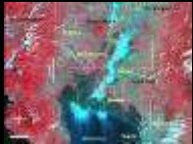
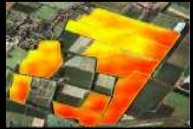


# DMCii Global Forest Services

**Paul Stephens**  
Director Sales & Marketing



**3<sup>rd</sup> February 2010**



# The DMC Concept

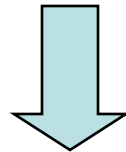
A Unique International Partnership Combining National Objectives, Humanitarian Aid and Commerce...



The Consortium



The Coordinator



The Constellation



Applications;  
Commercial, Government and Humanitarian

# Full Spectrum Satellite Solutions



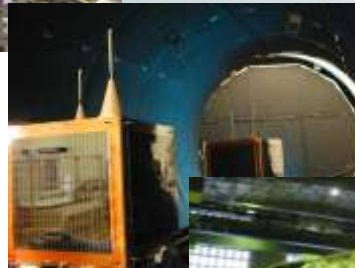
**Design**



**Manufacture**



**Assembly, Integration & Test**



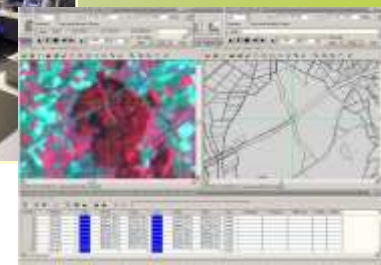
**Launch Services**



**Ground Segment & Operations**



**Processing & Supply**



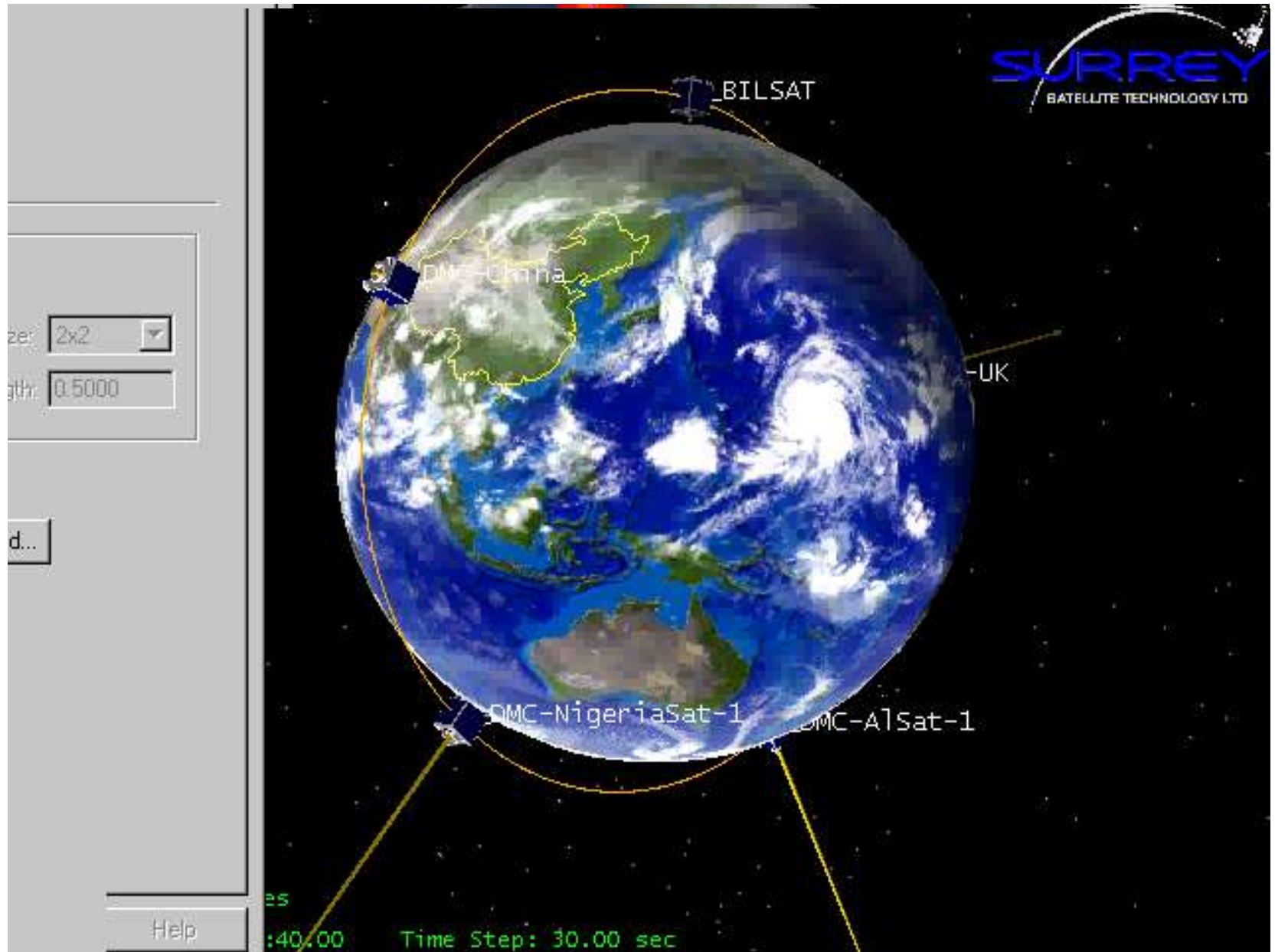
# Hands-on training & capacity building programmes



- 6 Space Agencies / Space programmes formed
- 6 Priming own space missions
- 2 Spin-out companies
- All but 1 remain active in space

Nation	Period	Mission
USA, NASA / MSU	(2007-2008)	Magnolia
Nigeria, NASRDA	 (2007-2009)	NigeriaSat-2
Nigeria, NASRDA	 (2001-2003)	NigeriaSat-1
Turkey, Bilten	 (2001-2003)	BILSAT-1
Algeria, CNTS	 (2000-2002)	AISAT-1
China, Tsinghua Uni.	 (1998-1999)	Tsinghua-1
Malaysia, ATSB	 (1996-1998)	TiungSat-1
Singapore, NTU	 (1995-1997)	UoSAT-12 (payload)
Thailand, MU	 (1995-1997)	Thai-Phutt
Chile, FACH	 (1994-1998)	FASAT-A&B
Japan, Fujitsu	 (1992-1994)	(FjSAT)
Portugal	 (1992-1994)	PoSAT-1
S.Korea, KAIST	 (1989-1993)	KITSAT
S.Africa	 (1989-1992)	UoSAT 3/4/5
Pakistan, Suparco	 (1984-1988)	BADR-1

