

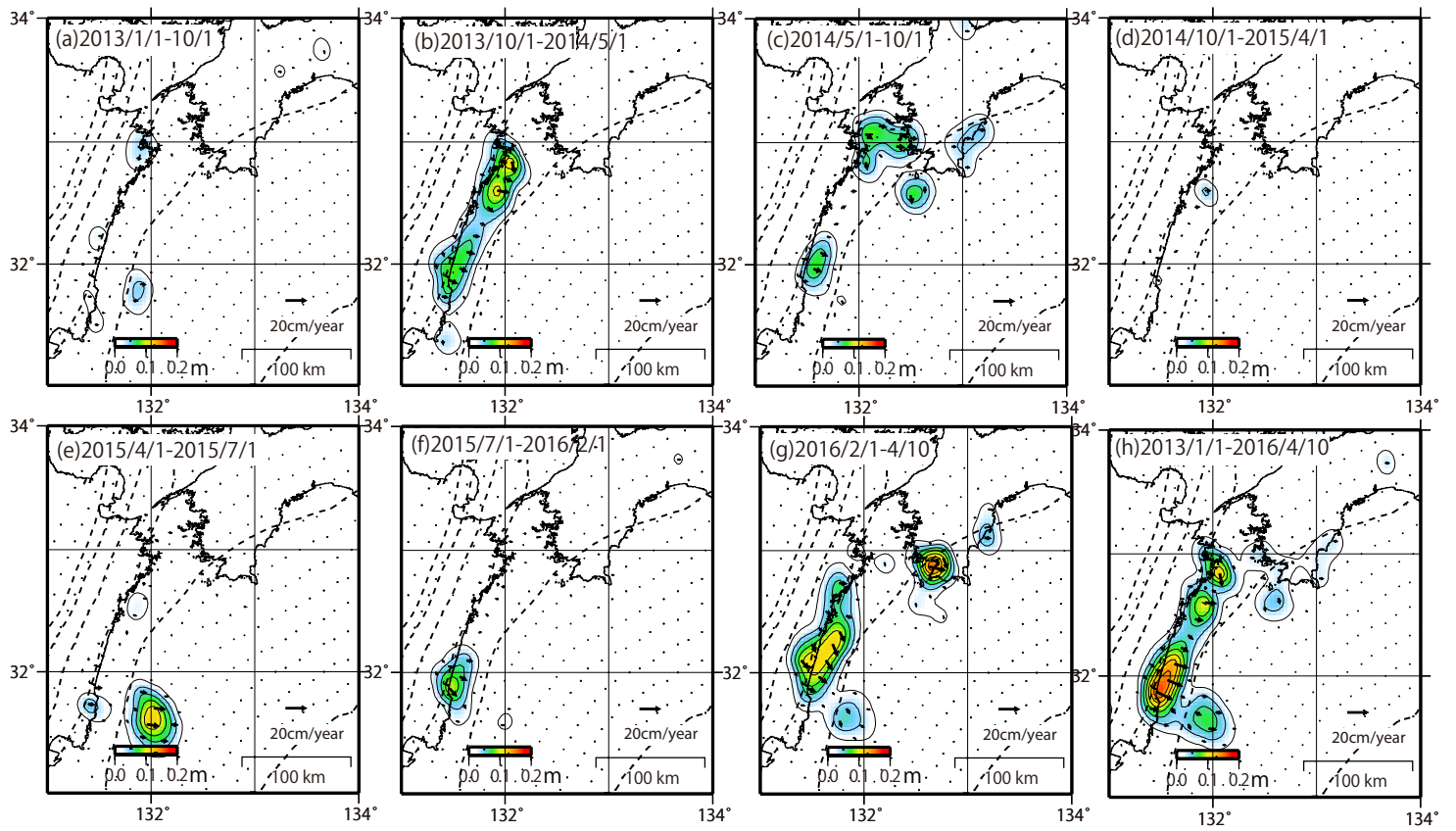


Figure S1 Aseismic slip on the plate interface from 2013 to 2016.

