

# GEO FCT Image processing chain and image construction

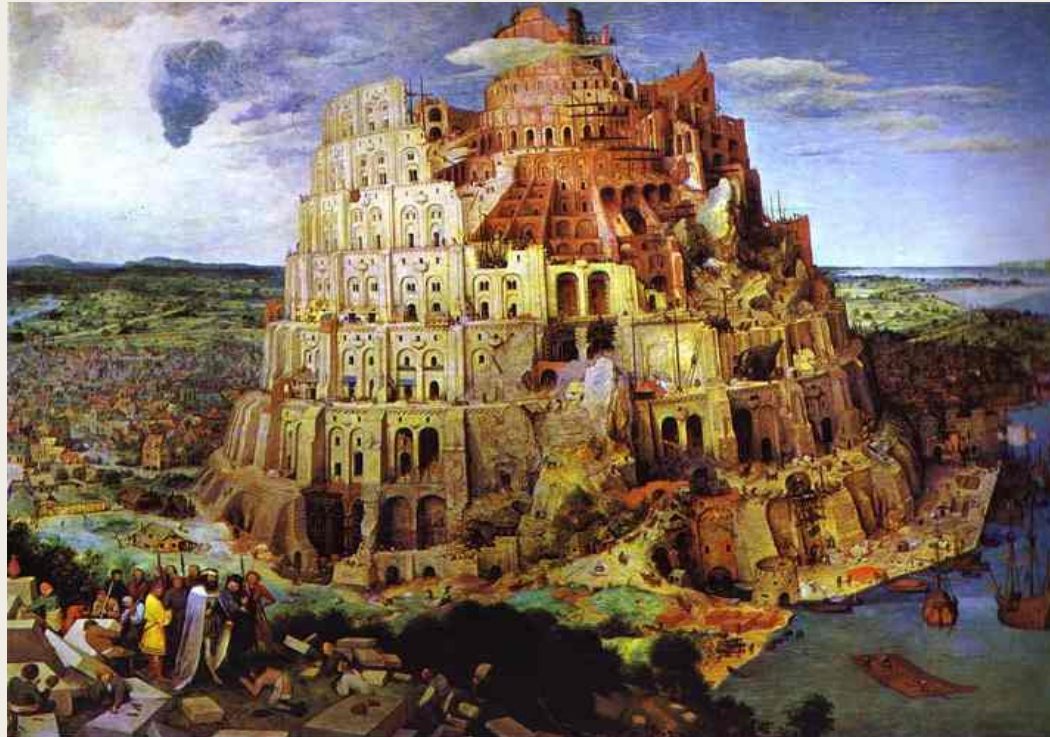
MRV Meeting Dar, Tanzania, 3-5 February 2010



