

Status of the Landsat Data Continuity Mission

presented by

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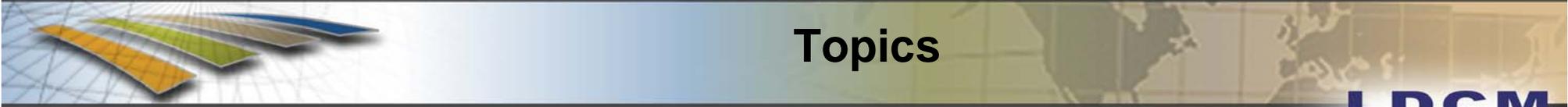
at the

Landsat Science Team Meeting

USGS HQ

Reston, Va.

July 15, 2008



Topics

LDCM

- **Current Project Status**
- **Schedule**
- **Additional Instrument(s)**

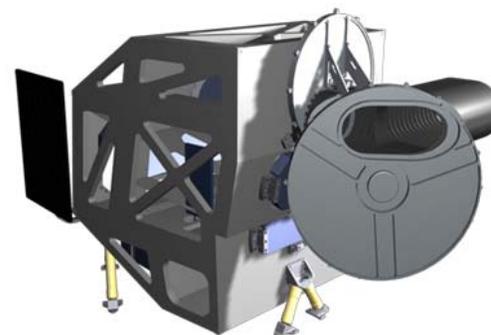


Current Project Status

Current Project Status Operational Land Imager (OLI)

LDCM

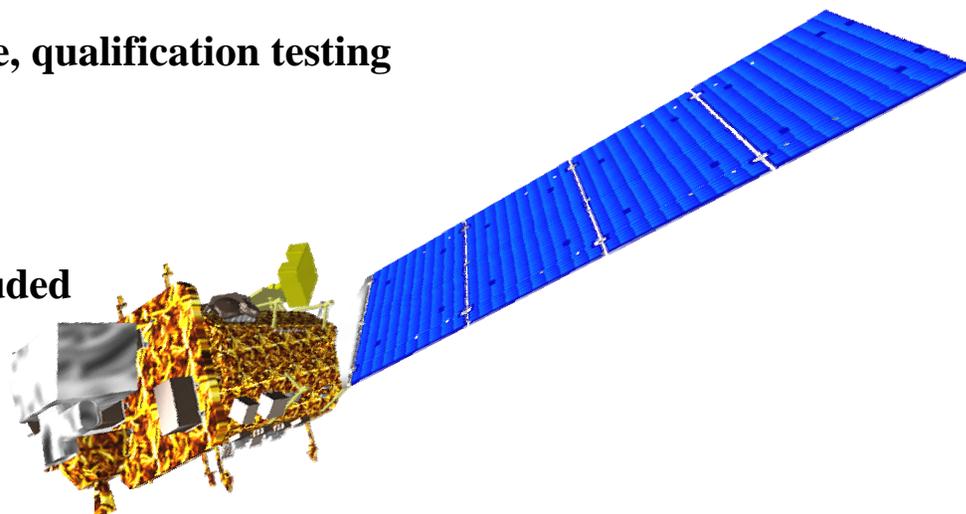
- **Instrument Preliminary Design Review successfully held 4-7 March**
 - Most board members felt OLI well beyond PDR & OLI Team did an extraordinary job
- **Flight Hardware**
 - Secondary and Tertiary Mirrors completed polishing
 - Optical Bench completed and in final testing
 - Filters
 - 5 Engineering model butcher block filter assemblies completed
 - Focal Plane Array
 - ROIC yield very good
 - ROIC testing at RVS has shown good results
 - SWIR detector test results good
 - Hybridization of first lot of 6 EDU/flight sensor chip assemblies in process
 - Instrument Support Electronics
 - All EDU board components have been mounted
 - Expecting all EDU boards to be in test by end of this month
- **OLI CDR - 9/30 – 10/2**



Current Project Status LDCM Spacecraft

LDCM

- **General Dynamics selected for LDCM spacecraft**
 - Delivery order signed 4/28
- **Key deliverables**
 - Observatory (on-orbit; L+90 days)
 - Two Simulators
 - One Interface Simulator to be provided to OLI for interface testing with the instrument
 - One Spacecraft/Observatory Simulator for the MOC
 - Software Development Verification Facility
 - FOT Training
 - Manuals, classroom session, videotape, qualification testing
- **Recent activities focused on**
 - OLI to S/C interface
 - Ensure TIRS accommodation is not precluded
 - Requirements
- **Systems Requirements Review 8/26-27**

