



Satellite Data Policy, Pricing and Commercialization in Nigeria with Nigeriasat-1 in Perspective

Paper presented by

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at

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A Solution to Sustainable National Development Challenges:*



NigeriaSat-1 Imaging Characteristics

- GSD 32M
- Spectral bands Red, Green Infra Red
- Image size 600X 300Km
- Repeat Circle 3-5 days (DMC, 1 day)



Other Commercially Available data with Similar Xteristic as NigeriaSat-1

- **LandSat**
- **Spot 2-5 images**



Comparison with Nigeriasat-1

Satellite (Instrument)	Landsat 4+ (TM)	Spot (HRV)	NigeriaSat-1 (DMC Imager)	DMC – 5 s/c (DMC Imager)
Swath	185km	60km	600km	600 km
Typical Revisit	16 days	26 days	3 - 5 days	1 day
GSD	30m	20m	32m	32 m
Pixels	6000	3000	19000	19000

Small satellites enable affordable constellations

DMC offers good GSD with high temporal revisit



Spot Images

- Priority Programme: takes precedence over all other programme
 - All satellite passes tasked over the area
 - Priority Programming adds an Extra \$1,500 to the cost
- Priority Processing
 - Data available within 48hrs
 - Additional Charge of \$500 per product
- Cloud Cover: Imagery acquired with 10% cloud cover or less is considered a successful scene.
- Format: TIF, GeoTIF or BIL
- Media: CD-ROM, DVD, FTP



Spot Images

- Resolution 2.5-20m
- Size of full scene- 60x60Km
- Repeat circle- 26days



Spot Image cont.

- Price: price inclusive of GST and subject to freight and Insurance
- Discounts : Volume discounts can be negotiated for qualify order
- Licensing: Images carry and end user license that govern how the end-user may use the image and how it may be shared with other users
 - Each License has a License factor that is multiplied by the base product price to determine the final product price.
 - Licensing that allow more sharing of the image command a higher license factor



Spot Image cont.

Spot2 and 4 Imagery-New and Archived

Australia acquired Imagery

SPOT2&4	Non-priority Programming	Priority Programming
	Full scene	Full Scene
1A,1B,2B	\$2,500	\$4,000

- IA Radiometric corrections only
- 1B 1A plus systematic corrections
- 2A 1B plus projected onto UTM/WGS 84



Spot Image cont.

Spot2 and 4 Imagery-New and Archived

Outside of Australia

SPOT2&4	Non-priority Programming	Priority Programming
	Full scene	Full Scene
1A,1B,2B	\$4,850	\$6,700

SPOT 2&4	Archived	Recent
	Full scene	Full scene
1A,1B,2B	\$2,500	\$4,200



Spot Image cont.

Spot 5 new images

Australia acquired

	Standard Programming		Priority Programming	
	Full Scene	Half scene	Full Scene	Half scene
10m	\$4,700	\$3,800	\$6,200	\$5,300
5m	\$5,200	\$4,200	\$6,700	\$5,700
2.5m	\$8,600	\$6,900	\$10,100	\$8,400



Spot Image cont.

Spot 5 new images

Acquired outside Australia

	Standard Programming		Priority Programming	
	Full Scene	Half scene	Full Scene	Half scene
10m	\$6,300	\$5,300	\$8,200	\$6,750
5m	\$6,300	\$4,850	\$8,200	\$6,750
2.5m	\$12,000	\$9,150	\$13,900	\$11,500



Spot Image cont.

Spot 5 archived images

Acquired outside Australia

	Archive	
	Full Scene	Half scene
10m	\$5,700	\$4,250
5m	\$5,700	\$4,250
2.5m	\$11,400	\$8,550



LandSat Data Policy

The landsat7 data policy is designed to achieve the following:

- Ensure that unenhanced data are available to all users at the cost of fulfilling user requests
- Ensure timely and dependable delivery of unenhanced data to the full spectrum of civilian, national security, commercial, and foreign users and the National satellite Land Remote sensing Data Archive (NSRSDA).
- Ensure that the USA retains ownership of all unenhanced data generated by LandSat-7.
- The development of the commercial value-added service based on remote sensing data remains exclusively the function of the private sector
- To the extent possible, ensure that the data and information System for LandSat-7 is compatible with the Earth Observation System Data and Information System (EOSDIS) .



