



**Landsat Data Continuity Mission**

# **Landsat Data Continuity Mission (LDCM) Status & Plans**

*presented by*

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*at the*

Land Cover Land Use Change Science Team Meeting

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# Background



## Landsat Data Continuity Mission

- Land Remote Sensing Policy Act of 1992 (PL 102-555)
  - Directed assessment of four options for a Landsat-7 successor:
    - Private sector funding and management,
    - International consortium,
    - U.S. Government funding and management, and
    - U.S. Government-private sector cooperative effort
  - Stated preference for a private sector system.
- NASA's FY2001 appropriations bill provide funds for “studies initiating a Landsat-7 follow-on commercial data purchase”
- A revision to a 1994 Presidential Decision Directive, issued on October 16, 2000, realigned U.S. Government management of the Landsat program.
  - NASA and the USGS are partners in determining the future Landsat Program



# NASA / USGS RFI



## Landsat Data Continuity Mission

- In June 1999, NASA & USGS released a request-for-information (RFI) to private industry regarding plans to acquire Landsat-like data
- Response:
  - None of the respondents considered the commercial market for 30 m data sufficient for private funding of a Landsat 7 follow-on system
  - None of the respondents had plans to develop a system to acquire 30 m data
  - Respondents favored Government procurement of 30 m data from a privately-owned system
  - Innovative funding strategies were suggested



# Plans



## Landsat Data Continuity Mission

- NASA & the USGS intend to procure LDCM data from a **privately-owned and privately-operated** remote sensing system
- NASA and the USGS are implementing a two-phase procurement process based on an LDCM Data Specification and Data Policy
  - Phase I: Formulation
    - multiple offerers may be selected for funding
    - “study phase” for various technical and trade studies
    - culminates in preliminary system design
  - Phase II: Implementation
    - downselect to 1 contractor via new round of proposals
    - final design, fabrication, launch, and OIV
    - 5 years of data delivery (possible option for 5 additional years)



# Procurement Strategy



## Landsat Data Continuity Mission

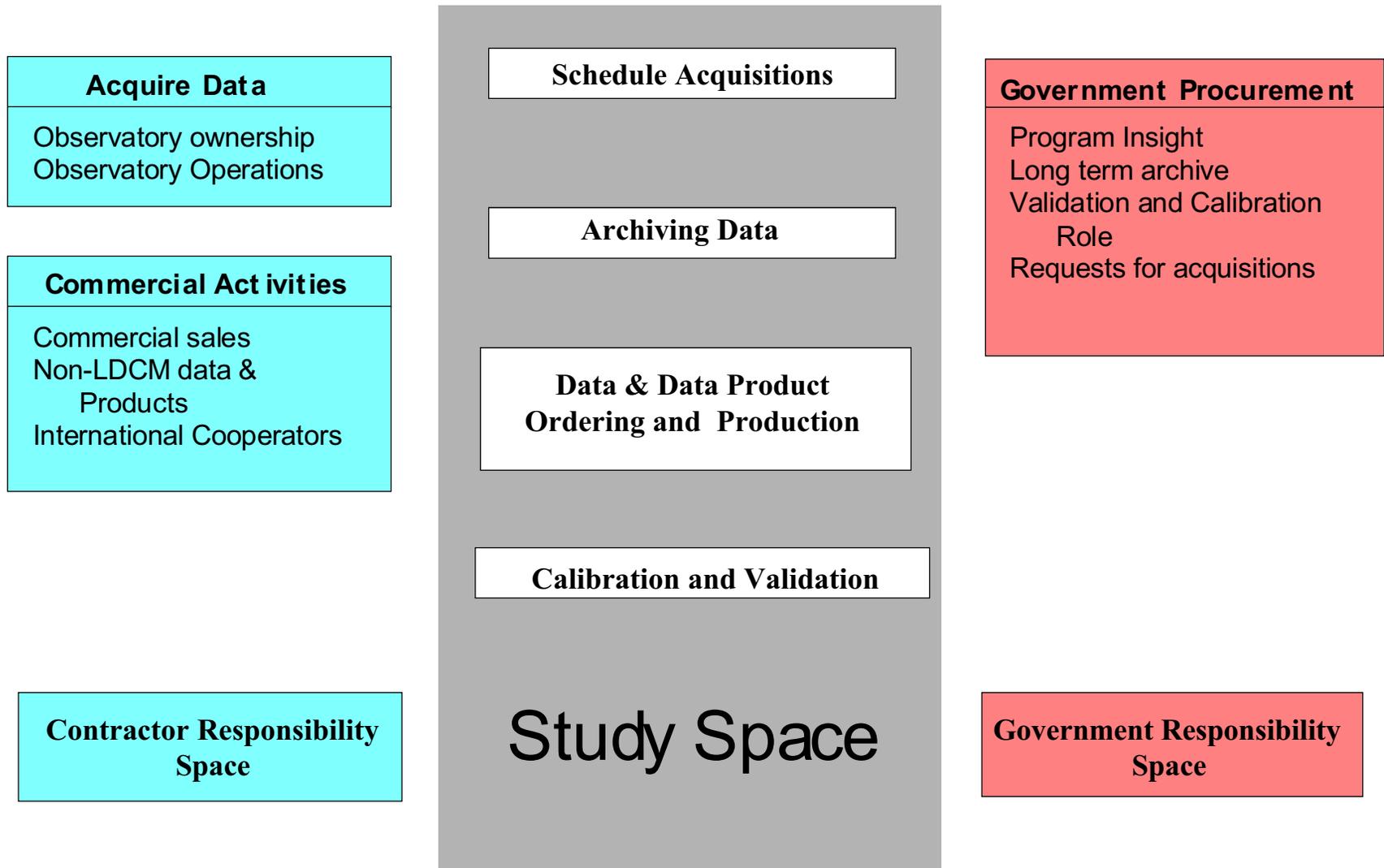
- The procurement DOES NOT:
  - Specify spacecraft, instrument(s), ground system, or operational concepts or designs,
  - Require **government oversight**
  - Require the government to “take title” to the system, or
  - Require the government operate the system.
- The procurement DOES:
  - Specify data and its delivery to the government’s archives
  - Specify the start date for operational delivery of data and the duration of data delivery
  - Require the contractor to produce unenhanced products on an as-ordered basis in accordance with the LDCM Data Policy
  - Require **government insight and data validation**
  - Encourage commercial approaches for servicing the International Cooperator market
  - Facilitate sharing of cost, risk, and rewards in a Government-Industry cooperative effort.



