In order to study the relationship between in-slab earthquakes, slow slip phenomena, and geofluids, we examined 17 years of time-varying seismicity rates, b-values, and stress regimes in the Philippine Sea slab associated with periods of episodic tremors and slip (ETS) beneath Kii peninsula, southwestern Japan. One month before ETS episodes seismic rate and b-value increase, in a manner characteristic of fluid-induced seismicity. The stress regime in the oceanic crust changes after ETS: sigma1 in the oceanic crust directly beneath the ETS zone rotates more than sigma1 updip of the zone, suggestive of updip transient aseismic slip as is also indicated by geodetic analysis [Kano and Kato, 2018]. Clusters of seismicity in the mantle wedge tend to become active after ETS episodes. Ujiie et al. [2018] suggest quartz-vein sealing is related to slow-slip phenomena and might be a cause of stress rotation in the oceanic crust. Our study shows that monitoring of in-slab earthquakes could be a useful approach to detect time-variable plate coupling and slow-slip phenomena.