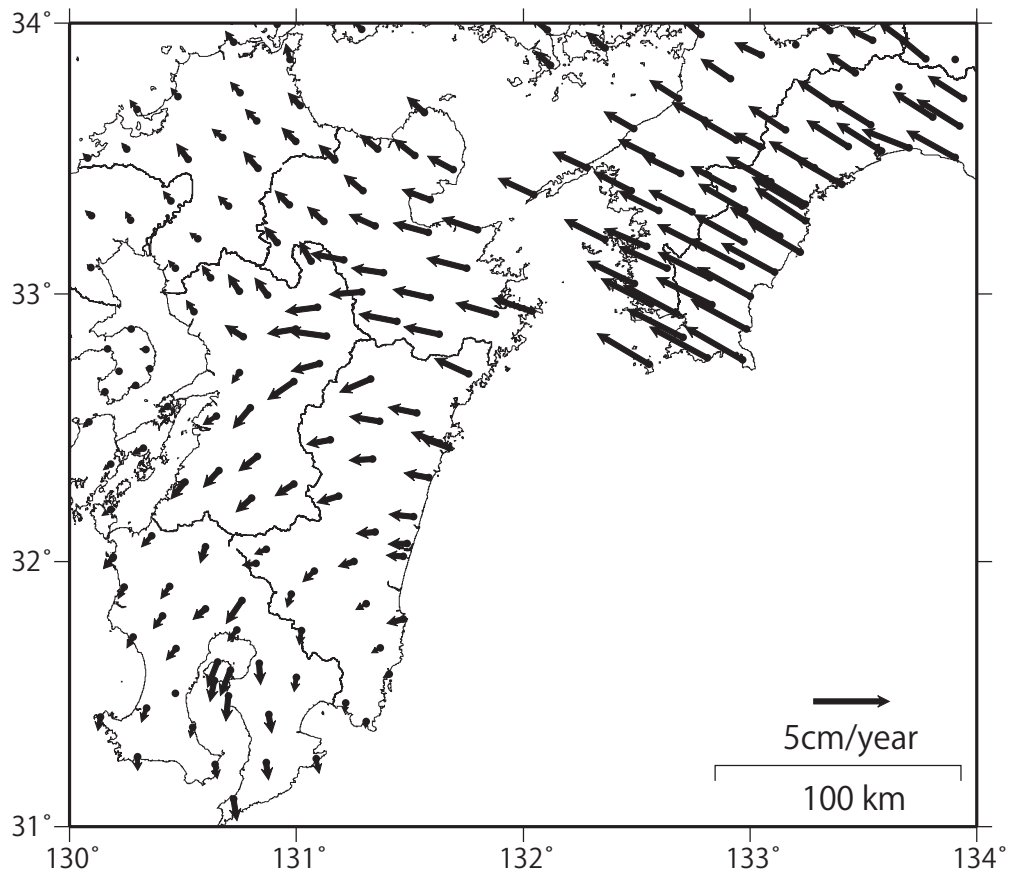


Figure S2 Crustal deformation rate between January 2017 and January 2018.

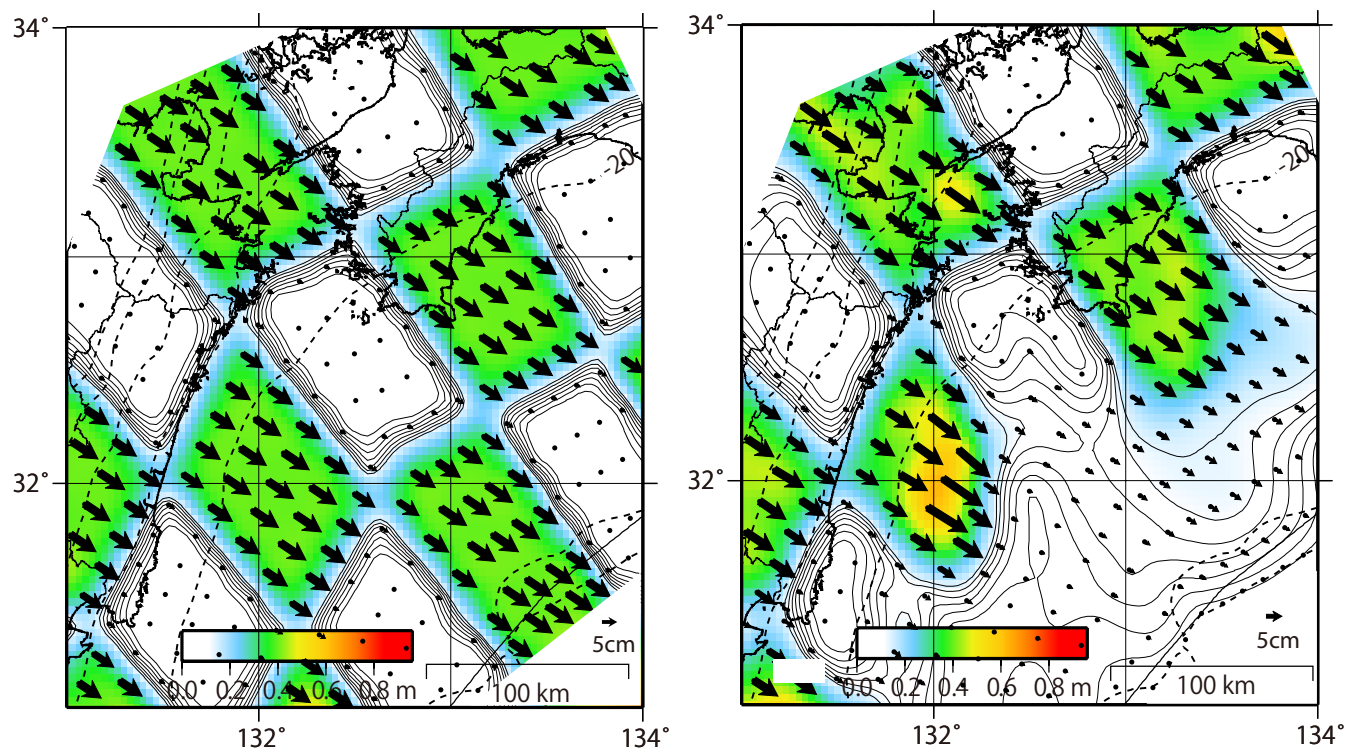


Figure S3 Checkerboard test (A) synthesized slip. (B) Inverted slip.