LandSat Data Policy

- The mission goal is to acquire and update periodically a global archive of day time substantially cloud free images of land area
- LandSat-7 is also to acquire every day time scenes of the US to accommodate time critical observations and other requests based on the following order of priority:
 - Spacecraft and Instrument health and safety
 - Time critical acquisitions related to national security , natural disaster and environmental emergencies
 - Time critical acquisitions to support large campaigns and other key US Government programme
 - Acquisition crucial to the global archive mission
 - Acquisition request from individual and commercial entities



LandSat-7 Distribution Policy

- Level OR , IR and 1G data product will be distributed in a timely manner on a non discriminatory basis within the technical limitation of the system
- The US government imposes no restrictions on subsequent use, sale or redistribution of data from LandSat-7
- Order of data is processed based on the same priorities as data acquisition



LandSAT-7 Product Description

- spatial resolution - 30m near infrared(band 1-5 and 7)
- spatial resolution - 15m panchromatic (band 8)
- spatial resolution - thermal (band 6)
- approx. scene size - 170x183km
- repeat Circle - 16 days
- image format - GeoTIFF, HDF, Fast L7
- distribution format- CD-ROM, FTP, DVD



LandSAT-7 Product Description

- Level ORp - Raw uncorrected, has no radiometric or Geometric correction
- Level 1G - Includes both radiometric and geometric correction
- Level 1P - includes radiometric and Geometric correction, as well as the use of ground reference to improve accuracy
- Level 1T - includes radiometric and geometric correction and precision correction as well as the use of Digital Elevation model



LandSAT-7 Data Pricing

- All user will be charged standard prices for the product/services provided.
- Prices will be reviewed and established by LandSat-7 Project Management once a year
- It is intent of LPM to distribute level 0R data for no more than \$500 per scene
- Bulk discount of 20% is available when ordering 25 or more scenes. Discount do not apply to multi- scene



Prices of LANDSAT-7 DATA

(acquisition date prior to may,31, 2003)

Product Type	Price	Availability
Raw uncorrected (Level Orp) (Single scene)	\$475 per scene	General Public
Raw uncorrected (Level Orp) (multi- scene, 10 scene maximum)	\$475 first scene+ \$200 each additional scene	General Public
Systematic Correction (Level 1G) (Single scene)	\$600 per scene	General Public
Systematic Correction (Level 1G) (Multi-scene, 3 scene max.)	\$600 per scene+ \$250 each additional scene	General Public
Precision correction (level 1P) (single scene)	\$725 per scene	Approved USG researcher
Precision correction (level 1P) (multi- scene, 3 scene max.)	\$725 per scene : \$400 each additional scene	Approved USG researcher
Terrain correction (Level IT) (Single scene)	\$800 per scene	Approved USG researcher
Terrain correction (Level IT) (multi- scene 3 scene max.)	\$800 per scene : \$425 each additional scene	Approved USG researcher



Prices of LANDSAT-7 DATA (acquisition after may,31, 2003)

Product Type	Price	Availability
Raw uncorrected (Level Orp) (Single scene)	\$200 per scene	General Public
Raw uncorrected (Level Orp) (multi- scene, 10 scene maximum)	\$200 per scene+ \$90 each additional scene	General Public
Systematic Correction (Level 1G) (Single scene)	\$250 per scene	General Public
Systematic Correction (Level 1G) (Multi-scene, 3 scene max.)	\$250 per scene + \$110 each additional scene	General Public
Precision correction (level 1P) (single scene)	\$310 per scene	Approved USG researcher
Precision correction (level 1P) (multi- scene, 3 scene max.)	\$310 per scene+ \$180 each additional scene	Approved USG researcher
Terrain correction (Level IT) (Single scene)	\$340 per scene	Approved USG researcher
Terrain correction (Level IT) (multi- scene 3 scene max.)	\$340 per scene+ \$190 each additional scene	Approved USG researcher
Level 1G Gap-filled SLC-off (single scene)	\$275 per scene	General Public



Proposed DMC Pricing policy

- DMC data not in the open market yet
- DMC partners to meet 24th and 25th June 2004 to decide and agree on data policy



Proposed DMC Pricing policy cont.

