

Landsat Data Continuity Mission (LDCM) USGS Project Status Report

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A graphic showing several overlapping satellite images in various colors (yellow, green, blue) on a grid background.

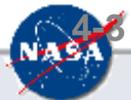
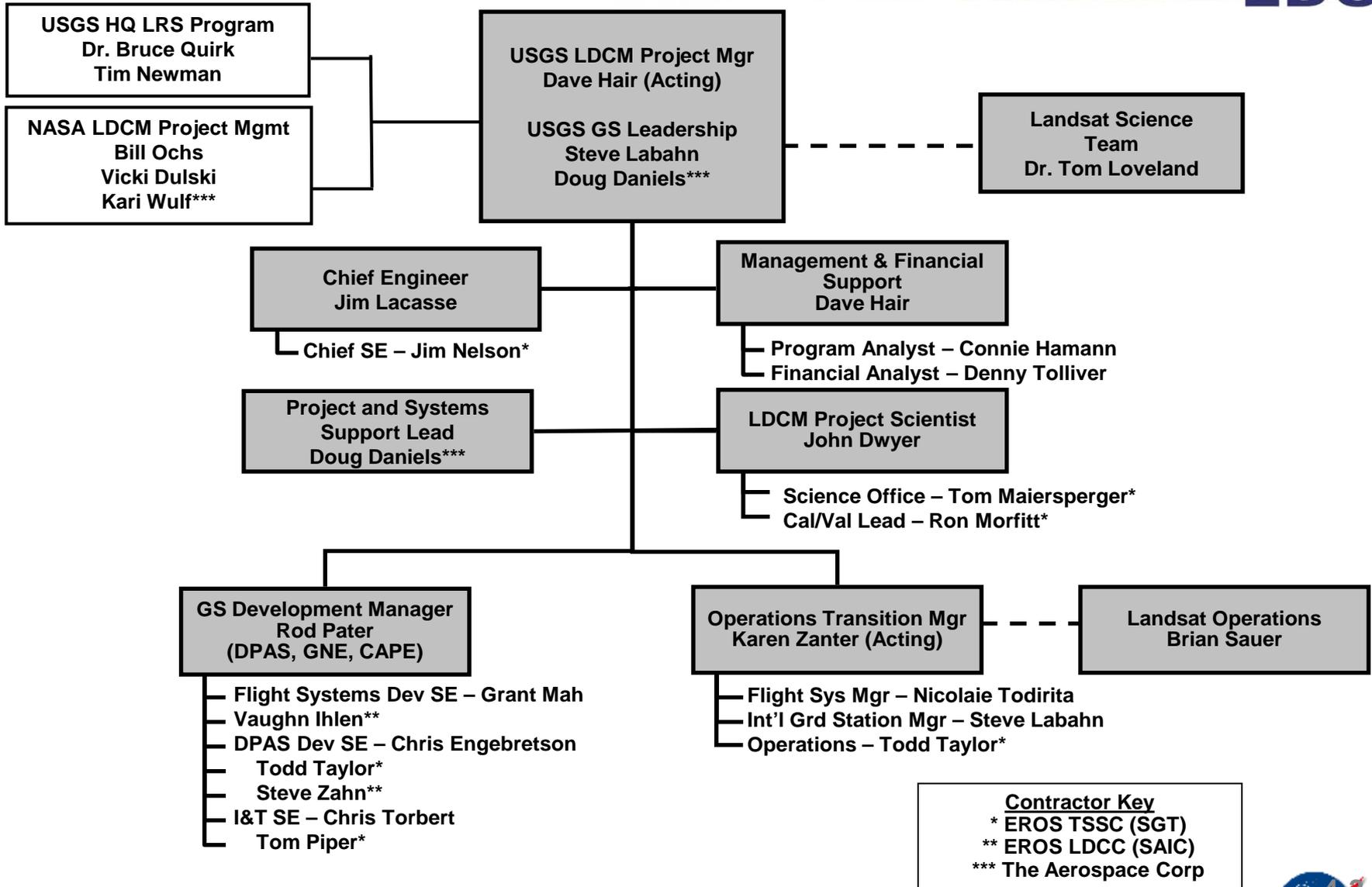
Topics

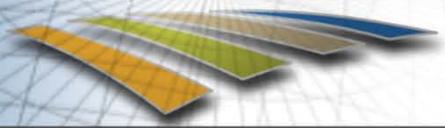
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- ◆ USGS LDCM Project Team Update
- ◆ Ground System Reviews
- ◆ Current Status Highlights
- ◆ Schedule & Ground System Builds
- ◆ Summary