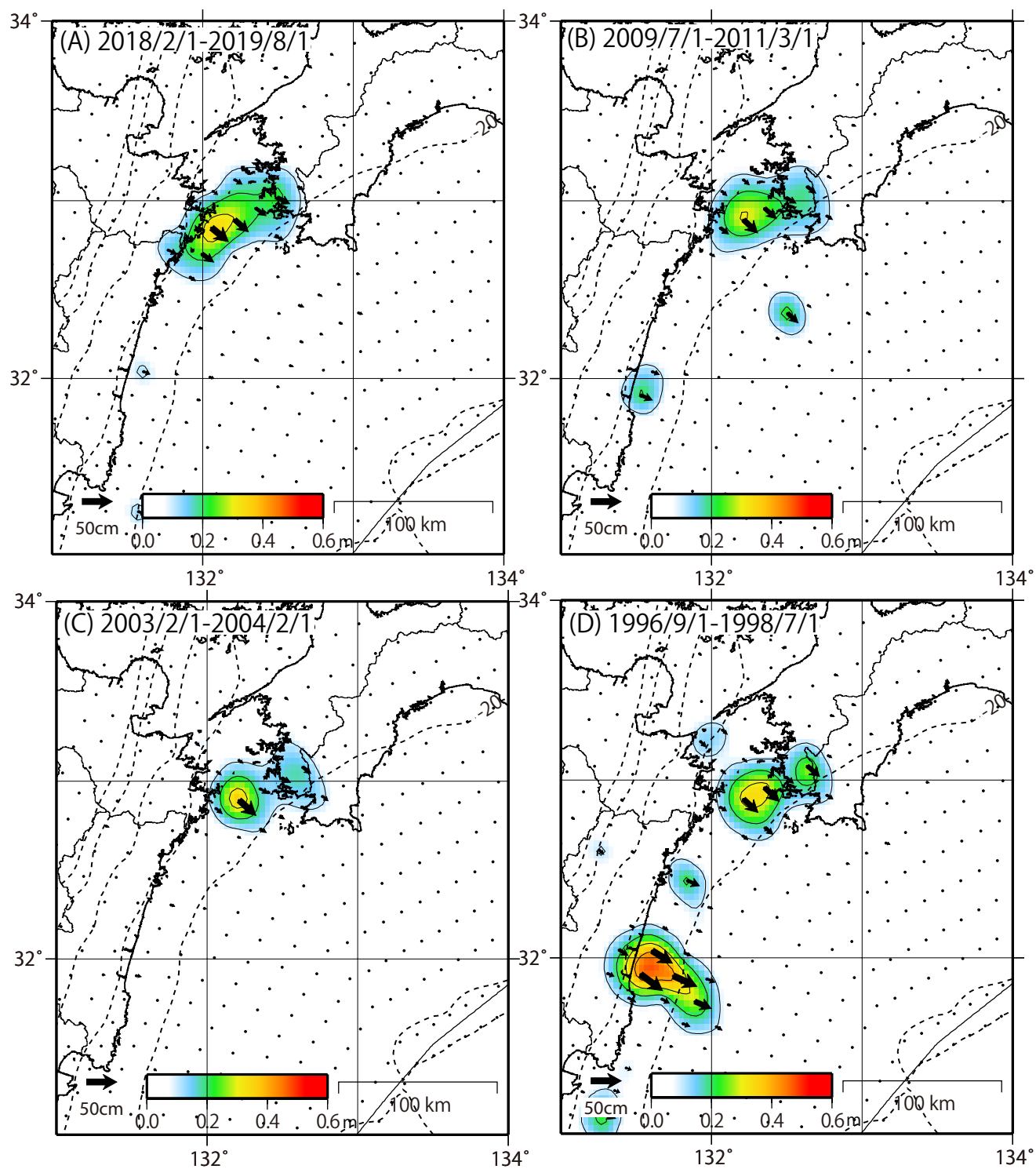


Figure S4 Aseismic interplate slip for the past four events.

