Vitae

Mr. Mathew M. Gunshor, Principal Investigator
Cooperative Institute for Meteorological Satellite Studies (CIMSS), Space Science and Engineering Center (SSEC), University of Wisconsin-Madison, 1225 West Dayton St., Madison, WI 53706 Tel: (608)263-1146 Fax: (608)262-5974 E-Mail: matg@ssec.wisc.edu

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)
- GeoXO Imager Formulation Studies, CO-I. (NOAA)

Past Projects

- GOES Weighting Functions for Operational Users, PI. (NOAA)
- GOES-R Short Courses preparing broadcasters and other users for GOES-R, PI. (NOAA)
- GOES-16 ABI Training, PI. (NOAA)
- GEO-XO Tundra Orbit Study, CO-I. (NOAA)
- 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 (Researcher III), 2009(2022)-Present, CIMSS/SSEC/UW-Madison, Madison, WI, USA.

Current Committees, Memberships

Office of Vice Chancellor for Research and Graduate Education (OVCRGE) Committee on Academic Staff Issues (CASI) & Professional Development and Recognition Subcommittee ('22-Present); Global Space-based Inter-Cal System (GSICS) Working Group; American Geophysical Union (AGU); National Weather Association (NWA); American Meteorological Society (AMS); AMS Board on Enterprise Communication ('21-'24).

Awards

2023: NOAA-CIMSS Collaboration Award, February 2023 – For ensuring that NOAA's next generation geostationary satellite system will meet the most critical observing needs for our nation and partners.

2022: UW-Madison Cool Science Image Contest award winner for Hunga Tonga volcano shockwave video; with Timothy J. Schmit & James P. Nelson III.

2020: SPIE Journal of Applied Remote Sensing Best Paper Award, Photo-Optical Instrumentation and Design, Wang et al., On-orbit calibration and characterization of GOES-17 ABI IR bands under dynamic thermal condition, JARS, 2020, 14(3), 034527 (30 September 2020). DOI: 10.1117/1.JRS.14.034527

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 List: http://go.wisc.edu/b7ex88) ORCID: 0000-0003-1142-6966

Miller, N. B., Gunshor, M. M., Merrelli, A. J., L'Ecuyer, T. S., Schmit, T. J., Gerth, J. J., & Gordillo, N. J. (2022). Imaging considerations from a geostationary orbit using the short wavelength side of the mid-infrared water vapor absorption band. Earth and Space Science, 9, e2021EA002080. https://doi.org/10.1029/2021EA002080

Li, Zhenglong, T. J. Schmit, J. Li, M. M. Gunshor, and F. W. Nagle, "Understanding the Imaging Capability of Tundra Orbits Compared to Other Orbits," IEEE Trans. Geo. Rem. Sens. 1-13, January 2021. http://dx.doi.org/10.1109/TGRS.2021.3051527

Gunshor, Mathew M.; T. J. Schmit, D. R. Pogorzala, S. S. Lindstrom, J. 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