

Weekly Report

SCSB/CISESS
Cooperative Research Program Division (CoRP)
STAR/NESDIS
National Oceanic and Atmospheric Administration (NOAA)

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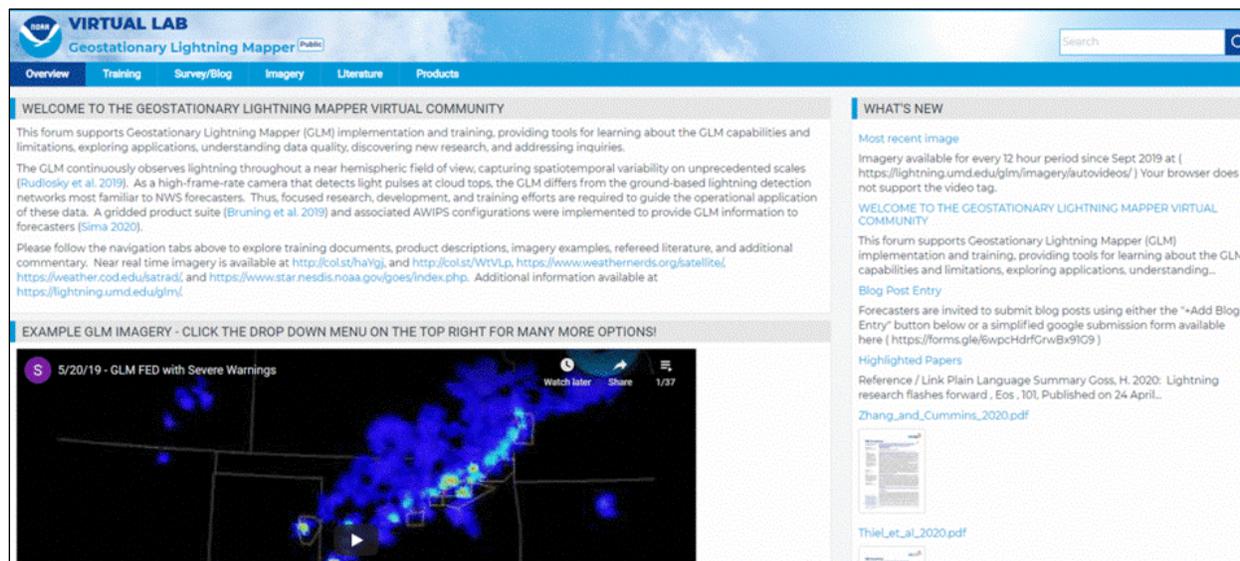
Products and Applications

GLM JTTI Transition Plan Approved: The Joint Technology Transfer Initiative (JTTI) ensures continuous development and transition of the latest scientific and technological advances into operations of the National Weather Service (NWS). Scott Rudlosky and his team obtained final sign off (i.e., completed signature page) for the Geostationary Lightning Mapper (GLM)- JTTI transition plan, obtaining broad approval for our approach to GLM to NWS integration. Those represented on the signature page illustrate the wide ranging collaboration required for this project (see image below). Scott also presented at the JTTI Semi-Annual review on 1/6.

- David Michaud, Director, Office of Central Processing, NWS
- Pam Sullivan, GOES-R System Program Director, GOES-R Series Program, NESDIS
- Greg Marlow, Director, Office of Satellite and Product Operations, NESDIS
- Hendrik L. Tolman, Line Office Transition Manager, NWS
- Maureen Madden, Line Office Transition Manager, NESDIS
- Gary Matlock, Line Office Transition Manager, OAR
- Kevin Cooley, Director, Office of Planning and Programming for Service Delivery, NWS
- Harry Cikanek, Director, Center for Satellite Applications and Research, NESDIS
- Craig McLean, Assistant Administrator for Oceanic and Atmospheric Research, OAR

(POC: S. Rudlosky, scott.rudlosky@noaa.gov, Funding: WPO (formerly OWAQ))

