

LP DAAC Overview

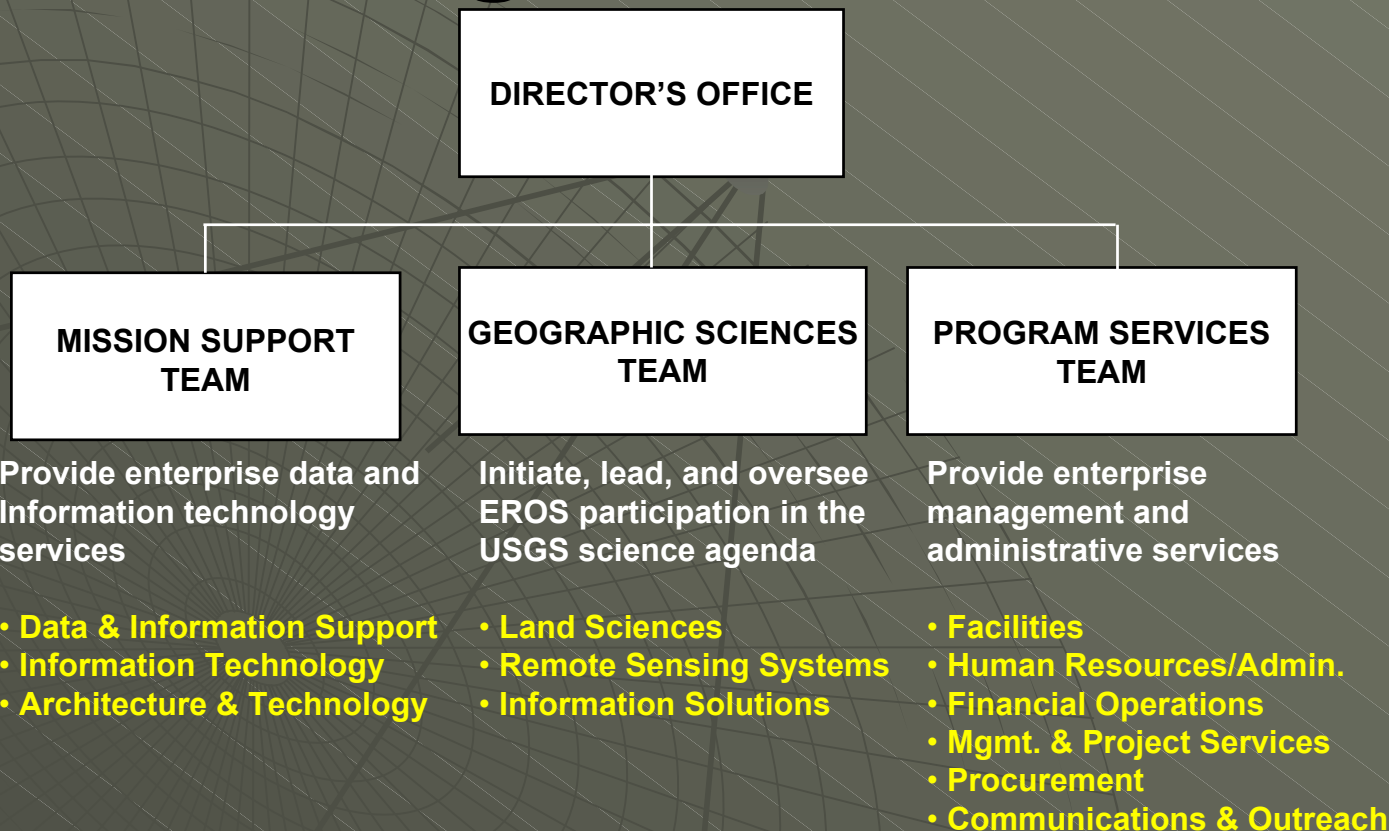
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Acting LP DAAC Manager
February 7, 2006

