ASTER Level-1 B Processing

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Statement of the Problem

- U.S. ASTER Science Team anticipated 310 L1B scenes per day would be produced by GDS and shipped to the LP DAAC.
- Many expected the L1B product to be the most popular ASTER product among users. L1B product is the main input to all higher level products with the exception of DEMs.
- Post-launch statistics have demonstrated the L1B's popularity, but only about half the number expected have been produced.
- Particularly as the U.S. is now charging for ASTER data, it is very important to us to increase the number of L1B scenes available to our users.

Goal and Objectives

- **The primary goal of our proposal is to increase significantly the number of ASTER L1B scenes available to the global research and applied remote sensing user communities.**
- **Objectives for accomplishing this goal include:**
  - Use ASTER GDS S/W to generate L1B products at the LP DAAC from L1A granules ingested and archived in ECS.
  - Ensure distribution of quality L1B products by performing appropriate quality assurance (QA). This includes automated checks by GDS software and limited manual checks by JPL.
  - Ingest all new L1B scenes into ECS and make them available via the EOS Data Gateway (EDG).
  - Link the L1B products to an LP DAAC generated L1B browse.
  - Identify LP DAAC-generated L1B granules in the metadata by a product specific attribute (PSA). Additional attributes will now be populated for Level-1 products including day/night flag.

ASTER Level-1B Processing Proposal

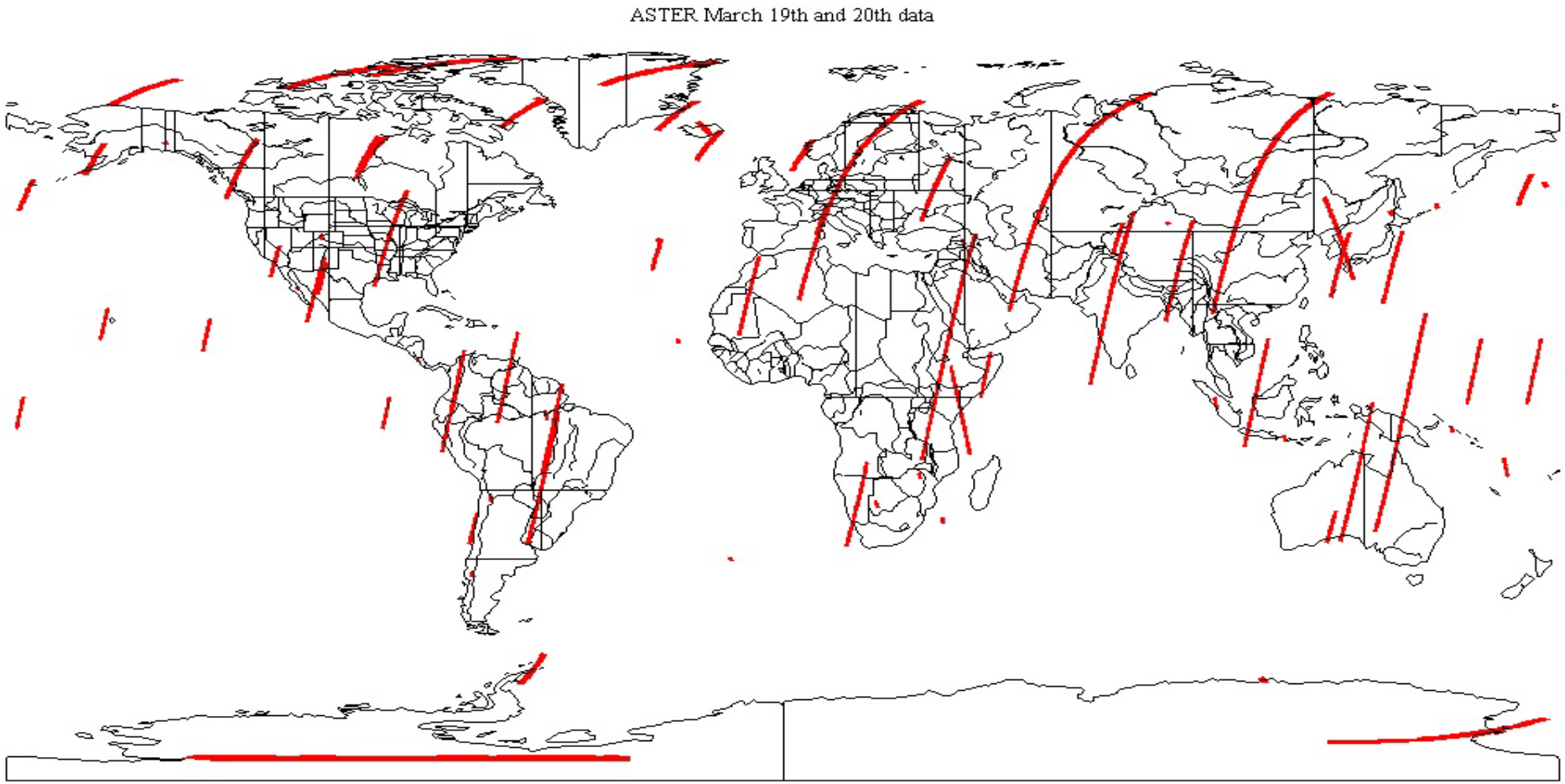
- **Proposal Submitted to ESDIS 15 November 2002**
  - Generate all Level-1A from March 2000 to January 2002
  - Generate Level-1B browse
    - 770 lines x 830 pixels versus the current GDS generated L1A browse of 208 lines x 224 pixels
  - Replace routine decorrelation stretch production with Level-1B browse production
    - Decorrelation stretch products will continue to be available via on-demand requests
  - Minimal to no cost by implementing within system and staff constraints.
- **ESDIS Level-1B production approval 18 December 2002**

