Spatial distribution of slow slip events off the Boso peninsula from 1996 to 2018 under sparsity constraints

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We estimated spatial distribution of the six slow slip events (SSEs) off the Boso peninsula, central Japan, from 1996 to 2018. We have applied an inversion method called fused regularization, a type of sparsity constraint, suitable for detecting discontinuous changes in the model parameters, for evaluation function [Nakata et al., 2017]. In this study, to shorten calculation time, we used a type of approximation method by Obuchi and Kabashima [2016] to search hyperparameters, not LOO-CV (leave-one-out cross validation).

From our tentative results, the maximum slips for the 2002, 2011 and 2018 SSEs were large, and the 1996, 2007 and 2013 SSEs were small. The slip distributions of the 2011 and 2018 SSEs seem to be distributed southward than 2002. It is confirmed by numerical experiments that the difference in slip distribution is not due to GNSS station distribution.

Furthermore, we are conducting numerical simulation of earthquake generation cycles, which modelling SSEs off the Boso peninsula and M~8 earthquakes along the Sagami Trough. We will discuss slip distributions of SSEs and locked area during an interseismic period.