

Development of Early Warning System for Crustal Activity: Detection of Preparation Process using Multiple-Observation

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New observations from ground and space have provided multiple evidences of pre-earthquake signals and the latest studies show their statistical significance, repeatability, and universality. To understand the preparation process of large earthquakes and slow-slip events in subduction zone, especially to clarify the nucleation stage of the earthquake cycle, we plan to establish observation network in Boso, Japan, where large subduction earthquakes are expected soon. Since the subsurface fluid flow may play an important role in the preparation process of subduction activities, we intend to employ electromagnetic approaches. Geophysical monitoring such as ULF geomagnetic and geoelectrical observations, radon measurements, ocean bottom pressure measurements, and inland GPS movements, will be incorporated to help to understand the preparation process and evaluate the applicability of various pre-earthquake signals towards short term earthquake forecasting.