



The DMC International Collaboration and Serving Public Entities with Commercial EO Data

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DMC International Imaging Ltd

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The DMC Concept

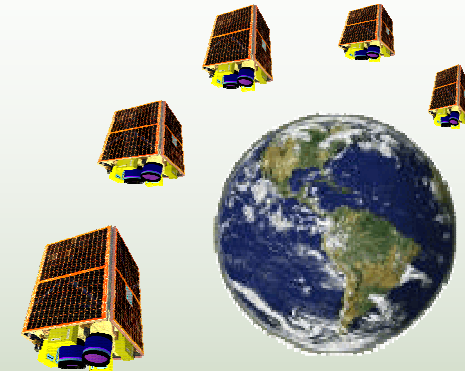
A Unique International Partnership Combining National Objectives, Commercial Applications and Humanitarian Aid



The Consortium



The Coordinator

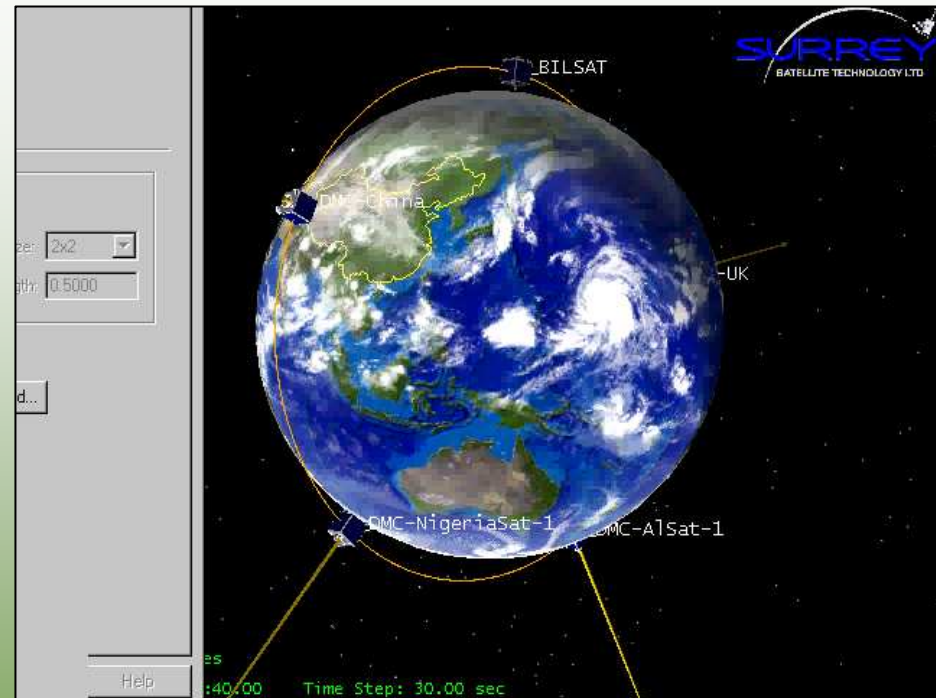


The Constellation

- ALSAT-1
- NigeriaSat-1
- UK-DMC
- BILSAT
- BEIJING-1
- Deimos-1
- UK-DMC2
- NigeriaSat-2
- NigeriaSat-X

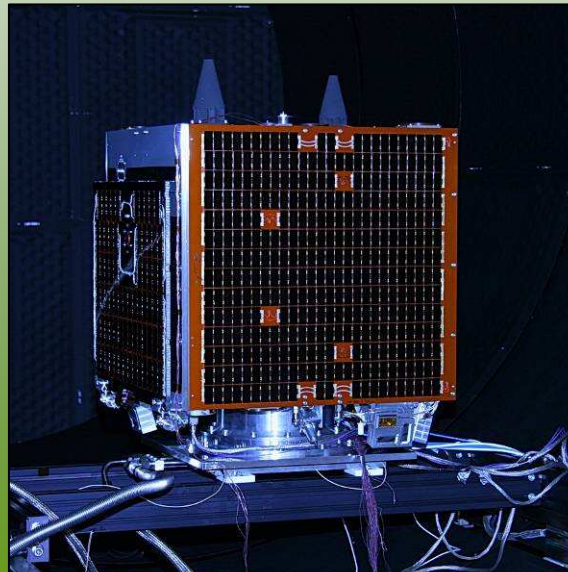
Global Daily Imaging

- 5 Satellites
- 650Km swath
- 32m Resolution
- Landsat Equivalent Bands:
 - 2 (Green)
 - 3 (Red)
 - 4 (NIR)
- Launched 2003-2005
- **Global daily imaging opportunity**



Second generation DMC satellites (2009+)

- UK-DMC2 and Deimos-1 launched 29th July 2009
- Improved resolution → **22m** GSD (doubles pixel density)
- Improved MTF, S:N, Stability
- Maintains same wide swath (650km)
- Up to 2,100km along-track at full swath
- Faster X-Band downlink (replaces S-band)
- New operational modes, NRT Direct Downlink Service



An aerial photograph showing a large, intense forest fire. A massive, billowing plume of white and grey smoke rises from a central point on a mountain range, spreading outwards. The surrounding terrain is rugged and mountainous, with some areas appearing charred or dark. The overall scene is dramatic and captures the scale of the fire.

