

Globalization and Mobilization of Farth Science Education With GeoBrain Geospatial Web Service Technology http://geobrain.laits.gmu.edu



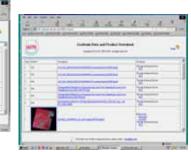
Introduction

Earth science education needs to prepare students as globally-trained geoscience workforce by providing students world-view training or experiences with global context, which requires both computing- and data-intensive geospatial learning and research environment capable of providing global geo-information. GeoBrain, an open geospatial web services system, aims to establish such an environment.



Multi-Protocol Geoinformation Client (MPGC)





Data discovery and access



NASA EOS Higher Education Alliance (NEHEA)

NEHEA is an open and free alliance for promoting and facilitating the wider use of NASA EOS data in teaching and research at higher education institutes around the world through the data-intensive Earth system learning and modeling environment provided by GeoBrain. NEHEA welcomes Earth Science Educators around the world to join as associate members via http://geobrain.laits.gmu.edu/join_nehea.html

GeoBrain Capabilities

- 1. Personalized, on-demand data access and services to Petabytes of NASA EOSDIS data.
- 2. Online data analyses.
- 3. Geospatial-processing modeling.
- 4. Geospatial knowledge sharing.

Available Geospatial Web Services

OGC Data Discovery and Access Services •Web Coverage Service (WCS)

- •Web Map Service (WMS)
- •Catalog Service for Web (CS/W)

Chainable Geospatial Processing Services

- •OGC Web Coordinate Transformation Service (WCTS)
- OGC Web Image Classification Service (WICS)
- •Web Image Cutting Service (IMCS)
- •Web Image Mosaicing Service (WIMS)
- •200+ Geospatial Web Services converted from GRASS functions.

A BPEL Workflow Engine -- BPELPower

Available Data Products

- Global Landsat TM datasets for years 1990 and 2000 (~17 Tb)
- Sample EOS Data Products (~3 Tb)
- NASA EOSDIS online data products at data pools (~200 Tb)
- · EOSDIS near-line archives to be available soon.
- All GeoBrain Services can be applied to those data.

How to Use GeoBrain in Research and Teaching

- 1. As an unlimited global geo-data source.
- 2. As an on-line data analysis system.
- 3. As an on-line platform for geospatial processing modeling.
- 4. As a platform for sharing geospatial knowledge.

Contact Information: Liping Di (Idi@gmu.edu) Meixia Deng(mdeng@gmu.edu) Peisheng Zhao (pzhao@gmu.edu)

Laboratory for Advanced Information Technology and Standards (LAITS) George Mason University 6301 Ivy Lane, Suite 620, Greenbelt, MD 20770