

Episodic tremor and slip (ETS) in the Cascadia subduction zone is characterized by the repeated coincidence of seismically observed non-volcanic tremor activity and geodetically observed slow slip. These events repeat with varying recurrence intervals across the margin and have a period of ~15 months in northern Cascadia. Recent seismic observations in this region have begun to narrow the distinction between the two phenomena. Evidence from the tremor source process using polarization analysis, tremor depths using S minus P time differences, and the spatial correlation of inverted slip with thousands of tremor epicenters obtained through automated methodology suggest that tremor and slip are different observations of the same process. Establishing this relationship enables the use of tremor epicenters to detect slow slip below GPS resolution and provide a detailed map of the slow slip region. We present a discussion of the ETS phenomena, tremor source process and depth results from Cascadia, tremor location results and methodology, and the implications of the inter-ETS tremor totals and the well-resolved, sharp updip edge of the ETS region on Cascadia subduction zone dynamics.