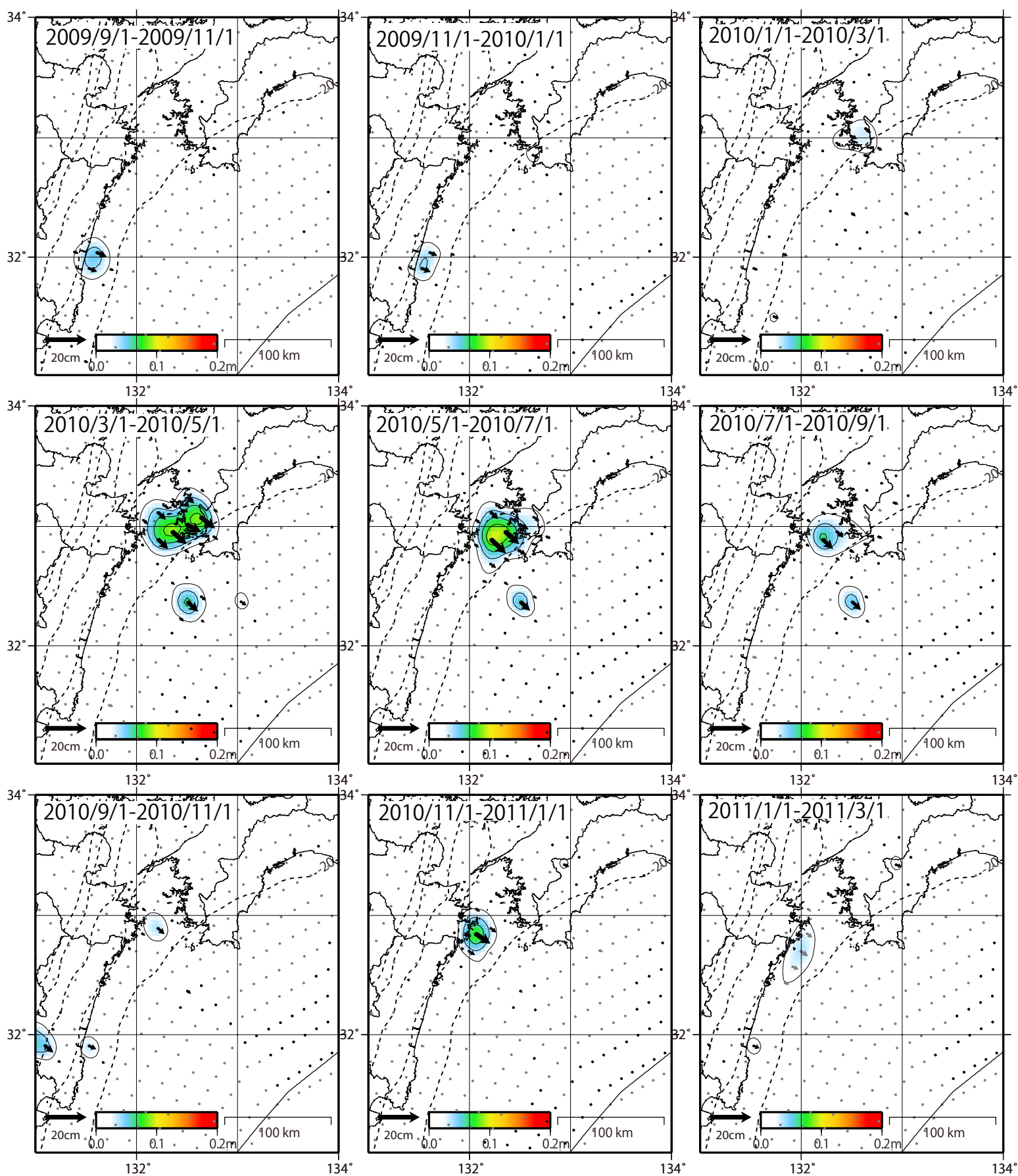


Figure S5 Estimated aseismic interplate slip. Gray arrows $<3\sigma$.

