

Landsat Data Continuity Mission (LDCM) Implementation Phase

Acronym List and Lexicon

January 6, 2003



Goddard Space Flight Center
Greenbelt, Maryland 20771

CONSULT THE LDCM CM OFFICE
[301-286-6772](tel:301-286-6772)
TO VERIFY THAT THIS IS THE CORRECT VERSION PRIOR TO USE.

**SECTION J OF RFP5-12345-JLB
ATTACHMENT C**

DOCUMENT REVISION HISTORY

Document Title: Landsat Data Continuity Mission (LDCM) Implementation Phase			
Acronym List and Lexicon			
Issue	Date	Pages Affected	Description
Initial 427-14-01-004	10-04-02		
427-14-01-004 RFP Review Version I	11-08-02	16	CCRs: 299, 327
427-14-01-004 RFP Review Version II	12-16-02	All	CCRs: 371, 373, 386, 389
427-14-01-004 Baseline Version	01-06-03		

CONTRACT CHANGE HISTORY

Mod. #	Mod Date	CCR #	CCR Effective Date	Section(s)

**SECTION J OF RFP5-12345-JLB
ATTACHMENT C**

Table of Contents

1	Acronym List.....	4
2	Lexicon	7

**SECTION J OF RFP5-12345-JLB
ATTACHMENT C**

1 Acronym List

ALI	Advanced Land Imager
BRDF	Bi-directional Reflectance Distribution Function
CAL/VAL	Calibration / Validation
CC	Cloud Cover
CCA	Cloud Cover Assessment
CD	Compact Disk
CDR	Critical Design Review
CDRL	Contract Data Requirements List
CFR	Code of Federal Regulations
CM	Configuration Management
CNDs	Could-Not-Duplicates
CO	Contracting Officer
COTR	Contracting Officer's Technical Representative
COTS	Commercial Off-The-Shelf Software
CPU	Central Processing Unit
DCN	Documentation Change Notices
DEM	Digital Elevation Model
DID	Data Item Description
DM	Data Management
DN	Digital Number
DOI	Department of the Interior
DOT	Department of Transportation
DRFP	Draft Request for Proposal
DUNS	Data Universal Numbering System
EC	Electronic Copy
EDC	Earth Resources Observation Systems (EROS) Data Center
EEE	Electrical, Electronic, Electromechanical
EMI/EMC	Electromagnetic Compatibility/Electromagnetic Interference
EOS	Earth Observing System
ETM+	Enhanced Thematic Mapper Plus
FAR	Federal Acquisition Regulation
FGDC	Federal Geographic Data Committee
FMEA	Failure Mode and Effects Analysis
FOV	Field of View
FWHM	Full-Width-Half-Maximum
GAO	General Accounting Office
GCP	Ground Control Point
GFE	Government Furnished Equipment
GFY	Government Fiscal Year
GSD	Ground Sample(ing) Distance
GSFC	Goddard Space Flight Center
HC	Hard Copy

CONSULT THE LDCM CM OFFICE

[301-286-6772](tel:301-286-6772)

TO VERIFY THAT THIS IS THE CORRECT VERSION PRIOR TO USE.

**SECTION J OF RFP5-12345-JLB
ATTACHMENT C**

HDF	Hierarchical Data Format
HUB	Historically Underutilized Business
I&T	Integration and Test
IAS	Image Assessment System, Landsat 7
IC	International Cooperator
ICD	Interface Control Document
IOC	Initial Operational Capability
IOCR	Initial Operating Capability Review
IOCR-OPS	Initial Operating Capability/Operations
IPSR	Instrument Pre-Ship Review
IRD	Interface Requirements Document
ITAR	International Traffic in Arms Regulations
Lmax	Maximum Radiance
Ltypical	Typical Radiance
LDCM	Landsat Data Continuity Mission
LMST	Local Mean Solar Time
LTAP	Long Term Acquisition Plan
MODIS	Moderate Resolution Imaging Spectroradiometer
MODTRAN	Moderate Resolution Transmittance
MPR	Monthly Progress Review
MPSR	Management Program Status Review
NASA	National Aeronautics and Space Administration
NDVI	Normalized Difference Vegetation Index
NIR	Near Infrared
NIST	National Institute of Standards and Technology
NSLRSDA	National Satellite Land Remote Sensing Data Archive
NSTC	National Science and Technology Council
OMB	Office of Management and Budget
PDR	Preliminary Design Review
PER	Performance Evaluation Review
PF	Polarization Factor
PM	Program Management
PR	Program Review
PSR	Program Status Review
QA	Quality Assurance
RF	Radio frequency
RFP	Request for Proposal
ROI	Return on Investment
SC	Spacecraft
SE	Systems Engineering
SNR	Signal to Noise Ratio
SOW	Statement of Work
SPSR	System Pre-Ship Review
SR	System Review

