Appendix A

Tsunami Scenario Selection

A.1 Swansea

Zone	ARI (years)	Tsu-DAT ID Code	Tsu-DAT Wave Height# (m)	Tsu-DAT Magnitude (M_w)	T2 Database ID Code	T2 Database Wave Height* (m)	T2 Database Magnitude (M_w)	Wave Height Difference (m)	Wave Height Difference (%)
KERMADEC	200	31377	0.370	8.9	233d	0.39	8.9	0.02	5.40%
NEW HEBRIDES	200	49841	0.375	8.7	196c	0.34	8.7	0.035	9.30%
PUYSEGUR	200	58288	0.400	8.7	215c	0.39	8.7	0.01	2.50%
STH CHILE	200	62765	0.399	9.3	402d	0.39	9.3	0.009	2.30%
TONGA	200	72503	0.339	9.2	245d	0.37	9.2	0.031	9.10%
KERMADEC	500	31494	0.638	9.0	232d	0.62	9.0	0.018	2.80%
NEW HEBRIDES	500	50053	0.631	9.0	194d	0.67	9.0	0.039	6.20%
PUYSEGUR	500	58276	0.644	8.7	217c	0.60	8.7	0.044	6.80%
TONGA	500	72532	0.617	9.3	245d	0.57	9.3	0.047	7.60%
KERMADEC	1000	31627	0.878	9.1	231d	0.88	9.1	0.002	0.20%
NEW HEBRIDES	1000	50062	0.871	9.1	194d**	0.94	9.1	0.069	7.90%
PUYSEGUR	1000	58319	0.881	8.8	216d	1.03	9.0	0.149	16.90%
KERMADEC	2000	31709	1.08	9.2	233d	1.08	9.2	0.00	0.00%
NEW HEBRIDES	2000	50064	1.02	9.1	194d**	0.94	9.1	0.08	7.80%
PUYSEGUR	2000	58299	1.10	8.8	216d	1.04	9.0	0.06	5.50%
NEW HEBRIDES	5000	50130	1.49	9.2	194d	1.34	9.2	0.15	10.10%
PUYSEGUR	5000	58347	1.55	9.0	216d	1.45	9.1	0.10	6.50%
NEW HEBRIDES	10000	50160	1.86	9.4	194d	1.89	9.3	0.03	1.60%
PUYSEGUR	10000	58360	1.85	9.1	216d	2.06	9.2	0.21	11.40%

* Wave Height at 100m contour

** Event was scaled linearly to prevent two events using the same T2 Event scenario

Tsunami Wave Height is measured as height of tsunami wave crest above still water level (MSL) – see Glossary

A.2 Manly

Zone	ARI (years)	Tsu-DAT ID Code	Tsu-DAT Wave Height# (m)	Tsu-DAT Magnitude (M_w)	T2 Database ID Code	T2 Database Wave Height* (m)	T2 Database Magnitude (M_w)	Wave Height Difference (m)	Wave Height Difference (%)
KERMADEC	200	31514	0.343	9.0	232d	0.35	9.0	0.007	2.0%
NEW HEBRIDES	200	49865	0.366	8.7	196c	0.36	8.7	0.006	1.6%
PUYSEGUR	200	58256	0.337	8.6	215c	0.37	8.6	0.033	9.8%
STH CHILE	200	62767	0.316	9.3	402d	0.28	9.3	0.036	11.4%
TONGA	200	72467	0.333	9.1	245d	0.35	9.1	0.017	5.1%
KERMADEC	500	31649	0.543	9.1	231d	0.52	9.1	0.023	4.2%
NEW HEBRIDES	500	50038	0.568	9.0	194d	0.58	9.0	0.012	2.1%
PUYSEGUR	500	58290	0.503	8.7	215c	0.48	8.7	0.023	4.6%
TONGA	500	72502	0.505	9.2	245d	0.49	9.2	0.015	3.0%
KERMADEC	1000	31703	0.760	9.2	231d	0.73	9.2	0.030	3.9%
NEW HEBRIDES	1000	50090	0.763	9.1	194d	0.81	9.1	0.047	6.2%
PUYSEGUR	1000	58310	0.682	8.8	216d	0.65	8.8	0.032	4.7%
KERMADEC	2000	31853	1.03	9.3	228d	1.07	9.3	0.04	3.9%
NEW HEBRIDES	2000	50126	1.06	9.2	194d**	1.16	9.2	0.10	9.4%
PUYSEGUR	2000	58338	1.05	8.9	216d	0.88	8.9	0.17	16.2%
NEW HEBRIDES	5000	50119	1.38	9.2	194d**	1.16	9.2	0.22	15.9%
PUYSEGUR	5000	58332	1.42	8.9	216d	1.24	9.0	0.18	12.7%
NEW HEBRIDES	10000	50134	1.70	9.3	194d	1.63	9.3	0.07	4.1%
PUYSEGUR	10000	58346	1.74	9.0	216d	1.74	9.1	0.00	0.0%

* Wave Height at 100m contour

** Event was scaled linearly to prevent two events using the same T2 Event scenario

Tsunami Wave Height is measured as height of tsunami wave crest above still water level (MSL) – see Glossary

A.3 Botany Bay

Zone	ARI (years)	Tsu-DAT ID Code	Tsu-DAT Wave Height# (m)	Tsu-DAT Magnitude (M_w)	T2 Database ID Code	T2 Database Wave Height* (m)	T2 Database Magnitude (M_w)	Wave Height Difference (m)	Wave Height Difference (%)
KERMADEC	200	31637	0.385	9.1	233d	0.39	9.1	0.005	1.3%
NEW HEBRIDES	200	49863	0.362	8.7	196c	0.39	8.7	0.028	7.7%
PUYSEGUR	200	58242	0.399	8.6	215c	0.39	8.6	0.009	2.3%
STH CHILE	200	62725	0.347	9.2	402d	0.32	9.2	0.027	7.8%
TONGA	200	72469	0.389	9.1	245d	0.38	9.1	0.009	2.3%
KERMADEC	500	31768	0.570	9.2	232d	0.59	9.2	0.020	3.5%
NEW HEBRIDES	500	50042	0.563	9.0	194d	0.61	9.0	0.047	8.3%
PUYSEGUR	500	58293	0.585	8.7	215c	0.53	8.7	0.055	9.4%
TONGA	500	72499	0.589	9.2	244d	0.55	9.2	0.039	6.6%
KERMADEC	1000	31759	0.779	9.2	231d	0.73	9.2	0.049	6.3%
NEW HEBRIDES	1000	50062	0.808	9.1	194d	0.87	9.1	0.062	7.7%
PUYSEGUR	1000	58325	0.795	8.8	216d	0.72	8.8	0.075	9.4%
KERMADEC	2000	31849	1.10	9.3	228d	1.12	9.3	0.02	1.8%
NEW HEBRIDES	2000	50104	1.08	9.2	194d**	1.23	9.2	0.15	13.9%
PUYSEGUR	2000	58339	1.12	8.9	216d	0.93	8.9	0.19	17.0%
NEW HEBRIDES	5000	50114	1.49	9.2	194d**	1.23	9.2	0.26	17.4%
PUYSEGUR	5000	58336	1.51	8.9	216d	1.33	9.0	0.18	11.9%
NEW HEBRIDES	10000	50144	1.92	9.3	194d	1.74	9.3	0.18	9.4%
PUYSEGUR	10000	58346	1.94	9.0	216d	1.88	9.1	0.06	3.1%

* Wave Height at 100m contour

** Event was scaled linearly to prevent two events using the same T2 Event scenario

Tsunami Wave Height is measured as height of tsunami wave crest above still water level (MSL) – see Glossary

A.4 Wollongong

Zone	ARI (years)	Tsu-DAT ID Code	Tsu-DAT Wave Height# (m)	Tsu-DAT Magnitude (M_w)	T2 Database ID Code	T2 Database Wave Height* (m)	T2 Database Magnitude (M_w)	Wave Height Difference (m)	Wave Height Difference (%)
KERMADEC	200	31365	0.343	8.9	232d	0.33	8.9	0.013	3.8%
NEW HEBRIDES	200	49762	0.341	8.6	196c	0.33	8.6	0.011	3.2%
PUYSEGUR	200	58256	0.320	8.6	215c	0.35	8.6	0.030	9.4%
STH CHILE	200	62765	0.329	9.3	402d	0.23	9.3	0.099	30.1%
TONGA	200	72505	0.380	9.2	247d	0.38	9.2	0.00	0.0%
KERMADEC	500	31639	0.588	9.1	233d	0.58	9.1	0.008	1.4%
NEW HEBRIDES	500	50001	0.588	8.9	194d	0.55	8.9	0.038	6.5%
PUYSEGUR	500	58316	0.585	8.8	215c	0.68	8.8	0.095	16.2%
TONGA	500	72497	0.557	9.2	245d	0.59	9.3	0.033	5.9%
KERMADEC	1000	31712	0.767	9.2	233d	0.83	9.2	0.063	8.2%
NEW HEBRIDES	1000	50048	0.824	9.0	194d	0.78	9.0	0.044	5.3%
PUYSEGUR	1000	58308	0.825	8.8	216d**	0.91	8.9	0.085	10.3%
KERMADEC	2000	31725	1.03	9.2	231d	0.98	9.2	0.05	4.9%
NEW HEBRIDES	2000	50052	1.06	9.0	194d	1.10	9.1	0.04	3.8%
PUYSEGUR	2000	58339	1.02	8.9	216d**	0.91	8.9	0.11	10.8%
NEW HEBRIDES	5000	50068	1.52	9.1	194d	1.56	9.2	0.04	2.6%
PUYSEGUR	5000	58349	1.51	9.0	216d	1.32	9.0	0.19	12.6%
NEW HEBRIDES	10000	31810	1.95	9.3	194d	2.18	9.3	0.23	11.8%
PUYSEGUR	10000	58303	1.91	8.8	216d	1.82	9.1	0.09	4.7%

* Wave Height at 100m contour

** Event was scaled linearly to prevent two events using the same T2 Event scenario

Tsunami Wave Height is measured as height of tsunami wave crest above still water level (MSL) – see Glossary

A.5 Merimbula

Zone	ARI (years)	Tsu-DAT ID Code	Tsu-DAT Wave Height# (m)	Tsu-DAT Magnitude (M_w)	T2 Database ID Code	T2 Database Wave Height* (m)	T2 Database Magnitude (M_w)	Wave Height Difference (m)	Wave Height Difference (%)
KERMADEC	200	31518	0.352	9.0	230d	0.32	9.0	0.032	9.1%
NEW HEBRIDES	200	49863	0.323	8.7	195c	0.32	8.7	0.003	0.9%
PUYSEGUR	200	58196	0.341	8.4	216c	0.32	8.4	0.021	6.2%
STH CHILE	200	62757	0.317	9.3	402d	0.23	9.3	0.087	27.4%
TONGA	200	72467	0.321	9.1	246d	0.31	9.1	0.011	3.4%
KERMADEC	500	31770	0.539	9.2	231d	0.53	9.2	0.009	1.7%
NEW HEBRIDES	500	49971	0.571	8.9	194d	0.53	8.9	0.041	7.2%
PUYSEGUR	500	58260	0.538	8.6	215c	0.51	8.6	0.028	5.2%
TONGA	500	72487	0.534	9.2	246d	0.44	9.2	0.094	17.6%
KERMADEC	1000	31712	0.693	9.2	229d	0.73	9.2	0.037	5.3%
NEW HEBRIDES	1000	50053	0.702	9.0	194d	0.75	9.0	0.048	6.8%
PUYSEGUR	1000	58281	0.724	8.7	216c	0.68	8.7	0.044	6.1%
KERMADEC	2000	31860	0.992	9.3	229d	0.96	9.3	0.032	3.2%
NEW HEBRIDES	2000	50073	1.02	9.1	194d	1.06	9.1	0.04	3.9%
PUYSEGUR	2000	58323	0.956	8.8	216d	1.08	8.8	0.124	13.0%
NEW HEBRIDES	5000	50130	1.48	9.2	194d	1.50	9.2	0.02	1.4%
PUYSEGUR	5000	58305	1.54	8.8	216d	1.44	8.9	0.10	6.5%
NEW HEBRIDES	10000	50119	1.97	9.2	194d	2.11	9.3	0.14	7.1%
PUYSEGUR	10000	58349	1.90	9.0	216d	2.02	9.0	0.12	6.3%

* Wave Height at 100m contour

Tsunami Wave Height is measured as height of tsunami wave crest above still water level (MSL) – see Glossary

Appendix B

Model Verification to Measured Events

Table B.1: Analysed Water Level / Wave Parameters of Measured and Modelled Historical Tsunami Events

Event	Site	Output*	Arrival Time (EST)	WH# (m)	WH_{mean} (m)	T_{m01} (min)	T_{m02} (min)	T_p (min)
South Central Chile 22 May 1960	Fort Denison	TG	23/05/1960 19:59	0.32	0.11	43.7	38.1	51.2
		D3D	23/05/1960 19:03	0.58	0.14	53.1	50.2	46.5
Gizo, Solomon Islands 2 April 2007	Botany Bay	TG	2/04/2007 11:37	0.05	0.02	23.1	17.2	28.4
		D3D	2/04/2007 11:30	0.02	0.01	44.5	41.1	46.5
	Eden	TG	2/04/2007 12:37	0.29	0.06	40.0	31.6	46.5
		D3D	2/04/2007 11:55	0.17	0.1	47.9	46.9	46.5
	Fort Denison	TG	2/04/2007 11:35	0.08	0.03	31.8	24.8	46.5
		D3D	2/04/2007 11:35	0.07	0.03	44.7	42.3	46.5
	Port Kembla Outer Harbour	TG	2/04/2007 11:39	0.14	0.05	21.3	16.6	73.1
		D3D	2/04/2007 11:32	0.09	0.03	49.0	44.6	64.0
	Port Kembla Inner Harbour	TG	2/04/2007 11:40	0.32	0.11	22.5	20.8	20.5
		D3D	2/04/2007 11:35	0.11	0.04	39.4	35.5	64.0
New Zealand South Coast 15 July 2009	Botany Bay	TG	15/07/2009 21:58	0.06	0.02	21.4	16.8	30.1
		D3D	15/07/2009 22:00	0.05	0.01	28.5	25.8	32.0
	Eden	TG	15/07/2009 21:42	0.18	0.05	17.4	12.5	46.5
		D3D	15/07/2009 21:31	0.18	0.09	42.4	39.3	46.5
	Fort Denison	TG	15/07/2009 22:12	0.08	0.02	28.2	22.7	25.6
		D3D	15/07/2009 22:07	0.11	0.04	37.2	34.7	56.9
	Port Kembla Outer Harbour	TG	15/07/2009 22:00	0.15	0.06	18.7	16.0	26.9
		D3D	15/07/2009 21:57	0.23	0.05	27.5	23.3	26.9
	Port Kembla Inner Harbour	TG	15/07/2009 22:04	0.3	0.1	23.8	22.7	26.9
		D3D	15/07/2009 22:02	0.35	0.09	24.9	23.7	26.9
Chile 27 February 2010	Botany Bay	TG	28/02/2010 8:14	0.08	0.02	20.3	15.5	9.8
		D3D	28/02/2010 7:13	0.08	0.02	47.5	40.2	34.1
	Fort Denison	TG	28/02/2010 10:24	0.15	0.05	37.4	29.3	51.2
		D3D	28/02/2010 7:23	0.18	0.05	52.1	48.8	46.5
Honshu, Japan 11 March 2011	Botany Bay	TG	12/03/2011 5:58	0.13	0.04	24.3	21.3	30.1
		D3D	12/03/2011 4:52	0.12	0.05	35.7	31.4	34.1
	Eden	TG	12/03/2011 6:02	0.37	0.12	40.1	29.4	73.1
		D3D	12/03/2011 6:06	0.45	0.13	61.2	57.6	64.0
	Fort Denison	TG	12/03/2011 5:47	0.13	0.04	28.6	22.1	51.2
		D3D	12/03/2011 4:58	0.13	0.05	45.6	36.2	56.9
	Port Kembla Outer Harbour	TG	12/03/2011 5:51	0.36	0.09	23.0	18.6	34.1
		D3D	12/03/2011 4:55	0.52	0.19	24.3	22.9	19.7
	Port Kembla Inner Harbour	TG	12/03/2011 5:54	0.48	0.20	24.7	23.0	24.4
		D3D	12/03/2011 6:04	0.42	0.13	31.7	29.2	30.1

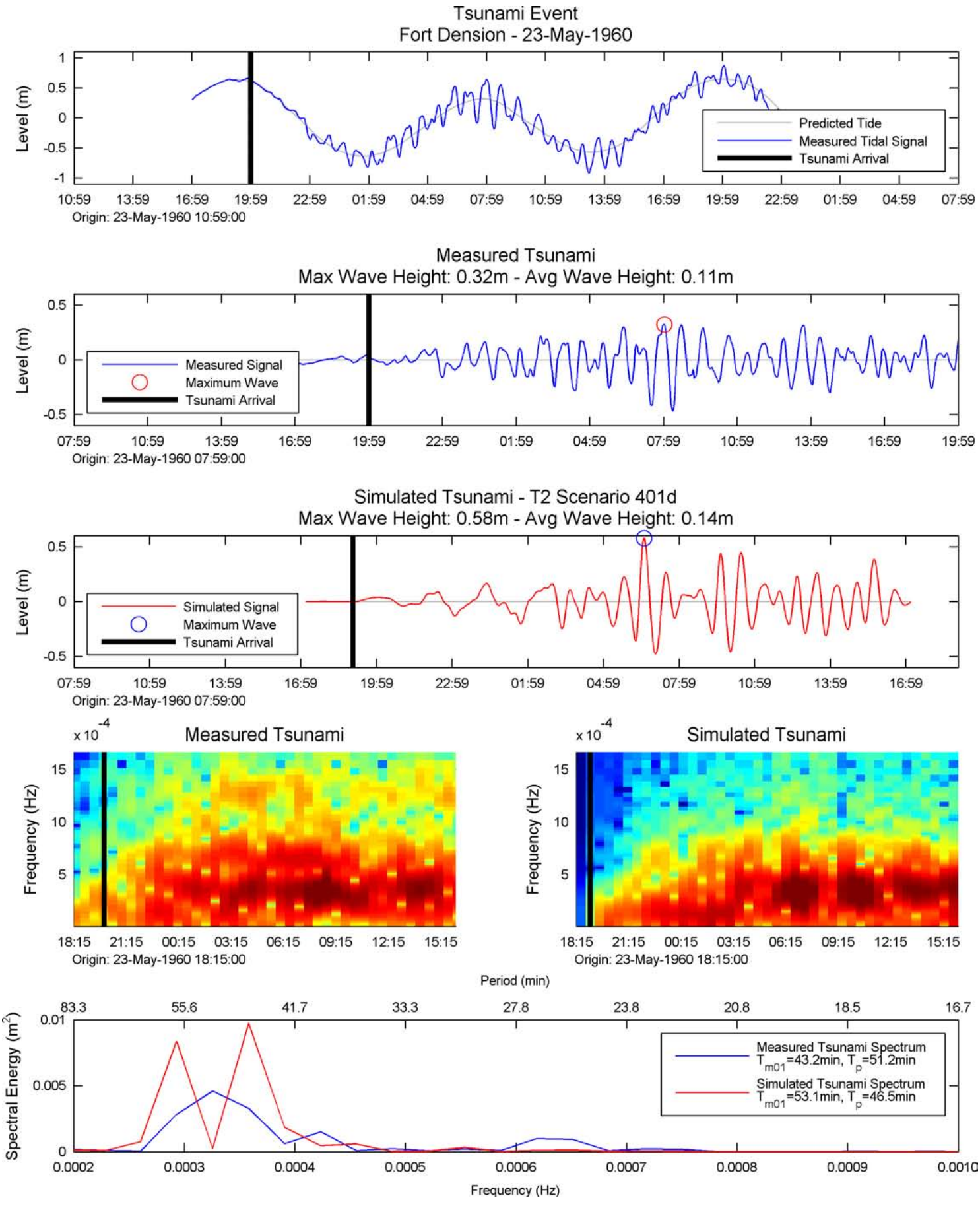
* TG = Tide Gauge Record, D3D = Model Output