California Forest Fires

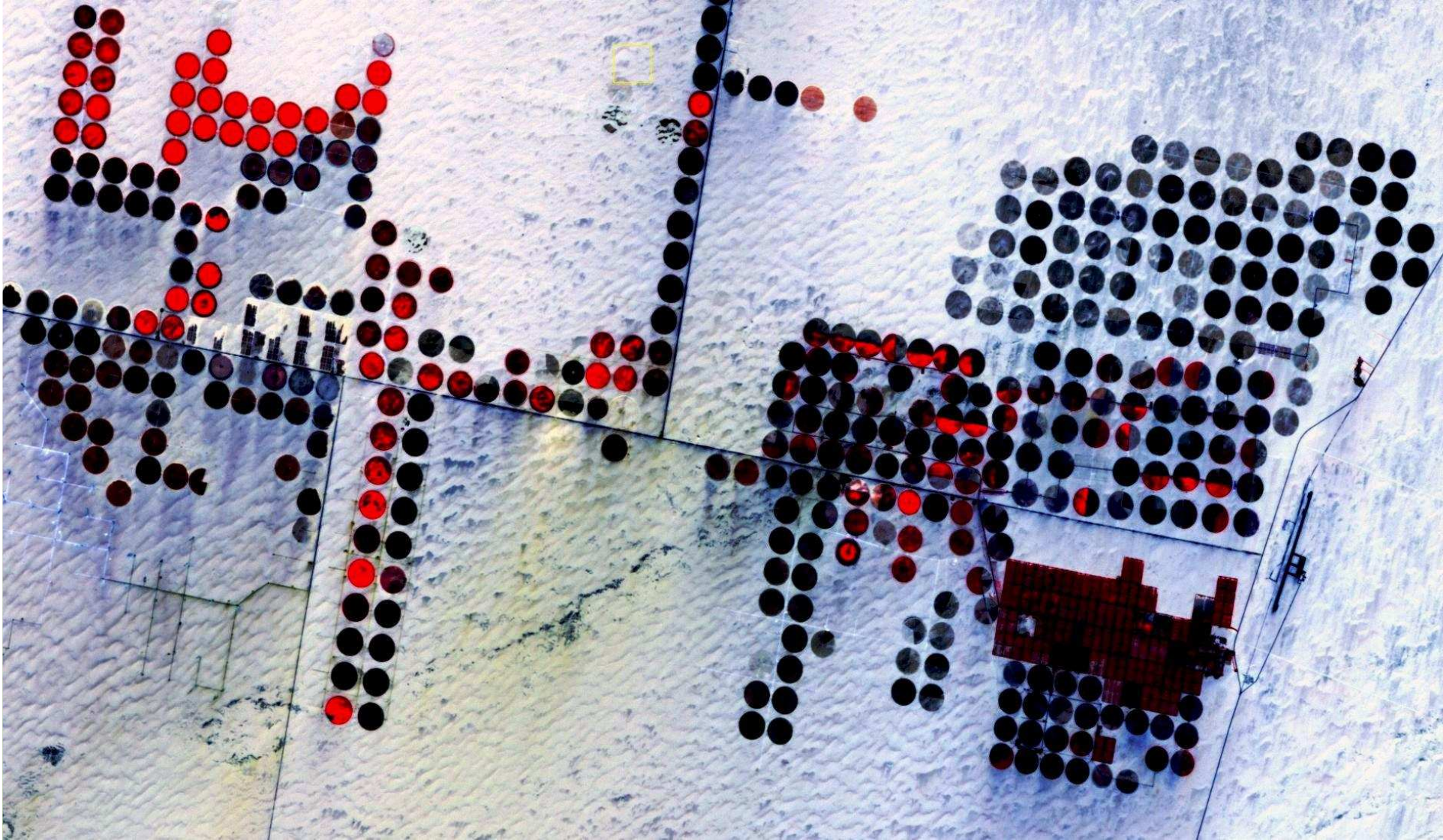
UK-DMC-2, 2009

Amsterdam, Netherlands



UK-DMC-2, 2010

Desert Agriculture, Libya

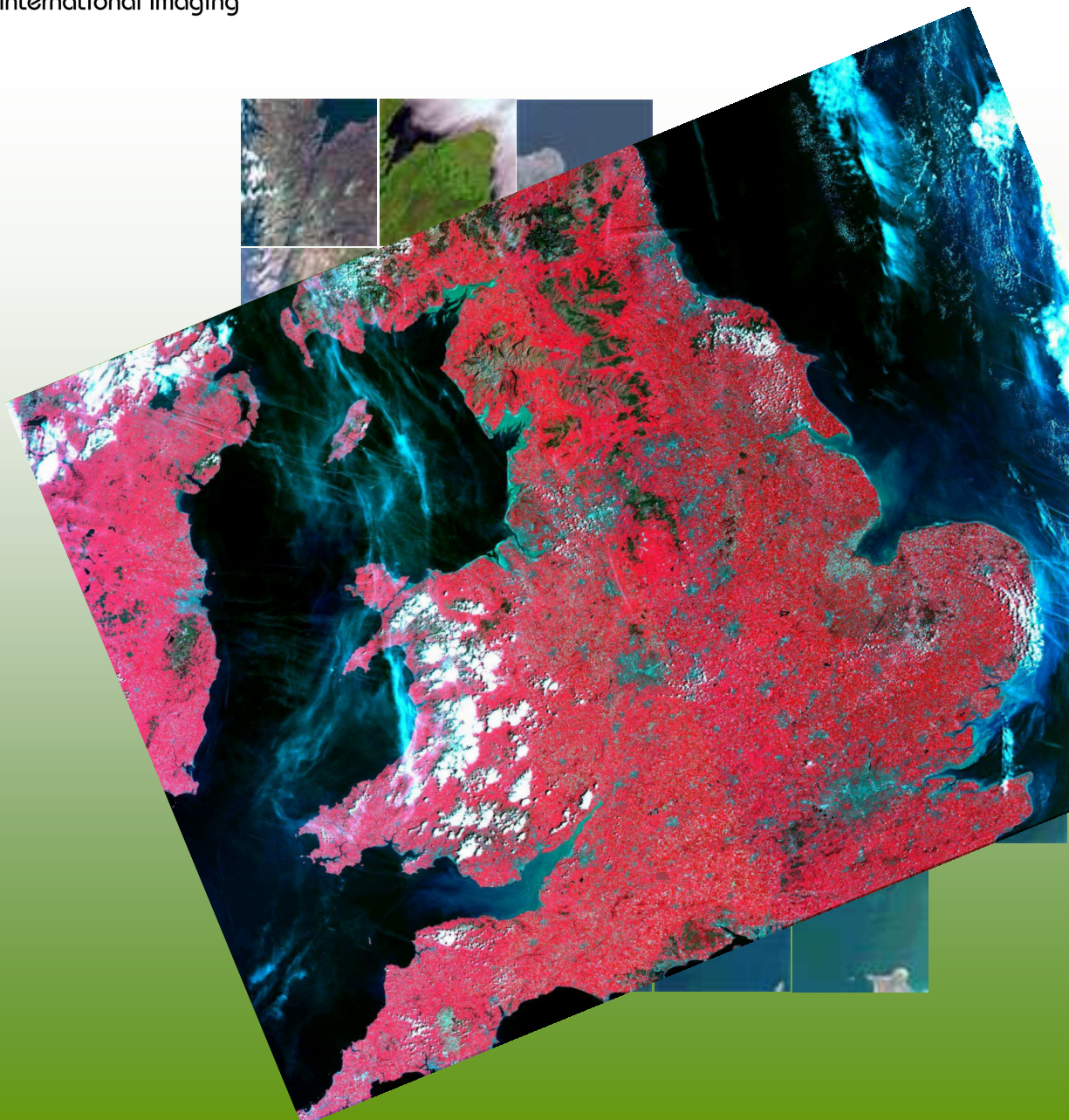


UK-DMC-2, 2010

DMC timeliness through collaboration

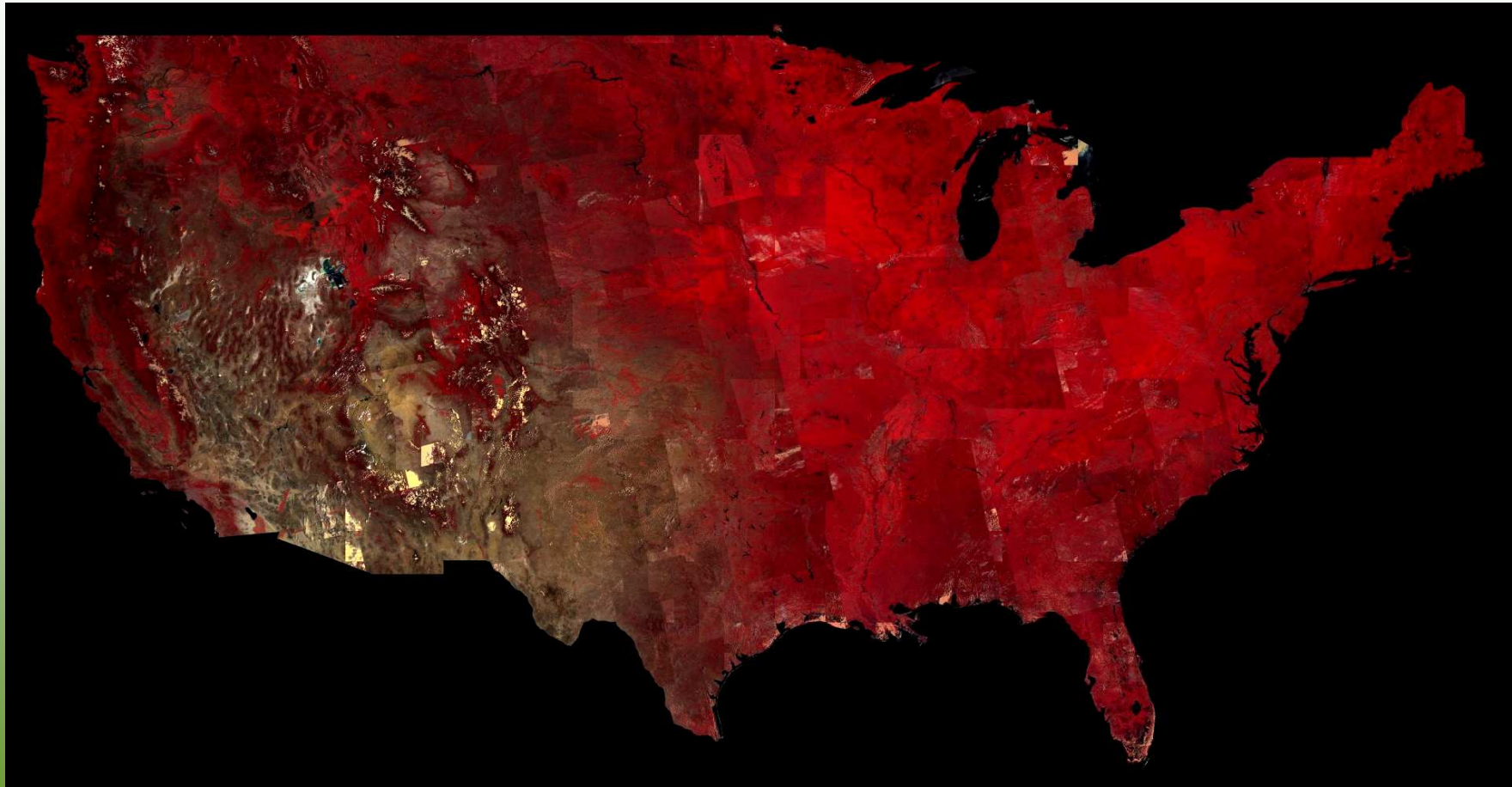
DMC 600 x 560 km Image

- single image from UK-DMC
- Most of England captured within 1 minute
- Ideal for consistent classification approach
 - Near real-time precision agriculture fully supported
