

The Land Processes DAAC Status Report

9/10/03

**Tom Kalvelage
DAAC Manager
605.594.6556
Kalvelage@usgs.gov**

Quick Review

- **Land Processes Distributed Active Archive Center:**
 - ◆ Works as a fully functional data center.
 - ◆ Is funded by NASA.
 - ◆ Is managed and operated by the USGS at EDC.
 - ◆ Responds to NASA requirements and guidance.
 - ◆ Is consistent with and supports, the strategic goals and objectives of the USGS, Geography Discipline, and EDC.
 - ◆ Provides land remotely sensed data and derived products to NASA scientists and the general public.
 - ASTER Level 1, and processing higher level land products.
 - MODIS Higher Level land products.
 - Landsat 7 Level 1 products.
 - ◆ Was established according to a 1988 USGS/NASA MOU.

Quick Review

- **The 1988 USGS/NASA MOU addressed the LP DAAC and more:**
 - ◆ According to the MOU, NASA was responsible for:
 - Place the active short-term and long-term archives for land remotely sensed data obtained by NASA at EDC, for “...the EOS program and other current and future experimental systems...”.
 - Include as appropriate USGS representatives in planning, development, and implementation activities for earth observation systems including the EOSDIS.
 - Provide funding for the short-term archives and appropriate science support activities.
 - Transfer responsibility for active long-term archiving and appropriate science support activities to the USGS.
- **The LP DAAC is the NASA-funded active short-term archive.**
- **We’ll address the long-term archiving later in this meeting.**

Quick Review

- **By the MOU, the USGS agreed to:**
 - ◆ Have the EROS Data Center serve as the active short-term and long-term archive.
 - ◆ Participate with NASA in planning, development, and implementation of earth observation systems.
 - ◆ Assume responsibility for active long-term archiving and appropriate science support activities for that data in the active short-term archives.
- **Again, this covers the LP DAAC.**
- **It also sets the stage for the Long Term Archive (LTA) transition we will talk about later.**

Quick Review

- **By the MOU, the USGS and NASA agreed to jointly:**
 - ◆ Define the scope and content of the active short- and long-term land remotely sensed archives and associated science support activities.
 - ◆ Address the long-term archive (more on this later).
- **So the two agencies intended to work together.**

Quick Review

- **A clarification was issued in 1989.**
 - ◆ This primarily addressed the long-term archiving aspect of the MOU.
 - ◆ The clarification will be addressed in the LTA briefing later in this meeting.

Last Meeting

- **At the last meeting, we were in a budget ‘crisis’:**
 - ◆ At start of FY03, NASA warned of possible significant FY03 cuts, instructed us to severely contain costs.
 - We cut back on travel, training, outreach, and allowed vacancies (some critical) to remain unfilled.
 - Contract changes hurt our ability to track actual expenses.
 - ◆ Right before the meeting, we were notified of a possible 5% to 18% cut, and expect the mid- to upper-range.
 - ◆ At the meeting, we discussed cut options.
 - The SAP advised us to *first, support the users, and not preferentially cut outreach, user services, and distribution.*
 - ◆ Actual budget cut given was about 5%.
 - Our implementation of NASA’s cost containment policy allowed us to accommodate this without significant impact.

Since The Last Meeting - Management

- **With the crisis over, we went back to work.**
 - ◆ New financial linkages came on line, got better numbers.
 - ◆ We restored user services and outreach.
 - ◆ We pushed hard to reduce staffing and cost where possible – primarily in operations and system support.
 - One place where we ran counter to the trend: we augmented data management, to help with our average of 20,000 to 60,000 metadata updates per day.
 - ◆ We continued to follow our engineering and operations workplan.

