Task 3 Coordination Meeting

17th March 2015

Finmeccanica, London

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Meeting Outline

- Introduction and scope of the meeting – Gareth
- Overview of Task 3 structure/activities - Gareth;
  - As envisaged when CCN01 was included (Cal/val support, tools development…);
  - Overview of new Task 3 activities introduced in CCN02
  - Initial overview of major activity themes emerging in Task 3
- Round table of presentations on individual activities (10 mins each):
  - Support for instruments and cal/val contracts - Stefano
  - Support for Proba-V - Fabrizio
  - Cal/val portal etc. - Alessandro
  - Support for workshops and working groups - Françoise
  - Calibration and data quality toolbox - Steve
  - Radiometric Uncertainty Tool – Javier
- Discussion of how to group the new activities into themes (e.g. by instrument type, application, type of support etc.)
  - Atmospheric composition – Stefano
  - Optical – Gareth
  - L1 Working Group - Gareth
  - Working group and strategic support – Françoise
  - Arctic applications – Françoise
  - Tools – Gareth

Meeting Outline

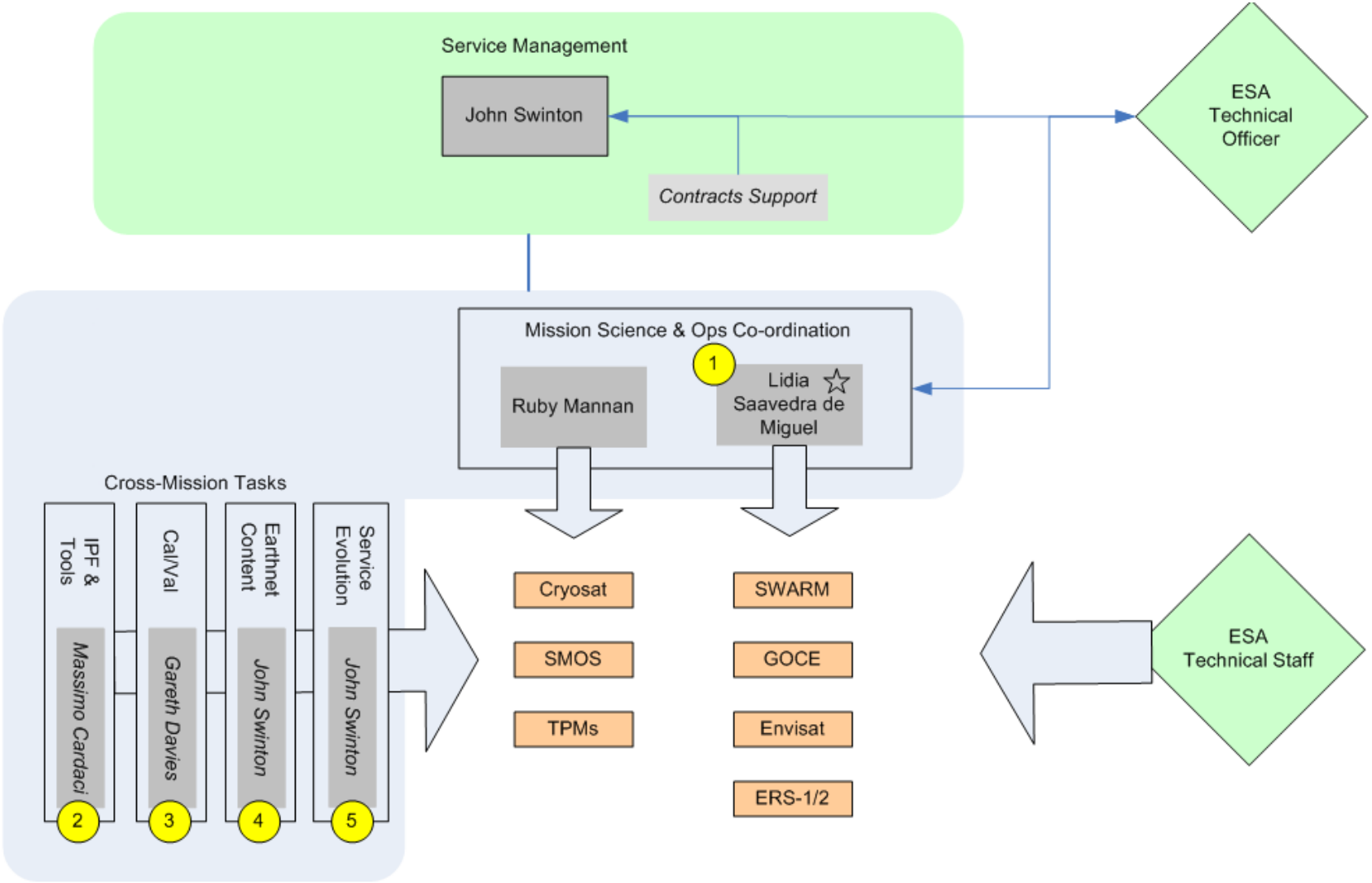
- Reporting/management of projects (IDEAS+ MR, project deliverables, Progress Meetings)
- Summary of next steps:
  - Actions
  - Further meetings
  - Communications
  - Planning (including for CCN03)

