2012 年度 第 14 回

地質学セミナー

日時：10月 31日（水）
17時～
場所：総合研究棟Ｂ棟 110 教室

EARTH EVOLUTION SCIENCES UNIVERSITY OF TSUKUBA
筑波大学 地球進化科学

Earthquake triggering and interaction = A personal research account =

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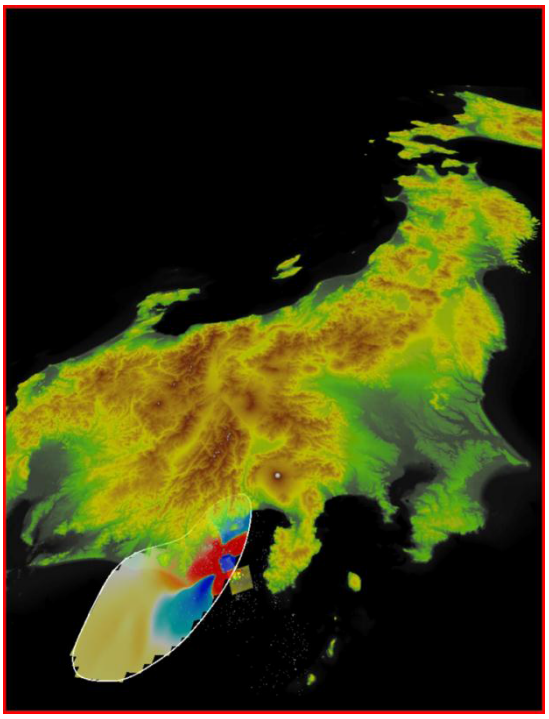
1. Introduction

A debated scientific issue in Seismology concerns the mechanisms that control the triggering and interaction of earthquakes. The scientific literature discusses two main physical mechanisms (Freed, 2005): static stress changes, due to co- and/or post-seismic deformations, and dynamic stress changes, caused by the passage of seismic waves. Fluid migration in and around the fault zone may also play an important role in the generation of aftershocks (Nur and Booker, 1992).

2. General approach and results

In the recent years, my research focused on understanding various aspects of earthquake triggering. Since usually earthquake catalogs are not complete, in particular after the occurrence of large earthquakes, we have used waveform-based techniques (e.g., Enescu et al., 2007, 2009) to detect and quantify as many small events as possible. The improved earthquake datasets have been used to study the occurrence of 'early' aftershocks (i.e., events occurred in the first hours after the mainshock) and their relation with the mainshock rupture (e.g., Marsan and Enescu, 2012; Lengline et al., 2012). Our results are among the first to test predictions of some well-known theoretical models (e.g., Dieterich, 1994) of seismicity.

I was also interested in modeling the stress changes due to large earthquakes (Aoi et al., 2010; Enescu et al., 2012) and, in collaboration (Toda and Enescu, 2011), we have elaborated the first physics-based model to forecast Japanese seismicity. I will present the main findings of the above studies during the seminar. For links to relevant papers, please check my homepage (http://www.geol.tsukuba.ac.jp/~benescu/index.html).



Stress transfer in the Tokai subduction zone from recent large earthquakes (Aoi et al., *Nature Geoscience*, 2010; Enescu et al., *GRL*, 2012).

次回：11 月 14 日　発表者　千葉　崇研究員
（地圏変遷科学分野）　※11 月 7 日は休講です。