Weekly Report – March 28, 2025

Cooperative Institute for Satellite Earth System Studies (CISESS)

NOAA/NESDIS/STAR

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HIGHLIGHTS FOR NESDIS LEADERSHIP

People

Russell Dickerson to Receive University of Maryland's 2025 Board of Visitors Distinguished Faculty Award

Every year, the College of Computer, Mathematical, and Natural Sciences (CMNS) of the University of Maryland hands out awards to faculty, staff, and students, honoring their academic achievements, teaching prowess, or dedication to the well-being and operation of the College. On 3 April, CMNS will bestow the 2025 Board of Visitors Distinguished Faculty Award to CISESS Scientist Russell Dickerson. This award acknowledges the valuable and innovative contribution of the nominee's research on the national and international scale. Dickerson was nominated based on his pioneering work on ozone, particulate matter, and greenhouse gas emissions, particularly in urban and industrial areas. His research has informed U.S. and international policies, including EPA regulations on ozone and particulate matter. Also highlighted was his contribution to understanding methane and carbon dioxide fluxes, including leaks from natural gas infrastructure. On the international scene, Dickerson has conducted ground-breaking air quality studies in China, India, and other rapidly industrializing regions. Kudos to Dickerson on receiving this prestigious university award and on his continued work on investigating air quality issues critical to human and environmental health.

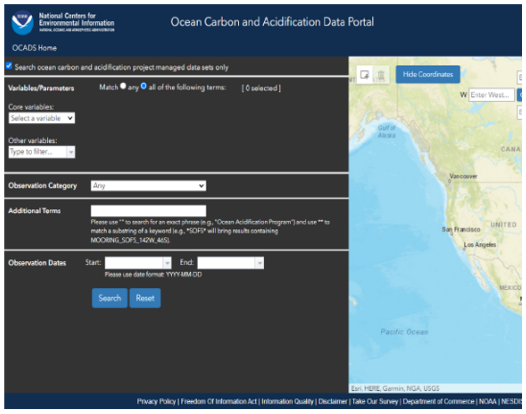
(Russell Dickerson, CISESS, rrd@umd.edu@noaa.gov; Funding: ARL)

TRAVEL AND MEETING REPORTS

Jiang Presents at the NOAA Ocean Acidification Working Group Meeting

CISESS Scientist Liqing Jiang presented a new marine Carbon Dioxide Removal (mCDR) capable metadata template at the NOAA Ocean Acidification Working Group Meeting that took place on 20 March 2025. This enhanced metadata template can support data management for ocean acidification, ocean carbon, as well as mCDR research. Additionally, new controlled vocabularies are presented. These new developments will help ensure data will be documented with consistent metadata templates and controlled vocabularies, making them findable and

accessible. It is also a major step forward for the envisioned global network of Data Assembly Centers.



Updated metadata template: main sections

1	Dataset Identifiers	18	Vertical coverage
2	Data submitter	19	Sea names
3	Investigators	20	Platform info
4	Author list for citation purposes	21	**OAE field trials**
5	Dataset title	22	**Physiological response studies**
6	Dataset description	23	**Model outputs**
7	Data license	24	Funding info
8	Fair data user request	25	Publications decribing this dataset
9	**Data product type**	26	Other datasets cross linked
10	**Natural, manipulated, or model**	27	Supplemental information
11	**mCDR studies or not**	28	**Observed properties**
12	**mCDR pathways**	29	Dissolved inorganic carbon
13	**OAE treatment types**	30	Total alkalinity
14	QC flag scheme	31	pH
15	Missing value indicators	32	xCO2/pCO2/fCO2 (autonomous)
16	Temporal coverage	33	xCO2/pCO2/fCO2 (discrete)
17	Spatial coverage	34	Non-measured variables

Figure. (Left) Ocean Carbon and Acidification data portal home page; (right) updates to the metadata template.

