

CEOS WGCV IVOS)

Post-launch cal/val: Introduction

Nigel Fox

To facilitate the provision of 'fit for purpose' information through enabling data interoperability and performance assessment through an 'operational' CEOS coordinated & internationally harmonised Cal/Val infrastructure consistent with QA4EO principles.

To Include:

- *Pre-flight characterisation & calibration*
- *Test – sites*
- *Comparisons*
- *Agreed methodologies*
- *Interchangeable/readable formats*
- *Results/metadata - databases*

Need Key Infrastructure to be established and maintained independent of sensor specific projects and/or agencies

Post launch vicarious Cal/Val:



Critical for all EO optical missions to facilitate:

- Interoperability
- Bias assessment/removal
- Sensor drift monitoring/correction
- End to end performance check

CEOS strategy: evaluate, consolidate & establish 'best practise'

- leading to CEOS agreed 'harmonisation coefficients'??

Test sites / 'methods' with documented procedure & uncertainty
(including treatment of auxiliary/external reference data

- Different approaches optimum for different purposes
- Need to establish 'degree of equivalence' between similar & different methods & consistent traceability



- How to support 'commercial' (non CEOS) Sats



IVOS 2010 (JRC) Workshop led to establishment of WGs to consider 'best practise' / relative consistency/applicability of different methodologies

CEOS and WMO-GSICS



WGs on methodology and data format

- **WG1: Use of Deep Convective Cloud**

Lead: D Doelling (NASA)

Participant:

- **WG2: Rayleigh Scattering**

Lead: P Henry (CNES)

Participant: M Bouvet (ESA)* , L Bourg (ACRI)

- **WG3: Sun Glint**

Lead:

Participant: S Lavender (ARGANS)

- **WG4: Use of fixed ground sites e.g. SADE, DIMITRI, Landnet, invariant desert sites (but not requiring ground measured data)**

Lead: X Briottet

Participant: D Smith (RAL), P Henry (CNES),
M Bouvet (ESA)*, L Bourg (ACRI)

- **WG5: Simultaneous Nadir Observation**

Lead:

Participant: S Kumar (ISRO), S Saunier (Mag)

**Call for participants
& leads still open.....**

**WORKING GROUPS NEED INPUT FROM OTHER AGENCIES TO ENSURE
HARMONISATION AND BEST PRACTISE/EXPERTISE**



CEOS IVOS Working Group 4: Fixed Sites

Methodology intercomparison initial results summary

Chair: (Marc Bouvet)



ARGANS



CEOS/IVOS WG4 (Use of Fixed Sites)



comparison Protocol

- ❖ A reference dataset will be produced by ARGANS and CNES consisting of extractions in the CNES SADE format, from 3 sites, 5 sensors and over 4 consecutive years.
- ❖ Validation of dataset by sample comparison of independent extractions from SADE and DIMITRI - *Key activity initially differences found*
- ❖ The common reference dataset will consist of TOA reflectances averaged over a region of interest. The reference dataset will consist of cloud screened data.
- ❖ No further cloud screening should to be applied by participants to focus the comparisons on the core of the methodologies rather than the cloud screening approach.
- ❖ Each participant will systematically apply their method to the reference dataset and produce a set of standardised results.

Libya 4
Niger 2
Dome-C

Polder-3
AATSR
MERIS
VGT 2
MODIS-A

2006
2007
2008
2009

ACRI/RAL/ONERA/ESA:
DIMITRI

CNES: SADE
(Desert methodology)

