

Impact of Kuroshio meander on the slow slip event in March 2020 detected by borehole and DONET observatories

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In our recent study, we detected the pore pressure change due to the slow slip event (SSE) in March 2020 at the two borehole stations (C0002 and C0010), where the other borehole (C0006) close to the Nankai Trough seems not because of instrumental drift for the reference pressure on the seafloor to remove non-crustal deformation such as tidal and oceanic fluctuations. To overcome this problem, we use the seafloor pressure gauges of cabled network (DONET) stations nearby boreholes instead of the reference by introducing time lag between them. We confirm that the time lag is explained from superposition of theoretical tide modes. By applying this method to the pore pressure during the SSE, we find pore pressure change at C0006 about 0.6 hPa. We also investigate the impact of seafloor pressure due to ocean fluctuation on the basis of ocean modeling, which suggests that the decrease of effective normal stress from the onset to the termination of the SSE is explained by Kuroshio meander and may promote updip slip migration, and that the increase of effective normal stress for the short-term ocean fluctuation may terminate the SSE as observed in the Hikurangi subduction zone.