(Liqing Jiang, CISESS, liqing.jiang@noaa.gov; Funding: NCEI)

TRAINING AND EDUCATION

Lightning Case Study of the May 2024 Western Texas Tornadic Supercell

On 6 March 2025, CISESS Scientist Joseph Patton gave a presentation on satellite observations from an impactful tornadic supercell in May 2024 at the weekly Satellite Book Club online seminar hosted by the National Weather Service (NWS) Office of Observations. The presentation focused on Geostationary Lightning Mapper (GLM) and Advanced Baseline Imager observations from the GOES-R series satellites, which provide dual coverage over the central United States. Lightning flash characteristics, including their frequency, spatial coverage, area, and brightness were explored with forecasters and researchers within the context of significant severe weather events, including large hailstones and damaging tornadoes produced by a supercell thunderstorm near Midland, Texas. Tracked values of these lightning characteristics were analyzed, showing increasing flash rates and flash brightness in the minutes preceding the occurrence of severe weather. These trends reinforce actionable information conveyed to forecasters through the GLMs in operational decision-making environments, enhancing their ability to produce timely and accurate warnings. A discussion section, hosted by a Lead Forecaster at the NWS Weather Forecast Office in Midland, Texas who was the warning issuer during this event, facilitated more in-depth conversations involving GLM observations and how they optimally serve as a valuable tool in the toolbox for both operational and research applications. The recording of the online seminar is available here: https://youtu.be/cGbpwg-zbqs?si=NALO9CpzXhaK4SAI

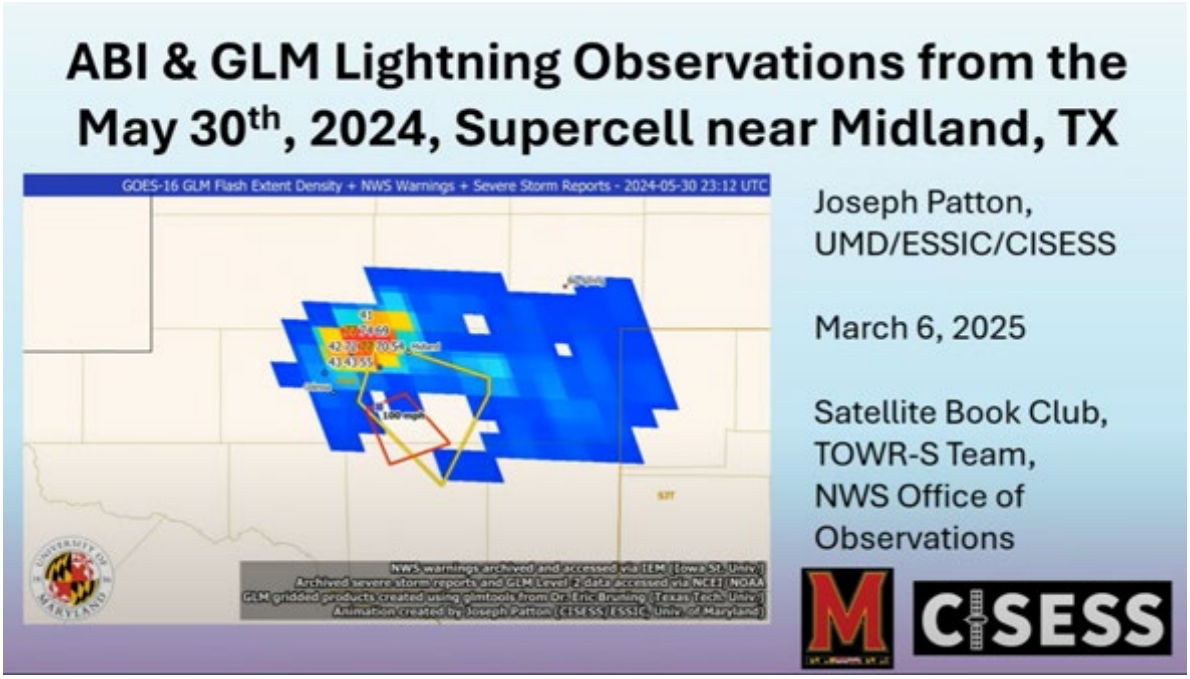


Figure. Slide from a presentation given by Joseph Patton at the NWS Satellite Book Club on 6 March 2025, showing increased lightning flashes from the supercell storm in western Texas.

(Joseph Patton, CISESS, jpatton4@umd.edu, Funding: GOES-R AWG, GOES-R PGRR, GEO-XO)

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