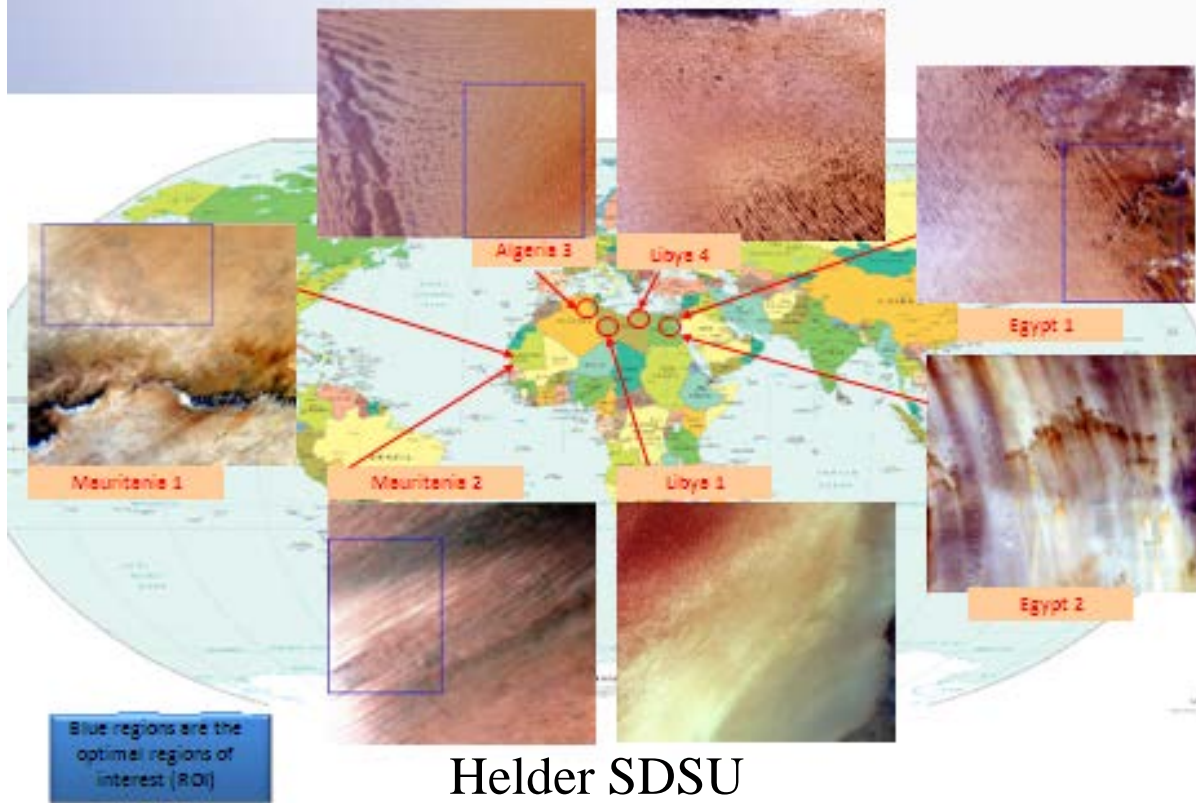
RAL: Drift Monitoring.

VITO: RTM simulation
over Deserts

CEOS IVOS workshop on: Libya 4 (Oct 4-5 2012 CNES Paris)

**CEOS 'non-instrumented' Test sites for Stability
and sensor to sensor cross-comparison**

OPTIMIZED SAHARAN PICS



- ~25 attendees
- Working meeting
- Focus on one site
- Share ideas
- Different sensors
- Cal/comparison methods
- Site characteristics
– observed/modelled
- High and medium res
- **What can & might be achievable?**

Tools/infrastructure



- **CEOS / GSICS access to SADE database of CNES - long time base multi-sensor acquisition data over key test sites**
- **DIMITRI data-base and comparison tool - open access via Cal/Val portal**
- **‘Test data set and protocol’ - open access via Cal/Val portal**
- **CEOS COVE - Acquisition/comparison planning and past opportunities tool**
- **USGS Sensor cross-comparison tool and acquisitions data base**
- **WGISS CWIC tool – IDN linked search/find and order tool for multi-sensor data granules – temporally & spatially defined**
 - **User interface for CEOS test sites now under development**