Reviewer #1

Tonegawa et al. studied temporal changes in seismic velocity and waveform correlation (scattering property) in the Nankai Trough subduction zone. They interpreted that changes in velocity and scattering property of the sediment occurred through different mechanisms: the first was sediment deformation and the second was fluid migration. Data analysis was carried out appropriately and conclusions are generally valid. The current manuscript would benefit from implementing the suggestions that I describe in detail below. Most of these are merely about presentation, but there are other comments where an additional explanation might be needed to better understand the authors' findings.

[Response] We appreciate careful reading and the constructive comments from the reviewer #1. In particular, owing to the comment, we were able to correct the equations.

1. Line 248 "This fact indicates that the dv/v changes do not expand to the area of the OBSs.": In Fig. 5, are not SHM6c and SHM7c included in the velocity reduction area? In Fig. 4, no clear velocity reduction is observed for this pair.

[Response] The sensitivity kernel area for the pair of SHM6c_SHM7c covers near the margin of the velocity reduction area (Fig. R1), so it seems that the result from the pair do now show velocity reductions.

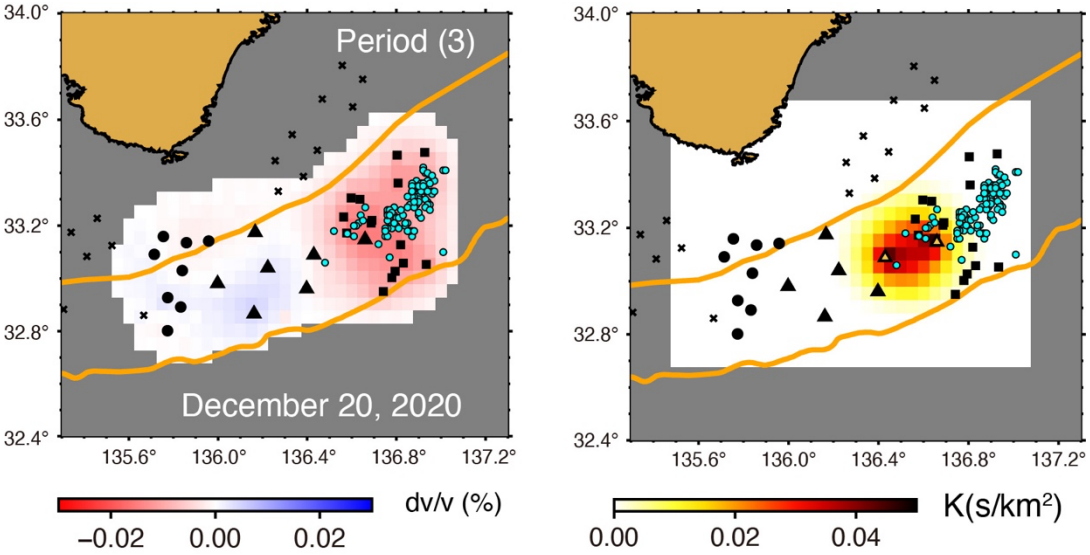

Fig. R1 The left panel is the same as the panel for Period (3) in Fig. 5. The right panel is the sensitivity kernel for the station pair of SHM6c and SHM7c.

2. According to Fig. 6, the maximum value of Δg estimated in this study is approximately 0.08 m-1. Therefore, given that $g0=1/l=1/10.8$ km, $\Delta g/g0\sim0.0864\%$. This value is significantly smaller than the range estimated in previous studies (several % to 100%) (Obermann et al.,

2013; Obermann et al., 2014; Hirose et al., 2023).

[Response] T.To is sorry for confusing the reviewer #1 for this point, and mistakes the unit. The correct unit is km**(–1) not m**(–1). The unit in Figs. 6 and 7 is corrected.

3. Sections 4.2 and 5.1 "Δg reduction" and "Δg-reduced": Since Δg represents the change in the scattering coefficient, these expressions might be misleading. Consider changing "Δg-reduced region" to "large Δg region" and "maximum Δg reduction" to "maximum Δg".

[Response] Thank you very much raising for this point. We changed the description accordingly.

4. Lines 212 and 222: Consider adding references for Equations 5, 6, and 7.

5. $\Delta g/t$ in Equation 6 -> ΔS(1/t)(dv/v)_actual K (e.g., Obermann et al., 2014).

6. Please add ΔS to the right-hand side of Equation 7.

[Response 4-6] We appreciate these comments. We cited references and modified these equations. Also, according to the comment from the reviewer #2, we moved this part to Supplement.