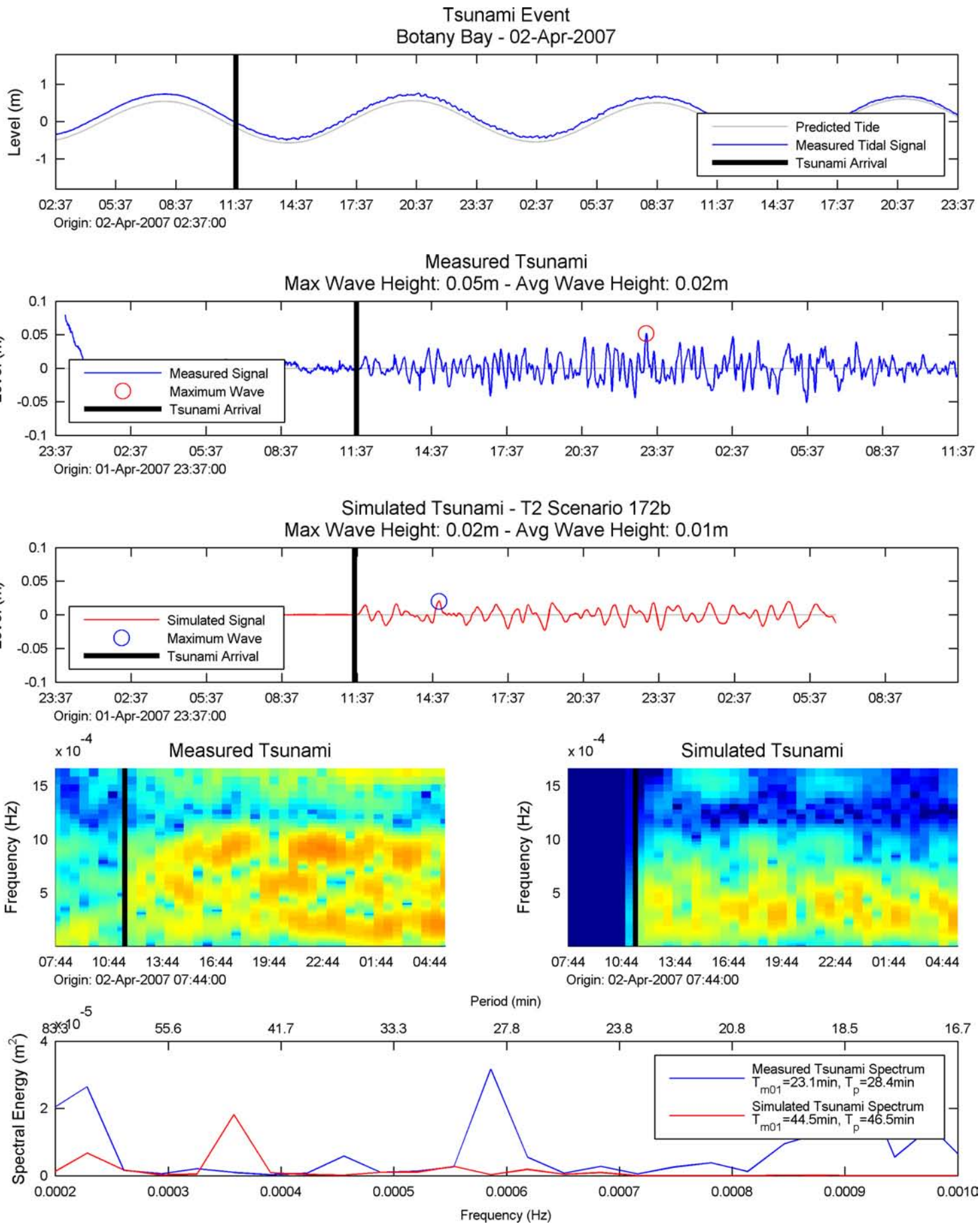
Tsunami Wave Height is measured as height of tsunami wave crest above still water level – see Glossary

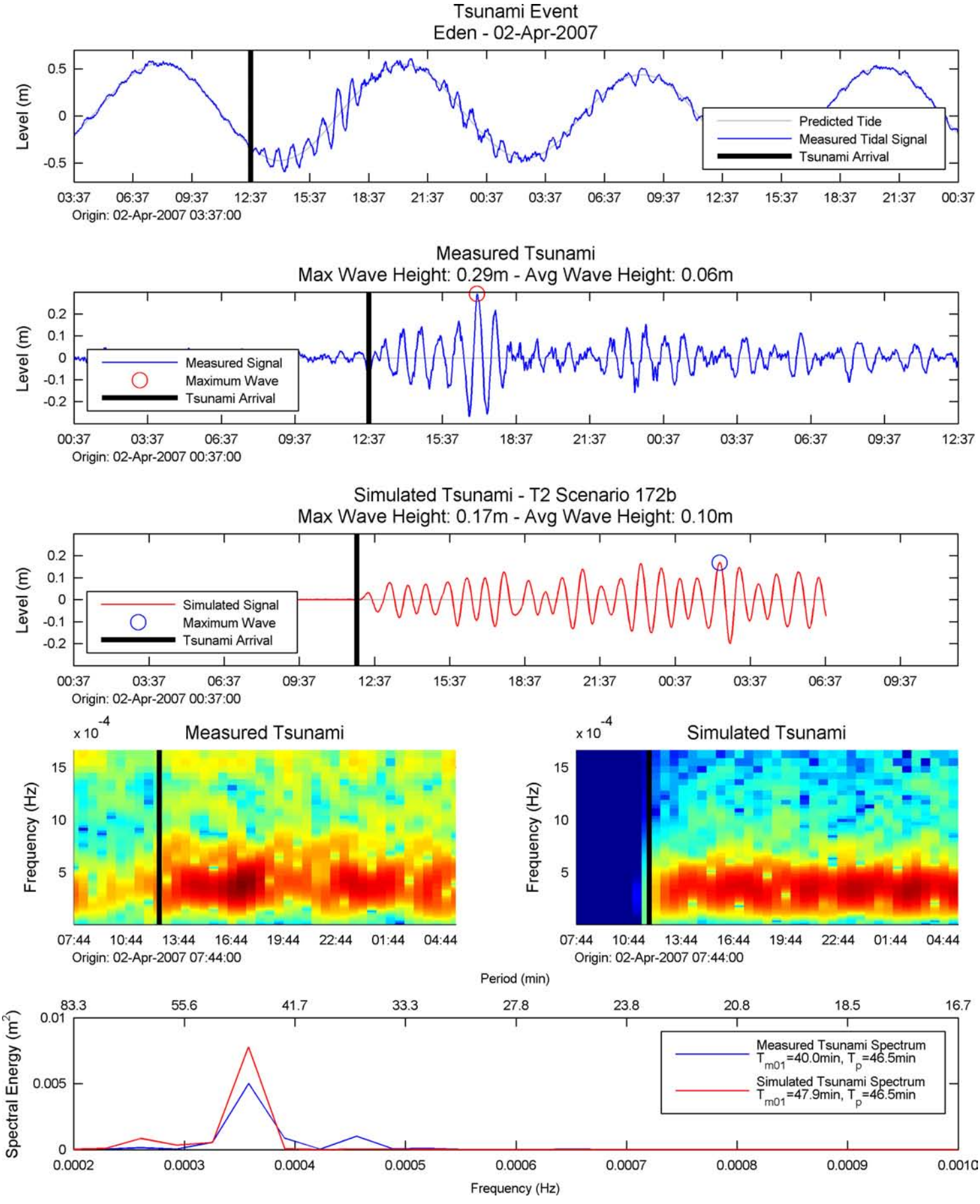
Table B.2: Analysed Current Parameters of Measured and Modelled Historical Tsunami Events

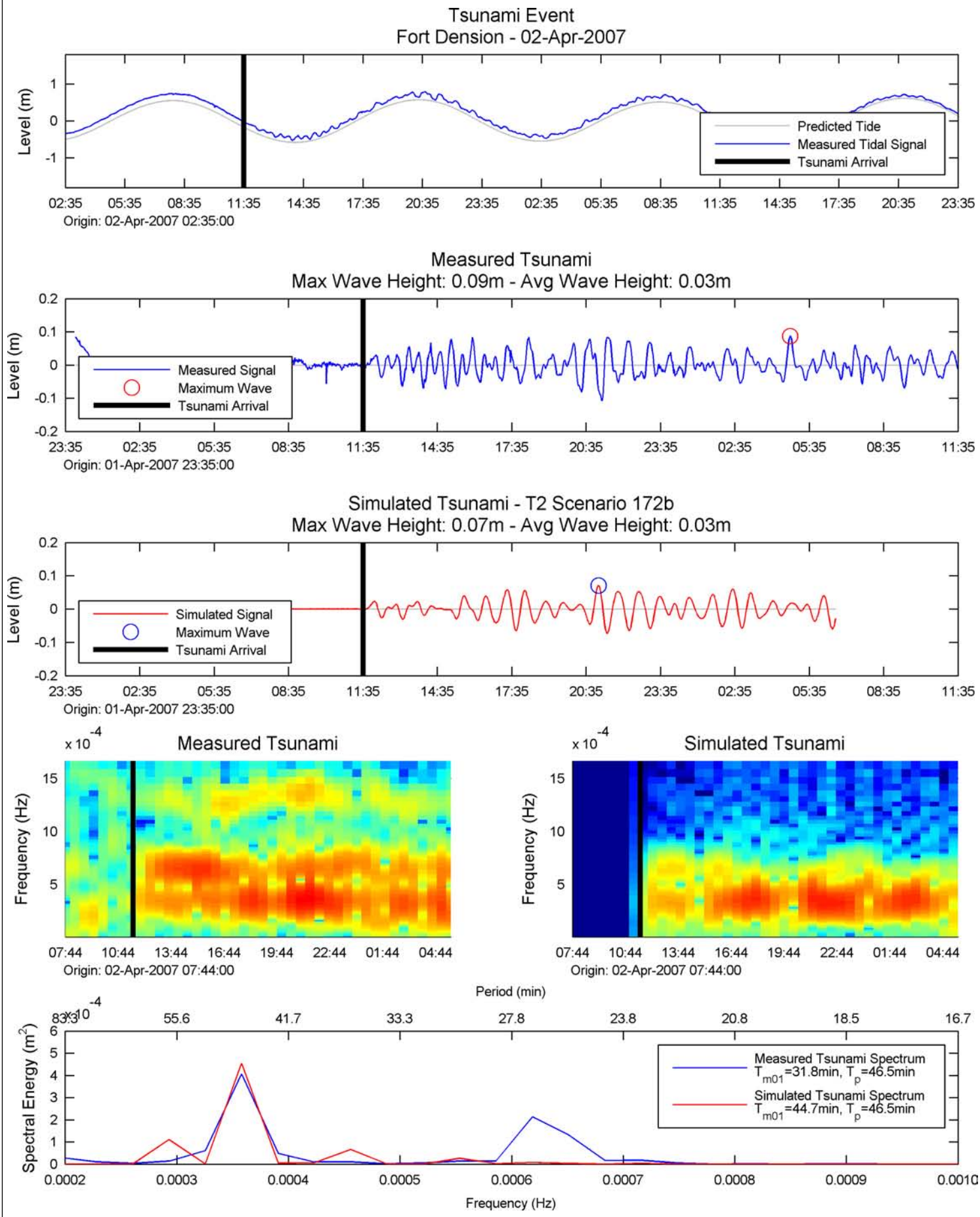
Event	Site	Output*	Arrival Time	Peak Current (m/s)	T_{m01} (min)	T_{m02} (min)	T_p (min)
Gizo, Solomon Islands 2 April 2007	Balls Head	CM	2/04/2007 11:35	0.21	15.7	8.1	46.5
		D3D	2/04/2007 11:46	0.12	48.2	45.0	46.5
	Port Kembla Northern	CM	2/04/2007 11:39	0.05	5.8	4.4	23.3
		D3D	2/04/2007 11:51	0.02	28.1	17.6	64.0
New Zealand South Coast 15 July 2009	Balls Head	CM	15/07/2009 22:12	0.09	10.6	7.0	42.7
		D3D	15/07/2009 22:16	0.13	49.7	42.8	56.9
	Port Kembla Eastern	CM	15/07/2009 22:00	0.08	7.7	5.5	26.9
		D3D	15/07/2009 21:54	0.11	23.9	19.8	26.9
	Port Kembla Northern	CM	15/07/2009 22:00	0.07	7.6	5.5	26.9
		D3D	15/07/2009 21:54	0.09	17.7	11.6	26.9
Chile 27 February 2010	Balls Head	CM	28/02/2010 10:24	0.43	24.0	11.6	51.2
		D3D	28/02/2010 7:24	0.23	58.8	51.4	46.5
Honshu, Japan 11 March 2011	Balls Head	CM	12/03/2011 5:47	0.18	11.2	6.5	51.2
		D3D	12/03/2011 6:37	0.28	66.9	57.7	128.0
	Port Kembla Eastern	CM	12/03/2011 5:48	0.21	13.9	8.9	34.1
		D3D	12/03/2011 7:49	0.18	26.8	21.0	28.4

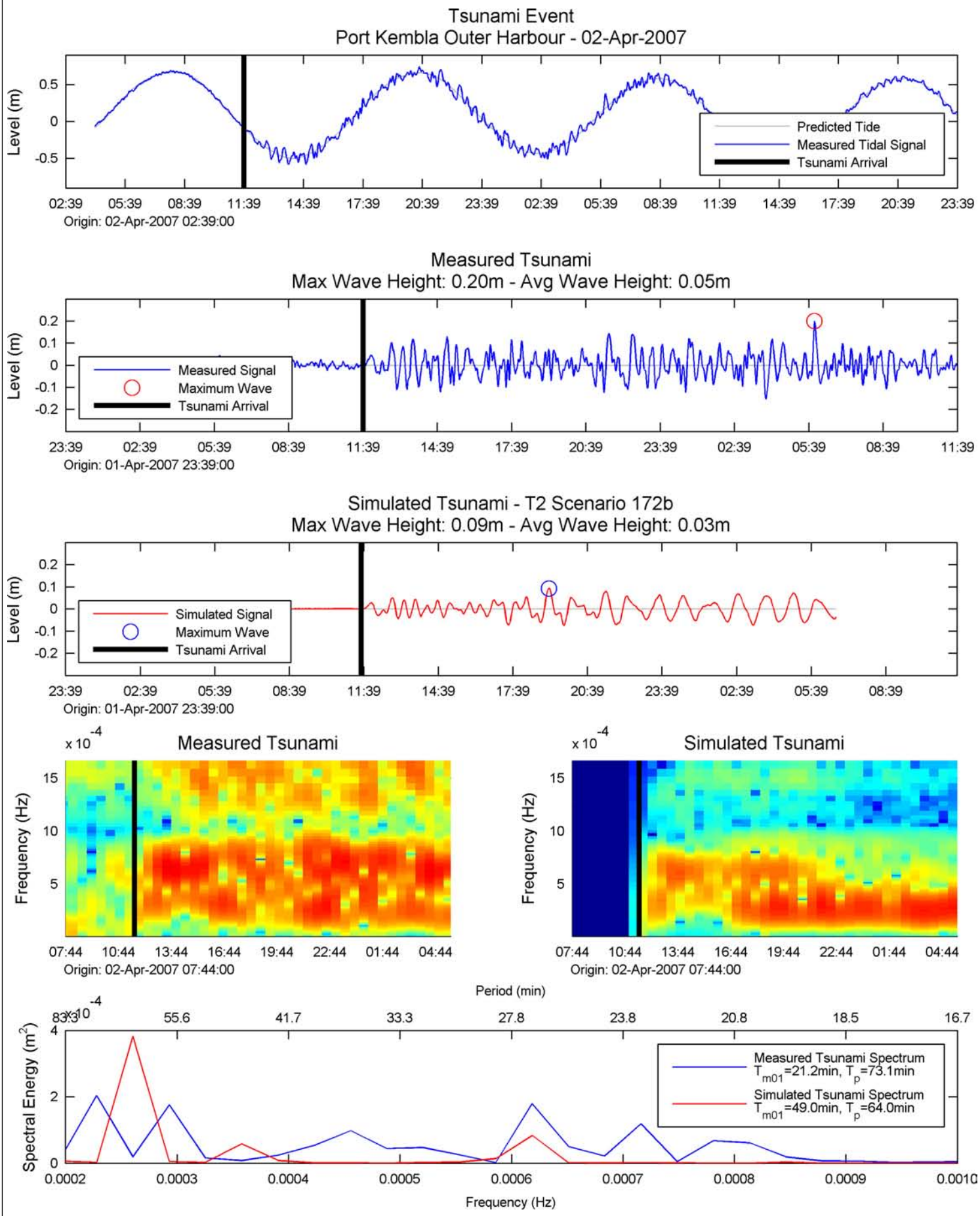
* CM = Current Meter Record, D3D = Model Output