Objectives

- Familiarization of the main team members with the activities and scope of Task 3 in IDEAS+ following introduction of CCN01 and 02
- Look for synergies between activities and identify/agree on any tasks needed for their coordination
- Agreement of monitoring/reporting of the newer more project-based activities included in the CCNs

- Notes:
  - As there have been such big changes in the scope of Task 3 activities, and not all the team is here, we are not expecting that everything can be sorted out today – this is a starting point to set us in the right direction
  - IDEAS+ and its predecessors originated largely to support the Routine Quality Control activities of SPPA – Sensor Performance, Products and Algorithms , but there is an evolving focus towards the science parts: Algorithm Development and Cal/Val – and we see this in the changes in IDEAS+ on Task 3

IDEAS+ structure

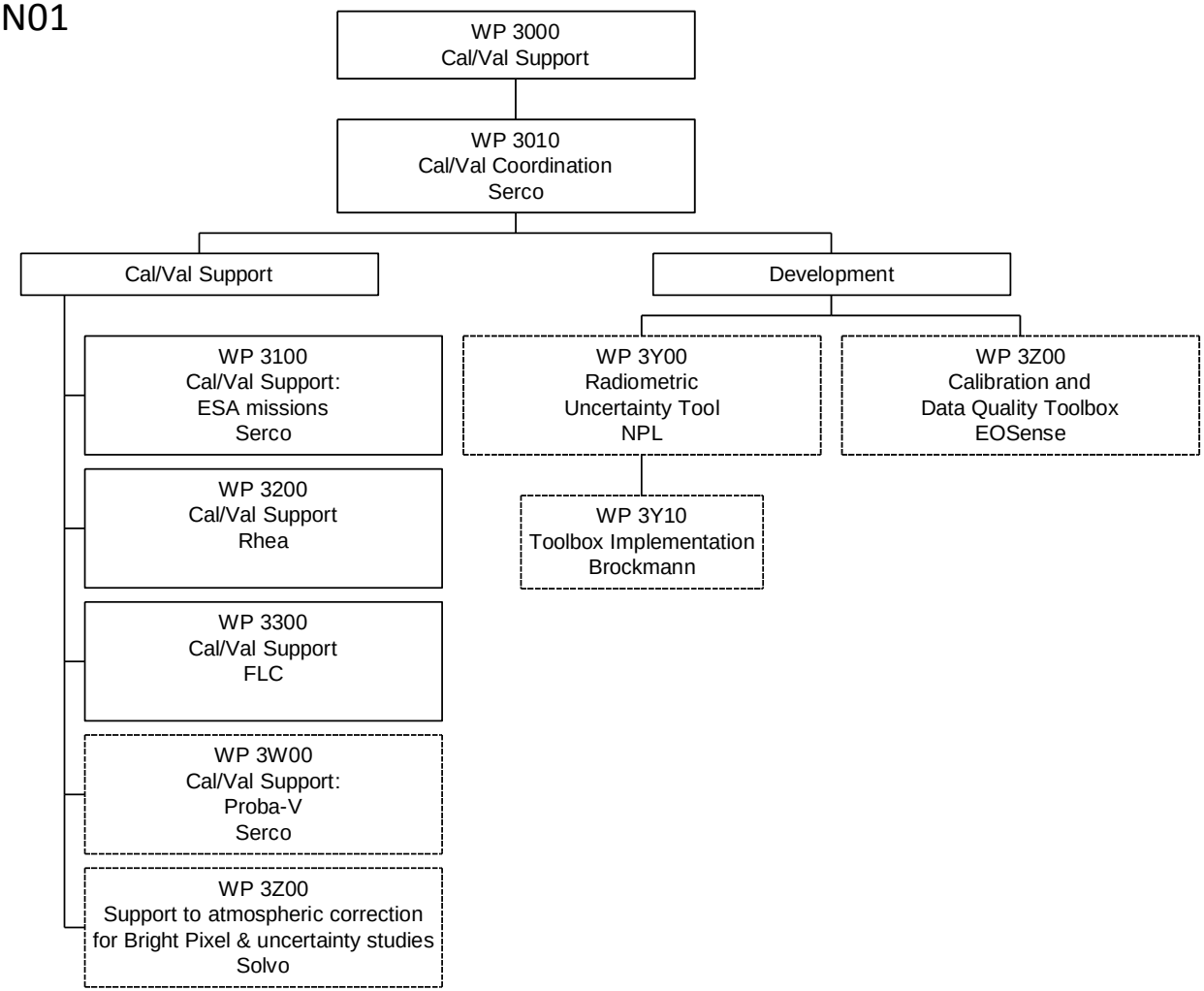


Task 3 – original scope

- Task 3-1: Specific Cal/Val support related to Task 1-4
- Task 3-2: Cal/Val portal and Database support
- Task 3-3: Cal/Val contracts support
- Task 3-4: International Working Group support
- Task 3-5: Support to Workshop series organisation and field campaigns

Task 3 structure/activities

- After CCN01



New Task 3 activities in CCN02

