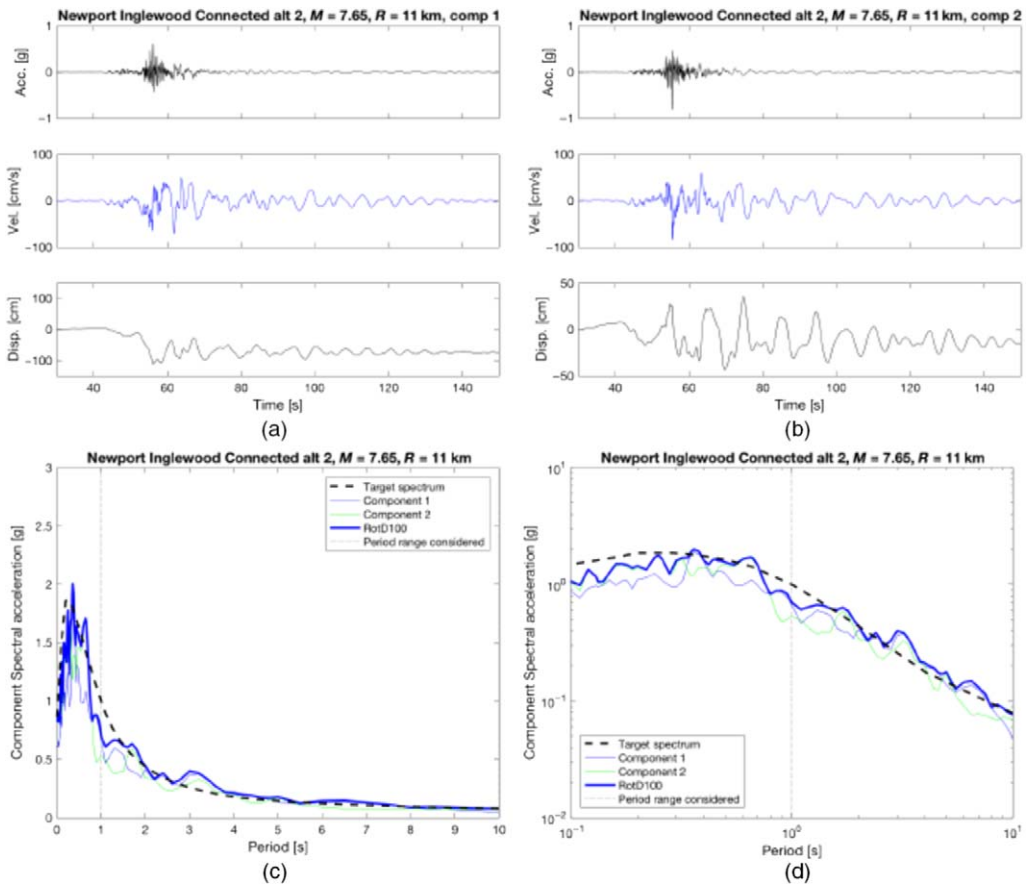


**Figure A7.** Record 6: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

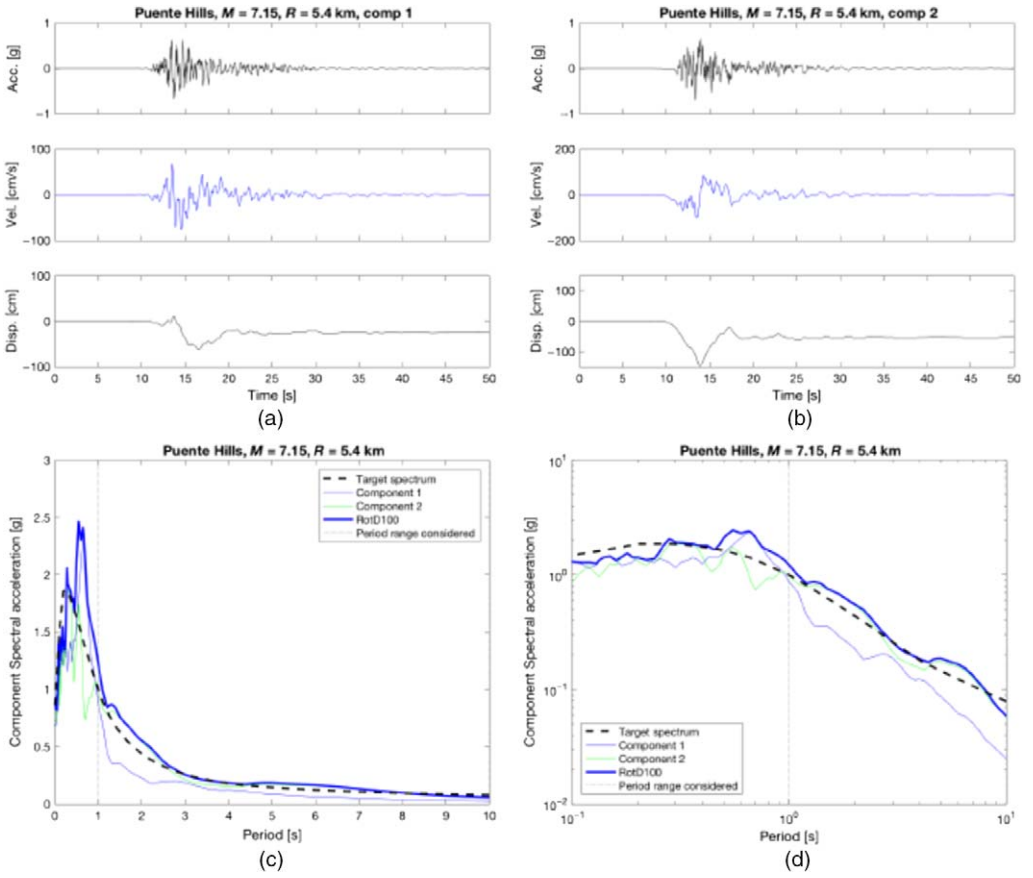




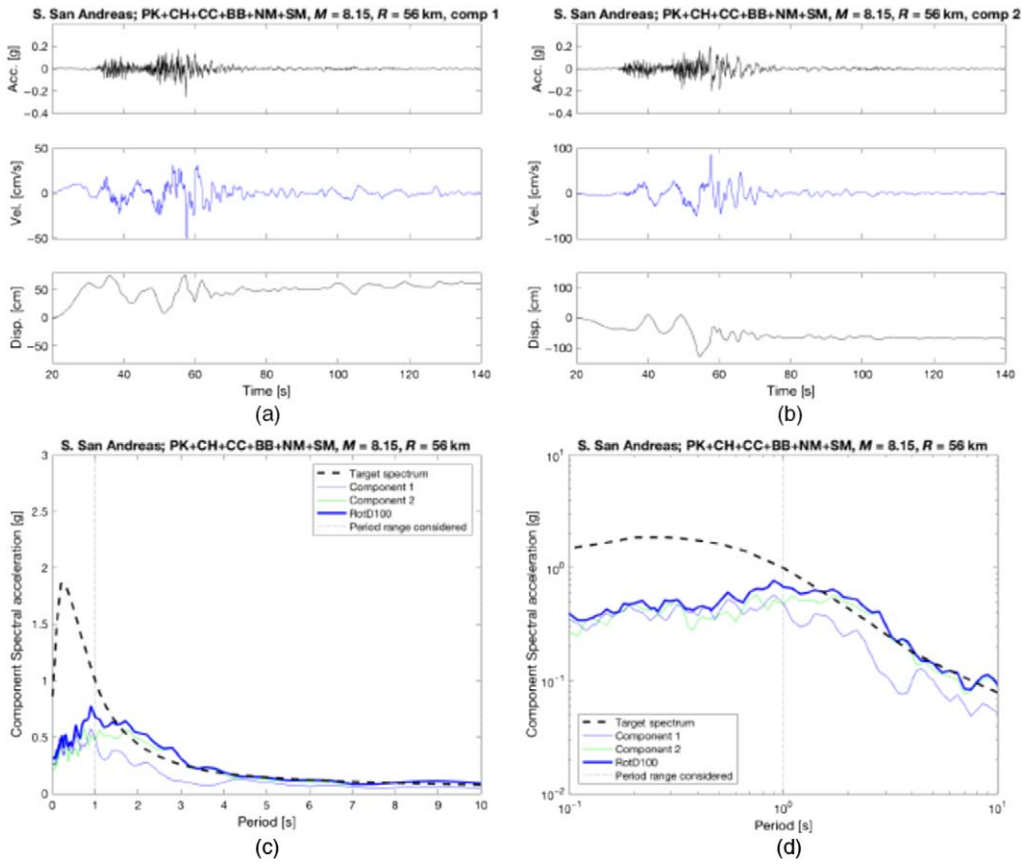
**Figure A8.** Record 7: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



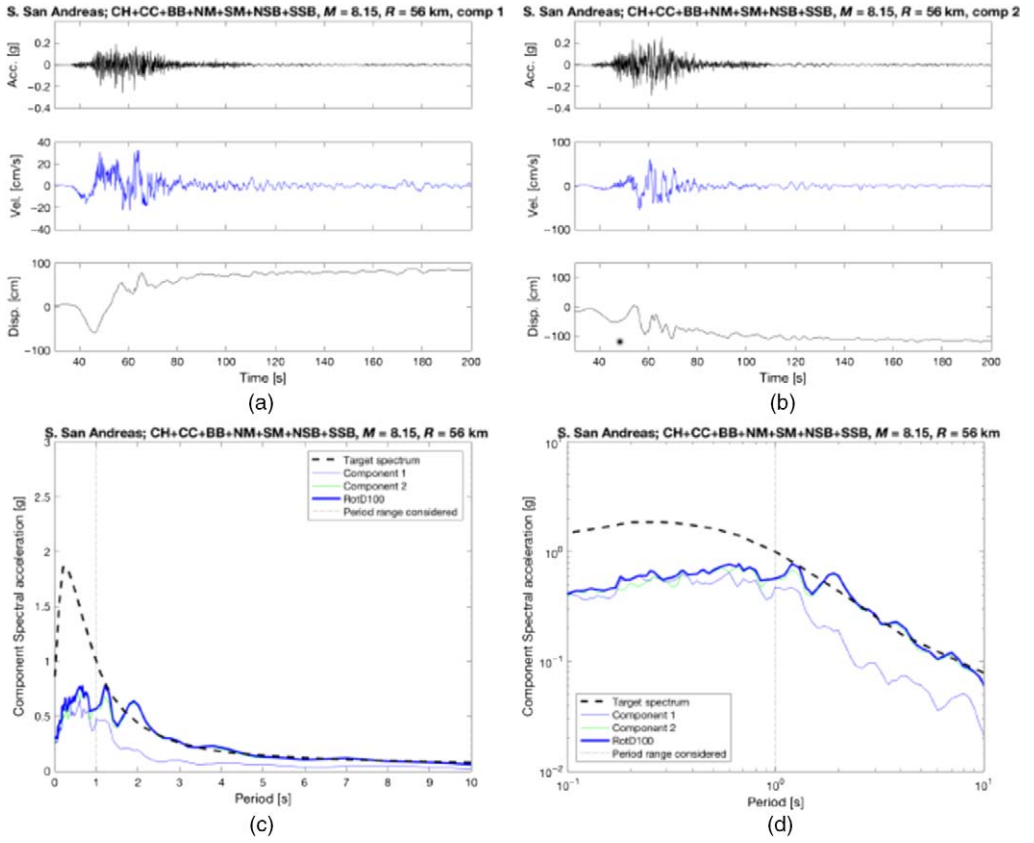
**Figure A9.** Record 8: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A10.** Record 9: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A11.** Record 10: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A12.** Record 11: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

## NGA-WEST2 GROUND MOTIONS, SITE LADT

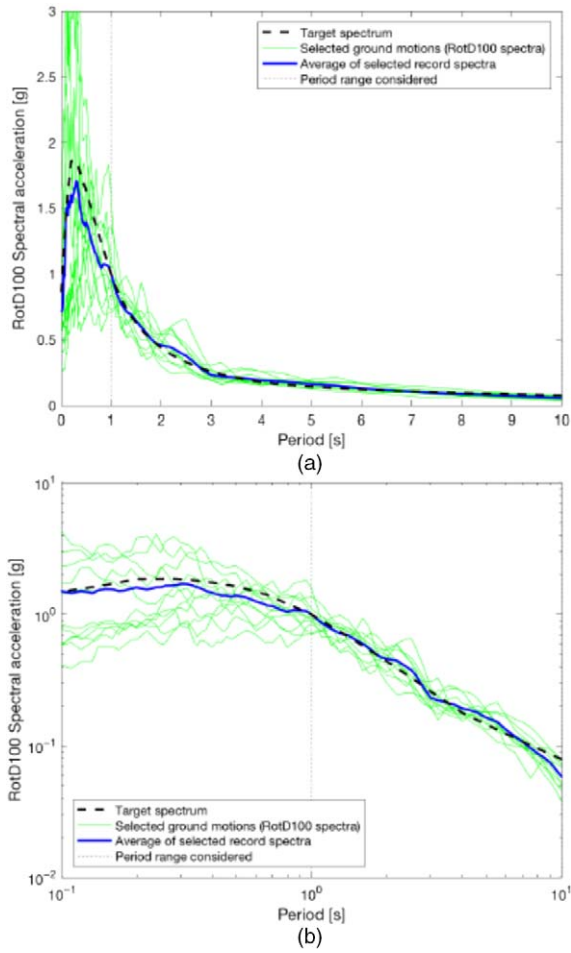
### SUMMARY OF ALL RECORDS

**Table A2.**

RSN <sup>a</sup>	Fault	Station name	Magnitude	Distance (km)	$V_{S30}$ (m/s)	Scaling factor	5%–75% significant duration (s)
169	Imperial Valley-06	Delta	6.53	22.0	242	1.95	24.4
776	Loma Prieta	Hollister – South and Pine	6.93	27.9	282	1.35	10.7
900	Landers	Yermo Fire Station	7.28	23.6	354	1.65	10.9
1158	Kocaeli, Turkey	Duzce	7.51	15.4	282	1.19	6.1
1504	Chi-Chi, Taiwan	TCU067	7.62	0.6	434	1.00	11.0
1541	Chi-Chi, Taiwan	TCU116	7.62	12.4	493	1.39	17.8
1549	Chi-Chi, Taiwan	TCU129	7.62	1.8	511	1.57	19.0
5678	Iwate	MYGH02	6.90	11.1	399	4.00	3.8
5827	El Mayor-Cucapah	Michoacan de Ocampo	7.20	15.9	242	1.51	22.8
5829	El Mayor-Cucapah	RIITO	7.20	13.7	242	1.85	15.6
6906	Darfield, New Zealand	GDLC	7.00	1.2	344	0.64	5.6

