山崩地質雲端資訊服務平臺智慧應用與服務（1/5）

Smart Application of Cloud Service Platform for Landslides Geological Information (1/5)

摘要

經濟部中央地質調查所長期進行國土地質調查、創新災害地質調查技術與應用，以及建置地質災害資料，並於 106 至 110 年「結合大規模崩塌地質防災資訊服務」計畫中建置「山崩地質資訊雲端服務平臺」，透過地理資訊雲端服務（WebGIS），發布本所建立之歷史山崩目錄、順向坡目錄、環境地質圖集，以及《地質法》所劃設的山崩與地滑地質敏感區，民眾或產官學使用者皆可透過網頁瀏覽器獲取相關資訊外，亦提供應用程式介面（API）服務擴大資料使用。山崩地質資訊雲端服務平臺接續配合「服務性智慧政府 2.0 推動計畫」支持國家數位轉型，加速山崩觀測資料產出，本年度有 6 項主要工作項目。

一、擴建智慧雲端圖資展示平臺圖資，將潛在大規模崩塌調查成果及聚落安全評估報告內容，依政府開放資料制度轉建置為開放格式，提供介接 API 共 10 幅圖資服務及 5 項資料服務，並配合山崩與地滑地質敏感區變更建置高雄市及嘉義縣市公展主題系統。二、智慧雲端圖資展示平臺服務功能提升，優化現有介面操作及效能，提供響應式設計方便各種平臺使用者瀏覽。另為提供使用者便捷的主題式瀏覽，本團隊已於雲端圖資展示平臺中先統計使用者常閱覽之地點及常開圖層，分析熱門地點及喜好圖層。三、山崩與地滑地質敏感區智慧化查詢與管理機制研擬，已擬定及制定每塊地質敏感區山崩身分識別碼，並提供區域查詢及條碼查詢，令其可明確辨識所在區域及所對應之區塊，加速查詢及溝通之效率。四、山崩地質調查即時資訊展示模組建置，可即時蒐集現地調查相關成果，已完成之外業巡查系統可透過平臺即時回傳現地調查影像及坐標，以數位化資料及行動提升即時資料交換。使用者亦可透過內業產製現地調查報告功能產出制式報告。五、雲端機房設備租用與資安防護，本系統充分利用該雲端主機之資訊安全服務及其雲端架構，執行系統資訊安全，團隊已完成本年度之弱點掃描，並透過監控系統的統計本年來訪人次超過 29 萬人。六、成果彙整、加值應用與推廣，本年度參加 2022 臺灣地球科學聯合學術研討會、2022 台灣地理資訊學會年會暨學術研討會、及第十九屆大地工程學術研討會，並於 10 月底完成系統教育訓練，也針對收集的使用者回饋進行系統的優化。

關鍵詞：環境地質、電子化政府、雲端應用、資料庫、開放資料

Abstract

Central Geological Survey, Ministry of Economic Affairs, has been conducting land geological surveys for a long time, innovating disaster geological survey techniques and applications, and building geological disaster data. "Landslide Geological Information Cloud Service Platform", through the Geographic Information Cloud Service (WebGIS), to publish historical landslide catalogues, dip slope catalogues, environmental geological atlases, as well as geologically sensitive areas with landslides. In geologically sensitive areas, the public or industry, government and academic users can obtain relevant information through web browsers, and the application programming interface (API) services expands the use of data. This cloud service platform continues to cooperate with the "Service-oriented Smart Government 2.0 Promotion Plan" to support the country's digital transformation and accelerate the output of landslide observation data. We have 6 projects for this year.

First, we expand the data of the Landslide Geological Information Cloud Service Platform, transform the result of Village safety assessment reports and mapping and interpretation of potential large-scale landslides content into an opening format according to the government's open data system, and provide a total of 10 WMTS APIs and 5 JSON data APIs. Besides, we construct Kaohsiung City and Chiayi County Public Exhibition Theme System for geologically sensitive areas with landslides. Second, we improved service function, optimizing the interface operation and performance, provide responsive web design in each device. The team has counted the places that users frequently browse and the layers that are often opened on WebGIS, and analyzed the popular places and favorite layers. Third, we propose the intelligent query and management mechanism for geologically sensitive area with landslides. The landslide identification code for each area has been drawn up and formulated that it can clearly identify the area and its corresponding area. We also provided regional query function and spatially barcode query function, to speeds up the efficiency of inquiry and communication. Fourth, we build the real-time information display module for collect landslide investigation results immediately and generate surveyed reports. The outside function can save the images and coordinates of on-site survey in the platform, and improve data exchange. Users can generate surveyed reports by in-house function. Fifth, the cloud equipment room rental and information security protection. The Hicloud provide fully security services, and we do the vulnerability scanning four times this year. We also monitor system, there are about 290,000 visiting people.

Keywords: e-government, cloud application, database, open data service-oriented architecture