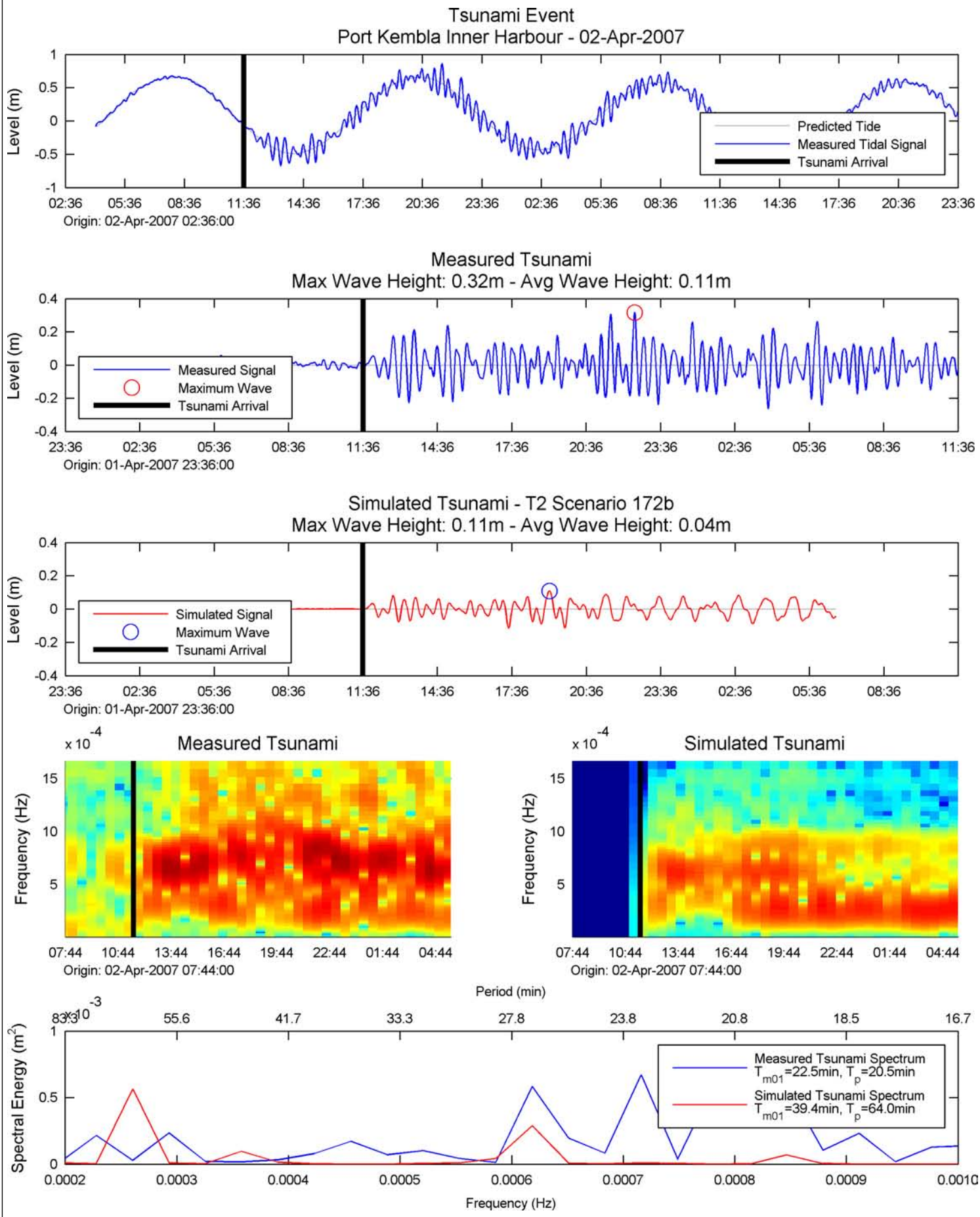

Tsunami Event
Fort Dension - 23-May-1960
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 23-May-1960 10:59:00
Measured Tsunami
Max Wave Height: 0.32m - Avg Wave Height: 0.11m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 23-May-1960 07:59:00
Simulated Tsunami - T2 Scenario 401d
Max Wave Height: 0.58m - Avg Wave Height: 0.14m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 23-May-1960 07:59:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 23-May-1960 18:15:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=43.2min, T_p=51.2min
Simulated Tsunami Spectrum
T_m01=53.1min, T_p=46.5min
Frequency (Hz)

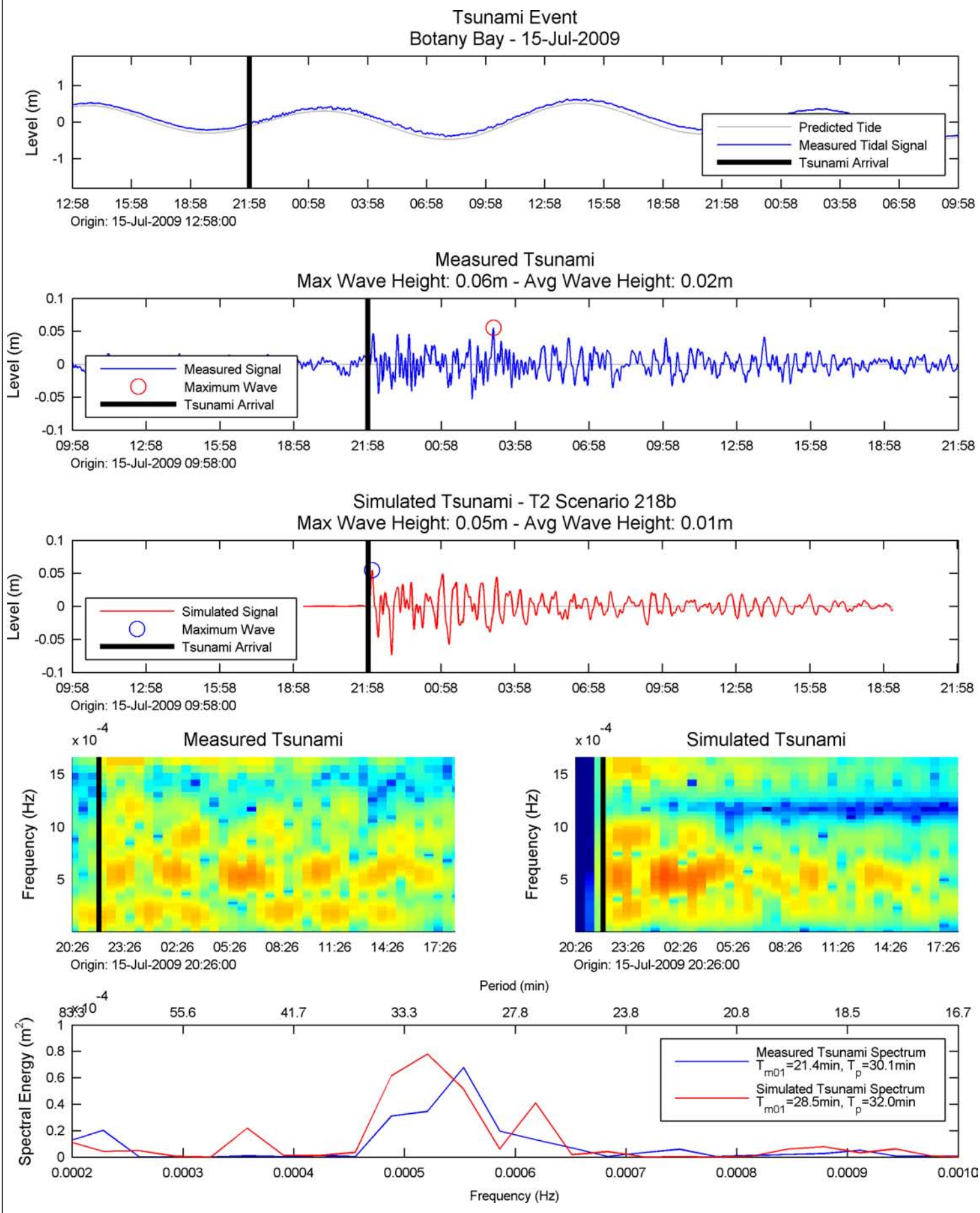

Tsunami Event
Botany Bay - 02-Apr-2007
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 02-Apr-2007 02:37:00
Measured Tsunami
Max Wave Height: 0.05m - Avg Wave Height: 0.02m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 01-Apr-2007 23:37:00
Simulated Tsunami - T2 Scenario 172b
Max Wave Height: 0.02m - Avg Wave Height: 0.01m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 01-Apr-2007 23:37:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 02-Apr-2007 07:44:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=23.1min, T_p=28.4min
Simulated Tsunami Spectrum
T_m01=44.5min, T_p=46.5min
Frequency (Hz)

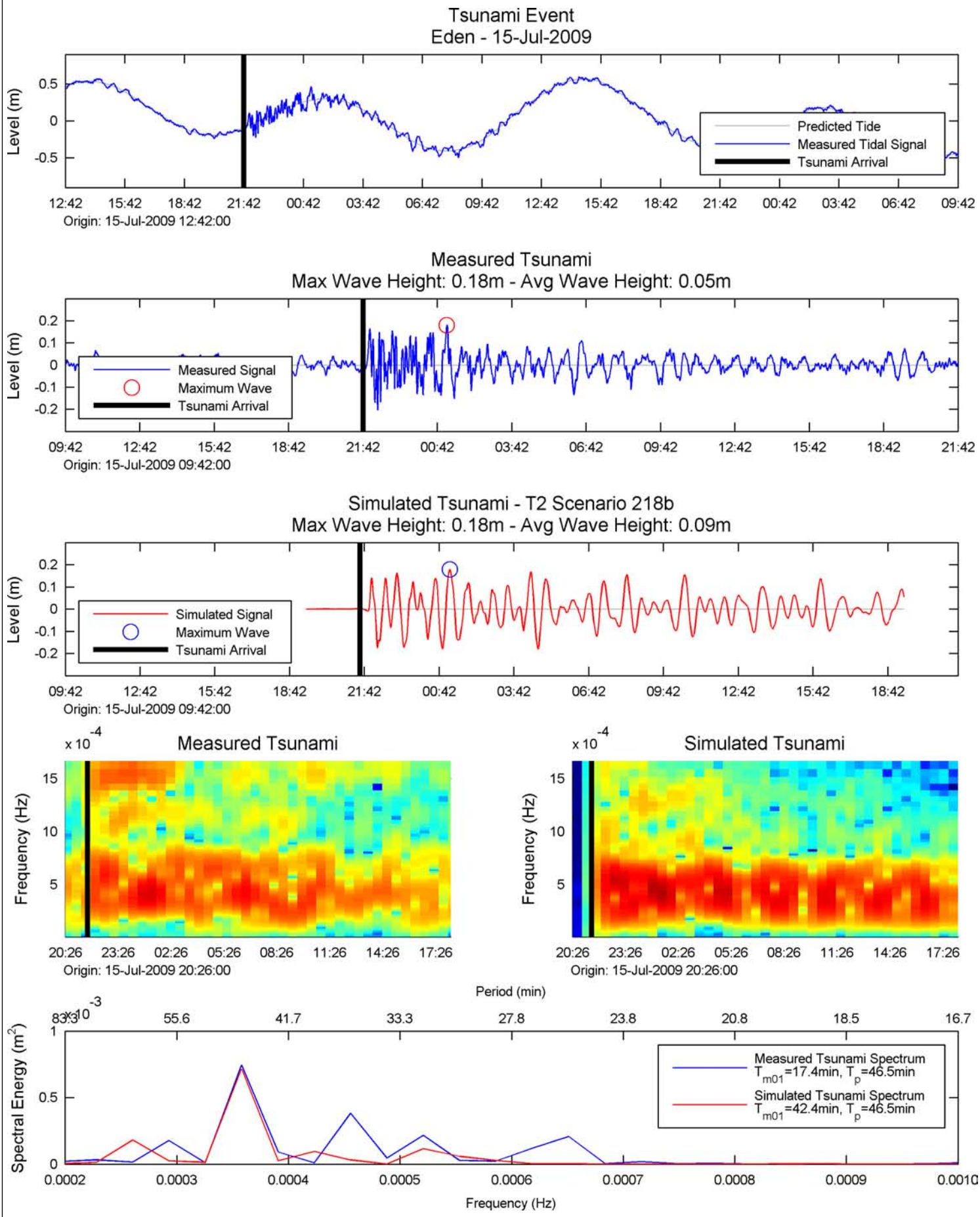

Tsunami Event
Eden - 02-Apr-2007
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 02-Apr-2007 03:37:00
Measured Tsunami
Max Wave Height: 0.29m - Avg Wave Height: 0.06m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 02-Apr-2007 00:37:00
Simulated Tsunami - T2 Scenario 172b
Max Wave Height: 0.17m - Avg Wave Height: 0.10m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 02-Apr-2007 00:37:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 02-Apr-2007 07:44:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=40.0min, T_p=46.5min
Simulated Tsunami Spectrum
T_m01=47.9min, T_p=46.5min
Frequency (Hz)

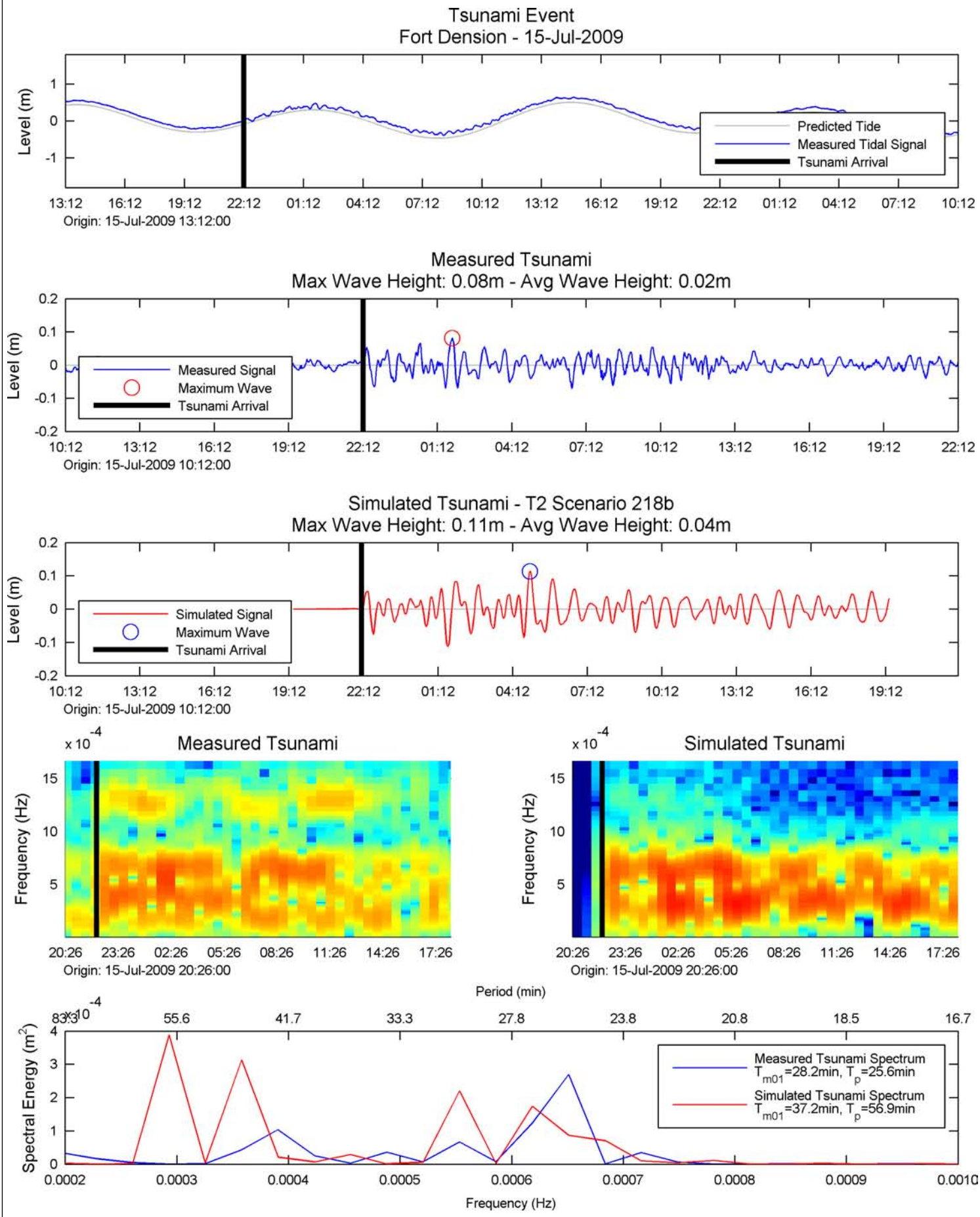

Tsunami Event
Fort Dension - 02-Apr-2007
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 02-Apr-2007 02:35:00
Measured Tsunami
Max Wave Height: 0.09m - Avg Wave Height: 0.03m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 01-Apr-2007 23:35:00
Simulated Tsunami - T2 Scenario 172b
Max Wave Height: 0.07m - Avg Wave Height: 0.03m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 01-Apr-2007 23:35:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 02-Apr-2007 07:44:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=31.8min, T_p=46.5min
Simulated Tsunami Spectrum
T_m01=44.7min, T_p=46.5min
Frequency (Hz)

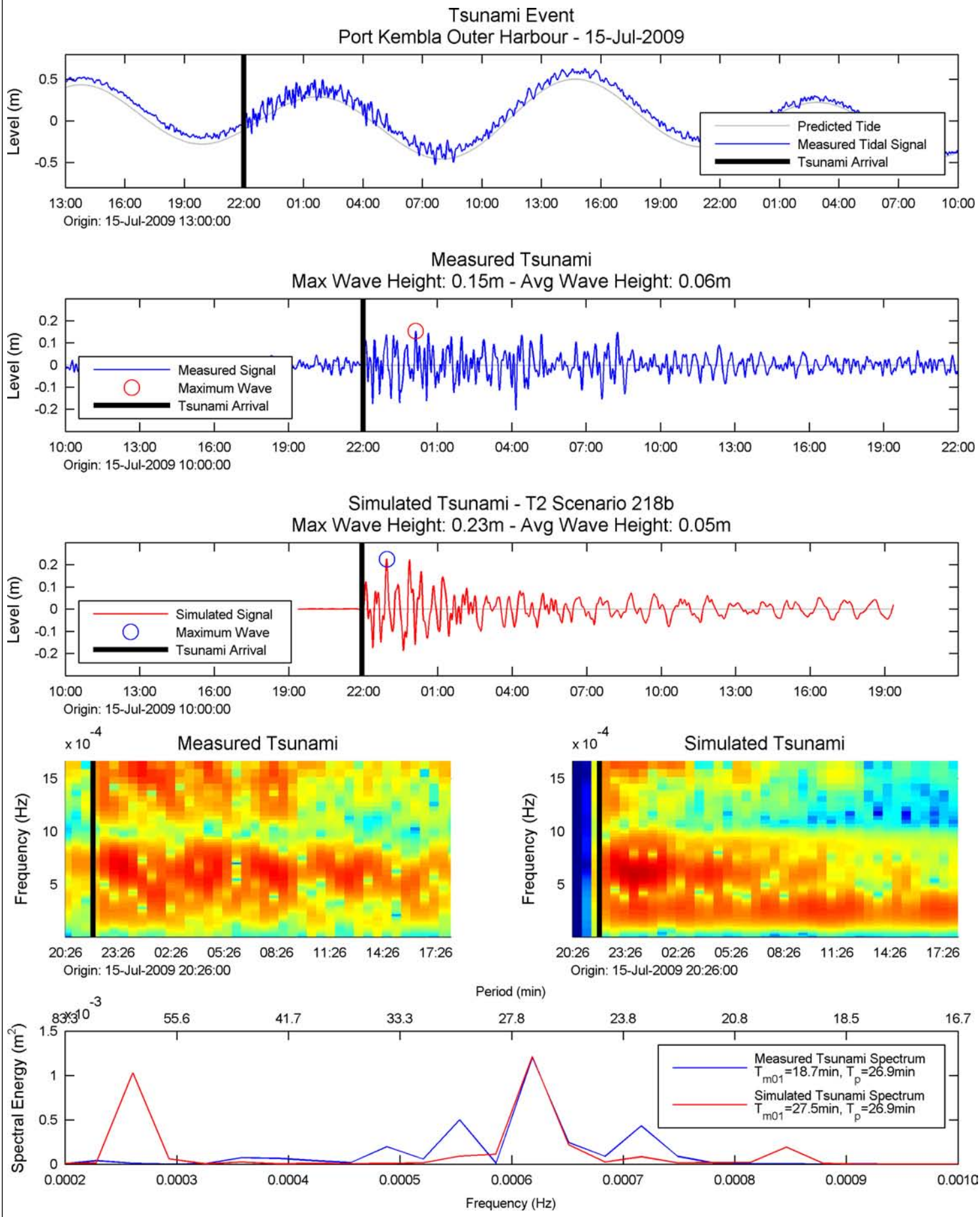

Tsunami Event
Port Kembla Outer Harbour - 02-Apr-2007
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 02-Apr-2007 02:39:00
Measured Tsunami
Max Wave Height: 0.20m - Avg Wave Height: 0.05m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 01-Apr-2007 23:39:00
Simulated Tsunami - T2 Scenario 172b
Max Wave Height: 0.09m - Avg Wave Height: 0.03m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 01-Apr-2007 23:39:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 02-Apr-2007 07:44:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=21.2min, T_p=73.1min
Simulated Tsunami Spectrum
T_m01=49.0min, T_p=64.0min
Frequency (Hz)