USGS LDCM Project Organization

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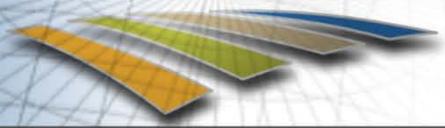


Ground System Reviews

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Critical Design Reviews (CDRs)	Date
Collection Activity Planning Element (CAPE)	✓ Jan 2009
Mission Operations Element (MOE)	✓ Nov 2009
Ground Network Element (GNE)	✓ Feb 2010
Data Processing and Archive System (DPAS)	✓ Feb 2010
Ground System (GS)	✓ Mar 2010
Mission	✓ May 2010

Test Readiness Reviews (TRRs)	Date
Collection Activity Planning Element (CAPE)	✓ Dec 2009
Ground Network Element (GNE) TRR1	✓ Apr 2010
Ground Network Element (GNE) TRR2	✓ May 2010
Ground Readiness Test 1 (GRT 1) – Segments 1, 2, 3	Jun 2010
Ground Readiness Test 1 (GRT 1) – Segment 4	Jul 2010
Ground Readiness Test 2 (GRT 2) – Segments 1, 2	Aug 2010
Ground Readiness Test 3 (GRT 3)	Aug 2010
Ground Readiness Test 5 (GRT 5)	Aug 2010
Ground Readiness Test 6 (GRT 6)	Dec 2010
Ground Readiness Test 4a (GRT 4a)	Feb 2011
Ground Readiness Test 4b (GRT 4b)	May 2011
Ground Readiness Test 4b (GRT 4c)	Aug 2011
	Jul 2012



Current Status Highlights

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- ◆ Mitigated USGS budget shortfall
 - ◆ There is sufficient budget for USGS GS development and implementation activities with adequate spending profiles and reserves
 - Final Implementation Agreement (FIA) between USGS and NASA redefined the exchange of funding responsibilities between GSFC-EROS
 - USGS requested and received in the President's budget additional LDCM development funding for FY'11-13
 - ◆ Authorized full implementation of TIRS critical design
 - Contract modifications were completed to support TIRS implementation

Current Status Highlights

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◆ Ground System

◆ Schedule updates

- Combined IAS releases 1 and 2
 - Optimizes development schedule for L1 Processing
- Adjusted CAPE schedule and combined CAPE 2.0 and 3.0 Builds
 - Takes advantage of early test opportunities for key interfaces
- Adjusted Ingest Release 1.0 schedule
 - Accounts for potential changes to ancillary data definition

◆ Design Maturity

- Completed subsystem Engineering Peer Reviews (EPRs) focusing on critical design, interface definition, and integration and test
- Completed critical design reviews (CDRs) for all elements and GS
- Continued to refine and mature the definition of all external interfaces, particularly the Space to Ground Interface
- Selected Ground Stations including NOAA Gilmore Creek and USGS EROS

◆ Development/I&T

- Completed CAPE 1.0 pre-ship review and subsequent delivery and integration with the MOC
- Completed FOT training of CAPE 1.0
- Procured storage node hardware
- Procured and received demodulators

