Weekly Report – August 22, 2025

Cooperative Institute for Satellite Earth System Studies (CISESS)

NOAA/NESDIS/STAR

Submitted by: Maureen Cribb
Email: mcribb@umd.edu
Phone: 301-405-9344

Date of Submission: 22 August 2025

TRAVEL AND MEETING REPORTS

CISESS Scientist Hosts NWS/NASA SPoRT Applications Integration Meteorologist

CISESS Scientist Christopher Smith, GOES-R Satellite Liaison for the National Weather Service (NWS) Weather Prediction Center (WPC) and Ocean Prediction Center (OPC), hosted Kristopher White, an NWS Applications Integration Meteorologist who also works with the NASA Short-term Prediction Research and Transition (SPoRT) center. The meeting aimed to improve understanding of SPoRT data available and potential applications for forecasting flash floods and extratropical cyclones. As a result of this collaboration, Smith acquired the necessary configurations to implement a new sea surface temperature product on operational workstations for use by OPC forecasters. He also documented key information on the third phase of the North American Land Data Assimilation System (NLDAS-3), which will provide higher-resolution soil moisture data to better identify areas at risk for excessive rainfall. Additionally, enhanced Advanced Weather Interactive Processing System visualizations were shared to support forecasters in analyzing weather phenomena, such as convective initiation.

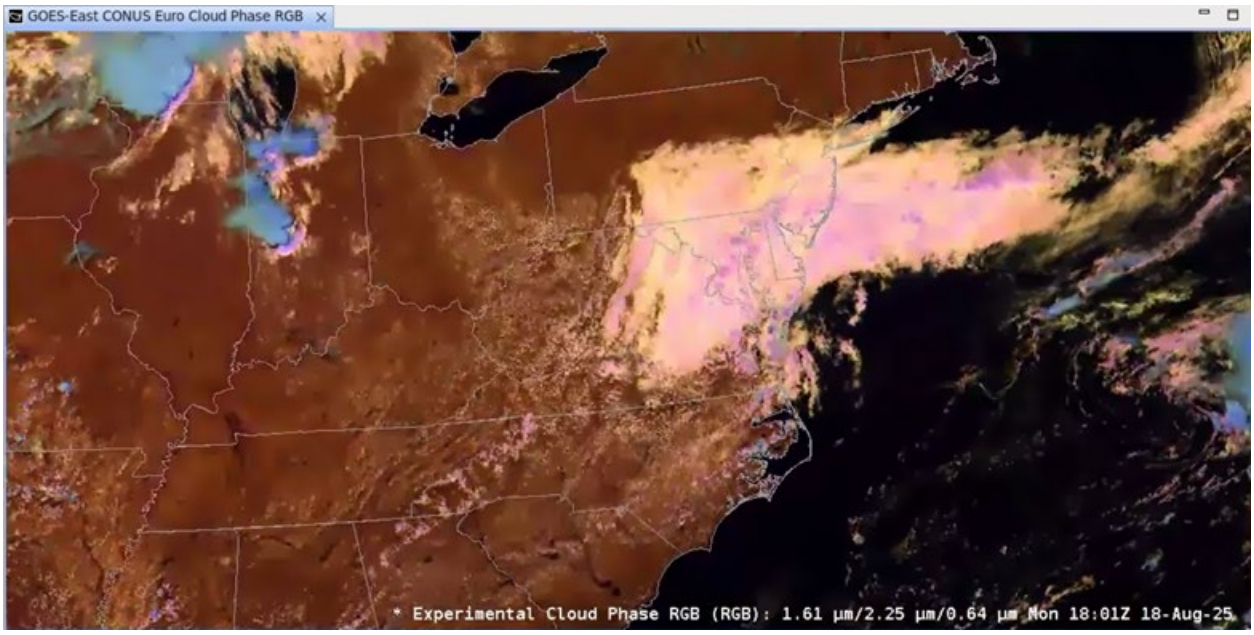

Figure. Experimental Cloud Phase RGB output at ~1800 UTC 18 August 2025. This visualization procedure, shared by Kristopher White, is now available for OPC operations.

