

Ground based Cal/Val campaign (DA-09-01a-6)



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GEO actions:

Obtain support and resources to complement those of ESA to initiate and plan an international cross-comparison of ground Cal/Val support techniques and instrumentation for both IR emitted radiance (SST) (spring 09) and VIS/SWIR reflected radiance (Land) Summer 10)

CEOS Infrared spectral emitted radiance (brightness T comparison

April/May 2009 key sponsors: ESA and NASA (+ participants)

Hosts: University of Miami & NPL (pilot/coordinator: NPL)

Objective:

- Establish degree of equivalence between participants
- Ensure robust traceability to SI (via NIST and NPL)
- Establish protocols to facilitate future comparisons

Process: Follow Guidelines of QA4EO ...DQK 004

- invitation (facilitate for all)

- protocol

- blind measurements

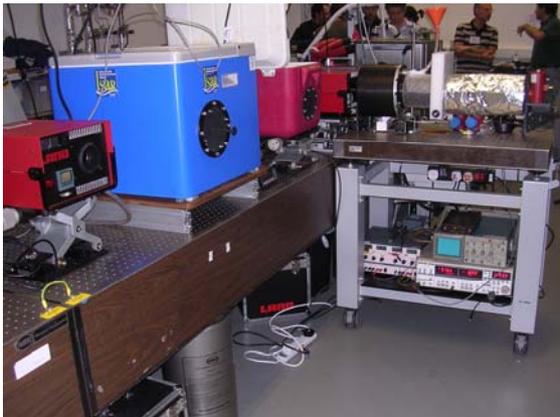
- results and uncertainties

- analyse and publish

Methodology:

- 1/ Compare black bodies to a reference standard black body using SI traceable and characterised radiometer
(AMBER NPL and TXR NIST)
- 2/ Compare radiometers to a reference standard black body
- 3/ Compare radiometers to a common view of the Ocean

Task 1 and 2 (lab based) to be carried out in UK (NPL) and USA (Miami) linked by common radiometers



Issues

- Obtaining resource for joint common activities highly challenging
- VISAs
- Results and descriptions quickly
- Uncertainties and their meaning
- Cancellations!

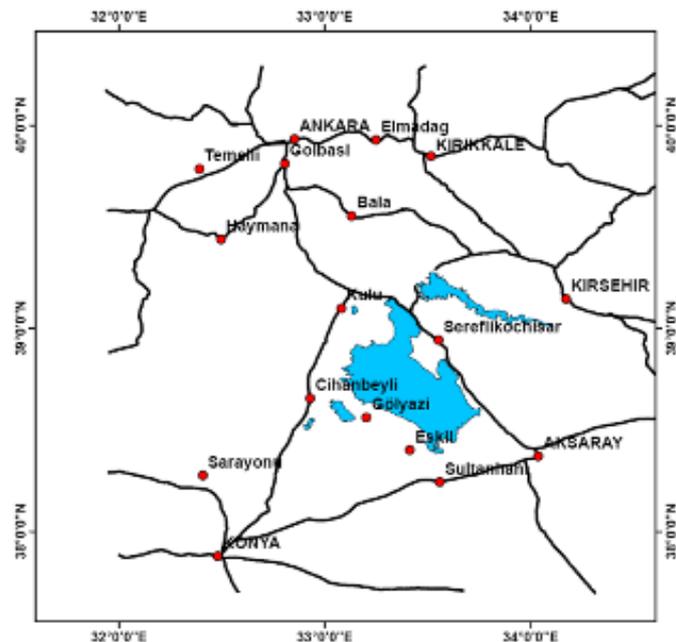
Positives

- Seen as important by community
- Excellent learning opportunity
- Clear knowledge of bias and traceability

Land surface: solar reflected radiance comparison (2010) using Tuz Golu salt lakebed

- 1. Evaluate differences in field instrument primary calibrations**
 - a. Reference standards used and traceability (based on “Laboratory” information)
 - b. On-site calibrations/validations
- 2. Evaluate differences in methods for characterising and assigning “radiometric value” to a site, for multiple view angles**
 - a. Small area for high-resolution imagers
 - b. Large area for medium-resolution imagers
- 3. Establish formal traceability of Tuz Gölü reference site based on an evaluation of all comparison results.**
- 4. Establish “best practice” guidance for above and/or knowledge of variance between methodologies.**
- 5. A multi-sensor (satellite and aircraft) comparison linked to the ground calibration derived from the multi-team comparison.**
- 6. Identify the minimum and ideal specifications for characterisation/instrumentation for a CEOS “reference standard”**

Tuz Golu comparison site:



Location: 38 50'N, 33 20'E, 150 km southeast of Ankara (capital city)

Elevation: 905 m

Total area: 1964 km² (peak)

Surface type: 30-80 cm thick salt crust

Atmospheric conditions: Sunny, no rain and cloud free in dry season (July-August). Low aerosol loading.

Properties: Free of vegetation, easy access to site. Site available for approximately 2 months per year.

Logistics / Accommodation



Wireless Internet Access,
Meeting Rooms
For TUBITAK , 35 Euro single room

Closest hotels (4 star, 5 star) are
located in Aksaray. It is
aproximately 100 km from Aksaray
to Kayacık Saltworks

Status

- **Pilot European comparison Aug 23 to 28 2009**
 - CNES/ONERA, DLR, TU, RSL + NPL as pilot and BRDF
 - Protocol agreed
 - Observers are possible
 - Request will be sent for Satellite acquisition to maximise opportunity/benefit
- **CEOS comparison Aug 2010**
 - Invitation to be sent July 2009
 - Expressions of interest September 2009
 - Agree protocol December 2009 (update to Pilot protocol)
- **Actions**
 - CEOS agencies to identify specific potential participants
 - Agencies to support participation of their nominees
 - ESA will provide support for infrastructure and analysis
 - NPL will be pilot
 - Agencies to provide satellite data and consider aircraft sensors