

ESA Report to CEOS WGCV

Sensor Performance, Product and Algorithm

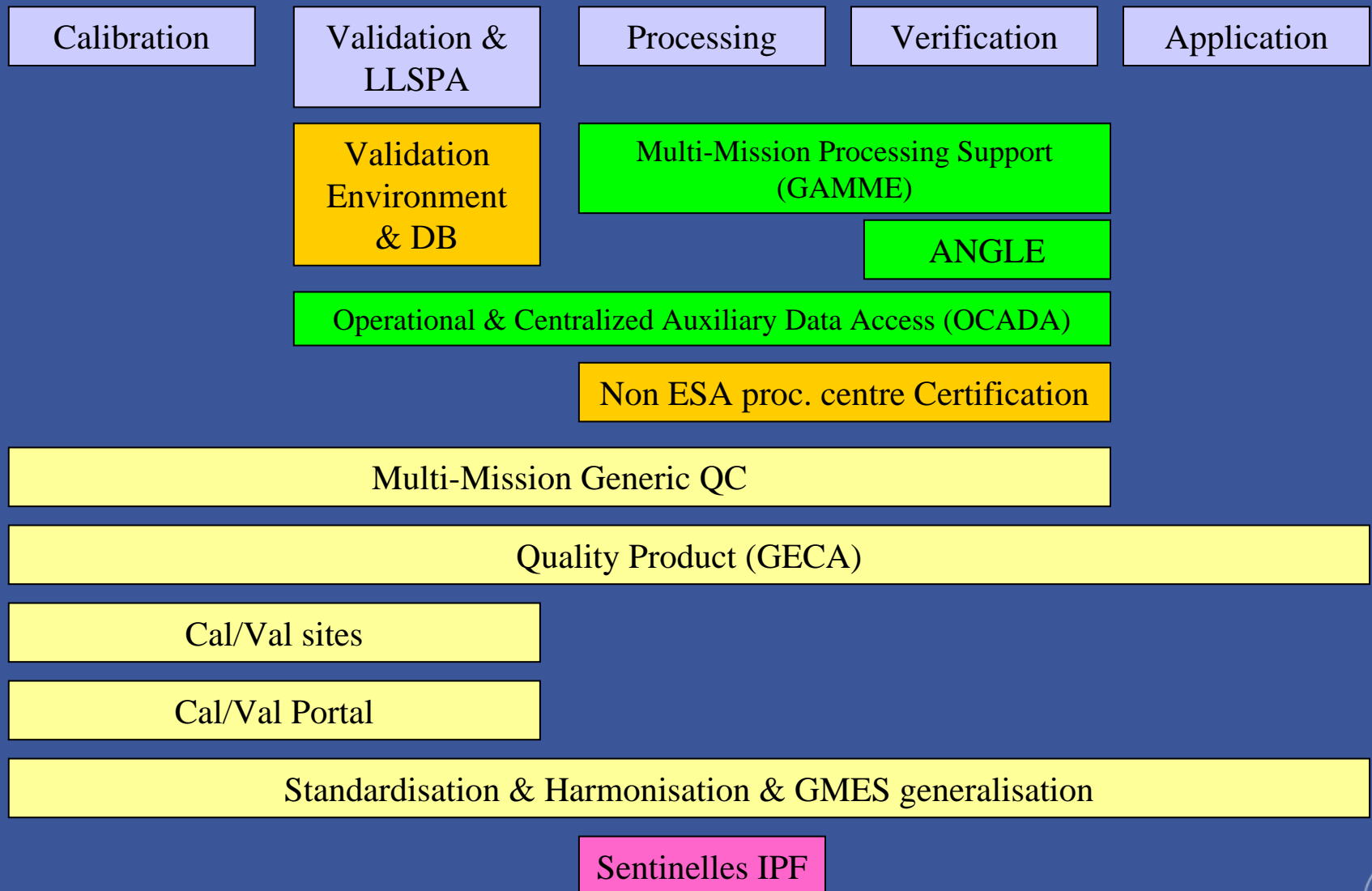
Proposed activities in the context of
Product and Processes harmonisation

- The activities proposed are divided into three main lines:
 - Ground Segment Components
 - » Development of ESA components in support to SPPA and Cal/Val activities
 - Sensor Performance, Products and Algorithms
 - » Routine Long Loop Sensor Performance, Quality Control, Verification and Algorithm development activities
 - Calibration and Validation Activities
 - » Activities supporting Calibration and Validation

- Systematic end-user product Quality Control
 - *This is the Amalfi Multi-Mission – Angle project*
- Multi Mission Processing Infrastructure
 - *This is the GAMME project*
- Operational and Centralised Auxiliary Data Access
 - *This is OCADA - Operational & Centralized Auxiliary Data Access*

- Proposed area for Harmonisation
 - Harmonisation of Quality Control Processes across missions
 - *This is the Multi-Mission Systematic Quality Control Project*
 - Harmonisation of *a posteriori* information on data quality to be communicated to users
 - *This is the GECA project*
 - Harmonisation of Auxiliary Data Handling
 - *This is OCADA - Operational & Centralized Auxiliary Data Access*
 - Harmonisation of the Prototype and Processor interfaces for easy exchange and testing
 - *This is GAMME*

- Proposed area for harmonisation
 - Archiving and Access to satellite and *in situ* data for Calibration and Validation activities.
 - *This is the Cal/Val portal (data access part)*
 - Definition of the methodologies to be used for Calibration and Validation
 - *This is the Cal/Val portal (methodology part)*
 - Harmonisation of Validation Data handling
 - *This is the other part of Geca*
- Proposed area for Certification (in a long term)
 - Definition and selection of Cal/Val site
 - *This is the Cal Val sites Project*