# Disaster Monitoring Constellation



# Constellations overcome cloud

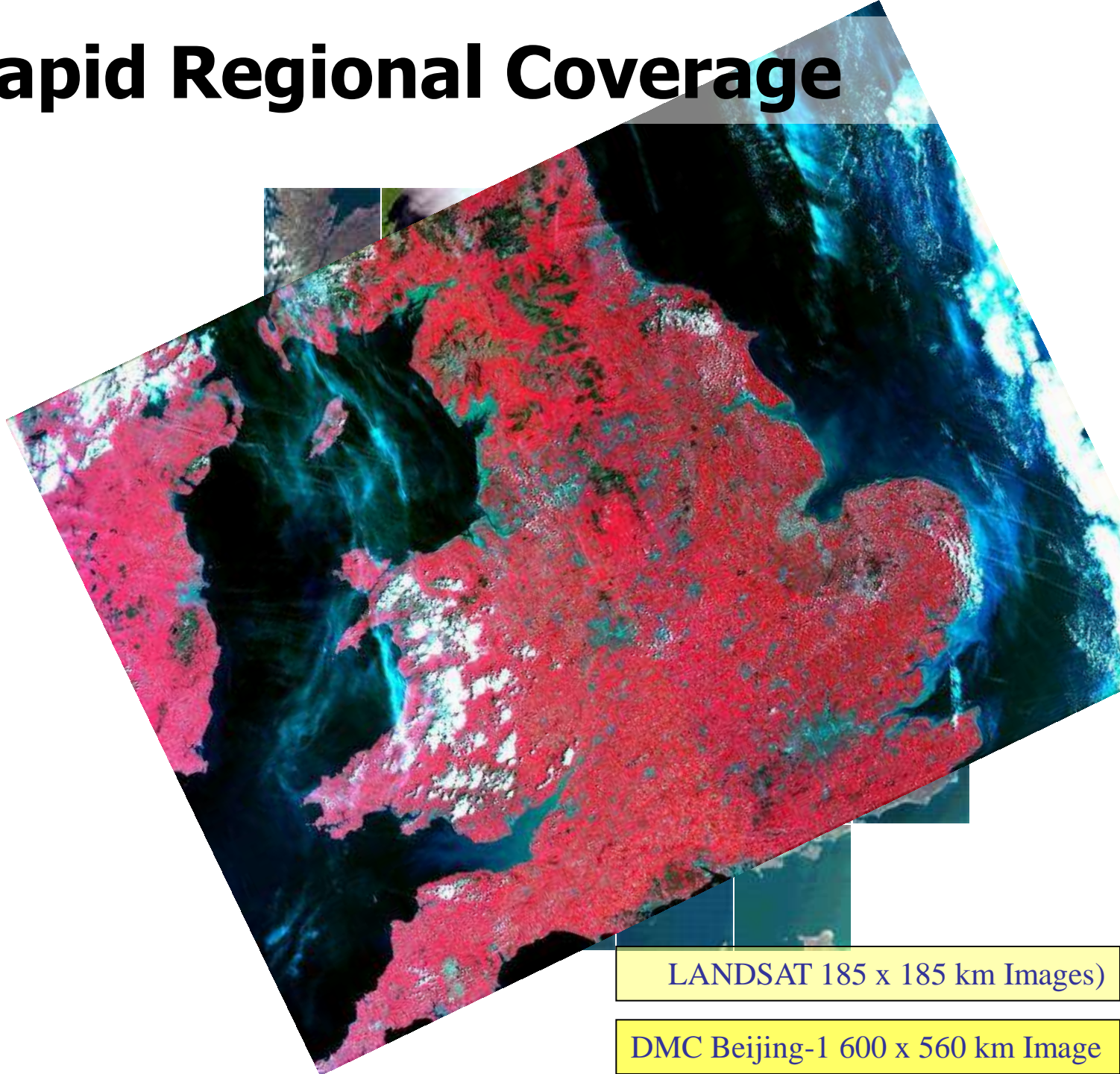


Multiple MODIS images May 2006



Single DMC image April 2007

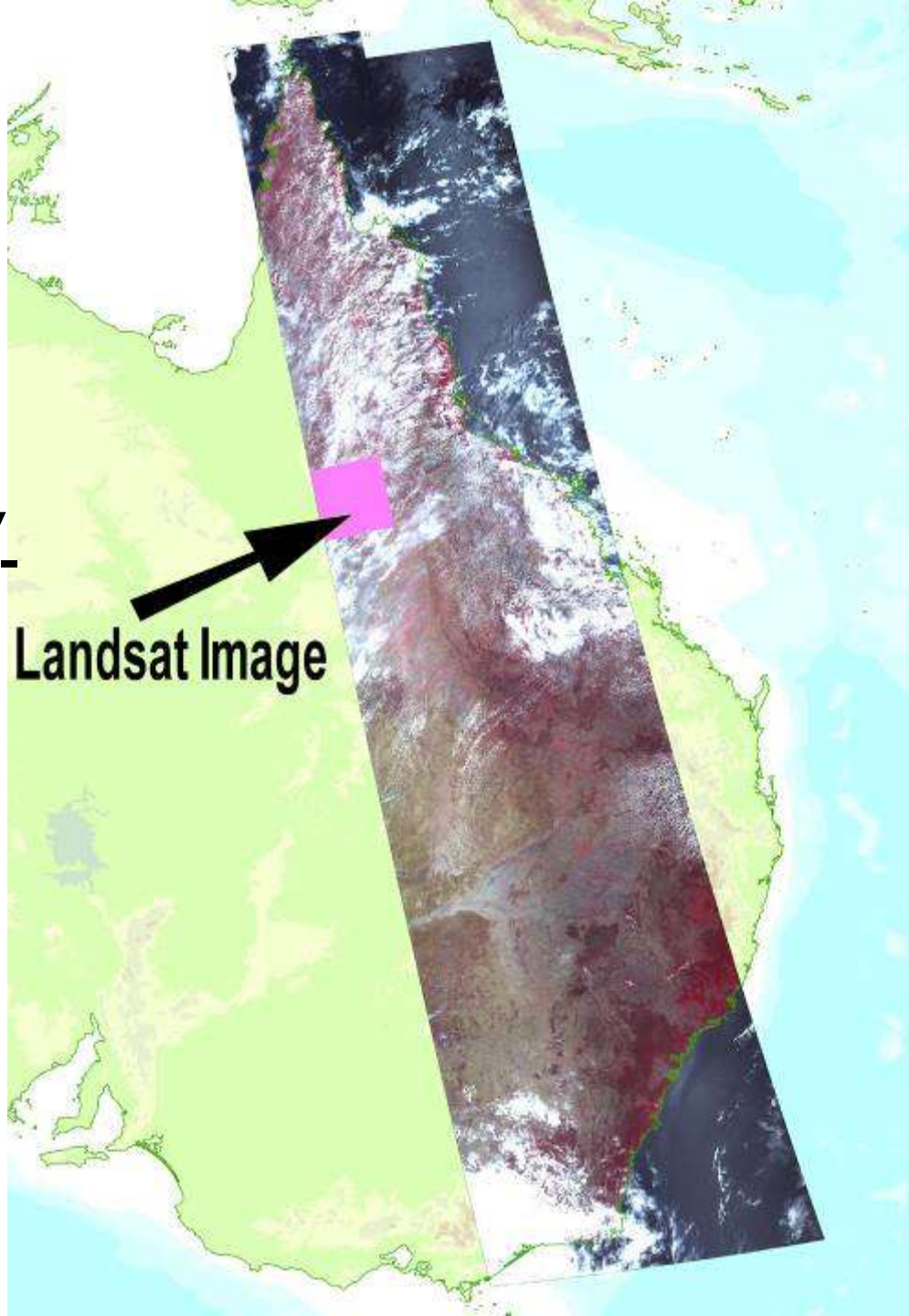
# Rapid Regional Coverage



LANDSAT 185 x 185 km Images)

