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**隱沒帶導波的強地動效應之量化**

經過隱沒板塊的震波具有複雜的波傳特性。當震波在隱沒帶內傳播夠長的距離時，常會產生具有低頻前兆的高頻導波（high frequency guided wave）：低頻的P波初達（稱作低頻前兆波相，low frequency forerunner），尾隨以高振幅、持續時間長的高頻訊號。在日本，此種隱沒帶導波造成了弧前盆地的異常高震度，即使震央在100公里之外、深度大於300 km。這種導波（guided wave）被視作是評估強地動特性及理解隱沒板塊細部構造的一個重要觀測。導波的高頻放大效應原為: 當震波穿越隱沒板塊傳遞到弧前地區時，板塊的高速、低震波衰減（high Q）、及非均向特性，促成了低頻訊號無障礙地通過，而高頻訊號和板塊內的非均向性散射體相互作用、干擾，使其較慢到達、並且振幅被放大。隱沒帶導波的存在除了提供隱沒板塊之空間連續性資訊，並蘊含板塊物理特性的重要訊息，並且這種地表加速度被異常放大的現象在都市區，是地震危害評估中長期被忽略的一環。本暑期計畫在過去本研究室建立的導波目錄下(1996-2012期間規模四以上中源地震)，持續更新至2017年，並分析導波事件的振幅放大現象、並與強地動預測值一一比較，以釐清中源地震在何種情境下(震源、路徑、場址特性?)具有最大的振幅放大效應。

**Quantification of Seismic intensity anomalies induced by slab guided waves**

　Energy from seismic events traveling up a subduction zone reveals large-amplitude, high-frequency signal with sustained long coda. In Japan, such seismic waves guided by high wave velocity and high Q plate lead to surprisingly large intensity in the forearc area, even if the events are not felt near the epicenter. Seismic events with guided wave characteristics can explain the anomalous ground shaking, and provide useful information on the plate configuration. What are the characteristics of guided waves in Taiwan subduction zones and under which conditions the guiding effect would cause anomalous seismic intensity have been studied using magnitude greater than 4 earthquake data from 1996 to 2012. In this summer program we aim at updating the guided wave event catalog until the year of 2017, and furthermore, quantify the amplification of seismic intensity to compare with the predicted ground motion. Furthermore, we will discuss under which condition the guiding effect is largest.