CONSULT THE LDCM CM OFFICE

[301-286-6772](tel:301-286-6772)

TO VERIFY THAT THIS IS THE CORRECT VERSION PRIOR TO USE.

**SECTION J OF RFP5-12345-JLB
ATTACHMENT C**

SW	Software
SWIR	Short Wave Infrared
T/V	Thermal/Vacuum
TDI	Time Delay Integration
TIM	Technical Interchange Meeting
USG	United States Government
USGS	United States Geological Survey
VDPs	Validation Data Products
VNIR	Visible and Near Infrared
WBS	Work Breakdown Structure
WGS84	World Geodetic System 1984
WRS-2	Worldwide Reference System 2

SECTION J OF RFP5-12345-JLB
ATTACHMENT C

2 Lexicon

Acquire/Acquisition - A process that encompasses the separate but related tasks of imaging the Earth with a sensor, downlinking the sensor data to a ground station, transferring and storing the sensor data at a processing facility.

Active Archive Data Package - Active Archive Data Package(s) consists of LDCM Level A Digital Image Data and/or LDCM Level 0 Digital Image Data, and associated metadata and ancillary data for the LDCM scenes delivered to the USGS/EDC Active Archive.

Ancillary Data - LDCM Ancillary Data consist of satellite and sensor housekeeping data, calibration data and any other supplementary data required to generate the specified higher-level validation data products. Ancillary data typically include relevant instrument parameters, spacecraft attitude and ephemeris, etc.

Archive, LDCM Active - A data library (physical or logical) from which customers can search and order data products.

At-Aperture Radiance - The radiance at the aperture of the sensor.

Azimuth - Angle measured in the ecliptic or equatorial plane as part of a spherical polar coordinate system (radius or altitude, azimuth and elevation).

Band-to-Band Registration - The spatial registration between separate bands expressed in pixels. A measure of the spatial coincidence of corresponding samples from different bands.

Base Priority - The acquisition priority included in the LTAP Seasonality File (together with the date range for scene acquisition), which forms the basis for calculating overall acquisition priority scores.

Bi-directional Reflectance Distribution Function (BRDF) - A function that expresses reflectance from a surface into a unit projected solid angle as a function of both the direction of illumination and the direction of observation.

Bright Target Recovery - The recovery of the system from a saturation event such as a sun glint.

Browse Image - An image created to facilitate searching and screening of digital imagery contained within a database or archive. A browse image generally provides a simplified depiction of an archived image (e.g., at a coarser spatial resolution or from a subset of spectral bands) sufficient to assess the geographic area coverage, data quality, and spatial distribution of clouds within the archived image.

**SECTION J OF RFP5-12345-JLB
ATTACHMENT C**

Calibration – the process of adjusting or normalizing to a standard. Calibration is performed to determine correction parameters (e.g. gains and offsets) that can be applied to the data to correct for systematic errors.

Circular Error (90%) (CE90) - Refers to the radius of a circle containing 90% of the individual measurements. A product with an accuracy of 100 meters CE90 means that 90% of the time geodetic positions derived from that product will be correct within a radius of 100 meters and 10% of the time the error will be greater than 100 meters. CE90 refers to accuracy in the horizontal plane only without regard to vertical (altitude) accuracy.

Cloud Cover (CC) - The area of cloud formations that, through direct obscuration, prevent or significantly hinder viewing of the Earth's surface.

