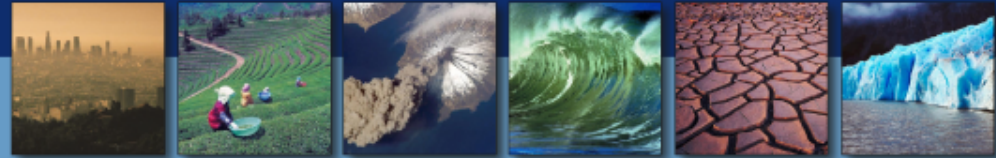


CEOS Space Data Coordination in support of GFOI R&D

Ake Rosenqvist, SDCG co-chaor



GFOI/GOFC-GOLD R&D Expert Workshop
Wageningen, NL
October 1-3, 2014



CEOS Space Data Coordination (SDCG) for GFOI



- The space data component for GEO is managed by the Committee on Earth Observation Satellites (CEOS).
- A working group on Space Data Coordination (SDCG) was established to support GFOI.
- Participating agencies:
 - **USGS (USA) – Co-chair: Eugene Fosnight**
 - **ESA (Europe) – Co-chair: Frank Martin Seifert**
 - **NSC (Norway) – Co-chair: Ake Rosenqvist**
 - ASI (Italy)
 - CNES (France)
 - CONAE (Argentina)
 - CRESDA (China)
 - CSA (Canada)
 - DLR (Germany)
 - INPE (Brazil)
 - JAXA (Japan)
 - NASA (USA)



CEOS Strategy for GFOI has 3 Elements, coordinated by the Space Data Coordination Group for GFOI (SDCG):

- **Element 1:** A baseline, coordinated global data acquisition strategy involving a number of 'Core data streams' that can be used free-of-charge and openly for GFOI purposes. This will involve global, systematic and sustained wall-to-wall acquisitions of all forested areas
- **Element 2:** Coordinated strategies for national data acquisitions and data delivery.
- **Element 3:** Data supply in support of the GFOI R&D activities



- Coordinate systematic and sustained wall-to-wall acquisitions of Space Data of global forested areas
- Aims to provide the default **consistent wall-to-wall time-series** of Earth Observation data **for all countries**, necessary to engage in MRV development in support of UNFCCC reporting
- Focus on free-of-charge "Core Missions" – currently Landsat; soon Sentinel-1, Sentinel-2, CBERS-4; selected archive data from ALOS and SPOT)
- Absolute minimum requirement is the successful acquisitions of at least one annual national cloud-free optical coverage over each target country.
- Ultimate aim: inter- and intra-annual multi-mission time-series observations.



Global Baseline Core Satellite Data



Sub-30m Core Satellite Data For Continuous, Annual, Global Coverage



2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

Radar sensors

C-band

← **ERS-1&2 (ESA)**
Archive available from 1991

← **Envisat (ESA)**

Sentinel-1A/B/C (ESA)

RADARSAT CONSTELLATION 1/2/3 (CSA)

L-band

SAOCOM-1A/B -2A/B (CONAE)

Data policy to be confirmed

Optical sensors

← **SPOT 1-5 (CNES)**
SPOT global archive data older than 5 years is available as core data
SPOT coverage available over Congo basin 2008 - 2015

← **LANDSAT-7/-8 (USGS)**
Landsat Archive available from 1972

LS-7 technical/coverage limitations

Sentinel-2A/B/C (ESA)