ASTER Level-1B Processing Approval

- **ASTER GDS concurrence with LP DAAC Level-1B processing at August 2002 interface meeting.**

- **ESDIS Level-1B production approval 18 December 2002**
  - "The LPDAAC should reprocess the ASTER data from the start of the mission through January 2002."
  - Request to "do sample processing of two days of Level 1a data acquired after January 2002. This will allow us to compare the output and cloud cover in the Level 1b scenes versus the output from ASTER GDS. This will give us information to help decide whether to also reprocess the ASTER data acquired after January 2002."

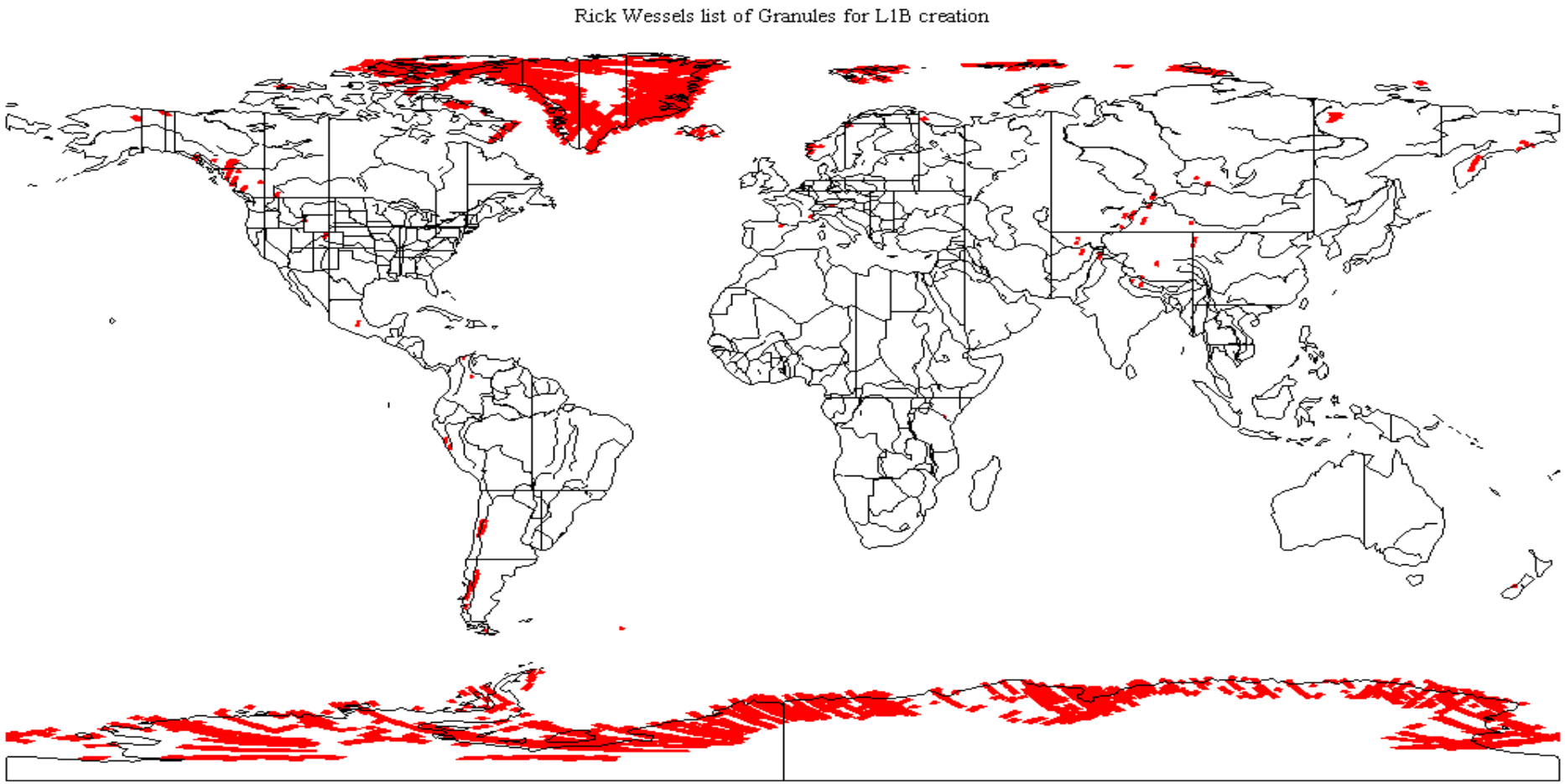
Two Day Production Test – 1933 Scenes



Two Day Production Test – Results