Coherent Noise - A spurious, periodic pattern of noise within an image, generally of electronic origin.

Commissioning - The mission phase between observatory launch and IOC, where spacecraft, instrument and ground system checkout is being performed, as well as calibration of the system and initial validation of the system's data.

Cubic Convolution (CC) Resampling - The cubic convolution technique, when spatially resampling image data points, assigns for each output pixel a value computed as a weighted combination of the sixteen surrounding input pixels. The input pixel value weights are computed based on the output pixel location relative to the surrounding input pixels, using a piece-wise cubic interpolation function.

Data Path - The sequence of space and ground assets that route LDCM image and housekeeping data from the observatory(ies) to a storage facility..

Detector column - A set of physical detectors imaging the same spatial locations for a single band, which are treated as a single sensing element by having their outputs combined in time-delay integration (TDI).

Digital Elevation Model (DEM) - Digital representations of cartographic information in a raster form. DEMs consist of a sampled array of elevations for a number of ground positions at regularly spaced intervals.

Digital Image Data - Two-dimensional arrays of digital numbers, one per spectral band, representing a remotely sensed surface.

Digital Number (DN) - The radiance seen by the detector at each pixel converted to an electrical signal and then quantized to a discrete integer value.

**SECTION J OF RFP5-12345-JLB
ATTACHMENT C**

Dynamic Range - The range of radiances over which instruments and sensors are sensitive. The upper end of the dynamic range is the saturation radiance. The lower end is the noise floor, i.e., the radiance corresponding to the low radiance noise level of the instrument. These radiances may be expressed as equivalent blackbody temperatures for thermal bands.

Earth Resources Observation Systems (EROS) Data Center (EDC) - Established in the early 1970's under the Department of the Interior's U.S. Geological Survey to receive, process and distribute data from the United States' Landsat satellite sensors and airborne mapping cameras. Now a national archive, production, distribution and research facility for remotely sensed data and other geographic information.

Edge Response - The response of an imaging system to an edge target (i.e., a low/high or high/low step function), normalized so that the mean response on the low side of the edge target is set to zero and the mean response on the high side of the edge target is set to 100%.

Ephemeris Data - A set of data that provides the assigned places of a celestial body (including a manmade satellite) for regular intervals. Ephemeris data helps to characterize the conditions under which remote sensing data are collected and may be used to correct the sensor data prior to analysis.

Federal Geographic Data Committee (FGDC) - Established by the Office of Management and Budget for purposes of coordinating the development, use, sharing and dissemination of geographic data.

First Light - The point in time during Commissioning after contamination abatement has been completed and the LDCM Sensor is first able to image the Earth.

Geodetic Accuracy - The accuracy with which geographic position and elevation of features on the earth's surface are mapped. This accuracy incorporates information in which the size and shape of the earth has been taken into account.

Geodetic Reference System - A comprehensive geodetic model of the Earth including a geodetic reference frame, a best-fit Earth ellipsoid/spheroid model, and an Earth gravitational model. The inclusion of all these components allows a geodetic reference system to serve as a horizontal and vertical datum. The standard LDCM geodetic reference system is the World Geodetic System 1984 (WGS84).

Ground Control Point (GCP) - A geographic feature of known location that is recognizable on images and can be used to determine geometric correction functions for those images.

Ground Sample Distance (GSD) - The distance on the ground between adjacent image sample (pixel) centers.

**SECTION J OF RFP5-12345-JLB
ATTACHMENT C**

Height - The distance of a point from a vertical reference surface. The standard LDCM height reference is the surface of the WGS84 Earth ellipsoid. This is distinct from the point's elevation, which is measured relative to the geoid - the gravitational equipotential surface corresponding to mean sea level - which undulates relative to the WGS84 Earth ellipsoid.

Horizontal Error - The difference, in meters, between a point's measured horizontal position (e.g., latitude and longitude) and the true horizontal position.

Housekeeping Data - Housekeeping data is a comprehensive term covering all data about the spacecraft and instrument(s) that provide quantitative information on their status and state(s) including metrics such as on/off flags, temperatures, voltages and currents.

Image-to-Image Registration - The spatial registration between images acquired at different times.

