山崩地質資訊雲端服務平臺建置 (4/5)

Building a cloud services platform of landslides geological information(4/5)

摘要

本計畫配合政府的「服務型智慧政府推動計畫」推動「發展跨機關一站式整合服務」，已建立一個潛在大規模崩塌及環境地質資訊發布與共享的雲端三維平臺「山崩雲端圖資展示平臺」，將經濟部中央地質調查所歷年來於地質資料收集、環境地質與山崩等地質災害之調查研究，視覺化的展示，並提供開放資料格式及一站式資料申請服務，以提升全民對地質災害的敏感度，以及國人的防災意識。

本公司技術團隊針對本計畫目標採取「階段目標、循序漸進、滾動管理」之整體規劃策略，賡續上年度的成果，本年度有 7 項工作項目：首先配合國家政策調整及維護資料交換標準及資料轉制作業流程，針對本計畫歷年收錄之開放資料 API 建置說明頁，提供介接參數說明，採用 swagger ui 的標準通用格式製作，以提供進階使用者快速獲取資料及內容，並持續擴建與維護山崩地質雲端服務資料，由於本計畫以推動開放資料為主，故本年度仍持續更新資料內容，包含山崩與地滑地質敏感區、歷史山崩目錄、多年期歷史山崩目錄等，並配合混合式圖磚調整為以全臺範圍為單位發布。

擴建雲端圖資展示平臺中，已新增系統圖面截取功能，使用者可透過本系統結合開放資料及自有資料獲取成果圖，搭配所提供之坐標參數描述檔，於其他領域或系統中進行加值應用，該便民功能提供另一種資料介接及呈現方式。另於系統架構中改良為混合式圖磚顯圖展示，讓使用者可跨裝置開啟使用，並可同時開啟多個圖層展示與比較。配合該顯圖方式轉建置多筆資料圖層及輔助圖層，共 49 筆開放資料圖層，供外部介接使用，配合圖資介接說明，將增進資料流通性。下半年度擴建現地調查報告主題系統，將業務單位現地調查成果及研究分析展示於本系統中。本執行團隊除針對應用功能新增外，仍針對系統基礎建設逐年調整，本年度為友善國際使用者，著手將系統架構調整為多語系版本，並將內容翻譯成英文版本。

擴建多樣化雲端服務交換平臺中，除增加混合式圖磚所發布之圖層外，針對局部地區提升坡度圖及地形陰影圖等圖資解析度，以支持大規模崩塌之分支計畫進行研究與分析，並完成介接行政院農業委員會水土保持局所公布之土石流潛勢溪流等相關圖資，提供更多相關內容。本系統持續租用雲端機房設備，充分利用該雲端主機之資訊安全服務及其雲端架構，本執行團隊於系統資訊安全，於每季安排弱點掃描，隨時進行系統安全上管控，並透過維護雲端服務管理平臺持續監控系統的使用量及來訪人次，本年度統計至 11 月已共有 42,570 人次。成果推廣與加值應用方面，由於受新冠病毒疫情影響，主要集中在下半年舉辦，分別參與「第十八屆大地工程學術研討會暨科技部成果發表會」及「2020 災防科技創新服務交流研討會」，另外，本平臺很榮幸獲得「防災科技應用技術優質獎」，並獲邀參與「水土保持及農村再生成果發表會」及「民生公共物聯網海外目標市場應用需求系列工作坊」與各國各界的研究者使用者進行交流，並將本系統推廣

與更多人了解使用。最終將於 12 月舉辦一場系統教育訓練。

關鍵詞：環境地質、電子化政府、雲端應用、資料庫、開放資料

Abstract

The project follows the Government's "Service-Based Smart Government Promotion Plan" to promote “Integrated service functions between Government agencies". We construct a cloud-based three-dimensional platform for the release and sharing of potential large-scale collapse and environmental geological information. The Display Platform will provide a visual display of geological disasters such as geological data collection, environmental eology and landslides in the Central Geological Survey of the Ministry of Economic Affairs, and provide open data formats and one-stop information application services to enhance the public sensitive to geological disasters and awareness of disaster prevention.

Our team has taken measures on the overall plan of "Phase of objectives, Step-by-Step and Rolling Management". There are 7 work items this year: First of all, in accordance with national policy adjustment and maintenance of data exchange standards and data conversion operation procedures, for the open data API construction description page included in this plan over the years, provide interface parameter descriptions, using swagger ui standard general The format is created to provide advanced users with fast access to data and content, and to continue to expand and maintain landslide geological cloud service data. Since this project focuses on promoting open data, the data content is still continuously updated this year, including landslides and landslides Geologically sensitive areas, historical landslide catalogues, multi-year historical landslide catalogues, etc., combined with the hybrid tile adjustment to be published in units of the whole Taiwan, and the results of the landslide database.

In the expansion of the cloud graphics resource display platform, a system image interception function has been added. Users can use this system to combine open data with their own data to obtain results maps, together with the provided coordinate parameter description files, in other fields or systems. Value-added applications, the convenience function provides another way of data interface and presentation. In addition, the system architecture is improved to a hybrid display of tiles, which allows users to open and use across devices, and can open multiple layers for display and comparison at the same time. And in conjunction with this display method, multiple data layers and auxiliary layers are rebuilt, with a total of 49 open data layers, which can be used for external interfacing. Cooperating with the description of graphic resources will improve data circulation. In the second half of the year, the on-site survey report subject system will be expanded, and the on-site survey results and research analysis of business units will be displayed in this system. In addition to the addition of application functions, the executive team is still adjusting the system infrastructure year by year. This year, as a friendly international user, the system structure is adjusted to a multilingual version and the content is translated into English.

In the expansion of the diversified cloud service exchange platform, in addition to adding the layers released by the hybrid map tiles, the resolution of maps such as slope maps and topographic shadow maps is improved for local areas to support research and analysis of large-scale collapse branch plans , And completed the introduction of related maps such as soil and rock flow potential streams published by the Water and Soil Conservation Bureau of the Agricultural Committee of the Executive Yuan to provide more related content. The system continues to rent cloud computer room equipment to make full use of the cloud host’s information security service and its cloud architecture. The executive team is responsible for system information security, arranges vulnerability scans on a quarterly basis, and carries out

system security management and control at any time, and manages through maintenance of cloud services The platform continuously monitors the usage of the system and the number of visits. As of this year's statistics, a total of 42,570 visits have been made. In terms of achievement promotion and value-added applications, due to the impact of the new crown virus epidemic, it was mainly held in the second half of the year. Participated in the "18th Earth Engineering Symposium and the Ministry of Science and Technology Achievement Presentation" and the "2020 Disaster Prevention Technology Innovation Service Exchange Seminar" In addition, this platform is honored to receive the "Disaster Prevention Technology Application Technology Quality Award", and was invited to participate in the "Soil and Water Conservation and Rural Regeneration Achievement Presentation" and the "People’s Livelihood Public Internet of Things Overseas Target Market Application Demand Series Workshop" and other countries Researchers and users from all walks of life communicate, and promote the system to more people to understand and use. Finally, a system education training will be held in December.

Keywords：e-Government, Cloud Applications, Databases, Open Data, Service-Oriented Architecture