Vitae

Mr. Mathew M. Gunshor, Principal Investigator
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Experience

Mr. Mathew M. Gunshor received the B.S.E. degree in ocean engineering from Purdue University in 1993 and the M.S. in physical oceanography from Louisiana State University in 1997. He is currently a research scientist at the University of Wisconsin-Madison's Cooperative Institute for Meteorological Satellite Studies (CIMSS), where he has worked since 1997. He is primarily the Project Manager (PM) or Principal Investigator (PI) on applied research projects that include radiative transfer, calibration/validation, and quality assurance & impacts on products. He also engages in user readiness training activities, education, and public outreach. He has been working on GOES-R ABI since 1999, starting with the first band selection studies, then algorithm development, instrument waiver analyses, user training, and continuing through post-launch testing and transition to operations. He is involved on projects for the GOES program that meet all key aspects of the CIMSS research portfolio: instrument design, algorithm development, data evaluation, training and user support, and identifying future needs.

Current Projects

- GOES-R AWG Cloud and Moisture Imagery Product, PM. (NOAA)
- GOES-R Calibration Working Group (CWG) Support, PI. (NOAA)
- GOES-R Short Courses preparing broadcasters and other users for GOES-R, PI. (NOAA)
- GOES-16 ABI Training, PI. (NOAA)
- GOES-16 Weighting Functions for Operational Users, PI. (NOAA)
- GEO-XO and Tundra Orbit Study, CO-I. (NOAA)

Past Projects

- Re-calibrate water vapor bands from international geostationary satellites for consistency with AIRS, PI. (NASA)
- GOES-R Analysis Facility for Instrument Impacts on Requirements (GRAFIIR), PM, providing ABI instrument waiver analyses. (NOAA)
- JPSS Analysis Facility for Instrument Impacts on Requirements (JAFIIR), providing VIIRS instrument waiver analyses. (NOAA)
- GOES-R Algorithm Working Group (AWG) Proxy Data Generation. (NOAA)
- GOES-R Risk Reduction RGB Products in AWIPS II, PM. (NOAA)
- GOES-R Risk Reduction Applications of concurrent super rapid sampling from GOES-14 SRSOR, radar, and lightning data, PM. (NOAA)
- GOES-POES intercalibration, PI. (NOAA)
- Reprocessing for the Global Space-based Inter-Calibration System (GSICS), PI. (NOAA)
- GOES Radiance Quality Assurance for GIMPAP, PI. (NOAA)
- GOES-R Risk Reduction Spectral Response Function study, PM. (NOAA)
- GOES-11 through GOES-15 post-launch science checkouts, PM. (NOAA)

Education

1993, B.S. Ocean Engineering. Purdue University (W. Lafayette, IN, USA)

1997, M.S. Physical Oceanography. Louisiana State University (Baton Rouge, LA, USA). Thesis: Flow and Sediment Transport on the Inner Continental Shelf of Central Louisiana.

Professional Work History

Research Intern, 1997-1998, CIMSS/SSEC/UW-Madison, Madison, WI, USA.
Senior Research Specialist, 1998-2004, CIMSS/SSEC/UW-Madison, Madison, WI, USA.
Assistant Researcher, 2004-2006, CIMSS/SSEC/UW-Madison, Madison, WI, USA.
Associate Researcher, 2006-2009, CIMSS/SSEC/UW-Madison, Madison, WI, USA.
Researcher, 2009-Present, CIMSS/SSEC/UW-Madison, Madison, WI, USA.

Committees, Memberships

SSEC Advisory Council (SAC); Global Space-based Inter-Cal System (GSICS) Working Group; American Geophysical Union (AGU); National Weather Association (NWA); American Meteorological Society (AMS).

Awards

2017: Agency Honor Awards, Group Achievement Award (NASA). GOES-R Team. October 25, 2017

2016: NOAA-CIMSS Collaboration Award, December 2016 – For their efforts in developing the capability to generate real-time GOES-R ABI proxy data for use in the GOES-R Ground segment testing.

2014: NOAA-CIMSS Collaboration Award, 21 February 2014 – For contributing to restore GOES-13 to operational service following a major anomaly.

2011: NOAA-CIMSS Collaboration Award, 13 December 2011 – For working with NOAA in revolutionizing NOAA Science Tests for geostationary satellites, significantly reducing the likelihood of a single satellite configuration.

2009: NOAA-CIMSS Collaboration Award, 15 April 2009 – For developing NOAA's Strategic Satellite Plan to balance requirements, observation capabilities, and resources.

Latest Publications (Full Publication List: http://go.wisc.edu/b7ex88)

Mathew M. Gunshor, Timothy J. Schmit, David R. Pogorzala, Scott S. Lindstrom, James P. Nelson, "GOES-R series ABI Imagery artifacts," J. Appl. Rem. Sens. 14(3) 032411 (28 August 2020) https://doi.org/10.1117/1.JRS.14.032411

Xue, Y.; Li, J.; Li, Z.; Gunshor, M.M.; Schmit, T.J. Evaluation of the Diurnal Variation of Upper Tropospheric Humidity in Reanalysis Using Homogenized Observed Radiances from International Geostationary Weather Satellites. Remote Sens. 2020, 12, 1628. https://doi.org/10.3390/rs12101628

Schmit, T.J. and Gunshor, M.M., 2019: ABI imagery from the GOES-R series. The GOES-R Series, S.J. Goodman, T.J. Schmit, J. Daniels, and R.J. Redmon, Eds., Elsevier, 23-34.

Li, Z., Li, J., Gunshor, M., Moeller, S.-C., Schmit, T. J., Yu, F., & McCarty, W. (2019). Homogenized water vapor absorption band radiances from international geostationary satellites. Geophysical Research Letters, 46, 10599– 10608. https://doi.org/10.1029/2019GL083639