DMC Beijing-1 600 x 560 km Image

**Australia  
Example:  
650km swath,  
3000km along-  
track**



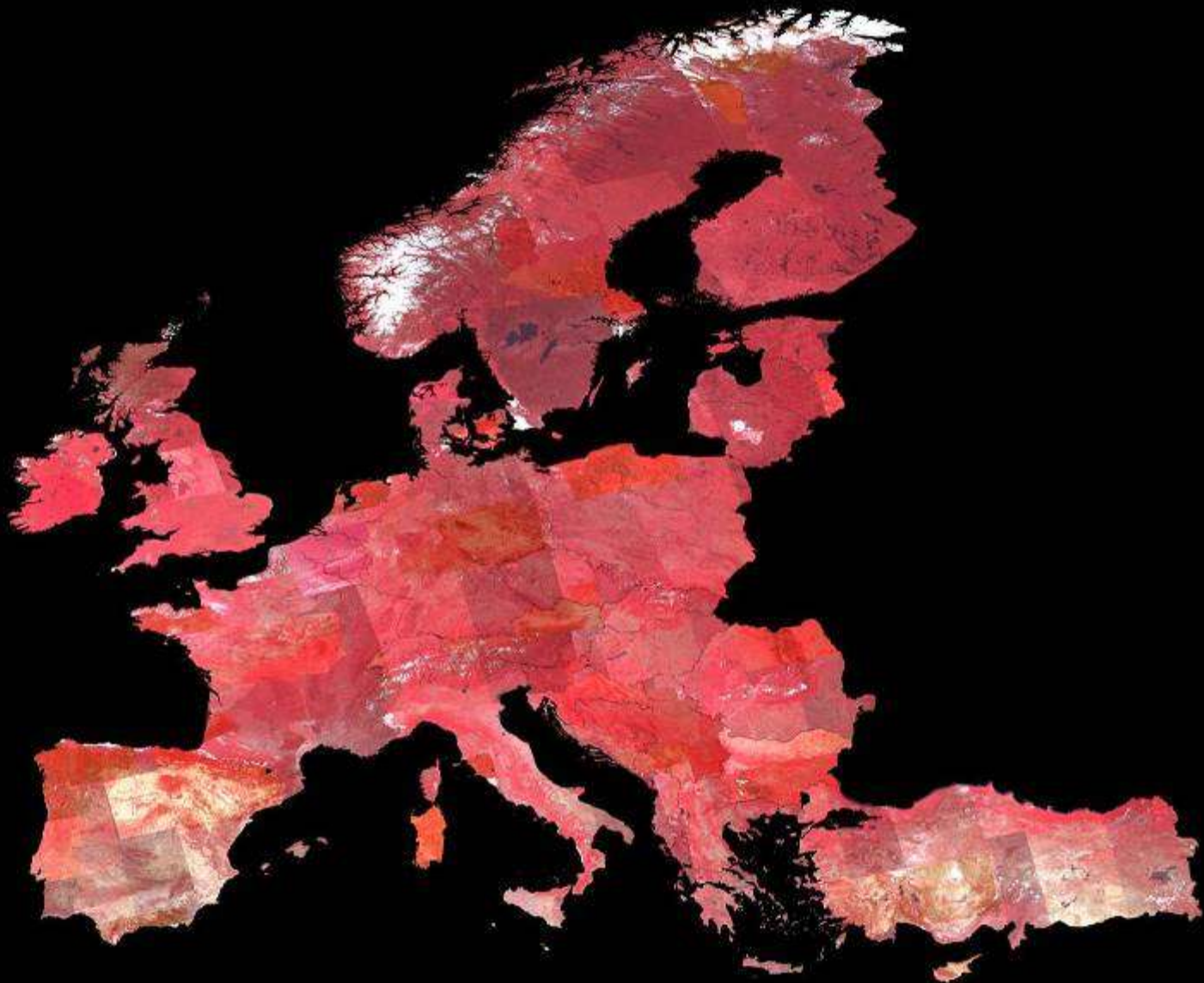
**Landsat Image**



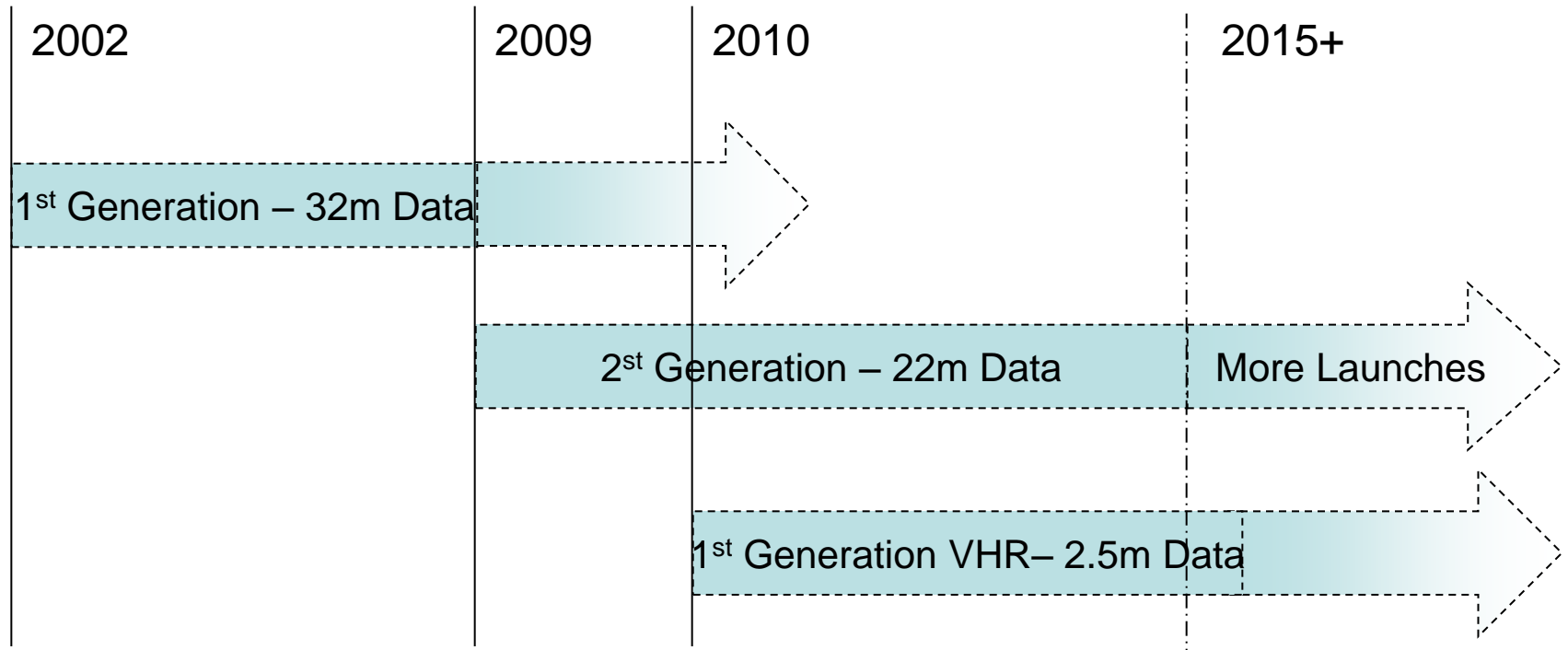
## Monitoring Europe; Working with GMES

Delivered

- Single year
- 38 countries
- 5.8 million km<sup>2</sup>
- <5% cloud
- 32 metre gsd



# Satellite Constellation Sustainability Principles

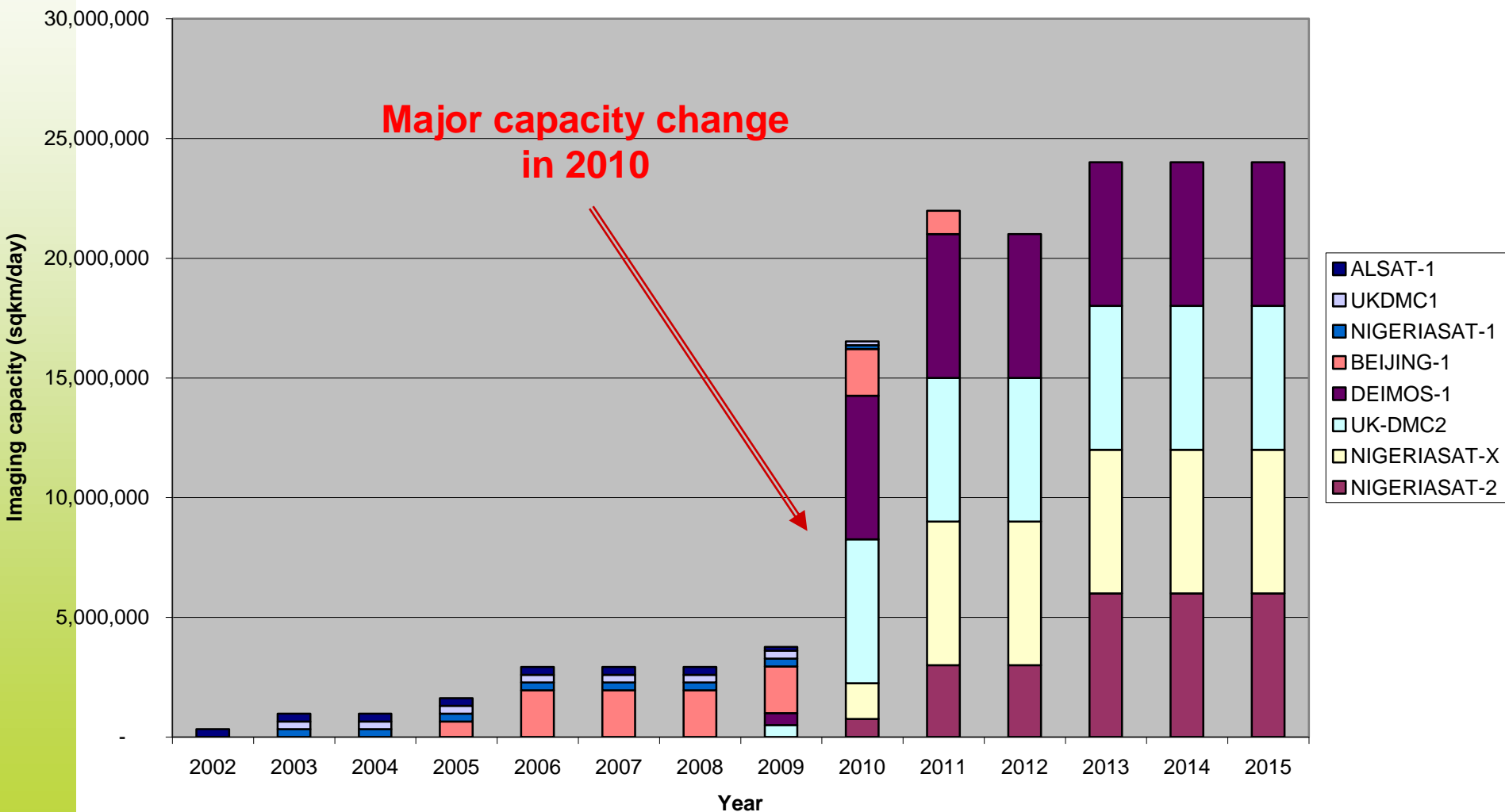


Cost effective SSTL satellites, and self-sustaining funding principles of commercial organisations delivers data continuity

