0206地震花蓮港震陷與土壤液化勘查

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摘 要

本文主要報導0206地震花蓮港碼頭後線因液化產生之震陷現象，並摘要說明花蓮市其他液化地點的勘災結果。勘災過程亦取回液化噴出物進行物理指數性質試驗，了解噴出物的性質。勘災結果顯示花蓮港沉箱碼頭並無明顯震後變形或受損，惟後線大顆粒砂礫回填土區域產生明顯液化震陷，值得重視。花蓮市之液化現象局部零星，未產生液化引致之災情，顯示花蓮之地質沉積環境較不容易發生液化，液化噴出物之平均粒徑較集集地震西部平原液化噴出物為大。

關鍵字：花蓮港、華西路、液化、沉陷、噴砂口、粒徑分布。

The Reconnaissance on Seismic Settlement of Hualien Harbor and Soil Liquefactions in the 0206 Hualien Earthquake

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Abstract

This paper presents the reconnaissance results of liquefaction-induced settlements of the Hualien Harbor and other liquefaction locations in Hualien City. The erupted materials from the sand volcanoes were taken to perform laboratory physical index tests for understanding their characteristics. The caisson wharf of the Hualien Harbor suffered little damage and deformation. However, the backyard of caissons suffered significant settlements due to liquefaction of the backfill composed of large size gravel and sand mixtures. The liquefaction phenomenon is very spare and localized in Hualien City, causing no damage to structures, and revealing that the sedimentary environment of Hualien area is not easy for soil liquefaction to occur. The particle sizes of erupted materials around sand vents were larger than those of western plains associated with this earthquake and the 1999 Chi-Chi earthquake, respectively.

Key Words：Hualien harbor, Huaxi road, liquefaction, settlement, sand vent, grain size distribution.

一、前 言

0206花蓮地震發生後，隔天國家地震工程中心大地組即開始籌組勘災團隊並蒐集災情資料，規劃勘災工作與行程。其中與大地工程相關災損現象，除了蘇花、中橫公路與月眉縣道的一些局部落石與小坍方，僅有花蓮港後線區域有明顯液化引致之震陷，值得勘查。因此本文之重點在報告花蓮港的背景資料、震陷災情與初步分析結果。至於花蓮市其他液化地點，包括華西路與鄰近營區、美崙溪河岸、國