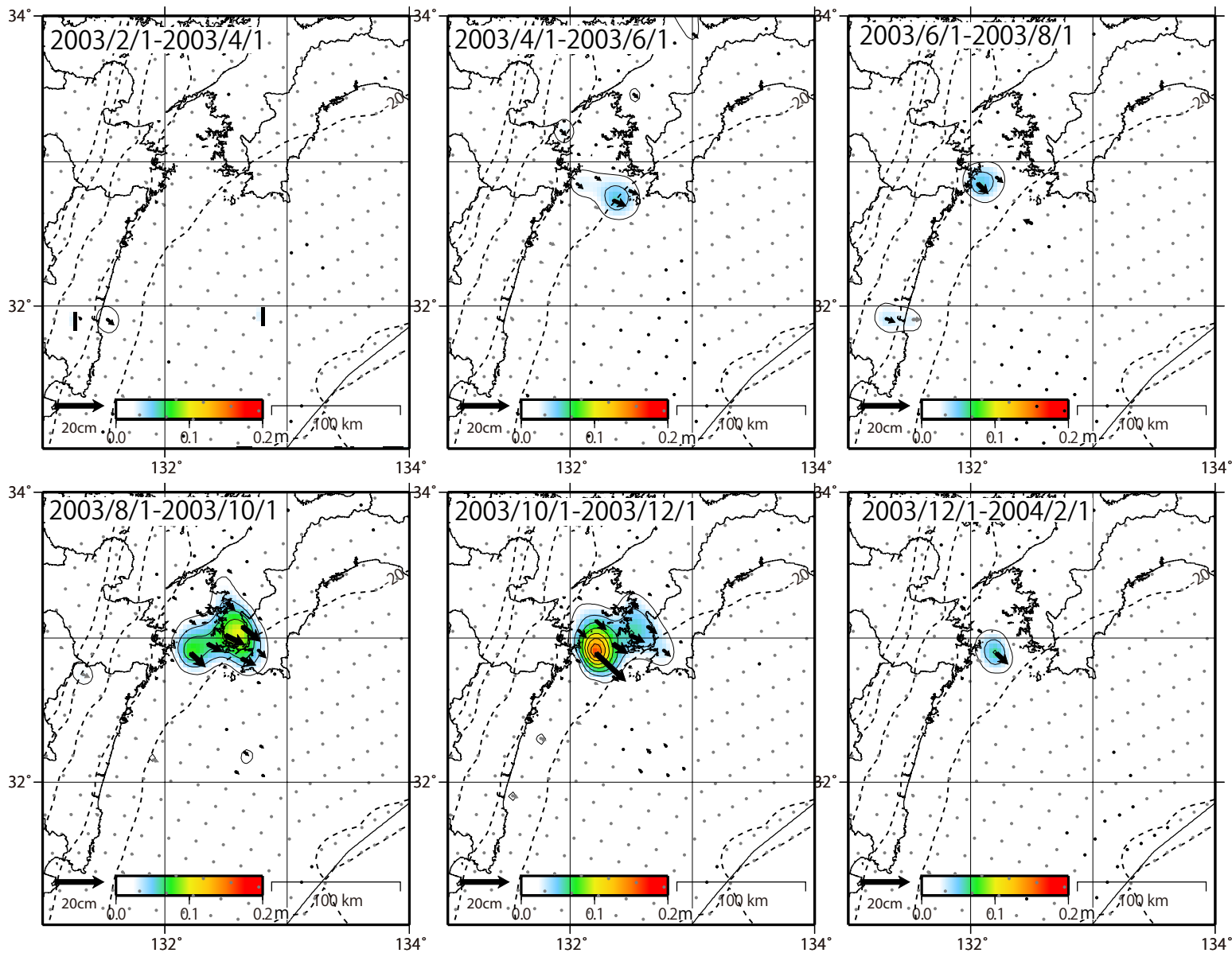


Figure S6 Estimated aseismic interplate slip. Gray arrows $< 3\sigma$.