# Existing Observing Systems show Important Duplications

... Observation Systems should be  
coordinated and shared internationally

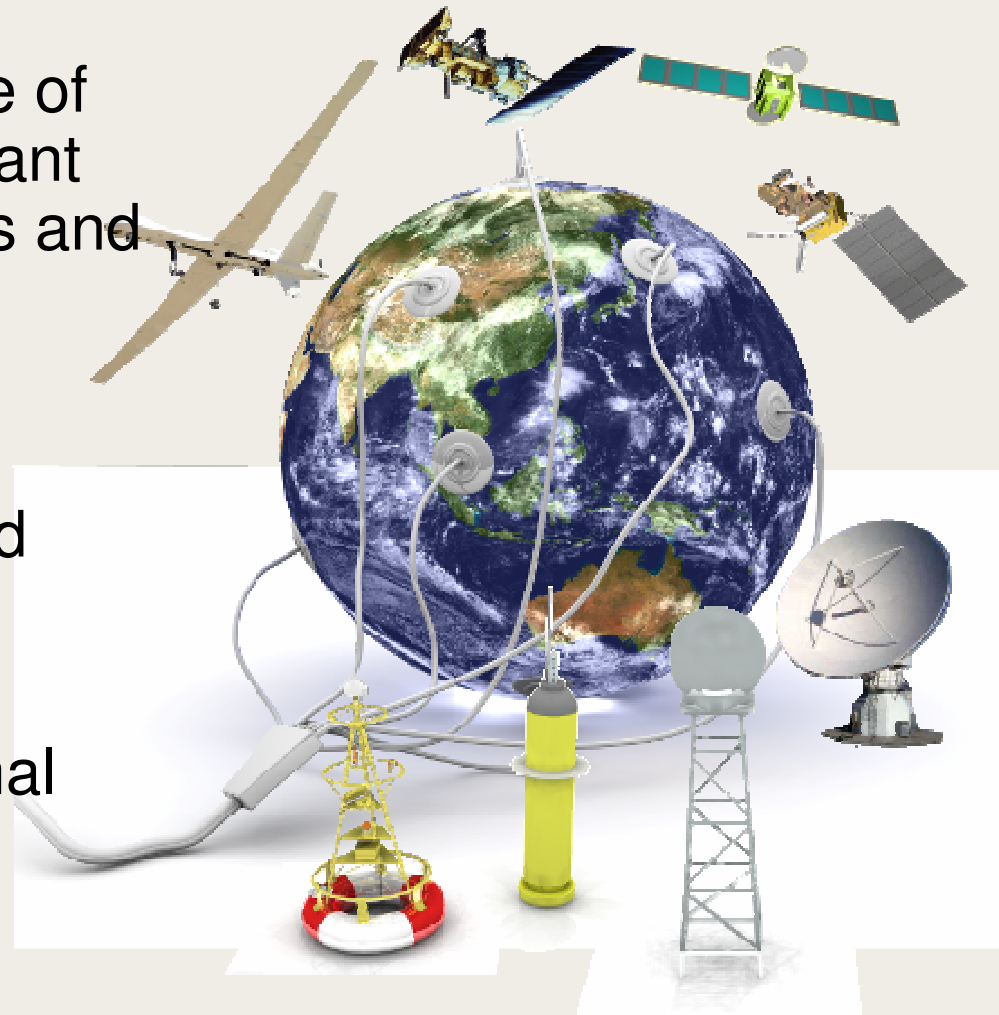
# 1 Interoperability: The End of the Tower of Babel



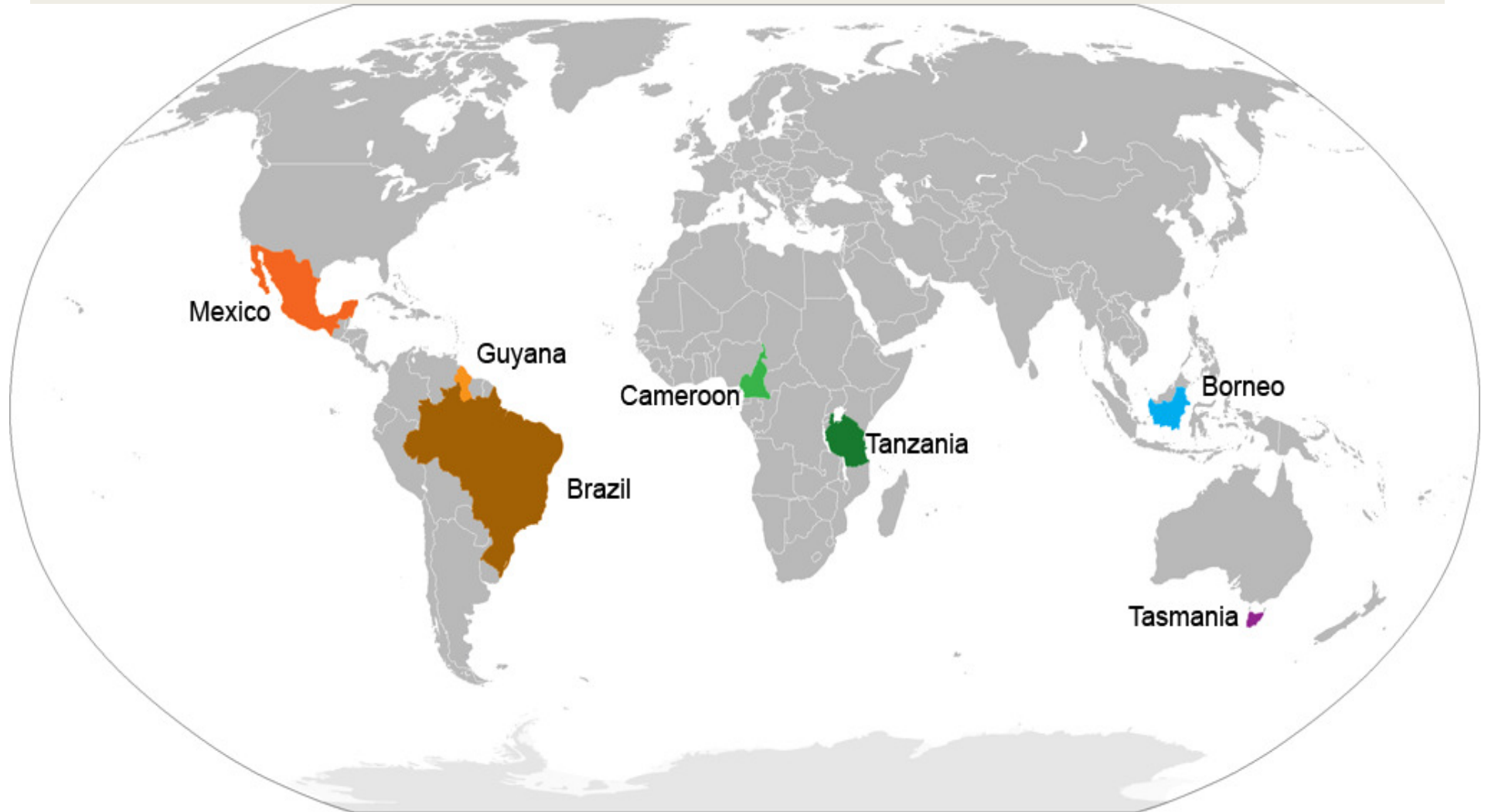
An Interoperable Architecture and Interoperable Standards to benefit fully from All Earth Observation Systems