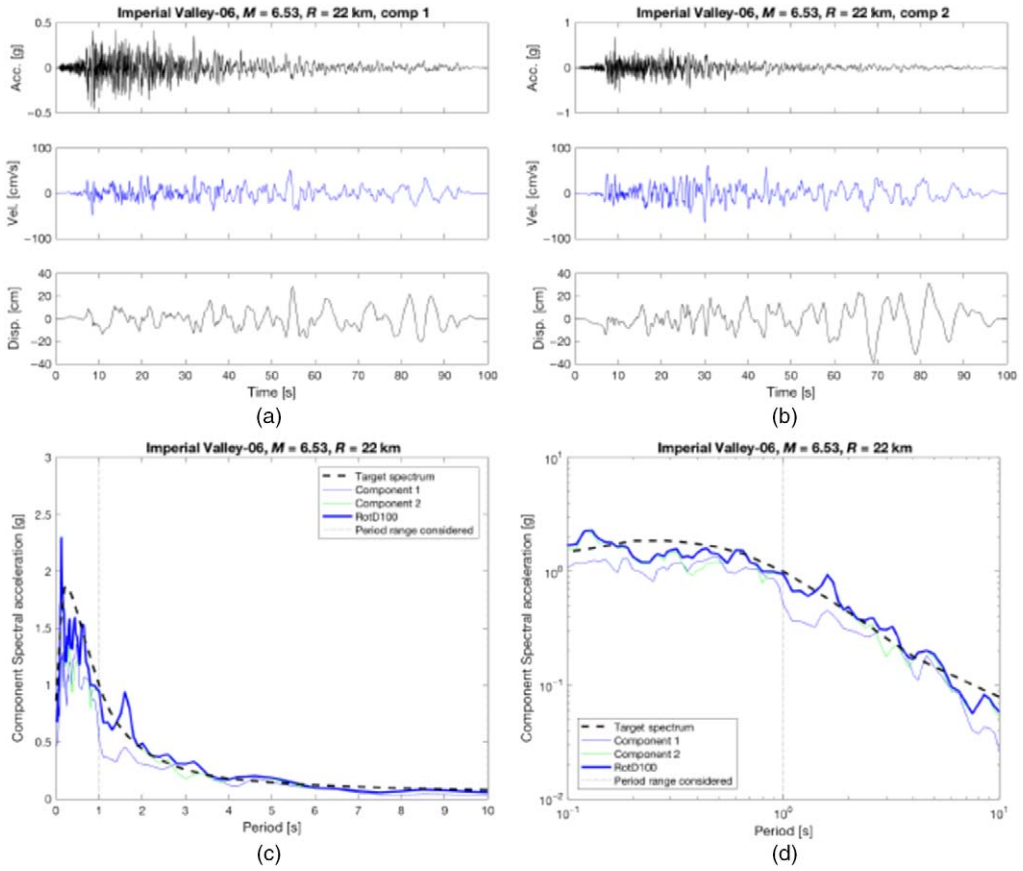
<sup>a</sup> RSN = Record sequence number.

## ALL RECORDS' RESPONSE SPECTRA



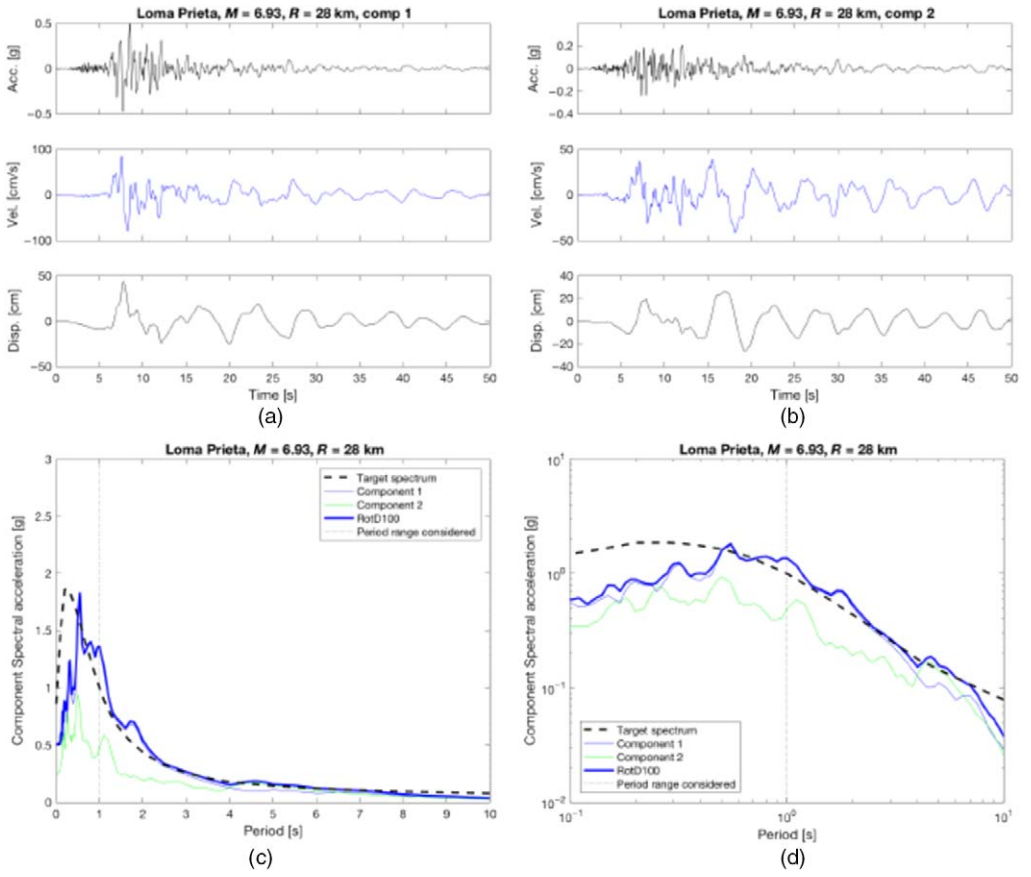
**Figure A13.** All records: (a) response spectra in linear scale; (b) response spectra in log scale.

## INDIVIDUAL RECORD TIME SERIES AND REPOSE SPECTRA

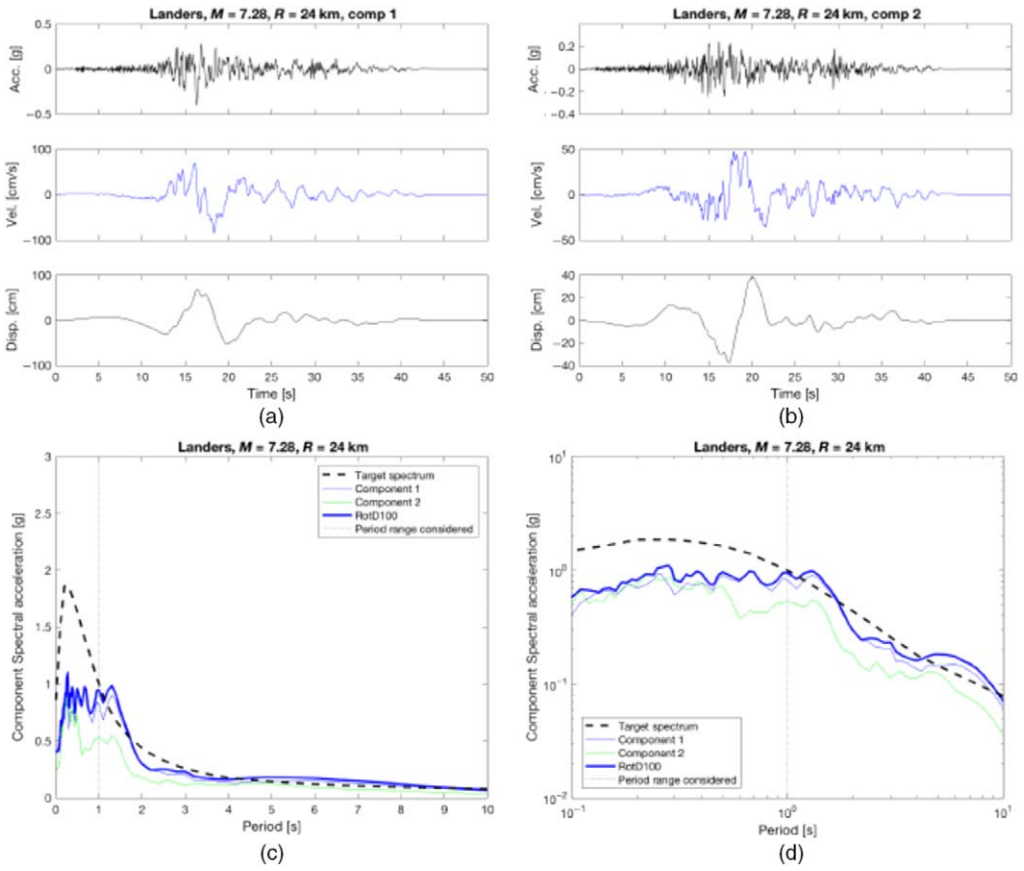


**Figure A14.** Record 1: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

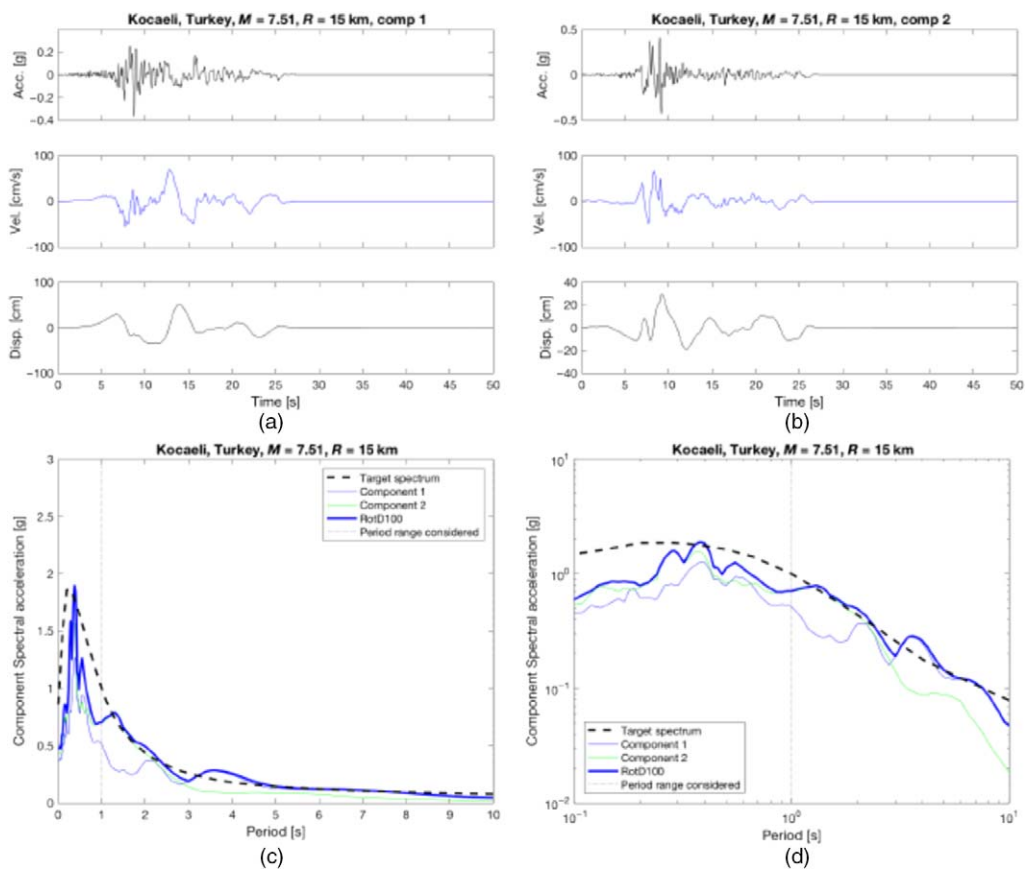




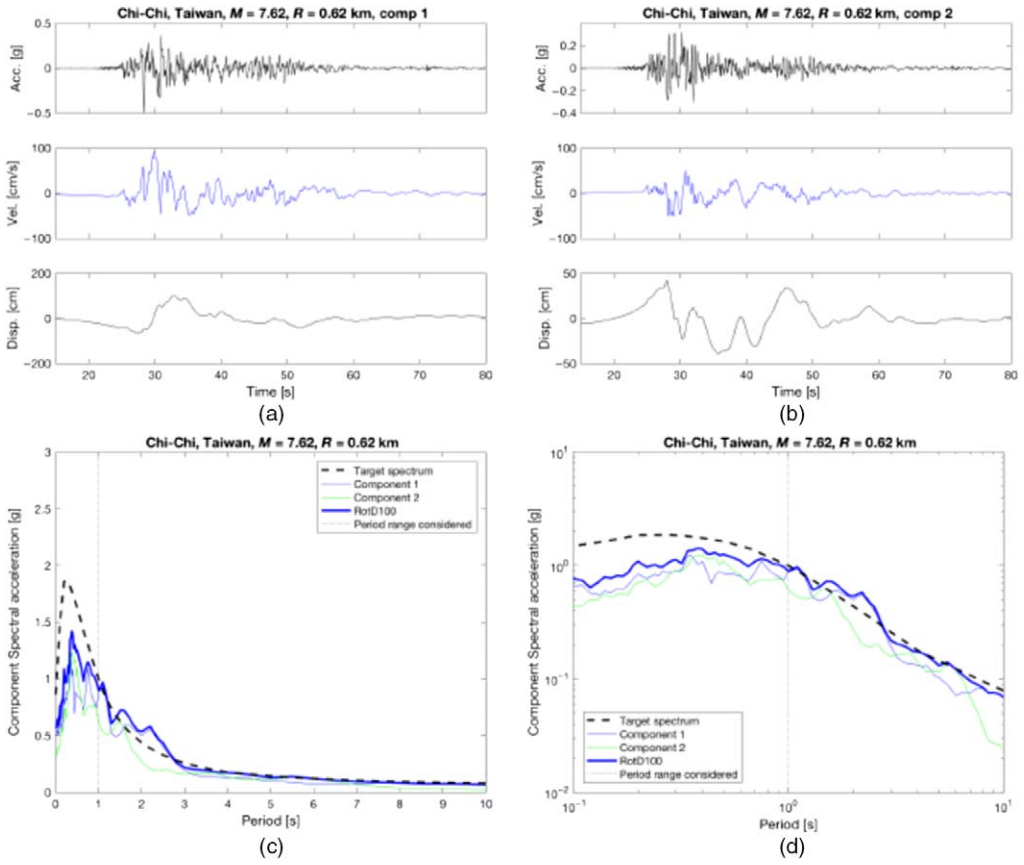
**Figure A15.** Record 2: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



