RadCALNet (Radiometric Calibration Network *using automated instruments*): CEOS CV9

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NPL (on behalf of task team)

WGCV Plenary # 39

Berlin

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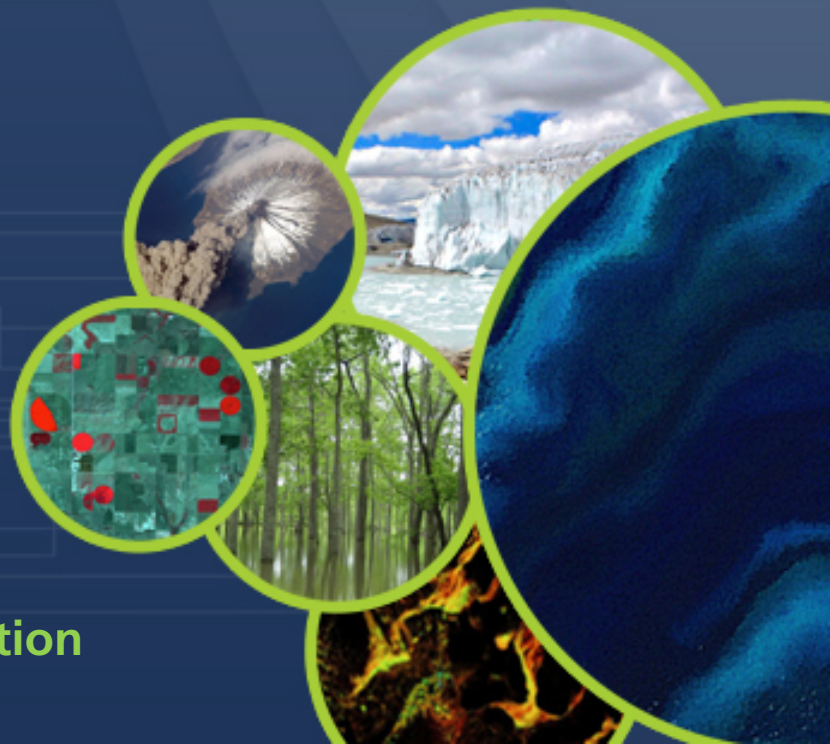
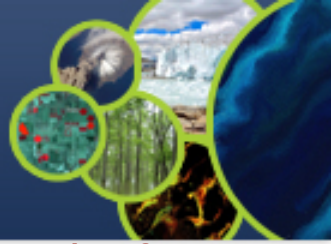
Working Group on Calibration and Validation



What is RadCALNet or what it hopes to become!



A CEOS WGCV project leading to the establishment of a sustainable network of Autonomous instrumented test-sites for calibration of optical satellite imagers – initially <50 m GIFOV (to include a procedure to join, maintain and deliver a service)

Initiated and managed through IVOS as a WGCV task team for ~2 yrs to prototype the RadCALNet concept (starting in 2014) (following ideas originally proposed by Teillet et al in 2001)

WGCV agreed Task team: CNES, AOE/CAS, NASA, U of Ariz, NPL, ESA

Project Plan:

- Work through combination of physical and virtual meetings
- Each site owner to prepare description of own site- characteristics, instrumentation, traceability and uncertainty (and maintain a QA process)
- Also to prepare a data package able to be delivered to a common location (by FTP) in a common format: environmental characteristics, surface nadir spectral reflectance in 5 nm intervals @ 30 minute intervals from 09:00 – 15:00
- NASA to process all data through a common algorithm to provide TOA Radiance
- Evaluate full process (site by site) using Landsat 8, SPOT 5 & S 2 as test cases
- Develop a 'members handbook' to define requirements/guidelines for new sites to join

