Taiwan's National Laboratories Synergy of Earth Observation Technologies in Disaster Reduction Application

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Abstract: Climate change has been developed into a global issue, it is not just a single country or region can handle, instead, a global thinking and planning should be taken in the course of trying to cope with it. Under these circumstances, interoperability is very crucial for global collaboration on information sharing and data exchange. For this need, The Global Earth Observation (GEO) organization, by utilizing the interoperability, intended to facilitate and integrate the global efforts to natural disaster management and the sustainable development of the world.

Established in June 2003, the National Applied Research Laboratories (NARLabs) has combined 11 national laboratories into an independent non-profit institute. The establishment of NARLabs creates a new era in the development of national laboratories in Taiwan. The research areas of NARLabs are the critical technologies foreseen by the nation. Among these areas, research fields associated with environment monitoring and disaster management have been in priority list, such as Formosat-2 satellite remote sensing, Formosat-3/COSMIC (Constellation Observing System for Meteorology, Ionosphere and Climate), Cloud Computing, typhoon and flood modeling, ocean current and tsunami simulation, earthquake engineering, and disaster management technologies.

Based on the technologies, NARLabs has developed research and service platforms such as 4D GIS Taiwan Platform and Earth Science Observation Databank (ESOD)-an integrated databank with Data Bank for Atmospheric Research (DBAR), Marine Environmental Databank (MED), and Taiwan Earthquake Loss Estimate System, and other observation data in environmental sciences. NARLabs takes its

advantage of synergy on environmental and disaster reduction capabilities to support government's mission on disaster management as well as to involve the international GEO related activities, such as OGC Architecture Implementation Pilot projects, and Sentinel Asia-a voluntary disaster response and management organization in Asia Pacific regions. In this paper, we will present the accomplishment of NARLabs' efforts to disaster management in Taiwan and contributions to the sustainable development of the world.

Keyword: NARLabs, GEO, OGC, Formosat-2, Formosat-3/COSMIC,