← **CBERS Series (INPE/CRESDA)**

CBERS-4

Special Core Data Sets

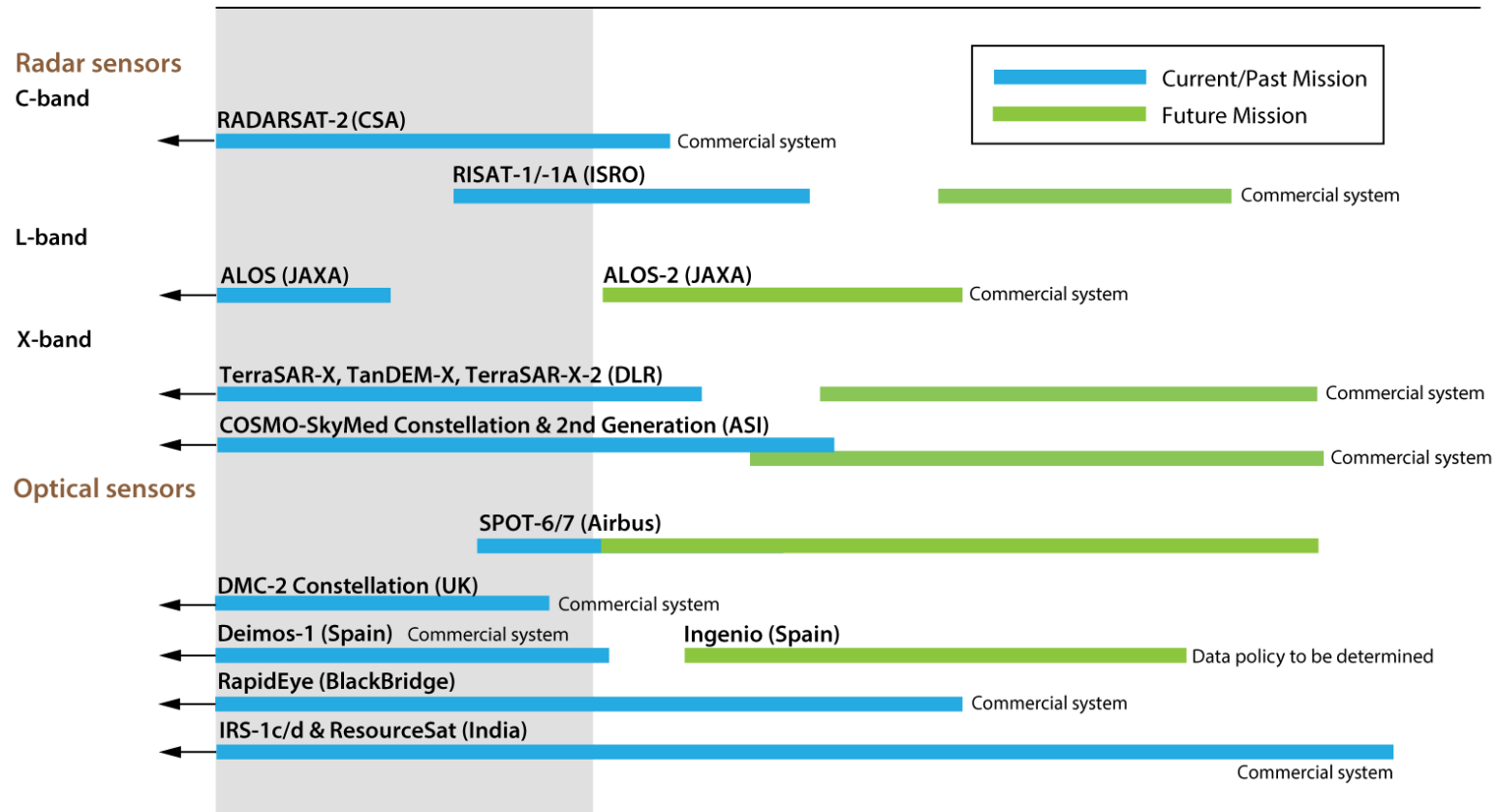
← **ALOS (JAXA)**
2007-2010 50m global mosaic available as core data. 25m product anticipated

ALOS-2 (JAXA)
Annual ALOS-2 mosaics will be freely available starting 2014





2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025



There are also numerous missions in planning by several countries that may be of value - including many high resolution missions of interest for validation. Few datastreams will have the capacity to provide routine global coverage. But many more will be able to contribute to national and regional coverages.



- **Element 2: Coordinated strategies for national data acquisitions**
- **Designed to address the fundamental national information requirements for GFOI**
- **National-level complement to the (Element 1) Global Baseline Strategy**
- **Provides a number of "Space Data Services" for countries in support of their national forest monitoring systems' needs**



- 1. Regional GFOI Space Data Workshops**
 - Collaborating with SilvaCarbon activities in Africa, South America and Asia
- 2. Impartial National Space Data Needs Assessments**
 - Service to individual governments seeking to establish their MRV strategies and the role of space data therein
- 3. National Historical Coverage Reports**
 - By request, assessment of what satellite data exist for a given country or region for past years to support establishment of reference levels
- 4. Ensured On-going Coverage**
 - Tailored support to ensure on-going national baseline acquisitions (Element 1)
- 5. Satellite Data Discovery, Assembly and Delivery**
 - Support to core data handling and delivery
- 6. Cloud Storage, Processing and Analysis of Satellite Data**
 - Collaboration with FAO and SEO on data delivery and processing infrastructure contributed by Norway



- **Element 3: Satellite data supply for R&D**
- **Dedicated to support GFOI-related R&D activities and the emerging GFOI R&D plan**
- Coordinated satellite data acquisition campaigns undertaken over 11 GEO-FCT "National Demonstrator" countries 2009-2011. Transition from GEO-FCT to GFOI R&D programme → "intermission" in data requests/supply. Resuming in 2014.
- Many commercial/semi-commercial agencies can provide limited amounts of data free of charge for scientific purposes.
- **Task at this workshop:** Specific recommendations to CEOS space agencies (via SDCG) on data needs required to progress R&D related to sensor interoperability and complementarity