Weekly Report – November 21, 2025

Cooperative Institute for Satellite Earth System Studies (CISESS)

NOAA/NESDIS/STAR

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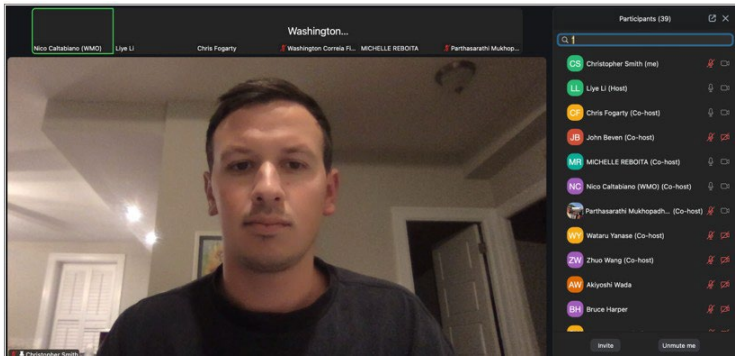
TRAVEL AND MEETING REPORTS

CISESS Scientist Attends Virtual World Meteorological Organization Workshop on Cyclone Types and Phase Transitions

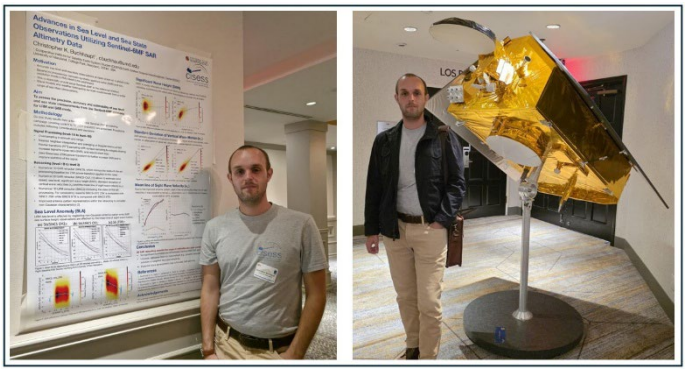
CISESS Scientist Christopher Smith, GOES-R Satellite Liaison for the National Weather Service (NWS) Weather Prediction Center (WPC) and Ocean Prediction Center (OPC), attended the "Virtual World Meteorological Organization Workshop on Cyclone Types and Phase Transitions" on 11–12 November 2025. The workshop aimed to develop basin-specific criteria for defining cyclone phases (extratropical, subtropical, tropical, etc.), the relevant transition pathways, and tools to diagnose such transitions. Smith participated in the breakout discussions and offered to provide an archive of satellite imagery for tropical transition cases following the meeting. Smith will continue to work with OPC to diagnose the tropical transition of Atlantic cyclones and formulate draft criteria beyond traditional cyclone phase space diagrams for these transitions.



(Christopher Smith, CISESS, csmith70@umd.edu; Funding: GOES-R PGRR)

CISESS Presence at the Ocean Surface Topography Science Team Meeting

CISESS Scientist Christopher Buchhaupt attended the Ocean Surface Topography Science Team (OSTST) Meeting held in conjunction with the Sentinel-6B launch from 15-16 November 2025 at the Marriott Hotel in Buellton, California. At the meeting, Buchhaupt presented a poster titled "Advances in Sea Level and Sea State Observations Utilizing Sentinel-6MF SAR Altimetry Data", showcasing the current state of his research. A key highlight of his results was the demonstration that novel techniques, particularly a 2D-retracking scheme



combined with improved antenna characteristics, significantly enhance the consistency between synthetic aperture radar altimetry and conventional altimetry processing methods. The OSTST Meeting included the Sentinel-6 Next Generation Orbit Workshop, where various orbit options for a future iteration of the mission were evaluated and discussed. Buchhaupt also attended the Sentinel-6B launch event at the Lompoc Airport gates.

(Christopher Buchhaupt, CISESS, cbuchhau@umd.edu; Funding: Jason)

TRAINING AND EDUCATION

CISESS Researcher Gives Guest Lecture for University of North Dakota Meteorology Class
On 29 October 2025, Joseph Patton, a faculty specialist with CISESS/ESSIC/UMD, presented a virtual guest lecture on Geostationary Lightning Mapper (GLM) instruments and operational applications to a group of undergraduate and graduate meteorology students at the University of North Dakota. The course is taught by former CISESS Scientist Daile Zhang. Zhang and Patton collaborated on interactive use cases and an applied homework assignment for the students. Topics covered included how GLM instruments observe lightning flashes, what gridded products are created using GLM observations, and how to apply those gridded products to inform a better conceptual understanding of how thunderstorms develop and what their associated severe hazards may be. Case studies explored with students looked into tropical cyclones, supercell-type thunderstorms, and quasi-linear convective systems. The homework assignment tasked students with creating GLM imagery from the June 2025 EF-5 Enderlin, ND tornado and writing about how GLM observations related to the observed severe weather. This collaboration with the University of North Dakota strengthens our academic community and enhances students' ability to learn more about and work with cutting-edge instruments and meteorological data.

