16.027 RadCalNet: A prototype radiometric calibration network for Earth observing imagers
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A challenge for the scientific community in respect to the ever-increasing number of Earth observing satellite sensors is to ensure that the absolute radiometric calibration of the sensors is harmonized to the same SI-traceable scale. Assessing the post-launch radiometric calibration is the responsibility of each sensor team and typically involves simulating the top-of-atmosphere signal from in-situ and atmospheric measurements. As this is done on an individual sensor-by-sensor basis often using a single ground site, radiometric biases can exist between sensors. In an effort to minimize these biases, the Committee on Earth Observation Satellites (CEOS) Working Group on Calibration and Validation (WGCV) Infrared Visible Optical Sensors (IVOS) is currently working to develop the prototype radiometric calibration network, RadCalNet. This network will standardize methodology and processing streams for participating ground sites. The current RadCalNet working group consists of members from the National Aeronautics and Space Administration (NASA, USA), the Centre National d’Etudes Spatiales (CNES, France), the European Space Agency (ESA), the National Physical Laboratory (NPL, UK), the University of Arizona (USA), and the Academy of Opto Electronics (AOE, China). Four radiometric calibration test sites in the USA, France, China, and Namibia are being used as test cases for the collection of surface reflectance and atmospheric data, which are then converted to top-of-atmosphere (TOA) reflectance for comparison with a limited number of satellite sensors. The goal of the RadCalNet working group is to be operational by the end of 2016 and to provide via a public website site the hyper-spectral (in the range 400 nm to 1000 nm and at specific sites up to 2500 nm) TOA reflectance at 30-minute intervals for a nadir viewing sensor for the 4 sites.