Ground Network Element Equipment

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TLM RX/Combiner



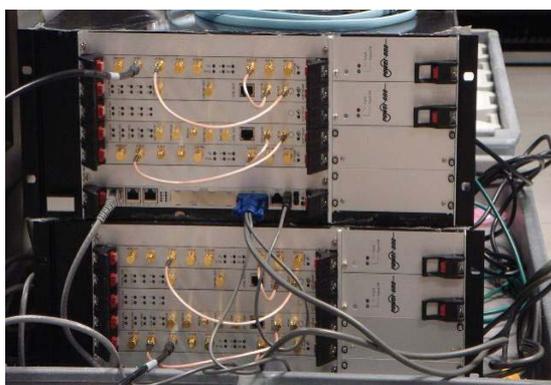
IF Demod/Bit Syncs

IF Matrix Switch

X-Band D/C & Test U/C

L5 Demodulator Testing

Exciters



X-Band Fiber Optics



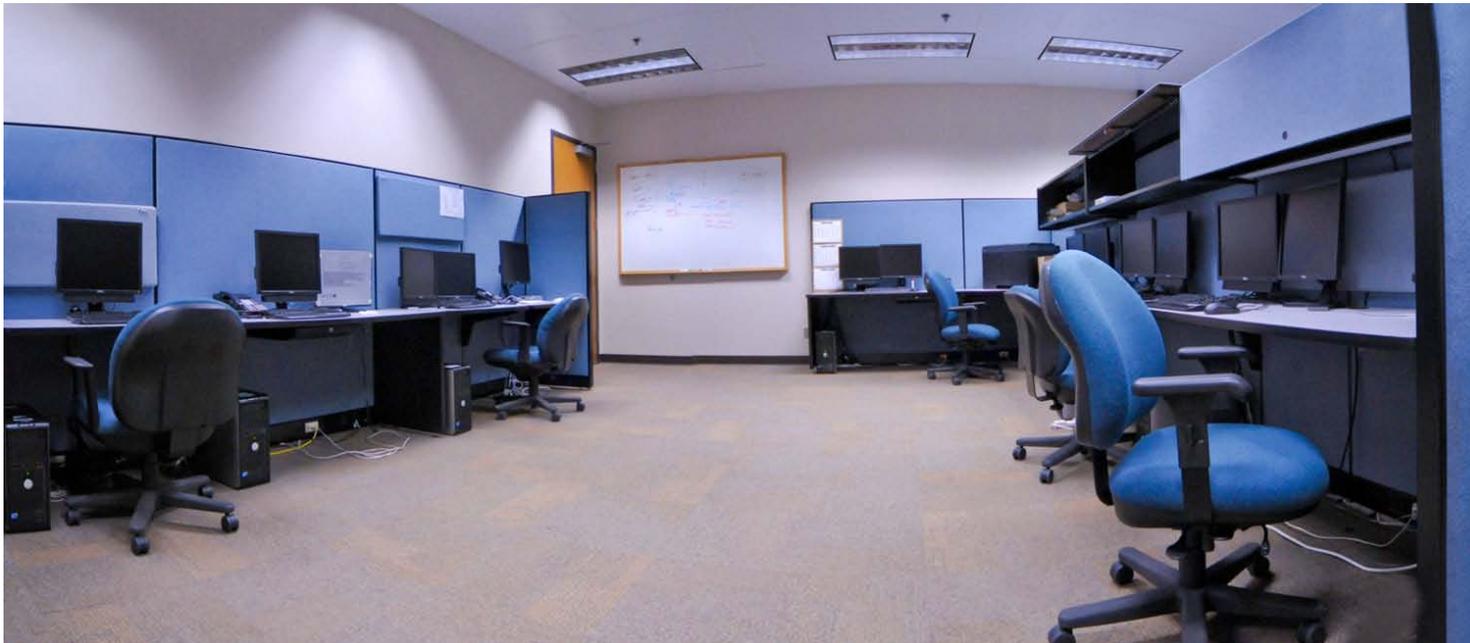
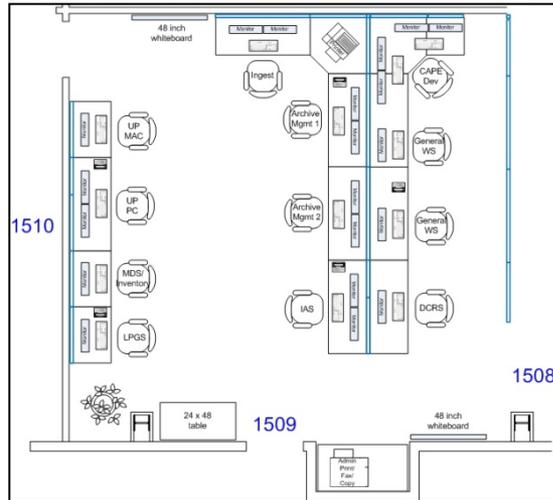
CTP/LSIMSS

GLC LGN Station Site Plan Overview



DPAS Operations Room

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Current Status Highlights

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◆ Science

- ◆ Science Team
- ◆ Science Office
 - Delivered Phase 3 cloud cover algorithms and refined validation data sets
 - Science Data Management Plan is under configuration control
- ◆ Cal/Val
 - Delivered draft OLI LORp data simulator to Ball Aerospace
 - Created OLI spectral simulator using Hyperion data
 - All OLI and TIRS phase 2 algorithms have been delivered to GS development
 - OLI & TIRS geometric and radiometric processing flows have been finalized
 - Constructed detailed algorithm delivery schedules linked to DPAS builds & releases