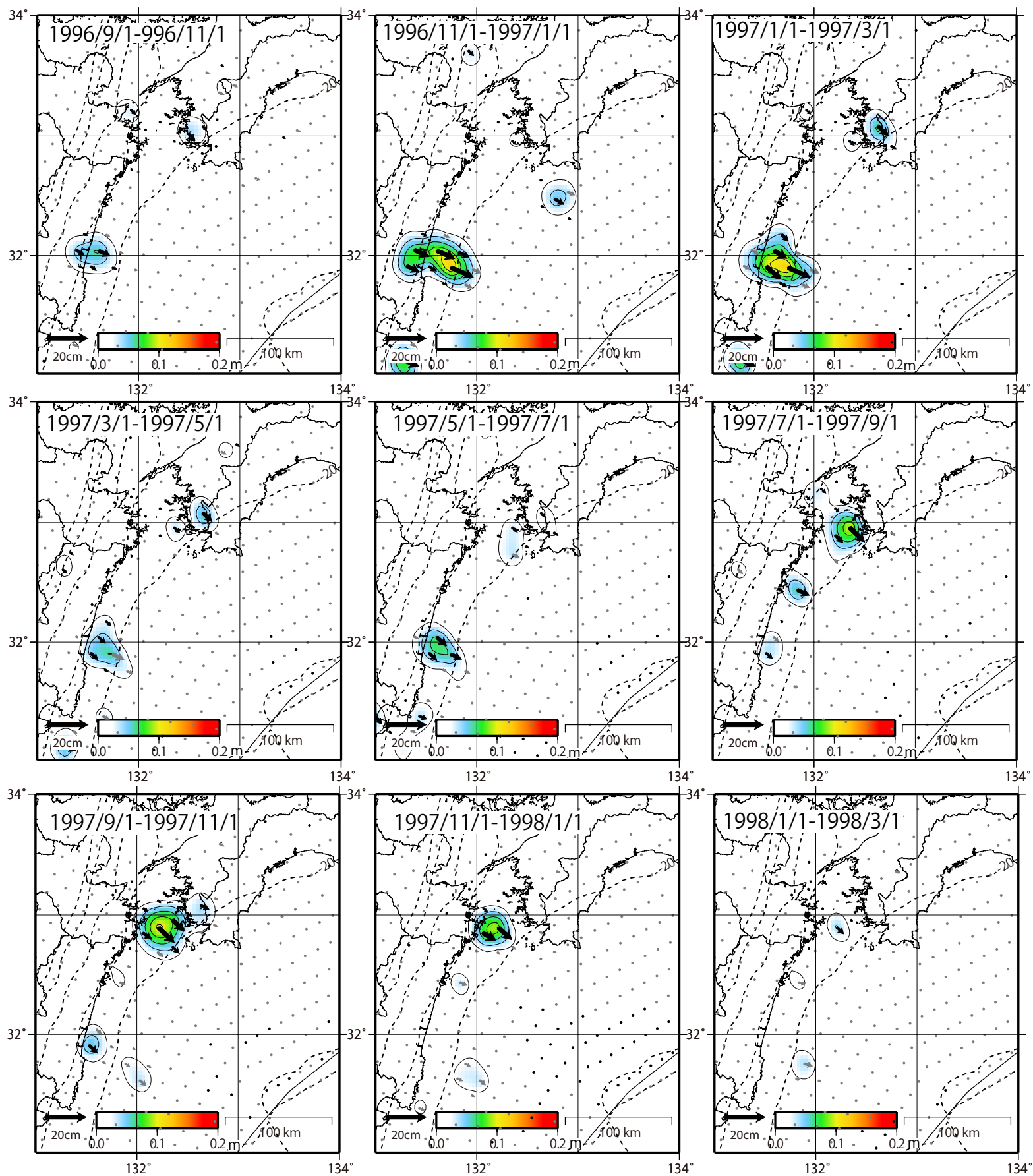


Figure S7 Estimated aseismic interplate slip. Gray arrows $< 3\sigma$.

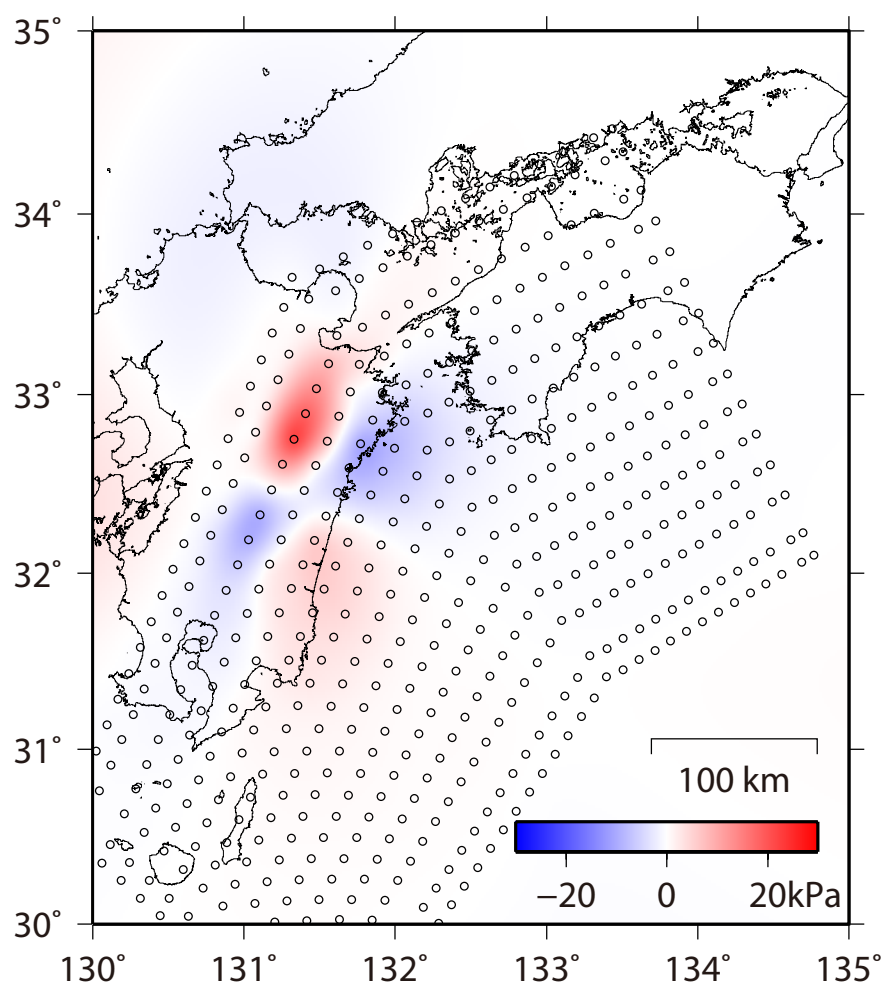


Figure S8 ΔCFS on the plate interface for the 2016 Kumamoto earthquake.

	latitude	longitude	depth	length	width	strike	dip	rake	slip
No.1	33.14°	135.71°	12km	322km	161km	243°	14°	-58°	8cm/year
No.2	32.93°	132.45°	23km	130km	65km	204°	25°	-65°	6cm/year