## 2 Access: GEO Data Sharing Principles

- ✚ Full and Open Exchange of Data, recognizing Relevant International Instruments and National Policies
- ✚ Data and Products at Minimum Time delay and Minimum Cost
- ✚ Free of Charge or minimal Cost for Research and Education



# GEO FCT National Demonstrators

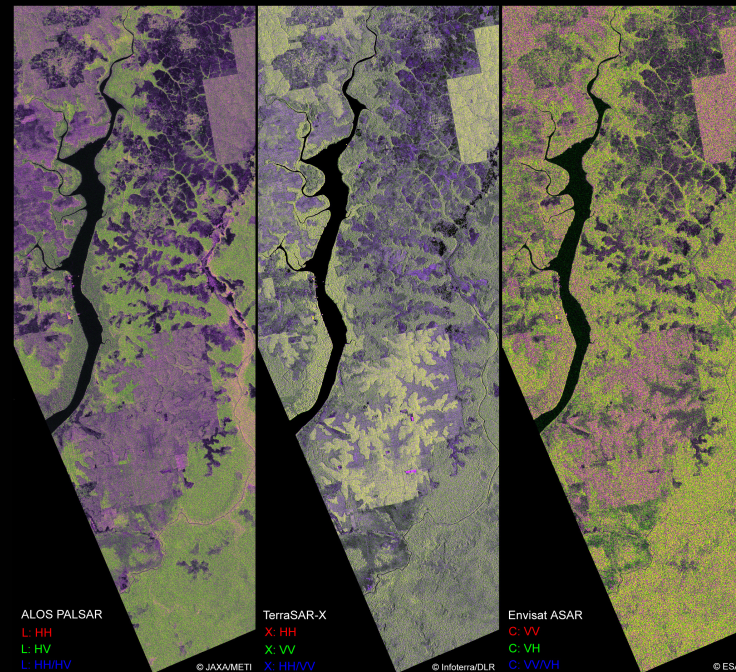
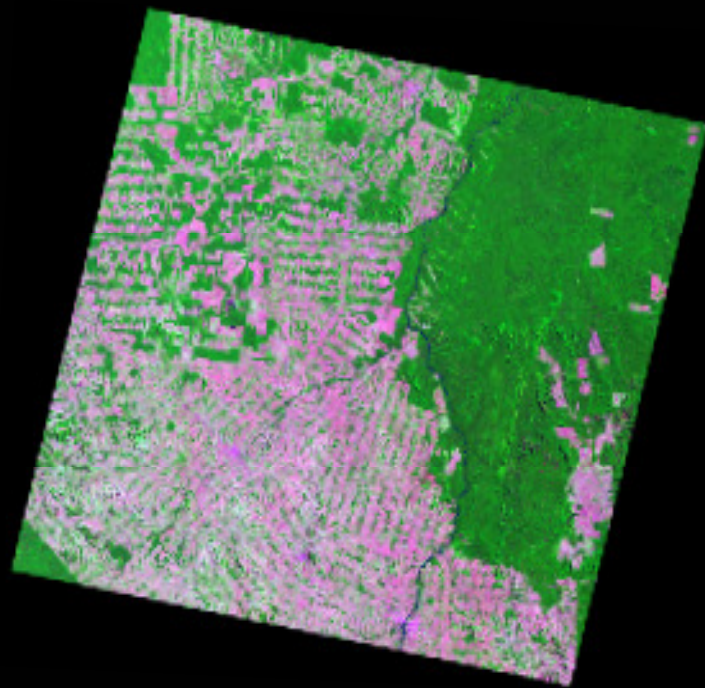