(Christopher Smith, CISESS, csmith70@umd.edu; Funding: JPSS PGRR)

TRAINING AND EDUCATION

NOAA Lapenta Summer Internship Research: Comparing Satellite-derived Ocean Temperature Metrics with In-situ Mooring Observations

Rachel Weiss, a rising senior at Brandeis University studying Applied Mathematics and Environmental Studies/Climate Justice, Science, and Policy, spent the summer looking into how measured and modelled ocean temperatures compared, mentored by CISESS Scientists Paige Lavin and David Trossman, along with NOAA/National Oceanographic Data Center's Deirdre Byrne. By comparing ocean temperature profiles measured by in-situ moorings and those generated from the experimental Next-Generation Enterprise Ocean Heat Content (NGE OHC) algorithm in the North Atlantic ocean, she found that the algorithm generally reproduces observed temperature variability well near the surface, but its skill decreases at lower depths, where a consistent cold bias was found. These results will drive further improvements to the NGE OHC algorithm, which aims to provide near-real-time information about ocean conditions for hurricane intensity forecasting.

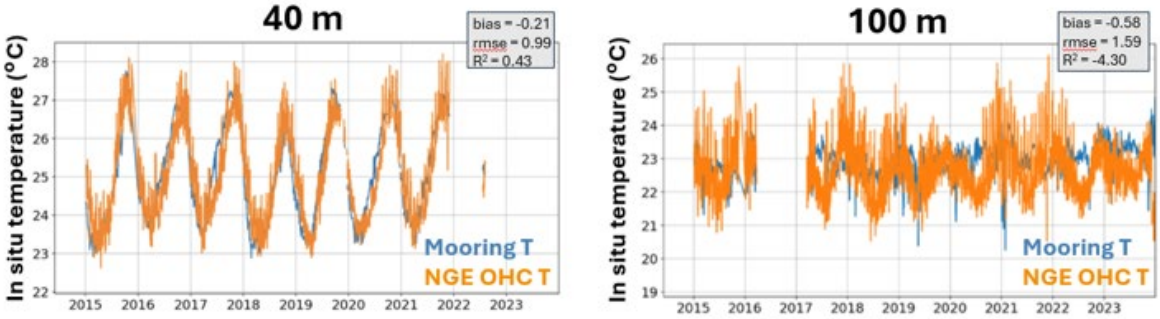

Figure. (Top) Picture of Rachel doing her final presentation. Photo credit: Heather Roman-Stork/GST, Inc. (Bottom) Comparison of ocean temperature (T) observed by a mooring (in blue) and T estimated by the Next-Generation Enterprise Ocean Heat Content (NGE OHC) algorithm (in orange) over time at 20°N, 38°W for two depths: (a) 40 meters and (b) 100 meters.

(Paige Lavin, CISESS, paige.lavin@noaa.gov, Funding: Jason & ORS; David Trossman, CISESS, trossman@umd.edu, Funding: AOML, Jason, & ORS)

SOCIAL MEDIA AND BLOG POSTS

Related UMD Work: AI Collection of Social Media Posts on Local Wildfires to Aid Emergency Response

This is not a CISESS project but may be of interest to NOAA scientists. University of Maryland postdoctoral researcher Zihui "Helen" Ma in the Department of Civil and Environmental Engineering recently developed a method relying on artificial intelligence to amass and analyze wildfire-related X (Twitter) posts in real time, offering valuable insights for decision-makers to understand evolving situations.