Current Status Highlights

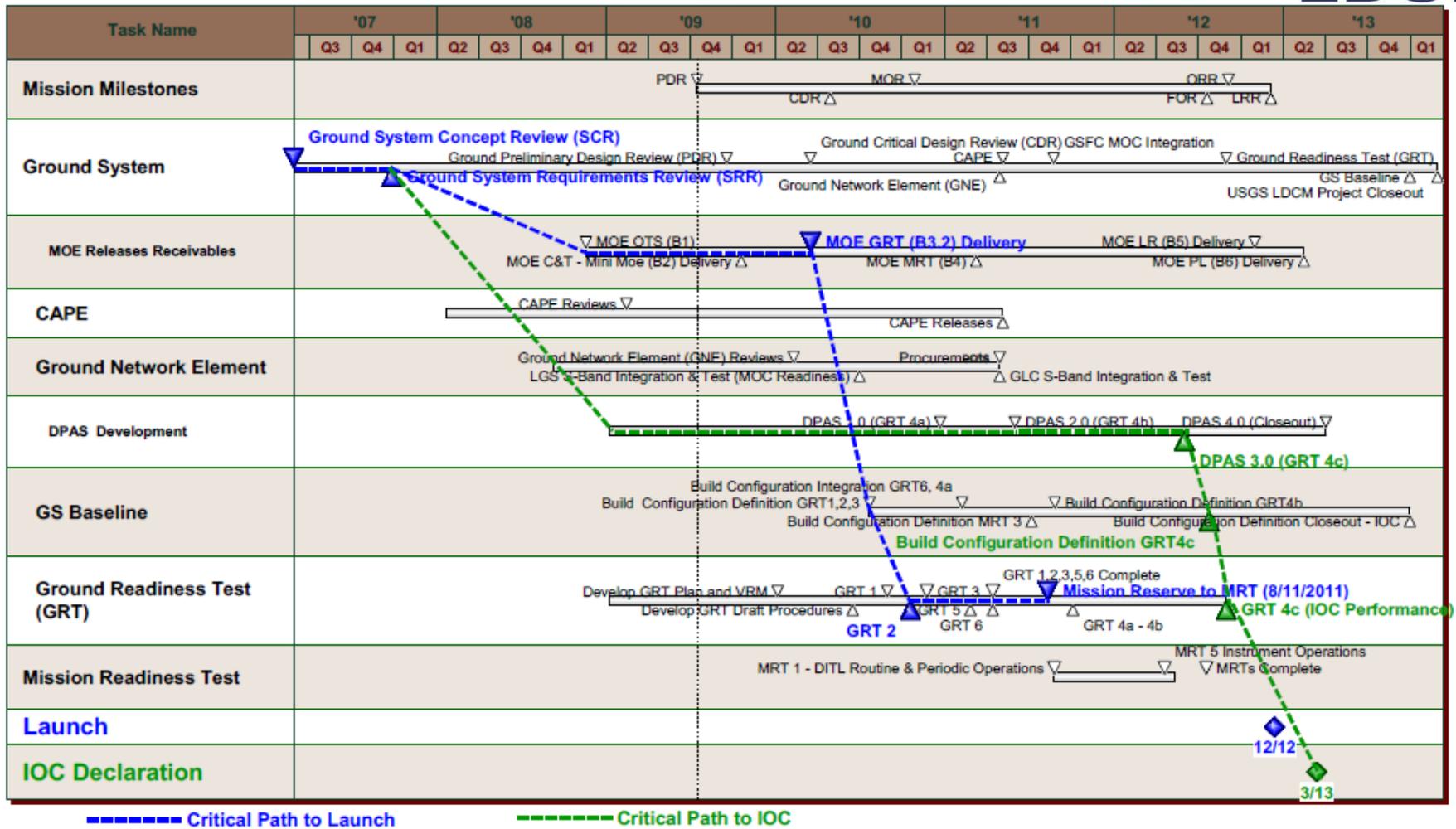
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◆ Operations Transition

- ◆ DPAS and GNE Lead Operations Personnel on-board – all have extensive Landsat experience
 - Involvement in LDCM development during technical meetings, subsystem peer reviews, and the GS CDR
 - Active participation in integration and testing for upcoming GRT 1 and 2
 - Members of the Ground Readiness Test Team – will be performing the GRTs
 - Currently supporting Mission Readiness Test planning activities
- ◆ Landsat Data Acquisition Manager participation
 - CAPE training and testing
- ◆ Landsat Sustaining Engineers involved in LDCM development, test, and integration activities
- ◆ Completed EROS Landsat Ground System Technician (GST) Training and Certification Plan for LDCM
- ◆ Remote Sensing and Data Management Branches finalized and documented transition strategy for handover from LDCM development to operations (roles and responsibilities)

