台北盆地工程地質分區建置

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摘要

多本研究使用工程地質鑽探資料庫之鑽井，以未來建置台北盆地三維工程地質模型為目的，劃分台北盆地工程地質分區。研究將考量台北盆地的沉積歷史，並參考台北市工程地質分區(李咸亨，1996)，以松山六次層的沉積物為基礎，另外考量礫石、火山角礫岩與第三系基盤的分布劃分分區。研究中依照台北盆地的沉積特徵，設立分區原則，考量地層側向的土壤組成變化，依照材質特性，將台北盆地劃分為數個分區。

本研究基於資料庫中 10681 孔鑽井資料、前人建立之景美層頂部以及第三系基盤的高程空間內插資料(林頤謙，2023)，首先建立以基盤、礫石層以及火山角礫岩為主要考量的分區。其次依照砂、泥沉積物的空間分布變化，劃分分區。最後針對不同分區中的差異劃分子分區，並建立台北盆地工程地質分區。研究結果將比較不同分區的地層主要地層差異，將軟弱地層或是能為工程提供良好條件的區域以分區的形式表現，以期能對降低工程災害做出貢獻。

關鍵字： 礫石、土壤分層、工程地質分區、台北盆地

Establishment of Engineering Geological Zoning in the Taipei Basin

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Abstract

This study utilizes borehole data from the CGS engineering geological drilling database to delineate engineering geological zones in the Taipei Basin, with the goal of establishing a future three-dimensional engineering geological model. The research considers the basin's sedimentary history and builds upon the engineering geological zoning framework of Taipei City proposed by Lee (1996). The zoning is primarily based on the sediments of the Songshan Sixth Layer, with additional consideration of gravel distribution, volcanic breccia, and the Tertiary basement. The zoning principles are established according to the sedimentary characteristics of the Taipei Basin, taking into account lateral variations in soil composition. Based on material properties, the Taipei Basin is then divided into several zones. Using 10,681 borehole records and interpolated spatial elevation data of the Jingmei Formation and the Tertiary basement (Lin, 2023), the Taipei Basin is subdivided into engineering geological zones. The zoning process follows a hierarchical approach: first, major zones are defined based on the basement, gravel layers, and volcanic breccia. Second, the basin is further subdivided according to the spatial distribution of sand and mud sediments. Finally, subzones are delineated based on internal variations within each zone, resulting in a refined engineering geological zoning framework for the Taipei Basin. The study results will compare the major stratigraphic differences among different zones, highlighting weak strata or areas that provide favorable conditions for engineering in a zoned format. This aims to contribute to reducing engineering-related disasters.

Keywords: Gravel, Soil zoning, Engineering Geological Zone, Taipei basin.