U.S. Geological Survey Center for EROS

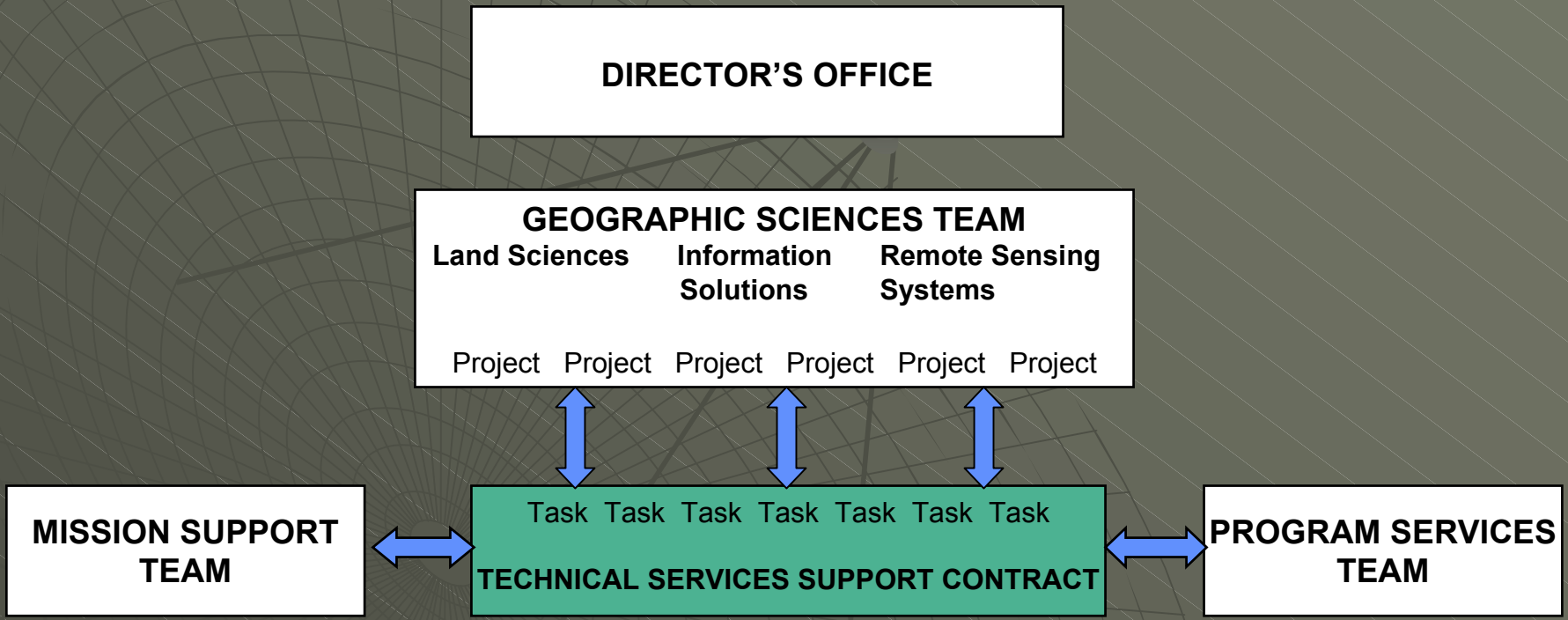
Overview

- ◆ Organizational Structure
- ◆ LP DAAC Plans
- ◆ New Services
 - S4PM
 - Data Pool HEG
 - L1B On-Demand
 - DEM Software

