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Slow earthquakes as a member of subduction earthquakes

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The large amount of geophysical data from recent well-developed observation networks has greatly contributed to discovery of slow earthquakes since around the end of the 20th century. Slow earthquakes including various geodetic and seismic phenomena with wide range of characteristic times are distributed at the deeper and shallower parts of the seismogenic zone along the plate interface at subduction zone. Because these slow earthquakes occur with the same shear faulting mechanism along the same plate boundary at the neighbor from the seismogenic zone, frequent occurrence of slow earthquakes might indicate a possibility to prompt the fault rupture at the seismogenic zone. Actually, it is difficult to clarify the existence of interaction between slow and huge earthquakes because of infrequent occurrence of huge earthquakes. However, we often observe clear interaction between different types of slow earthquakes located at neighboring regions. The same effect of the interaction between neighboring slow earthquakes may work to the seismogenic zone. Then, the monitoring of slow earthquakes is important to evaluate the potential for the occurrence of huge earthquake. On the other hand, slow earthquakes obey a scale relationship different from that of ordinary earthquake although they are the same fault rupturing. Therefore comprehensive understanding of double modes of seismic phenomena including slow and ordinary earthquakes may be very helpful to clarify the huge earthquake phenomena.