

# 0206花蓮地震強地動記錄與近斷層波形特徵

郭俊翔 黃雋彥 林哲民 趙書賢 林沛陽

國家地震工程研究中心

溫國樑

國立中央大學地球科學系

蕭乃祺 林金泉

交通部中央氣象局地震測報中心

## 摘要

0206花蓮強震在花蓮市區造成嚴重災害，強震資料顯示PGA震度7級測站分布範圍大，但較為零散，而PGV震度7級區域則集中在米崙斷層中段至南段區域，為強烈的速度脈衝所致；微地動分析結果顯示本次地震PGV震度7級區域之地盤自然頻率約在0.8 Hz至1.2 Hz之間，而主震水平向反應譜顯示米崙斷層鄰近測站的譜加速度分別在1秒和2秒附近有顯著放大，本研究認為1秒譜加速度的放大是由場址效應所造成，而2秒譜加速度的放大皆出現在東西方向，故推測是由斷層破裂效應而導致；近斷層測站垂直向PGA接近或高於水平向PGA，可能是土壤非線性效應的影響。

**關鍵字：**強地動、微地動、速度脈衝、場址效應、土壤非線性。

## Strong Ground Motions and Characteristics of Near-Fault Waveform of the 0206 Hualien Earthquake

Chun-Hsiang Kuo Jyun-Yan Huang Che-Min Lin Shu-Hsien Chao Pei-Yang Lin

National Center for Research on Earthquake Engineering

Kuo-Liang Wen

Department of Earth Sciences, National Central University

Nai-Chi Hsiao Chin-Chuan Lin

Seismological Center, Central Weather Bureau

## Abstract

The devastating 0206 Hualien Earthquake has caused severe damages in downtown Hualien City. Strong motion records showed that an intensity of VII in PGA scattered over a wide range, while an intensity of VII in PGV, due to velocity pulses, were observed around the central and southern portions of Milun Fault. Results of microtremor measurements indicated that the region, suffered from the intensity VII of PGV, showed a natural frequency of 0.8 to 1.2 Hz. The mainshock of the earthquake presented two significant peaks at 1 and 2 sec in period of the horizontal acceleration spectra. The results of this study summarized that the peak at 1 sec seemed to be due to local site effects, whereas the peak at 2 sec was attributed to the fault rupture observed in the fault-normal E-W components. Moreover, the strong soil nonlinearity in this area may be the cause of the greater vertical PGA as compared to the horizontal PGA at near-fault stations.

**Key Words :** strong motion, microtremor, velocity pulse, site effect, soil nonlinearity.