

Weekly Report – October 02, 2026
Cooperative Institute for Satellite Earth System Studies (CISESS)
NOAA/NESDIS/STAR

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

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TRAVEL AND MEETING REPORTS

Lightning Sensor Site Visit to the Applied Physics Laboratory

Recently, CISESS Scientist Joseph Patton visited the Johns Hopkins University Applied Physics Laboratory (JHU APL) to test and repair one of his team's deployed lightning sensors. The lightning research group at CISESS maintains a local high-resolution lightning detection network called the Mid-Atlantic Lightning Mapping Array (MALMA). Each MALMA sensor uses VHF and GPS antennae to detect and triangulate bursts of radiation from lightning strikes and map out three-dimensional structures of lightning bolts. This site visit was intended to investigate

ongoing issues with the sensor, and as a result the sensor itself has been removed from the site for repairs at CISESS.

Additionally, a better, more suitable location for this sensor at JHU APL was discussed, with plans to relocate this part of the MALMA network operated by Patton and others at CISESS to an area where the sensor may be able to detect lightning more efficiently.



Figure: The VHF antenna (center) for this sensor at JHU APL. The proposed new sensor relocation site is on the roof of the building in the background. Photo credit: Joseph Patton

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

CISESS at EUMETSAT Meteorological Satellite Conference 2026

The European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) held its annual Meteorological Satellite Conference in Darmstadt, Germany during the week of 21 September 2026. The main theme of the conference this year was "40th Anniversary of

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EUMETSAT – Advancing Earth System Satellites for Europe and Beyond”. CISESS Scientists (in bold below) took part in many oral presentations, including the following:



- Niels Bormann, **Zaizhong Ma**, David Duncan, Katie Lean, Emma Turner, Marijana Crepulja, Mohamed Dahoui, and Satya Kalluri: *Evaluation of Microwave Sounding Observations from CubeSat Constellations: Tomorrow.io and NASA TROPICS Missions*
- **Andrew Harris**: *Maximizing value of Sentinel-3 SLSTR dual-view data when combining JPSS observations into NOAA's high-resolution global sea surface temperature analysis*
- **Veljko Petkovic**, **Malarvizhi Arulraj**, Huan Meng, Ralph Ferraro, and Satya Kalluri: *Pre-launch algorithm development for MWI precipitation, TPW, and CLW retrievals*
- **Mitch Goldberg**, Dingdong Li, Said Mejia, Andrew Heidinger, Lihang Zhou, and Satya Kalluri: *Multi-Layer perceptron neural network retrievals for next-generation microwave and infrared sounders: a comprehensive all-sky performance assessment*
- Flavio Iturbide-Sanchez, Peter Beierle, Eric Maddy, Kun Zhang, Wayne McCullough, **Sherry Li**, Denis Tremblay, and Satya Kalluri: *Evaluation of MTG-IRS hyperspectral infrared observations using the NOAA CrIS and AI-derived geophysical information*

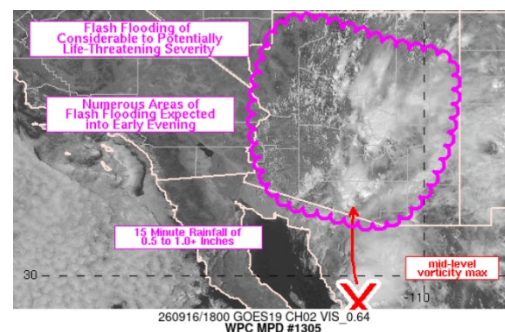
(**Malarvizhi Arulraj**, CISESS, marulraj@umd.edu, Funding: JSTAR; **Mitch Goldberg**, CISESS, mgoldberg1@ccny.cuny.edu, Funding: IRA & JPSS PGRR; **Andrew Harris**, CISESS, andy.harris@noaa.gov, Funding: DACS, JSTAR GCOM & ORS; **Sherry Li**, CISESS, sli2436@umd.edu, Funding: JSTAR; **Zaizhong Ma**, CISESS, zaizhong.ma@noaa.gov, Funding: LEO; **Veljko Petkovic**, CISESS, veljko@umd.edu, Funding: JSTAR, JSTAR GCOM & LEO)

