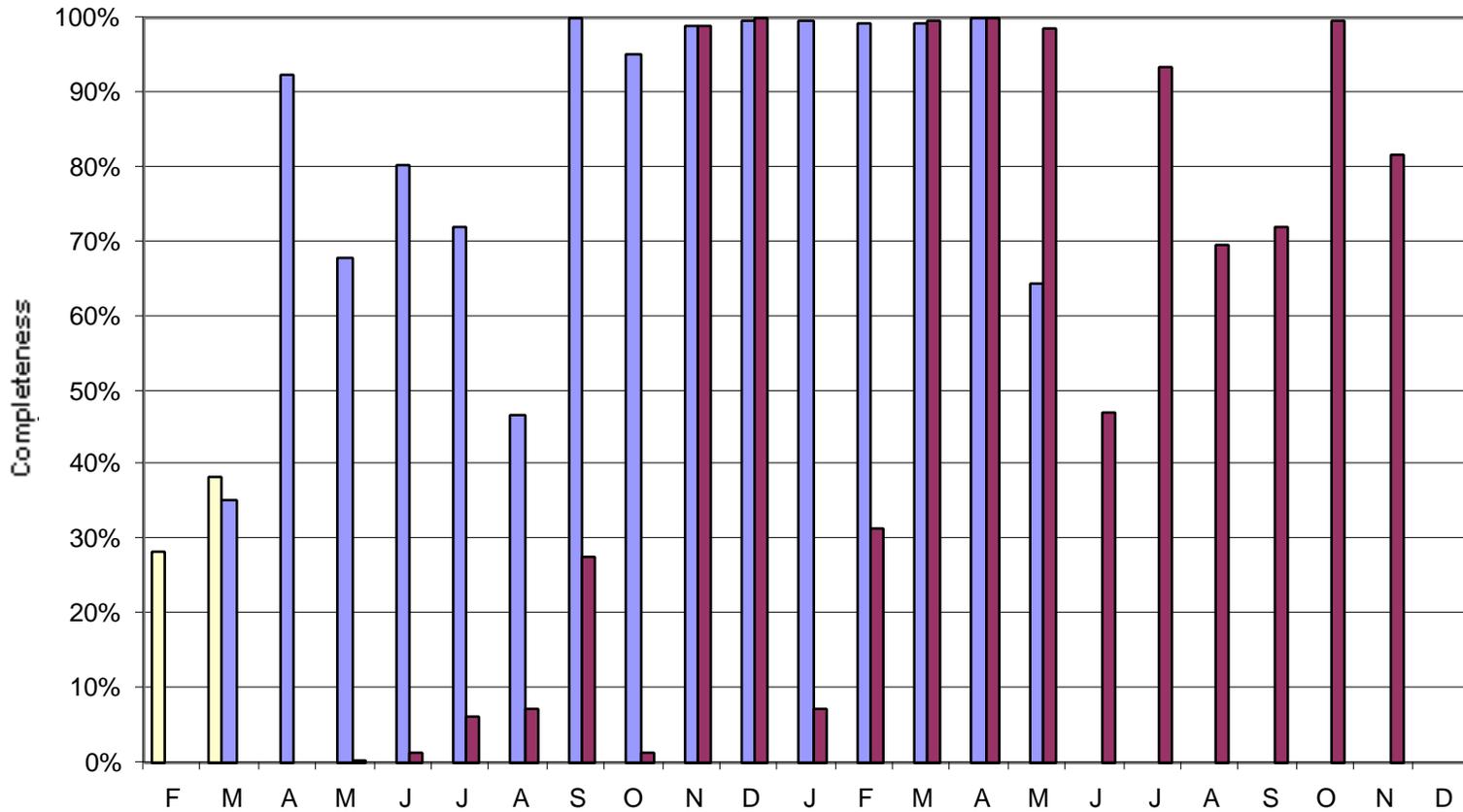MODIS Science Team Meeting

Atmospheres Discipline Breakout

December 17, 2001

Status of MODIS Data Processing

Bill Ridgway

SSAI / NASA GSFC

Availability of MODIS Level 1B Data as of November 29, 2001 3:00PM

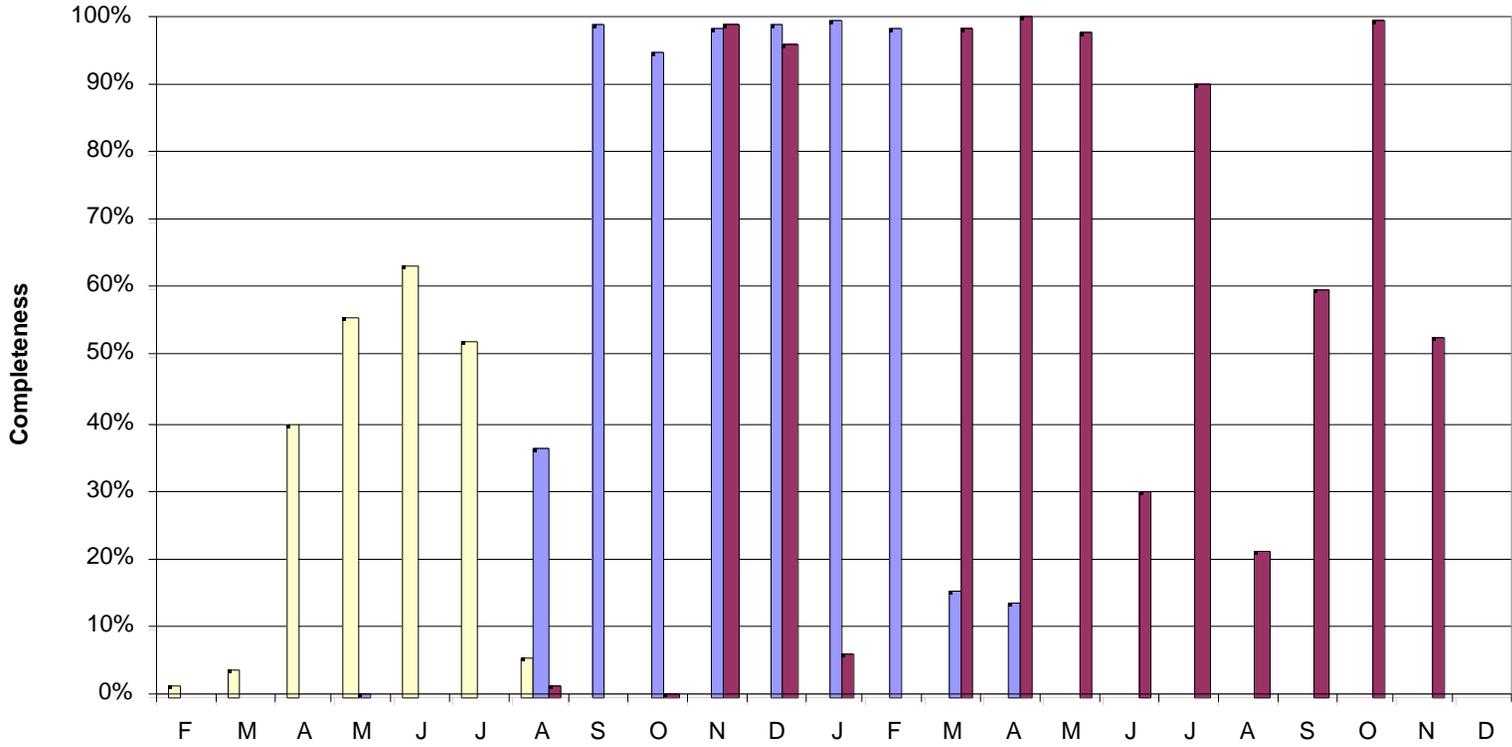| February 24, 2000 - October 30, 2000 | A-Side data |
| October 30, 2000 - June 15, 2001 | B-Side data |
| July 2, 2001 - Present | A-Side data |

	Feb-00	Mar-00	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01	Apr-01	May-01	Jun-01	Jul-01	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01
▫ Ver 199	28.5%	38.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
▫ Ver 001	0.0%	35.2%	92.6%	67.7%	80.4%	71.9%	46.8%	99.9%	95.3%	98.9%	99.6%	99.8%	99.1%	99.3%	100.0	64.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
▪ Ver 003	0.0%	0.0%	0.0%	0.2%	1.3%	6.1%	7.3%	27.8%	1.3%	99.1%	100.0	7.1%	31.6%	99.7%	100.0	98.7%	47.2%	93.5%	69.7%	72.1%	99.8%	81.6%	0.0%

Note: Version 199 data is not orderable by external customers.