Ground System Summary Schedule

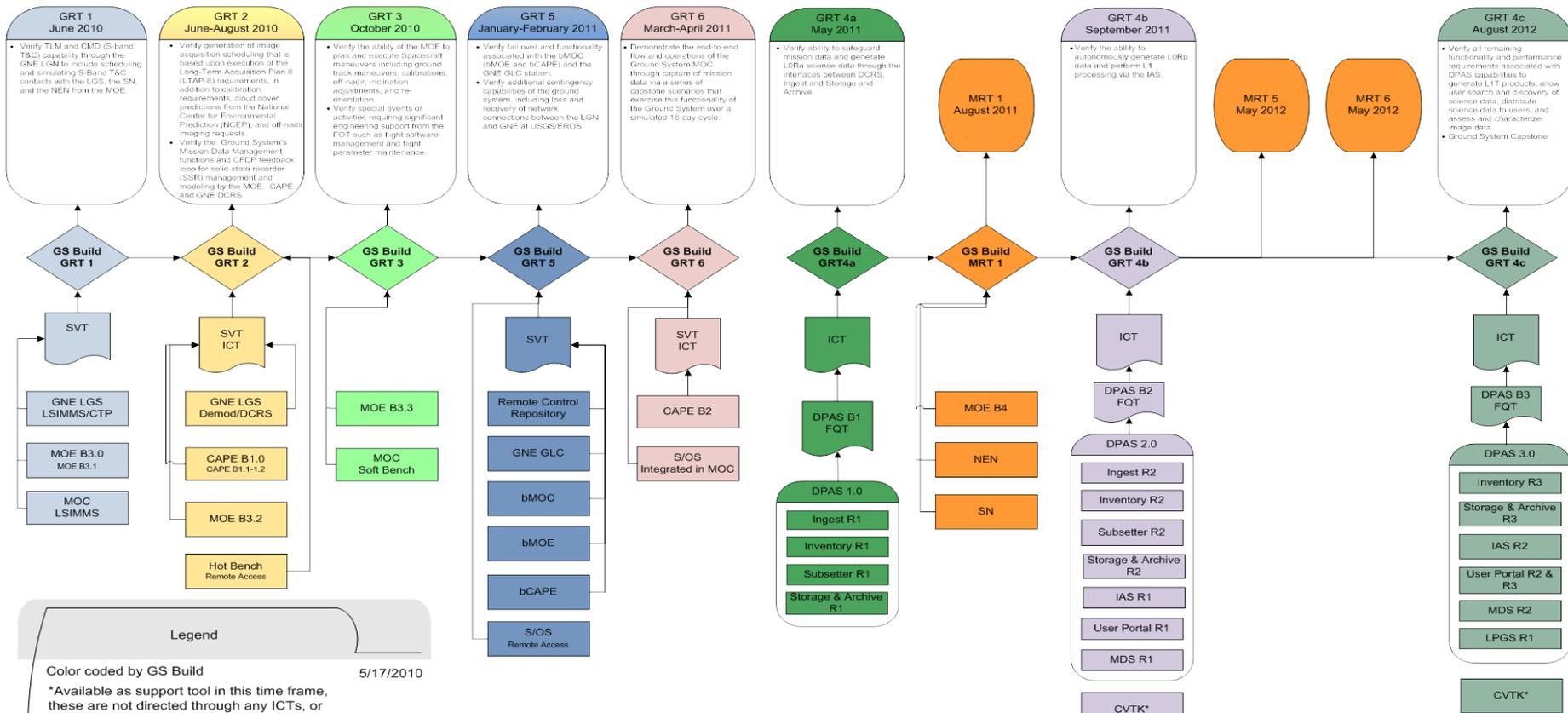
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Schedule Logic Summary

Summary Schedule Logic Flowchart: Development Relationships to Ground System Builds and Tests

Based on GS IMS Working Draft v 3.0



Not all schedule items are shown here. Detailed test configurations are contained within the GRT Plan



Summary

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- ◆ Completed critical design review
- ◆ Ground Readiness Tests underway
- ◆ Significant progress on ground system software, hardware, and infrastructure