Consistent design principles delivers imagery consistency

# Expansion in DMC Imaging Capacity

DMC daily imaging capacity



# DMCii Commercial Service

DMCii coordinates DMC Constellation to deliver

## On-demand rapid imaging

- Fast responsive imaging service
  - 2.8 and 4 metre panchromatic
  - 5.6 metre multispectral
  - 32 metre multispectral
  - 22 metre multispectral
- New sensors
  - 2.5 metre pan / 5 m multispectral (2010)

## Country / regional mapping

- Multi-season coverage

## Precision Agriculture

- Flexible, short imaging windows to cover large or small Aols

## Forest monitoring

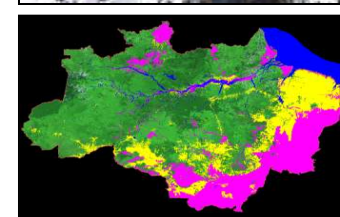
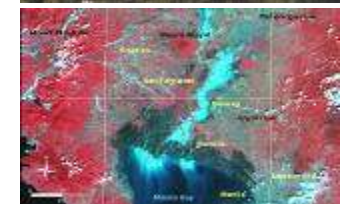
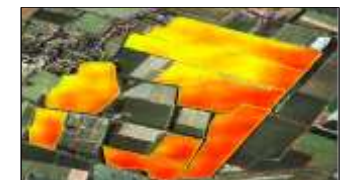
- Large area change detection and classification

