

Dense near-fault GPS-A seafloor geodetic and on-shore GNSS observations provide significantly improved resolution of the interseismic slip deficit in the Nankai trough, Japan [Yokota et al., 2016]. In this study, we refined their model, derived the

slip deficit on the plate interface and included a tsunami propagation model. The major changes compared to Yokota et al. [2016] are as follows:

(1) Added seafloor data at the Kumano basin operated by Nagoya Univ. [Tadokoro et al., 2012]. GPS-A data operated by Japan Coast Guard are also updated from Yokota et al. [2016] as of the end of 2016.

(2) To derive the slip deficit from the tectonic model of Loveless and Meade [2010], the geodetic data were aligned to the Nankai block (forearc sliver); the earlier model ignored block boundaries such as the Median Tectonic Line (MTL) and may have overestimated the slip deficit rate.

(3) Investigated two different plate interface geometries.

(4) Quantitatively estimated and removed the postseismic effects of the 2004 southeastern off the Kii Peninsula earthquakes.

We then estimated the coseismic motions assuming that the 100-years of slip deficit was released instantaneously, which was used as the initial condition of the following tsunami propagation simulation.

Acknowledgements

This study was done during the first author's visit at the Scripps Institution of Oceanography, UCSD, under the support of the Ministry of Education, Culture, Sports, Science and Technology in Japan. The second author acknowledges support from NASA ROSES ESI grant NNX17AD99G.



*Plate interface was divided into approx. 25 x 25 km subfaults for geodetic modeling (Fig. 2-2). Each subfault is consist of 5 x 5 km rectangular sub-subfault to represent the smoother geometry









Tsunami Scenario in the Nankai Trough, Japan, Based on the GPS-A and GNSS Velocities Shun-ichi Watanabe (Japan Coast Guard), Yehuda Bock (Scripps Inst. Oceanography), Diego Melgar (Univ. Oregon), Keiichi Tadokoro (Nagoya Univ.)

	Period	Location		
lature]	2006 - 2016*	Along the Nankai trough		
2 GRL]	2004 - 2015**	In the Kumano Basin		
า	2006.07 - 2009.07	Islands on the Nankai	block	
1 Tohoku-oki earthquake were removed by the model of Sun and Wang [2015, JGR] 1 Tohoku-oki earthquake were removed by the model of Tobita [2016, EPS] figuration>				
k" of Loveless and Meade [2010 JGR]			Fig. 2-1	
andard model by Hashimoto et al. [2004 PAG]			Fig. 2-2a	
del by Hirose et al. [2008 JGR] including al. [2002 PEPI]; Nakajima and Hasegawa [2007 JGR]			Fig. 2-2b	
) m mesh topography by Japan Coast Guard 14 Grid (30 sec)			Fig. 2-3	



Tectonic setting used in this study. (Fig. 1 of Loveless and Meade [2010])



In order to remove the postseismic effect of

the 2004 off-Kii earthquakes (Fig. 2-4), we

constructed the finite element model with bi-

Residual displacements are compared with the

afterslip on the finite faults neighboring to the

coseismic faults. We tested 3 x 4 x 6 sets of

lithosphere and Maxwell viscosities of the

parameters of the postseismic

i.e., the thickness of continental

viscous Burgers rheology (Fig. 2-5).

viscoelastic

Table 2-1. Parameters for preferred model

FEM	Value	Aftersli	Value
Dc	40 km	р +	10.22 dave
$\eta^{\scriptscriptstyle{M}}_{\scriptscriptstyle{m}}$	4.0 x 10 ¹⁹ Pa •	L _r	19.25 uays
	S	AF1d	0.00 m slip
η^{M}_{a}	0.1 x 10 ¹⁹ Pa •	AF1w	0.61 m slip
u	S	AF2d	0.00 m slip



