Huge amount of satellite imagery distribution by GEO Grid

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Satellite imagery provides wealthy information to study the surface of our planet, such as the topography, temperatures, vegetation, and mineral. It is getting more and more difficult, however, to manage satellite data sets because observation instruments mounted on recent satellites collect a lot of data and the volume of them becomes quite huge. For example, an instrument, the Advanced Spaceborne Thermal Emission and Reection Radiometer (ASTER) mounted on the Terra satellite (Yamaguchi et al. 2001) has produced more than 120 terabytes raw data by a seven-year operation since the launch in December, 1999. All the data have been maintained in an archive system on a traditional tape library system. Even if some researchers develop new improved algorithms for geometric/radiometric calibrations and/or atmospheric corrections, a current data archive and distribution system for the ASTER, which is called ASTER Ground Data System (GDS), do not allow the researchers full complete reprocessing of the raw archive due to the limitation of computing and storage resources.

We have developed satellite data archiving and processing system based on GEO Grid architecture to maintain ASTER data archive. This system provides ASTER data and data processing applications through the web-based portal. We have also developed ASTER data delivering system as a OGC standard services such as Web Map Service (WMS). In this presentation, we represent our GEO Grid project status and implemented systems.