 - Reliable multi-temporal coverage per season
- Many fewer images to process than Landsat



Regular wide area coverage: USA 2011-12

- **Example of monthly (July) coverage mosaic: 96% cloud-free**



Current DMC Constellation

- UK-DMC2 (22m ms)
- Deimos-1 (22m ms)
- NigeriaSat-1 (32m ms)
- Beijing-1 (32m ms)
- UK-DMC (32m ms)

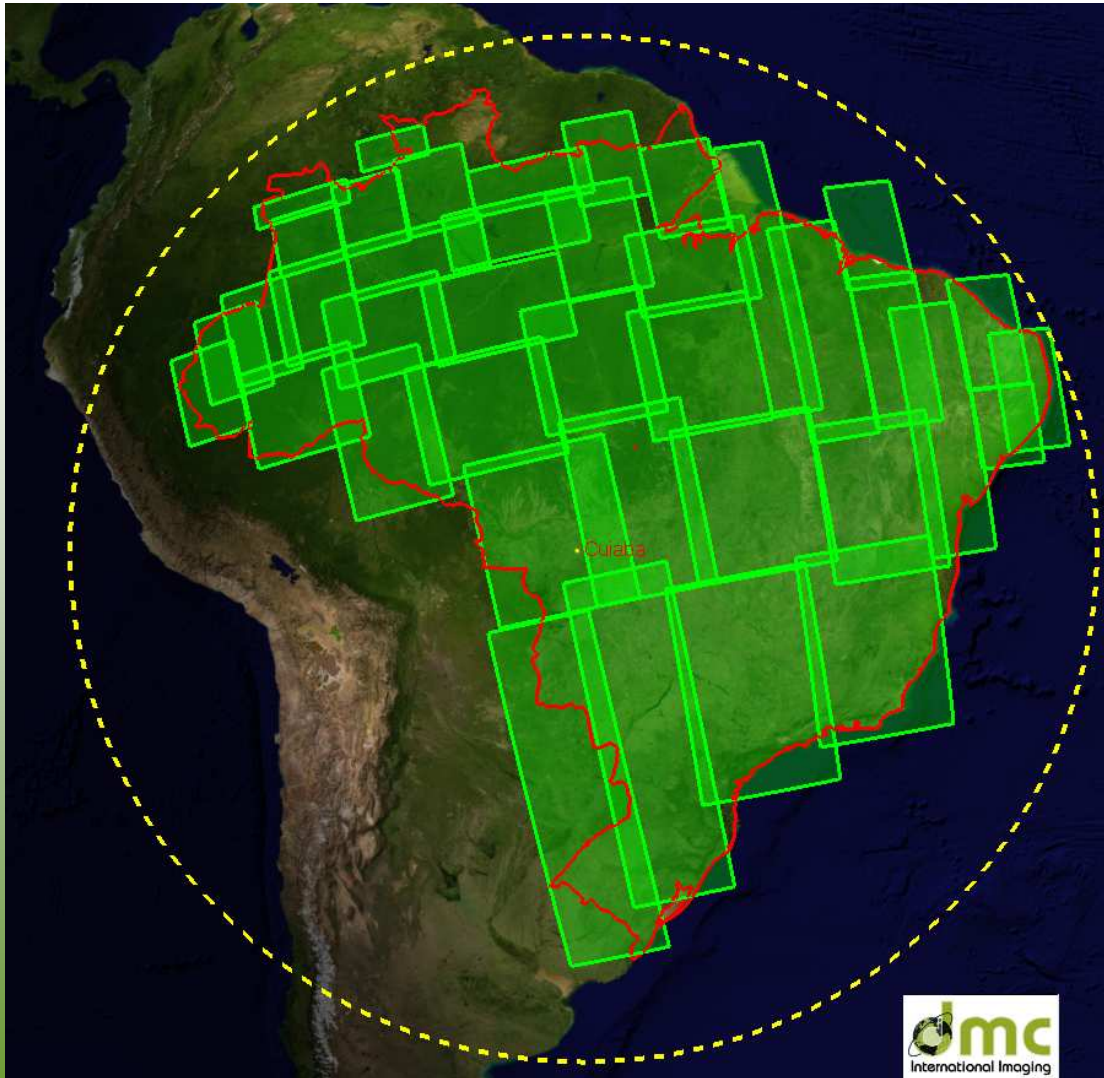
Combined revisit
every 1-2 days

Launched 2011 (Commissioning):