Amount of L1B data archived at the GES DAAC from February 2000 to November 2001.

Completeness

	Feb-00	Mar-00	Apr-00	May-00	Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01	Apr-01	May-01	Jun-01	Jul-01	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01
Ver 199	1.6%	3.9%	40.0	55.6	63.7	52.5	5.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ver 001	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	36.3	99.1	95.1	98.5	99.2	99.3	98.5	15.7	13.8	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ver 003	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.6%	98.7	96.0	6.5%	0.0%	98.7	99.9	97.9	30.0	90.1	21.7	59.6	99.6	52.7	0.0%

Note: Version 199 data is not orderable by external customers.

Availability of MODIS Level 2 Atmospheres Cloud Products as of November 29, 2001 3:00PM
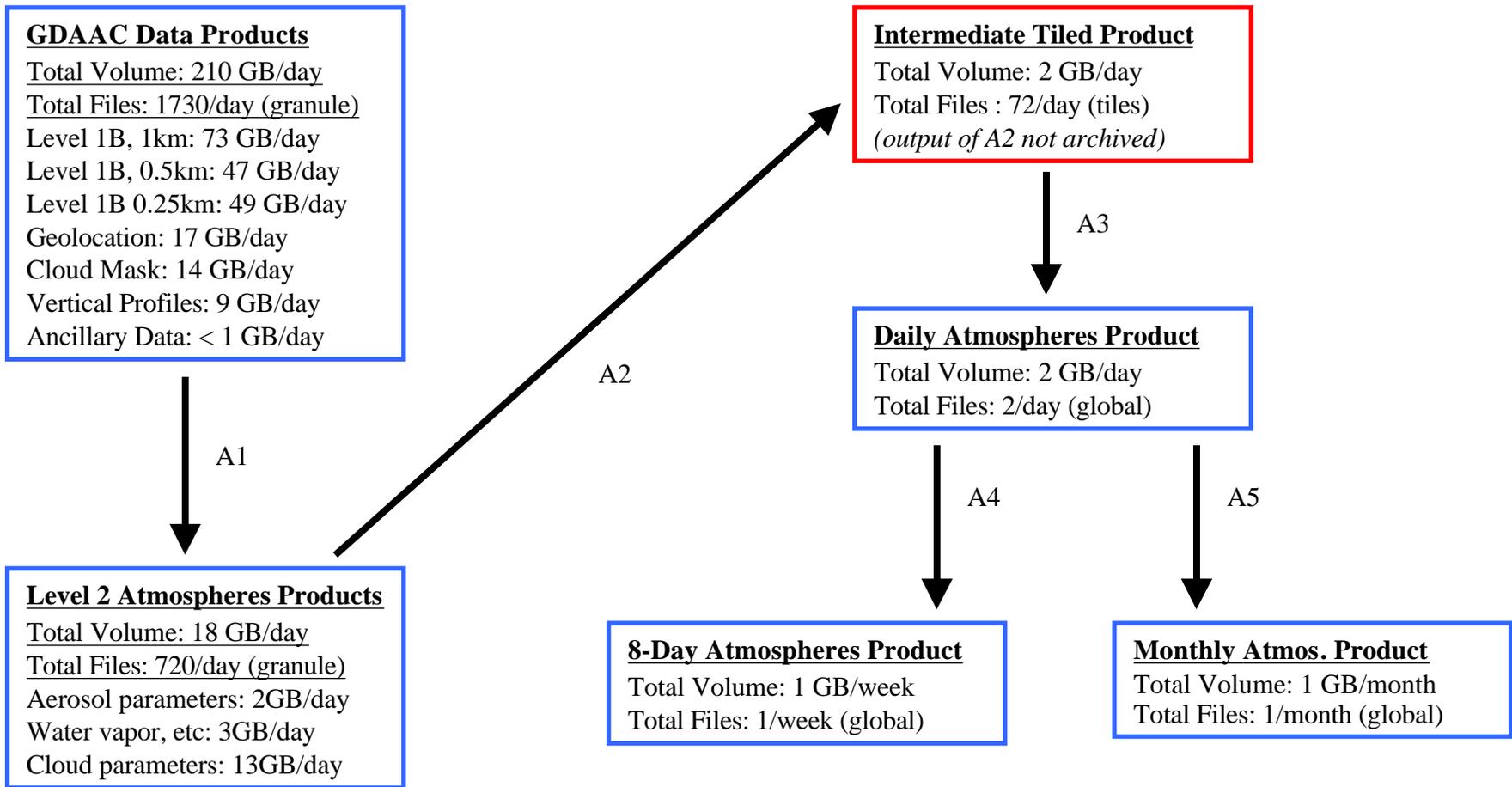
MODIS Data Volume Summary (GB/day) Based on CPS (Current Product Set)

