グローバルＣＯＥ地球惑星科学

特別講義

講演者　：　金森　博雄　名誉教授

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日　時　：　2012 年 10 月 22 日(月)　10:00 – 12:00

場　所　：　AOB　別館　第一会議室

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Mystery of Great Strike-slip Earthquakes

講義内容：

Great strike-slip earthquakes are rare. The April 11, 2012, Indian Ocean earthquake (Mw=8.6) is the largest strike-slip earthquake ever instrumentally recorded. It is generally believed that the depth of rupture zone in the oceanic plate is limited by a 600°C geotherm, which is at a depth of approximately 30 km in the epicentral area of the Apri 11 event. A fault only 30 km wide is unlikely to produce an Mw=8.6 earthquake. A detailed study of this event (Duputel et al., 2012) indicates that the rupture zone probably extended to a depth of 60 to even 90 km. We suggest that the thermally activated process associated with the large slip (≈15 m) may have driven the seismic rupture to an usually large depth thereby causing a great earthquake with Mw=8.6. This observation suggests that an extremely large strike-slip earthquake can occur; this may solve the hitherto unexplained mystery of strike-slip deformation associated with the 1960 Chilean earthquake (Mw=9.5). We have shown earlier that large Love waves and toroidal modes recorded by an extensometer at Isabella, California, for the 1960 Chilean earthquake require that the source of the Chilean earthquake must have large strike-slip component in addition to the commonly accepted low-angle thrust component. However, such a large strike-slip event is considered impossible and these observations have been dismissed.

主　催　：　東北大学　グローバルCOEプログラム
『変動地球惑星学の統合教育研究拠点』
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