- NigeriaSat-2 (2.5m Pan, 5m ms, 32m ms)
- NigeriaSat-X (22m ms)

Examples of DMC Data Supply to
Public Entities
“Buy Once – Use Many Times”

UK-DMC2 Direct Downlink Service 2012+

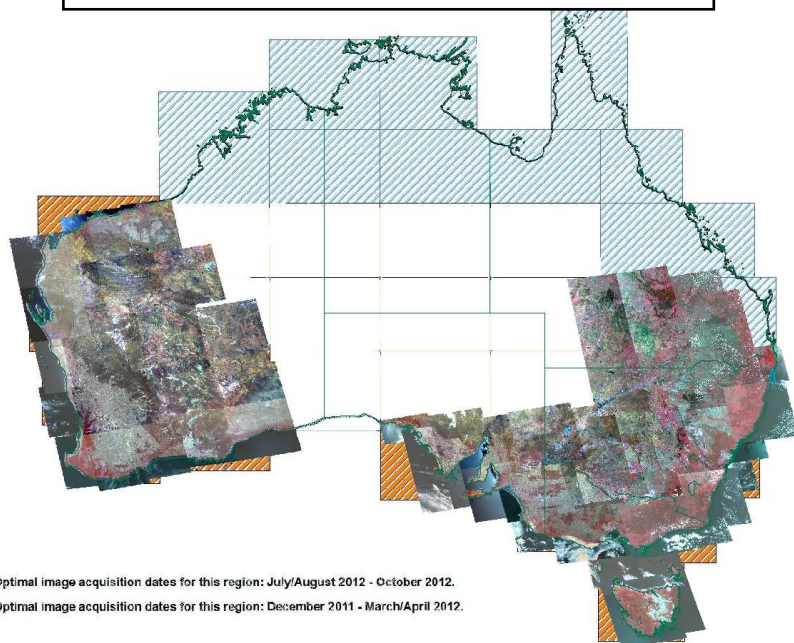


- Near real-time direct downlink to Curitiba
- Much more data available per month
- Upgrade from 250m MODIS pixel to 22m pixel for DETER program
- Imagery **openly accessible** through INPE website along with CBERS and Landsat

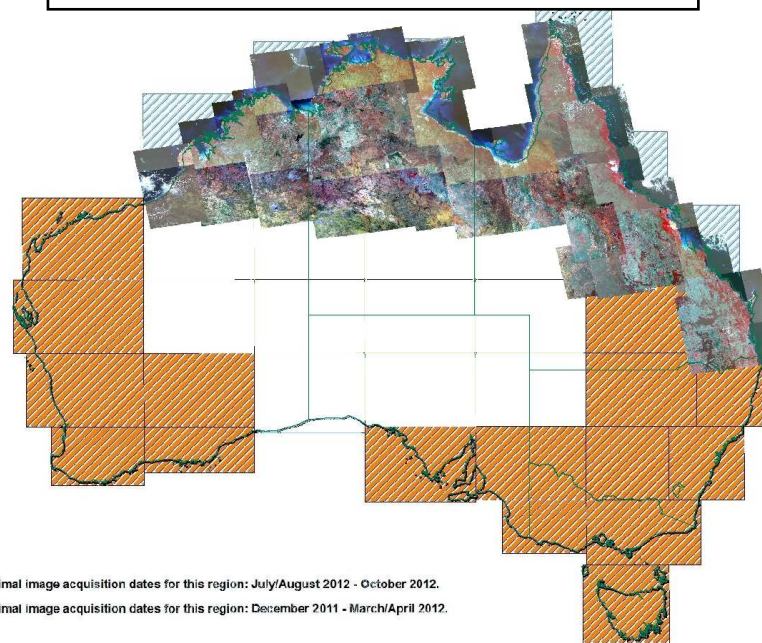
Australia 22m coverage 2012 (UK-DMC2)

- For Geoscience Australia / OGRE
- 90% cloud-free at 22m resolution, orthorectified
- New tasking: Southern Australia Dec 2011-April 2012
- New tasking: Northern Australia July-October 2012
- Creative Commons licensing