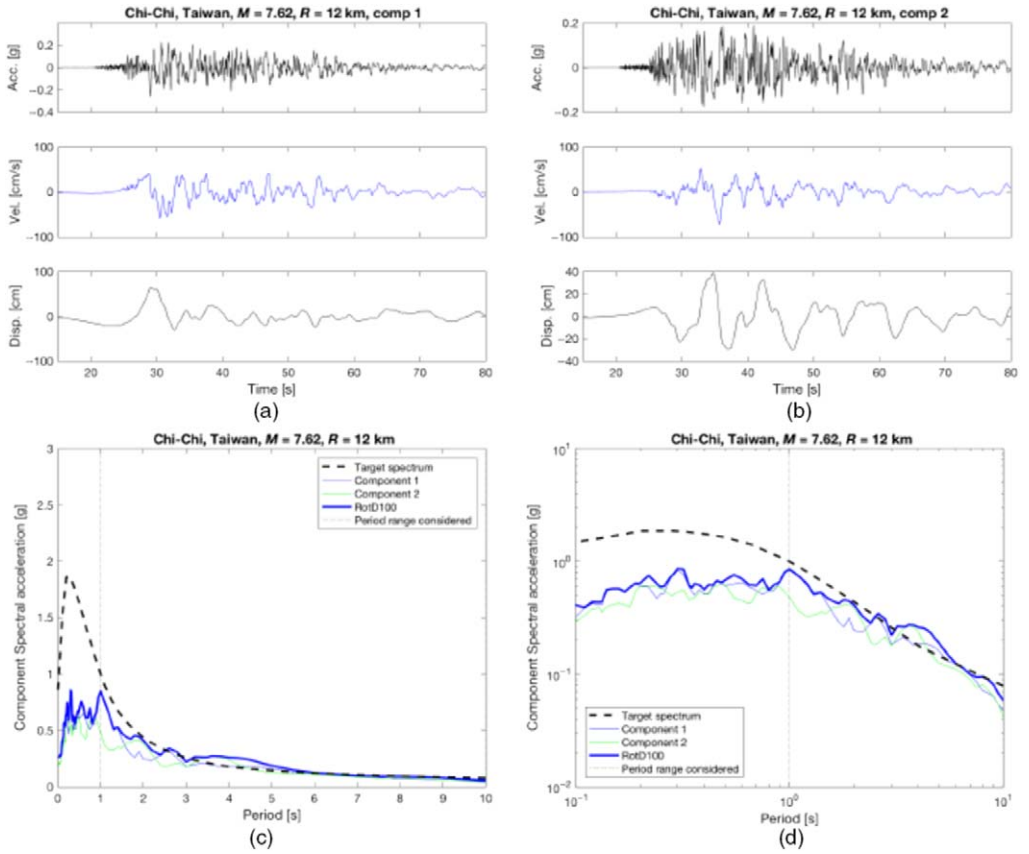
**Figure A16.** Record 3: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



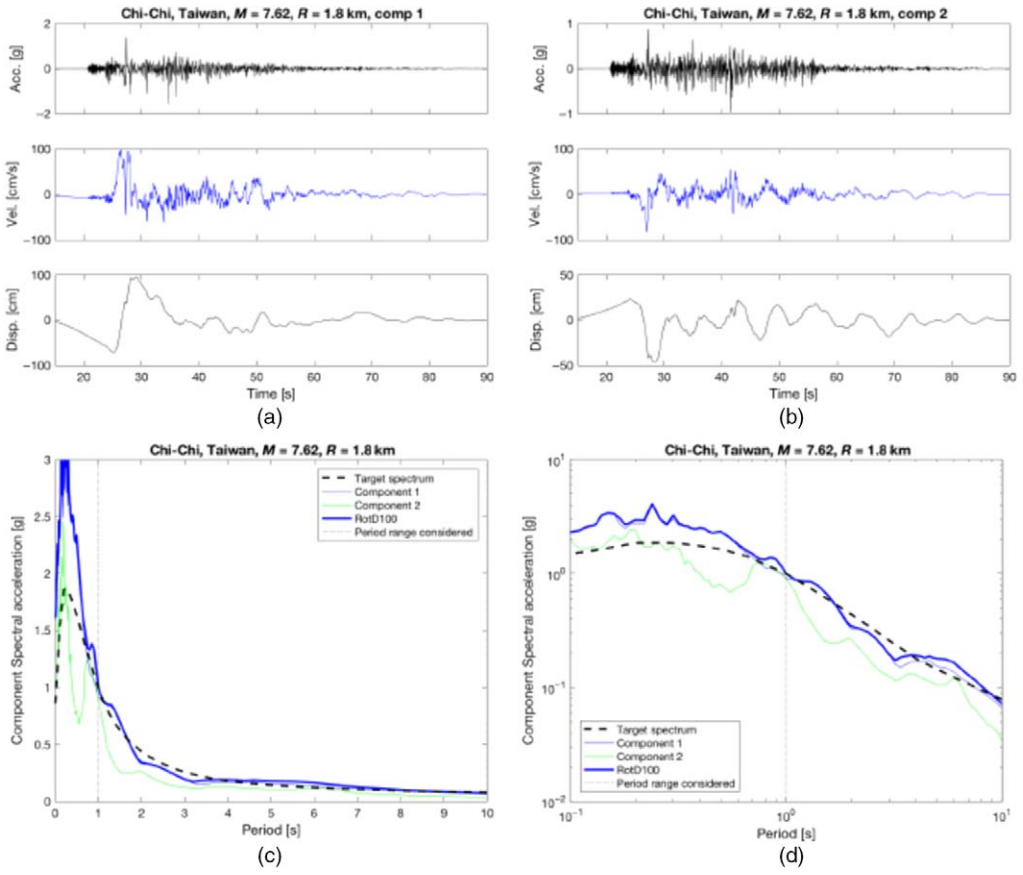
**Figure A17.** Record 4: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



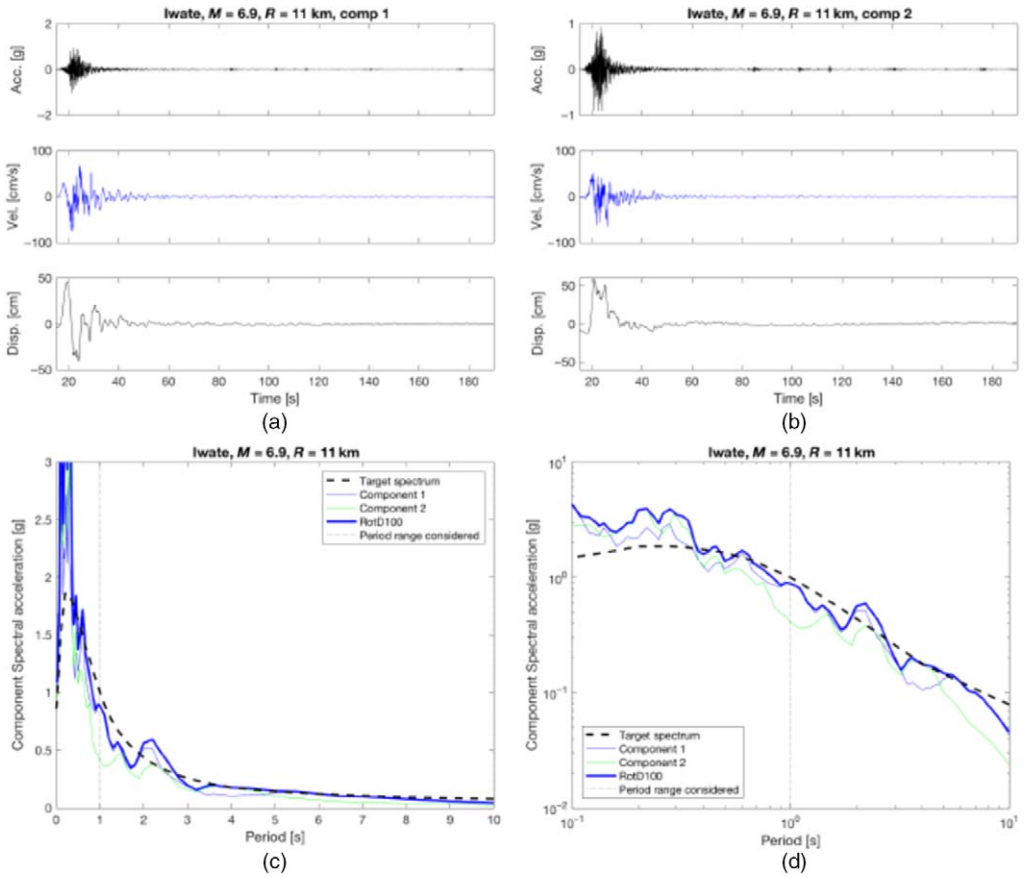
**Figure A18.** Record 5: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



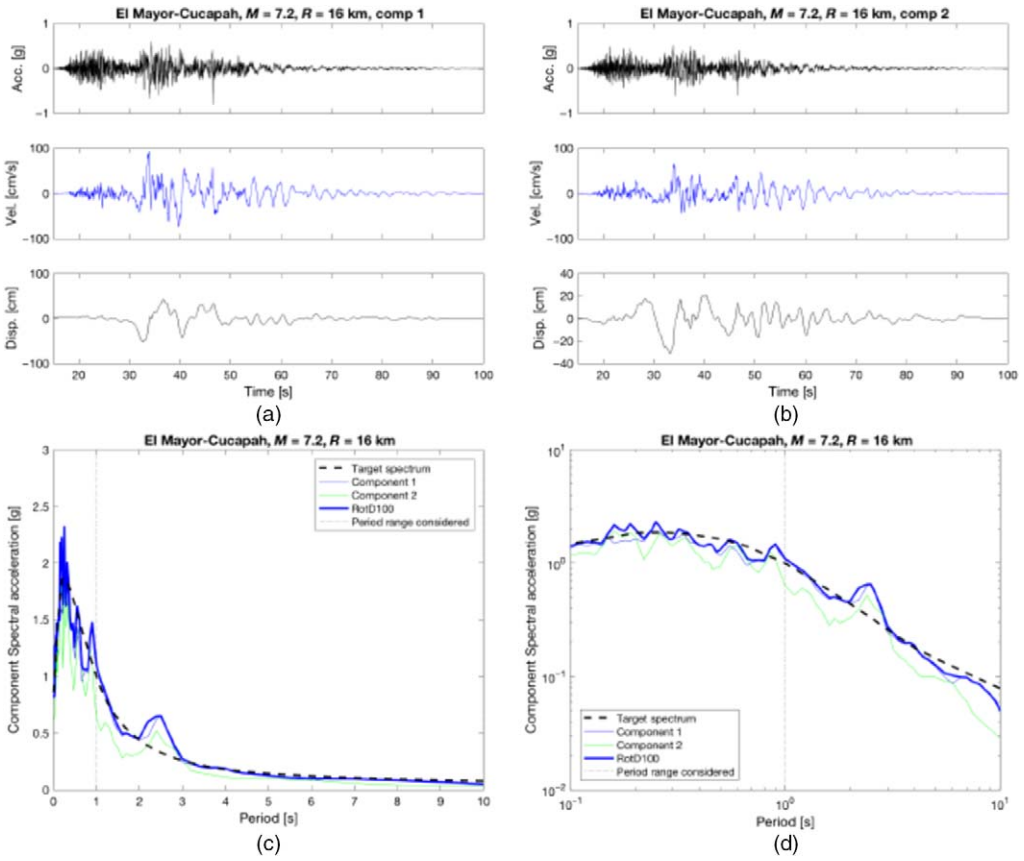
**Figure A19.** Record 6: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A20.** Record 7: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

