MODIS Value-added Services at the GES DISC

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INTRODUCTION

Building upon historical traditions, the NASA Goddard Distributed Active Archive Center became the largest depository and distributor of MODIS data.

The vast amounts of data, and the underlying transitions in NASA, dictate that we transform into a center that provides new services and technological innovations that facilitate and encourage data usage by a broad audience: from schools, through regional resources monitors, to policy makers and sophisticate researchers.

Better tools and services are needed, including data dissemination methods, to quickly distinguish relevant signatures in the data and extract this information for further study.

Data Pool and On-The-Fly Subsets

Users enter desired channels/parameters/regions, and the services are executed instantaneously, as the data are being downloaded from the Data Pool.

Other MODIS subsets available from the Data Pool:

- MOD02SSH (Ocean spatial subset)
- MYD08 (Atmospheres Level 2 joint product)

This simple quality assurance against the Cloud Mask product (MOD03_L1 and MYD03_L2) runs with the leading edge of the GES DISC MODIS production (PGE03). The global images and the class-fractions are refreshed every four hours after polling the Data Pool for new inserts of the cloud mask. Terra and Aqua, and Day and Night modes are kept in separate images. Glitches in the upstream production (PGE02) or ancillary Data (NISE) are very likely to be easily spotted on time.

Near-line Archive Data Mining

Data Mining system allows global data users to acquire specific archived data, on otherwise impossible task due to sheer volume of MODIS full series DODS objects.

Users submit and execute their data mining algorithm(s) if their request is translated to the online data holdings to produce output files, which can be simple overlays of Sea Surface Temperatures and Winds, or layers of radiances in multi-band GeoTIFF files, compatible with most popular GIS tools.

Open Source Project for a Network Data Access Protocol (OpenDAP)

Formerly known as the Distributed Oceanographic Display System (DODS), OpenDAP uses a network server that allows clients to retrieve GES DISC data archived in various formats, perform spatial and parameter subsetting, and output the data in ASCII or DODS objects.

http://daac.gsfc.nasa.gov/services/dods/DODS.html

Data Read & Display Scripting Tools

GES DISC receives numerous requests for free tools enabling more sophisticated data mapping and display manipulations, like the stitched Terra and Aqua images on the right, and other automated processing.

HDFLook allows both, scripting and interactive sessions. It has very friendly interface, and is easy to put into batch processing. It is distributed and supported in cooperation with University of Life, France.

IDL scripts are provided where Users can tailor in their own algorithms. The simplicity allows to quickly address big variety of applications, by easily incorporating all available IDL functionalities. (See Cloud Mask Operational QA, above).

http://daac.gsfc.nasa.gov/MODIS/software/idl.html

SUMMARY

The GES DISC has made great strides in facilitating science and applications research by, in consultation with its users, developing innovative tools and data services. That is, as data users become more sophisticated in their research and more savvy with information extraction methodologies, the GES DISC has been responsive to this evolution. The GES DISC always strives to better understand the data access, usage, and manipulation needs of the audience, so that it can continue to be on the leading edge for user- and applications research by, in consultation with its users.

Future Plans: Data Fusion, GIS

We are assessing feasibility to sell up simple online sessions where Users can easily merge different products into a multi-layer package. These can be simple overlays of Sea Surface Temperatures and Winds, or layers of radiances in multi-band GeoTIFF files, compatible with most popular GIS tools.

Data Access

http://daac.gsfc.nasa.gov/data

GES DISC hierarchical search and order interface (aka WHOM)

ftp://godps01u.ecs.nasa.gov/

Direct ftp access to online archives

http://eos.nasa.gov/imswelcome

Interface for all of NASA’s Earth Observing System and related data (aka EOS Data Gateway or EDG)

http://daac.gsfc.nasa.gov/daac-bin/MODIS/Data_order.pl?PRINT=1

All GES DISC MODIS collections and subsets at your fingertips. Convenient for Users who want to order more than one data type at a time.