EROS Government Organization

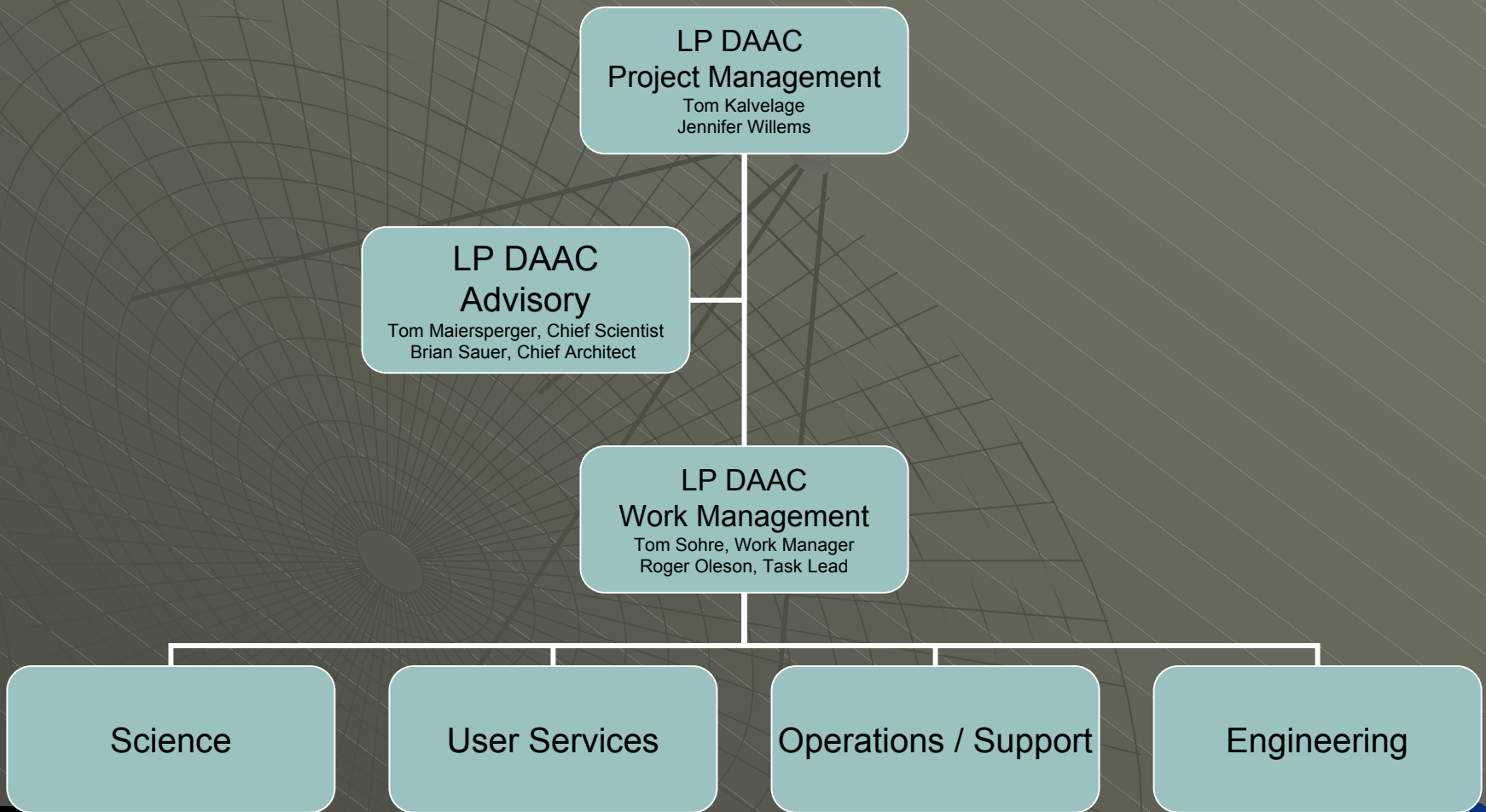


EROS Management Framework



LP DAAC

Functional Organization Structure



LP DAAC Plans

Highlights

- ◆ 1988 NASA and USGS sign an agreement.
- ◆ 1994 LP DAAC goes operational.
- ◆ 1999 “Year of getting ECS* to work and not fail”
 - April 15 - L7 launches
 - August 23 - L7 data goes public
 - December 18 - Terra launches
- ◆ 2000 “Year of stabilizing and expanding ECS”
 - August 4 - Terra MODIS data goes public.
 - November 10 - Terra ASTER data goes public.
- ◆ 2001 “Year of improving EOSDIS functionality”
 - March 27 - Hard media available.