Since The Last Meeting - Engineering

- LTA transfer work – V0 transition preparation is being worked.
- *The National Map* – attempted to hook up, products will go out generic OGC.
- ASTER L1B Production – improved browse, historical production on hold / L1C
- New Server setup – EDG server replaced/upgraded to help users.
- Traffic Cop installation – Phase 1 out, P2 in work, improves middleware.
- Network Security upgrade – New hardware in, reports in work, 100% score.
- Operations Reduction Effort – In work, shifts changed, call-in criteria changed.
- Data Pools Upgrades – Lots of problems that have affected the next upgrade.
- ECHO integration – will operate soon, some concerns over ops workload.
- ASTER Browse Tool upgrade – improved L1B browse used, working on orders.
- MODIS Data Pool Tile Based Client – deployed today, also working on orders.
- HEG Tool (subsetter) validation – in work, expect problems, science workload.
- LDOPE Tool Upgrades – Several, added extra tools and platforms.
- MODIS Reprojection Tool Fixes – several.
- Data Rate Increases – now capable of 2TB/day avg., some slight problems.

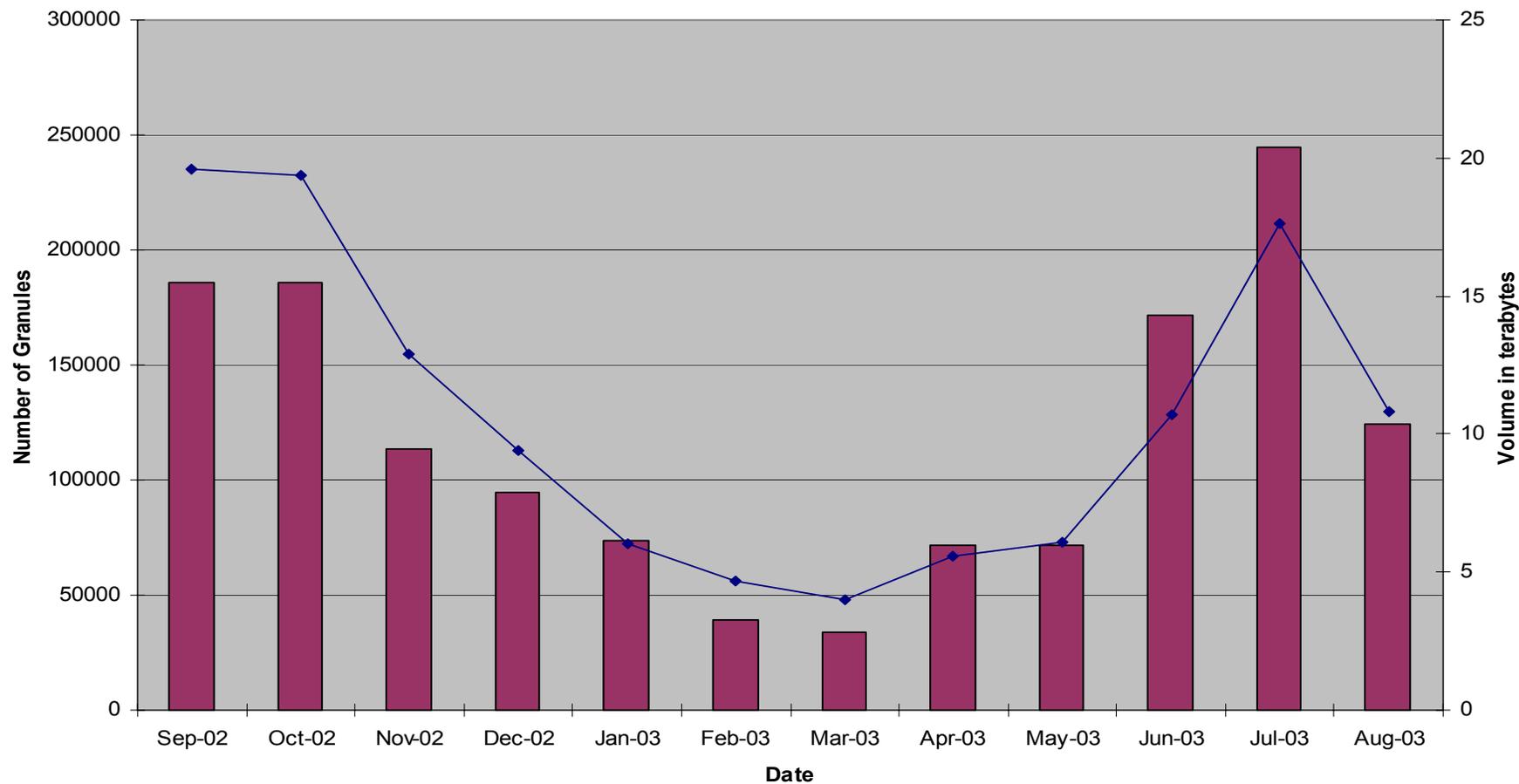


Since The Last Meeting - Engineering

- Billing and Accounting – ASTER working, all else on hold.
- Seamless User Registration – Integrated, tested, and in operations.
- HEW Tool – installed, validated, on hold due to significant problems we found.
- Data Pools/GIS – On hold, possible Synergy IV or V effort next year.
- Metrics Upgrades – Upgrades in work to support user characterization.
- EDGRS Troubleshooting/Integration – A constant effort.
- M&O LAN Takeover – agreed to, takeover in work.
- Reconciliation with ECHO – Phase 1 tools by Oct, Phase 2 follows.
- ANSUR Fixes – Supported NASA HQ request to separate education requests.
- EDG 3.4/3.5 – installed, tested, troubleshot, and deployed.
- ECS Drop Installs – A constant major effort. Includes hardware and software.
- Data Deletion Tool DUE – Built, tested, and deployed.
- Ops Monitoring Tools – Some analysis done, on hold waiting for special funds.
- Shopping Cart Upgrade (for clients) – Provides media orders to browse clients.
- EOS Validation – Augmented hardware to provide users with more data.