Activity	Schedule
Multi-Mission Processing (GAMME)	End contract by April 2007
ANGLE	End contract by July 2007
GECA (Cal/Val DC & Quality Product)	PP submitted to AC
Certification Non-ESA centres	Planned start in 2007
Operational & Centralized Auxiliary Data Access (OCADA)	Planned start in early 2007
Multi-Mission Systematic QC	1 Year – End contract by March 2007
Cal/Val Portal	2 Years – End contract by July 2007
Cal/Val sites	Planned start in early 2007
GMES generalisation - Product Harmonization study	Planned start in early 2007
Sentinel IPFs	Planned start early 2007

1- Generic Environment for Cal/Val Analysis (GECA)

➤ Project description

Third-generation Cal/Val Data Centre, with

- Coverage of all instrument domains
- functionality for retrieval distributed databases,
- collocation detection support from distributed databases and multi-mission ground segment,
- Intercomparison analysis support functionality
- single submission portal with distribution/administration support
- interagency metadata maintenance portal

Quality Product

- Machine-readable information exchange between SPPA analysis team and data product user to provide unambiguous data manipulation operations and criteria to be applied during scientific/operational data analysis.

➤ Project status

- Procurement proposal submitted to AC (Accepted in Sept 06)
- 2.5 years contract starting in Feb 2007

2- Cal/Val Portal

➤ Project description

- The Cal/Val Portal will support calibration by
 - Supplying Satellite Data from multiple Sensors over vicarious calibration sites
 - Supplying in-situ Measurements
 - Give access to calibration tools
 - Supply Sensor Parameters
 - Supply guidelines for cross-calibration and vicarious calibration
 - Prepare input files for 6S given Sensor Parameters, Atmospheric Conditions, ...
 - Supply a platform to exchange results

➤ Project status

- Initiated in July 2005, expected to be completed July 2007
- Evolution planned: Start December 2006 – 1 year of development

3- Cal/Val Sites

➤ Project description

Calibration Test Sites Selection and Characterisation Tasks:

- Identification of needs in term of vicarious calibration per sensor
- Identification of sites for vicarious instrument characterisation
- Generation of a strategy for vicarious characterisation of sensors

Related projects: This project is a piece of a wider strategy for insuring the multi-sensors data quality. In this framework, this projects is strongly related to others projects that have already initiated or that are about to start. Among others, a strong interaction with the Cal/Val portal shall be envisaged.

➤ Project status

- Planned start in early 2007

4- Multi-Mission Generic Quality Control

➤ Project description

- Establish a baseline specification of QA /QC tools and procedures needed to ensure implementation of “best practice” for operations of future sensors/missions in the “multi-mission” environment
- Identification of a set of (if possible) generic “quality reporting indicators” and/or a means of “certification” of data products and their production, appropriate to the needs of their application and those of all stakeholders in the EO sector – data producer and user

➤ Project status

- End contract by March 2007

1- Product Harmonization

➤ Project description

- “Data Harmonization” is considered a prerequisite for interoperability among spatial information systems; it will allow Europe to realize its objectives for a sustainable and interoperable functioning of GMES
- Tasks
 - Classification of sensors/products per GMES applications
 - Gather the sensors/products which give similar information
 - Survey of existing program/project RISE Glob-program (ex: Globcover) Medspiration
 - Identify coordination among project and the need in term of harmonization
 - According to the classification per products, identification of parameters that can be harmonized across products/missions)
 - Format harmonization (generic)

➤ Project status

- To be initiated in early 2007

1- IPF sentinels

➤ Project description

- Procurement of the data processing facility in the case of Sentinel-1 and of the processing prototypes in the case of Sentinel-2&3.
- Definition of the Sentinel-1/2/3 missions Products and Algorithms.

➤ Project status

- To be initiated in early 2007
- Intended duration of 4.8 years for Sentinel 1 and 4 years for Sentinels 2/3

2- Amalfi Multi-Mission (ANGLE)

➤ Project description

- Implement a multi-mission facility for the systematic end-user product quality control. The scope is to ensure that all data provided to users independently of the distribution process (media on-request, NRT on line, subscriptions, etc) has been quality checked before delivery. For this purpose, AMALFI MM shall become an integrated element in the multi-mission ground segment
- AMALFI MM will also provide the means to monitor the quality of the products distributed to the users at any ESA facility
- AMALFI MM will initially cover the following missions: ERS SAR, ENVISAT, ALOS, Cryosat

➤ Project status

- To be initiated in early 2007

3- Operational & Centralized Auxiliary Data Access (OCADA)

➤ Project description

- An EO centralized multi-user/multi-purpose system to solve the problem of optimizing the handling of Auxiliary Data
- This Multi-Mission component will represent the EO reference Auxiliary Data handling system, by providing (automatically) a common internal source for Auxiliary Data received from multiple sources (e.g., data providers)

➤ Project status

- To be initiated in early 2007

4- Multi-Mission Processing (GAMME)

➤ Project description

- Engineering support environment for verification and software validation of operational and prototype processors.
- Mimics facilities behind operational ground-segment interfaces

➤ Project status

- End contract by April 2007

4- Non-ESA processing centre certification

➤ Project description

- The scope of the activity is to develop a procedure and implement any necessary tools to certify the quality of products from ESA missions generated by non-ESA processing centers (i.e. using non-ESA facilities).
- The aim is to ensure that quality of products from ESA missions received by the users will be as similar as possible, regardless where the data has been generated.

➤ Project status

- To be started in 2007