Highlights

- ◆ 2002 “Year of data access and user support”
 - May 4 - Aqua launches.
 - December – Data Pool and ASTER Browse Tool available.
- ◆ 2003 “Year of going operational, expanding EOSDIS”
 - January 15 - MODIS V4 (4X actual vs 2.5X spec'd) available
- ◆ 2004 “Year of the User”
- ◆ 2005 “Year of New Services”
 - Senior Review - Terra 4 years
 - Electronic ingest of ASTER data
 - HEG, GloVis
- ◆ 2006 “Year of Evolution”
 - Billing for on-demand products

2006 Work Plan

- ◆ ECS Version 7.10 patches and packages
- ◆ COTS upgrades
- ◆ Evolution support
- ◆ MODIS V005 reprocessing campaign
- ◆ DOWS installation
- ◆ Synergy VI
- ◆ ASTER GSD Linux transition*

2006 Work Plan

- ◆ ASTER on-demand billing*
- ◆ Implementation of new DEM software*
- ◆ Support new metrics system (EMS)
- ◆ ASTER L1B on-demand*
- ◆ ECHO backup site operational
- ◆ Further ECHO WIST client support
- ◆ Modification to DUEs

New Services

S4PM

- ◆ The Simple, Scalable, Script-based Science Processor for Missions (S4PM) is a science data processing system developed at GSFC
- ◆ GDS made the decision to move to Linux PGEs in 2005, requiring the LP DAAC to do the same
- ◆ Several Options were reviewed and the decision was made to use S4PM to perform processing
 - Several factors led to this decision primarily the high costs of SGI system maintenance, COTS software & license fees
- ◆ S4PM is a replacement for PDPS
- ◆ S4PM is highly scalable and flexible
- ◆ S4PM provides data-driven processing, on-demand processing and distribution based on user requests

S4PM

- ◆ Implementation planned for mid 2005, however several outside influences caused delay:
 - Responsibility for hardware purchase moved to EMD
 - DEM processing added to the requirements Oct 2005
 - Level 2 PGEs were not delivered until Dec. 2005
- ◆ There are 3 main data flows for S4PM at the LP DAAC
 - Forward (L1B Browse and Expedited processing)
 - On-Demand (All Level 2 products)
 - ASTER DEM

