

## 台北盆地工程地質分區建置

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### 摘要

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，參考台北市工程地質分區(李咸亨，1996)，以松山六次層沉積物為基礎，另外將景美層礫石及第三系基盤的空間分布納入分區考量。考量前人以地層材質建置三維工程地質模型(林頤謙，2023)，本研究將著重於地層側向的岩性、土壤組成變化，為了更符合台北盆地的沉積情況。研究首先將透過資料庫中鑽井之岩芯描述增補物性試驗中缺乏的礫石層資料，還原鑽井中的礫石層段資料，建立松山層中礫石層的空間分布，結果顯示在新店溪和大漢溪上游，松五層存在十米以上的厚層礫石，並向盆地中心遞減，其結果將作為分區的首要考量。其次將考量盆地北部的來自大屯火山的沉積物，以普通克利金法對層厚做內插，找出其分布，作為次要考量依據。剩下的盆地區域將考量砂層與泥層的分布情況，真對不同區域的特性做工程地質分區。所有分區將比對前人對台北盆地的沉積相的研究，以合乎地質解釋的方式，建置工程地質分區。

**關鍵字：**工程地質分區、普通克利金、礫石、松山層。

# **Establishment of Engineering Geological Zoning in the Taipei Basin**

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## **Abstract**

This study utilizes borehole data obtained from the Engineering Geology Drilling Database to delineate the engineering geological zoning of the Taipei Basin with the aim of constructing a 3D engineering geological model in the future. The research takes into account the sedimentary history of the Taipei Basin and references the engineering geological zoning of Taipei City (Lee, 1996). The classification is primarily based on the sediment deposits of the six layers of the SongShan Formation and also considers the spatial distribution of the JingMei Formation gravel layers and the Tertiary bedrock. Based on previous efforts to construct a 3D geological model using stratigraphic material (Lin, 2023), this study emphasizes lateral variations in lithology and soil composition to better align with the sedimentary conditions of the Taipei Basin. The research first supplements missing gravel layer data in physical property tests by analyzing borehole core descriptions from the database, reconstructing gravel layer sections within the boreholes, and establishing the spatial distribution of gravel layers within the SongShan Formation. Results show that thick gravel layers over ten meters are present in the S5 layer in the upstream regions of the XinDian and DaHan Rivers, with a gradual thinning toward the basin center. This finding serves as the primary consideration for zoning. Additionally, the study examines sediment from DaTun volcano in the northern basin, using Ordinary Kriging interpolation to determine layer thickness and spatial distribution, which is used as a secondary zoning criterion. The remaining basin areas are classified based on the distribution of sand and mud layers, with zoning tailored to the characteristics of different regions. All zones will be compared to previous studies on the sedimentary facies of the Taipei Basin to ensure that the engineering geological zones align with geological interpretations.

**Keywords:** Engineering geological zone, Kriging, Gravel, SongShan Formation.