

**Weekly Report – October 10, 2025**  
Cooperative Institute for Satellite Earth System Studies (CISESS)  
NOAA/NESDIS/STAR

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## TRAVEL AND MEETING REPORTS

### Reconnected!

On 2 October 2025, CISESS Scientist Guangyang Fang visited the Lightning Mapping Array (LMA) station at the University of Maryland (UMD) Unmanned Aircraft Systems (UAS) Test Site in California, MD, part of the larger Wallops Flight Facility LMA, to troubleshoot persistent disconnection issues. This site had been offline since 25 June 2025. After inspecting the hardware and software of the LMA system, the issue was identified as network related. The modem firmware was updated, and the SIM card was reset, successfully restoring connectivity. The station is now back online. In addition, grass and bushes near the solar-powered LMA were trimmed to ensure the solar panels remain unobstructed.



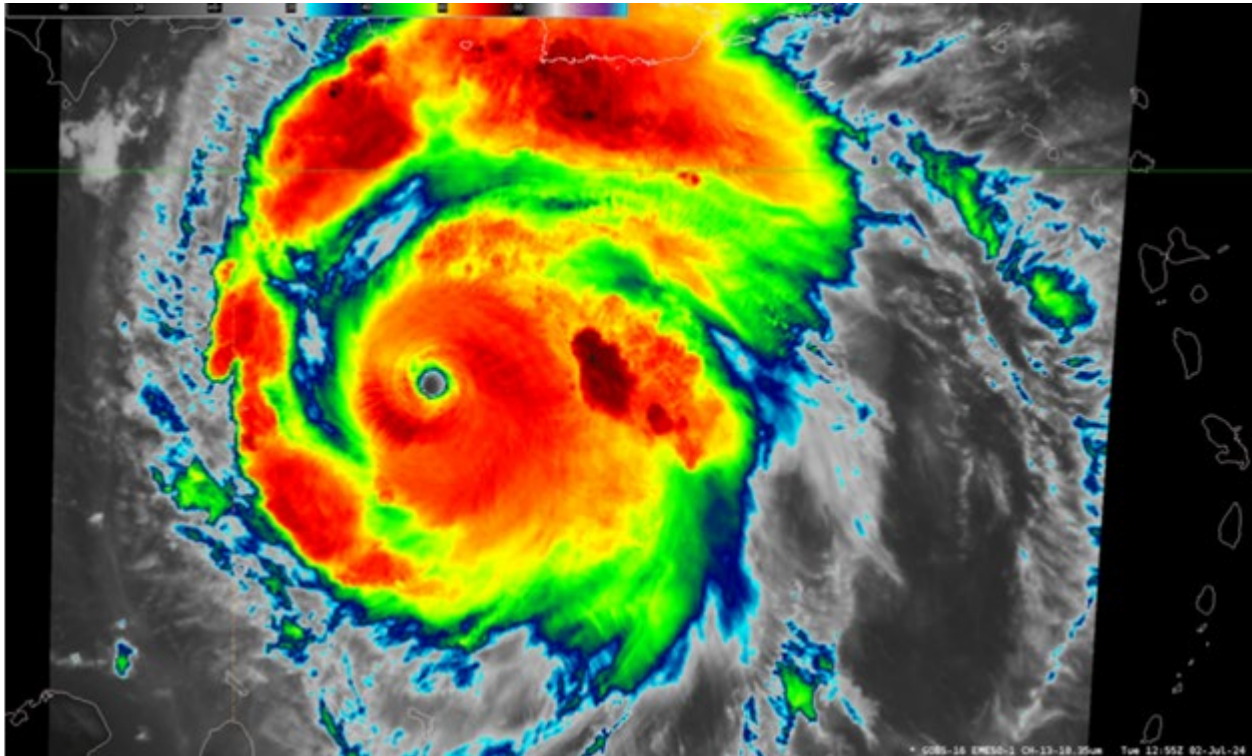
*Figure: The solar-powered LMA at the UMD UAS site.*

(Guangyang Fang, [gfang@umd.edu](mailto:gfang@umd.edu), CISESS, Funding: GEO & STAR)