Image Compression - The process of reducing the amount of data required to represent the information present within an image.

Imax - The maximum response of an instrument as a polarizer analyzer is rotated.

Imin - The minimum response of an instrument as a polarizer analyzer is rotated.

Initial Operational Capability (IOC) – IOC marks the beginning of calibrated, validated data flow from the on-orbit system to the Government's archives and calibration/validation system. IOC constitutes acceptance by the Government that the LDCM Data Packages and VDPs are specification-compliant, and delivery and interface requirements to Government systems have been met. IOC is declared after the IOC Review is conducted and required deliverables are satisfactory to the Government.

Inoperable Detector - A detector that does not meet the definition of operable detector (see **Operable Detector**).

Inoperable Pixel - A pixel is considered dead or inoperable if greater than 50% of its ground projected area is not imaged by operable detectors.

Interval – A discrete segment of image data (e.g. as included in an LDCM NSLRSDA Data Package or an LDCM Active Archive Data Package)

Land Remote Sensing - Public Law 102-555 defines "land remote sensing" as: "...the collection of data which can be processed into imagery of surface features of the Earth from an unclassified satellite or satellites, other than an operational United States Government weather satellite."

SECTION J OF RFP5-12345-JLB
ATTACHMENT C

Landsat Program Management (LPM) - Landsat Program Management consists of the Administrator of NASA and the Secretary of the Interior. The October 16, 2000 Amendment to Presidential Decision Directive/NSTC-3 states that “the Secretary of the Interior and the Administrator of NASA are hereby designated as members of the Landsat Program Management in accordance with section 101(b) of the Land Remote Sensing Policy Act of 1992.” The Amendment further assigns NASA and DOI/USGS the responsibility for “maintaining continuity of Landsat-type data beyond Landsat 7” under direction of Landsat Program Management.

LDCM Contractor – The LDCM Contractor is the private owner/operator of the remote sensing system from which NASA and DOI/USGS intend to purchase and/or license land remote sensing data for the LDCM. This private organization will be selected competitively through a joint NASA-DOI/USGS procurement.

LDCM Data Packages – LDCM Data Packages are data sets produced by the LDCM Contractor and delivered to the specified U.S. Government archives.

LDCM Data Products - LDCM Data Products are produced from LDCM Data Packages and distributed in accordance with the LDCM Data Policy.

LDCM Sensors - LDCM Sensors are the contractor owned instruments that acquire and generate the land remote sensing data that will be procured by NASA and DOI/USGS under the LDCM.

LDCM Sensor Data - LDCM Sensor Data are the originally measured detector or detector column output counts at the native spatial and spectral resolution from the LDCM Sensor(s), possibly adjusted by reversible offset and scale corrections. Offset and scale correction reversibility implies that the relationship between the original detector counts and the remapped data counts is one-to-one for all measured detector output values.

LDCM User - Any person or institution who orders or uses the LDCM data or specified data products including, but not limited to, government, academia, commercial users, the general public and people from other countries.

Level 0 Validation Data Products - Validation Data Products that contain LDCM Level 0 Digital Image Data and corresponding metadata and ancillary data. LDCM Level 0 Validation Data Products may be proprietary and therefore subject to limited distribution.

Level 0 Digital Image Data – LDCM Level 0 Digital Image Data are LDCM Sensor Data that have undergone Level 0 processing.

Level 0 Processing – Level 0 Processing is the processing of the wideband data that removes or corrects all transmission and formatting artifacts, provides time, spatial, and band-sequentially ordered LDCM Sensor Data and all specified ancillary or metadata as the output.

SECTION J OF RFP5-12345-JLB
ATTACHMENT C

Level 1 Digital Image Data - any Level 1R, 1Gs, 1Gt, or 1G-ortho digital image data.

Level 1G-ortho Data - radiometrically corrected digital image data consisting of digital values linearly scaled to at-aperture spectral radiance and resampled for orthorectification and registration to a cartographic projection, referenced to the World Geodetic System 1984 (WGS84), G873 or current version. Orthorectification and registration are performed using knowledge of the LDCM satellite and instrument imaging geometry and digital elevation data. The Level 1G-ortho Data also includes all specified metadata.

