



The Visualization & Information Systems (VIS) Group specializes in the development of scientific visualization software solutions for geospatial data. Key aspects of our approach include:

Emphasis on the visual fusion of numerous types of atmospheric and oceanographic data that are disparate in space and time.

Cross platform capabilities: Java and browser technologies are leveraged to reach all major platforms.

Distributed architecture: CORBA used to develop advanced client/server system.

Object oriented, component-based approach utilizing design patterns.

The VIS Group also has considerable expertise in the area of developing infrastructure elements for exchanging geospatial data between applications as described in the description of our Navy-funded Data Exchange Infrastructure BAA project. We are combining these infrastructure elements into information systems for distributed geospatial applications.

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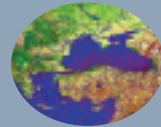
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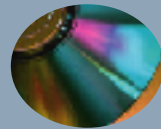
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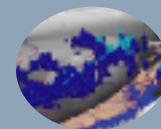
Scientific Visualization Software



Distributed Information Systems



Geospatial Data Management (CORBA Middleware)



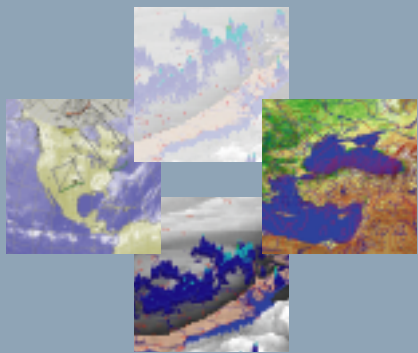
Research Products

"EOS-Smart" Visualization Tools and Data Services

Physitron's VIS group is developing scientific visualization tools and data services to help broaden the utilization of Earth Observing Systems data.

Project Description

The Earth Observing System (EOS) is the centerpiece of NASA's Earth Science Enterprise (ESE). It consists of a science component and a data system supporting a coordinated series of polar-orbiting and low inclination satellites for long-term global observations of the land surface, biosphere, solid Earth, atmosphere, and oceans. In the near future, the various EOS missions will produce data at a rate to exceed a terabyte daily. These cover a gamut of data from multispectral satellite sensors in the visible, infrared, ultraviolet, microwave and radar portions of the spectrum. While the primary purpose of these satellites is for climatological studies, the information is potentially useful for a number of commercial sectors to include agriculture, forestry, disaster relief, weather forecasting, maritime shipping, and the utility industry.



Data Exchange Infrastructure

In this effort, Physitron's VIS group is developing a distributed-object-computing infrastructure to allow applications to ingest and exchange data in a manner that insulates applications from continuously evolving file formats, database APIs, data location, etc. A critical aspect of this infrastructure is the concept of cross-platform, cross-language Data Object Interfaces (DOI) through which applications can request geographically distributed data items. The resulting infrastructure will significantly increase interoperability between applications.

Background

Significant resources from most metoc (meteorology and oceanographic) application development efforts are consumed by the complexities associated with finding, gaining access to, and ingesting data. Evolving data formats, database APIs, etc. force many developers to alter their application code frequently. Our data exchange infrastructure will minimize the existing duplication of efforts by developers within large communities and will narrow the spectrum of data expertise which developers must possess.



Test Data Visualization System

Physitron is currently developing an integrated test measurement workstation for on-site data analysis and data visualization of arena munitions test for the 46th Test Wing at Eglin, AFB. The Test Data Visualization System (TDVS) provides a user-friendly data acquisition and visualization system to improve and optimize the reporting and analytical requirements of the munitions test engineer and the warhead designer. The development system utilizes the latest in software technologies such as the Visualization Toolkit, CORBA, Java, and Lab Windows CVI.

Development

Identified required hardware and software

Developed integration plan for data acquisition instruments and controlling workstation

Convert existing AF data acquisition software to Windows NT

Develop Graphical User Interface (GUI) which test engineer will use to control data acquisition system

Develop visualization and analysis modules

Develop software modules for generating multimedia output for customer's use

Install, customize, and test system at Eglin AFB.

