

Supplementary file for

**Revised earthquake sources along Manila Trench for tsunami hazard assessment
in the South China Sea**

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Table S1: Rupture scenarios and the associated initial surface displacements for tsunami simulations:

Rupture zones	Coupling model A	Coupling model B
Zone 1	CM A zone 1 (Figure 3.a). Initial surface displacements: Vertical_dis_z1_A.txt	CM B zone 1 (Figure 3.d). Initial surface displacements: Vertical_dis_z1_B.txt
Zone 2	CM A zone 2 (Figure 3.b). Initial surface displacements: Vertical_dis_z2_A.txt	CM B zone 2 (Figure 3.e). Initial surface displacements: Vertical_dis_z2_B.txt

Zone 3	Rupture scenarios	Rupture scenarios	Rupture scenarios	Rupture scenarios	Rupture scenarios
Coupling model A	<p>CM A zone 3- Gaussian slip distribution with 50% coupling ratio (Figure 3c).</p> <p>Initial surface displacements: Vertical_dis_z3_A_0.5Gaussian.txt</p>	<p>CM A zone 3- Gaussian slip distribution with 80% coupling ratio (Figure 8a).</p> <p>Initial surface displacements: Vertical_dis_z3_A_0.8Gaussian.txt</p>	<p>Shallow slip: CM-A Zone 3 with 50% coupling ratio (Figure 5a and Figure 8c).</p> <p>Initial surface displacements: Vertical_dis_z3_A_0.5TEQ.txt</p>	<p>Shallow slip: CM-A Zone 3 with 80% coupling ratio (Figure 6c).</p> <p>Initial surface displacements: Vertical_dis_z3_A_0.8TEQ.txt</p>	<p>Mega+splay fault CM-A Zone 3 with 50% coupling ratio (Figure 5c and Figure 8e).</p> <p>Initial surface displacements: Vertical_dis_z3_megasplay_cp_0.5A.txt</p>
Coupling model B	<p>CM B zone 3- Gaussian slip distribution with 50% coupling ratio (Figure 3f). Initial surface displacements: Vertical_dis_z3_B_0.5Gaussian.txt</p>	<p>CM B zone 3- Gaussian slip distribution with 80% coupling ratio (Figure 8b).</p> <p>Initial surface displacements: Vertical_dis_z3_B_0.8Gaussian.txt</p>	<p>Shallow slip: CM-B Zone 3 with 50% coupling ratio (Figure 5b and Figure 8d).</p> <p>Initial surface displacements: Vertical_dis_z3_B_0.5TEQ.txt</p>	<p>Shallow slip: CM-B Zone 3 with 80% coupling ratio (Figure 6d). Initial surface displacements: Vertical_dis_z3_A_0.8TEQ.txt</p>	<p>Mega+splay fault CM-B Zone 3 with 50% coupling ratio (Figure 5d and Figure 8f).</p> <p>Initial surface displacements: Vertical_dis_z3_megasplay_cp_0.5B.txt</p>

Zone 3	Rupture scenarios
Coupling model A	<p>Mega+splay fault CM-A Zone 3 with 80% coupling ratio (Figure 6a).</p> <p>Initial surface displacements: Vertical_dis_z3_megasplay_cp_0.8A.txt</p>
Coupling model B	<p>Mega+splay fault CM-B Zone 3 with 80% coupling ratio (Figure 6b).</p> <p>Initial surface displacements: Vertical_dis_z3_megasplay_cp_0.8B.txt</p>