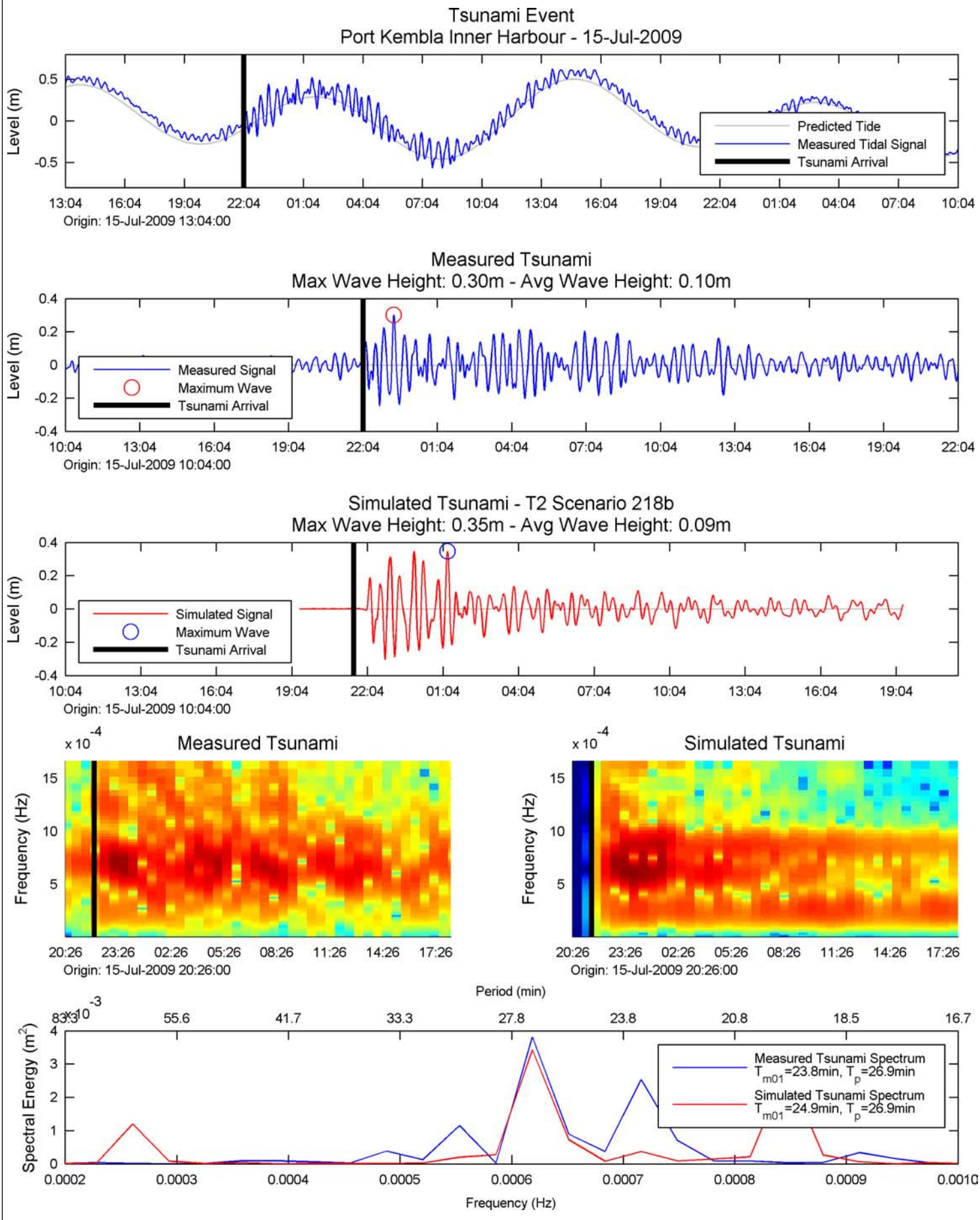

Tsunami Event
Port Kembla Inner Harbour - 02-Apr-2007
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 02-Apr-2007 02:36:00
Measured Tsunami
Max Wave Height: 0.32m - Avg Wave Height: 0.11m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 01-Apr-2007 23:36:00
Simulated Tsunami - T2 Scenario 172b
Max Wave Height: 0.11m - Avg Wave Height: 0.04m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 01-Apr-2007 23:36:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 02-Apr-2007 07:44:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=22.5min, T_p=20.5min
Simulated Tsunami Spectrum
T_m01=39.4min, T_p=64.0min
Frequency (Hz)

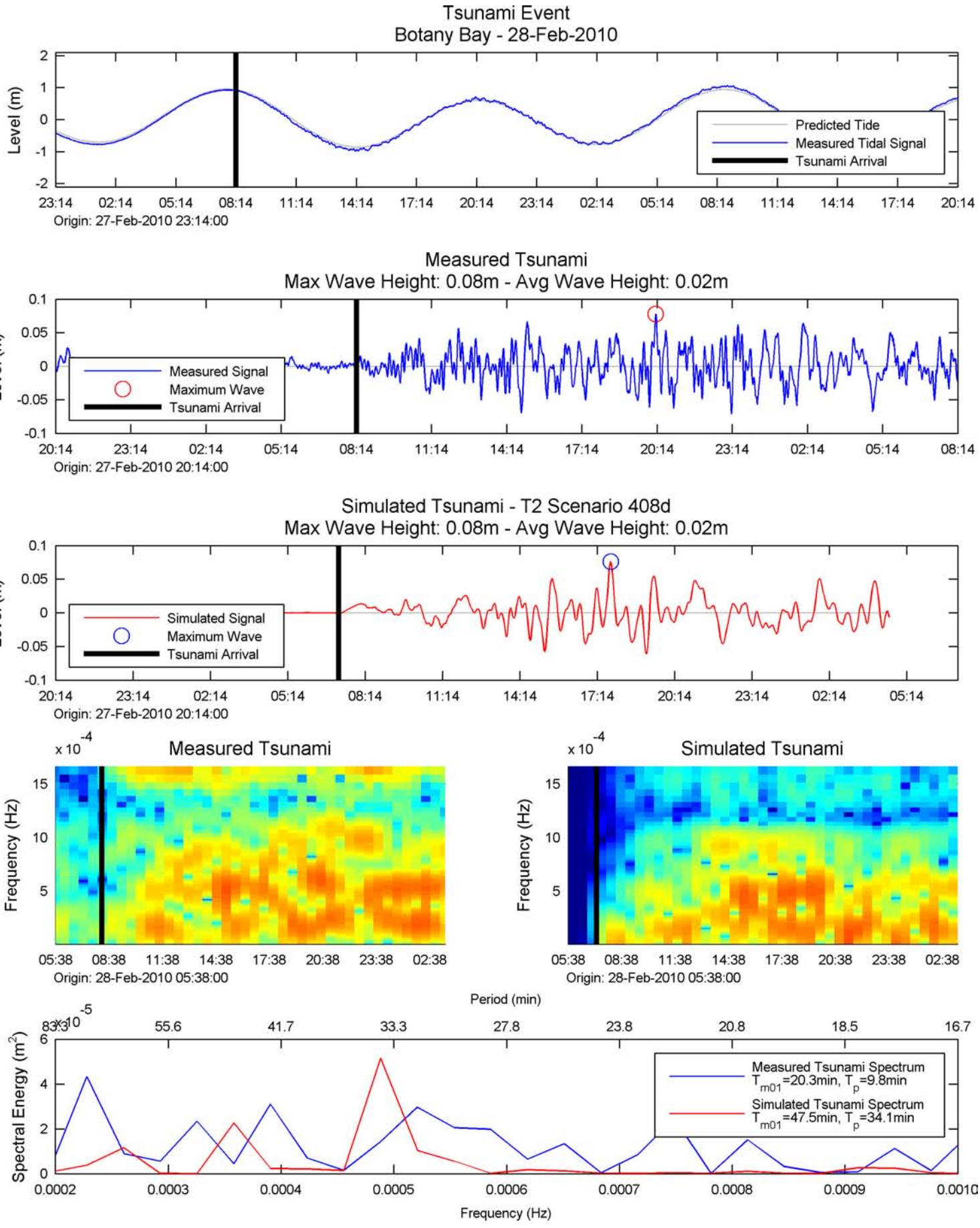

Tsunami Event
Botany Bay - 15-Jul-2009
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 15-Jul-2009 12:58:00
Measured Tsunami
Max Wave Height: 0.06m - Avg Wave Height: 0.02m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 15-Jul-2009 09:58:00
Simulated Tsunami - T2 Scenario 218b
Max Wave Height: 0.05m - Avg Wave Height: 0.01m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 15-Jul-2009 09:58:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 15-Jul-2009 20:26:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=21.4min, T_p=30.1min
Simulated Tsunami Spectrum
T_m01=28.5min, T_p=32.0min
Frequency (Hz)

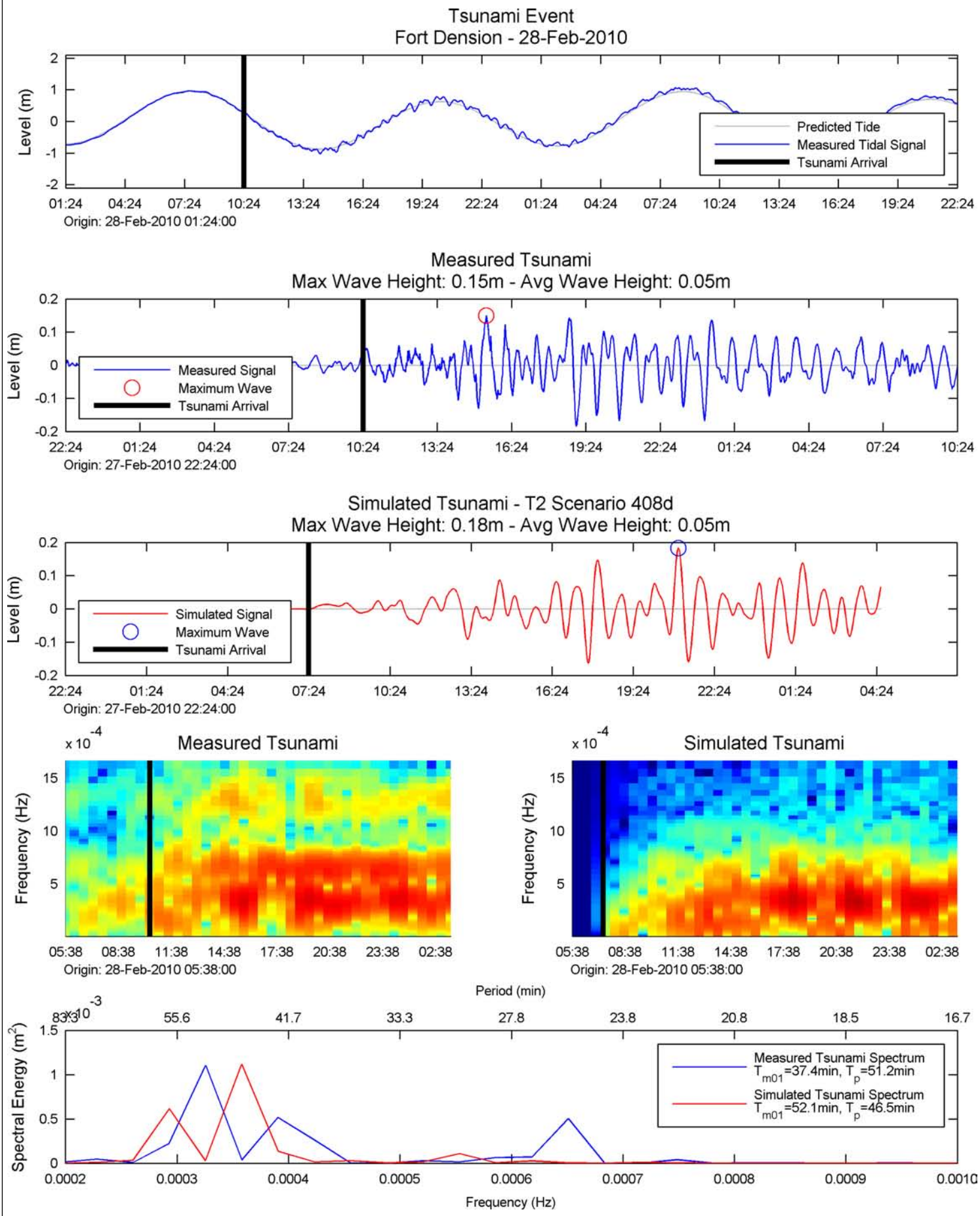

Tsunami Event
Eden - 15-Jul-2009
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 15-Jul-2009 12:42:00
Measured Tsunami
Max Wave Height: 0.18m - Avg Wave Height: 0.05m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 15-Jul-2009 09:42:00
Simulated Tsunami - T2 Scenario 218b
Max Wave Height: 0.18m - Avg Wave Height: 0.09m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 15-Jul-2009 09:42:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 15-Jul-2009 20:26:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=17.4min, T_p=46.5min
Simulated Tsunami Spectrum
T_m01=42.4min, T_p=46.5min
Frequency (Hz)

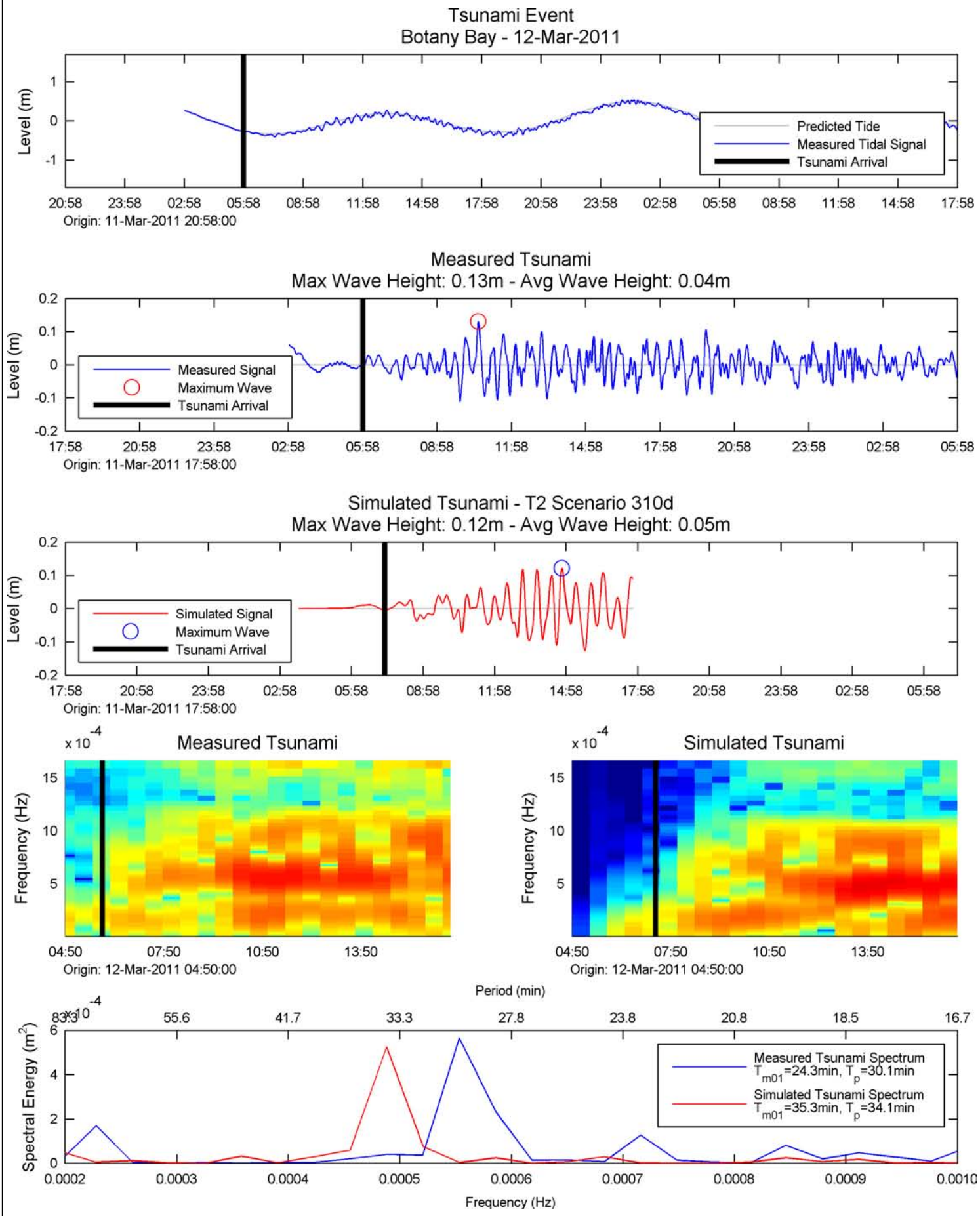

Tsunami Event
Fort Dension - 15-Jul-2009
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 15-Jul-2009 13:12:00
Measured Tsunami
Max Wave Height: 0.08m - Avg Wave Height: 0.02m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 15-Jul-2009 10:12:00
Simulated Tsunami - T2 Scenario 218b
Max Wave Height: 0.11m - Avg Wave Height: 0.04m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 15-Jul-2009 10:12:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 15-Jul-2009 20:26:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=28.2min, T_p=25.6min
Simulated Tsunami Spectrum
T_m01=37.2min, T_p=56.9min
Frequency (Hz)