Level 1G Products - Any Validation Data Products containing Level 1G digital image data.

Level 1G Digital Image Data – any Level 1Gs, 1Gt, or 1G-ortho digital image data

Level 1Gs Validation Data Products – Validation Data Products containing Level 1Gs digital image data and associated metadata.

Level 1Gs Digital Image Data - radiometrically corrected digital image data consisting of digital values linearly scaled to at-aperture spectral radiance and resampled for registration to a cartographic projection, referenced to the World Geodetic System 1984 (WGS84), G873 or current version.

Level 1Gt Validation Data Products – Validation Data Products containing Level 1Gt digital image data and associated metadata.

Level 1Gt Digital Image Data - radiometrically corrected digital image data consisting of digital values linearly scaled to at-aperture spectral radiance and resampled for orthorectification and registration to a cartographic projection, referenced to the World Geodetic System 1984 (WGS84), G873 or current version.

Level 1R Validation Data Products - Validation Data Products that contain Level 1R digital image data and associated ancillary data and metadata.

Level 1R Digital Image Data – radiometrically corrected digital image data consisting of digital values linearly scaled to at-aperture spectral radiance that are produced using LDCM Level 0 or Level A digital image and ancillary data

Level A Digital Image Data – Level A Digital Image Data are the Level 0 Digital Image Data that have been aggregated to LDCM-specified ground sample distances and may have undergone radiometric preprocessing.

**SECTION J OF RFP5-12345-JLB
ATTACHMENT C**

Long-Term Acquisition Plan (LTAP) - The algorithms used to prioritize image acquisitions based on minimizing cloud cover and acquiring seasonal temporal coverage.

Lossless Compression – A data compression process such that the data, after compression and decompression, is identical numerically to the data prior to compression

Metadata - An archived set of descriptive information about a scene and the parent sub-interval that provides a user with geographic coverage, date of acquisition, sun angles, cloud cover, gain states, and other quality measurements.

Modulation Transfer Function (MTF) - The magnitude of the Fourier transform of the line spread function of the imaging system.

Modulation Transfer Function Compensation (MTFC) Resampling - The modulation transfer function compensation resampling technique assigns a value to each output (resampled) pixel, computed as a weighted combination of the surrounding input pixels. The input pixel value weights are computed based on the output pixel location relative to the surrounding input pixels, using an interpolation function with a spatial frequency response that has been designed to compensate for the spatial frequency attenuation characteristics of the imaging system's modulation transfer function.

Nadir - That point on the celestial sphere vertically below the observer, or 180° from the zenith.

National Satellite Land Remote Sensing Data Archive (NSLRSDA) – Public Law 102-555 defines the “National Satellite Land Remote Sensing Data Archive” as: “...the archive established by the Secretary of the Interior pursuant to the archival responsibilities defined in section 502.” NSLRSDA is currently managed by DOI’s USGS EROS Data Center.

Section 502 states: “The Secretary of the Interior, in consultation with the Landsat Program Management, shall provide for long-term storage, maintenance, and upgrading of a basic, global, land remote sensing data set (hereinafter referred to as the ‘basic data set’) and shall follow reasonable archival practices to assure proper storage and preservation of the basic data set and timely access for parties requesting data.” It further states that “after the expiration of any exclusive right to sell, or after relinquishment of such right, the data provided to the National Satellite Land Remote Sensing Data Archive shall be in the public domain and shall be made available to requesting parties by the Secretary of the Interior at the cost of fulfilling user requests.”

Near Infrared - The spectral region covering 700-1000 nm.

Nearest Neighbor (NN) Resampling - The nearest neighbor technique, when correcting image data points, assigns for each new pixel, that pixel value which is closest in relative location to the new, computed pixel location.

SECTION J OF RFP5-12345-JLB
ATTACHMENT C

NSLRSDA Data Package – The NSLRSDA Data Packages consist of LDCM Level 0 Digital Image Data, metadata, and ancillary data delivered to NSLRSDA by the Contractor.