S4PM

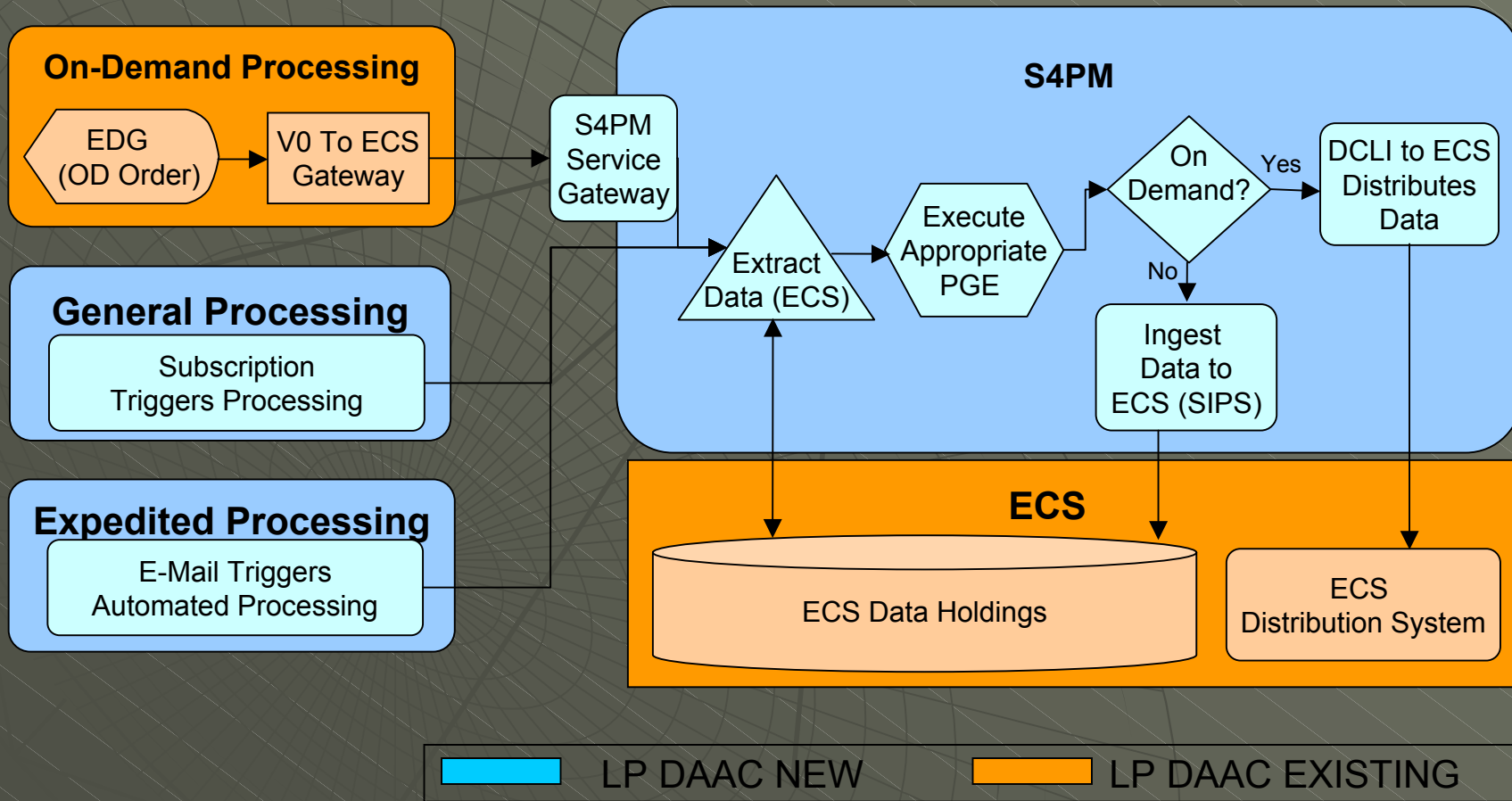
- ◆ Similarities

- PDPS and S4PM are both capable of running ASTER PGEs
- Performance between the two systems is similar

- ◆ Major differences:

- PDPS only allows one granule to exist in a request while S4PM allows multi-granule requests
- Local access to S4PM code (quick modifications) whereas PDPS changes must be completed by EMD
 - ◆ S4PM can be quickly adapted for new work, PDPS cannot
- S4PM corrects a PGE issue which required manual intervention in PDPS
- PDPS Expedited process is manual while S4PM Expedited processing is more automated
- PDPS runs on UNIX whereas S4PM can run on UNIX & Linux

LP DAAC S4PM Processing System



Data Pool HEG

Key Data Pool HEG Capabilities

Service	Options
Format Conversion	HDF-EOS or GeoTiff
Projection Conversion	UTM, Geographic, Polar Stereographic, Sinusoidal
Spatial Subsetting	Only for MODIS data

Land Processes Distributed Active Archive Center

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DataPool @ LP DAAC

About Data Pool
Data Types
Data Pool Help
Release Notes
Glossary
EOS Data Gateway

Reformat, Reproject & Subset

Welcome to the Data Pool at the Land Processes Distributed Active Archive Center (LP DAAC). The Data Pool is an online archive that provides FTP access to selected LP DAAC data products. ASTER Data Pool coverage includes the United States and Territories. MODIS coverage is global. For these Terra and Aqua sensors, there are several data types available at no charge through the Data Pool. MODIS daily products are retained for 4 days, all others for 12 months. There is no scheduled removal cycle for ASTER products.