## ND Verification Sites

ND	VS	Name	lat	long	Priority
Brazil	BRA-1	INPE_IFT	S3.74	W48.34	2
	BRA-2	INPE_Tapajos	S3.20	W55.50	1
	BRA-3	INPE_Marcelandia	S11.30	W54.75	2
	BRA-4	INPE_Braganca	S0.85	W46.65	2
	BRA-5	WHRC_Xingu-1	S11.91	W52.58	2
	BRA-6	WHRC_Xingu-2	S13.06	W52.38	1
Guyana	GUY-1	WUR_FRASAR-1	N5.00	W59.00	2
	GUY-2	WUR_FRASAR-2	N3.00	W59.00	1
Mexico	MEX-1	Chiapas-1	N17.00	W93.55	1
	MEX-2	Chiapas-2	N16.33	W90.65	2
	MEX-3	Campeche	N18.52	W92.25	2
	MEX-4	Oaxaca	N17.58	W96.46	2
	MEX-5	Hidalgo	N20.62	W98.62	1
	MEX-6	Nuevo León	N25.43	W98.52	2
	MEX-7	Michoacán	N19.57	W101.18	2
Cameroon	CAM-1	ESA-1	N4.03	E10.23	2
	CAM-2	ESA-2	N3.22	E13.68	1
	CAM-3	ESA-3	N3.87	E14.78	1
	CAM-4	ESA-4	N5.00	E13.51	2
Tanzania	TNZ-1	FAO_FRA-1	S4.00	E32.00	2
	TNZ-2	FAO_FRA-2	S10.00	E36.00	2
	TNZ-3	FAO_FRA-3	S10.00	E38.00	1
	TNZ-4	Nilo Forest Reserve	S4.92	E38.66	1
Borneo	BOR-1	WUR_E-Kalim/Sbh	N4.33	E117.01	2
	BOR-2	WUR_SW-Kalimantan	S1.82	E111.61	1
	BOR-3	WUR_SE-Kalimantan	S2.24	E114.41	1
	BOR-4	WUR_C-Kalim/Srwk	N2.55	E115.08	2
Tasmania	AU-1	Mathinna	S41.37	E147.76	1
	AU-2	Takone	S41.19	E145.60	2
	AU-3	Warra	S43.11	E146.90	2

# GEO FCT Image processing chain and image construction



# GEO FCT 2009 DATA PROCECESSING AND PRODUCT DEVELOPMEN PLAN

- ✚ *2009/2010 Implementation Plan for GEO Task CL-09-03b on Forest Carbon Tracking*
  
- ✚ *2009 and 2010 Data Requirements for National Demonstrators*
  - Outlines data acquisitions required, including instrumental and acquisition modes and areas of interest
  
- ✚ *2009 Satellite Data Product Specifications*
  - Describes the product that should be an output of the 2009 acquisitions and processing efforts
  - Focus on development of Horizon-1 products
    - 1a: Annual Forest/ Non-Forest cover maps
    - 1b: Land cover maps



# GEO FCT Image processing chain and image construction (in short)

- ✚ 2009/ 2010: Satellite data acquisitions
- ✚ 2010: Retrieval and distribution of archived data by USGS, ESA, JAXA, CSA etc
- ✚ Processing of the retrieved to ortorectified level 1-datasets
- ✚ Testing of algorithms for integration of data from different sensors (both optical and radar)
- ✚ Information extraction from optical and radar sensors

# National Demonstrator Product Development Teams

ND	ND authority	PD team contributing organisations	Status
Brazil	INPE	INPE, NSC, WHRC, IPAM	TBC
Guyana	GFC	? WU, NSC	TBC
Mexico	CONAFOR	CONAFOR, NRCan	TBC
Cameroon	MINEF?	ESA, GAF, ?	TBC
Tanzania	MNRT	NSC, KSAT	Confirmed
Borneo	LAPAN	LAPAN, WU, CSIRO, CRC-SI, JAXA/NIES	TBC
Tasmania	DCC	CSIRO, CRC-SI	Confirmed

# Product Development time schedule (1)

## January – May, 2010

- Initial analysis of the 2009 multi-sensor data over a limited number of Verification Sites, selected by the PD teams. Emphasis on the development of prototype Horizon 1 products for different biomes and investigating the effects of optical-SAR, SAR-SAR sensor synergy to enhance thematic product generation.