- ASTER GDS Production Dates 13 & 14 March 2002 selected with 965 and 968 scenes respectively
- Production Planning feasible with current resources. New Production Planning capability being investigated to further optimize process.
- Initial tests show that system processing rate of 1000 granules per day is realistic. This will be re-evaluated after one month of initial production.
- LP DAAC/GDS Level-1B granule comparisons show very small differences. To be reviewed by ASTER Science Team.
- Reference: "An Analysis of ASTER Level-1B 2-day Production Runs", LP DAAC White Paper No. 2003-01,31 January 2003

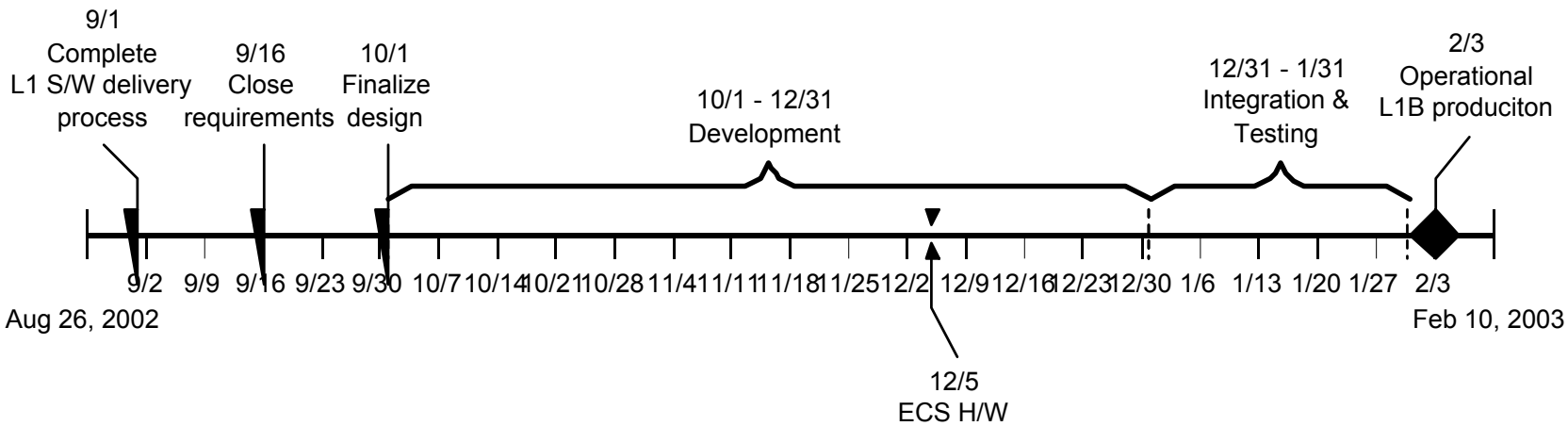
Global Land Ice Measurements from Space (GLIMS) 2818 Scenes