Product Type	(1X)	(3X)	made	archived and/or shipped
L0	70	70	EDOS	GES DAAC archive
L1A	110	330	GES DAAC	GES DAAC archive
L1 subsets	48	144	GES DAAC	(Langley & Miami)
L1B+	210	630	GES DAAC	MODAPS
L2/L3+	430	1290	MODAPS	3 DAAC's
total	**870**	**2470**	**(total archived, all levels, all DAAC's)**	
L2/L3 interim	378	1134	(QA and temporary products not archived)	

Processing Challenges

- Product volume and algorithm complexity
- Coordinating processing among organizations
- Repairing production system flaws after software installs
- Limited redundancy in key processing components
- Difficulty in monitoring production, file transfer, and product archival across organizational boundaries
- Scheduling processing and reprocessing consistent with algorithm readiness and science requirements

GDAAC Data Products

Total Volume: 210 GB/day
Total Files: 1730/day (granule)
Level 1B, 1km: 73 GB/day
Level 1B, 0.5km: 47 GB/day
Level 1B 0.25km: 49 GB/day
Geolocation: 17 GB/day
Cloud Mask: 14 GB/day
Vertical Profiles: 9 GB/day
Ancillary Data: < 1 GB/day

A1

Level 2 Atmospheres Products

Total Volume: 18 GB/day
Total Files: 720/day (granule)
Aerosol parameters: 2GB/day
Water vapor, etc: 3GB/day
Cloud parameters: 13GB/day

A2

Intermediate Tiled Product

Total Volume: 2 GB/day
Total Files : 72/day (tiles)
(output of A2 not archived)

A3

Daily Atmospheres Product

Total Volume: 2 GB/day
Total Files: 2/day (global)

A4

A5

8-Day Atmospheres Product

Total Volume: 1 GB/week
Total Files: 1/week (global)

Monthly Atmos. Product

Total Volume: 1 GB/month
Total Files: 1/month (global)