## Direct downlink near real-time imaging

- 22 metre multispectral

## On-line Archive access

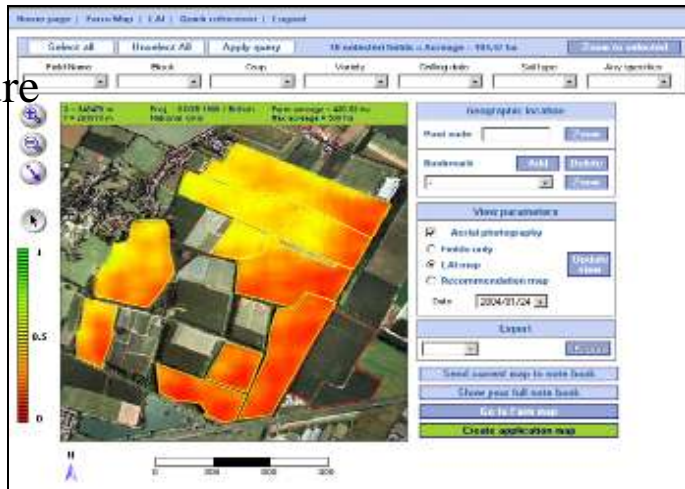
## Training



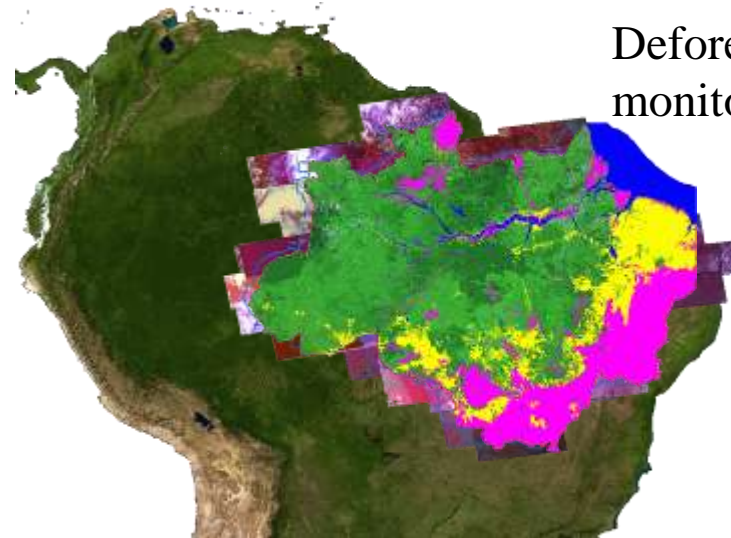
# Applications of DMC imagery

## Benefits of rapid revisit and wide area coverage

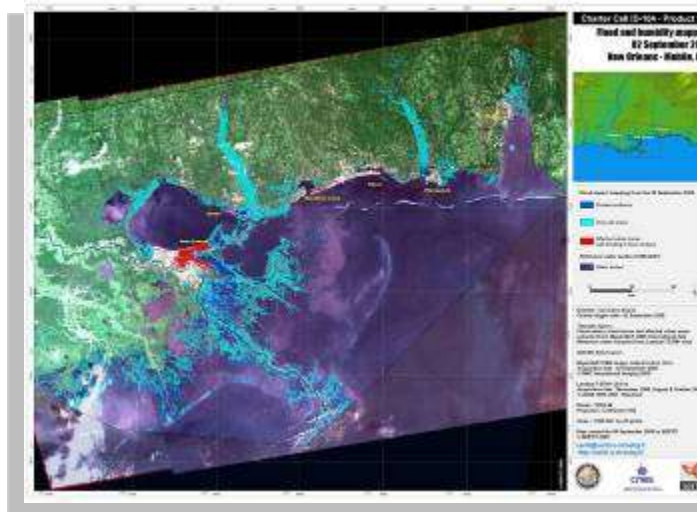
Precision Agriculture



Deforestation monitoring



Flood mapping



Burnt Area mapping

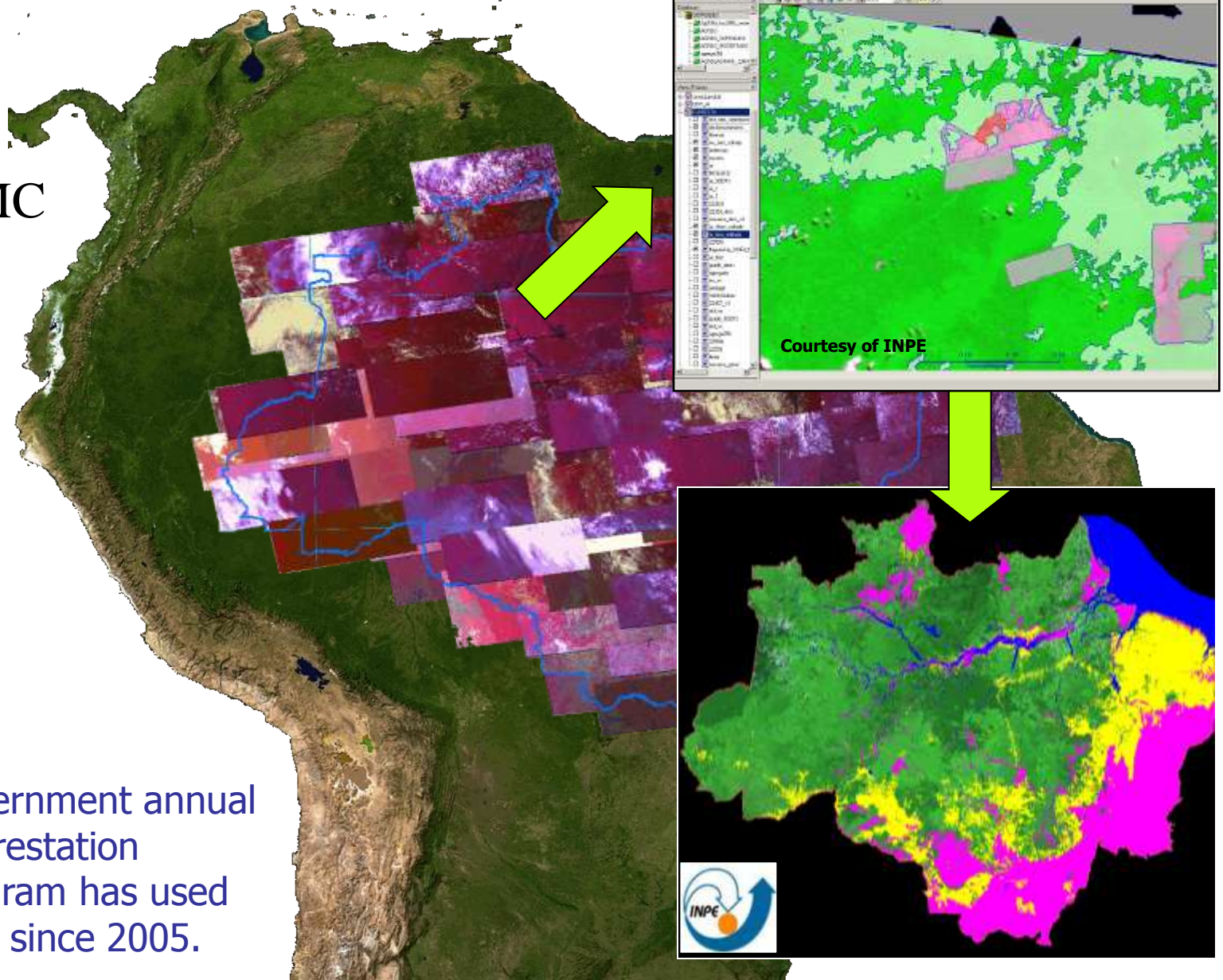


# Forestry – National Reporting

Annual DMC  
campaigns:

- 2005
- 2006
- 2007
- 2008
- 2009

Brazilian Government annual  
Amazon deforestation  
PRODES program has used  
DMC imagery since 2005.



# Forest Area Classification Map

Thematic Content:

- Basic Landcover

Scale:

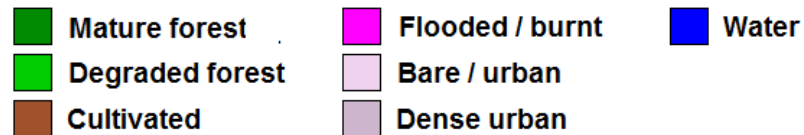
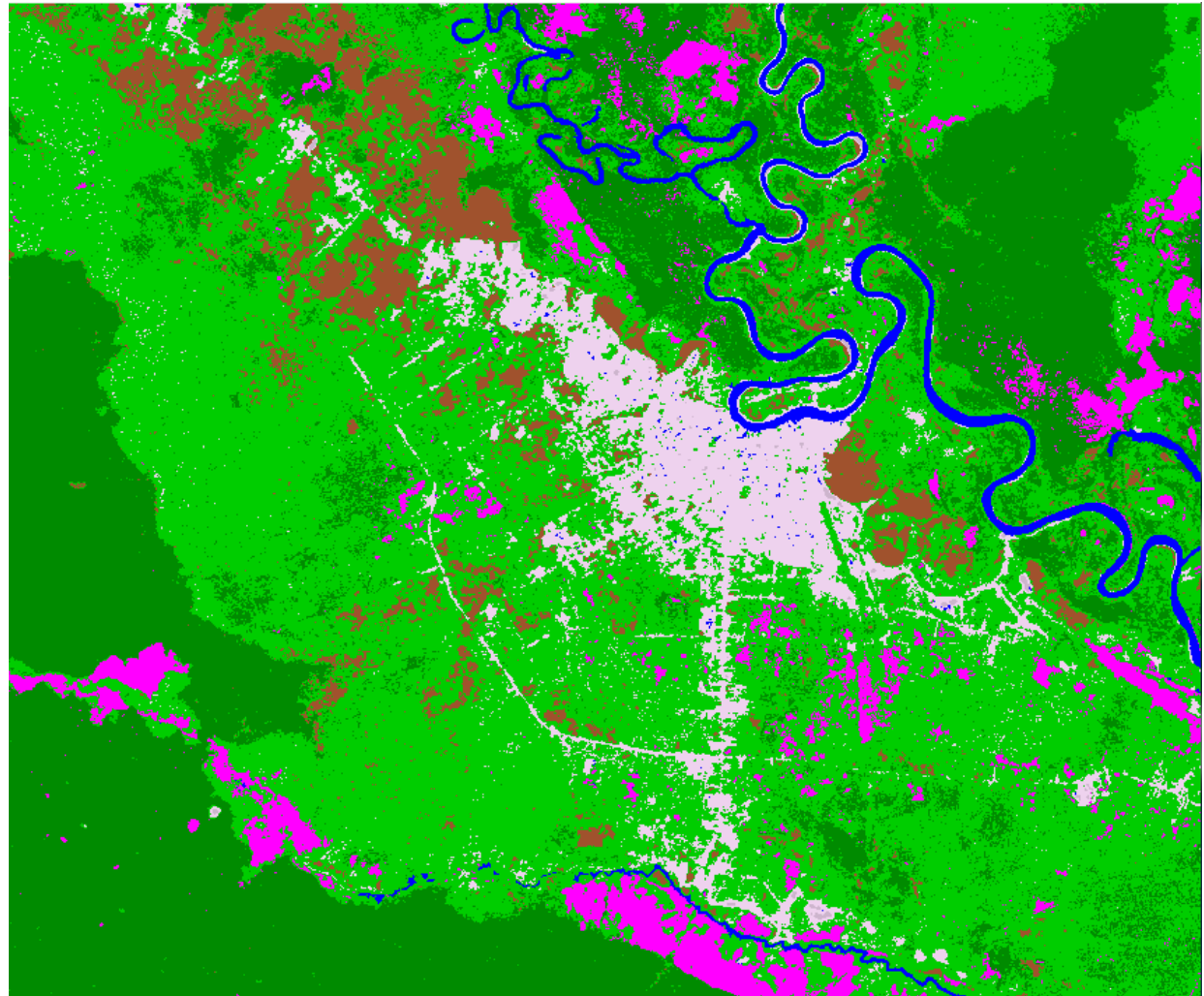
- 1:50 000

Projection/Ref:

- UTM WGS84

Format:

- GeoTiff
- ERDAS.img
- ENVI
- PDF
- KML/KMZ



# Forest Change Indicator Map

Thematic Content:

- Degradation
- Re-growth
- Burnt area
- Flooded area

Scale:

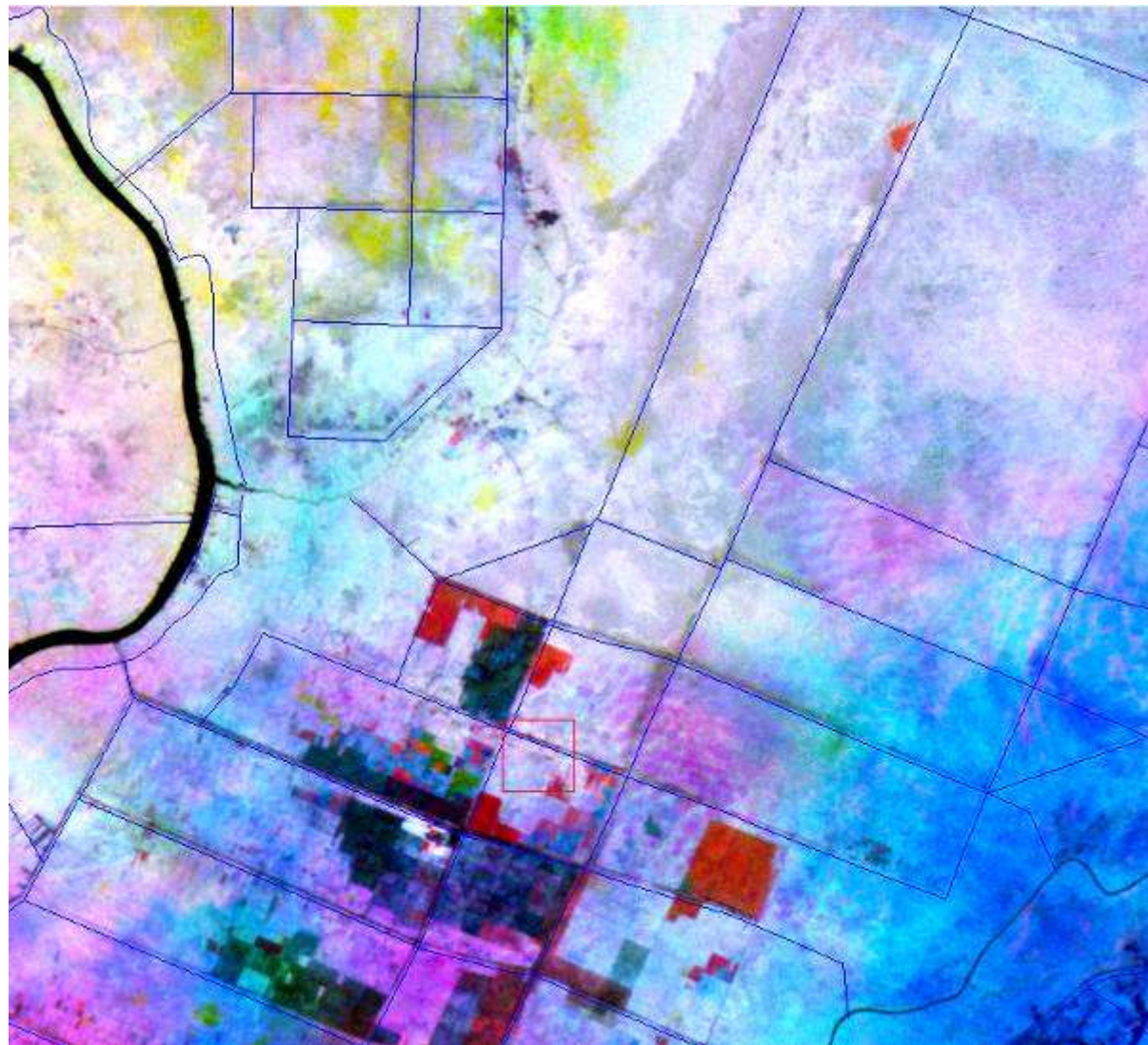
- 1:50 000

Projection/Ref:

- UTM WGS84

Format:

- GeoTiff
- ERDAS.img
- ENVI
- PDF

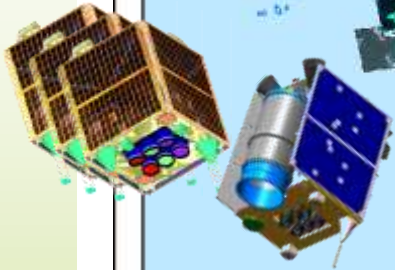


**Multi-temporal NDVI Composite (3 Dates)**



# Rapid Continental Coverage

32 & 22 m

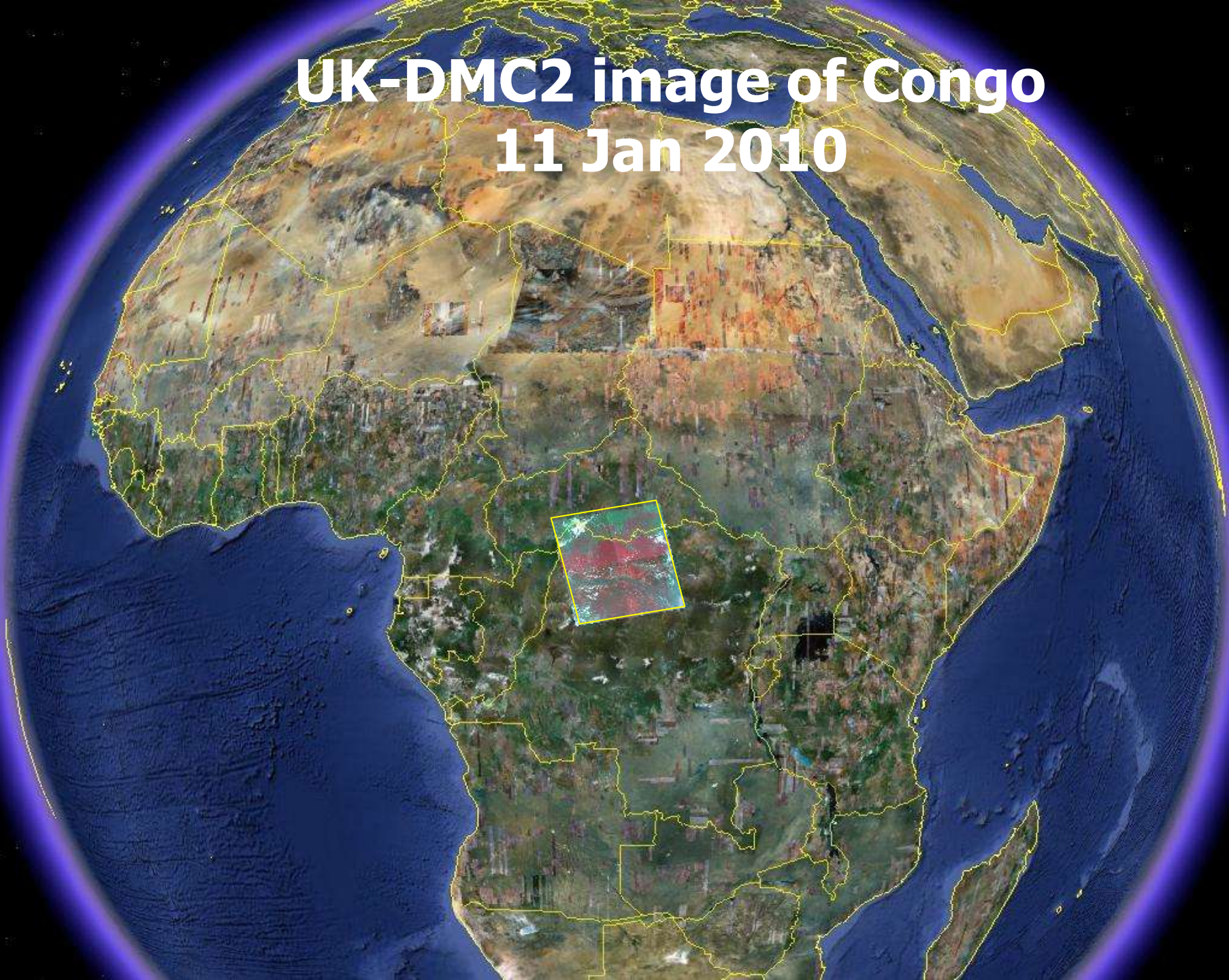


- DMCii is supported by the EC-GMES to collect imagery in 12 months 2009/2010
- The EC-GMES state that the coverage is a 'core dataset' also for the 2011/2012 period