## TRAINING AND EDUCATION

### CISESS Scientist Presents at the 2025 NOAA Satellites Hackathon

CISESS Scientist Christopher Smith, GOES-R Satellite Liaison for the National Weather Service Weather Prediction Center and Ocean Prediction Center, presented at the NOAA Satellites Hackathon (NOAASatHack) on October 6. Smith provided a training session on “Utilizing ABI to Detect Various Environmental Hazards”. The training covered the use of the Geostationary Operational Environmental Satellite (GOES) Advanced Baseline Imager (ABI), along with other GOES and Low Earth Orbit instruments, for detecting a range of hazards including tropical storms, lightning, flooding, droughts, wildfires, solar coronal mass ejections, solar flares, blowing dust, and harmful algal blooms. NOAASatHack is a competition for undergraduate and graduate students to develop a public awareness campaign to communicate Earth Science applications made available by NOAA satellite data. Christopher Smith will also serve as a Subject Matter Expert to aid student projects during the competition week of October 12th before the event concludes on October 29.



*Figure: Example of an environmental hazard detected by the ABI. Here, Hurricane Beryl is captured by GOES-East Band 13 Infrared imagery at 1255 UTC 02 July 2024.*

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

## **PUBLICATIONS**

### **Extreme Marine Heat Waves Ride on a Crest of Rising Sea Surface Temperatures**

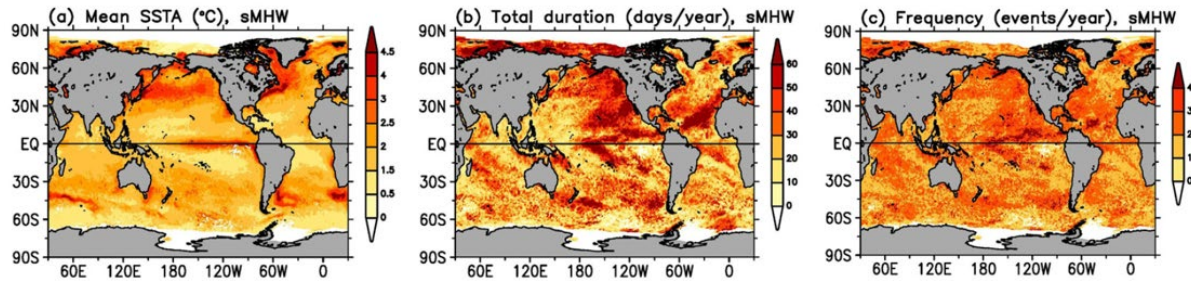
**Citation:** Huang, Boyin, Xungang Yin, **James A. Carton**, **Ligang Chen**, Garrett Graham, Keneshia Hibbert, Seonju Lee, Thomas Smith, and Huai-Min Zhang, 2025: Extreme marine heatwaves in the global oceans during the past decade. *Bull. Amer. Meteor. Soc.*, **106**, E2017–E2028, <https://doi.org/10.1175/BAMS-D-24-0337.1>.

**Summary:** Marine heat waves (MHWs) are periods of extreme surface temperature that can disrupt marine biology, leading to harmful algal blooms and intensification of storm systems, among other problems. A major work recently published in the *Bulletin of the American Meteorological Society*, led by Drs. Boyin Huang and Xungang Yin working with CISESS Scientists James Carton and Ligang Chen, and colleagues, examines the distribution and intensity of these MHWs during 2012–2024. Among their findings, they show that the most important cause of damaging tropical MHWs in recent years has been the fact that they are occurring on top of the stunning annual increase in sea surface temperature (SST). Such tropical MHWs have been

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implicated in outbreaks of coral bleaching throughout the west Pacific and Caribbean. The authors warn that there is an urgent need to mitigate ocean warming and adapt to the growing impacts of MHWs.



*Figure: Annual (2012–24) metrics of super MHWs (sMHWs) with record-breaking SSTs > SST<sub>r</sub> (representing the record-breaking or historic maximum SST at a given calendar day in the previous years): (a) mean SSTA (SSTA; °C), (b) total duration (days yr<sup>-1</sup>), and (c) frequency (events per year).*

*(James A. Carton, CISESS, [carton@umd.edu](mailto:carton@umd.edu), Funding: STAR; Ligang Chen, CISESS, [lchen2@umd.edu](mailto:lchen2@umd.edu), Funding: Jason)*

*(Maureen Cribb, CISESS, [mcribb@umd.edu](mailto:mcribb@umd.edu), Funding: CISESS Task I)*