SOCIAL MEDIA AND BLOG POSTS

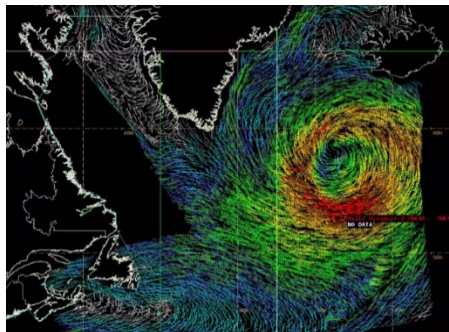
Storms on Two Fronts

[Flooding in the American Southwest](#) and the [North Atlantic roiling with storms](#) has kept CISESS Scientist Christopher Smith, the GOES-R Satellite Liaison to the National Weather Service's (NWS) Weather Prediction Center (WPC) and Ocean and Tsunami Center (OTC), busily blogging as September slipped into October.

In mid-September, south-central Arizona was hit with a round of heavy rainfall, leading to flash flooding in Phoenix. Toward the end of September, New Mexico bore the brunt of another round of heavy rainfall, where moisture transport connected to Hurricane Polo at upper levels of the atmosphere was identified. Polo's remnants are slated to bring more flooding and possible tornado activity to the American Midwest in the coming days.



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In the last week of September, a hurricane-force low-pressure system formed in the North Atlantic, featuring ocean surface winds on the order of 63+ knots (> 115 mph, red color in the figure) and significant wave heights of 46 feet. Another hurricane-force low is predicted to develop west of Ireland by 1 October 2026.

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

PUBLICATIONS

Measuring a Methane Release from Space

Citation: He, Tai-Long, Daniel J. Varon, Shobha Kondragunta, Xinrong Ren, Mark D. Cohen, Brian J. Carroll, Nathan Malarich, Jeff Peischl, Tobias A. de Jong, Jelmar Gerritsen, Johannes D. Maasakkers, Daniel H. Cusworth, Riley M. Duren, Steven S. Brown, Carsten Warneke, Colm Sweeney, **Phillip Stratton**, Alan Brewer, Sunil Baidar, and Ezra J. T. Levin, 2026: Coordinated satellite, aircraft, and ground-based observations of a large transient methane release. *Proc. Natl. Acad. Sci. U.S.A.*, **123**(36), e2603595123, <https://doi.org/10.1073/pnas.2603595123>.

Summary: Much of the total methane (CH₄) emissions into the atmosphere occur during pipeline blowdowns, which are routine operations on natural gas transmission and distribution systems. Satellite observations help in monitoring these events and quantitatively assessing how much CH₄ is emitted. However, there remain large uncertainties in satellite detection thresholds and quantification accuracy. Blowouts provide a unique opportunity to examine the accuracy of satellite-based observations of large, short-lived CH₄ point sources, the subject of a paper by CISESS Scientist Phillip Stratton and colleagues published in *Proceedings of the National Academy of Sciences*. They present results from a Very Large Methane Release (VLMR) experiment carried out on 8 October 2024 in New Mexico, where the resulting emissions from two release points along a pipeline were quantified using coordinated observations from three GOES Advanced Baseline Imagers (ABIs), six low-Earth-orbit instruments, a Mooney aircraft, and NOAA's Pick-Up Based Mobile Atmospheric Sounder (PUMAS) platform. Emissions were also modeled using operator information about the total gas release and release duration, yielding bottom-up estimates of CH₄ emissions. The authors report that the GOES ABIs captured how the emission plumes evolved over time, detecting total methane emissions of 370 ± 30 tonnes from the two release points. Overall, estimates of total release mass are consistent across satellite platforms but ~25% lower than the operator's reported value based on pipeline pressure and volume. They note ways in which to improve such VLMR experiments, such as having flight patterns with larger spiral radii to sample a more fully mixed plume.