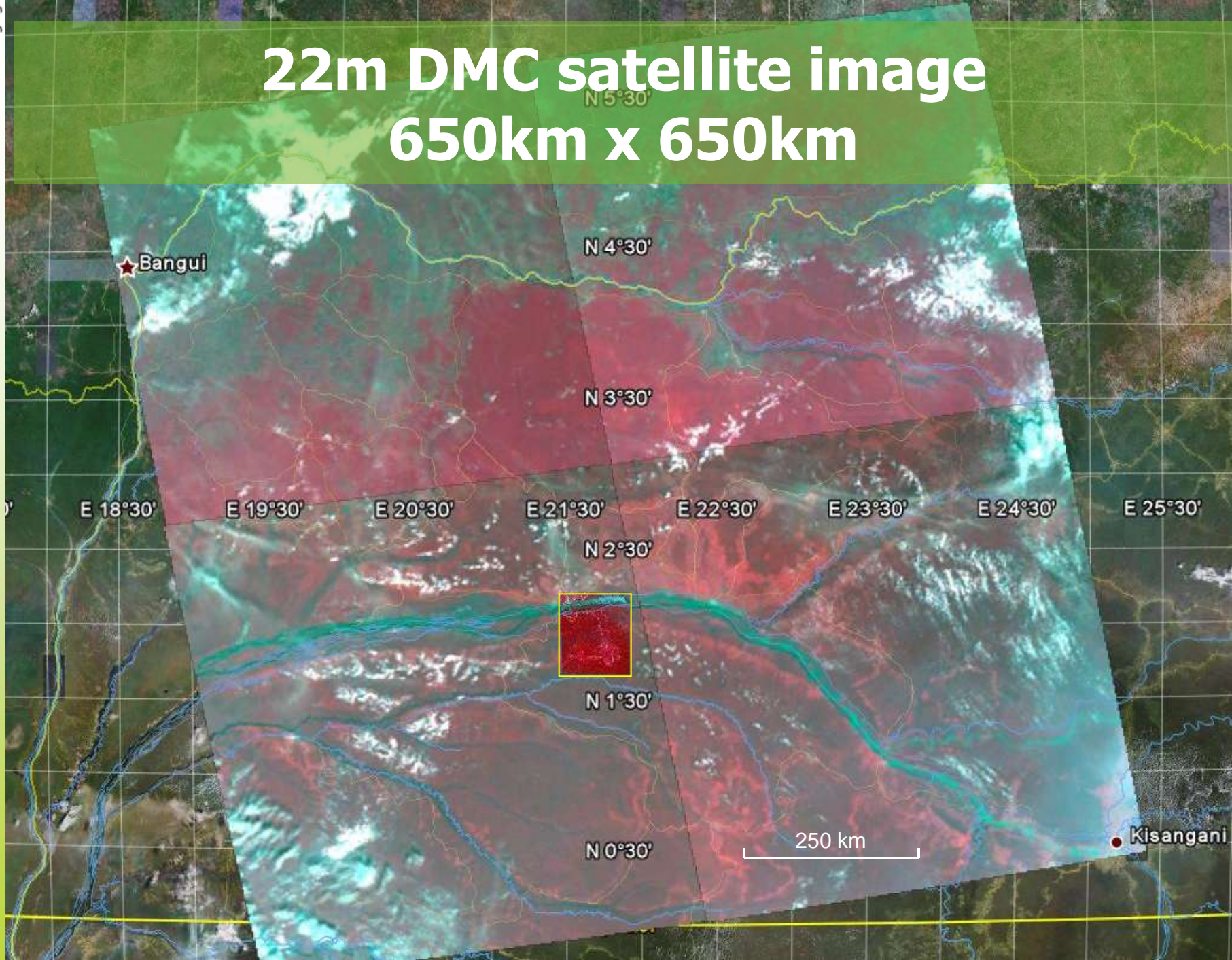


Quicklook Map

# UK-DMC2 image of Congo 11 Jan 2010



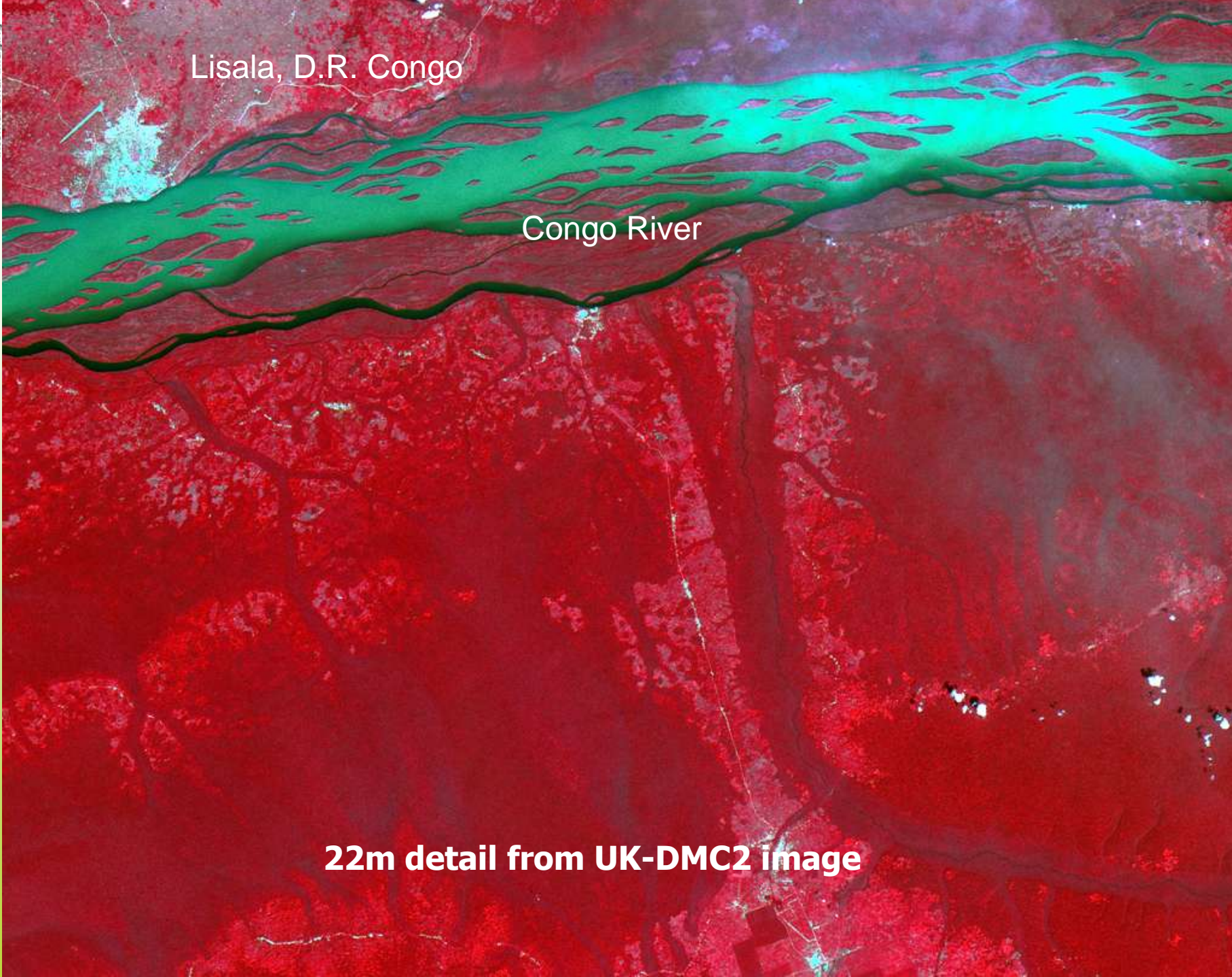
# 22m DMC satellite image 650km x 650km



Lisala, D.R. Congo

Congo River

**22m detail from UK-DMC2 image**



# Context in Central Africa

- Remote sensing and forest inventory programmes in Central Africa have produced comprehensive historical high quality records and infrastructure (CARPE, OFAC, OSFAC)
  - Highly accurate surveys are necessary for biomass/carbon flux, these take time and effort
- **High frequency satellite surveys for operational monitoring are the future**
  - After 1 year, degradation is difficult to detect
  - Enforcement needs information to **target** ground surveys
- DMCii proposes to monitor **key areas** of COMIFAC countries **two times a year** on an ongoing operational basis
  - Countries without operational forest monitoring programmes will be refused entry to the REDD-Plus process

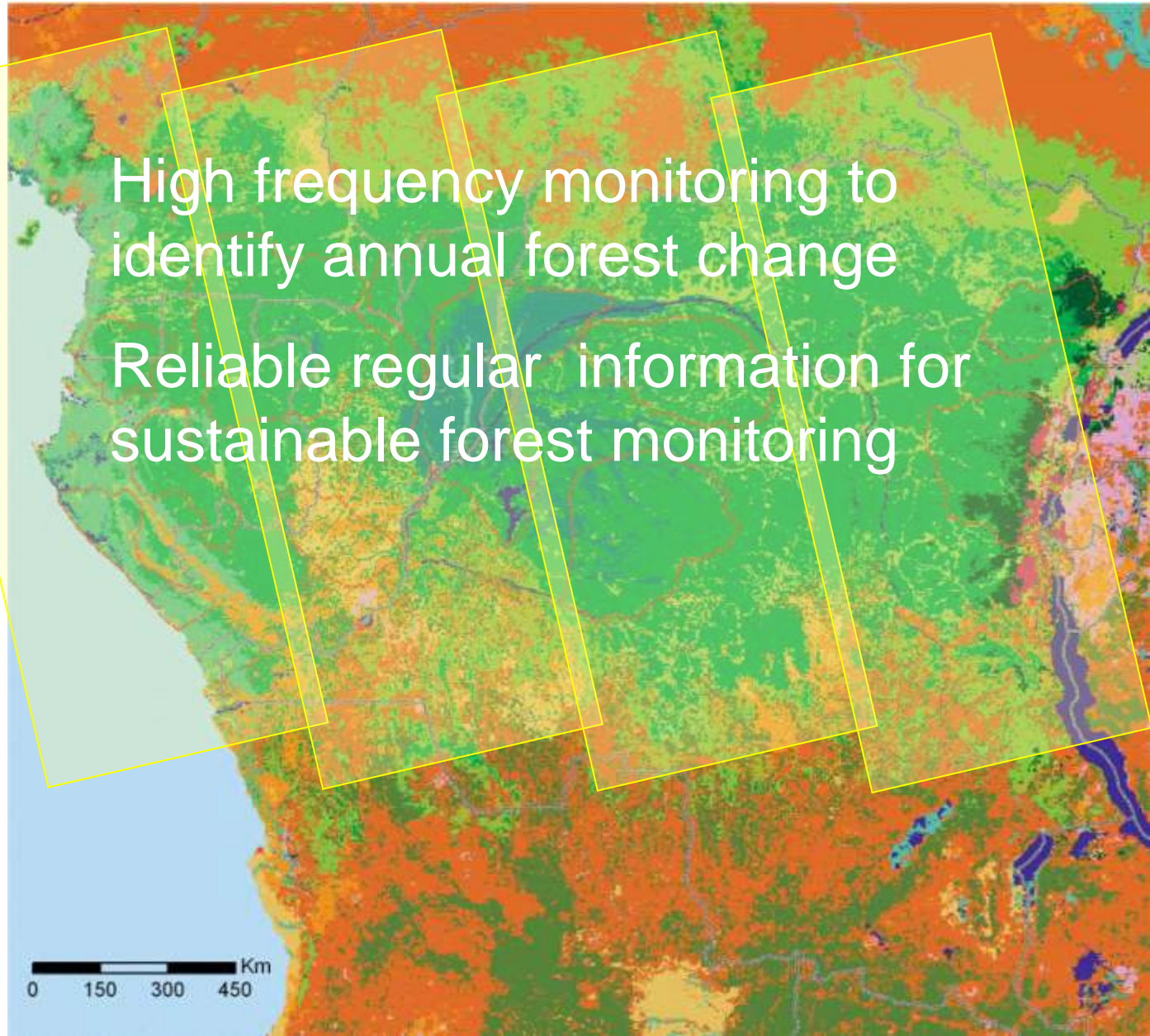
# Annual monitoring of Congo Basin Forests