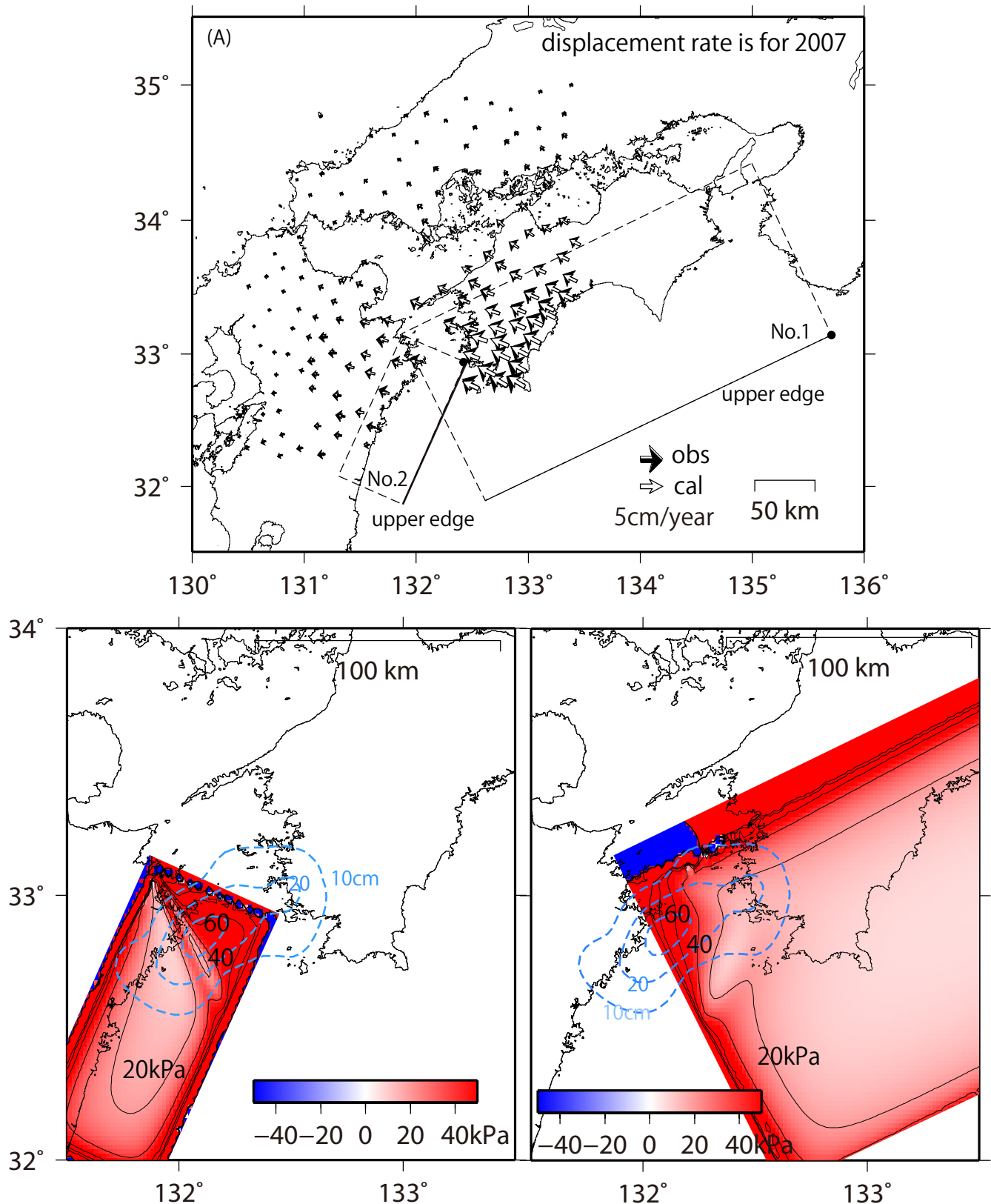


Figure S9. (A) Back slip model estimated by linearized least-squares inversion of the displacement rates for 2007 using two rectangular faults which are constrained to lie on the plate interface of the Philippine Sea plate. (B) ΔCFS on the rectangular faults in the direction opposite to the back slip for the model in (A). Blue contour shows slip magnitude of the SSE