- HRTP sensitivity study on GOMOS (ENEA)
- Validation expertise with Atmospheric Chemistry background (La Sapienza and Serco)
- BEAM evolution (Brockmann)
- OMI validation support (Luftblick)
- Aerosol remote sensing - Sensitivity studies ISTINA (GRASP)
- Wet snow mapping retrieval using Sentinel-1 data (Zurich)
- Landsat S2 validation support (Serco)
- Integrated time series calibration for forest monitoring with Landsat – Validation (Wageningen)
- Landsat 8 Sentinel 2 Fusion Techniques (Magellium)
- MERIS/ATSR Land/Sea mask in Sentinel 3 format (Brockmann)

New Task 3 activities in CCN02

- Validation MERIS, TPM with in-situ data (Brockmann)
- MERCI update for AATSR/MERIS in Sentinel-3 format etc (Brockmann)
- Radiometric characterisation of array spectroradiometers and development of correction functions for stray light and linearity in support of ground-based mini spectrometers (PMOD/WRC)
- Additional support for the organisation of Cal/Val workshops (FLC)
- BEAM support to Proba-V products (Brockmann)
- Not part of the activities to be coordinated at Task 3 level:
  - SMOS Level 2 expert support VEGA)
  - Optical Mission and Observation Scenario expert (VEGA)
  - Integration of Cryosat and SMOS expert support role to IDEAS+ (Serco and Rhea) - from August 2015

