2.11 EXTRACTING THE MAXIMUM FROM GEOGRAPHIC METADATA AT THE NASA LANGLEY ASDC

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1. Introduction

The NASA Langley Atmospheric Sciences Data Center archives, produces and distributes Earth Science data from NASA Earth Observing System (EOS). Data from the Clouds and the Earth's Radiant Energy System (CERES) instrument on the EOS flagship spacecraft Terra is produced, archived and distributed from the ASDC. The recently released Single Scanner Footprint TOA/Surface Fluxes and Clouds (SSF) product presented a challenge in geographic representation since the product is hourly. To ensure an accurate representation in the ordering interfaces and for subsetting requests, the data is represented by a geopolygon of multiple points. Examples of the improvements this approach gives will be shown.

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2. CERES Data Geographic Representations.

The previously released CERES data products were reasonably represented by indicating a bounding rectangle. For the Terra data products this rectangle was simplified to global coverage. The monthly ERBE-like geographic averages product (ES4) and the monthly ERBE-like regional averages product (ES9) have global coverage. The daily ERBE-like Instantaneous Top-of-Atmosphere (TOA) Estimates (ES8) files produce nearly global coverage in the course of a day. Therefore, for these products, assuming global coverage for each file is appropriate.

The hourly SSF data product however is produced as a swath product. During routine CERES data production, both a bounding rectangle and a G-RING polygon are determined for each data file. For SSF, each file will contain approximately 2/3 of an orbit and the imager being used determines the swath width. There fore using the bounding rectangle would result in over-representing the spatial coverage of the data file significantly.

3. ASDC Geographic Implementations.

For a search for data intersecting the region, 10 N to 10S and 10E to 10W, the bounding rectangle search would return 472 files of the 696 available for a month; the G-Ring polygon search returns 40 files. The ability to search SSF data sets is available in the Langley ASDC Java version search and order interface. The ASDC stores the G-Ring polygon information for each SSF file during the archival process. Unfortunately, blips in the archival process may result in the G-Ring polygon information not being available and /or not submitted to the information management system (IMS) database. The geographic representation for these files will default to the bounding rectangle.

The ASDC has also developed and implemented a subsetting capability for the CERES ES8 and SSF data products. The user is allowed to subset these data files using time, space or the geophysical parameters in the data files. The subsetting interface is also incorporated in the Langley ASDC Java version search and order tool. As a result of the subsetting capabilities, the user has a fall back mechanism to ensure they only receive the data for their region of interest. After searching for the SSF data in a region, the user can specify geographic subset criteria to match the region of interest. The ASDC order filling system will then process all of the requested SSF data files. It will subset the files that meet the spatial criteria and generate a list of the files that do not. The user would then receive only the data for the region of their interest.

4. Data Availability

Demonstrations of these capabilities will be given at the NASA LaRC ASDC exhibit booth during the regular exhibit hours. Also the data and services can be obtained from the NASA Langley Atmospheric Sciences Data Center at the following URL: http://eosweb.larc.nasa.gov