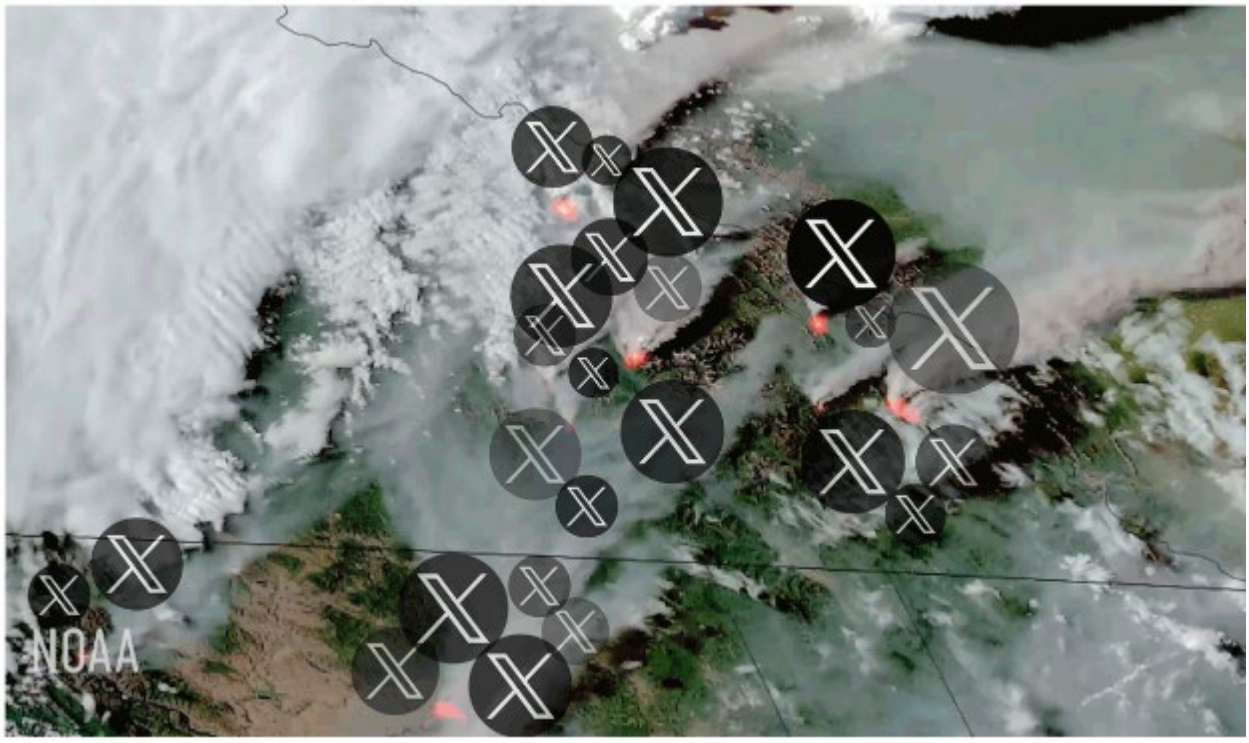

***Figure**: Ma was able to identify 151,682 posts that mentioned wildfires in California, Oregon, and Texas in one month in 2020. A sampling corresponding to the timing of a NOAA satellite map of the fires, with the post locations. The size of the circles indicate the number of posts.*

For more information, see https://today.umd.edu/to-fight-wildfires-look-to-social-mediaumd-researcher-says. (Summarized by Debra Baker, drb@umd.edu, Task I).

PUBLICATIONS

CISESS Scientists Contribute to the Recently Released State of the Climate Report
Citation: Blunden, J. and J. Reagan, Eds., 2025: State of the Climate in 2024. *Bull. Amer. Meteor. Soc.*, **106**(8), Si–S513, https://doi.org/10.1175/2025BAMSStateoftheClimate.1.