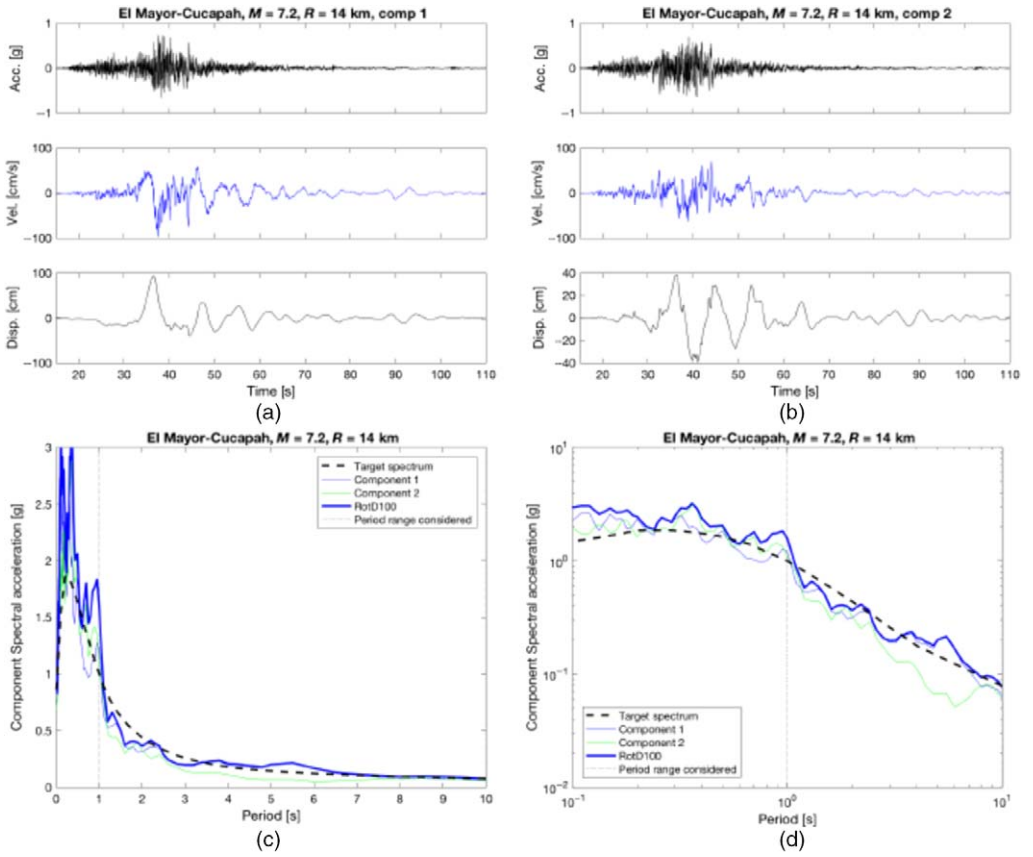


**Figure A21.** Record 8: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

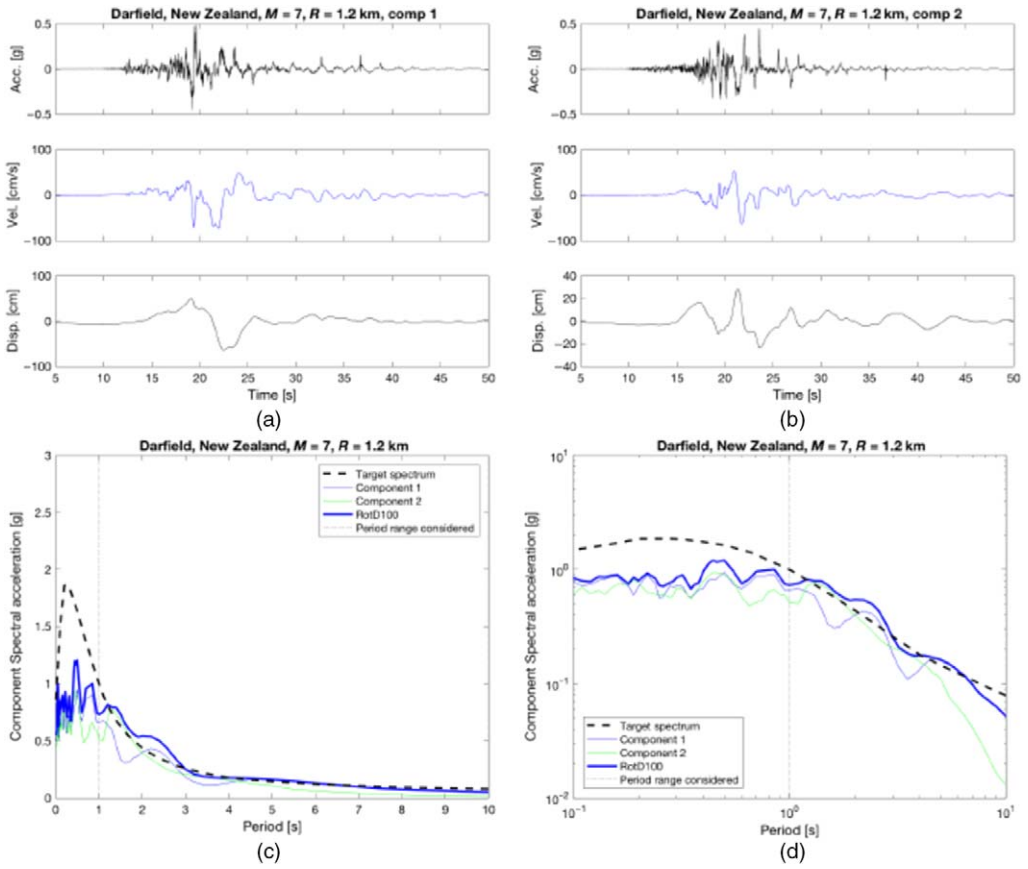


**Figure A22.** Record 9: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.





**Figure A23.** Record 10: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A24.** Record 11: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

## CYBERSHAKE GROUND MOTIONS, SITE PAS

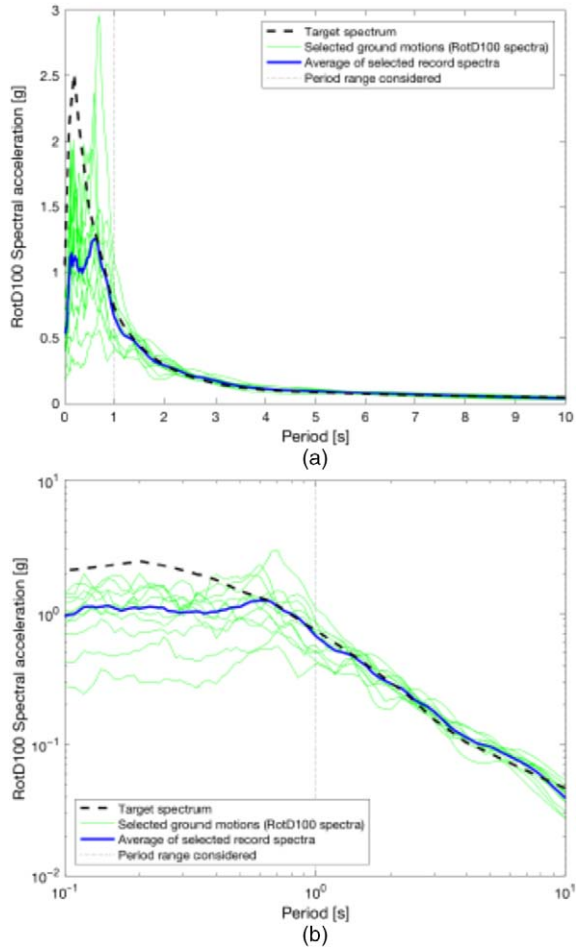
### SUMMARY OF ALL RECORDS

**Table A3.**

Fault	Station name	Magnitude	Distance (km)	$V_{S30}$ (m/s)	Scaling factor	5%–75% significant duration (s)
Puente Hills (LA)	PAS <sup>a</sup>	7.25	10.7	748	1	4.2
Puente Hills	PAS	7.25	11.2	748	1	4.2
Puente Hills	PAS	7.25	11.2	748	1	4.4
Sierra Madre	PAS	7.55	6.7	748	1	8.5
Connected						
Puente Hills	PAS	7.35	11.2	748	1	4.8
Sierra Madre	PAS	7.45	6.7	748	1	9.1
Connected						
Raymond	PAS	6.85	3.1	748	1	3.4
Puente Hills	PAS	7.15	11.2	748	1	5.7
Sierra Madre Connected	PAS	7.45	6.7	748	1	13.0
S. San Andreas; PK + CH + CC + BB + NM + SM + NSB + SSB + BG + CO	PAS	8.35	43.4	748	1	10.4
S. San Andreas; BB + NM + SM	PAS	7.85	42.6	748	1	10.0

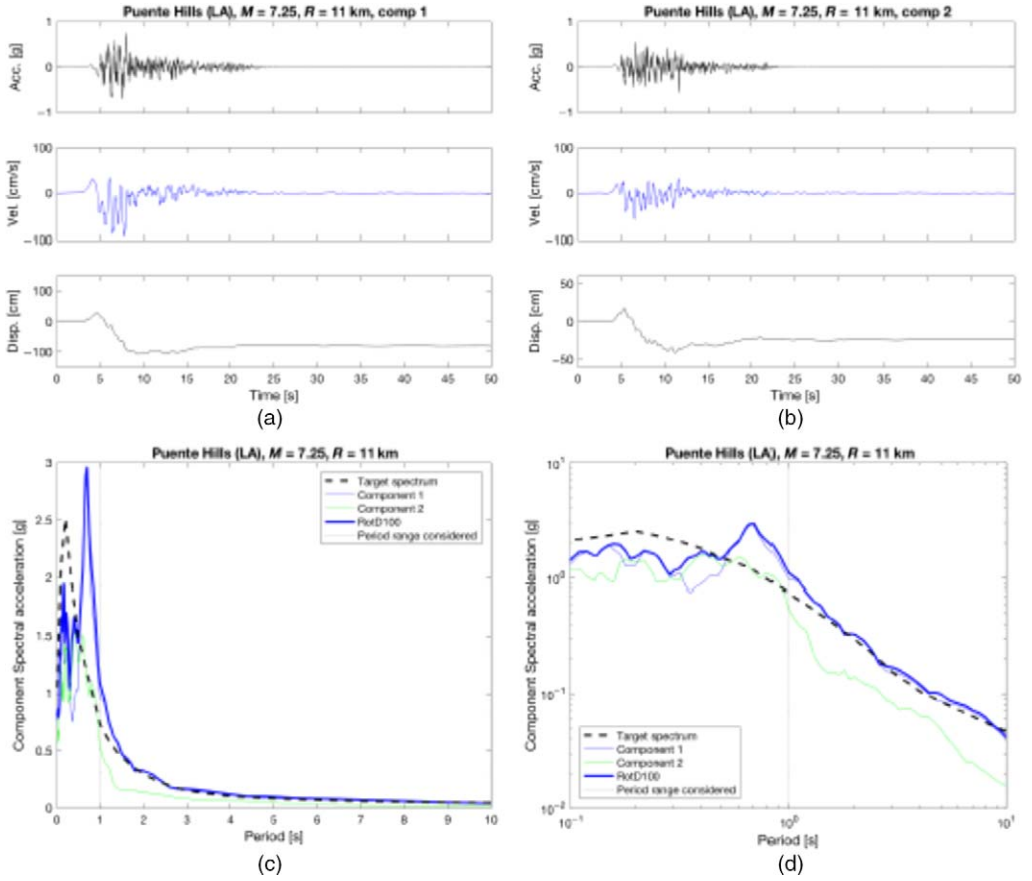
<sup>a</sup> PAS = Pasadena, CA.