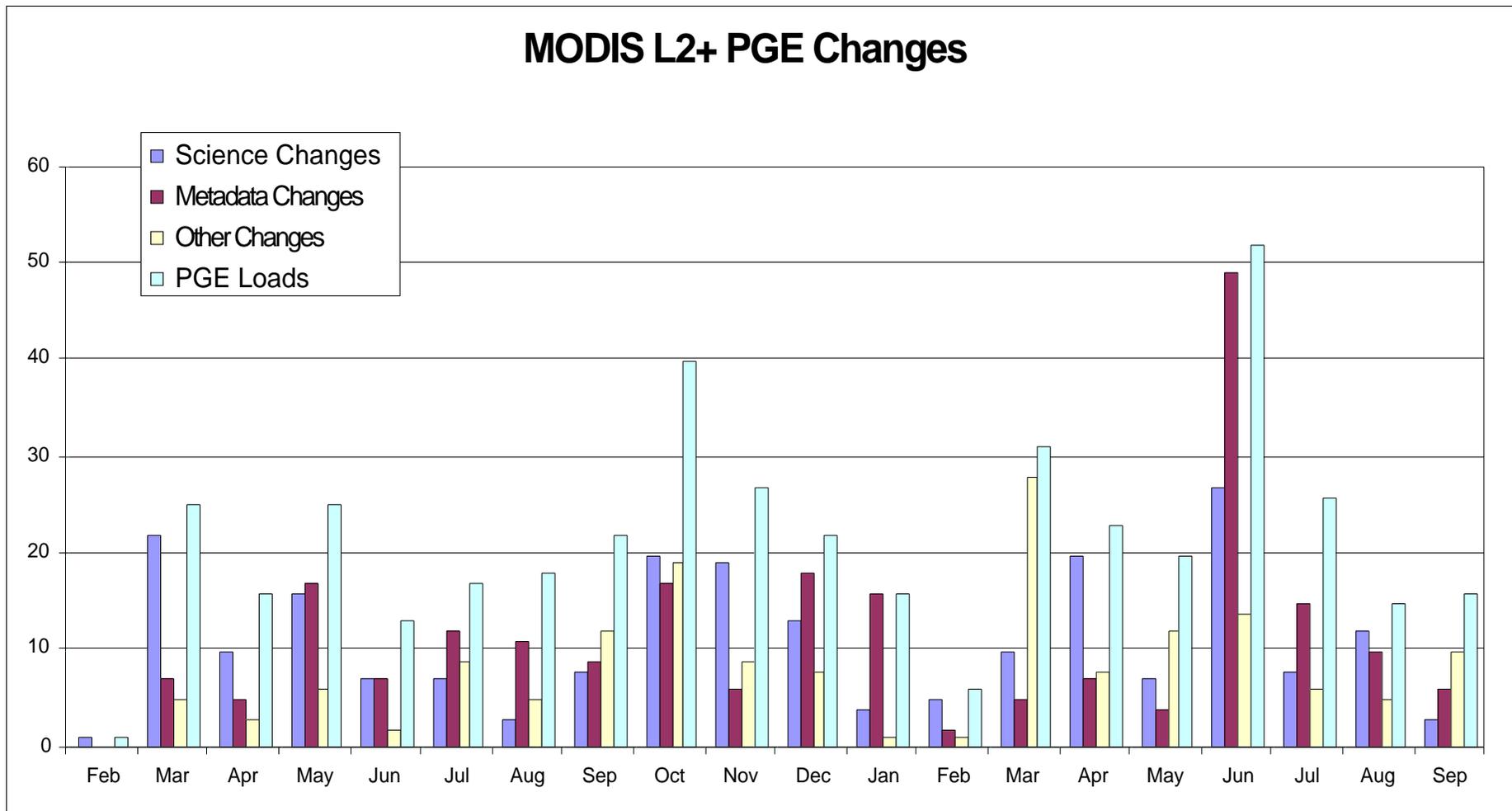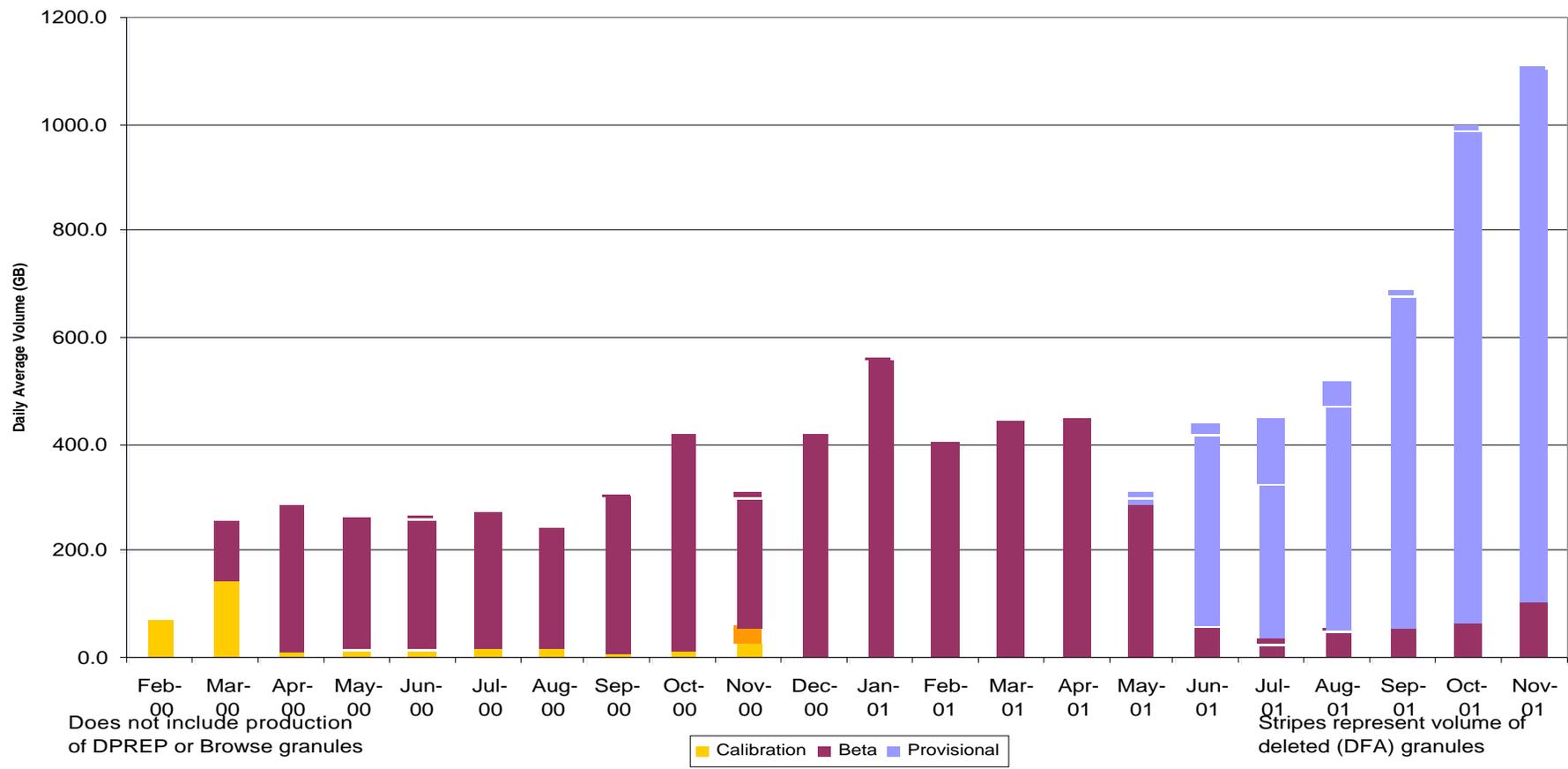