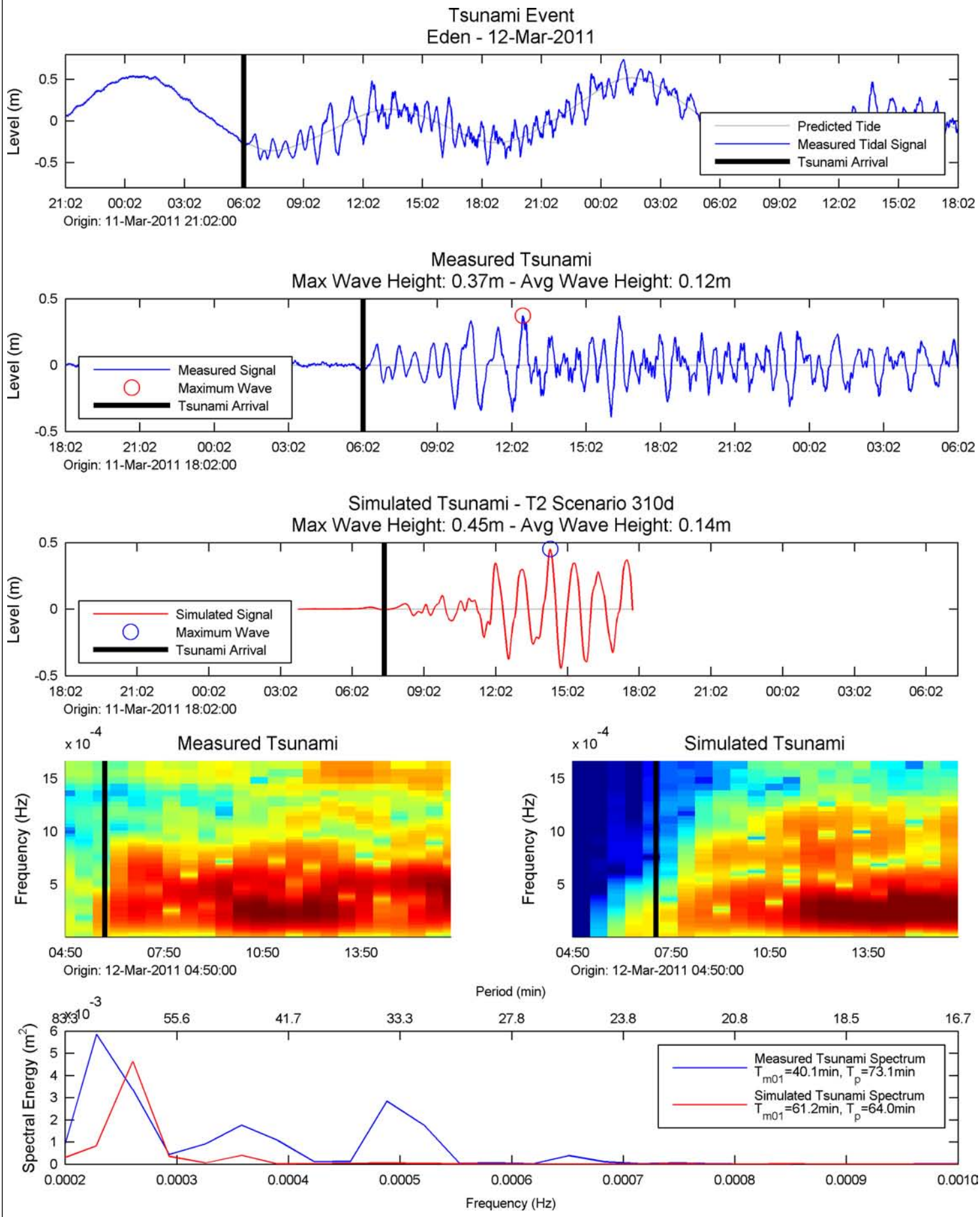

Tsunami Event
Port Kembla Outer Harbour - 15-Jul-2009
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 15-Jul-2009 13:00:00
Measured Tsunami
Max Wave Height: 0.15m - Avg Wave Height: 0.06m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 15-Jul-2009 10:00:00
Simulated Tsunami - T2 Scenario 218b
Max Wave Height: 0.23m - Avg Wave Height: 0.05m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 15-Jul-2009 10:00:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 15-Jul-2009 20:26:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=18.7min, T_p=26.9min
Simulated Tsunami Spectrum
T_m01=27.5min, T_p=26.9min
Frequency (Hz)

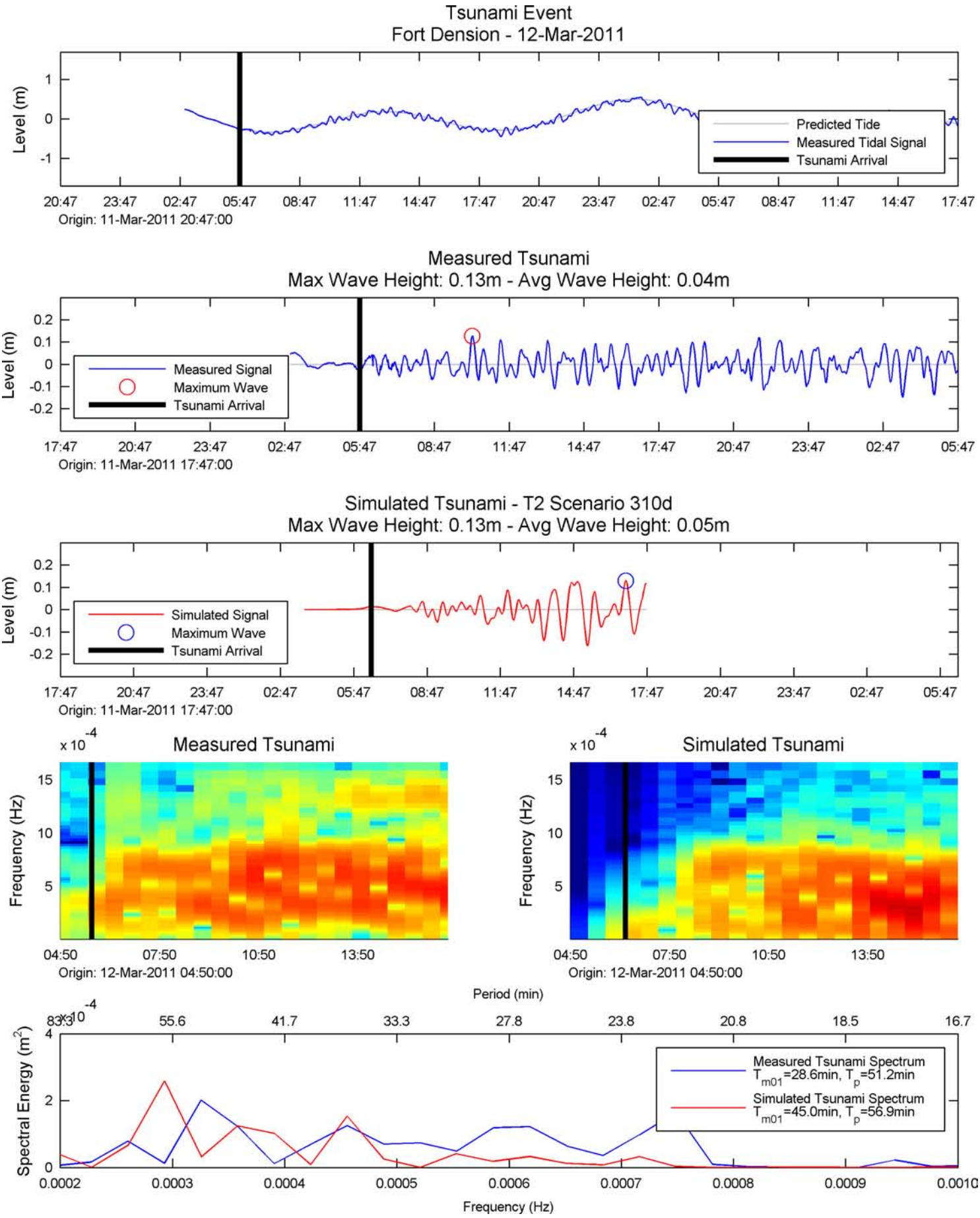

Tsunami Event
Port Kembla Inner Harbour - 15-Jul-2009
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 15-Jul-2009 13:04:00
Measured Tsunami
Max Wave Height: 0.30m - Avg Wave Height: 0.10m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 15-Jul-2009 10:04:00
Simulated Tsunami - T2 Scenario 218b
Max Wave Height: 0.35m - Avg Wave Height: 0.09m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 15-Jul-2009 10:04:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 15-Jul-2009 20:26:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=23.8min, T_p=26.9min
Simulated Tsunami Spectrum
T_m01=24.9min, T_p=26.9min
Frequency (Hz)

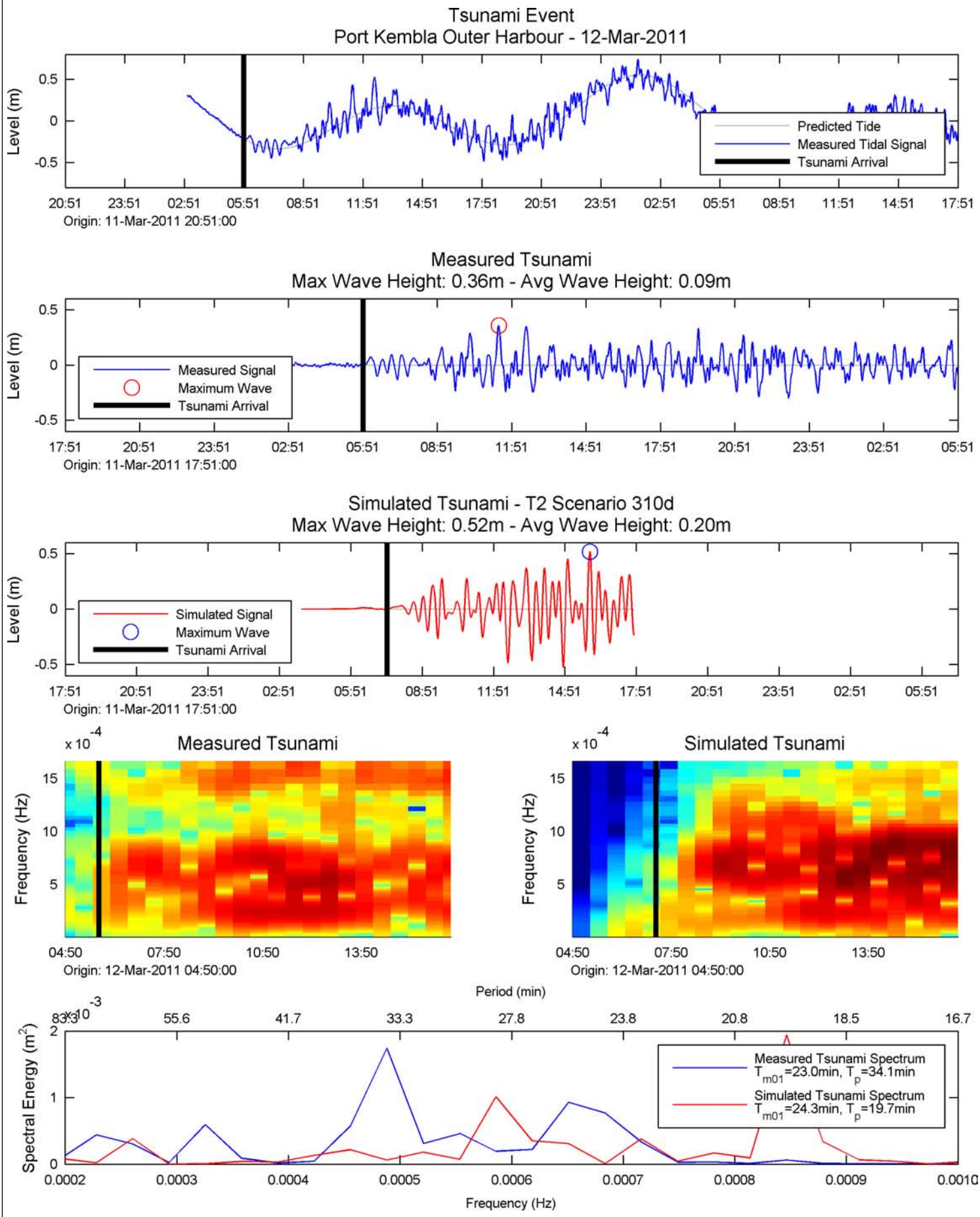

Tsunami Event
Botany Bay - 28-Feb-2010
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 27-Feb-2010 23:14:00
Measured Tsunami
Max Wave Height: 0.08m - Avg Wave Height: 0.02m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 27-Feb-2010 20:14:00
Simulated Tsunami - T2 Scenario 408d
Max Wave Height: 0.08m - Avg Wave Height: 0.02m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 27-Feb-2010 20:14:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 28-Feb-2010 05:38:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=20.3min, T_p=9.8min
Simulated Tsunami Spectrum
T_m01=47.5min, T_p=34.1min
Frequency (Hz)

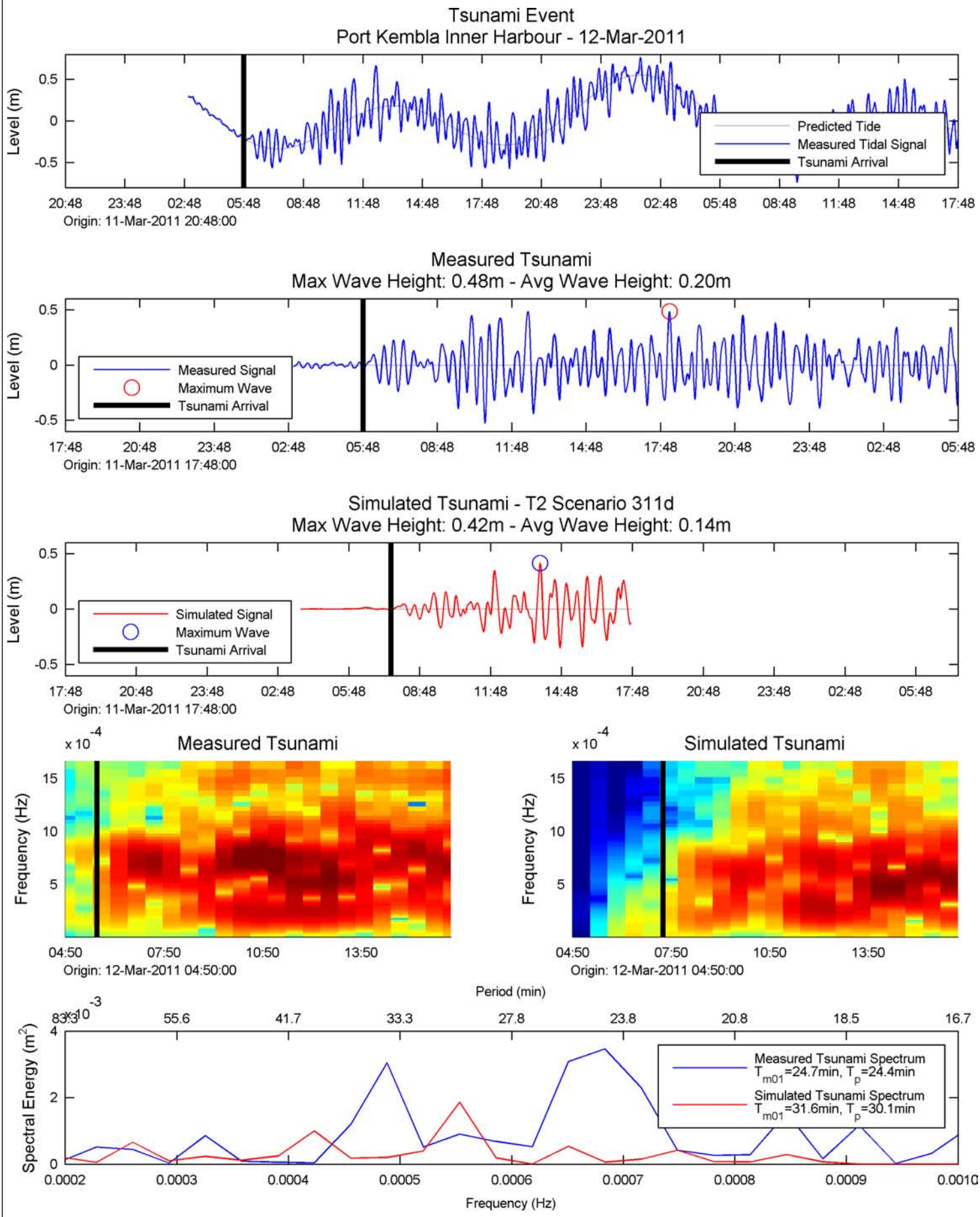

Tsunami Event
Fort Dension - 28-Feb-2010
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 28-Feb-2010 01:24:00
Measured Tsunami
Max Wave Height: 0.15m - Avg Wave Height: 0.05m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 27-Feb-2010 22:24:00
Simulated Tsunami - T2 Scenario 408d
Max Wave Height: 0.18m - Avg Wave Height: 0.05m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 27-Feb-2010 22:24:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 28-Feb-2010 05:38:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=37.4min, T_p=51.2min
Simulated Tsunami Spectrum
T_m01=52.1min, T_p=46.5min
Frequency (Hz)

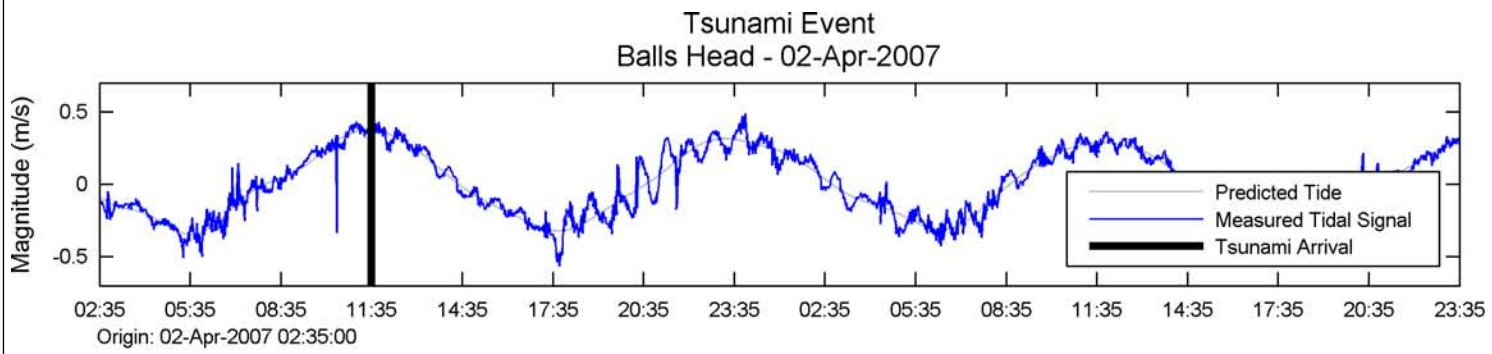

Tsunami Event
Botany Bay - 12-Mar-2011
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 11-Mar-2011 20:58:00
Measured Tsunami
Max Wave Height: 0.13m - Avg Wave Height: 0.04m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 11-Mar-2011 17:58:00
Simulated Tsunami - T2 Scenario 310d
Max Wave Height: 0.12m - Avg Wave Height: 0.05m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 11-Mar-2011 17:58:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 12-Mar-2011 04:50:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=24.3min, T_p=30.1min
Simulated Tsunami Spectrum
T_m01=35.3min, T_p=34.1min
Frequency (Hz)