## ALL RECORDS' RESPONSE SPECTRA

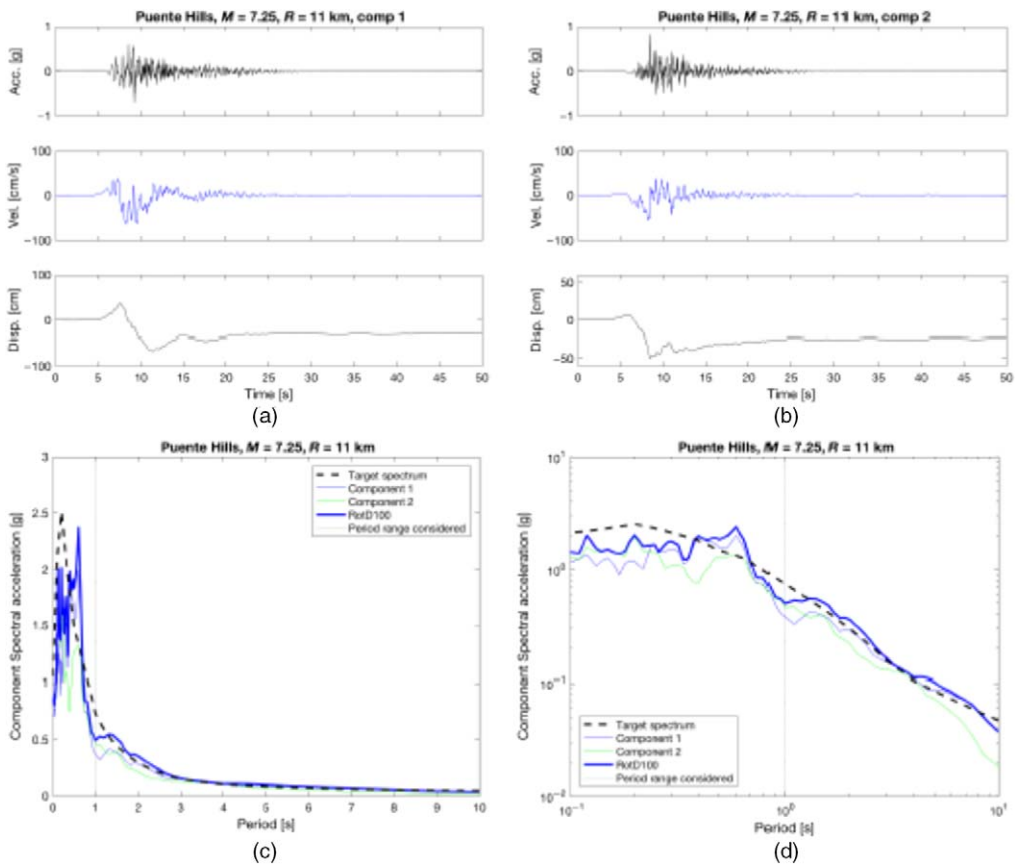


**Figure A25.** All records: (a) response spectra in linear scale; (b) response spectra in log scale.

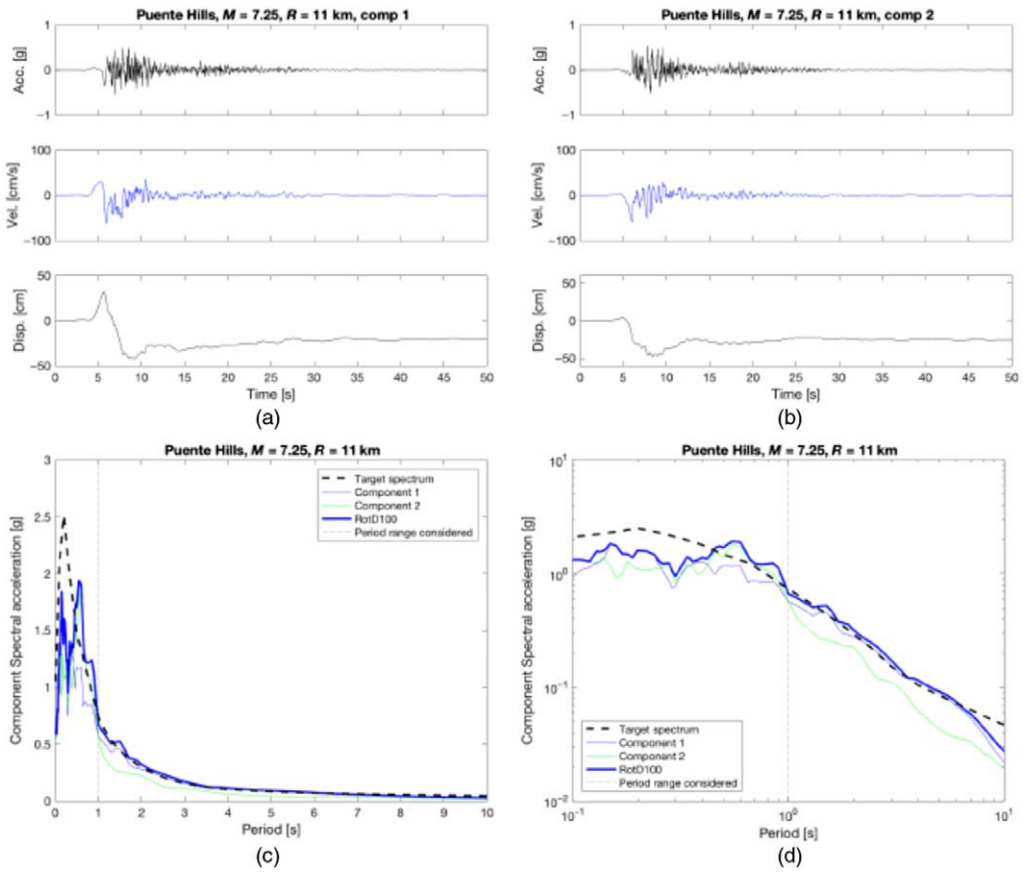
## INDIVIDUAL RECORD TIME SERIES AND REPOSE SPECTRA



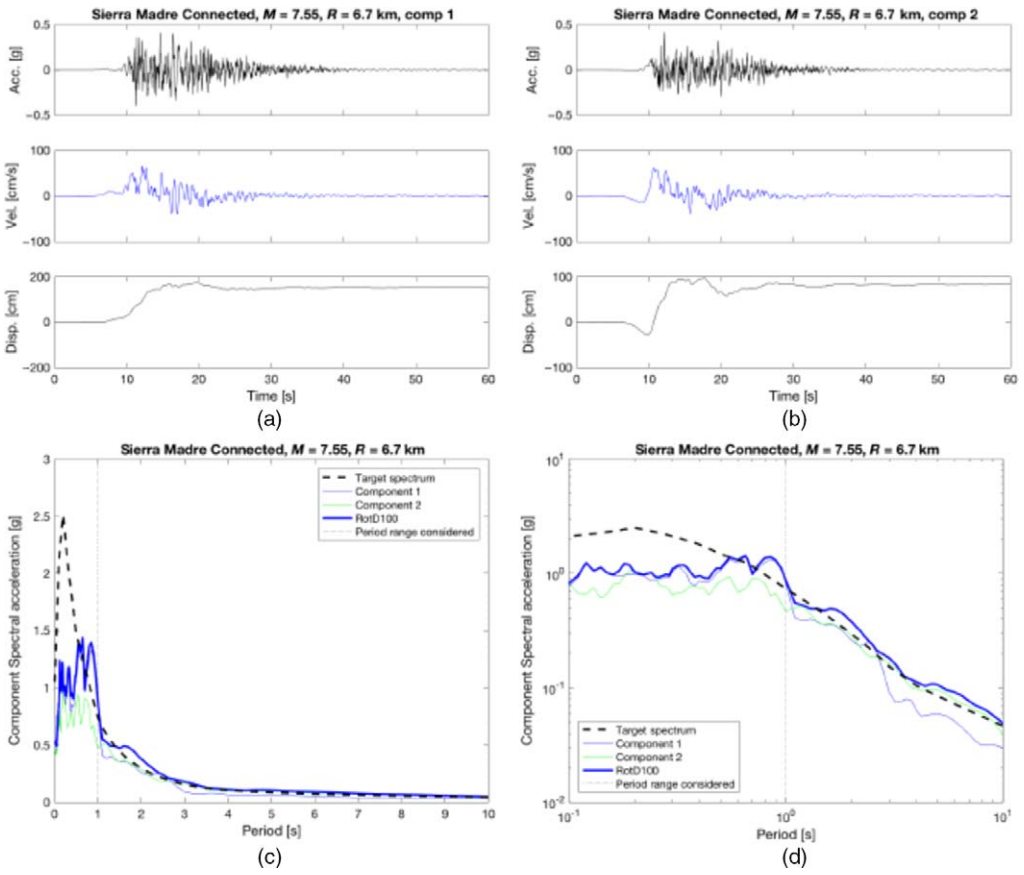
**Figure A26.** Record 1: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A27.** Record 2: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

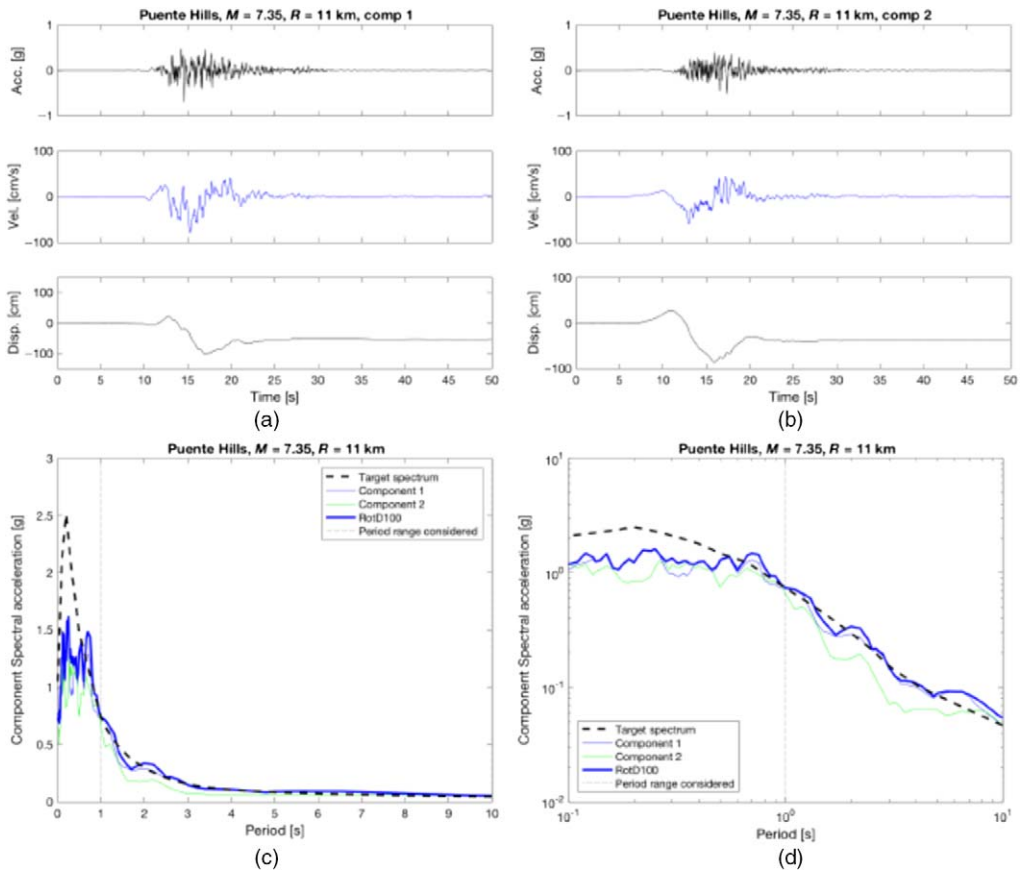


**Figure A28.** Record 3: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

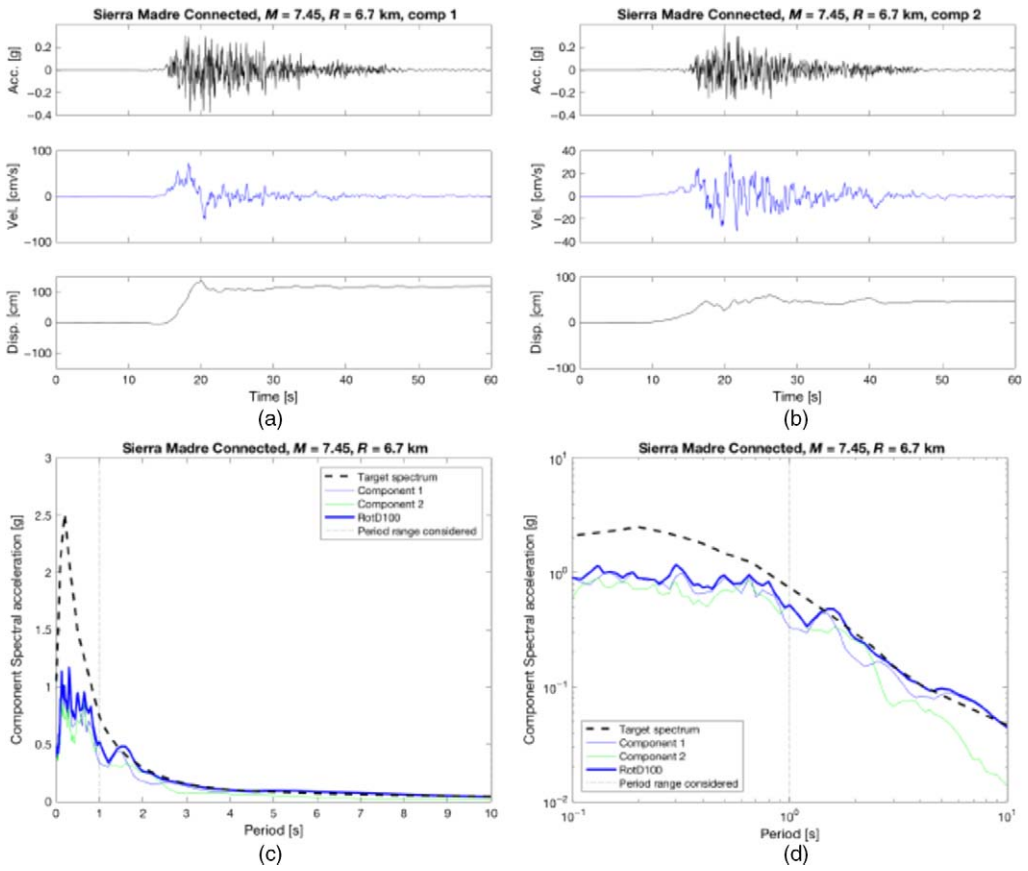


**Figure A29.** Record 4: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

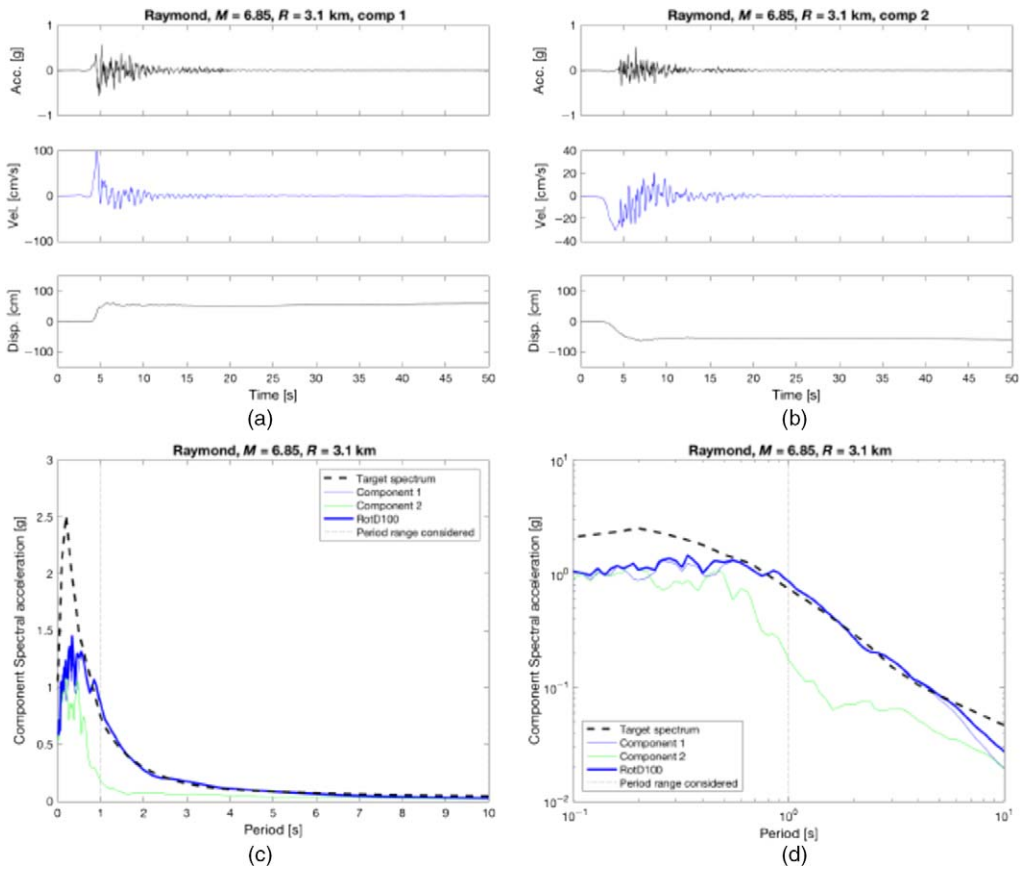




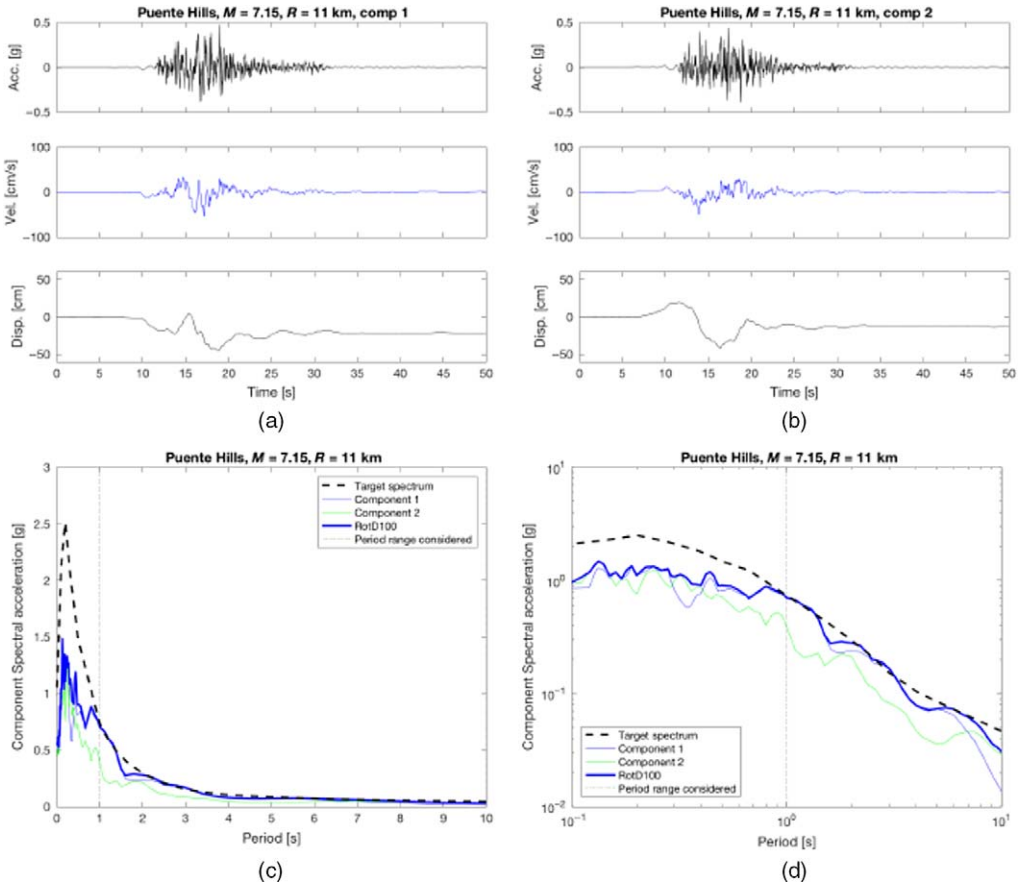
**Figure A30.** Record 5: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



