APPENDIX 3: SUBDUCTION ZONE PARAMETERS, AS USED IN THE TSUNAMI SOURCE MODEL

Table A 3.1 Properties of subduction zone sources. Mmax is the maximum value of M_W, C is the coupling coefficient, and B-value is the Gutenberg-Richter B-value. Left and Right REL_VEL are the relative velocities between the converging plates in mm/yr at the two ends of the subduction zone. Width-pref is the preferred estimate of the subduction zone width in km. A worldwide upper limit on seismic moment of M_W 9.7 was assumed in the probabilistic model in Chapter 6 (this only affects those subduction zones where the tabulated Mmax-max is greater than 9.7). The B-value range was set to include the possibility that subduction plate-interfaces may have low b-values relative to the global B-value of 1 (Bayrak et al., 2002). Mmax-max is based on the assumption that the only ultimate constraint on the maximum magnitude is the length of the subduction zone (McCaffrey, 2007). Mmax-min is based on the magnitude of the largest known historical or paleo-tsunami.

Subduction Zone	Mmax – pref	Mmax – min	Mmax – max	C – pref	C – min	C – max	B-value – pref	B-value – min	B-value - max	Left_REL_VEL	Right_REL_VEL	Length (km)	Width – pref
Alaska	9.77	9.50	10.05	0.50	0.30	0.70	0.75	0.50	1.00	74.60	49.00	4130.00	116.00
Cascadia	9.00	8.80	9.20	0.80	0.70	0.90	0.75	0.50	1.00	47.80	32.70	1415.00	77.00
Japan	9.07	9.00	9.14	0.70	0.60	0.90	0.75	0.50	1.00	93.00	91.10	742.00	158.00
Kanto	8.22	8.00	8.43	0.90	0.80	1.00	0.75	0.50	1.00	36.00	34.10	312.00	77.00
Nankai	8.73	8.50	8.95	0.90	0.80	1.00	0.75	0.50	1.00	55.70	44.40	762.00	77.00
Kurile-Kamchatka	9.36	9.00	9.72	0.80	0.70	0.90	0.75	0.50	1.00	90.90	78.70	2223.00	131.00
Ryukyu	8.54	8.00	9.09	0.20	0.10	0.70	0.75	0.50	1.00	134.00	58.00	1440.00	35.00
Izu-Bonin	8.20	7.20	9.21	0.20	0.10	0.70	0.75	0.50	1.00	47.10	61.40	1128.00	85.00
Marianas	8.34	7.20	9.48	0.20	0.10	0.70	0.75	0.50	1.00	76.30	49.10	1822.00	85.00
North Yap	8.11	7.20	9.01	0.20	0.10	0.70	0.75	0.50	1.00	3.00	9.00	290.00	116.00
Palau-South Yap	8.04	7.20	8.88	0.20	0.10	0.70	0.75	0.50	1.00	1.60	7.10	554.00	116.00
Hikurangi	8.50	8.00	9.00	0.54	0.40	0.70	0.75	0.50	1.00	19.50	65.50	660.00	130.00
Kermadec	8.74	8.10	9.39	0.30	0.20	0.75	0.75	0.50	1.00	45.30	98.10	1627.00	77.00
Tonga	8.57	8.00	9.14	0.20	0.10	0.70	0.75	0.50	1.00	112.60	269.50	1125.00	68.00
Puysegur	8.43	7.80	9.07	0.70	0.50	0.80	0.75	0.50	1.00	36.60	29.90	834.00	97.00
Hjort	7.78	7.20	8.36	0.50	0.30	0.70	0.75	0.50	1.00	25.20	18.90	493.00	24.00
Solomon NW	8.36	8.10	8.62	0.70	0.60	0.80	0.75	0.50	1.00	91.10	107.00	465.00	66.00
Solomon SE	8.58	8.10	9.06	0.70	0.60	0.80	0.75	0.50	1.00	98.10	88.40	995.00	66.00
New Hebrides North	8.01	7.60	8.43	0.25	0.15	0.70	0.75	0.50	1.00	94.70	90.70	400.00	46.00

Subduction Zone	Mmax – pref	Mmax – min	Mmax – max	C – pref	C – min	C – max	B-value – pref	B-value – min	B-value - max	Left_REL_VEL	Right_REL_VEL	Length (km)	Width – pref
New Hebrides Central	8.49	8.30	8.69	0.70	0.60	0.80	0.75	0.50	1.00	33.70	102.30	500.00	72.00
New Hebrides South	8.11	7.60	8.62	0.25	0.15	0.70	0.75	0.50	1.00	102.30	174.90	560.00	46.00
New Hebrides Mat. Hunt.	8.40	8.00	8.49	0.25	0.15	0.70	0.75	0.50	1.00	49.10	45.80	463.00	43.00
New Britain	8.41	8.00	8.82	0.70	0.60	0.80	0.75	0.50	1.00	48.70	160.00	660.00	66.00
New Guinea Trench East	8.27	7.60	8.93	0.70	0.60	0.80	0.75	0.50	1.00	92.60	84.10	600.00	116.00
New Guinea Trench West	8.64	8.20	9.07	0.70	0.60	0.80	0.75	0.50	1.00	28.10	22.10	764.00	116.00
Manus East	8.30	7.50	9.10	0.50	0.30	0.70	0.75	0.50	1.00	10.00	6.90	809.00	116.00
Manus West	8.33	7.50	9.17	0.50	0.30	0.70	0.75	0.50	1.00	16.90	8.70	900.00	116.00
Esuador-Colombia	9.15	8.80	9.51	0.80	0.70	0.90	0.75	0.50	1.00	53.00	60.90	1329.00	174.00
Peru	9.43	9.00	9.87	0.80	0.70	0.90	0.75	0.50	1.00	70.00	63.90	2502.00	169.00
Northern Chile	9.04	8.60	9.48	0.80	0.70	0.90	0.75	0.50	1.00	79.50	80.50	1394.00	143.00
Central Chile	9.51	9.50	9.51	0.80	0.70	0.90	0.75	0.50	1.00	80.50	78.70	1301.00	183.00
Patagonia North	8.52	8.00	9.04	0.50	0.30	0.70	0.75	0.50	1.00	21.30	19.30	731.00	116.00
Potagonia South	8.74	8.00	9.49	0.50	0.30	0.70	0.75	0.50	1.00	15.10	10.80	1577.00	116.00
Mexico Jalisco	8.33	8.20	8.45	0.50	0.30	0.70	0.75	0.50	1.00	13.60	36.30	396.00	51.00
Mexico Michoa	8.58	8.00	9.17	0.70	0.50	0.90	0.75	0.50	1.00	44.00	78.80	1710.00	33.00
Central America ElSalv	8.29	8.00	8.58	0.30	0.10	0.70	0.75	0.50	1.00	71.30	80.00	546.00	42.00
Central America CoRica	8.22	7.70	8.74	0.50	0.30	0.70	0.75	0.50	1.00	70.80	79.10	533.00	77.00
Philippine	8.43	7.60	9.25	0.25	0.10	0.75	0.75	0.50	1.00	43.00	29.40	1633.00	47.00
East Luzon Trough	7.86	7.30	8.43	0.50	0.30	0.70	0.75	0.50	1.00	14.20	11.90	290.00	88.00
Cotabato Trench	8.21	8.00	8.42	0.50	0.30	0.70	0.75	0.50	1.00	18.80	18.20	250.00	116.00

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