

A Framework for Geo/Spatial Quality Website Progress Report

**CEOS-WGCV-IVOS
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**Dennis Helder
South Dakota State University
Dennis.Helder@sdstate.edu**

Current Sub-committee members:

Dennis Helder, Chair
Francoise Viallefont, Co-Chair
Jack Xiong, NASA
Derek Griffith, CSIR
DongHan Lee, KARI



South Dakota State University
Image Processing Lab

Proposed Framework

- Definition and Importance (short introductory section)
- Measurement (background and basic theory)
- Pre-Flight Estimation (to be developed later)
- On-Orbit Estimation (substantial portion of document)
- Recommendations for Determining Geo/Spatial Quality (final effort)

(from IVOS 24)

Proposed Framework

On-orbit Estimation (substantial portion of document)

- Field Methods Survey
- Targets
 - Artificial/Man-made
 - Points
 - Lines
 - Edges
 - Pulses
 - Image feature-based
 - Linear ('Rich') features
 - Bridges
 - Moon
 - Matrix of Targets
 - Type vs. GSD
 - Availability/Maintenance
 - Point of Contact
 - Recommended for operational acquisition
 - Database of 'Standard' Imagery for PSF/MTF estimation
- Data Analysis, PSF/MTF Estimation
 - Image data format
 - Models
 - Parametric/Nonparametric Methods
 - Database of 'Standard' estimation methods

(from IVOS 24)

Proposed Framework

On-orbit Estimation (substantial portion of document)

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Proposed Actions

(from IVOS 24)

Field Methods Survey Letter (1)



Jerome J. Lohr College of Engineering
Office of the Associate Dean for Research
Daktronics Engineering Hall 309, Box 2222
South Dakota State University
Brookings, SD 57007
Phone: 605-686-4372

May 2, 2014

Dear CEOS IVOS Colleague:

I am writing to you to request your help in completing an action I took at the IVOS 24 meeting at USGS EROS to develop a website containing information related to image spatial quality and the estimation of PSF/MTF. Through the generosity of Greg Stensass and Jon Christopherson at USGS EROS we will be able to host this information as part of the website they already maintain (http://calval.cr.usgs.gov/rst-resources/sites_catalog/radiometric-sites/test-site-gallery/).

To begin collection of this information, we are focusing on cataloging spatial quality test sites and processing methodologies. On the second page of this document you will find a short survey requesting this information. Please fill out this survey form at your earliest convenience and as completely as possible. Then, return it to me at dennis.helder@sdsu.edu along with any attachments. If you are not the appropriate person at your organization to complete the survey, please feel free to forward it to that person. If you know of others who are not a part of CEOS IVOS but could contribute to this activity, please feel free to send it to them as well.

Thank you in advance for your help with this activity. I look forward to seeing you at the next IVOS meeting!

Sincerely,

Dennis Helder

Sent May 2014

USGS EROS expanded test web page to include spatial targets:
http://calval.cr.usgs.gov/rst-resources/sites_catalog/spatial-sites/

Letter resent fall 2014
Approximately 6 initial respondents

Field Methods Survey Letter (2)



Infrared and Visible Optical Sensors (IVOS)
Subgroup to the Working Group on
Calibration and Validation (WGCV)

July 17, 2015

Dear CEOS IVOS Colleague:

This letter aims at completing the action taken at the IVOS 24 meeting at USGS EROS and begun by Dennis Helder last year in order to collect and share information related to image spatial quality and the estimation of PSF/MTF.

It also aims at preparing next meeting whose main objective will be to identify data to share in order to compare MTF measurement methods.

For the moment, the collection of information is focused on cataloging spatial quality test sites and processing methodologies, and is hosted on the website of USGS EROS (http://calval.cr.usgs.gov/rst-resources/sites_catalog/spatial-sites/) through the generosity of Greg Stensass and Jon Christopherson as part of the website they already maintain.

On the second page of this document you will find a short survey requesting information. Please fill out this survey form at your earliest convenience and as completely as possible. If you have already filled the previous version, just answer the new questions (in blue). Then, return it to me at francoise.viallefont@onera.fr along with any attachments. If you are not the appropriate person at your organization to complete the survey, please feel free to forward it to that person. If you know of others who are not a part of CEOS IVOS but could contribute to this activity, please feel free to send it to them as well.

Thank you in advance for your help with this activity. I look forward to seeing you at the next IVOS meeting!