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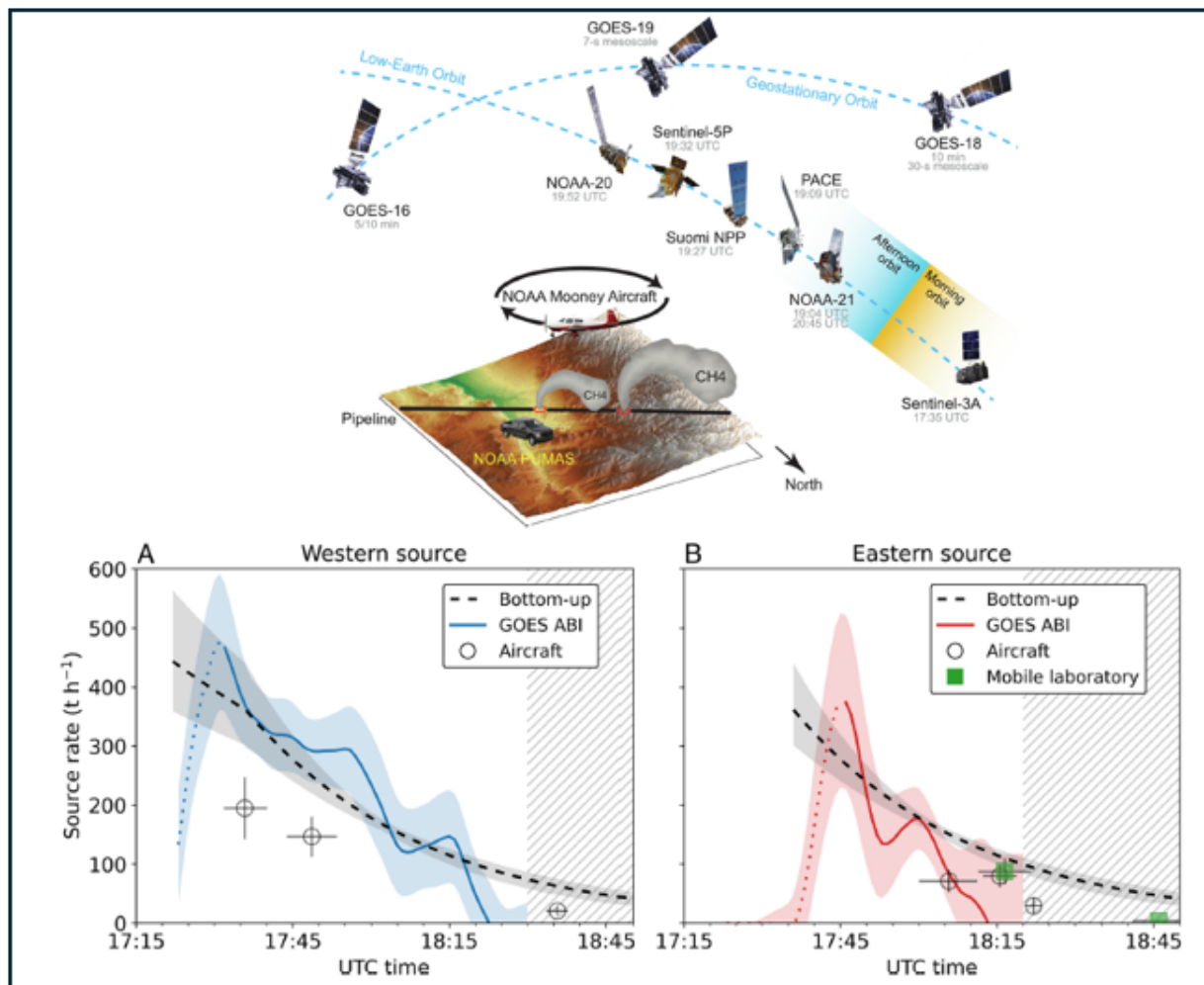


Figure: (top) Schematic of the 8 October 2024 VLMR experiment. Measurements were collected from three GOES satellites, six LEO satellites, a Mooney aircraft, and a truck-based mobile laboratory. GOES scan frequencies (5/10-min operational modes and targeted 7 to 30-s mesoscale modes) and LEO overpass times (UTC; Local Time + 6) are annotated in gray. The red circles indicate the two locations along the pipeline where the blowdown occurred. (bottom) Instantaneous source rates (unit: tonne per hour) for the (A) western and (B) eastern release points inferred from GOES ABI and in-situ measurements.

(Phillip Stratton, CISESS, pstratto@umd.edu; Funding: ARL)

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