A simple 'drill-down' web interface is used to quickly locate data of interest. Metadata and most browse data can be viewed directly in your browser. Data granules can be downloaded via ftp. If you are new to the Data Pool, please read Data Pool Help and Release Notes to get a quick overview of the 'drill-down' interface. Note that the contents of the Data Pool will not always match the contents of the EOS Data Gateway. If the desired data is not found in the Data Pool archives, try searching the EOS Data Gateway (EDG). Missing granules cannot be inserted into the Data Pool archive.

SEARCH
ASTER & MODIS MODIS

FTP
ASTER MODIS: Aqua Terra Combined

Data Pool HEG

ASTER and MODIS Output Products

Output	ASTER Level-1B Products	Terra MODIS Grid Products	Aqua MODIS Grid Products
HDF No-Change (Original)	X	X	X
GeoTiff No-Change/UTM	X		
GeoTiff No-Change/Sin		X	X
HDF Geographic	X	X	X
GeoTiff Geographic	X	X	X
HDF Polar Stereographic	X	X	X
GeoTiff Polar Stereographic	X	X	X
HDF UTM (North-Up)	X	X	X
GeoTiff UTM (North-Up)	X	X	X

L1B On-Demand

- ◆ Since shortly after launch, the U.S. AST and LP DAAC have desired to produce L1B data at the DAAC. However, except for 250,000 scenes processed in 2003, we have not achieved the goal of routine L1A to L1B processing at the DAAC.
- ◆ Last year, Japanese and U.S. ASTER partners agreed to develop and implement **on-demand production** of ASTER L1B data both by ASTER GDS and the LP DAAC.

ASTER L1B On-Demand

- ◆ Technical feasibility notes:
 - It was determined that the EDG can be made to display L2 processing options for L1A data with a simple configuration change
 - It was determined that orders placed for L2 products from L1A data will be sent through the V0Gateway to S4PM without issue
 - Necessary changes:
 - ◆ Configuration change to the registry
 - ◆ Modification to S4PM (create L1B and then L2)
 - Making the L1B data available On-Demand will remove the capability to distribute L1B data on physical media

L1B On-Demand

- ◆ Advantages in offering on-demand L1B data include -
 - User access to the full L1A archive, including enhanced availability of higher-level products.
 - Improved data and product accuracy.
 - Various potential cost savings.
- ◆ The approach will utilize archived L1A data as input for on-demand L1B production and will include generation of an "L1A+" product when radiometric and/or geometric coefficients need to be updated.
- ◆ The current (optimistic) development schedule has the system being implemented in April 2006

L1B On-Demand

- ◆ While on-demand L1B processing at the DAAC is an important accomplishment, it does not come without certain issues and potential drawbacks.
 - As an on-demand product, L1B data will be available only via ftp, at least until such time as a USGS-developed media distribution system can be used for ASTER product distribution.
 - A new Data Pool strategy is needed, as there no longer will be an L1B archive. Most likely, qualifying L1A data will be processed to L1B and placed in the Data Pool under a rolling archive concept.
 - The GloVis data access system requires a consistent browse image for all L1A data. The GDS “improved” L1A browse image will be adopted by the DAAC for GloVis & the EDG.

DEM Software Evaluation

- ◆ Last year, the DAAC conducted a comprehensive ASTER DEM accuracy assessment study, which indicated that DAAC-produced ASTER DEMs were not as accurate as those produced by certain other available software systems.
- ◆ As a result, the DAAC decided to change its ASTER DEM production software to either –
 - ASTER GDS DEM production system
 - Production version of SilcAst ASTER DEM software
- ◆ The current plan is to implement the SilcAst batch mode operation DEM software system, hopefully by the end of March.
 - Produce 30-50 ASTER DEMs/day
 - Accurate to better than 25m RMSExyz without GCPs