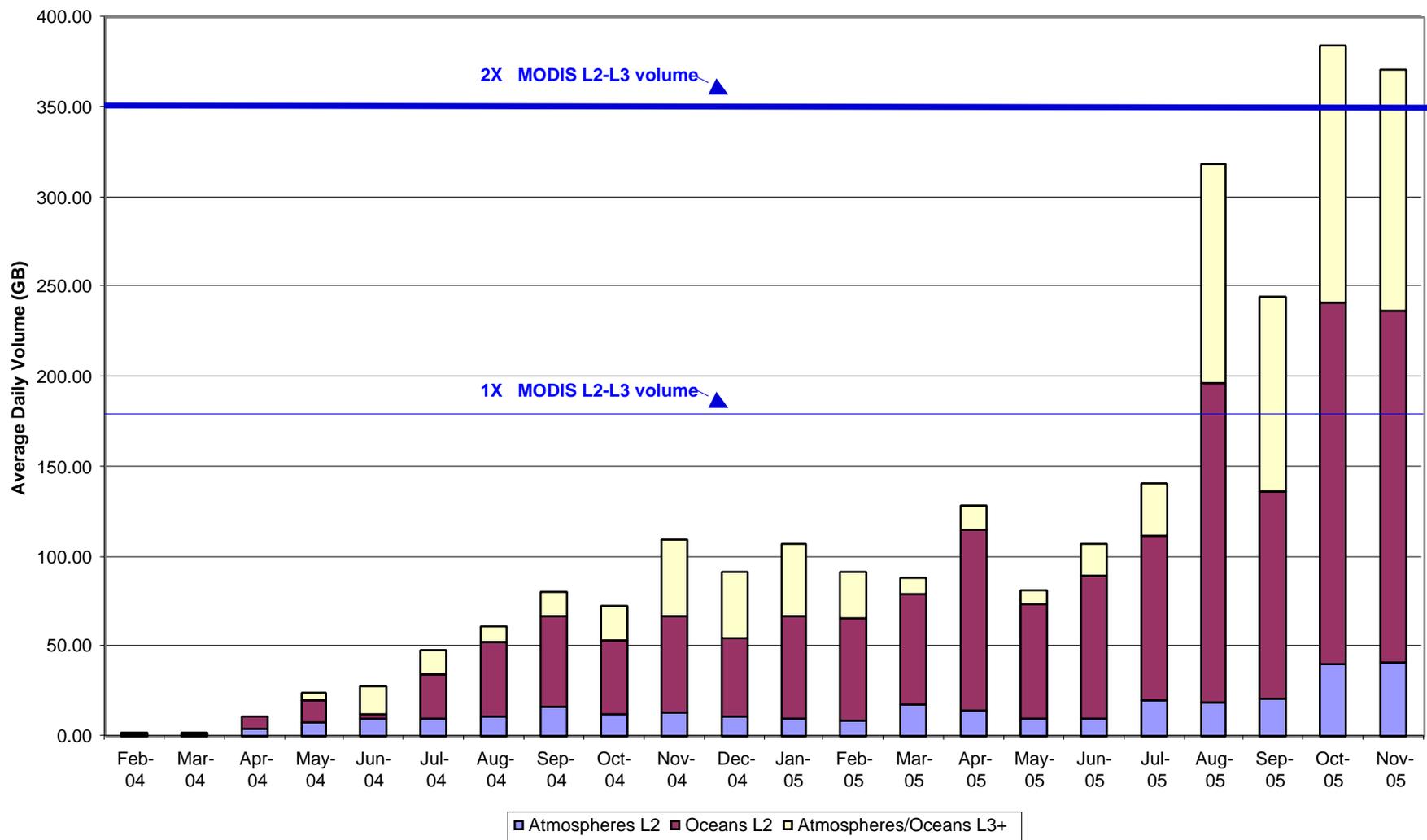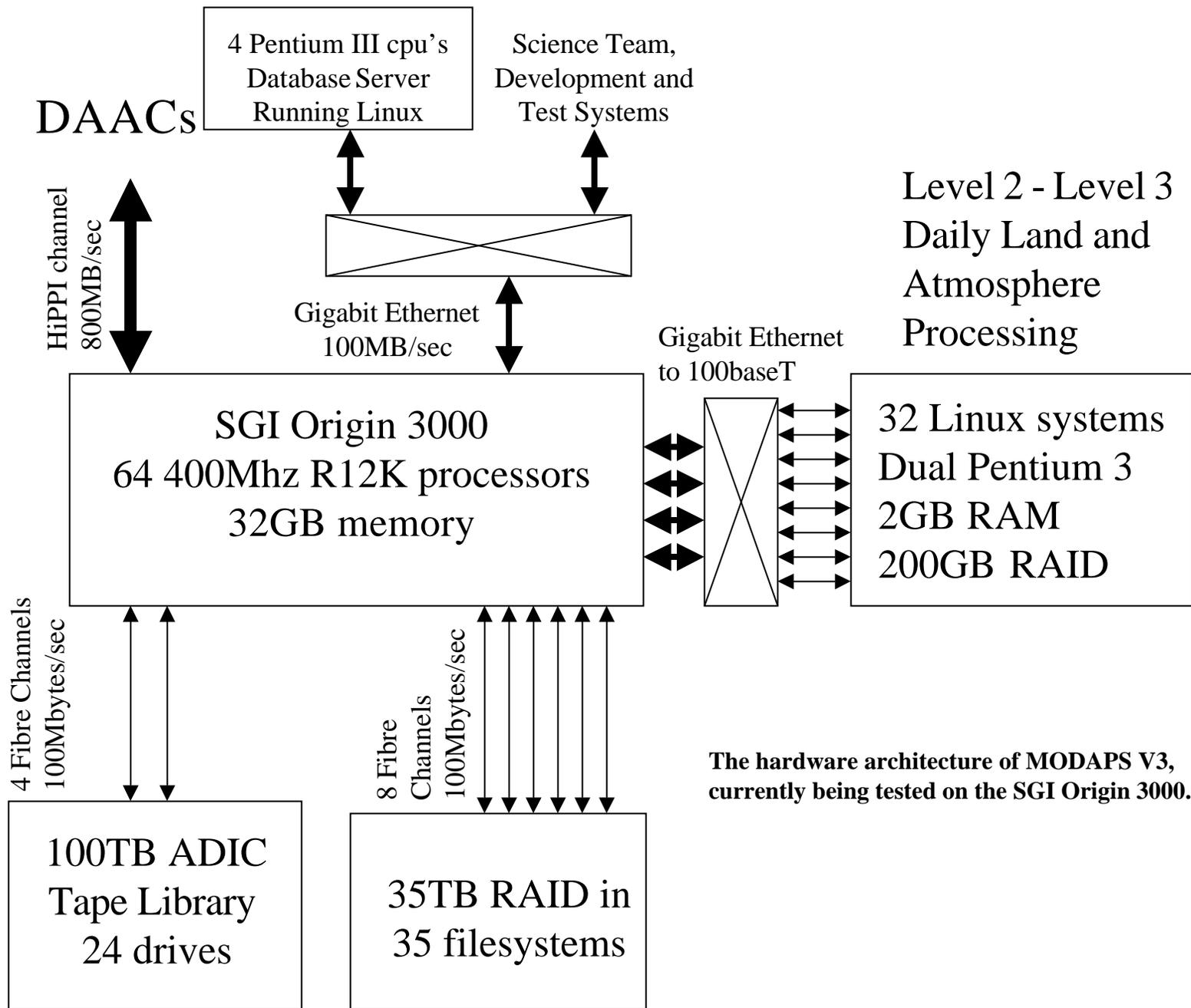**Atmospheres Processing Flow & Product Volumes**