Observatory - A complete space based remote sensing system that provides all required spacecraft bus functions (attitude control, communications, structure, thermal, power, propulsion, command and data handling, data storage and transmission) as well as the necessary instruments and sensors to capture radiances and transmit required imagery for a particular mission.

Operable Detector - A detector is considered operable, even if out of spec, if it meets the following requirements:

- a) The detector shall be sensitive to photons within its spectral band and not be saturated at expected operating temperatures under dark conditions.
- b) The detector's noise shall be less than 5 times the mean noise level for the band on which it occurs.
- c) The detector's dark current shall remain within +/- 5 times the RMS noise over the period between dark frame references.
- d) The detector's dynamic range shall be greater than 25% of the specified dynamic range.

Orthorectified - Describing an image in which terrain relief distortions have been removed.

Overshoot - The difference between the maximum value of the normalized edge response and the mean response on the high side of the edge target (100% by definition) or the absolute value of the difference between the minimum value of the normalized edge response and the mean response on the low side of the edge target (zero by definition).

Pixel – Short for “picture element”, it is the smallest discrete piece of image data in an image and corresponds to a single spatial sample.

Polarization Factor (PF) - The modulation ratio $PF = (I_{max} - I_{min}) / (I_{max} + I_{min})$ associated with a polarization sensitivity measurement.

Polarization Sensitivity - The sensitivity of the system to changes in the polarization of the signal.

Pre-Launch phase – This phase covers all activities from ATP through intentional ignition of the Launch Vehicle.

Preprocessing – Preprocessing includes the steps that may be applied to LDCM Level 0 Digital Image Data including radiometric correction, geometric correction, and/or geolocation, to prepare for delivery to an archive or to generate unenhanced data products.

Public Law 102-555 states that data preprocessing “...may include –

SECTION J OF RFP5-12345-JLB
ATTACHMENT C

- (A) rectification of system and sensor distortions in land remote sensing data as it is received directly from the satellite in preparation for delivery to a user;
- (B) registration of such data with respect to features of the Earth; and
- (C) calibration of spectral response with respect to such data, but does not include conclusions, manipulations, or calculations derived from such data, or a combination of such data with other data

Primary Distribution - Data or data product(s) provided by the initial supplier/vendor to an initial customer, also simply called distribution.

Redistribution - See **Secondary Distribution**.

Relative Spectral Radiance Response Curve – Is a normalized (unitless) function of Spectral Radiometric Sensitivity divided by the peak in-band Spectral Radiometric Sensitivity. The resultant data plotted against wavelength generally appears to be a continuous smoothly varying function or “curve”. This is an instrument-level response that incorporates the optical transmission of the telescope and optical bandpass filters, and the photon detector’s radiance responsivity.

Relative Response - Within the context of the specifications for the LDCM Spectral Bands, the term Relative Response has the same definition as the Relative Spectral Radiance Response Curve.

Sample Direction - The column dimension of a two-dimensional digital image. A pixel's sample number corresponds to its column number.

Scattered Light - Undesired light contamination projected on a focal plane caused primarily by uneven surface features on optical surfaces. This optical surface roughness is usually measured by performing a BRDF measurement for each optical surface.

Seasonality File - An electronic file provided by the Government that specifies the WRS-2 scenes to be acquired. It defines periods of time (i.e., request period), the frequency of acquisition during those periods, and the base priority for that acquisition. Frequency of acquisition is defined as either "once" during the request period, or "all" opportunities during the request period.

Secondary Distribution - Data or data product(s) provided by one customer to another, sometimes called redistribution.

Sharpening Band - Single spectral band having a finer spatial resolution than the other bands, usually in an integer multiple, which allows for sharpening of the multispectral bands.

Signal-to-Noise-Ratio (SNR) - The ratio of the level of the information-bearing signal power to the level of the noise power. More precisely, the signal-to-noise ratio of the mean digital number

**SECTION J OF RFP5-12345-JLB
ATTACHMENT C**

(DN) to the standard deviation in DN. This is a temporal noise definition in that the mean DN is the time averaged value and the standard deviation in DN is the standard deviation in the time series.

Spectral Band - An interval in the electromagnetic spectrum commonly designated by a spectral bandwidth and a center wavelength.