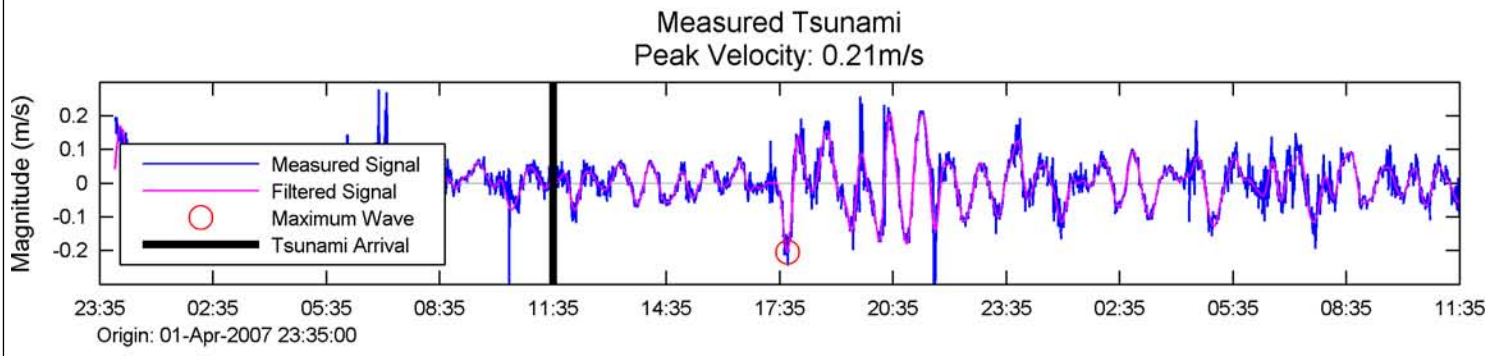

Tsunami Event
Eden - 12-Mar-2011
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 11-Mar-2011 21:02:00
Measured Tsunami
Max Wave Height: 0.37m - Avg Wave Height: 0.12m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 11-Mar-2011 18:02:00
Simulated Tsunami - T2 Scenario 310d
Max Wave Height: 0.45m - Avg Wave Height: 0.14m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 11-Mar-2011 18:02:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 12-Mar-2011 04:50:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=40.1min, T_p=73.1min
Simulated Tsunami Spectrum
T_m01=61.2min, T_p=64.0min
Frequency (Hz)

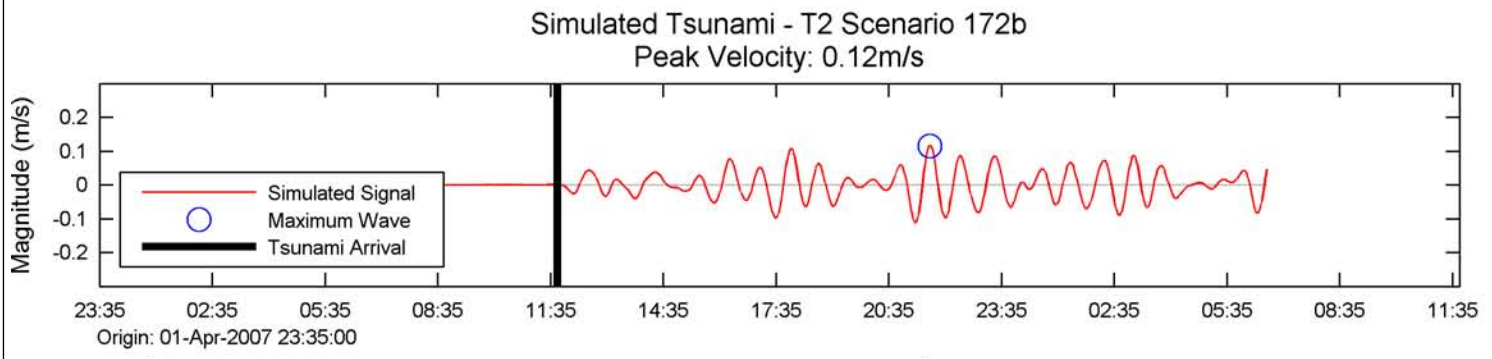

Tsunami Event
Fort Dension - 12-Mar-2011
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 11-Mar-2011 20:47:00
Measured Tsunami
Max Wave Height: 0.13m - Avg Wave Height: 0.04m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 11-Mar-2011 17:47:00
Simulated Tsunami - T2 Scenario 310d
Max Wave Height: 0.13m - Avg Wave Height: 0.05m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 11-Mar-2011 17:47:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 12-Mar-2011 04:50:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=28.6min, T_p=51.2min
Simulated Tsunami Spectrum
T_m01=45.0min, T_p=56.9min
Frequency (Hz)

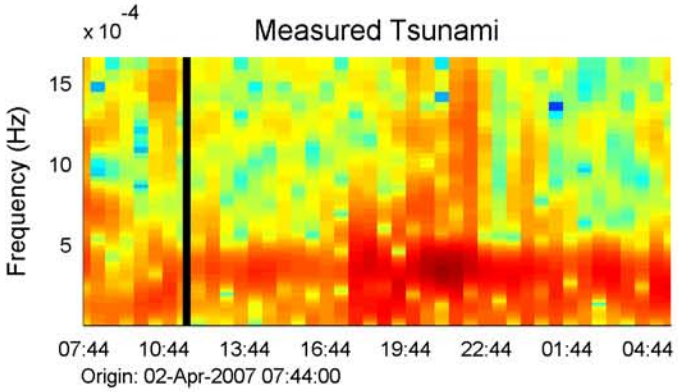

Tsunami Event
Port Kembla Outer Harbour - 12-Mar-2011
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 11-Mar-2011 20:51:00
Measured Tsunami
Max Wave Height: 0.36m - Avg Wave Height: 0.09m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 11-Mar-2011 17:51:00
Simulated Tsunami - T2 Scenario 310d
Max Wave Height: 0.52m - Avg Wave Height: 0.20m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 11-Mar-2011 17:51:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 12-Mar-2011 04:50:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=23.0min, T_p=34.1min
Simulated Tsunami Spectrum
T_m01=24.3min, T_p=19.7min
Frequency (Hz)

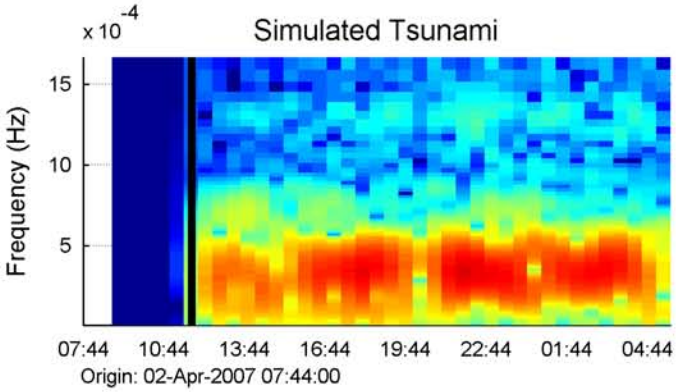

Tsunami Event
Port Kembla Inner Harbour - 12-Mar-2011
Level (m)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 11-Mar-2011 20:48:00
Measured Tsunami
Max Wave Height: 0.48m - Avg Wave Height: 0.20m
Measured Signal
Maximum Wave
Tsunami Arrival
Origin: 11-Mar-2011 17:48:00
Simulated Tsunami - T2 Scenario 311d
Max Wave Height: 0.42m - Avg Wave Height: 0.14m
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 11-Mar-2011 17:48:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 12-Mar-2011 04:50:00
Period (min)
Spectral Energy (m²)
Measured Tsunami Spectrum
T_m01=24.7min, T_p=24.4min
Simulated Tsunami Spectrum
T_m01=31.6min, T_p=30.1min
Frequency (Hz)

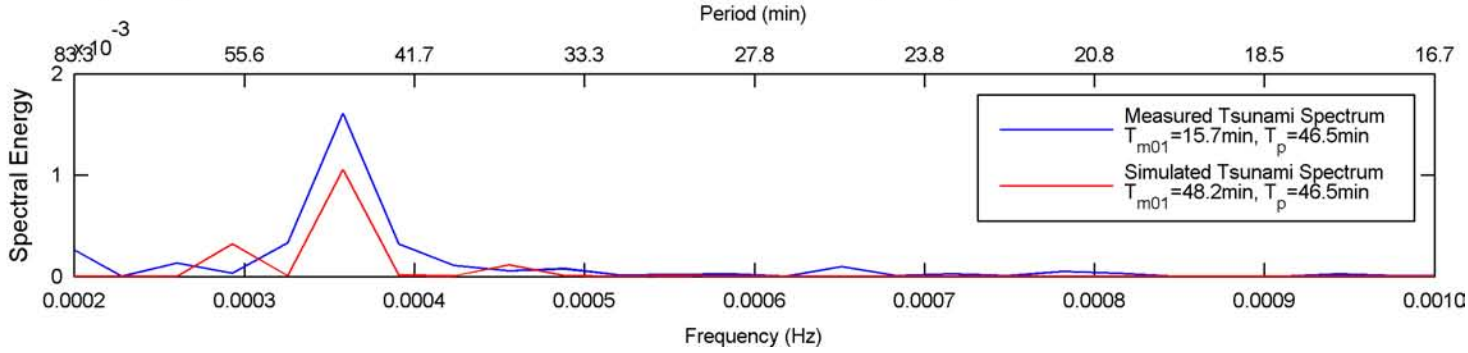

Tsunami Event
Balls Head - 02-Apr-2007
Magnitude (m/s)
0.5
0
-0.5
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
02:35 05:35 08:35 11:35 14:35 17:35 20:35 23:35 02:35 05:35 08:35 11:35 14:35 17:35 20:35 23:35
Origin: 02-Apr-2007 02:35:00

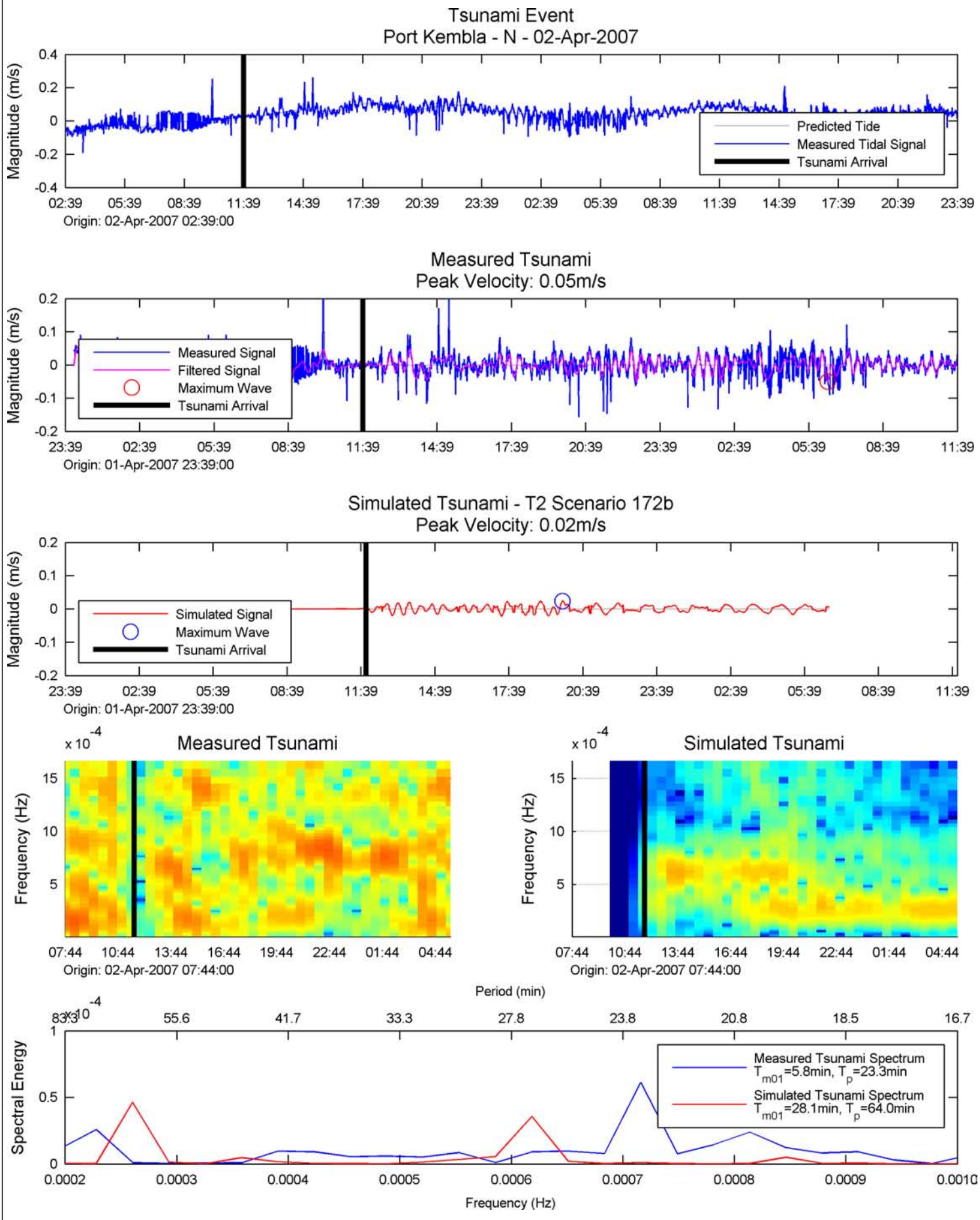

Measured Tsunami
Peak Velocity: 0.21m/s
Magnitude (m/s)
0.2
0.1
0
-0.1
-0.2
Measured Signal
Filtered Signal
Maximum Wave
Tsunami Arrival
23:35 02:35 05:35 08:35 11:35 14:35 17:35 20:35 23:35 02:35 05:35 08:35 11:35
Origin: 01-Apr-2007 23:35:00


Simulated Tsunami - T2 Scenario 172b
Peak Velocity: 0.12m/s
Magnitude (m/s)
0.2
0.1
0
-0.1
-0.2
Simulated Signal
Maximum Wave
Tsunami Arrival
23:35 02:35 05:35 08:35 11:35 14:35 17:35 20:35 23:35 02:35 05:35 08:35 11:35
Origin: 01-Apr-2007 23:35:00


x 10 -4
Measured Tsunami
Frequency (Hz)
15
10
5
07:44 10:44 13:44 16:44 19:44 22:44 01:44 04:44
Origin: 02-Apr-2007 07:44:00


x 10 -4
Simulated Tsunami
Frequency (Hz)
15
10
5
07:44 10:44 13:44 16:44 19:44 22:44 01:44 04:44
Origin: 02-Apr-2007 07:44:00


Period (min)
x 10 -3
83.3 55.6 41.7 33.3 27.8 23.8 20.8 18.5 16.7
Spectral Energy
2
1
0
Measured Tsunami Spectrum
T m01 =15.7min, T p =46.5min
Simulated Tsunami Spectrum
T m01 =48.2min, T p =46.5min
0.0002 0.0003 0.0004 0.0005 0.0006 0.0007 0.0008 0.0009 0.0010
Frequency (Hz)



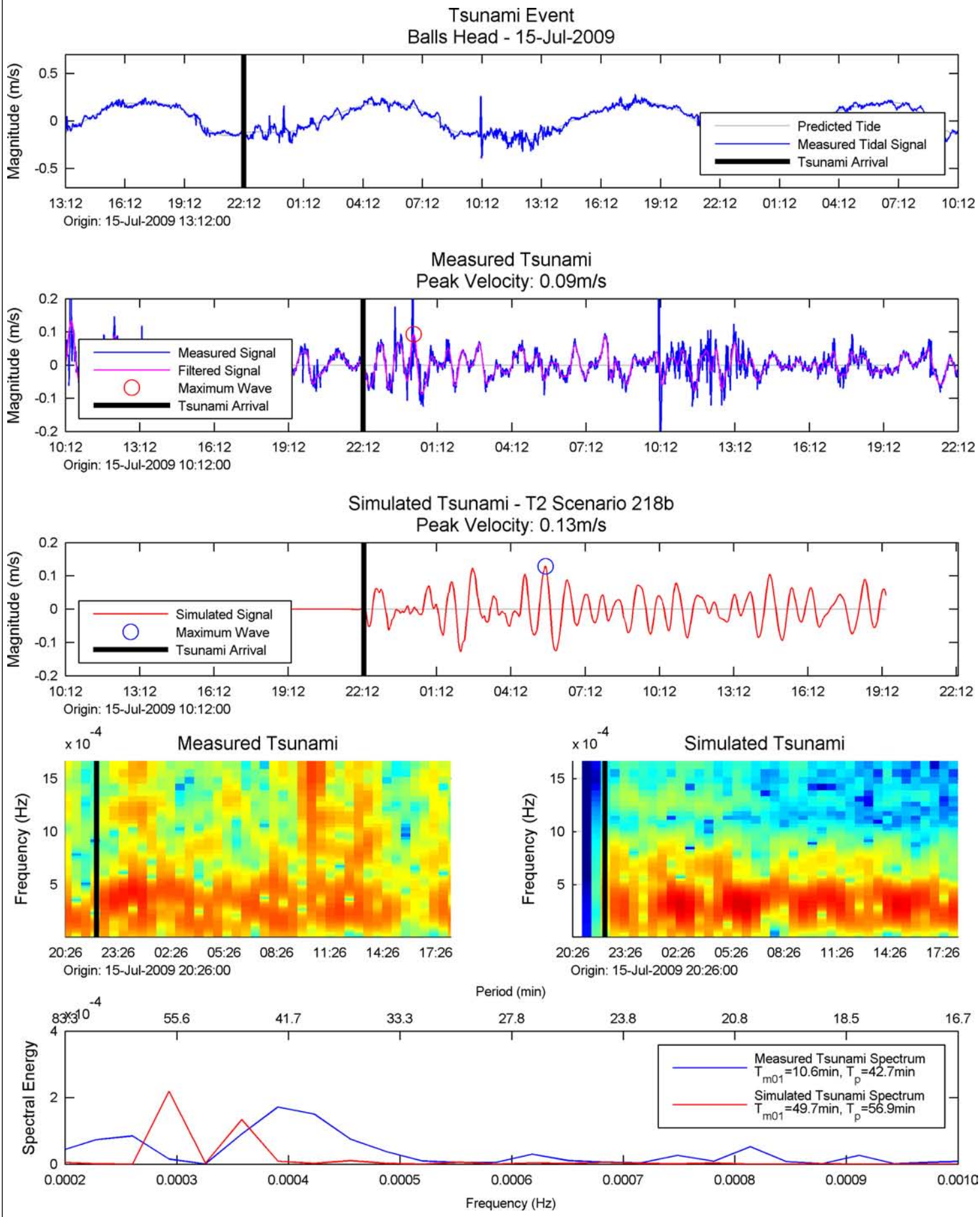
NSW Tsunami Inundation Modelling and Risk Assessment