## FCT Science and Data Summit (May 11-12, 2010)

- Presentation of prototype Horizon 1 products over selected VSs
- Agreement on a first set of standard procedures for the development of first-generation Horizon-1 products
- Presentation of space agency guidelines on how to optimise data acquisition strategy planning for the mid-2010 acquisition campaigns and onwards.

## Product Development time schedule (2)

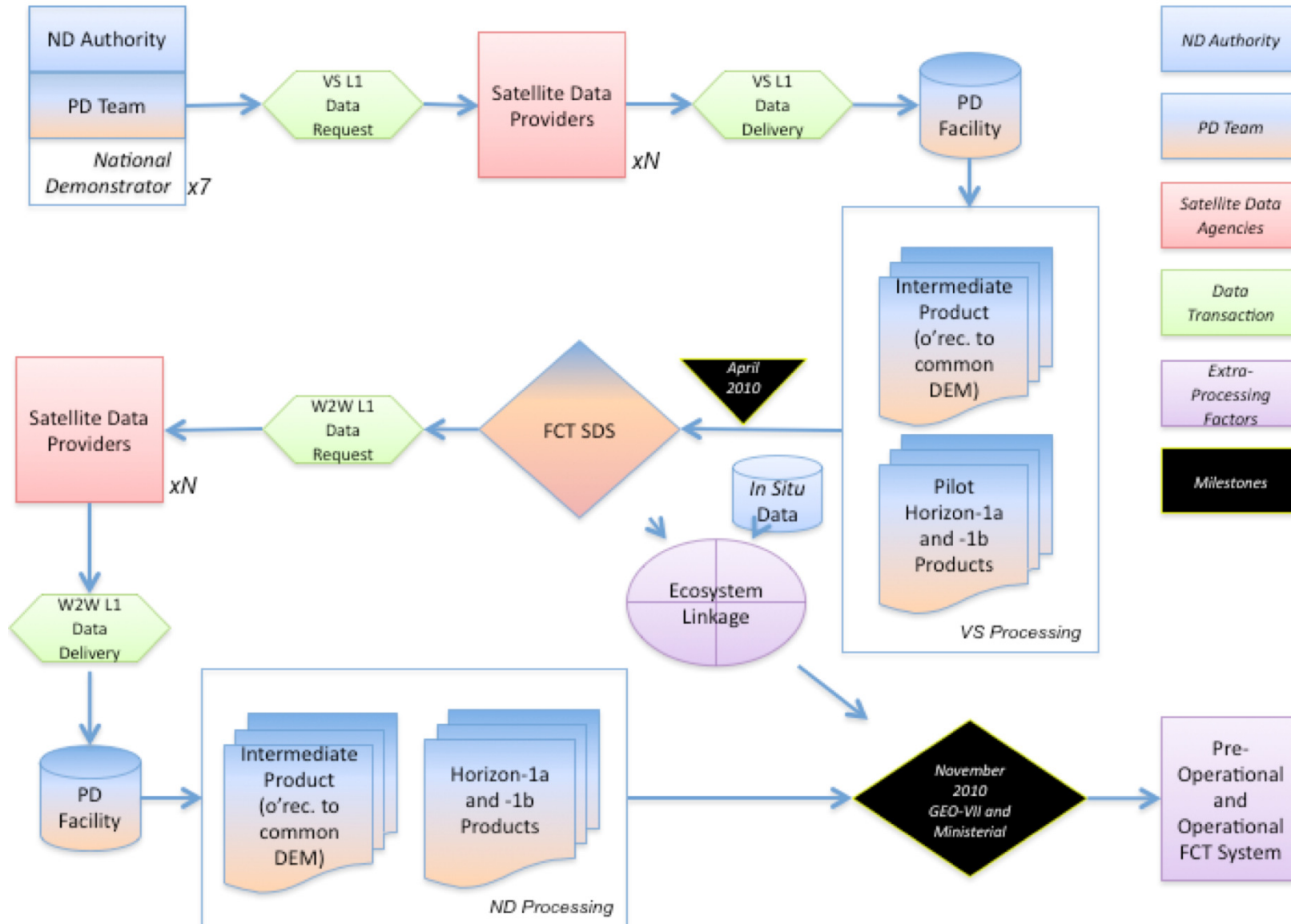
### May – September, 2010

- Continued VS analysis and expanded product development
- Generation of wall-to-wall ortho-rectified Horizon 1a (forest/non-forest) prototype products, derived from one or more satellite sensors, and over at least one ND