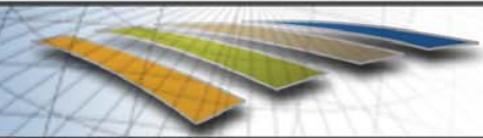




Current Project Status Mission Operations Element (MOE)

LDCM

- **Mission Operations Element (MOE)**
 - **Command & Control, Mission Scheduling, Long-Term Trending and Analysis, and Flight Dynamics**
 - **SEB in progress**



Current Project Status SRR/MDR/PNAR

- **SRR/MDR/PNAR successfully conducted May 20-23**
 - Purpose of review
 - **System Requirements Review (SRR)**
 - Examines the functional and performance requirements defined for the system and the preliminary project plan and ensures that the requirements and the selected concept will satisfy the mission
 - **Mission Definition Review (MDR)**
 - Examines the proposed requirements, the mission architecture, and the flow down to all functional elements of the mission to ensure that the overall concept is complete, feasible, and consistent with available resources
 - **Preliminary Non Advocate Review (PNAR)**
 - PNAR is conducted as part of the MDR to provide Agency management with an independent assessment of the readiness of the project to proceed to Phase B

Current Project Status SRR/MDR/PNAR

LDCM

- **SRR/MDR/PNAR Results**
 - **Standing Review Board identified 11 strengths, for example**
 - **Project objectives clearly aligned with Agency strategic goals and objectives**
 - **People managing and implementing the LDCM project are of exceptionally high quality with significant relevant experience**
 - **Emphasis on strong communications and trust will significantly improve the probability of success. The Project has established good working relationships between all participating agencies and contractors.**
 - **OLI instrument, spacecraft and ground systems benefit from strong heritage from previous Landsat and other relevant NASA and non-NASA missions**
 - **Comprehensive set of requirement that are stable**
 - **Project and contractor have implemented a strong risk mitigation plan for the OLI instrument**
 - **Project has developed clear roles and responsibilities among partners and contractors**
 - **NASA and USGS have a strong approach to budget planning and control, and OLI contractor has established an effective EVM system**