Spectral Bandwidth - The wavelength interval between the lower and upper band edges. The lower band edge is the lowest wavelength where the relative spectral radiance response is 50% of the peak response. The upper band edge is the highest wavelength where the relative spectral radiance response is 50% of the peak response.

Spectral Band Center Wavelength – A wavelength within a spectral band, halfway between the lower and upper band edges.

Stray Light - Light scattered onto a detector from areas outside a specified solid angle.

Straking Parameter - The straking parameter is defined by the following equation:

$$S_i = 100 \times \left| L_i - \frac{1}{2} (L_{i-1} + L_{i+1}) \right| / L_i$$

where

L_i is the calibrated radiance value measured for a pixel at an input radiance level;

L_{i-1} and L_{i+1} are similarly defined for the $(i-1)^{\text{th}}$ and $(i+1)^{\text{th}}$ pixels.

Supplementary Data - Data that are not acquired on board the LDCM observatory(ies) but are required for production of specification compliant LDCM Data Packages and Validation Data Products.

Swath - The strip on the Earth that the instrument observes as it passes overhead.

Temporal Resolution - The expected repeat time between measurements over the same geographic location.

Theoretical Basis - The theoretical basis includes the physical theory, the mathematical procedures, the assumptions being applied and the accuracy estimates for a given test or algorithm.

Time Delay Integration (TDI) –The process by which the signals from a set of physical detectors imaging the same spatial location are treated as a single sensing element by having their outputs combined.

**SECTION J OF RFP5-12345-JLB
ATTACHMENT C**

Unenhanced Data - Land remote sensing signals or imagery products that are unprocessed or subject only to data preprocessing. (see definition of **Preprocessing**)

Validation – The process of testing against a standard. Validation is performed to directly or indirectly measure some aspect of system performance for comparison to a specified threshold. **Validation Data Products** - data products produced by the Contractor at the request of the Government that contain unenhanced digital image data (Level 0, 1R, 1Gs, and 1Gt) covering any requested scene within the Worldwide Reference System-2 and that contain associated ancillary and metadata.

Value-Added Data Products - Any products derived from LDCM Data Products processed or otherwise enhanced beyond the steps defined above as “preprocessing”.

Viewing Geometry -The viewing geometry for which the data shall be acquired, characterized by the zenith and azimuth angles from a ground point to the sensor at the time of observation.

Visible - The spectral region covering 400-700 nm.

Wideband Data - The downlinked data containing LDCM sensor data and ancillary data that have been processed and formatted for efficient data transmission. Examples of wideband data processing steps for LDCM purposes include lossless compression, error detection and correction coding, pseudo-noise encoding, etc. Examples of wideband data formatting include packet and frame-level organization of the LDCM sensor and ancillary data.

World Geodetic System 1984 (WGS84) - A global geodetic reference system defined and maintained by the National Imagery and Mapping Agency (NIMA). WGS84 is the standard geodetic reference system for LDCM. For remote sensing applications such as LDCM, WGS84 can be considered to be functionally equivalent to the International Terrestrial Reference System (ITRS) and its International Terrestrial Reference Frame (ITRF) realizations.

Worldwide Reference System-2 (WRS-2) - WRS-2 was created to define geographic coordinates along an orbital path to delineate the center points of Landsat 4/5 Thematic Mapper scenes. It is a framing grid derived from a sun-synchronous orbital track with a 705 Km altitude at the equator, a 98.2° orbital inclination and a 16-day repeat cycle. Path one is aligned to cross the descending node at 64.6° west longitude with path numbers increasing to the west. The grid rows are registered such that the center point of row 60 falls on the equator of the descending node with row numbers increasing along the orbital track. Each scene center point is separated by approximately 23.9236 seconds of spacecraft nadir ground trace time. The resulting grid has 233 paths (repeating orbit tracks) and 248 rows (scene centers per path).

Zenith - The point in the celestial sphere that is exactly overhead.

Zenith Angle - The angle between the sun and the zenith for a given position on the Earth's surface. Also, the complement of the angle between the horizon and the sun (solar elevation).