Since The Last Meeting - Operations

Distribution Granules/Volume



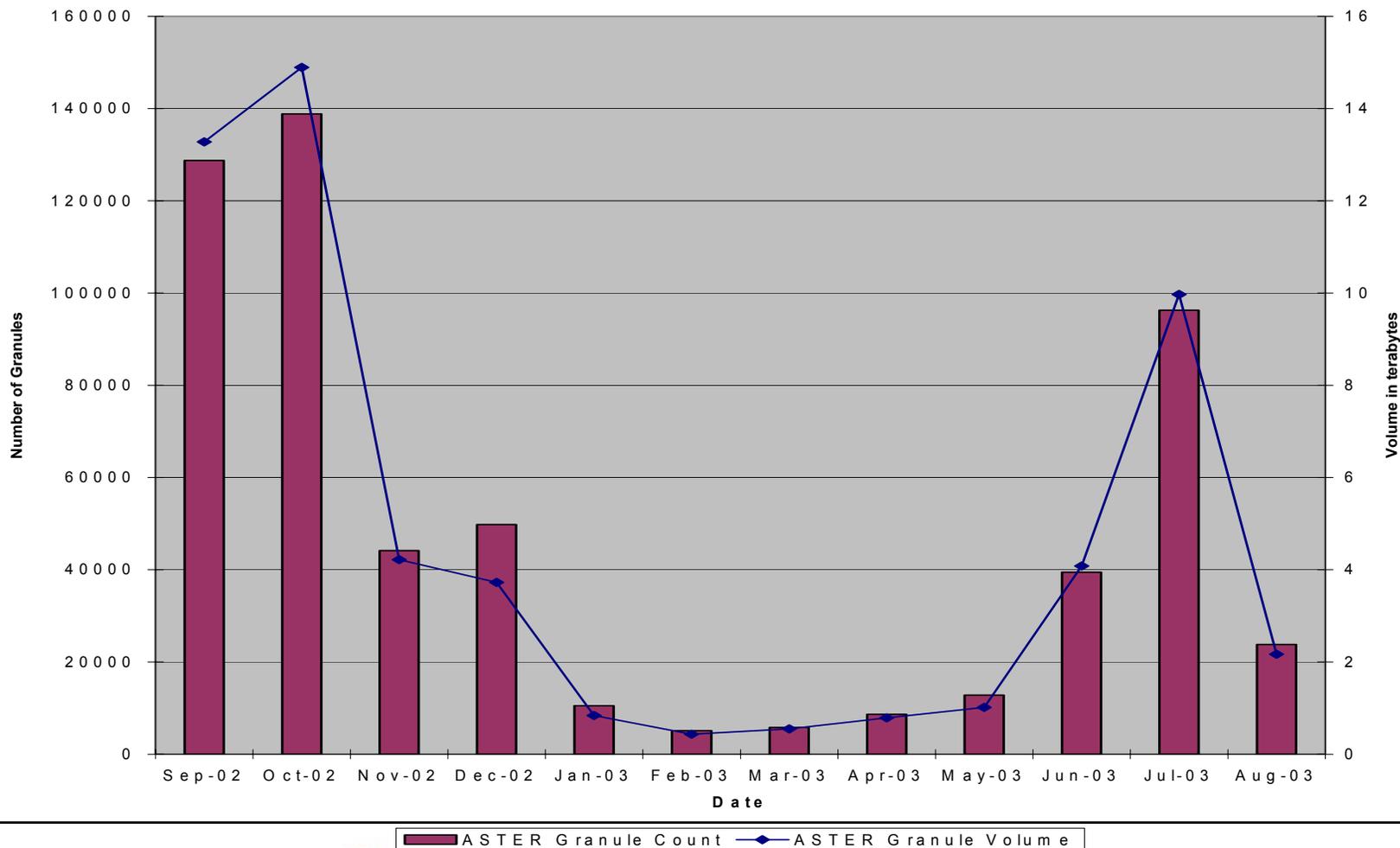
Granule Count Granule Volume



Land Processes DAAC
Science Advisory Panel Meeting
September 10 & 11, 2003

Since The Last Meeting - Operations

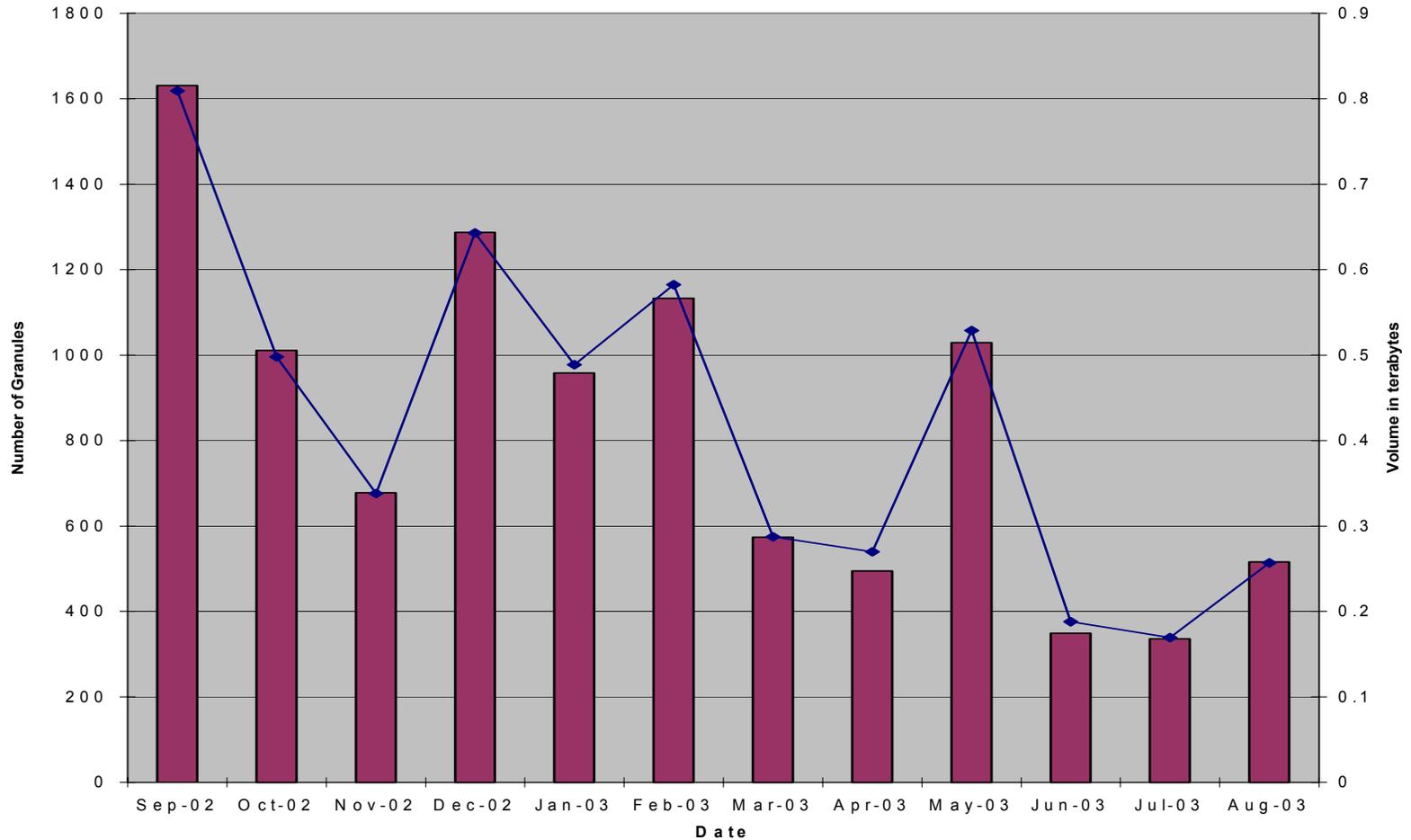
ASTER Distribution Granules / Volume



Land Processes DAAC
Science Advisory Panel Meeting
September 10 & 11, 2003

Since The Last Meeting - Operations

Landsat 7 Distribution Granules/Volume



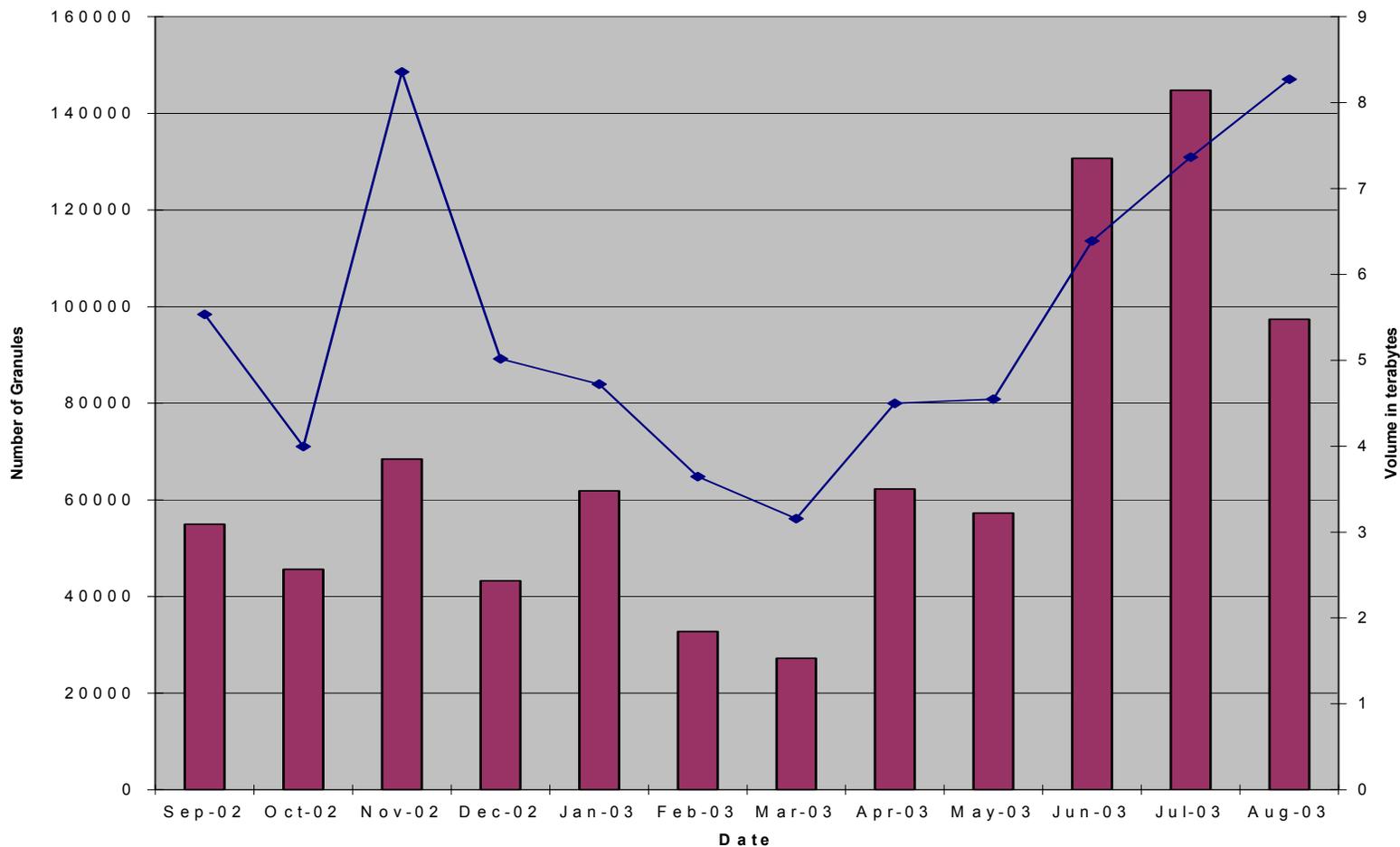