Global Land Ice Measurements from Space (GLIMS) Production Runs

- The LP DAAC was requested to provide the Level-1 processing in lieu of ASTER GDS based on approval by ASTER GDS in July 2002.
- Level-1B production was started on 24 December 2002 and completed on 17 January 2003.
- 2818 scenes requested, 27 failed due to lat/long related errors.
- Data stored in Version AST_L1B.001, for science team access only.
- The data was ordered via EDG for DVD delivery and these orders were completed by Operations staff on 21 January 2003.

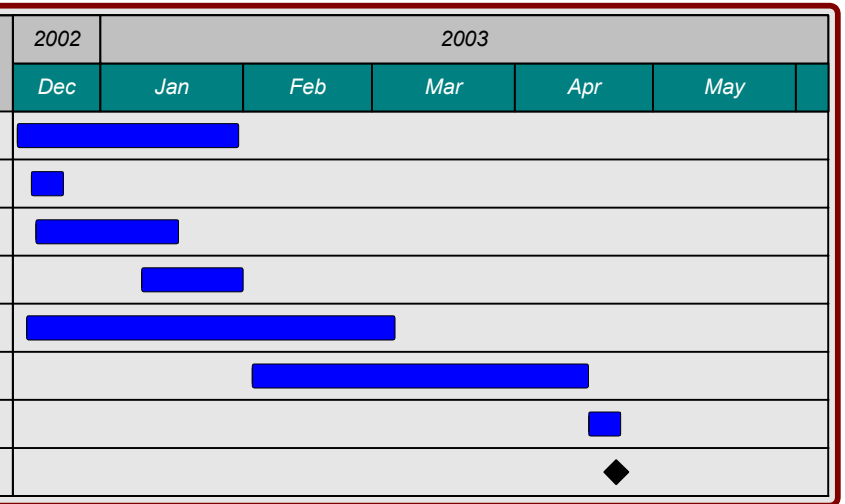
Initial Development and Implementation Milestones



Replan

- First Bullet

ID	Task Name	Start Date	End Date	Duration
1	ESDT Installation and Testing	12/14/2002	1/30/2003	34d
2	2-day Production Test	12/17/2002	12/23/2002	5d
3	GLIMS Production Runs	12/18/2002	1/17/2003	23d
4	Capacity Analysis	1/10/2003	1/31/2003	16d
5	ASTER Level-1B Browse Work	12/16/2002	3/5/2003	58d
6	Final System Preparation for Production	2/3/2003	4/16/2003	53d
7	Capacity Analysis	4/17/2003	4/23/2003	5d
8	Begin Regular Production	4/23/2003	4/23/2003	0d



Current Issues to Level-1B Processing

- **Ensure Level-1B browse linking is performed correctly**
  - Submitted trouble ticket and working with ECS
- **Will need to generate L1B browse for period from January 2002 to present to maintain consistent browse archive**
- **Get final concurrence from ASTER Science Team on L1B product comparison**
- **Resampling methods (NN vs. CC) for night-acquired images**