

Matthew A. Rogers

Present Position

2011-Present Research Associate III,
Education and Outreach Coordinator
Diversity, Equity, and Inclusion Lead
*Cooperative Institute for Research in the Atmosphere,
Colorado State University, Fort Collins, CO*

Education

2002-2008 PhD, Atmospheric Science, Colorado State University / Remote Sensing
1999-2002 MS, Atmospheric Science, Colorado State University / Remote Sensing
1995-1999 BA, Physics, University of Colorado at Boulder / minor, Atmospheric Science

Professional Experience

Dr. Rogers' recent work in advanced applications of geostationary observations include operational and experimental development use of the PATMOS-x retrieval code, as well as development and implementation of advective forecast codes to provide surface insolation forecasts (using updated information from the advection forecast in concert with radiative transfer models.) Dr. Rogers also maintains and upgrades code for cloud-clearing of geostationary satellite observations for AHI and ABI. Dr. Rogers also has developed optical flow techniques to generate realtime, synthetic one-minute imagery from five- and ten-minute observations from geostationary platforms using COTS hardware.

Previous work on NASA SMD missions include surface observations of cloud type for validation of the 2B-CLDCLASS product of CloudSat (including the use of trained student observations) and as the 1B O2-RICA product lead on the science team of the Orbiting Carbon Observatory mission.

As the former Education and Public Outreach lead for the NASA CloudSat mission, Dr. Rogers has experience in directing programmatic elements, budgeting and reporting, and personnel management. Dr. Rogers has over a decade of experience in leading and organizing teacher professional development workshops and fostering collaborative work, and coordinating independent research projects with NASA SMD HQ as well as with other SMD missions. As part of his work with CloudSat, Dr. Rogers developed and managed the CloudSat Education Network, an online connection with teachers and students collecting student observations of cloud and atmospheric properties in concert with satellite observations, and developed scientific and educational products using collected data.

At CIRA, Dr. Rogers has developed a tiered outreach approach at CIRA with emphasis on developing pilot projects with a goal of developing fundable education and outreach tasks for four primary audiences: K-12, Citizen Science, Professional Development and Graduate Research, and Public Affairs/Publicity. Dr. Rogers has worked to develop precipitation products and fire weather forecast tools into accessible and publicly-available resources to improve community resiliency to wildfire and flash flooding for local mountain communities. Dr. Rogers' primary E&O work at CIRA focuses on the role of subject-matter-experts in teacher professional development, including meeting elementary and middle-school weather standards and integrating artificial intelligence and machine learning tools for K-12 audiences as part of the NSF-funded AI2ES institute.

Dr. Rogers is a Member of the American Geophysical Union and the American Meteorological Society. He serves as a STEM awards counselor and merit badge counselor for the Longs Peak Council, Boy Scouts of America and is a life member of the National Eagle Scout Association.

Recent Relevant Publications and Presentations

Rogers, M.A., J. Apke, and S. Longmore, 2021: Meso-anywhere sectors from GOES-R – optical flow techniques for global 1-minute imagery. *Presentation A008-0018, 2020 Fall Meeting of the American Geophysical Union*, virtual/online.

Rogers, M.A., S.D. Miller, and K. Micke, 2020: Bringing Advanced Scientific Imagery to the Studio: Options for Scientists and Broadcasters. *48th Conference on Broadcast Meteorology*, Boston, MA

Rogers, M.A., and S. Schranz, 2017: Fire and Flood – Extending NOAA Resources to the Classroom and the Citizen Scientist for Resilient and Informed Communities. *Presentation ED53J-01, 2017 Fall Meeting of the American Geophysical Union*, New Orleans, LA

Lee, J.A., S.E. Haupt,, P.A. Jimenez, **M.A. Rogers**, S.D. Miller, and T.C. McCandless, 2017: Solar irradiance nowcasting case studies near Sacramento, *J. Applied Meteorology*, **56**(1), 85-108.

Haupt, S.E., B. Kosovic, T. Jensen, J. Lazo, J. Lee, P. Jimenz, J. Cowie, G. Wiener, T. McCandless, **M. Rogers**, S. Miller, M. Sangupta, Y. Xue, L. Hinkelman, P. Kab, J. Heiser, 2017: Building the Sun4Cast System: Improvements in Solar Power Forecasting, *Bull. Amer. Meteor. Soc.*, **99**, 121–136, <https://doi.org/10.1175/BAMS-D-16-0221.1>

Miller, S.D., F.Wang, A.B. Burgess, T.H. Painter, M. Skiles, and **M.A. Rogers**, 2015: Satellite-based estimation of temporally resolved dust radiative forcing in snow cover. *J. of Hydrometeor.*, **17**, 1999–2011, doi: 10.1175/JHM-D-15-0150.1.

Rogers, M.A., S.D. Miller, J.M. Haynes, A. Heidinger, S.E. Haupt, and M. Sengupta, 2015: Improvements in satellite-derived short-term insolation forecasting: statistical comparisons, challenges for advection-based forecasts, and new techniques. Presentation 6.4, *Annual Meeting of American Meteor. Soc.*, 6 Jan 2015, Phoenix, AZ

Rogers, M.A., 2014: Communicating Climate Science from a Data-Centered Perspective. *Geoscience Research and Outreach: Schools and Public Engagement*. Vincent C.H. Tong, Editor, Springer, pp 295-302

Rogers, M.A., 2014: Scientist engagement in NGSS-related professional development: the role of subject-matter experts in implementing the Next-Generation Science Standards. *Presentation ED43D-07, 2014 Fall Meeting of the American Geophysical Union*, San Francisco, CA