■ Landsat 7 Granule Count ◆ Landsat 7 Granule Volume



Land Processes DAAC
Science Advisory Panel Meeting
September 10 & 11, 2003

Since The Last Meeting - Operations

MODIS Distribution Granules/Volume



Land Processes DAAC
 Science Advisory Panel Meeting
 September 10 & 11, 2003

Since The Last Meeting - Operations

OPERATIONS DOWNTIME SUMMARY REPORT

High Level Report

8/1/2003 THRU 8/31/2003
Start Date End Date

SCHEDULED EVENTS

Total Number of Events: 4

Total Downtime: 12 hrs and 43 mins

UNSCHEDULED EVENTS

Total Events - Low: 0

Total Downtime - Low: 0 hrs and 0 mins

Total Events - Medium: 2

Total Downtime - Medium: 13 hrs and 46 mins

Total Events - High: 2

Total Downtime - High: 4 hrs and 13 mins

Total Number of Events: 4

Total Downtime: 17 hrs and 59 mins

Total Active Work Time: 17 hrs and 59 mins

Availability (August 2003)

Uptime: 95.9%

Downtime:

Scheduled: 1.7%

Unscheduled: 2.4%

The Future – Budget and Impacts

- **We expect more budget reductions.**
 - ◆ NASA has been clear and consistent that they will significantly reduce operations budgets in the future.
 - ◆ NASA guidance is to not add requirements, or new work.
 - This sharply constrains but does eliminate our ability to start new tools, clients, capabilities, etc.
 - ◆ FY04 funding is likely to be at or below FY03 levels, even with increased costs (i.e. 12 full months of labor in FY04, vs. ~11.5 in FY03).
 - ◆ Clearly, getting budget cuts in the out-years won't be an unexpected crisis or emergency, it will be expected practice, and we should be prepared for it.