Prototype RadCALNet

- **Initially 3 instrumented sites will provide data to prototype RADCALNET:**

✓ **Baotou (China)**

✓ **La Crau (France)**

✓ **Railroad Valley Playa (US)**

\+ **partly as a test case for a New site**

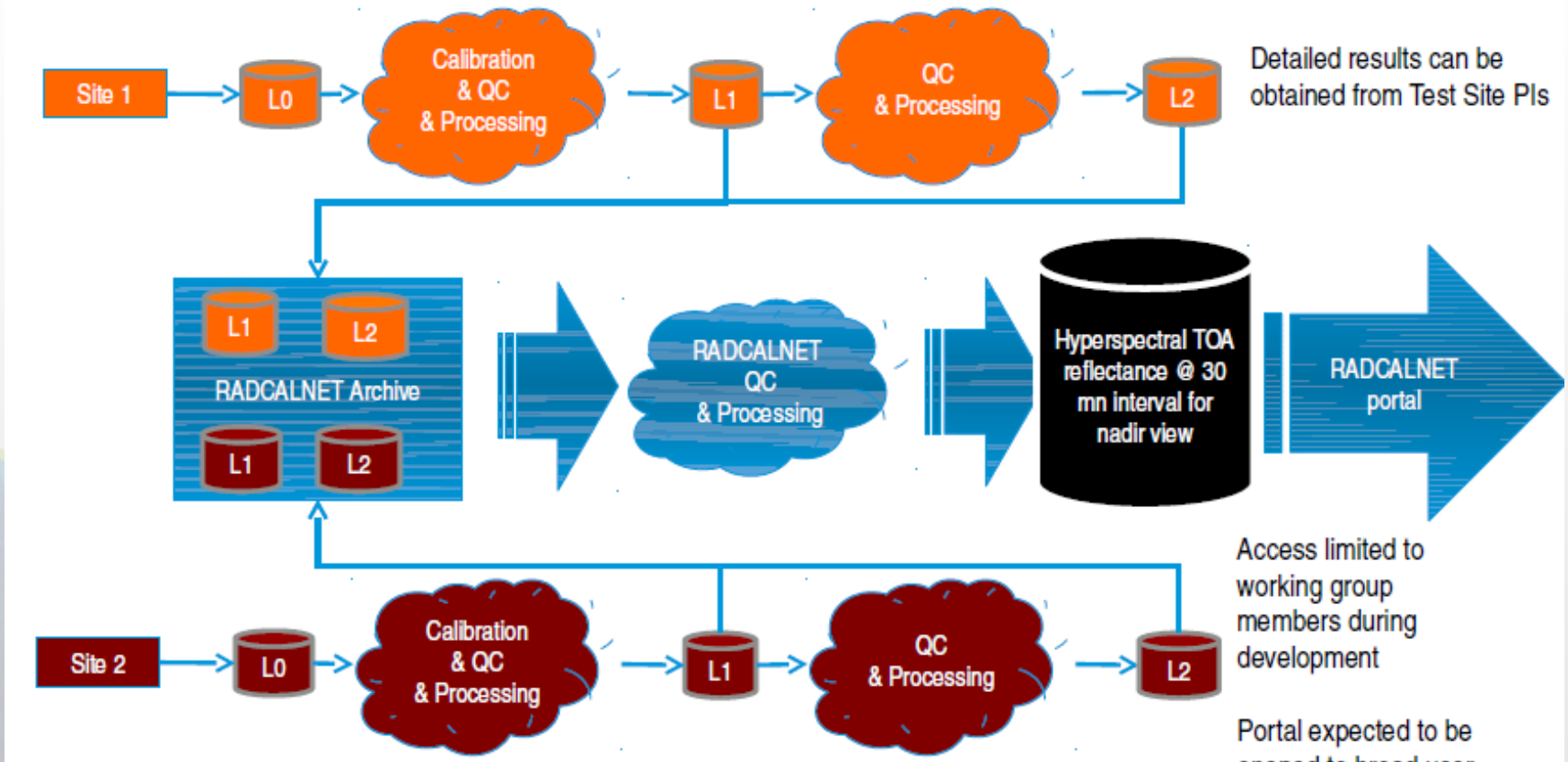
ESA/CNES site to be selected and equipped over next 6 months

- Global search based on methods defined by CNES study (method and results on Cal/Val portal)

- Gobabeb in Namibia chosen (close to existing base with good communications for data)

Shared vision of RadCALNet

The shared vision of RADCALNET



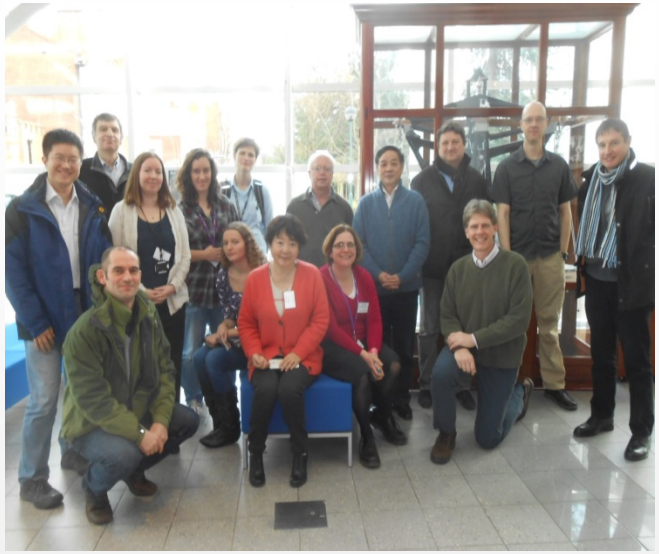
L0: raw instrument data
L1: instrument data in physical unit
L2: surface or atmosphere parameters retrieved from L1

STATUS

3rd Meeting @ NPL (Feb 2015)

Agreed to:

- Complete first draft of ‘handbook’ by IVOS 27
- NASA to define format and parameters to be measured and supplied to FTP (Apr 2015)
- Depository for FTP of data to be established on Cal/Val portal (May 2015)
- Web site (page to be created) by July 14
- Site owners to provide info on site protocols/ uncertainties for review by NPL (Jul 14)
- NPL to define site visit plan and measurements to be made (IVOS 27)
- Site acquisitions arranged to be made by ASTER, SPOT 5
- IGAARS paper to be presented
- Target first ‘operational’ results Jan 2016



STONG ENCOURAGEMENT TO ADD NEW SITES WHEN PROTOTYPE PHASE COMPLETED.

Potential new site owners can Obtain info from RadCALNet team as it develops & attend meetings if helpful

Possible rewording of CV9 task

Establish the potential for a sustainable and expandable automated network (RadCALNet) via a multi-agency demonstration project, including coordination and dissemination infrastructure, a set of instrumented land based test sites providing Fiducial reference data to enable post-launch traceable calibration of imaging sensor radiometric gain, initially for <50 m resolution sensors, and a handbook to facilitate establishment and subsequent inclusion of new sites into the network. To be completed by Q4 2016 following pre-defined plan agreed and monitored within CEOS WGCV.