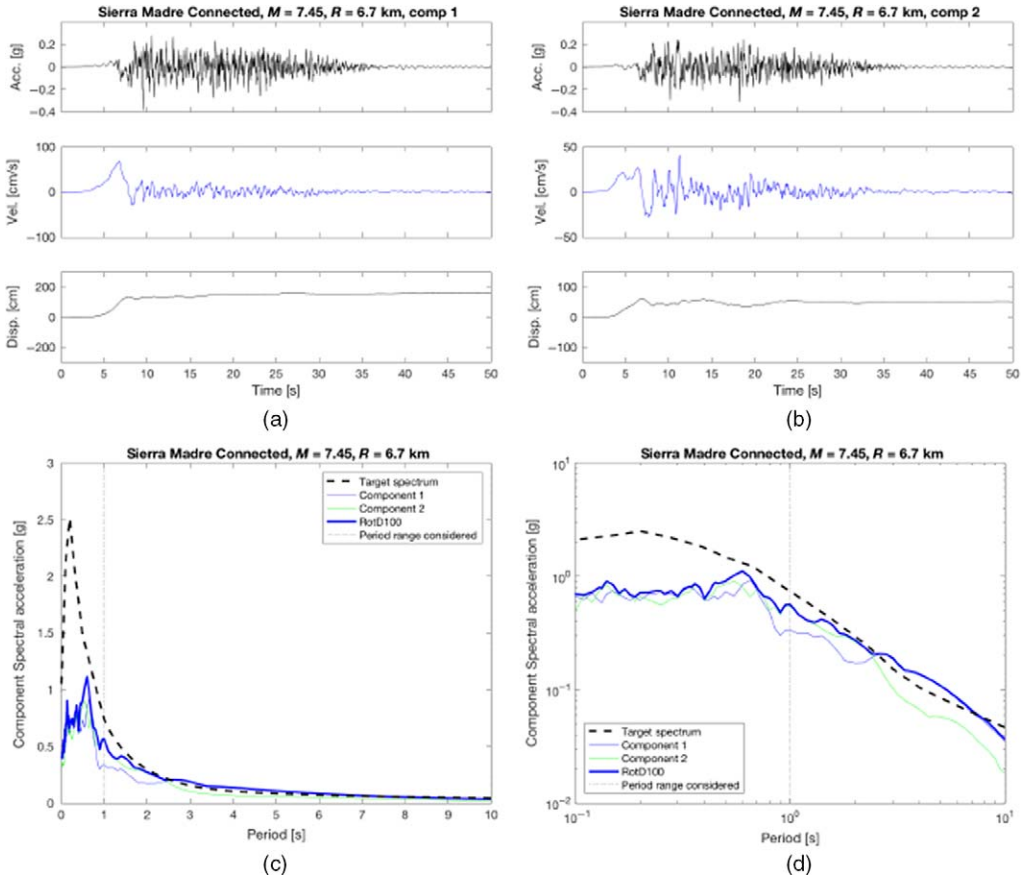
**Figure A31.** Record 6: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



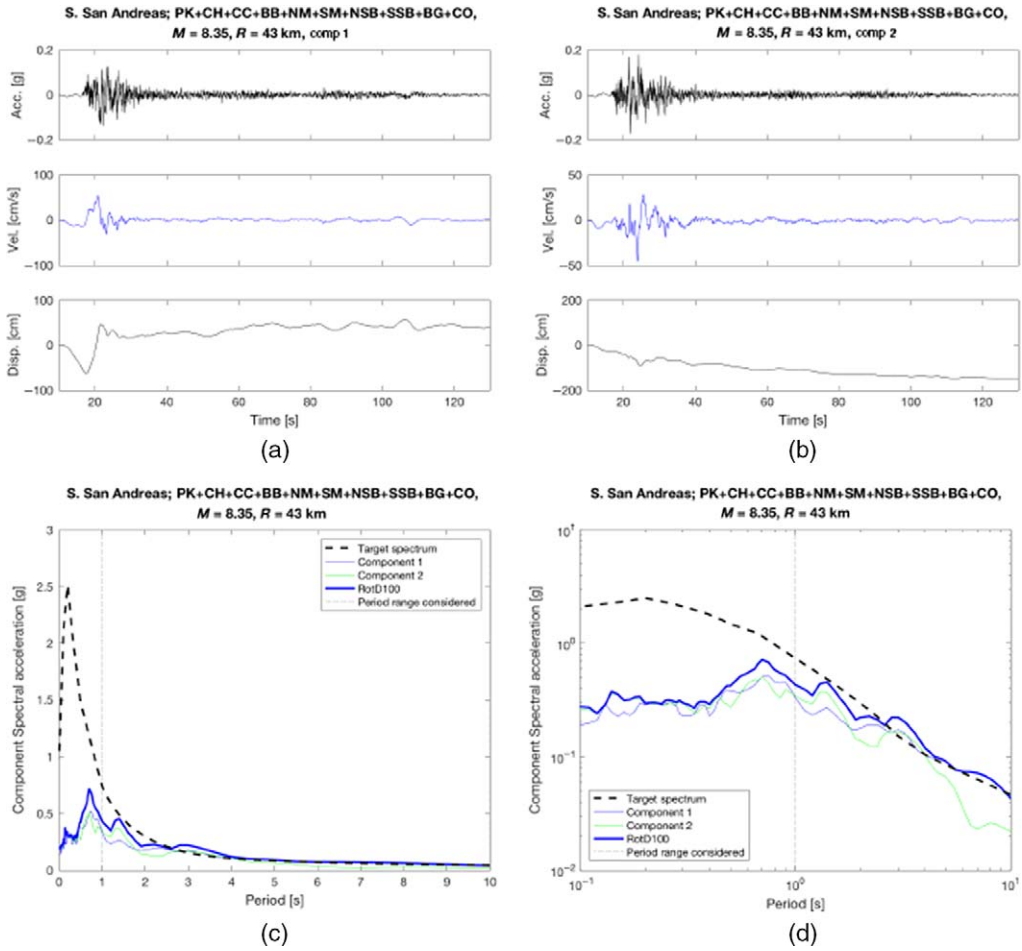
**Figure A32.** Record 7: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



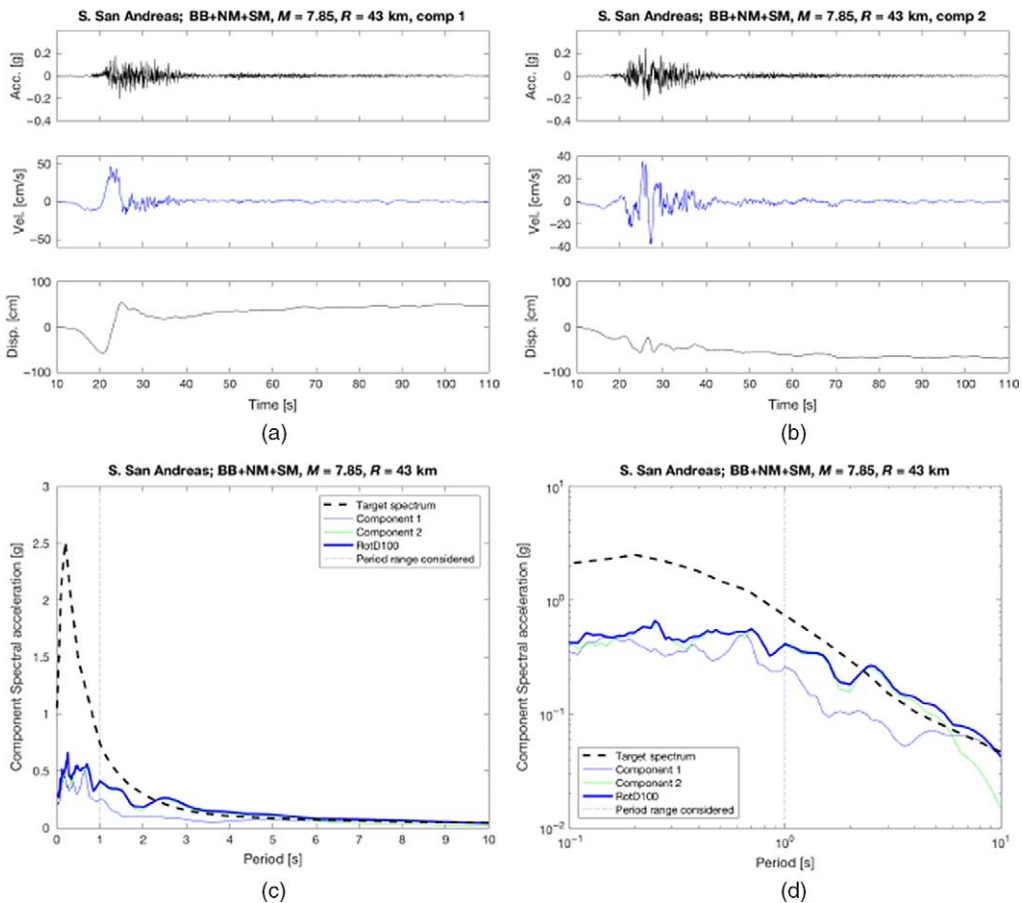
**Figure A33.** Record 8: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A34.** Record 9: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A35.** Record 10: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A36.** Record 11: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

## NSA-WEST2 GROUND MOTIONS, SITE PAS

### SUMMARY OF ALL RECORDS

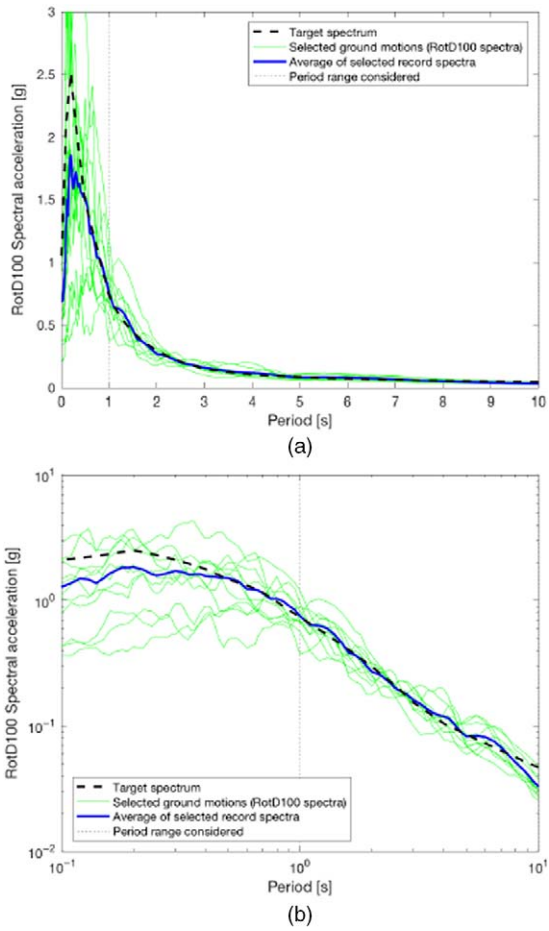
**Table A4.**

RSN <sup>a</sup>	Fault	Station name	Magnitude	Distance (km)	$V_{S30}$ (m/s)	Scaling factor	5%–75% significant duration (s)
572	Taiwan	SMART1 E02	7.30	51.4	672	4.00	7.5
		SMART1(45)					
791	Loma Prieta	SAGO South – Surface	6.93	34.3	609	4.00	8.1
801	Loma Prieta	San Jose – Santa Teresa Hills	6.93	14.7	672	3.05	6.3
1206	Chi-Chi, Taiwan	CHY042	7.62	28.2	665	3.49	24.2
1521	Chi-Chi, Taiwan	TCU089	7.62	9.0	672	1.47	21.8
1551	Chi-Chi, Taiwan	TCU138	7.62	9.8	653	0.97	21.3
1787	Hector Mine	Hector	7.13	11.7	726	1.61	7.6
3943	Tottori, Japan	SMN015	6.61	9.1	617	3.36	3.7
4843	Chuetsu-oki	Matsushiro Tokamachi	6.80	25.0	640	3.19	7.2
4846	Chuetsu-oki	Joetsu Yanagishima paddocks	6.80	31.4	606	3.49	4.3
4852	Chuetsu-oki	Joetsu, Aramaki District	6.80	32.5	606	4.00	4.9

<sup>a</sup> RSN = Record sequence number.