Current Project Status SRR/MDR/PNAR

LDCM

- **SRR/MDR/PNAR Results**

- **SRB identified 3 issues**

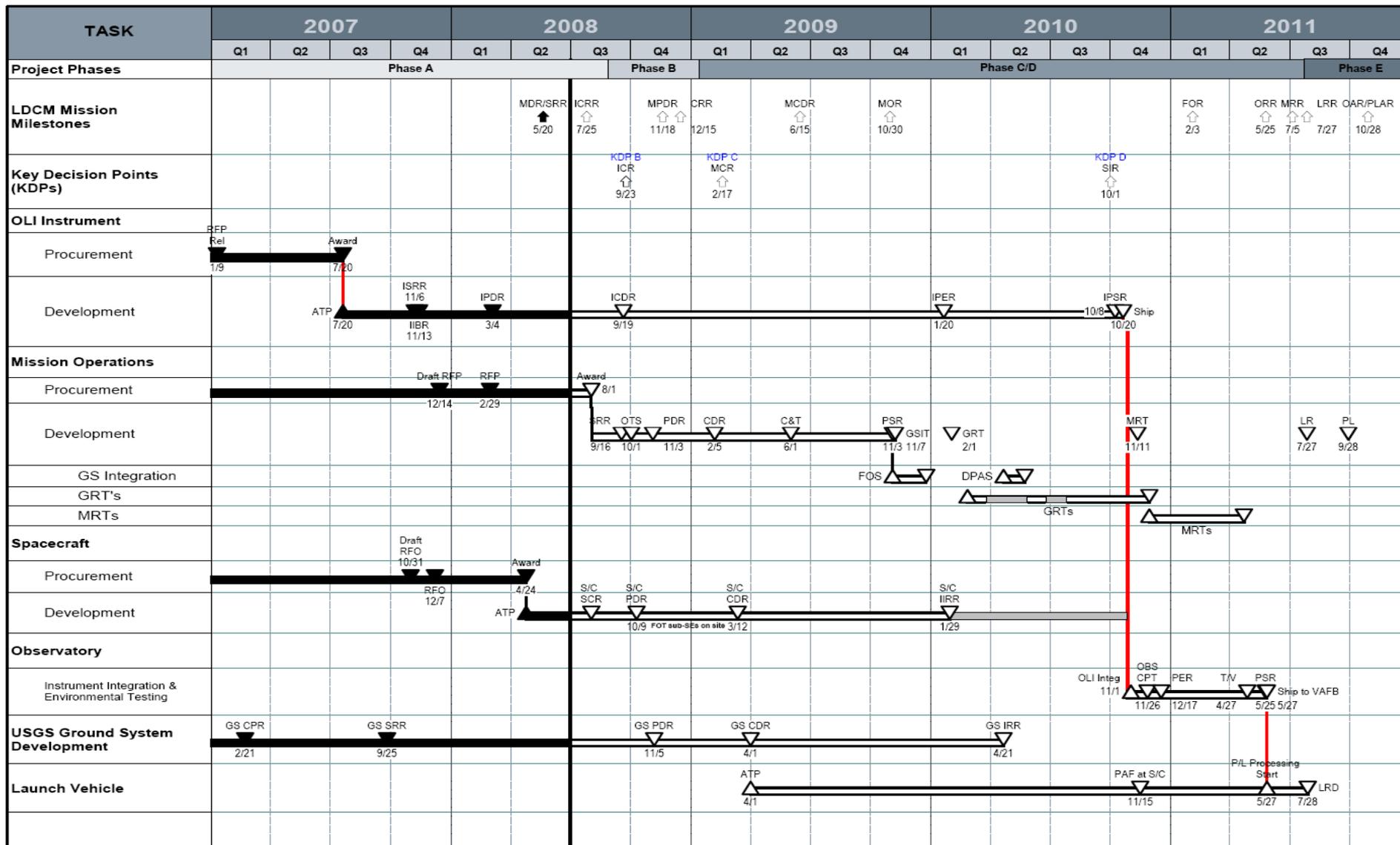
- **Launch Readiness Date requirement of July 2011 drove the Project to baseline an extremely aggressive, high risk schedule which lacks any schedule reserve at the mission level.**
 - **Probability of the project successfully implementing this schedule is extremely low based on the SRB schedule analysis.**
 - **Current baseline schedule also lacks the expected fidelity at this phase of the project, including dependencies at the mission level.**
 - **Project currently has a requirement for the spacecraft to accommodate a thermal imaging instrument (TIRS) and continues to conduct feasibility studies to include this instrument on the LDCM.**
 - **Adding the TIRS instrument at this point in the Project would have significant cost and schedule impacts.**
 - **Continued requests for technical, cost, and schedule plans and estimates for adding the TIRS instrument distract the Project leadership and engineering personnel from focusing on implementing the current baseline mission which adds risk.**
 - **Based on the schedule assessment, which identified the current baseline schedule as very high risk, and the SRB Independent Cost Analysis (ICA), including an Independent Cost Estimate (ICE), the Project baseline budget may not be adequate.**
 - **The ICE showed a moderate to significantly higher cost for the spacecraft bus development (the SRB ICE varied with the assumptions made by the cost estimating team) and somewhat higher cost for the OLI instrument.**



Schedule

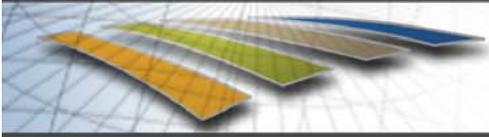
Current Schedule

LDCM





Additional Instruments

The image shows several satellite sensor panels in various colors (yellow, green, blue) arranged in a row, set against a background of a grid pattern.

TSIS and TIRS

LDCM

- **Total Solar Irradiance Sensor**
 - On May 2nd , NOAA announced that TSIS is back on NPOESS
 - TSIS no longer an option for LDCM
- **Thermal Infrared Sensor**
 - Based on continued Congressional interest (appropriation language) the project is ensuring that TIRS will not be precluded from being accommodated on LDCM