Summary: The annual State of the Climate Special Supplement published by the Bulletin of the American Meteorological Society is based on contributions from scientists from around the world. It provides a detailed update on global climate indicators, notable weather events, and other data collected by environmental monitoring stations and instruments located on land, water, ice, and in space. Several CISESS Scientists have contributed to the latest State of the Climate report, namely (in bold):

- Bock, Olivier, Carl. A. Mears, Shu-peng Ho, and **Xi Shao**, 2025: Total column water vapor [in "State of the Climate in 2024"]. *Bull. Amer. Meteor. Soc*., **106**(8), S61–S63, https://doi.org/10.1175/BAMS-D-25-0102.1.
- Cooper, Owen R., Elyse Pennington, John Worden, Kevin Bowman, Shobha Kondragunta, Zigang Wei, and **Kai Yang**, 2025: Sidebar 2.2 - Operational satellite instruments monitor a range of indirect short-lived climate forcers [in "State of the Climate in 2024"]. *Bull. Amer. Meteor. Soc*., **106**(8), S108–S110, https://doi.org/10.1175/BAMS-D-25-0102.1.
- **Jersild, Annika**, Rik Wanninkhof, Joaquin A. Triñanes, Peter Landschützer, Richard A. Feely, and Brendan R. Carter, 2025: Global ocean carbon cycle [in "State of the Climate in 2024"]. *Bull. Amer. Meteor. Soc*., **106**(8), S215–S218, https://doi.org/10.1175/BAMS-D-25-0074.1.
- Johnson, Gregory C., John M. Lyman, Lijing Cheng, Donata Giglio, Rachel E. Killick, Ricardo Locarnini, **Alexey Mishonov**, Mitsuho Oe, James Reagan and Thea Sukianto, 2025: Ocean temperature and heat content anomalies [in "State of the Climate in 2024"]. *Bull. Amer. Meteor. Soc*., **106**(8), S186–S189, https://doi.org/10.1175/BAMS-D-25-0074.1.
- Meier, Walter N.; Alek Petty, Stefan Hendricks, Donald Perovich, **Sinead Farrell**, Melinda Webster, Dmitry Divine, Sebastian Gerland, Lars Kaleschke, Robert Ricker, Xiangshan Tian-Kunze, and Angela Bliss, 2025: Sea ice [in "State of the Climate in 2024"]. *Bull. Amer. Meteor. Soc*., **106**(8), S323–S325, https://doi.org/10.1175/BAMS-D-25-0104.1.
- Weber, Mark, Wolfgang Steinbrecht, Carlo Arosio, Ronald van der A, Stacey M. Frith, John Anderson, Laura M. Ciasto, Melanie Coldewey-Egbers, Sean Davis, Doug Degenstein, Vitali E. Fioletov, Lucien Froidevaux, Jos de Laat, Diego Loyola, Alexi Rozanov, Viktoria Sofieva, Kleareti Tourpali, Ray Wang, Taran Warnock, and **Jeanette D. Wild**, 2025: Stratospheric ozone [in "State of the Climate in 2024"]. *Bull. Amer. Meteor. Soc*., **106**(8), S102–S103, https://doi.org/10.1175/BAMS-D-25-0102.1.

- Ziese, Markus; Russell S. Vose, Robert Adler, **Guojun Gu**, and Xungang Yin, 2025: Precipitation [in "State of the Climate in 2024"]. *Bull. Amer. Meteor. Soc*., **106**(8), S64–S65, https://doi.org/10.1175/BAMS-D-25-0102.1.

(Xi Shao, CISESS, xshao@umd.edu, Funding: COSMIC2, JSTAR, & STAR; Kai Yang, CISESS, kaiyang@umd.edu, Funding: GEO-XO, LEO, & METOP-SG; Annika Jersild, CISESS, ajersild@umd.edu, Funding: GOMO; Alexey Mishonov, CISESS, alexey.mishonov@noaa.gov, Funding: NCEI; Sinead Farrell, CISESS, sinead.farrell@noaa.gov, Funding: Jason & ORS; Jeanette D. Wild, CISESS, jdwild@umd.edu, Funding: JSTAR; Guojun Gu, CISESS, ggu@umd.edu, Funding: COSMIC2)

(Maureen Cribb, CISESS, mcribb@umd.edu, Funding: CISESS Task I)