Budget Strategy - Options

- **There are two ways to address cuts:**
 - ◆ Resist – plan to maximize spending, emphasize impacts.
 - This might minimize cuts in the near-term, however...
 - The eventual cuts would disrupt staff and impact users.
 - This approach does not help our USGS/NASA partnership.
 - ◆ Accept – prepare for cuts.
 - As advised, maintain outreach, user services, etc.
 - Focus on reducing operations and system support cost.
 - ◆ Affects uptime and ability to recover from problems.
 - ◆ Helps us strategically in the long term archive transfer arena.
 - Restrict engineering work, path-finding, and our ‘churn rate’.
 - ◆ Reduces our ability to implement new and upgraded systems.
 - ◆ This would reduce EMD, ECHO/EDG, and Synergy throughput and quality, which affects us, but is not primarily our concern.



Budget Strategy - Summary

- **Our strategy:**

Prepare to accept cuts, but resist what we can't accept.

- **As much as possible,**

- ◆ maintain outreach, user services, data distribution, etc. – those things that touch the user.
- ◆ increase efficiency and reduce costs of operating and supporting systems.
- ◆ reduce or streamline our 'churn rate', engineering, and path-finding work.
- ◆ Where advisable (or advised), submit proposals to NASA for new or improved capabilities in the above areas.
- ◆ Treat vacancies as opportunities.

Budget Strategy – Possible Impacts

- **This would lead to some interesting choices:**
 - ◆ For example, we might respond to a possible “unacceptable” cut by proposing to freeze systems except for critical fixes, instead of no longer offering hard media to users.
 - Once implemented, this would take significant time to reverse.
 - ◆ In effect, we would give a higher priority to maintaining existing capabilities over either adding new capabilities, supporting new NASA efforts, or doing long-term engineering.
 - Having us reduce support for ECS fixes and upgrades will cause work to back up at the ECS factory, affecting all the DAACs.
 - Having us reduce support for ECHO, Synergy, and other efforts will slow those initiatives and/or reduce their quality (which will increase our operations and maintenance costs if we accept deliveries).
 - This will get worse in the out-years, as budgets contract further.
 - ◆ This will be a challenging balancing act over how best to support users.

Current Budget Work

- **What we are doing now for FY04:**
 - ◆ maintain outreach, user services, etc.
 - *Done.*
 - ◆ increase efficiency and reduce costs.
 - *Much done in FY03; still working this.*
 - ◆ reduce or streamline our 'churn rate' & engineering.
 - *We have already advised our EMD* liaison and are changing our approach with other development groups too.*
 - ◆ Where advisable (or advised), submit proposals to NASA for new or improved capabilities in the above areas.
 - *Some in place; also looking at others.*
 - ◆ Treat vacancies as opportunities.
 - *In work.*
- **FY04 budget not known yet, this may be enough.**

*EOSDIS Maintenance and Development, responsible for maintaining EOSDIS Core System.



Land Processes DAAC
Science Advisory Panel Meeting
September 10 & 11, 2003

Future of the Work

- **No additional future missions for the LP DAAC yet.**
 - ◆ NASA still working on it's future data, data system, and user support strategy.
 - NASA is moving to a Climate Data Record (CDR) approach.
 - ◆ CDR's supported by multiple missions and sensors.
 - ◆ Processing is based on thematic SIPS, but still TBD.
 - ◆ User services, distribution, and archiving is still TBD.
 - ◆ DAAC role is TBD, but "evolution" is the word used.
 - EOS assumptions and practices may be invalid now.
 - ◆ For example, two future missions, National Polar Orbiting Environmental Satellite System (NPOESS) and NPOESS Preparatory Project (NPP) will apparently not have NASA science processing systems even built at launch.
 - ◆ Impact on Land science community still unknown.