DMC  
650km swath  
3 satellites @  
22metres gsd  
3 satellites @  
32metres gsd



High frequency monitoring to identify annual forest change

Reliable regular information for sustainable forest monitoring



# Proposed Congo Forest Monitoring Service

- Covers dense tropical forest area
  - Annual basin wide survey (for policy makers and international projects)
  - more regular surveys - CARPE priority landscapes and other key areas
- Focal points in each country through WRI
- Central focus on capacity building with OSFAC
  - Training events on map interpretation and processing
  - Field training on map interpretation
- Printed and digital map products
  - Products specified to meet REDD-Plus requirements
- Harmonised with existing projects
- Long term project plan for sustainability
- **Licensing of all the DMC data, for any user, globally**

## Partners and Supporters

- Existing initiatives have a strong need for operational annual data supply
- Partners, co-funding bodies and stakeholders
  - UN-FAO, European Space Agency, CIFOR, World Resources Institute, EC-FORAF (OFAC), OSFAC, CARPE, IUCN, Jane Goodall Institute, GMES-REDD
  - DG of Environment (RC)
  - Association Congolese pour la Preservation des Forets
  - Institution Congolese pour la Conservations de la Nature
  - Ministry of Fauna and Forest (Cameroun)
  - Geographical Institute of Burundi
  - Further stakeholders in Gabon, Guinea Equatoriale
  - Other forest responsables



# Project Responsibilities

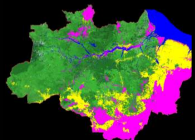
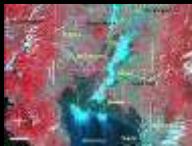
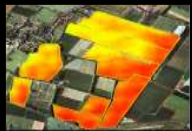
<b>Task</b>	<b>Primary Partner</b>	<b>Secondary Partner</b>	<b>Other Partners</b>
Training and Capacity Building	WRI	OSFAC	DMCii
Imagery Acquisition and Pre-Processing	DMCii		Satellite Partners
Local Map Production	OSFAC	DMCii	
Interface with Local Groups	WRI	OSFAC	JGI
Improving Awareness	DMCii	CARPE	
Interface with National Governments	CARPE	COMIFAC	DMCii
Data Dissemination and Processing	OSFAC		
Basin-Wide Survey	CARPE	OFAC	WRI
Logging Roads Monitoring	WRI	Crowd Sourcing?	

# Thank you Merci

[www.dmccii.com](http://www.dmccii.com)

[info@dmccii.com](mailto:info@dmccii.com)

 **dmcc**  
International Imaging



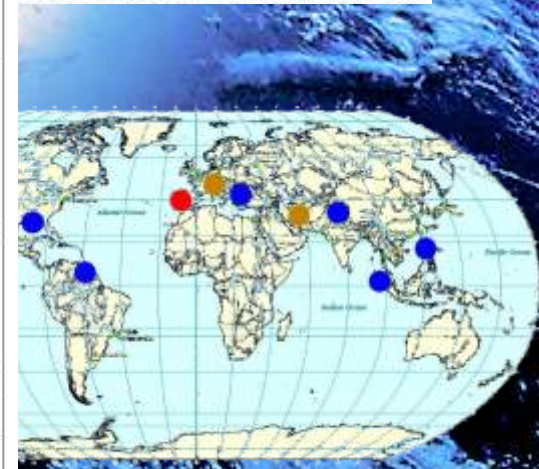
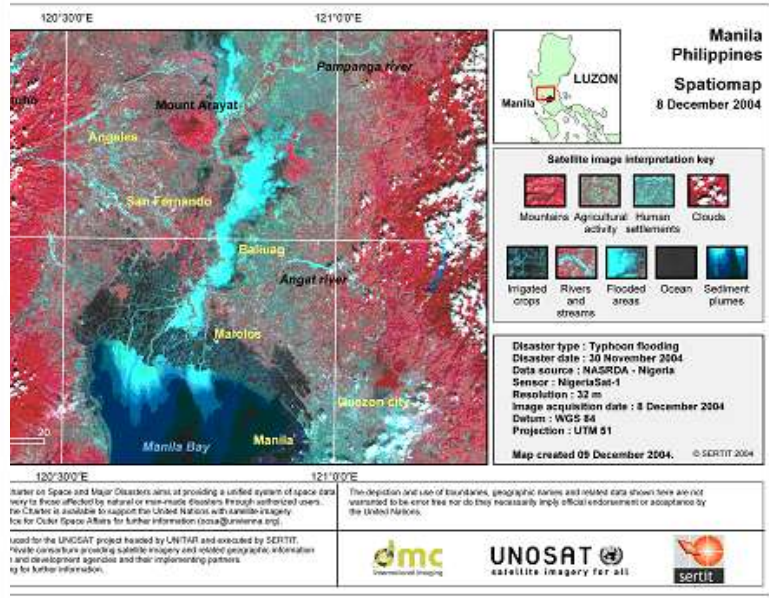
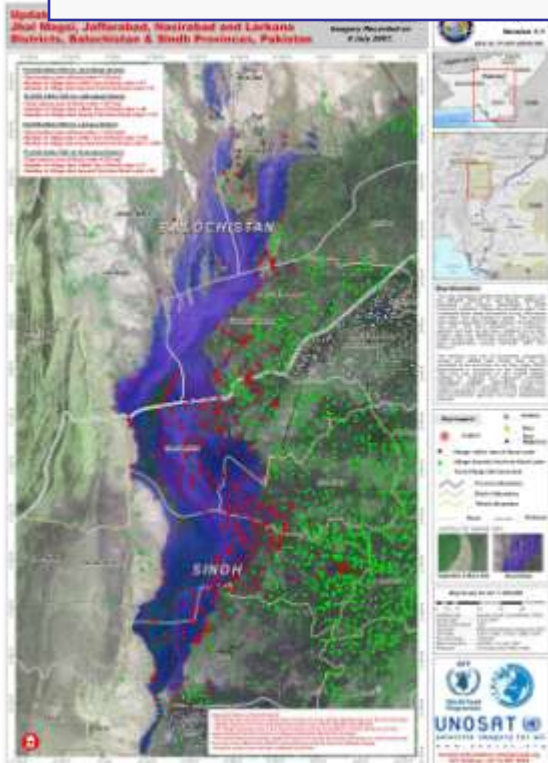
# DMC Disaster Response

## DMC's role in International Charter; Space & Major Disasters.

- Rapid response Imagery
- Emergency On Call Officers
- Executive Secretariat chair; Oct'07- Apr'08
- Charter Board chair; Oct'07- Apr'08



UK Charter Board Member



DMC Disaster Response