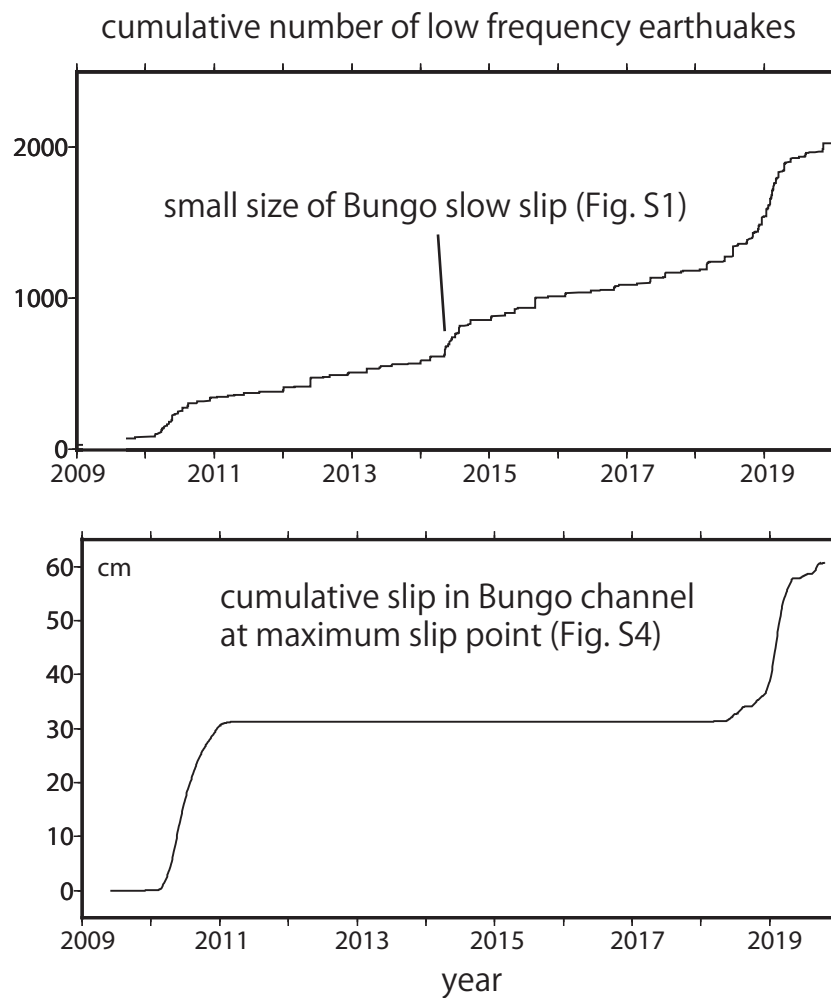


Figure S10 (A) Cumulative number of low-frequency earthquakes (B) Cumulative slip in Bungo channel (Fig. S4).

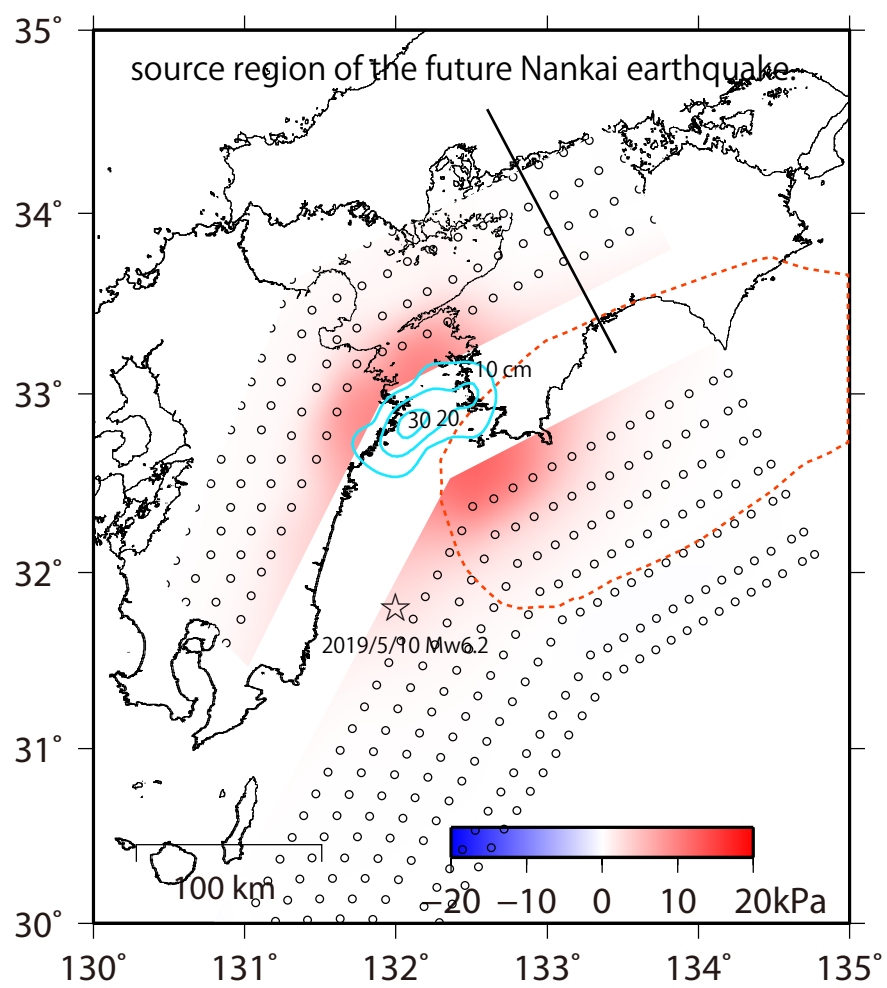


Figure S11 ΔCFS on the plate interface for the 2018-2019 long-term SSE with blue contours showing the slip magnitude of the SSE.