

## **e-Science in Geospatial Information Science**

Eric Yen  
*Grid Computing Center, Academia Sinica*  
*Taiwan*  
*eric@sinica.edu.tw*

### ***Abstract***

Geospatial computation provides an extraordinary perspective to analyze and digest heterogeneous contents, based on dimensions of time and space. Data deluge not just creates more opportunities for geospatial computing and information science, but also reveals impacts of research and application in the future. Primary challenges includes the following – 1) provenance and sustainable access to geospatial materials; 2) mining new knowledge by geospatial resources federation and analysis; 3) new data model and knowledge management. Process automation and reach results in reasonable time are the common requirements but demands for more resources, tools, and algorithms, which are not available. A new infrastructure for the collection, processing, distribution, and display of geospatial data is required. Moreover, the infrastructure also has to integrate homogeneous resources seamlessly to support the on-demand analysis. Many endeavors already focus on the development and deployment of e-Science infrastructure for geospatial researches and applications. In this study, value of applying e-Science paradigm on geospatial information science (GIS) is investigated. Status of global e-Science infrastructure development will be reviewed. Examples of e-Science applications on GIS would be explored.