Figure 3. PGE changes by month to productions algorithms.

GDAAC Production of MODIS Data Daily Average Volume by Month of Production February 2000 to November 2001

Daily Average Volume (GB)

1200.0
1000.0
800.0
600.0
400.0
200.0
0.0

Feb-00, Mar-00, Apr-00, May-00, Jun-00, Jul-00, Aug-00, Sep-00, Oct-00, Nov-00, Dec-00, Jan-01, Feb-01, Mar-01, Apr-01, May-01, Jun-01, Jul-01, Aug-01, Sep-01, Oct-01, Nov-01

Does not include production of DPREP or Browse granules

Stripes represent volume of deleted (DFA) granules

Calibration Beta Provisional

GDAAC Ingest of MODAPS Data February 2000 to November 2001. Horizontal line illustrates the average daily volume based on the 1X of the Current Product Set (CPS) volume.

DAACs

4 Pentium III cpu's
Database Server
Running Linux

Science Team,
Development and
Test Systems

HiPPI channel
800MB/sec

Gigabit Ethernet
100MB/sec

Level 2 - Level 3
Daily Land and
Atmosphere
Processing

Gigabit Ethernet
to 100baseT

SGI Origin 3000
64 400Mhz R12K processors
32GB memory

32 Linux systems
Dual Pentium 3
2GB RAM
200GB RAID

4 Fibre Channels
100Mbytes/sec

8 Fibre
Channels
100Mbytes/sec

The hardware architecture of MODAPS V3,
currently being tested on the SGI Origin 3000.

100TB ADIC
Tape Library
24 drives

35TB RAID in
35 filesystems