Themes…

- The diversity and number of new activities are a great demonstration of the trust and responsibility that ESA is giving IDEAS+
  - But it brings quite a few challenges…
- Some things to think about during the presentations
  - Atmospheric composition research activities are growing (HRTP, ISTINA, La Sapienza), instrumentation being procured, h/w calibration
  - Breadth of optical activities: high- and medium-resolution, preparation for Sentinel-2, data fusion, field measurements, calibration, new TPM validation
  - L1 Working Group had been paused after first meeting in June 2013, to be restarted, particularly relevant now with the extra Task 3 activities
  - Working group support also growing and becoming more strategic, e.g. DRAGON, C-CalVET, expert briefings to ESA
  - Arctic/cryosphere activities growing beyond Arctic Products Validation and Evolution workshops, with wet snow, C-CalVET project
  - Tools – not Task 2: BEAM and Merci updates, RUT and cal/data quality toolbox are not just s/w dev, AIRWAVE processor

Individual activities

- Over to Stefano, Fabrizio, Alessandro, Françoise, Steve and Javier…
- Plus brief summaries of other activities…

Individual activities

- Bright Pixel Atmospheric Correction (Solvo)
  - Ocean colour data of MERIS 3rd reprocessing have shown degraded quality for moderately to high turbid waters, because of a too strong sensitivity of the BPAC to NIR vicarious calibration. The BPAC is to be updated to make it more robust to the NIR bands
- BEAM evolution (Brockmann) - Scientific Support Programme to BEAM/SNAP
  - Activity 1: Vicarious Calibration of non-standard Ocean atmospheric correction schemes
  - Activity 2: BEAM Scientific Processor upgrade & integration into SNAP
  - Activity 3: SNAP Hackathon
- Wet snow mapping retrieval using Sentinel-1 data (Zurich)
  - Wet Snow Mapping using Sentinel-1 Data:
  - Verification of S-1 GRD (Ground Range) product slice continuity
  - Atmospheric path delay modelling for S-1 products: requirements, performance and recommendations

Individual activities

- Landsat S2 validation support (Serco)
  - Cal/val expert support for the Level 2A surface reflectance products derived from the Landsat and Sentinel-2 missions. It will provide expertise in atmospheric correction algorithms to compare and validate current methods and propose improvement and support the establishment of a common platform for the Landsat and Sentinel-2 atmospheric correction processors
- Integrated time series calibration for forest monitoring with Landsat – Validation (Wageningen)
  - Fieldwork and data acquisition to generate calibration/validation datasets based on ground-based and near sensing techniques;
  - Validation activities for reflectance and vegetation index products;
  - Benchmarking of vegetation indices and radiative transfer modelling inversion techniques to retrieve biophysical forest parameters with S2 and L8;

Individual activities

- Landsat 8 Sentinel 2 Fusion Techniques (Magellium)
  - Mono source TS consolidation: The purpose of this task is to design and implement all process required to generate consolidated ‘mono source’ TS, specifically in case of Landsat 8 / Sentinel 2 data
  - S2/L8 TS consolidation: address the consolidation of TS by using data from two similar sensors on board Sentinel 2 and Landsat 8
  - TS Consolidation Evolution: evolution of TS consolidation baseline concept, addressing the use case for which user would need to increase the density of the time series
  - Outputs include Sentinel-2 Toolbox modules

Individual activities

- MERIS/ATSR Land/Sea mask in Sentinel 3 format (Brockmann)
  - The objective is to produce a new land-water mask with the ocean/inland and intertidal attributes that combines the best features of the available masks
- Validation MERIS, TPM with in-situ data (Brockmann)
  - Focus will be on a first assessment of the data quality from the Indian OCEANSAT satellite over European waters, including intercomparison with in-situ data and MERIS, MODIS and VIIRS
- MERCI update for AATSR/MERIS in Sentinel-3 format etc (Brockmann)
  - Update MERIS and AATSR version with appropriate quality checks and to handle AATSR and MERIS in Sentinel-like formats and for OLCI and SLSTR
- BEAM support to Proba-V products (Brockmann)
  - Provide full support of all the Proba-V synthesis products in the BEAM toolbox , above what will be covered by LandCover CCI project