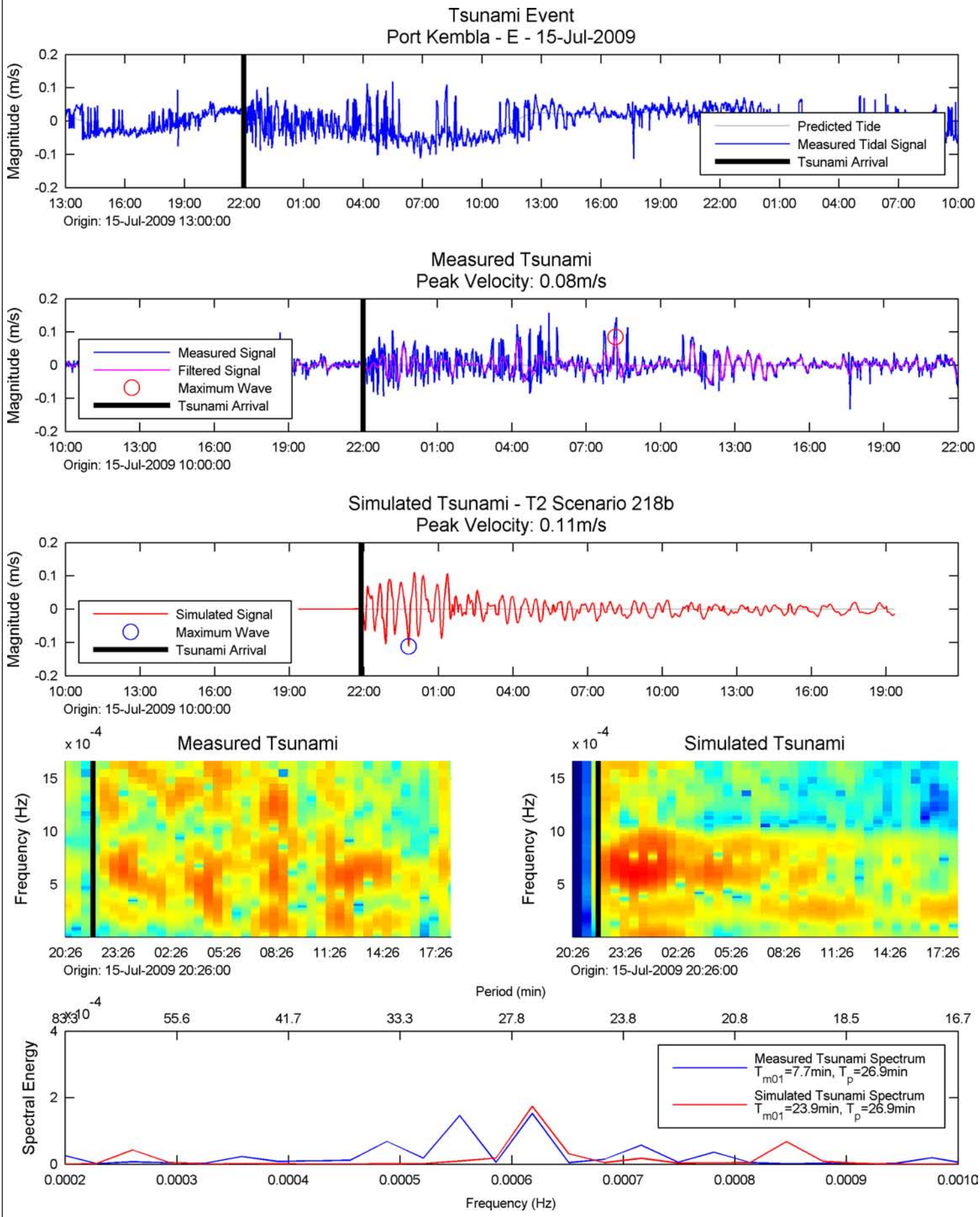
TSUNAMIGENIC VERIFICATION
PORT KEMBLA NORTHERN CURRENT METER

Appendix B.20

LJ2874 Aug 2013

J:\CM\LJ2874-NSW_Tsunami\Figures\Report Figures\LJ2874_Figure B-20.png


Tsunami Event
Balls Head - 15-Jul-2009
Magnitude (m/s)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 15-Jul-2009 13:12:00
Measured Tsunami
Peak Velocity: 0.09m/s
Measured Signal
Filtered Signal
Maximum Wave
Tsunami Arrival
Origin: 15-Jul-2009 10:12:00
Simulated Tsunami - T2 Scenario 218b
Peak Velocity: 0.13m/s
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 15-Jul-2009 10:12:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 15-Jul-2009 20:26:00
Period (min)
Spectral Energy
Measured Tsunami Spectrum
T_m01=10.6min, T_p=42.7min
Simulated Tsunami Spectrum
T_m01=49.7min, T_p=56.9min
Frequency (Hz)



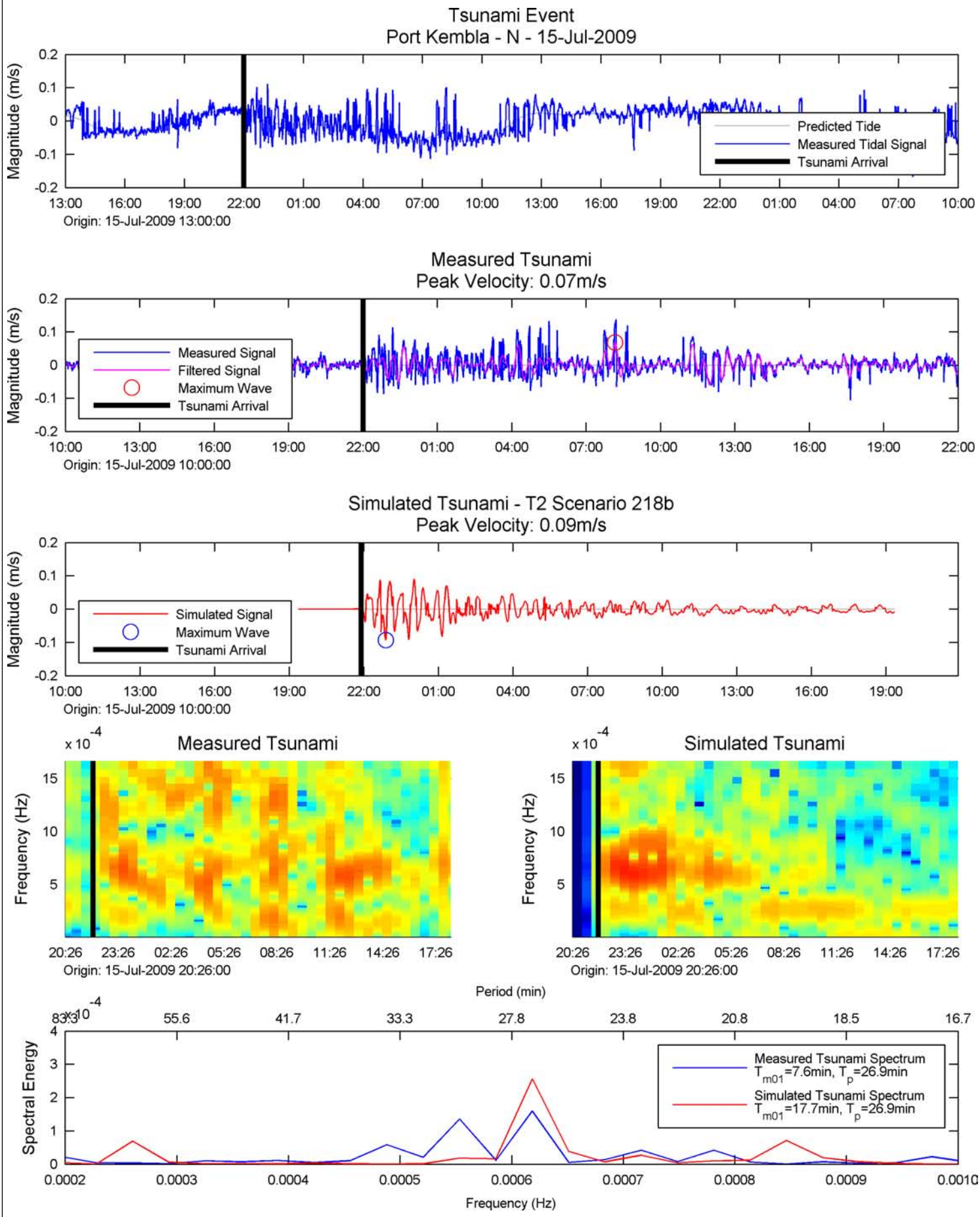
NSW Tsunami Inundation Modelling and Risk Assessment

TSUNAMIGENIC VERIFICATION
PORT KEMBLA EASTERN CURRENT METER

Appendix B.22

LJ2874 Aug 2013

J:\CM\LJ2874-NSW_Tsunami\Figures\Report Figures\LJ2874_Figure B-22.png



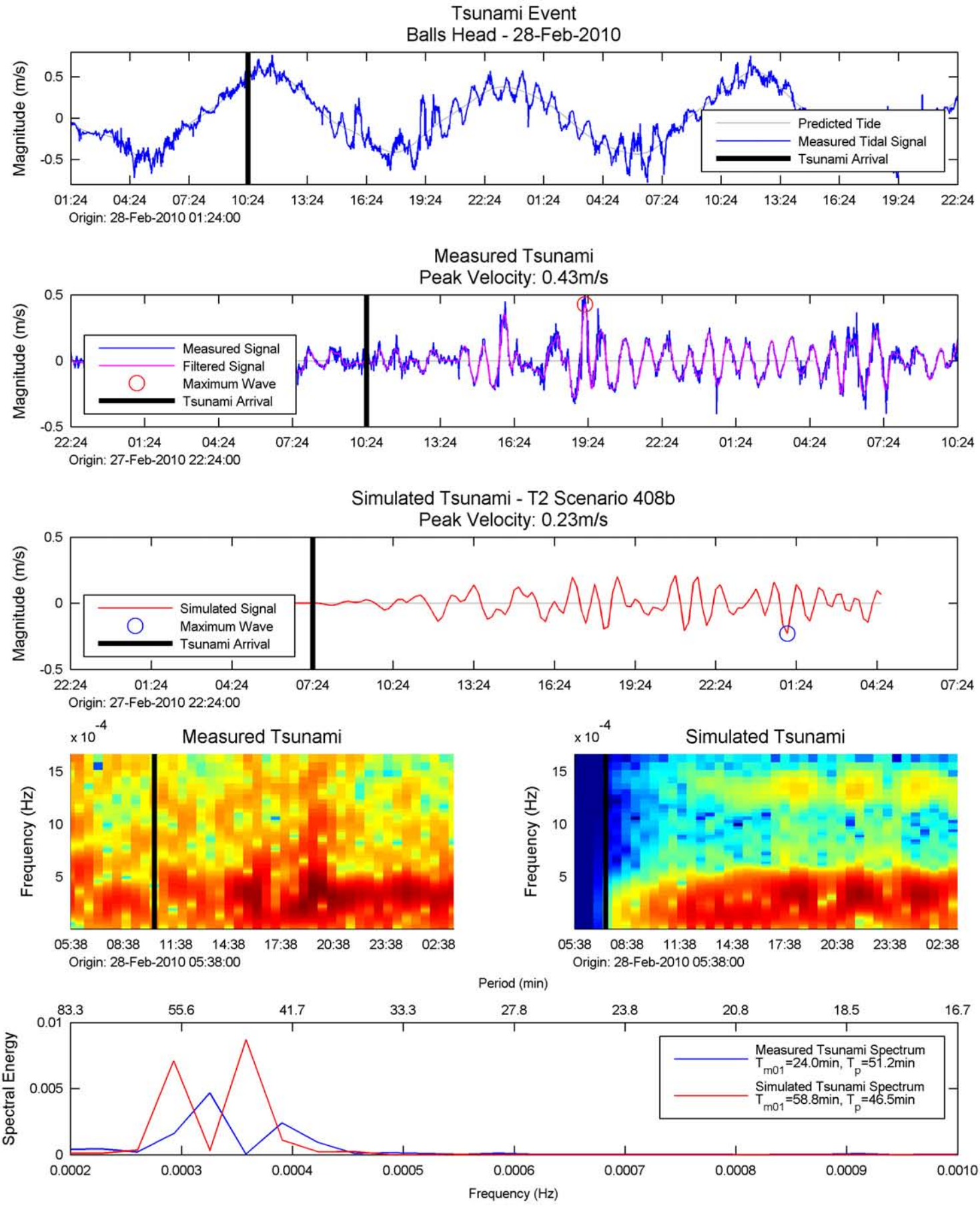
NSW Tsunami Inundation Modelling and Risk Assessment

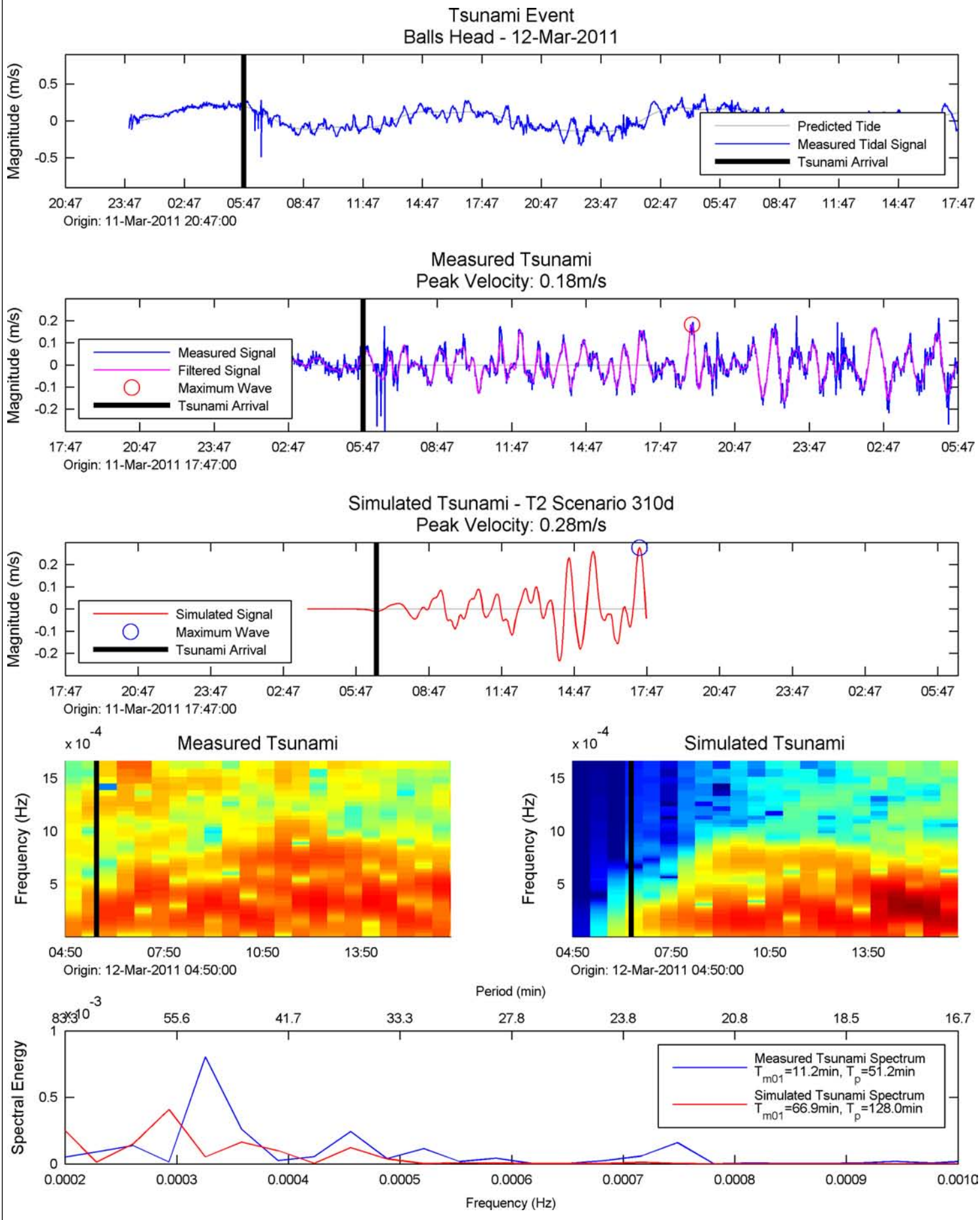
TSUNAMIGENIC VERIFICATION
PORT KEMBLA NORTHERN CURRENT METER

Appendix B.23

LJ2874 Aug 2013

J:\CM\LJ2874-NSW_Tsunami\Figures\Report Figures\LJ2874_Figure B-23.png


Tsunami Event
Balls Head - 28-Feb-2010
Magnitude (m/s)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 28-Feb-2010 01:24:00
Measured Tsunami
Peak Velocity: 0.43m/s
Measured Signal
Filtered Signal
Maximum Wave
Tsunami Arrival
Origin: 27-Feb-2010 22:24:00
Simulated Tsunami - T2 Scenario 408b
Peak Velocity: 0.23m/s
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 27-Feb-2010 22:24:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 28-Feb-2010 05:38:00
Period (min)
Spectral Energy
Measured Tsunami Spectrum
T_m01=24.0min, T_p=51.2min
Simulated Tsunami Spectrum
T_m01=58.8min, T_p=46.5min
Frequency (Hz)



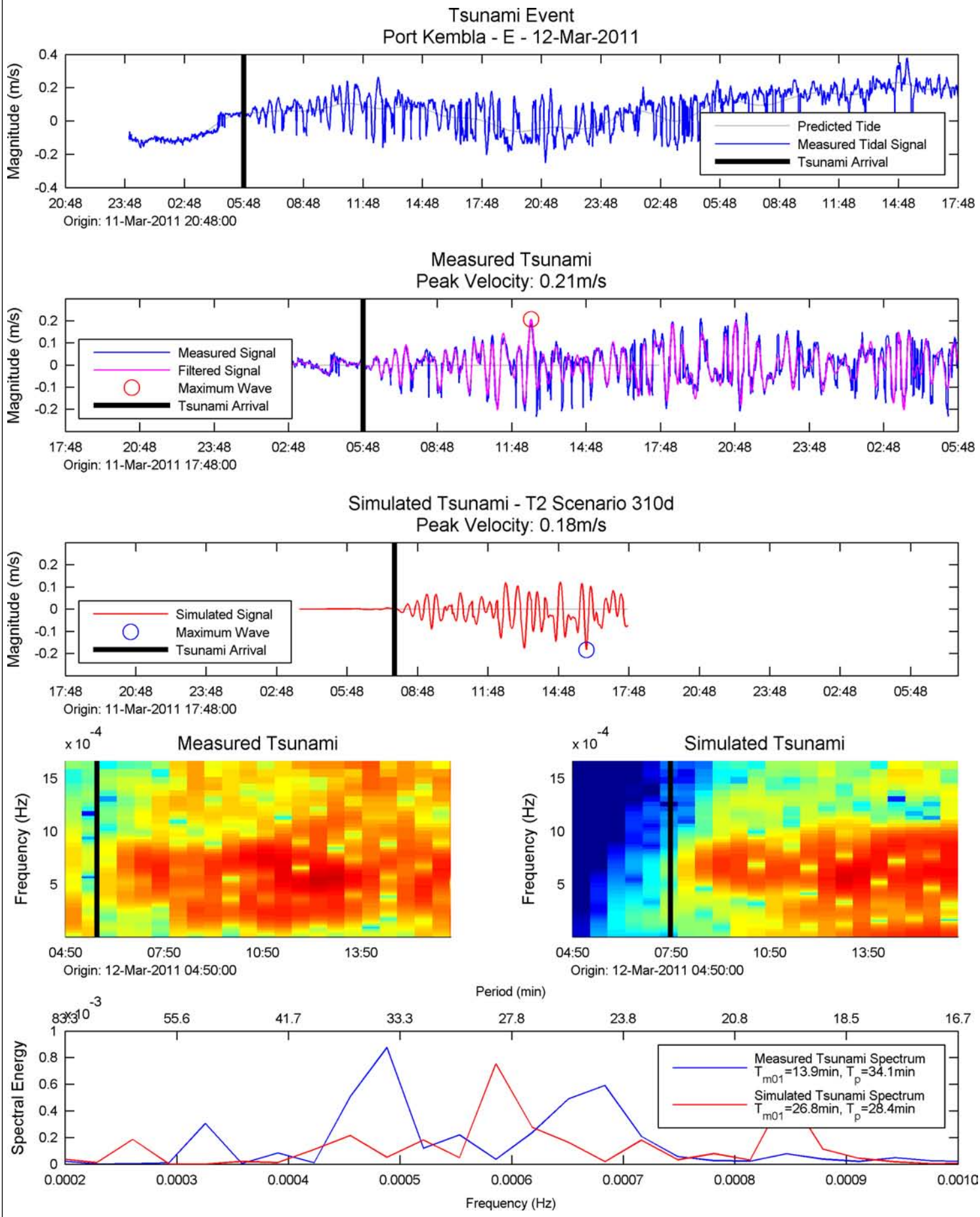
NSW Tsunami Inundation Modelling and Risk Assessment