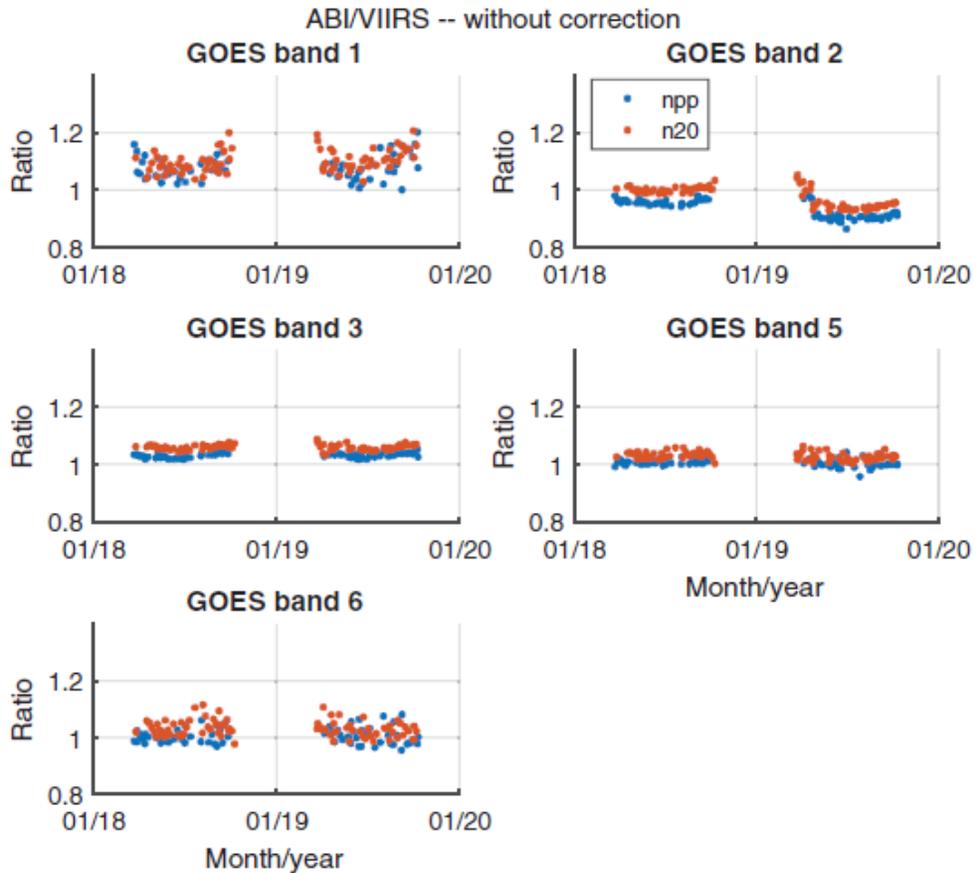
GLM Virtual Lab Update: Scott Rudlosky and his team updated the GLM Virtual Lab website as part of the rollout of full disk GLM grids (<https://vlab.ncep.noaa.gov/web/geostationary-lightning-mapper>). This update included garden variety improvements, along with a new Survey/Blog page to better facilitate forecaster feedback, and a Literature page for those looking to dig deeper.



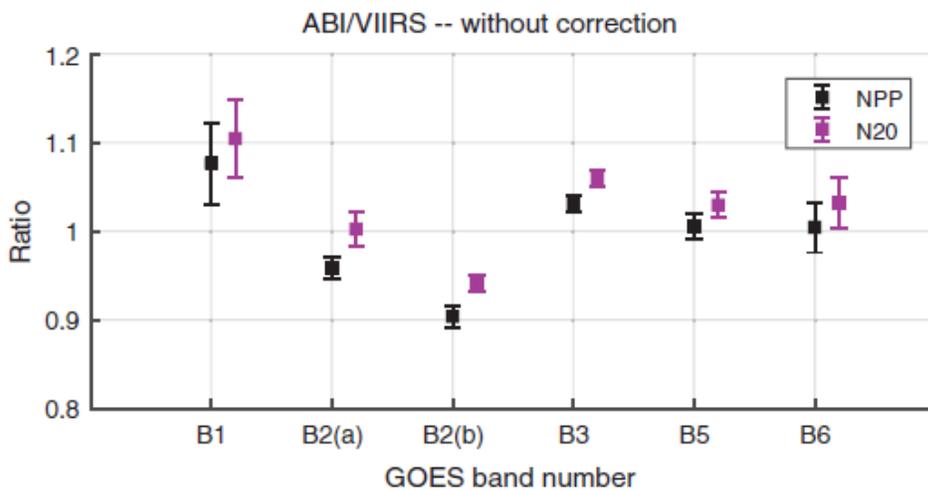
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Publications