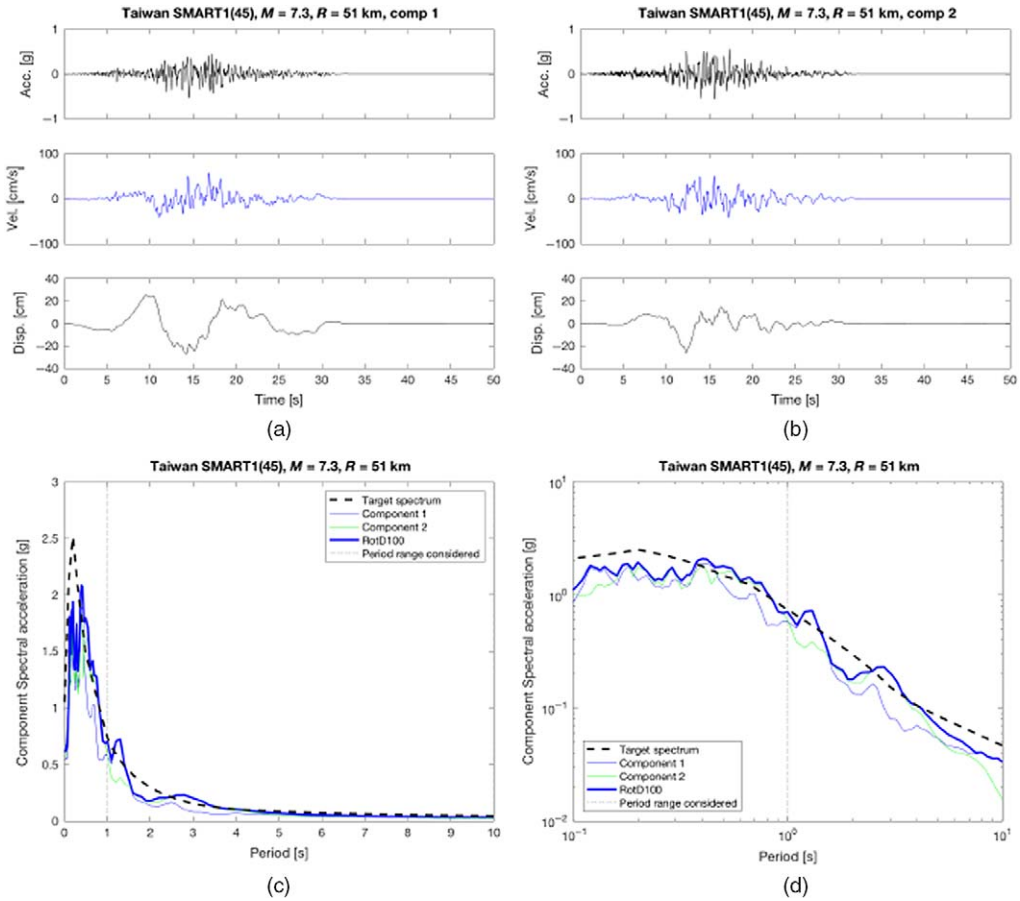


## ALL RECORDS' REPOSE SPECTRA

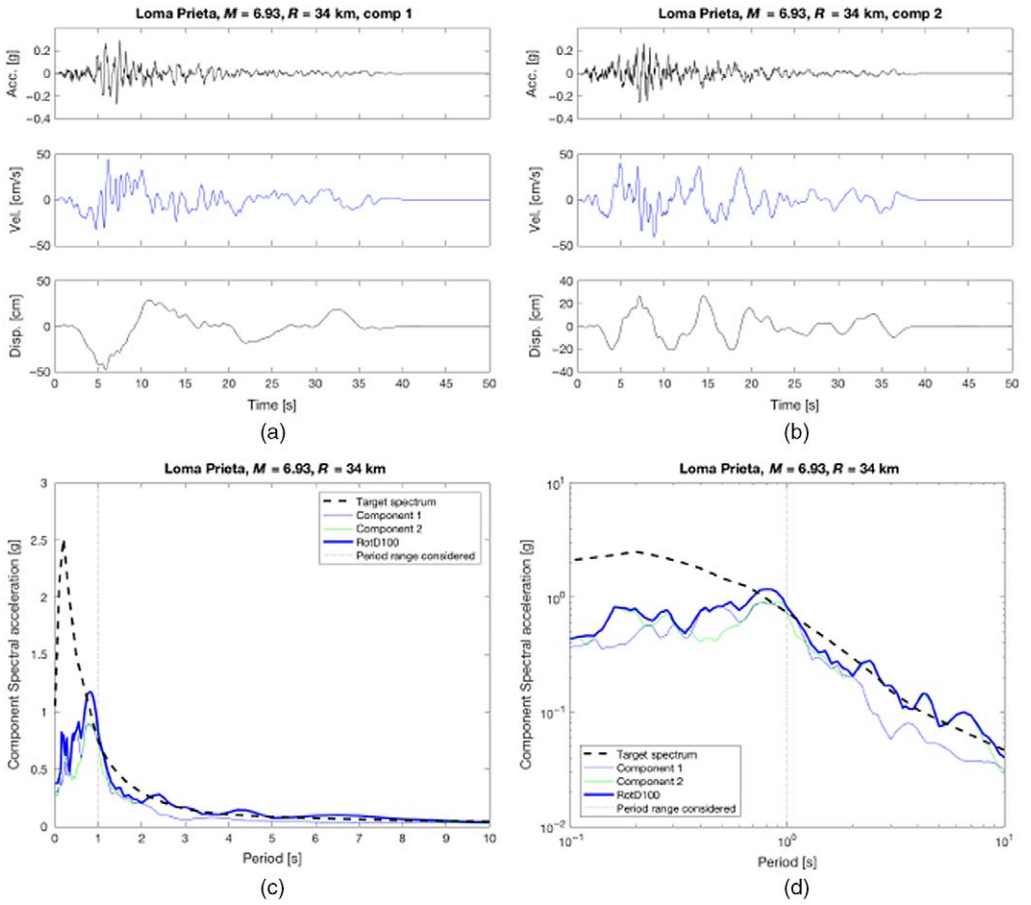


**Figure A37.** All records: (a) response spectra in linear scale; (b) response spectra in log scale.

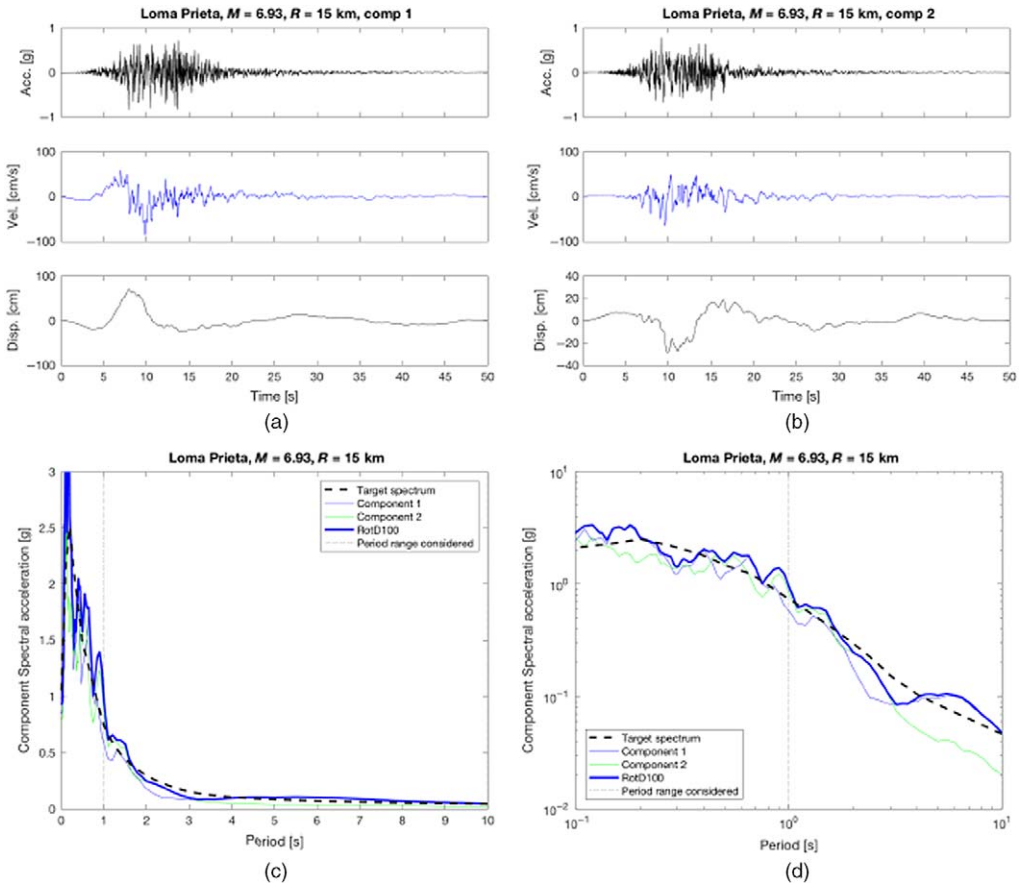
## INDIVIDUAL RECORD TIME SERIES AND REPOSE SPECTRA



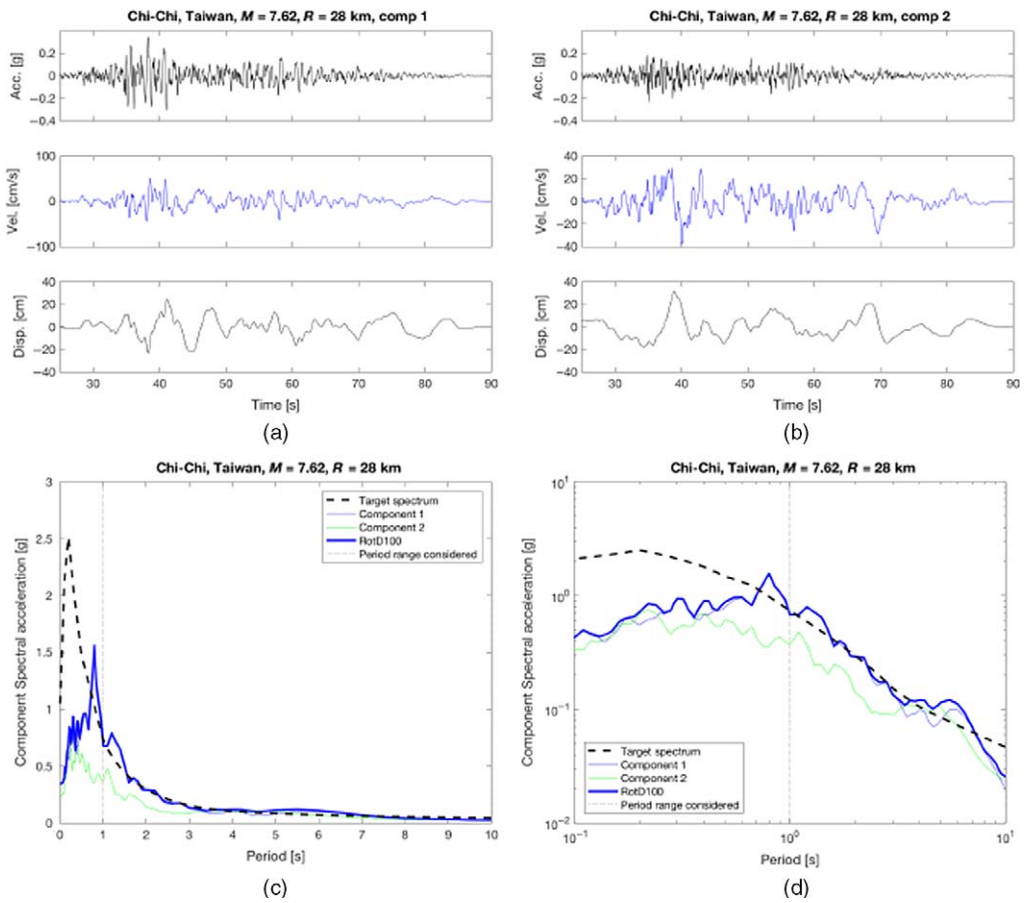
**Figure A38.** Record 1: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



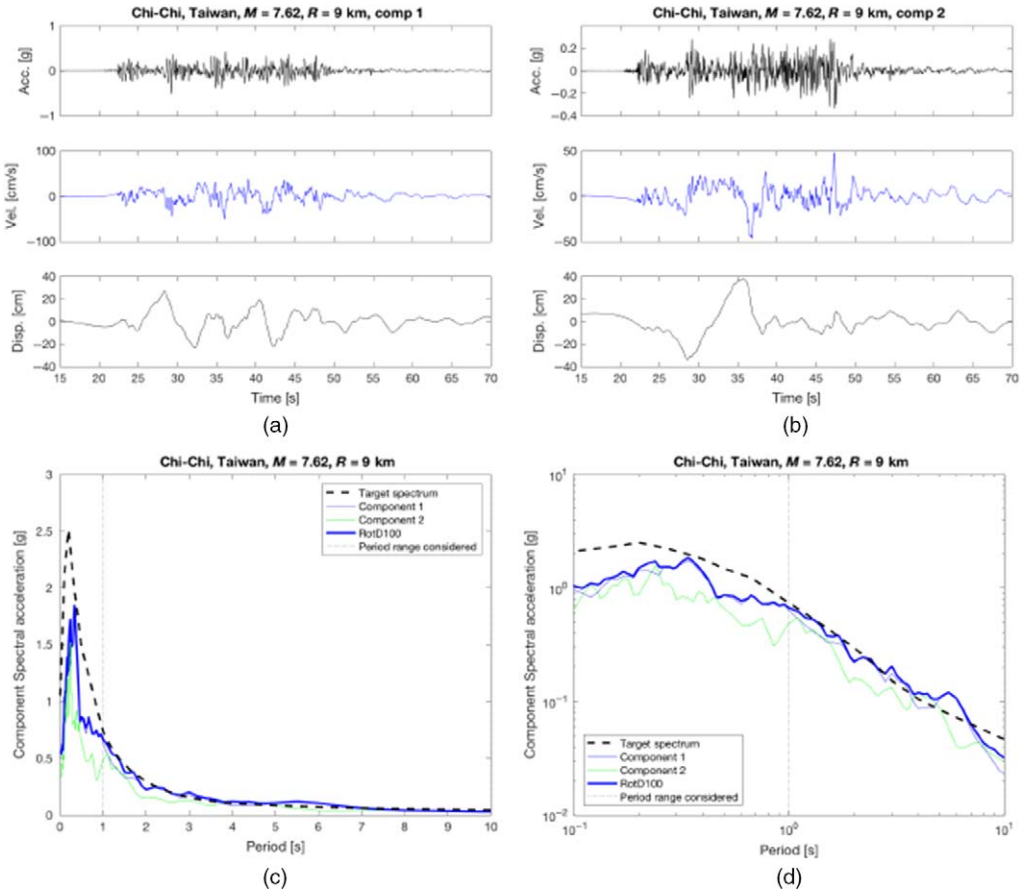
**Figure A39.** Record 2: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



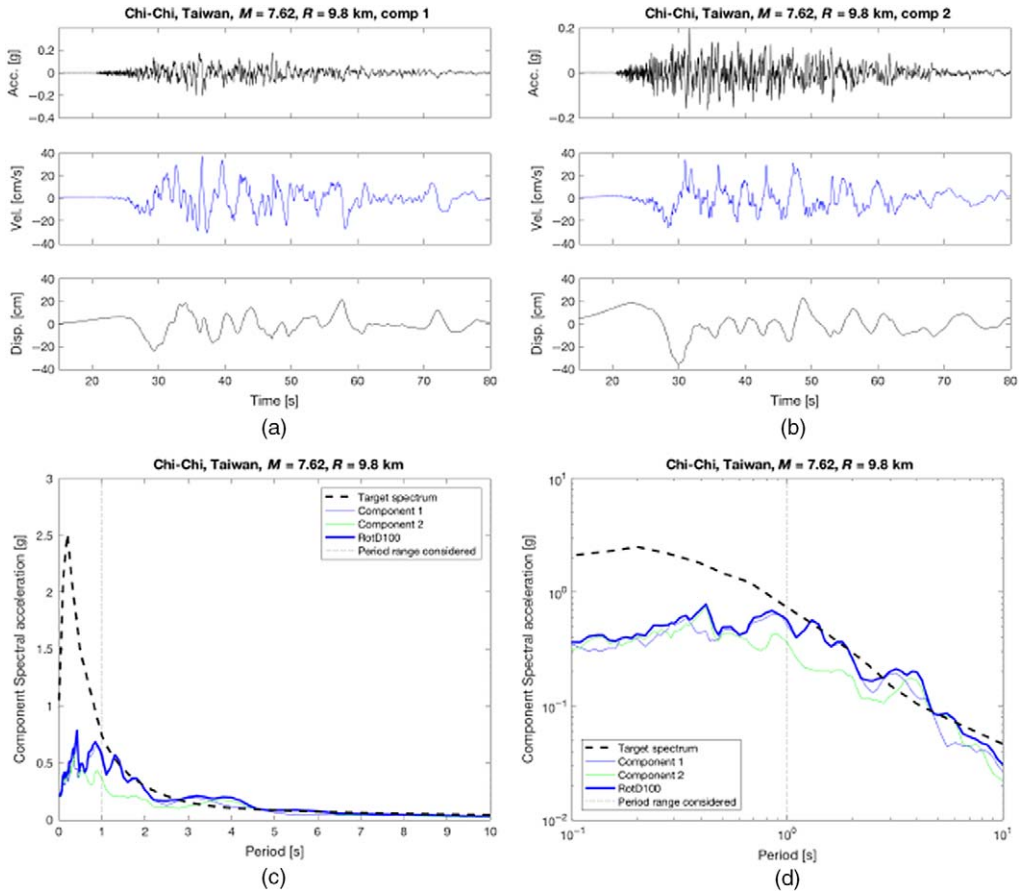
**Figure A40.** Record 3: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