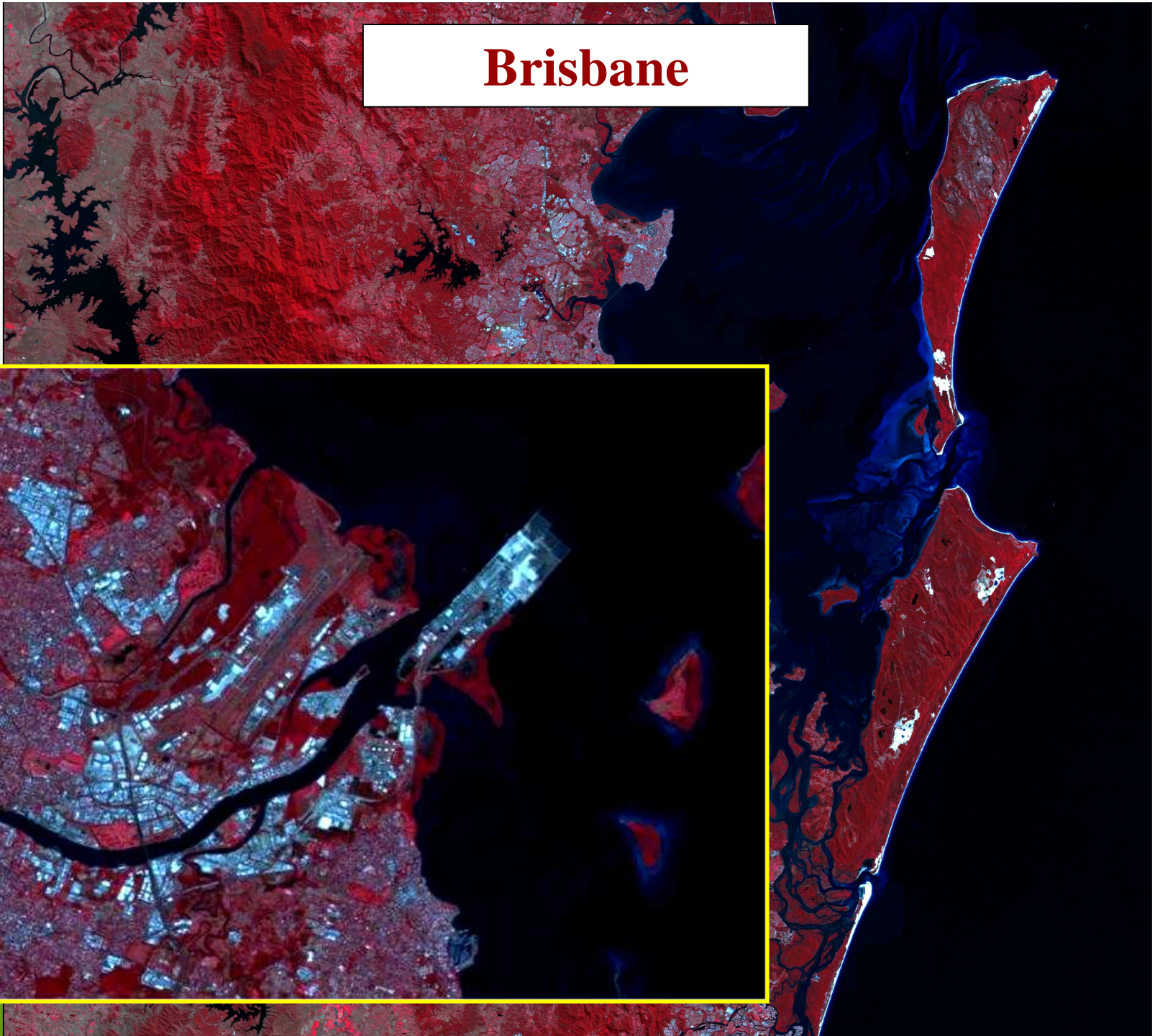
Window 1: Dec '11 – Apr '12



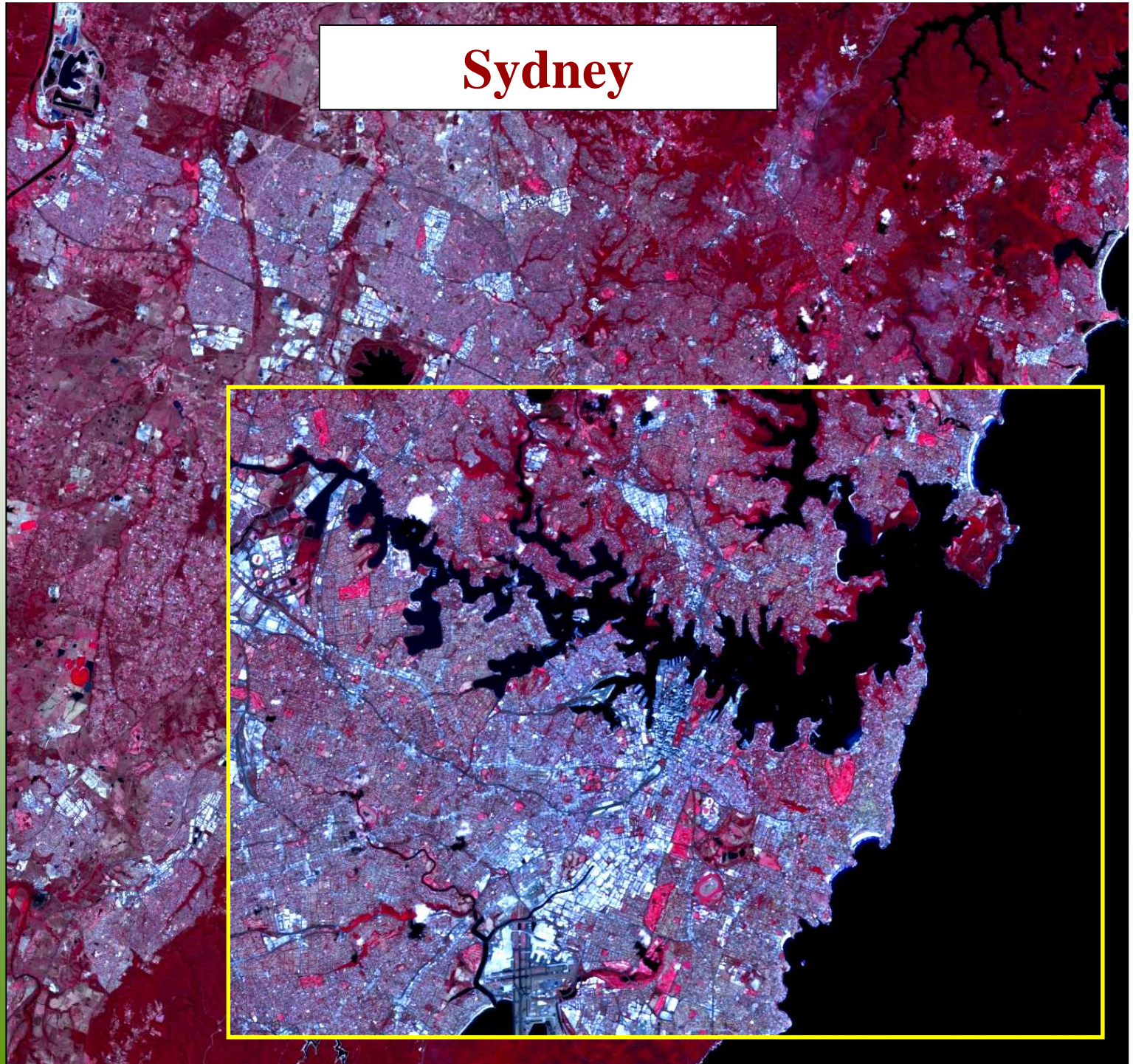
Window 2: July – Oct '12



Brisbane



Sydney

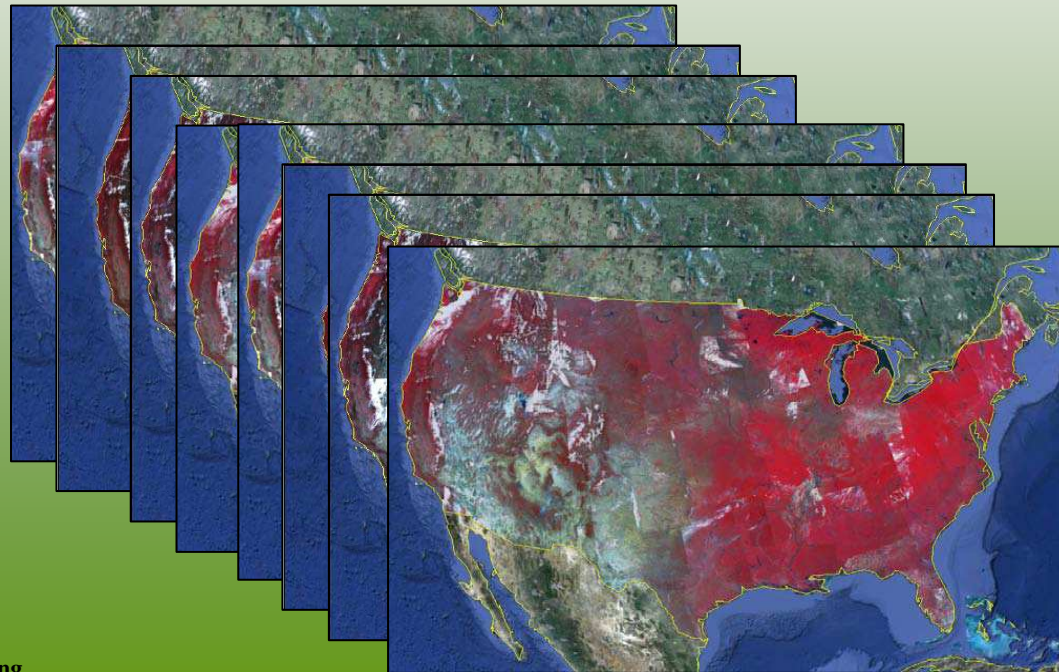


UK-DMC2 Archive Datasets 2010 / 2011



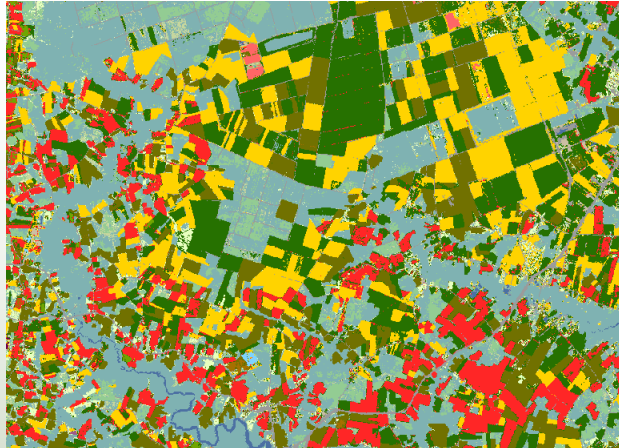
USA Multitemporal Monitoring

- For USDA Crop Monitoring
- Satellites used: Deimos-1 and UK-DMC2
- Complete coverage of lower 48 States every 15-days
- 12 coverages May–October (average 91% cloud-free in 2011)
- 150 Million km² of cloud-free imagery delivered
- USDA reported improved crop classification results



USDA Crop Classification Results: North Carolina Example

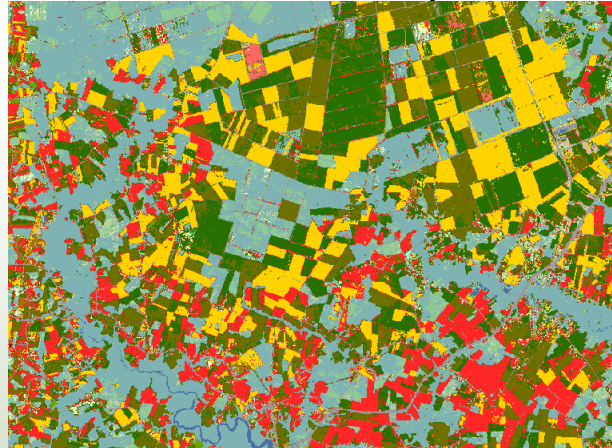
Landsat & DMC



	Producer	User
ALL	81.7%	
Corn	94.3%	92.1%
Cotton	96.3%	94.4%
Soybeans	84.7%	84.0%