Validation of GOES-16 ABI High Quality Visible and Near-Infrared (VNIR) Imagery: CISESS Scientists Xin Jing, Tung-Chang Liu, Xi Shao, Sirish Uprtey, Bin Zhang, and A. Surjalal Sharma have an article published in last month's issue of the *Journal of Applied Remote Sensing* about their CISESS task on calibration and validation of the Advanced Baseline Imager (ABI) on GOES-16. In this article, the radiometric performance of the GOES-16 ABI multiple Visible and Near-Infrared (VNIR) bands are evaluated over the Sonoran Desert by comparing measurements with Suomi National Polar-Orbiting Partnership (S-NPP) Visible Infrared Imaging Radiometer Suite (VIIRS) and Aqua MODIS (Moderate Resolution Imaging Spectroradiometer) equivalent bands. The main challenges for the comparison are the large viewing angle at the Sonoran Desert by ABI (56.34°), a lack of comprehensive BRDF model at such viewing geometry, and angular dependence of atmospheric scattering. To address these issues and to facilitate the comparison, they developed a radiative transfer modeling-based (RTM) method to account for atmospheric effects. The analysis showed that the radiometric biases of the five VNIR channels of GOES-16 ABI are all within 6% in comparison to the matched channels of VIIRS or MODIS after applying the RTM correction. However, some issues concerning reflectance consistency and radiometric bias were found.



(a)



(b)

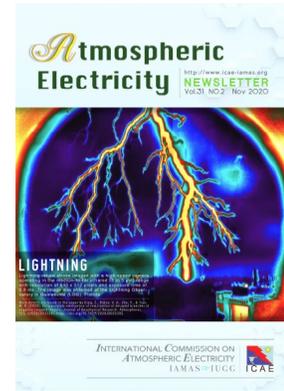
Figure: (a) Time series of reflectance ratio between GOES-16 ABI and VIIRS and MODIS for five bands. (b) Mean reflectance ratio and associated error bar after applying RTM correction method. The cloud/shadow contamination filtering and SBAF factor have been applied.

Xin, Jing, Tung-Chang Liu, Xi Shao, Sirish Uprety, Bin Zhang, and A. Surjalal Sharma , 2020: Validation of GOES-16 ABI VNIR channel radiometric performance with NPP VIIRS and AQUA MODIS over the Sonoran Desert, *J. Appl. Remote Sens.*, **14**(4), 044517, <https://doi.org/10.1117/1.JRS.14.044517>.

(POC: Xin Jing, xinjing@umd.edu, Funding: OPPA/COSMIC-2)

Media and Outreach

Atmospheric Electricity Newsletter features CISESS Scientist: The CISESS lightning team, Daile Zhang, Mason Quick, Jonathan Wynn Smith and Scott Rudlosky, has made its appearance on the current newsletter (Vol. 31, No. 2, Nov 2020) of the International Commission on Atmospheric Electricity (ICAE). The ICAE is a commission of the International Association of Meteorology and Atmospheric Sciences (IAMAS) that promotes scientific study, education and public awareness of electrical phenomena in the atmosphere.



(POC: Daile Zhang, dlzhang@umd.edu , Funding: GOES-R AWG, GOES-R PGRR, WPO, JPSS PGRR, NOAA ROSES, and HPCC)