

# Innovative Government SDI Service for Disaster Prevention —TGOS and SWE

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## SUMMARY

Located on the Pacific Ring of Fire, Taiwan is frequented by earthquakes. In addition, global warming and climate change have increased the frequency and intensity of the natural disasters. Such extreme conditions have made disaster management and resilience incredibly challenging. In the view of this, Taiwan government has established a lot of environment monitoring instruments and accumulated large amount of geospatial database in developing various kind of natural disaster prediction models which enable to strengthen disaster management and resilience.

Along with ICT advancement, cloud computing has become the most popular technology of e-government services. TGOS (Taiwan Geospatial One-Stop) is a one-stop access of web portal for inquiries of Taiwan's national GIS with complete metadata and service catalogue, which already established 10 cloud computing platforms to provide various services to government authorities. In addition, TGOS MAP API is still developing different applications and devices, which allows government authorities to share map data in the use of disaster prevention and rescue, urban development, land utilization and monitoring, etc., but also encourage industries to invest in value-added applications to create a win-win situation among governments, industries and citizens. One of the the most important service is disaster prevention and management, which needs various catalogue GIS map layers. This paper introduces the architecture and functions of TGOS MAP API, such as the maps, map layers, geospatial information and demonstrate the practical applications on disaster management.

The debris flow is one of the common disaster, which is a tremendous threat to human's living environment and threatening our safety. Taiwan government had set up 17 debris flow monitoring stations and 3 debris flow monitoring vehicles since 2002. Combining these stationary stations and monitoring vehicles with monitoring network can collect the real time data for related information analysis, and it helps to build up an alert mechanism. In order to integrate the observation resources, OGC SWE (Sensor Web Enablement) framework and it's SOS (Sensor Observation Service) were adopted to develop a debris flow information platform which integrates the GIS maps through TGOS MAP API and much kind of instrument observation resources from different organizations in Taiwan and enhances the efficiency of decision making in disaster mitigation and resilience.