Grouping/themes

- What do we want to achieve in treating the activities as a whole, not just a set of disparate projects or support roles? For example…
  - Maximising synergies between activities
  - Improving the quality of support to ESA and ultimately ESA's users
  - Simplify coordination
  - Identify new activities, filling gaps, extensions
  - Promoting, reporting, publicising, publishing results
  - Supporting ESA's long-term strategies
- Some suggestions on next slides…

Grouping/themes - Optical

- Diverse set of activities, with very wide expertise in the Task 3 team, plenty of knowledge outside their formally defined activities
- Data quality activities
  - RUT
  - Cal and data quality toolbox
- Data fusion
- Atmospheric correction
- Calibration
- Validation
- Research – PhD student at Wageningen
- Feeds into L1 Working Group

Grouping/themes – L1WG

- Original objectives defined in June 2013 were to:
  - Integrate the latest findings on level-1 into the upcoming reprocessing campaigns of ERS1/ERS-2/Envisat.
  - Support:
    - Scientific Research
    - The EO Applications and Exploitation community
    - ESA programmes, in particular CCI, SEOM and LTDP
  - Prepare for the Sentinels operations phase (and lessons learned for the future missions)
- These objectives are to be facilitated through:
  - The exchange of ideas between the different ESA EO instrument teams including an introduction to the approaches used by different communities
  - Provision of L1 recommendations for the upcoming ERS/Envisat instrument reprocessing campaigns
  - Formulation of lessons learned for calibration and in-flight characterisation including recommendations for future activities (for example QA constellation, S5p/S5 calibration, Sentinel B units)
  - Consider the way forward for L1 activities

Grouping/themes – L1WG

- First meeting in June 2013, when it was agreed that ESA should set up the L1WG, based on a 9-12 months cycle for meetings.
- Next meeting now Q3/Q4 2015 – urgent to start preparations soon
- Other Task 3 activities feed into this…

Grouping/themes – Working Groups

- Workshops covered (at varying levels of support):
  - CEOS WGCV, GSCB/CVI, WMO/GISC
  - Land Products Validation Evolution (LPVE)
  - Arctic Products Validation Evolution (APVE)
  - DRAGON
  - Proba-V
  - L1 Working Group
  - Local workshops in Canada
- Strategic support:
  - Research, provision of briefing material e.g. on the status and key players in Polish EO
- Summary of activities:
  - Research, organisation and reporting to ESA
- Links to optical cal/val, L1 WG in particular…

Grouping/themes – Arctic applications

- Focus is through Arctic Products Validation and Evolution workshops series, and on optical sensors
- C-CalVET
  - Facilitation of activities, building links between Canadian national and ESA/European activities
  - Monitoring the progress of Canadian C-CalVET activities funded by ESA
- Other aspects to consider:
  - Monitoring of wet snow project (SAR)
  - Extension of support already provided to SnowPEX

Grouping/themes – Tools

- BEAM/SNAP
- MERCI (focus on QC tool aspects…)
- Sentinel toolbox modules
- Standalone cal and data quality toolbox
- AIRWAVE development
- Intercomparison tools
- Access to data and thoughts on shared data storage, other infrastructure…

Reporting/management

- IDEAS+ Monthly Report
  - All contractors agreed to provide short inputs
  - Can be unwieldy, hard to follow the more project-based activities
  - Could evolve the Task 3 Monthly Report, summarising information, reporting progress against schedules of deliverables
- Progress meetings needed for many of the new projects (with ESA present generally?)
- Communications
  - How to make new contractors/people feel part of the team (do we need to in some cases, e.g. Optical Mission and Observation Scenario expert is not part of the overall coordinated Task 3 team)?

Next steps

- Actions
- Further meetings, e.g.
  - Fabrizio, Sébastien, Steve, Javier, Georgia
  - L1WG preparation
- Communications to the rest of the Task 3 team and ESA
- Planning over the next few months