### GEO Plenary VII and Ministerial Summit (October/November, 2010)

- Demonstration of wall-to-wall ortho-rectified Horizon 1 products over at least one ND

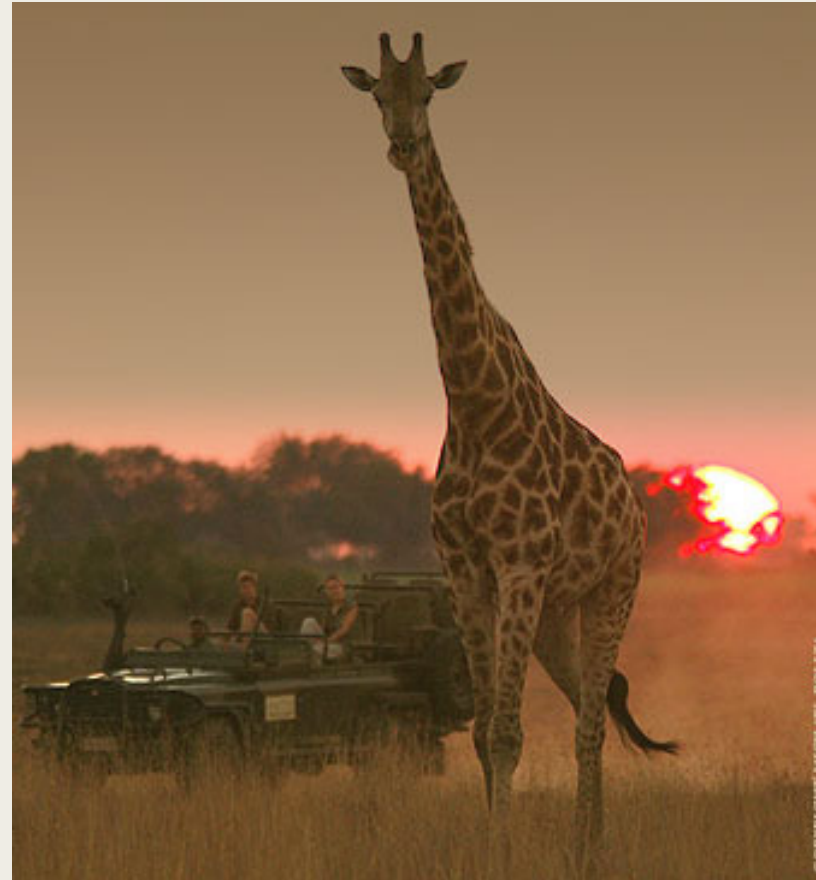
# Data processing and product development flow





## PD actions regarding Tanzania (1)

- 🔑 **Analysis and product development time schedule**
- 🔑 **Data availability assessment initiated**
- 🔑 **Meeting in Oslo 11-12 January: Coordination national contribution, PD team partners**



## PD actions regarding Tanzania (2)

- ✚ Generate ND 2009 data work plan, including elements for:
  - ✚ Priority TNZ-3 and TNZ-4 areas
    - Assure access to optical and SAR 2009 data sets, and distribute data to involved partners (January-February)
      - Cosmo-Skymed
      - TerraSAR X
      - Radarsat
      - ALOS/PaISAR
      - Optical data (TBC)
    - Evaluation and documentation of algorithms and methodology generations of Hor 1.a and Hor 1.b products (January-March)
    - Processing and generation of Hor 1.a and Hor 1.b products (February-March)
    - Presentation and reporting at FCT summit (May)

## PD actions regarding Tanzania (3)

- ✚ Generate input to ND 2010 PD data acquisition plan (April)
- ✚ Assure access to 2010 data sets:
  - First phase data sets (July)
  - Second phase data sets (October)
- ✚ Processing and reporting for GEO VII milestones (May-September)
- ✚ Processing and reporting for available 2010 data sets (October- December)

# Thank you for your attention!



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