TSUNAMIGENIC VERIFICATION
BALLS HEAD

Appendix B.25

LJ2874 Aug 2013

J:\CM\LJ2874-NSW_Tsunami\Figures\Report Figures\LJ2874_Figure B-25.png


Tsunami Event
Port Kembla - E - 12-Mar-2011
Magnitude (m/s)
Predicted Tide
Measured Tidal Signal
Tsunami Arrival
Origin: 11-Mar-2011 20:48:00
Measured Tsunami
Peak Velocity: 0.21m/s
Measured Signal
Filtered Signal
Maximum Wave
Tsunami Arrival
Origin: 11-Mar-2011 17:48:00
Simulated Tsunami - T2 Scenario 310d
Peak Velocity: 0.18m/s
Simulated Signal
Maximum Wave
Tsunami Arrival
Origin: 11-Mar-2011 17:48:00
Measured Tsunami
Simulated Tsunami
Frequency (Hz)
Origin: 12-Mar-2011 04:50:00
Period (min)
Spectral Energy
Measured Tsunami Spectrum
T_m01=13.9min, T_p=34.1min
Simulated Tsunami Spectrum
T_m01=26.8min, T_p=28.4min
Frequency (Hz)

Appendix C

Tsunami Scenario Maximum Wave Height and Run-up Results

C.1 Swansea

Scenario #	ARI (years)	Source Zone *	Water Level ^	Maximum Wave Height# (m)			Max Run-up (mAHD)
				100m depth	20m depth	5m depth	
S1	200	KER	HAT	0.34	1.01	1.21	2.26
S2	200	NHB	HAT	0.4	1.28	1.60	2.48
S3	200	PUY	HAT	0.46	1.41	1.55	2.74
S4	200	SCH	HAT	0.36	0.34	0.36	1.67
S5	200	TGA	HAT	0.34	0.92	1.12	2.19
S6	500	KER	HAT	0.57	1.55	1.83	3.13
S7	500	NHB	HAT	0.63	1.91	2.24	3.08
S8	500	PUY	HAT	0.73	2.40	2.81	3.52
S9	500	TGA	HAT	0.67	1.31	1.61	2.67
S10	1000	KER	HAT	0.88	2.08	2.62	3.68
S11	1000	NHB	HAT	0.82	2.45	2.86	3.81
S12	1000	PUY	HAT	0.94	3.06	3.47	4.32
S13	2000	KER	HAT	1.07	2.98	3.62	5.36
S14	2000	NHB	HAT	0.97	2.82	3.30	4.26
S15	2000	PUY	HAT	1.22	3.69	4.25	5.13
S16	2000	KER	MSL	1.07	3.14	3.81	5.26
S17	2000	NHB	MSL	0.97	2.80	3.19	4.74
S18	2000	PUY	MSL	1.22	3.68	4.22	5.42
S19	5000	NHB	HAT	1.32	3.73	4.28	5.32
S20	5000	PUY	HAT	1.63	4.91	5.59	6.70
S21	5000	NHB	MSL	1.32	3.68	4.17	5.85
S22	5000	PUY	MSL	1.63	4.83	5.53	6.81
S23	10000	NHB	HAT	1.74	5.41	6.03	6.81
S24	10000	PUY	HAT	2.11	6.75	7.42	8.26

* KER = Kermadec, NHB = New Hebrides, PUY = Puysegur, SCH = South Chile, TGA = Tonga

^ HAT = Highest Astronomical Tide, MSL = Mean Sea Level

Tsunami Wave Height is measured as height of tsunami wave crest above still water level – see Glossary

C.2 Manly

Scenario #	ARI (years)	Source Zone *	Water Level ^	Maximum Wave Height# (m)			Max Run-up (mAHD)
				100m depth	20m depth	5m depth	
S1	200	KER	HAT	0.32	0.78	0.94	2.52
S2	200	NHB	HAT	0.42	1.12	1.39	3.20
S3	200	PUY	HAT	0.38	0.95	1.16	2.38
S4	200	SCH	HAT	0.29	0.48	0.50	1.54
S5	200	TGA	HAT	0.31	0.62	0.66	1.89
S6	500	KER	HAT	0.47	1.23	1.36	3.34
S7	500	NHB	HAT	0.6	1.48	1.79	3.72
S8	500	PUY	HAT	0.54	1.33	1.62	2.82
S9	500	TGA	HAT	0.58	1.28	1.36	2.75
S10	1000	KER	HAT	0.65	1.74	1.92	4.18
S11	1000	NHB	HAT	0.84	2.11	2.60	4.80
S12	1000	PUY	HAT	0.69	1.62	1.95	3.12
S13	2000	KER	HAT	0.93	2.61	3.12	4.86
S14	2000	NHB	HAT	1.09	2.72	3.42	5.96
S15	2000	PUY	HAT	0.96	2.27	2.72	3.97
S16	2000	KER	MSL	0.93	2.73	3.08	4.39
S17	2000	NHB	MSL	1.09	2.75	3.43	5.18
S18	2000	PUY	MSL	0.96	2.24	2.71	3.51
S19	5000	NHB	HAT	1.43	3.62	4.37	7.17
S20	5000	PUY	HAT	1.36	3.19	3.77	5.06
S21	5000	NHB	MSL	1.43	3.62	4.41	6.30
S22	5000	PUY	MSL	1.36	3.17	3.75	4.62
S23	10000	NHB	HAT	1.71	4.26	4.96	7.63
S24	10000	PUY	HAT	1.88	4.45	5.13	6.58

* KER = Kermadec, NHB = New Hebrides, PUY = Puysegur, SCH = South Chile, TGA = Tonga

^ HAT = Highest Astronomical Tide, MSL = Mean Sea Level

Tsunami Wave Height is measured as height of tsunami wave crest above still water level – see Glossary

C.3 Botany Bay

Scenario #	ARI (years)	Source Zone *	Water Level ^	Maximum Wave Height# (m)			Max Run-up (mAHD)
				100m depth	20m depth	5m depth	
S1	200	KER	HAT	0.38	0.50	0.61	1.96
S2	200	NHB	HAT	0.41	0.68	0.71	2.64
S3	200	PUY	HAT	0.4	0.63	0.68	2.19
S4	200	SCH	HAT	0.39	0.34	0.52	1.86
S5	200	TGA	HAT	0.36	0.52	0.53	1.84
S6	500	KER	HAT	0.55	0.69	0.85	2.22
S7	500	NHB	HAT	0.62	0.77	0.96	3.20
S8	500	PUY	HAT	0.57	0.88	0.95	2.58
S9	500	TGA	HAT	0.59	1.25	1.28	2.20
S10	1000	KER	HAT	0.76	0.82	1.22	2.69
S11	1000	NHB	HAT	0.89	1.07	1.35	3.64
S12	1000	PUY	HAT	0.69	1.04	1.12	2.79
S13	2000	KER	HAT	1.14	1.24	1.82	3.28
S14	2000	NHB	HAT	1.15	1.30	1.65	3.87
S15	2000	PUY	HAT	1.08	1.59	1.74	3.50
S16	2000	KER	MSL	1.14	1.22	1.89	2.92
S17	2000	NHB	MSL	1.15	1.27	1.52	3.23
S18	2000	PUY	MSL	1.08	1.59	1.62	2.83
S19	5000	NHB	HAT	1.6	1.77	2.18	4.06
S20	5000	PUY	HAT	1.38	2.01	2.23	3.91
S21	5000	NHB	MSL	1.6	1.74	2.17	3.73
S22	5000	PUY	MSL	1.38	2.01	2.12	3.33
S23	10000	NHB	HAT	1.89	2.04	2.89	4.55
S24	10000	PUY	HAT	1.95	2.81	3.11	4.87

* KER = Kermadec, NHB = New Hebrides, PUY = Puysegur, SCH = South Chile, TGA = Tonga

^ HAT = Highest Astronomical Tide, MSL = Mean Sea Level

Tsunami Wave Height is measured as height of tsunami wave crest above still water level – see Glossary

C.4 Wollongong

Scenario #	ARI (years)	Source Zone *	Water Level ^	Maximum Wave Height# (m)			Max Run-up (mAHD)
				100m depth	20m depth	5m depth	
S1	200	KER	HAT	0.39	1.12	1.06	2.53
S2	200	NHB	HAT	0.3	0.52	0.65	1.88
S3	200	PUY	HAT	0.41	0.85	1.12	2.37
S4	200	SCH	HAT	0.37	0.71	0.77	1.84
S5	200	TGA	HAT	0.35	0.78	0.89	1.97
S6	500	KER	HAT	0.56	1.61	1.51	3.11
S7	500	NHB	HAT	0.54	1.00	1.22	2.54
S8	500	PUY	HAT	0.65	1.46	1.84	3.15
S9	500	TGA	HAT	0.56	1.44	1.43	2.78
S10	1000	KER	HAT	0.74	2.30	2.43	3.53
S11	1000	NHB	HAT	0.73	1.42	1.78	3.23
S12	1000	PUY	HAT	0.85	1.99	2.44	3.75
S13	2000	KER	HAT	1	2.70	2.65	4.22
S14	2000	NHB	HAT	1.01	1.99	2.50	4.32
S15	2000	PUY	HAT	1.03	2.33	2.84	4.12
S16	2000	KER	MSL	1	2.82	2.85	3.99
S17	2000	NHB	MSL	1.01	2.22	2.91	3.63
S18	2000	PUY	MSL	1.03	2.27	2.96	3.49
S19	5000	NHB	HAT	1.55	2.97	3.63	5.20
S20	5000	PUY	HAT	1.32	2.89	3.52	4.82
S21	5000	NHB	MSL	1.55	3.28	3.73	4.74
S22	5000	PUY	MSL	1.32	2.84	3.67	4.12
S23	10000	NHB	HAT	2.05	4.26	4.98	7.07
S24	10000	PUY	HAT	1.86	4.00	4.80	6.17

* KER = Kermadec, NHB = New Hebrides, PUY = Puysegur, SCH = South Chile, TGA = Tonga

^ HAT = Highest Astronomical Tide, MSL = Mean Sea Level

Tsunami Wave Height is measured as height of tsunami wave crest above still water level – see Glossary

C.5 Merimbula

Scenario #	ARI (years)	Source Zone *	Water Level ^	Maximum Wave Height# (m)			Max Run-up (mAHD)
				100m depth	20m depth	5m depth	
S1	200	KER	HAT	0.38	1.62	1.66	2.08
S2	200	NHB	HAT	0.31	1.15	1.25	2.31
S3	200	PUY	HAT	0.39	1.01	1.06	2.08
S4	200	SCH	HAT	0.34	0.96	0.99	1.80
S5	200	TGA	HAT	0.33	1.35	1.50	2.25
S6	500	KER	HAT	0.56	2.25	2.30	2.64
S7	500	NHB	HAT	0.57	2.30	2.55	3.56
S8	500	PUY	HAT	0.56	1.39	1.46	2.54
S9	500	TGA	HAT	0.49	1.87	2.10	2.84
S10	1000	KER	HAT	0.75	2.85	2.98	3.36
S11	1000	NHB	HAT	0.69	2.61	2.92	3.99
S12	1000	PUY	HAT	0.79	1.96	1.94	3.20
S13	2000	KER	HAT	1.06	3.87	4.09	4.36
S14	2000	NHB	HAT	0.87	3.11	3.53	4.72
S15	2000	PUY	HAT	0.95	2.51	2.57	3.62
S16	2000	KER	MSL	1.06	3.83	3.93	5.02
S17	2000	NHB	MSL	0.87	3.10	3.46	3.93
S18	2000	PUY	MSL	0.95	2.43	2.61	3.60
S19	5000	NHB	HAT	1.26	4.20	4.71	5.98
S20	5000	PUY	HAT	1.35	3.50	3.69	4.78
S21	5000	NHB	MSL	1.26	4.22	4.67	5.34
S22	5000	PUY	MSL	1.35	3.41	3.70	4.68
S23	10000	NHB	HAT	1.68	5.56	6.34	7.20
S24	10000	PUY	HAT	1.92	4.75	5.06	6.36

* KER = Kermadec, NHB = New Hebrides, PUY = Puysegur, SCH = South Chile, TGA = Tonga

^ HAT = Highest Astronomical Tide, MSL = Mean Sea Level

Tsunami Wave Height is measured as height of tsunami wave crest above still water level – see Glossary

Appendix D – Electronic Appendix

Tsunami Scenario Mapping and Time Series Plots

MODEL OUTPUT FOR EACH SIMULATION

A standard naming convention is used for each model output presentation as follows:-

Mapping: *Site-Scenario#-Parameter-Frame*.pdf

Time Series: *Site-Scenario#-TS*.pdf

Site

- LMQ = Lake Macquaire/Swansea
- MLY = Manly
- BBY = Botany Bay
- WPK = Wollongong/Port Kembla
- MBA = Merimbula

Scenario#

Scenario #	ARI (years)	Source Zone *	Water Level ^	*Scenario #*	ARI (years)	Source Zone *	Water Level ^
S1	200	KER	HAT	*S13*	2000	KER	HAT
S2	200	NHB	HAT	*S14*	2000	NHB	HAT
S3	200	PUY	HAT	*S15*	2000	PUY	HAT
S4	200	SCH	HAT	*S16*	2000	KER	MSL
S5	200	TGA	HAT	*S17*	2000	NHB	MSL
S6	500	KER	HAT	*S18*	2000	PUY	MSL
S7	500	NHB	HAT	*S19*	5000	NHB	HAT
S8	500	PUY	HAT	*S20*	5000	PUY	HAT
S9	500	TGA	HAT	*S21*	5000	NHB	MSL
S10	1000	KER	HAT	*S22*	5000	PUY	MSL
S11	1000	NHB	HAT	*S23*	10000	NHB	HAT
S12	1000	PUY	HAT	*S24*	10000	PUY	HAT

* KER = Kermadec, NHB = New Hebrides, PUY = Puysegur, SCH = South Chile, TGA = Tonga

^ HAT = Highest Astronomical Tide, MSL = Mean Sea Level

Parameter

- Haz = Hydraulic Hazard
- IBL = Bed Level
- Vel = Current Speed

- WDe = Water Depth
- WeD = Wet Duration
- WLe = Water Level

Frame

Frame number and location is presented in figure where *Frame* is denoted as "ALL".

Appendix E

Site Vulnerability Calculations

Table E.1: Vulnerability Calculations

Suburb	Swansea	Manly	Kurnell	Cronulla	Wollonong	Pt Kembla	Merimbula	Pambula
Postcode	2281	2095	2231	2230	2500	2505	2548	2549
Stage 2 Site	LMQ	MLY	BBY	BBY	WPK	WPK	MBA	MBA
Continental Slope (100m to 5m depth)	0.005482	0.008218	0.010428	0.010428	0.006547	0.006547	0.004614	0.004614
Total Cadastral Lots below 5mMSL	1798	781	977	340	613	97	320	26
ARI (yrs)	Tsu-DAT Wave Height @ 100m water depth (m)							
200	0.40	0.37	0.39	0.39	0.32	0.32	0.32	0.32
500	0.64	0.50	0.57	0.57	0.59	0.59	0.57	0.57
1000	0.88	0.76	0.81	0.81	0.83	0.83	0.70	0.70
2000	1.08	1.03	1.12	1.12	1.02	1.02	0.99	0.99
5000	1.55	1.38	1.49	1.49	1.51	1.51	1.48	1.48
10000	1.85	1.74	1.94	1.94	1.91	1.91	1.97	1.97
ARI (yrs)	Estimated Wave Height (m) @ 5m Water depth							
200	1.62	1.14	1.02	1.02	1.18	1.18	1.51	1.51
500	2.48	1.49	1.41	1.41	2.00	2.00	2.52	2.52
1000	3.32	2.15	1.91	1.91	2.73	2.73	3.05	3.05
2000	4.03	2.84	2.57	2.57	3.33	3.33	4.23	4.23
5000	5.69	3.74	3.35	3.35	4.84	4.84	6.22	6.22
10000	6.75	4.66	4.31	4.31	6.07	6.07	8.21	8.21
ARI (yrs)	Estimated Wave Crest Level (mMSL) @ 5m Water depth (≈ mean run-up height mMSL)							
200	2.72	2.24	2.12	2.12	2.28	2.28	2.61	2.61
500	3.58	2.59	2.51	2.51	3.10	3.10	3.62	3.62
1000	4.42	3.25	3.01	3.01	3.83	3.83	4.15	4.15
2000	5.13	3.94	3.67	3.67	4.43	4.43	5.33	5.33
5000	6.79	4.84	4.45	4.45	5.94	5.94	7.32	7.32
10000	7.85	5.76	5.41	5.41	7.17	7.17	9.31	9.31
ARI (yrs)	Estimated % of Properties below 5mMSL Affected by Inundation							
200	54%	45%	42%	42%	46%	46%	52%	52%
500	72%	52%	50%	50%	62%	62%	72%	72%
1000	88%	65%	60%	60%	77%	77%	83%	83%
2000	103%	79%	73%	73%	89%	89%	107%	107%
5000	136%	97%	89%	89%	119%	119%	146%	146%
10000	157%	115%	108%	108%	143%	143%	186%	186%
ARI (yrs)	Estimated Lots Affected by Inundation							
200	1268	245	289	132	196	31	122	9
500	1671	283	343	157	266	42	170	13
1000	2063	356	412	188	329	52	195	15
2000	2391	431	502	229	381	60	250	19
5000	3168	529	609	278	510	81	343	27
10000	3664	630	740	338	615	97	437	34