

What is the source of the Continuous-Low-Frequency-Tremor occurring in deep crust? - Can we use it as a precursor?-

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In these several years, Continuous-Low-Frequency-Tremor (CLFT) around Moho boundary away from volcanoes could have been observed with improved seismic observation network in Japan. The CLFT in western Japan is distributed in a belt, which is good correspondence with 30-40km iso-depth line of descending Philippine Sea Plate. This suggests that subduction of slab is concerning with the CLFT. Around shallow slab, such as 30-40km depth, only serpentine is estimated to dehydrate. As serpentine is in mantle wedge above slab, released water from serpentine in the mantle wedge is estimated to move and reach to crust and cause the CLFT.

Though there is a hope for the CLFT which becomes a precursor of a big earthquake and an earthquake swarm, it would be premature to judge that now. The CLFT was observed near hypocenter area before the Western Tottori Prefecture Earthquake which occurred in 2000 with magnitude 7.3. On the other hand, activity of the CLFT was not so high and Japan Meteorological Agency could not detect before the Geiyo Earthquake which occurred in 2001 with magnitude 6.7. As same as this, it was difficult to say the CLFT could be used as a precursor for a earthquake swarm in Nara-Wakayama prefecture boundary area which is continuing from May in 2001. It is necessary more accumulation of data and study in order to judge the CLFT is useful or not as a precursor.