

**Geoscientific Spaceborne Imaging Spectroscopy Technical Committee organizes a
Vicarious Calibration Training Course**

**“Reflectance-based, imaging spectrometer error budget field practicum in Nevada Rail
Road Valley Test Site, USA”**

July, 28 – Aug, 03 2017

This course is part of a series of training sponsored by the IEEE GRSS as part of the Geoscience Imaging Spectroscopy Technical Committee’s Calibration And Validation Initiative in support spaceborne imaging spectroscopy missions. This training will focus on the practical aspects of reflectance-based imaging spectroscopy error budget and will demonstrate the complete chain of the process from the laboratory to the field.

The course will start with attendees participating in a tour of the Remote Sensing Group laboratory facilities at the University of Arizona before a field deployment to the Railroad Valley Playa test site in Nevada, USA which has been used on a long term basis as a vicarious calibration site. The training activity will include demonstration of measurement protocols for surface and atmospheric parameters that minimize uncertainties and, weather permitting, collection of data as part of the reflectance-based calibration for an on-orbit sensor. An emphasis will be placed on techniques and protocols suitable for calibration of imaging spectrometers.

The deployment will include half a day at the UofA laboratory calibration facilities and three days at the test sites. The first day at the test site consists of demonstrations of typical data collections. Participants will take part in setting up field references and collecting surface reflectance of a select area of the playa. A reflectance inter-comparison collection will take place at the site on day two along with a side trip to the Lunar Lake Playa for a discussion of the merits and impacts that different sites have on uncertainties. The third day will have participants collecting data suitable for the reflectance-based calibration of an on-orbit sensor.

The main tutors/guides for this course are Dr Jeff Czaplá-Myers (University of Arizona) and Dr Kurtis Thome (NASA Goddard).

Please register your interest in attending the field practicum with Dr Cindy Ong (cindy.ong@csiro.au) or Dr Kurt Thome (kurtis.thome@nasa.gov). Please provide a biography/CV of yourself and the reasons why you believe you would be a good candidate for this course, noting that a criteria for the course is that participants have previous experience and/or formal training in optical remote sensing especially in imaging spectroscopy. Additionally, preference will be given to applicants who can demonstrate experience in calibration and validation of imaging spectroscopy sensors, particularly those who are currently working on spaceborne imaging spectroscopy teams.

Costs

IEEE GRSS will sponsor transport (between Fort Worth, Texas and Las Vegas, Nevada) and accommodation for the duration of the course for a limited number of participants.

Logistics

The trip will start from Fort Worth, Texas, immediately following the end of IGARSS and will end at Las Vegas, Nevada. The Railroad Valley and Lunar Lake Playas are in south-central Nevada approximately 90 minutes by car from the town of Ely, Nevada and 5 hours north of Las Vegas.

Occupational health and safety

The average day time high temperatures at the site in late July are 30+°C and can exceed 40 °C. There is minimal shade at the site and no toilet facilities.

We recommend a minimum personal protection of long sleeves collared shirts, long pants, wide brim hats, covered shoes, sun glasses and high SPF sun screen. Water will be provided but consider having personal water bottles.

Itinerary

July 28 – travel from Ft. Worth to Tucson

- Field group students and trainer introductions
- Trip overview
- Collect supplies

July 29 – UofA Laboratory Tour

- Tour of UofA facility
- Tutorial of what to expect at RRV
- Drive to Kingman

July 30 – Drive to Ely, NV

- Drive from Kingman to site
- Tour test site
- Drive to Ely

July 31 – Test site data collection

- Travel to test site (90 min drive to site)
- Measurement demonstrations
- Reflectance collection practice
- Total 5 hours on test site
- Travel back to hotel (90 min drive to site)

Aug. 1– Test site data collection

- Travel to test site
- Repeated reflectance inter-comparisons with discussions
- Tour Lunar Lake
- Total 5 hours on test site
- Travel back to hotel

Aug. 2 – Test site data collection and Travel to Las Vegas

- Check out of hotel
- Travel to test site
- Reflectance inter-comparison
- Reflectance-based collection for on-orbit sensor
- Total 4 hours on test site
- Travel to Las Vegas (4 hour drive with arrival by 7 pm Las Vegas time)

Aug. 3 – Participants return home from Las Vegas

- Travel home from Las Vegas at participants discretion