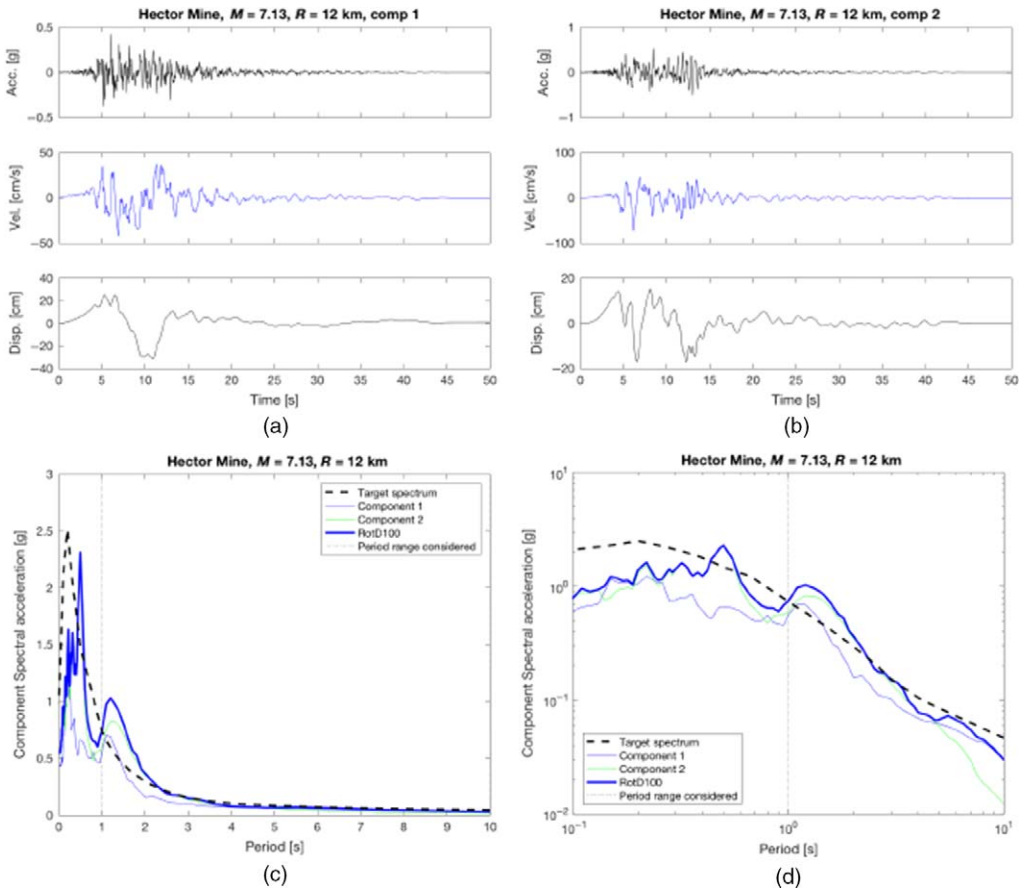
**Figure A41.** Record 4: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A42.** Record 5: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

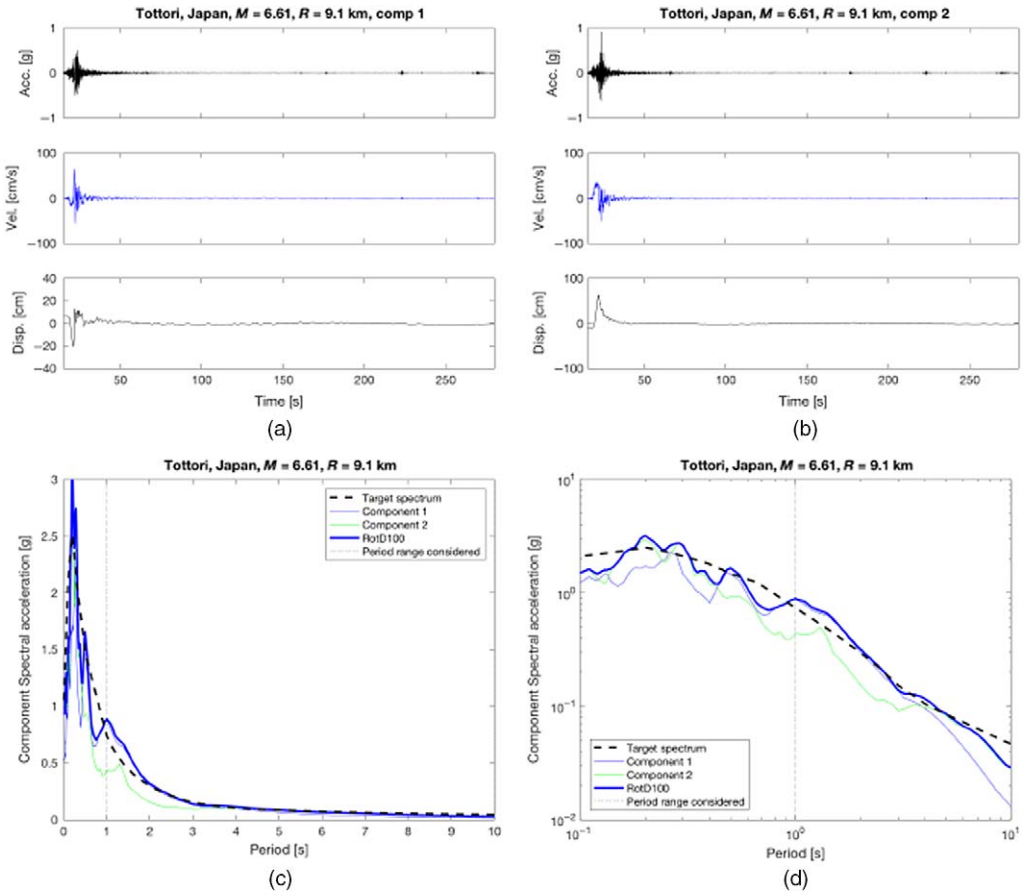


**Figure A43.** Record 6: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

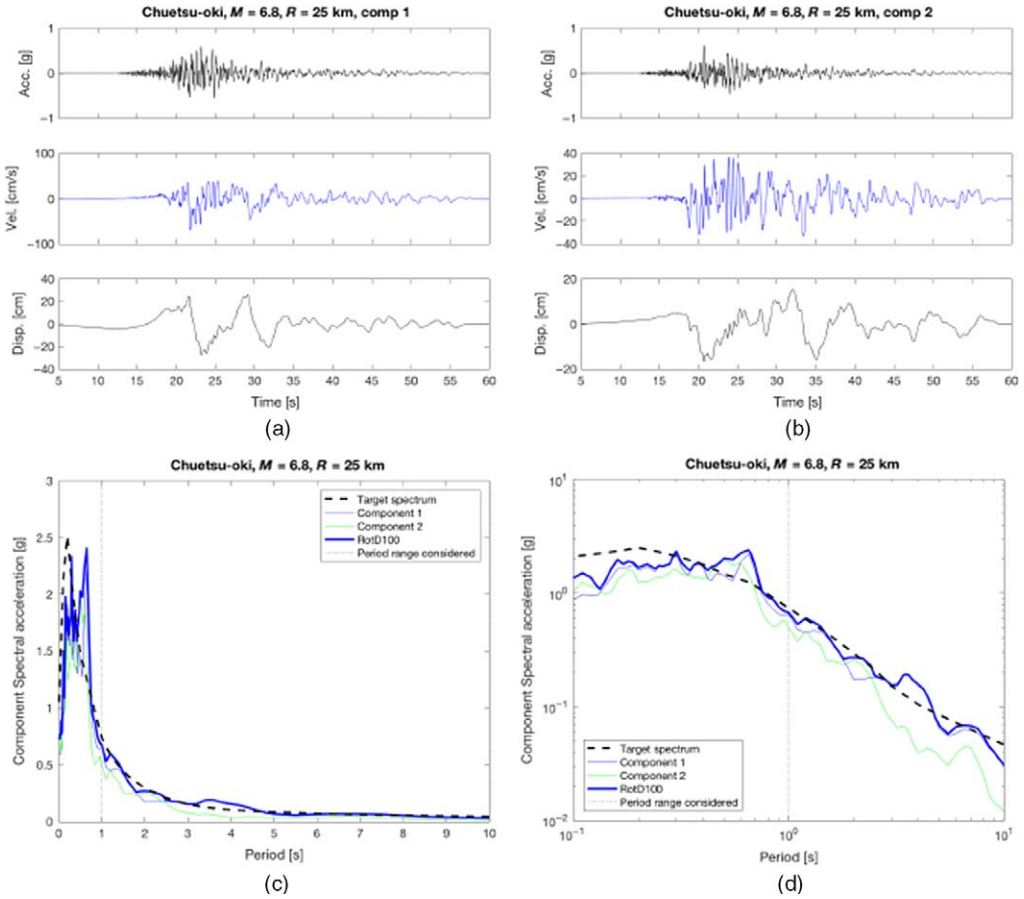


**Figure A44.** Record 7: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.

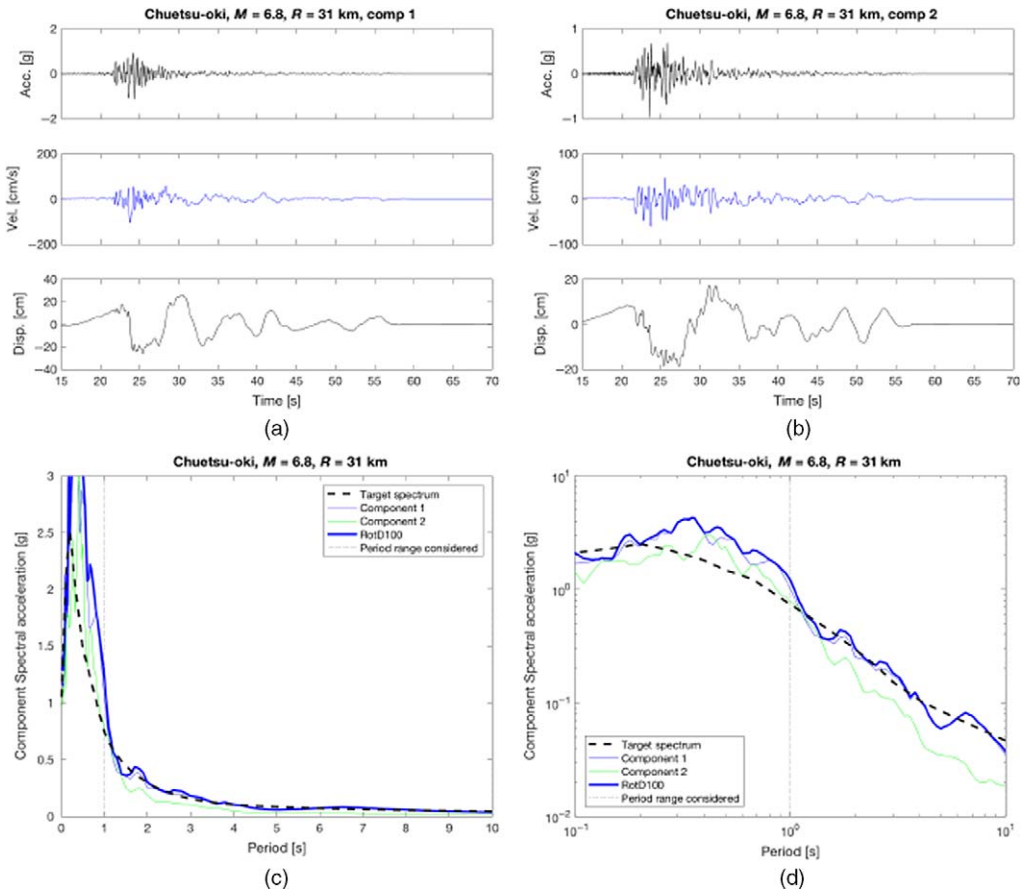




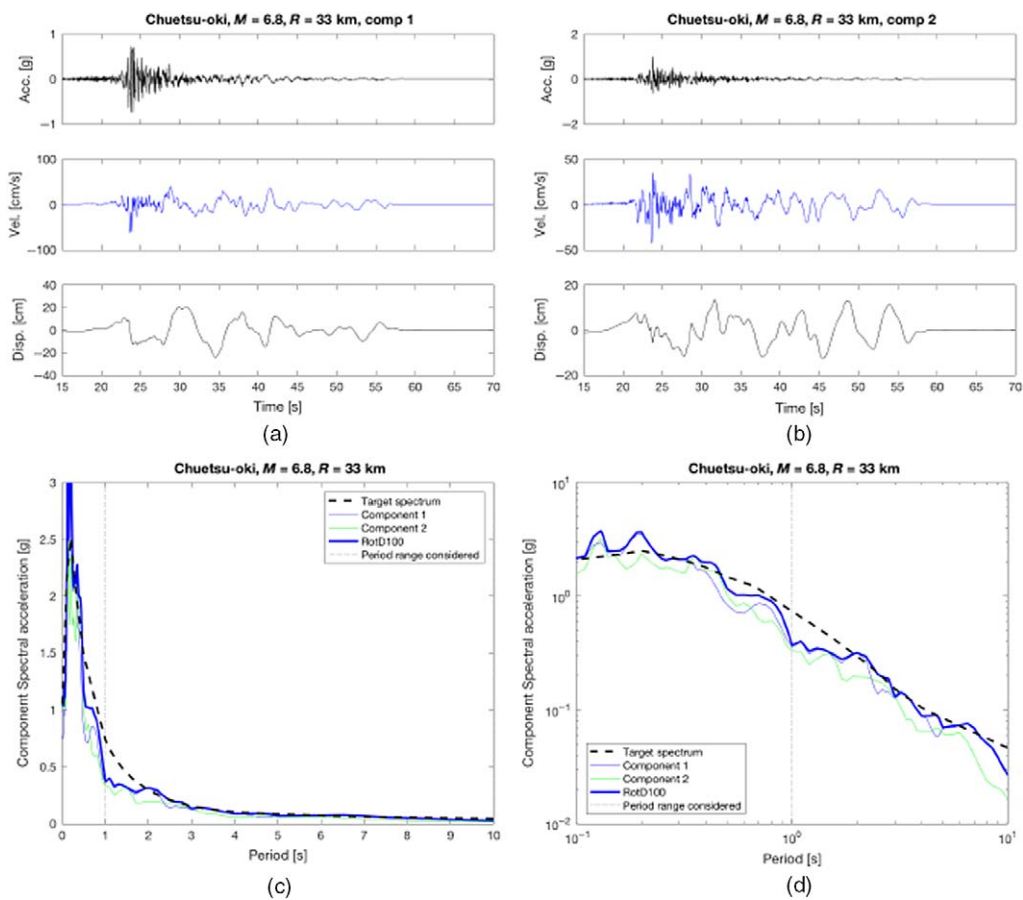
**Figure A45.** Record 8: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A46.** Record 9: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A47.** Record 10: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.



**Figure A48.** Record 11: (a) component 1, (b) component 2, (c) response in linear scale, and (d) response spectra in log scale.