# Architectural Trade Space



## Landsat Data Continuity Mission





# LDCM Data Specification



## Landsat Data Continuity Mission

- Specifies the quantity and qualities of the LDCM data to be procured by NASA / USGS and of the unenhanced data products derived from the procured data
- Seasonal coverage of global land mass is specified:
  - 16 day repeat coverage required for U.S.
  - 250 global scenes per day (average) to an active archive
- Unenhanced data products are specified
  - Level 0 - unprocessed data
  - Level 1 - radiometrically corrected data, registered to cartographic projections



# Specified LDCM Spectral Bands



## Landsat Data Continuity Mission

Band	Center Wavelength (nm)	Ground Sampling Distance (m)	Band Heritage/Usage
Coastal/Aerosol*	443	30	ALI/MODIS
Blue	482	30	ETM+ Band 1
Green	562	30	ETM+ Band 2
Red	655	30	ETM+ Band 3
NIR	865	30	ETM+ Band 4/ALI
SWIR 1	1610	30	ETM+ Band 5
SWIR 2	2200	30	ETM+ Band 7
Sharpening	590	15	ETM+ Pan Band
Thermal 1*	10800	120	ETM+ /AVHRR
Thermal 2*	12000	120	ETM+ /AVHRR
Cirrus*	1375	120	MODIS