WW/Soy	93.9%	87.9%
Pasture	66.5%	68.1%
Peanuts	87.1%	92.8%

118 bands

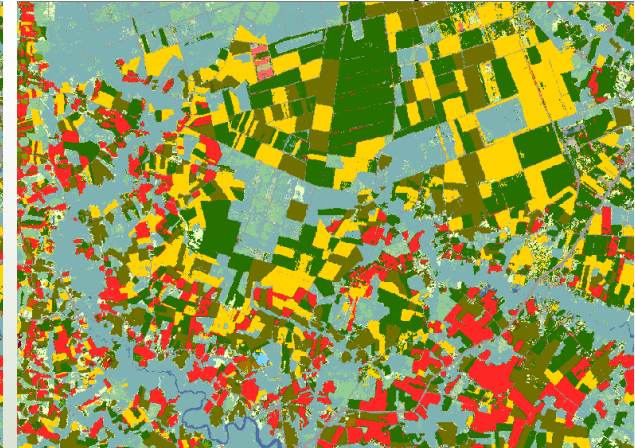
Landsat Only



	Producer	User
ALL	69.0%	
Corn	83.3%	81.9%
Cotton	91.0%	85.3%
Soybeans	62.9%	71.1%
WW/Soy	79.9%	82.0%
Pasture	58.5%	44.0%
Peanuts	71.4%	90.0%

73 bands

DMC Only



	Producer	User
ALL	81.6%	
Corn	94.6%	92.1%
Cotton	95.9%	94.4%
Soybeans	84.3%	83.3%
WW/Soy	93.8%	87.7%
Pasture	67.2%	68.9%
Peanuts	82.1%	91.0%

66 bands

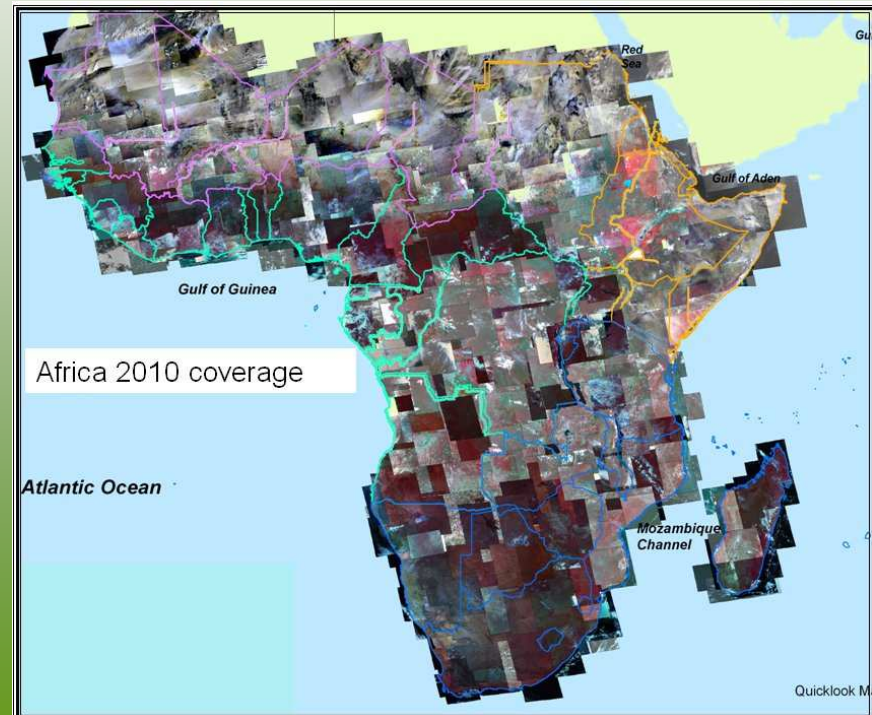
Netherlands Multitemporal Data Supply

- Procured by NSO (Dutch Space Office) via Astrium
- DMC 22m coverage of Netherlands 3x per week March-October; 2x per week November-February
- Continuity secured for 2012-2016
- **Data licensed for use by up to 20 organisations** within the Netherlands