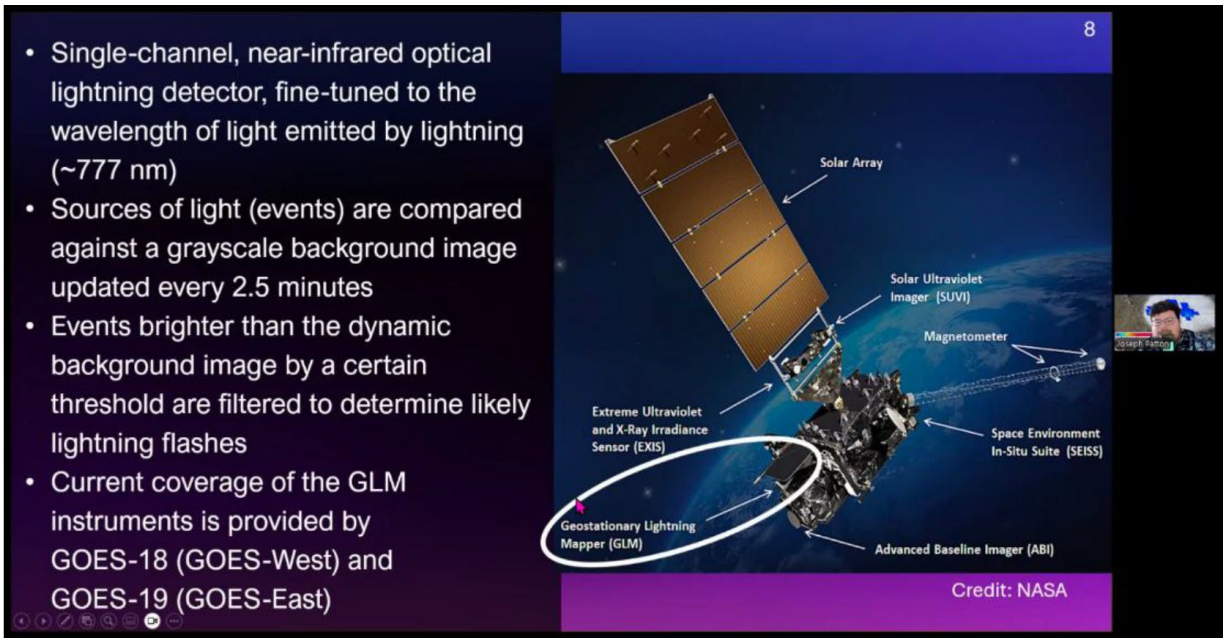


Figure: Screenshot of Patton explaining a slide from his lecture.

(Joseph Patton, CISESS, jpatton4@umd.edu; Funding: GEO, IIJA & STAR)

SOCIAL MEDIA AND BLOG POSTS

SoCal Drenched

The weekend of 15 November 2025 saw an atmospheric river meander over southern California, further south than usual for this early in the season, ushering in deadly flash flooding and other dangers exacerbated by burn scars left behind by wildfires, reports CISESS Scientist Christopher Smith, GOES-R Satellite Liaison for the National Weather Service (NWS) Weather Prediction Center (WPC) and Ocean Prediction Center (OPC), in his latest blog post. The Los Angeles metropolitan area recorded three to five inches of rain, with more rain (> 10 inches) recorded in Santa Barbara County.

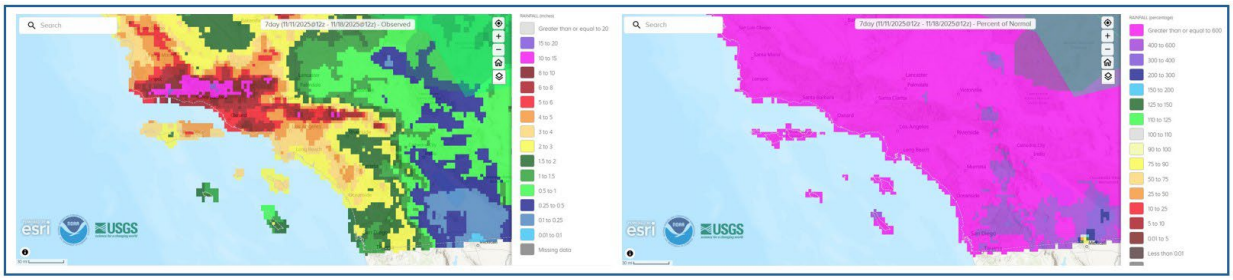


Figure: (Left panel) NWS National Water Prediction Service (NWPS) Precipitation Estimation over seven days, ending at 1200 UTC 18 November 2025. Magenta and purple colors show areas with greater than 10 inches of rain predicted. (Right panel) NWS NWPS Precipitation

Percent of Normal over seven days, ending at 1200 UTC 18 November 2025. The magenta color represents more than 600 percent of the normal.