\* Optional – trade studies for Formulation Phase



# LDCM Data Policy



## Landsat Data Continuity Mission

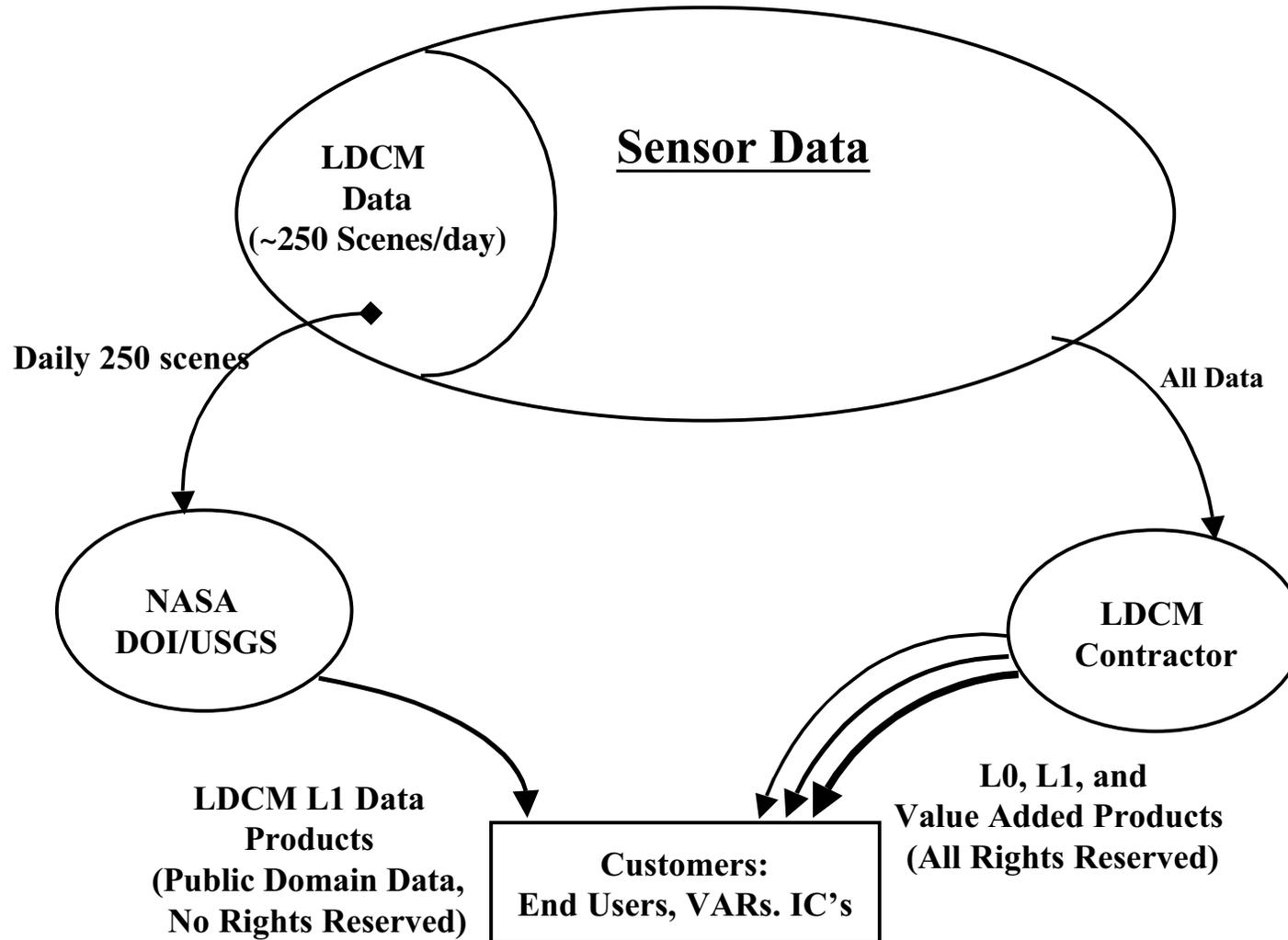
- Ensures non-discriminatory access to Level 1 data products derived from Government-procured LDCM data
  - Distribution of Level 0 data products may be restricted
  - Data product pricing is a critical issue for the formulation phase
- Precludes restrictions on sharing and secondary distribution of LDCM Level 1 data products
- Protects LDCM contractor's commercial rights to data exceeding quantity or quality of LDCM data procured by NASA / USGS



# LDCM Data Policy



## Landsat Data Continuity Mission





# LDCM Events



## Landsat Data Continuity Mission

- June '99      LDCM Commercial Data Buy RFI      Joint NASA / USGS Release  
NASA AA Asrar and USGS Director Groat briefed on responses in Oct. '99.
- March '00      LDCM Data Specification      Drafted by team of experts from NASA GSFC, NASA SSC, USGS EDC, and MIT Lincoln Lab  
First draft posted on web site on 11/06/00 for public review and comment
- Jan. '01      First LDCM Workshop      Open workshop with five panels addressing requirements for an LDCM  
Hosted by USGS in Reston, VA



# LDCM Events



## Landsat Data Continuity Mission

- April '01      Second LDCM
- Workshop
- Review of revised LDCM Data Specification & Procurement Expectations
  - Held in St. Louis, MO in conjunction with ASPRS 2001 Annual Meeting
- Aug. '01      Draft RFP
- released for
- Formulation
- Phase
- Comments received and reviewed by end of Sept., '01
- Linthicum, Maryland

Oct. '01 RFP

LDCM Status & Plans      **Pre-Solicitation**  
 Land Cover Land Use Change Science Team Meeting, November 20, 2001  
**Conference**



# Anticipated Schedule



## Landsat Data Continuity Mission

- Formulation Phase RFP Release November 01, 2001
- Formulation Phase Proposals Due December 19, 2001
- Formulation Phase Award(s) March 2002
- Implementation Phase RFP Release October 2002
  - Preceded by a draft version
- Implementation Phase Proposals Due December 2002
- Implementation Phase Award March 2003
- LDCM Data Delivery Begins March 2006



## Further Information



**Landsat Data Continuity Mission**

<http://ldcm.nasa.gov>