ESA: Africa DMC Coverage 2010

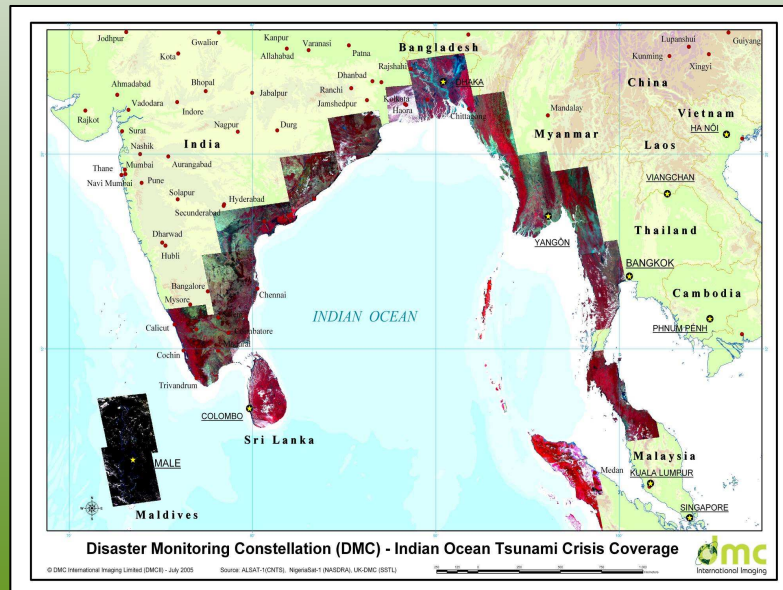
- All of Sub-Saharan Africa in 1 year
- Supports multiple applications incl. land cover, forestry, emergencies
- 58 Countries
- >24,000,000 km²
- ~2,000 confluence points acquired cloud-free
- Licensing extended to all GMES & FP7 projects, European Institutions and NGOs



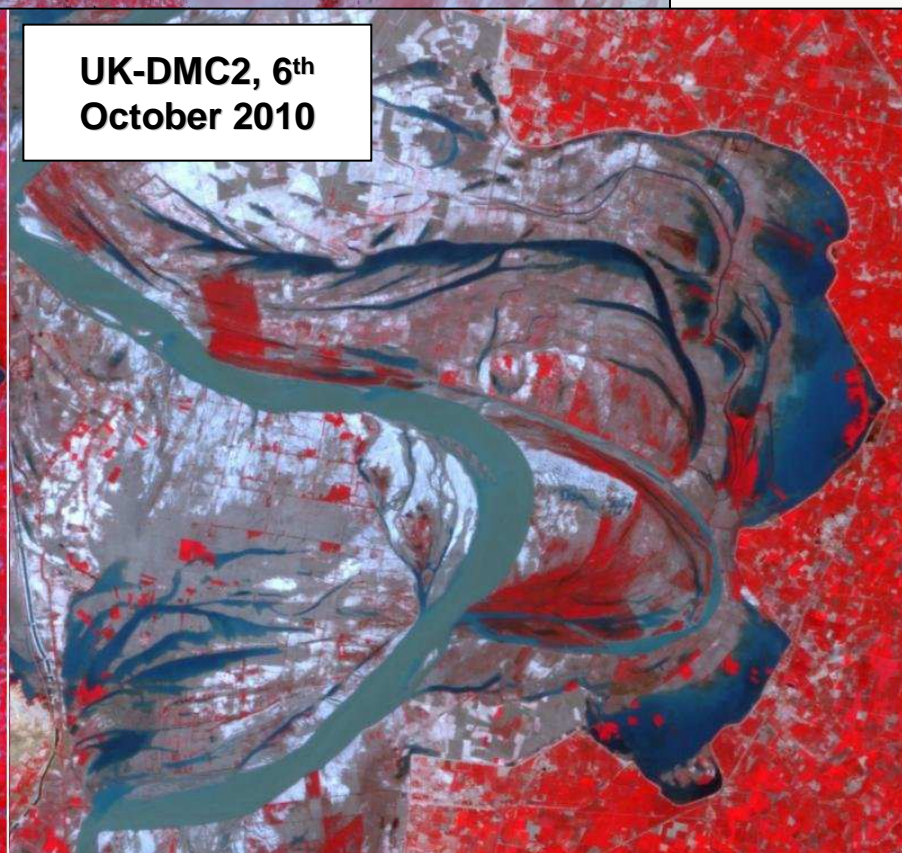
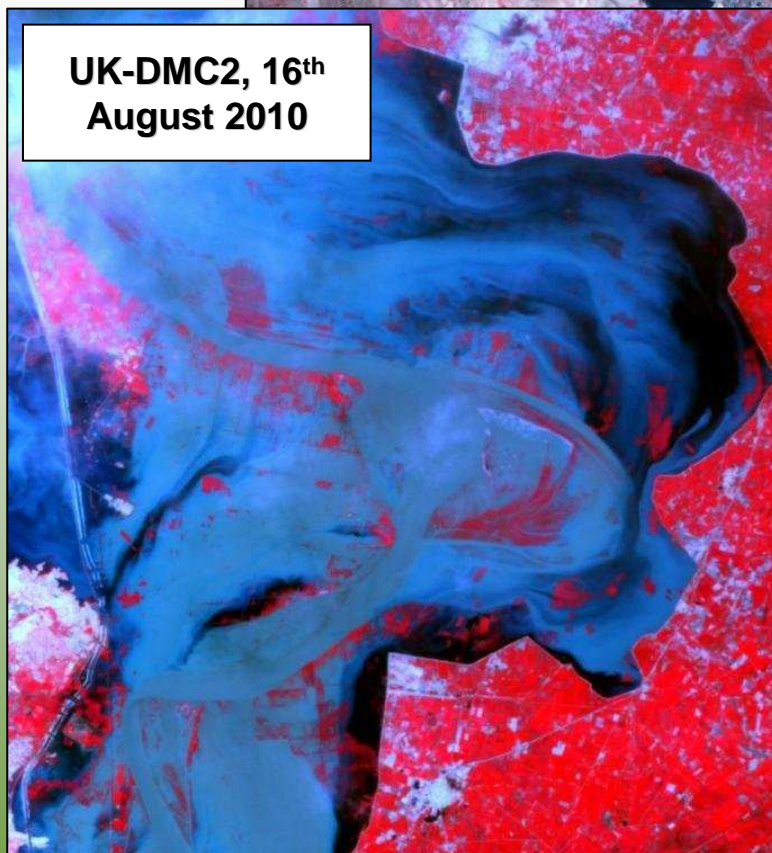
Disaster Response: International Charter