(Christopher Smith, CISESS, csmith70@umd.edu; Funding: GOES-R PGRR)

OTHER

Seed Grant Mid-Term Report: *Wildfire Smoke Early Warning: Using Earth Observations to Improve Health Interventions*

CISESS Scientist Evan Ellicott is developing a wildfire smoke early-warning system using Earth observations, modelled data, and ground measurements to enable the timely deployment of clinical support resources to high-risk areas in Maryland. During the first few months of 2025, the needs of end-users, the healthcare community, and more specifically the University of Maryland Medical System and Fresenius dialysis clinics were discussed. Topics included the framework of the system, access, mobility, visual display, timeliness, and alert dissemination. An infrastructure to ingest and display current wildfire and smoke activity was consequently designed. Continuing work includes building the system and code to disseminate notifications to key personnel at any of these hospitals and/or clinics when a High-Resolution Rapid Refresh (HRRR) smoke forecast overlaps their location and the forecasted density exceeds a limit set forth by the healthcare providers that were engaged. Discussions on what communication methods will work best are also ongoing.

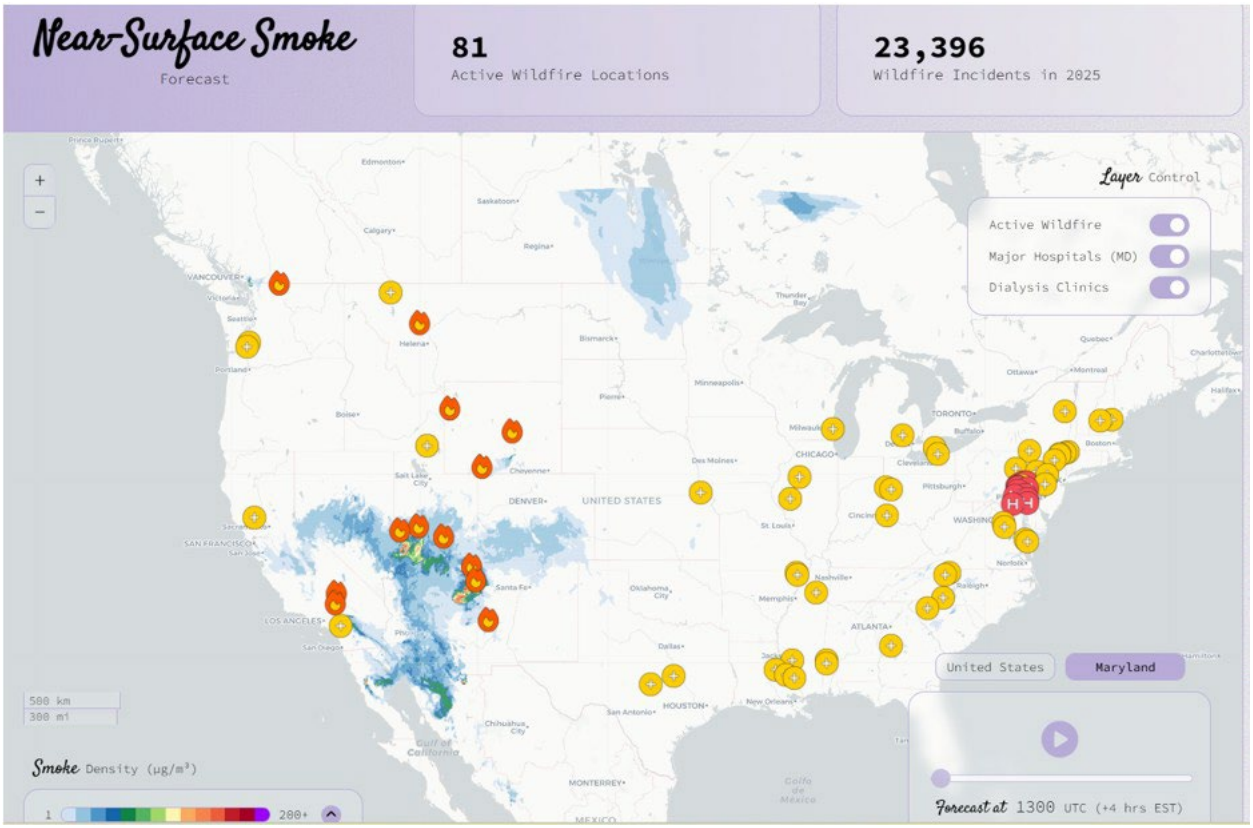


Figure: Screenshot of the current dashboard showing hospital locations in Maryland, Fresenius dialysis clinics across the contiguous U.S., current wildfire incidents, and HRRR surface-level smoke forecast.

(Evan Ellicott, CISESS, ellicott@umd.edu; Funding: Seed Grant)

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