

Prospective of Taiwan Integrated Earth Observation System

Chang, Guey-Shin¹, Hu, Ya-Ting², Cheng, Ming-Chih³

¹ Director General, National Space Organization, National Applied Research Laboratories,
Hsinchu, Taiwan gschang@nspo.narl.org.tw

² Research Assistant, National Space Organization, National Applied Research Laboratories,
Taipei, Taiwan vanessa@narl.org.tw

³ Director, Business Development Office, National Applied Research Laboratories,
Taipei, Taiwan franz.cheng@narl.org.tw

Abstract

Taiwan Integrated Earth Observation Systems (TIEOS) is the implementation of the Global Earth Observation System of Systems (GEOSS) initiative in Taiwan. The aims of TIEOS initiative are: (1) to integrate the domestic earth observation resources to enhance the social benefits of Taiwan, (2) to implement TIOES as a pilot project to promote and showcase the value of earth observations integration, (3) to promote TIEOS as a policy making support system for Taiwan sustainable development, and (4) to expand TIOES from local level to regional level and engage to international communities. National Applied Research Laboratories (NARL) is leading the TIEOS efforts to integrate the existing data and technologies related to earth observations and to advocate performing multi-discipline cooperative researches in Taiwan. NARL consists of eleven national laboratories that conduct research in a broad spectrum of earth observations including space technology, earthquake engineering, ocean research, high-performance networking and computing, typhoon and flood, and disaster reduction technology, etc. A TIEOS working group formed by several geosciences research institutes and governmental agencies is working together to promote the inter-agency cooperation and synergy on earth observation applications within Taiwan. TIEOS working group now in its second year has made substantial progress toward the final targets. A prototype platform entitled 3D GIS Taiwan constituted by using 2m resolution FORMOSAT-2 data and 5m resolution Digital Terrain Model (DTM) has been modeled and can be displayed in 3D stereo visualization and in web pages for the applications on the disaster reduction management support. A survey of existing domestic earth observation

resources was conducted to build up the TIEOS portal to serve as a gateway to Taiwan geo-resource. The common technical standards were promoted to engage with Open Geospatial Consortium (OGC) activity to enhance the interoperability. NARL also joined Asia Pacific disaster-monitoring project, called Sentinel Asia, as the first step linkage to the international community. These efforts and achievements will form the foundations to next step of TIEOS implementation in Taiwan.

Keywords: TIEOS; GEOSS; Interoperability; FORMOSAT-2 satellite; 3D GIS Taiwan Platform