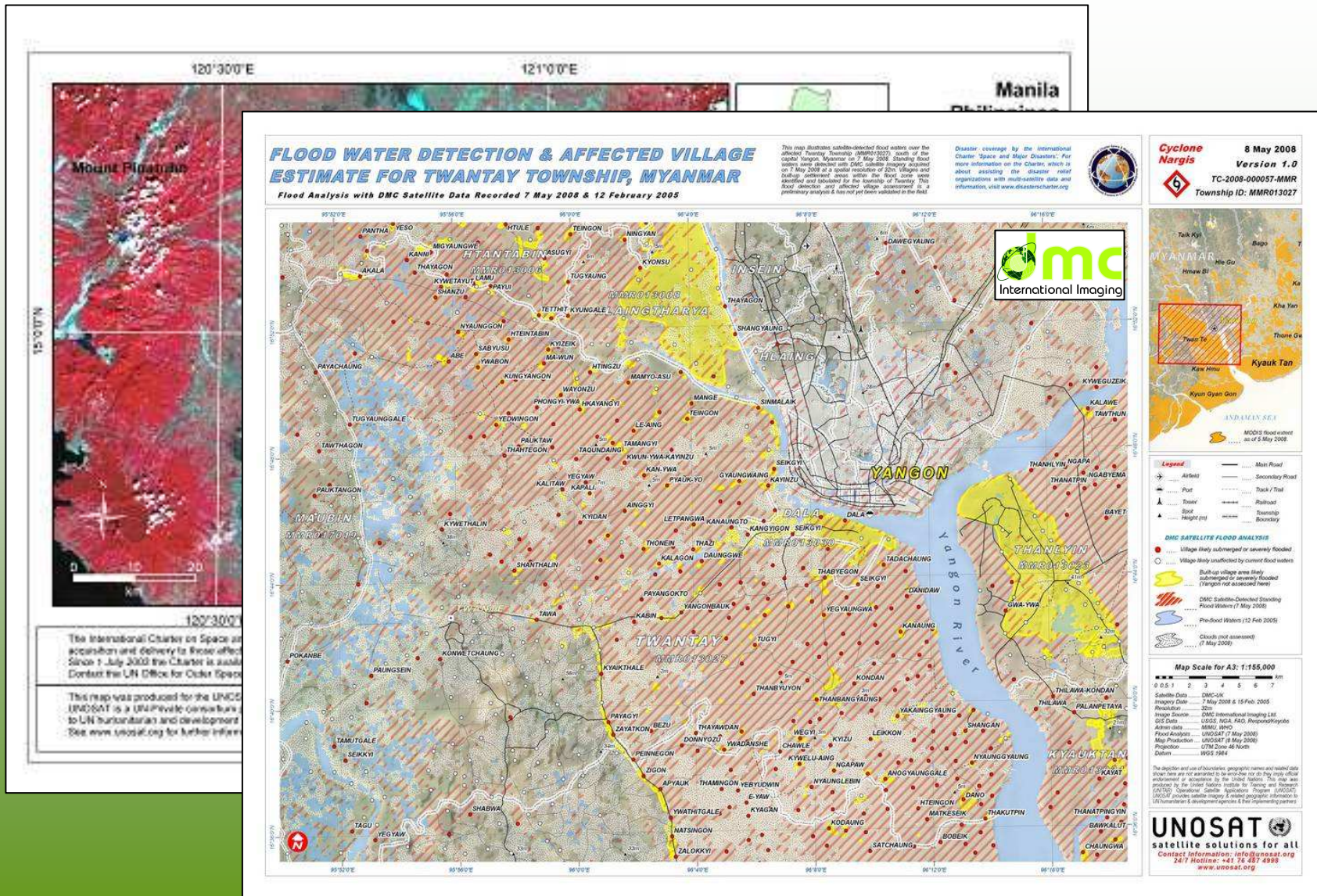
- DMCii and UKSA provide UK contribution to Charter
- 30-40 Disasters per year
- 100 -200 DMC images per year
- DMCii provides on call duty officer one week in eight
- Typically same day data delivery – no cost to users



Pakistan Floods 2010



Flood mapping from DMC imagery



DMC data for UK Academic Community

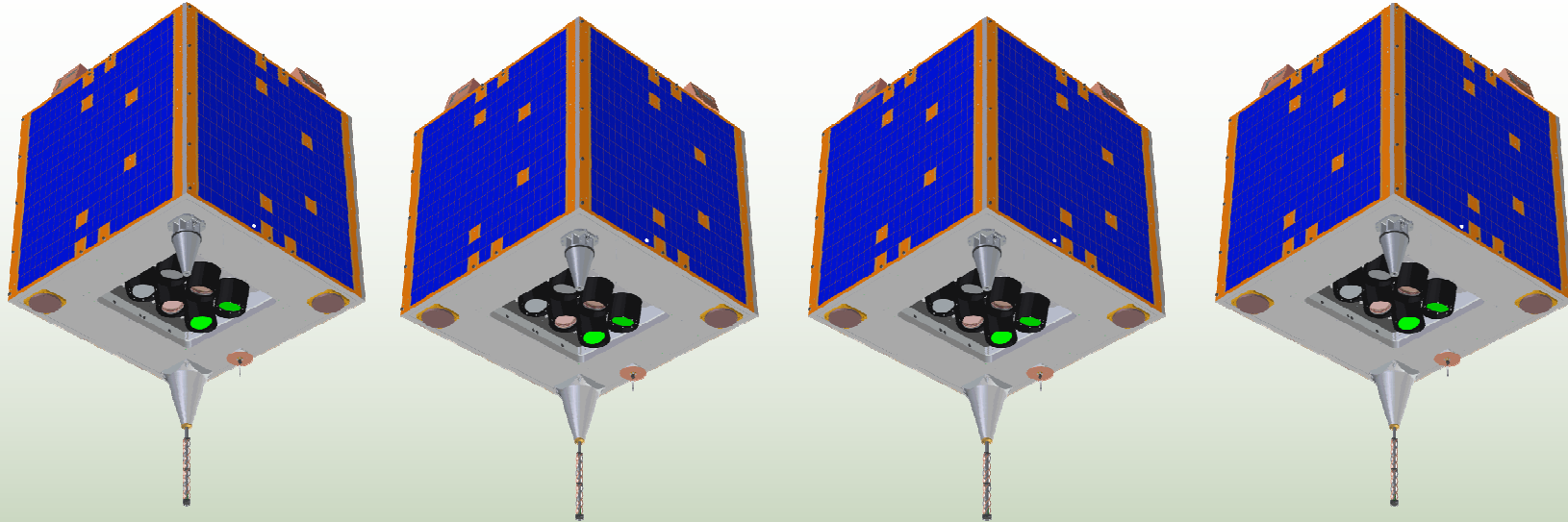
- Delivered through ‘Landmap’ – University of Manchester
- Full UK coverages for 2007, 2008, 2009, 2010
- Data purchased once but available to thousands of eligible researchers





Future DMC Satellites

Potential Next Generation DMC Constellation “Daily Planet” (~2015)



- 3-5 satellites to launch together
- ~20m spatial resolution; ~650Km swath
- **Constantly recording**
- All global land areas acquired every day
- Public/private funding model TBC
- Low cost data access for academic community

An aerial photograph of a river delta, likely the Mississippi River delta, with a red and blue color overlay. The red areas represent land and the blue areas represent water. The text is centered over the image.

Questions?

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Exhibition booth #70