

EARTH OBSERVATION SYMPOSIUM (B1)
Towards Implementation of GEOSS (6)

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DESIGN OF DISASTERS MANAGEMENT SPATIAL INFORMATION SYSTEM AND SERVICES

Abstract

In recent years, with the higher frequency of disasters worldwide, major natural disasters and the impact has caused great concern in the international community. Joint effort on disaster respond has become an important part of international cooperation. The rapid development of space technology provides strong technical support for spatial information in disaster mitigation applications, which becomes indispensable means to improve the capacity and efficiency of disaster management.

Architecture for disasters management spatial information system and services is proposed here, which is designed for multi-source disaster spatial information applications, with supporting to multi-platform, multi-payload, multi-mode observations (such as spaceborne, airborne and ground station). The functions of system include spatial data integration, general treatment and extraction analysis, data processing and validation, rapid data distribution and services, simulation analysis and so on. Data services are expected to meet various demand of disaster mitigation, and the system provides related technologies services in routine monitoring and emergency response to natural disasters.

The system is designed to work in normal mode and disaster emergency response mode with support of efficient and comprehensive multi-source, like automatic change detection, classification, target recognition, anomaly detection and other automatic identification and extraction, parameter retrieval etc. Additionally, the system can provide collaborative human-computer interaction in disaster spatial information interpretation with expert experience and knowledge, high-performance disaster spatial information visualization and spatial analysis functions, and technical support for disaster spatial information products and industry applications with library of algorithms and tools. The system can provide spatial information and analysis platform for disaster mechanism analysis, disaster simulation model optimization with high-performance simulation of the earth disasters and scientific analysis and visualization capabilities.

Based on integrated disaster information processing techniques, the system can provide disaster information services for regular monitoring and emergency response applications in disasters mitigation. The planned system is supposed to play an important role in international disaster spatial information services.