

# The GEO Forest Carbon Tracking (FCT) initiative

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GEO-VI Plenary



# The need

- An operational global network of national forest monitoring systems is needed *inter alia*, in support of reducing greenhouse gas emissions from deforestation and forest degradation (REDD)
  - inclusion of forests in a post 2012 climate agreement is important for many developing countries
  - Monitoring, Reporting and Verification (MRV) systems will be critical, and dependent on global Earth observation systems



# The GEO FCT Partnership

- Supported by governments committed to forest carbon monitoring: Australia, Canada, Japan and Norway
- CEOS and its members space agencies: notable contributions from ASI, DLR, ESA, INPE, JAXA, ISRO, USGS
- UN-FAO, GOFC-GOLD, EC-JRC & research groups
- Google
- Seven governments have agreed to cooperate as 'National Demonstrators' for the project in 2009-2010
  - Australia, Brazil, Cameroon, Guyana, Indonesia, Mexico and Tanzania.



# GEO FCT Partnership: NDs



- Growing list of candidates for 2010 participation



# The GEO FCT initiative

- GEO FCT :
  - an **interim framework** for coordination: governments, space and forest agencies, research scientists, FAO, GOFC-GOLD and early adopter countries
  - National **end-to-end** demonstrators showing the elements and operations of a global system of systems
  - develop institutional arrangements for secure data access and continuity
  - initiate and promote the standards and protocols for comparability and interoperability



# The GEO FCT initiative

- GEO FCT supports countries establishing national systems for forest carbon tracking by:
  - access to long-term satellite, airborne and in situ data, and the associated analysis and prediction tools
  - creating the framework and technical standards for a global network of national systems
  - following the guidelines for the United Nations Framework Convention on Climate Change (UNFCCC)



# The Path to Implementation

**The GEO FTC initiative will pave the way for countries to establish national MRV systems as part of a global network via eight main actions:**

1. A commitment by CEOS members to provide satellite data, tools and training for national wall-to-wall forest carbon tracking.
2. Guide countries on methods and standards for data processing to produce forest information products.



# The Path to Implementation

3. Guidance on linking ground measured forest inventories, remote-sensing data and carbon models.
4. Develop validation and accuracy assessment procedures for forested area and carbon stocks.
5. Grow the network of 'National Demonstrator' countries: Southeast Asia, Africa and South America.



# The Path to Implementation

6. Raise awareness of the demonstrations to the UNFCCC and other major fora, showing the policy implications of new capabilities.
7. Create a coordinated network of processing facilities to ensure countries are supported in data processing.
8. Prepare for a transition from demonstration to operation.



# CEOS 2009 Support

Sensor	Brazil	Guyana	Mexico	Cameroon	Tanzania	Borneo	Tasmania
ALOS PALSAR	4541	159	375	116	405	507	86
RADARSAT-2	126	41	243	acquisition by ENVISAT	acquisition by ENVISAT	161	24
ENVISAT ASAR	303	67	acquisition by RADARSAT	107	182	acquisition by RADARSAT	25
Landsat 5 & 7	1665 (+ 3500 INPE)	107 (+ 88 INPE)	484	115	115	173	41
CBERS-2B: CCD	3500	80	N/A	N/A	N/A	N/A	N/A

Scenes acquired over the 7 NDs during June-Sept 2009



# 2009 outcomes

- GEO FCT Portal (visit the GEO Carbon booth)



## Welcome

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[Brazil](#)

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[Guyana](#)

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## Brazil

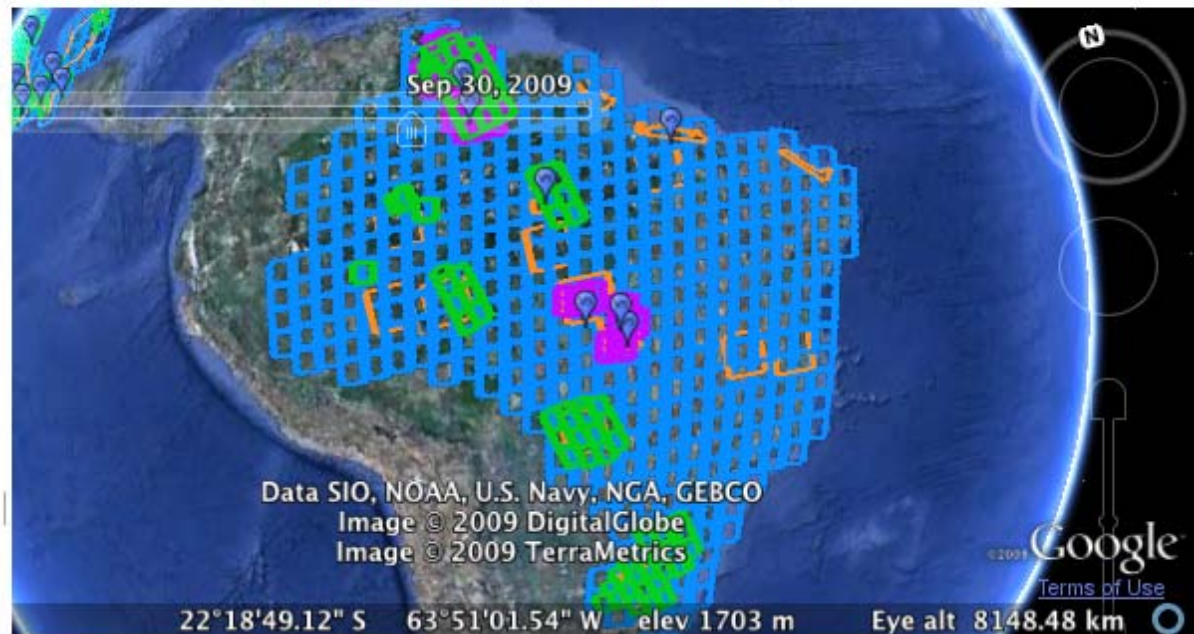
- FCT
  - National Demonstrators
  - Medium Res Sat Cover
    - ASAR
      - 2009: 55
    - LANDSAT
      - 2009: 1888 (301)
    - PALSAR
      - 2009: 2475
    - RADARSAT
      - 2009: 561
  - Sample Map Products



Opacity percent: 100

Show borders:

[Brazil](#) [Cameroon](#) [Guyana](#) [Mexico](#) [Tanzania](#) [Tasmania](#)



# 2009 outcomes

- Satellite interoperability standards initiated and progressing
- Initiated standards for in-situ measurement, validation procedures and accuracy assessment for the remote sensing of forested areas and for carbon stock estimates
- 2009 GEO Forest Carbon Tracking dataset specification close to conclusion



# GEO FCT in 2010

- Produce and promote the 2009 GEO FCT dataset and results
- Repeat annual dataset and results for the existing National Demonstrators
  - test satellite data coordination mechanisms
  - test systems, standards and protocols to provide consistent results for multiple circumstances
- Engagement of further candidate countries



# GEO FCT in 2010

- Progress and promote key GEO-branded standards and protocols
  - refined as lessons are learned from 2009 & 2010 demonstrations
- **Support ‘architecture planning’ of global system architecture for transition to operations**



# Thank you