Sincerely,

Françoise Viallefont-Robinet

ONERA

2nd survey letter sent July 2015
Additional response(s) received

Field Methods Survey

Name:
Affiliation:
Email:
Telephone:
Mailing address:


Field Methods Survey Letter (2)

Improved Questionnaire

1. Do you maintain a test site?
 - a. What is the location?
 - b. What type of targets?
 - i. Which size ?
 - ii. Spectral domain (VNIR, SWIR, IR) ?
 - c. Brief description and image (if available), including maintenance and/or deployment overview.
 - d. Who is the point of contact?
2. When you estimate image spatial quality which type of target do you use?
 - a. Edge
 - b. Pulse
 - c. Point
 - d. Other
3. Please list your major data processing steps. (Note: an example is given on the next page.)
4. Could you give the advantages and the drawbacks of the method ?
5. How do you validate the method / the results ?
6. If you have a detailed presentation or paper on your method [and/or your results](#) that could be posted on the website, please send it with your response to this survey.
7. Please provide any recommendations for pre-launch measurements that could be made that would enhance the ability to perform post-launch PSF/MTF estimation.
8. Have you heard about any systematic imaging over a few sites for MTF measurement ? If so, could you precise the sites and the frequency ?
9. If you own data, would you be ready to enable data exchange within the CEOS/IVOS group in order to boost methods comparison ?
10. Would you be interested in a reference dataset relying on synthetic images ?
11. Do you have any suggestion for action to be undertaken in the MTF field in the frame of CEOS/IVOS ?

Current Website Status

← → ↻ calval.cr.usgs.gov/rst-resources/sites_catalog/spatial-sites/ ☆ ⚙ ☰



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Remote Sensing Technologies

understanding the technologies needed to sense our world

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You are here: [Home](#) » [RST Resources](#) » [Test Sites Catalog](#) » [Spatial Sites](#)

Test Site Catalog

The Spatial Sites section is the newest addition to the World-Wide Test site catalog, having first been put into place in late May, 2014. We are adding more information to it as it is made available to us.

Resources – For information on various methods of utilizing test sites, please consult one or more of the following links:

Test Site Home

RADIOMETRIC SITES

Select Site ▼

- [CEOS Reference Sites](#)
- [Radiometry Test Site Gallery](#)
- [Download Google Earth KMZ](#)

GEOMETRIC SITES


Select Site ▼

SPATIAL SITES

Select Site ▼

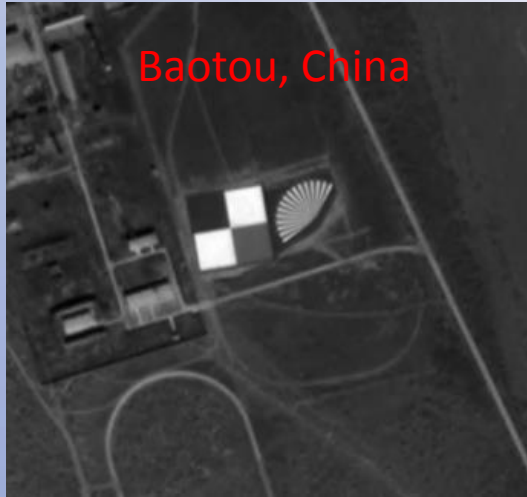
ADDITIONAL INFORMATION

- [Acronyms](#)
- [References](#)



Current Radiometric Test Site Web
Page hosted courtesy of USGS EROS
Remote Sensing Technologies
(Greg Stensaas, Jon Christopherson)

Current Website Status



Current Website Status

Lake Ponchartrain
Causeway, USA



Peng-Hu, Taiwan



Salon de Provence, France



San Mateo Bridge,
USA



Stennis, Mississippi,
USA



Big Spring, USA



(Recently submitted;
not on website yet)

Website Current Status

- Hosted at USGS EROS
 - http://calval.cr.usgs.gov/rst-resources/sites_catalog/spatial-sites/
- 11 (soon 12) test sites listed
 - 6 checkerboard targets
 - 2 bar targets
 - 2 fan targets
 - 5 bridge targets
- Two queries made thus far to populate the website

Website: Discussion

- Are there more sites that could be listed?
- Access—have there been any difficulties?
- Content
 - So far test sites
 - Are the data for them complete?
 - Next: reference datasets?
 - Then: methodologies?
- Improvements?