- Confirm commitment to work in constellation
- Agree on phasing and set up infrastructure
- Agree to set up Central international sale Centre
- Agree to share cost and profit of central operation



DMC Mission statement

- The objective of the DMC consortium is to derive the maximum Mutual benefits from the constellation through collaboration and cooperation between the DMC Partners
- All partner need agree to exchange resources to achieve a daily imaging capability for disaster monitoring and dynamic earth Observation
- Each partner has a reason to work together
 - Mutual benefit
 1. Daylily imaging capability
 2. Increasing own satellite capability by sharing DMC Global ground network
- Central sales
- Stimulate partners nations value added business
- Set a new international EO standard
- High profile



Preliminary Plan till June, 2004

- Infrastructure to be established by Partners
- Employ DMC Manager to coordinate central activities
- Develop , test and launch constellation with stakeholders



Potential market for DMC Data

- DMC Partner nations
- Research Groups
- Government Organizations
- Commercial organizations
- International Organizations
- Disaster response Organization



Commercial Value of Data

- Proposed Central Constellation Coordination System will enable daylily Imaging.



Commercial value of the DMC Images

- Price for DMC data based initially on LandSat archived data-**\$0.02/sq. km**
- Base price for 80x80 km DMC tile - **\$120.**
- Total capacity of each satellite per day – **80 image tiles**
- Potential image value per satellite- **\$3.5m pa.(all images sold)**



Proposed data ownership and profit sharing

- DMC image always belongs to satellite owner
 - share image licensed for DMC partners national use
- Data sale
 - Image licensed to purchaser for sole use
 - Profit to satellite owner
- Disaster Image
 - Always in the public domain
 - Satellite owner and the DMC to always be acknowledged
 - Ownership stay with DMC partner for future sale



Setting up Central Data Sale Point

- All partner to be responsible for the setting up of the central Data sale point
 - All partner to be ready to buy compatible software's and hardware's for individual Groundstation
- ❖ Each partner to set up Local pricing mechanism



Proposed Pricing Policy for the NigeriaSat-1 Data

- Acquire all images over Nigeria (Unless when not possible)
- Image over Nigeria available for sale at NASRDA
- Size of a scene -- 80x80Km (600x300km available on request)
- Priority Programming available (attracts extra charge)
- Disaster response images would be free
- Format of Image- TIF, GEOTIF
- Delivery - CD-ROM, DVD, FTP



Proposed Product Description

- L0 – Raw image (individual band)
- L0R- Radiometric corrected image
- L1 - Band Registered image
- L1R- Radiometric corrected L1
- L1G- Geometric corrected L1R
- High Processing Level
 - Stage I : Precision Geo-referenced image
 - Stage II: Ortho-rectified Image



Proposed Price list of NigeriaSat-1 Data

ARCHIVED (Commercial Institutions)

Image specification	Standard Programming (one scene)	Priority programming (one scene)
LO	N12,000	N14,000
LOR	N18,000	N20,000
L1	N24,000	N26,000
L1R	N30,000	N32,000
L1G	N36,000	N38,000
HPL Stage I	N50,000	N58,000
HPL Stage II	N60,000	N68,000

PRICES TO BE REVIEWED ANNUALLY BY NASRDA

16th June, 2004

NASRDA



Proposed Price list of NigeriaSat-1 Data

ARCHIVED (Government Institutions)

Image specification	Standard Programming (one scene)	Priority programming (one scene)
LO	N6,000	N7,000
LOR	N9,000	N10,000
L1	N12,000	N13,000
L1R	N15,000	N16,000
L1G	N18,000	N19,000
HPL Stage I	N25,000	N29,000
HPL Stage II	N30,000	N34,000

- Free for Certified Approved Research work

PRICES TO BE REVIEWED ANNUALLY BY NASRDA

16th June, 2004

NASRDA



Proposed Price list of NigeriaSat-1 Data

real time data (Commercial Organizations)

Image specification	Standard Programming (one scene)	Priority programming (one scene)
LO	N16,000	20,000
LOR	N24,000	N26,000
L1	N30,000	N32,000
L1R	N36,000	N38,000
L1G	N42,000	N44,000
HPL Stage I	N60,000	N70,000
HPL Stage II	N70,000	N80,000

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Proposed Price list of NigeriaSat-1 Data real time data (Government Institutions)

Image specification	Standard Programming (one scene)	Priority programming (one scene)
LO	N8,000	N10,000
LOR	N12,000	N13,000
L1	N15,000	N16,000
L1R	N18,000	N19,000
L1G	N21,000	N22,000
HPL Stage I	N30,000	N35,000
HPL Stage II	N35,000	N40,000

- Free for certified and approved research work

PRICES TO BE REVIEWED ANNUALLY BY NASRDA



Thanks for your attention