# Weekly Report – July 10, 2026

Cooperative Institute for Satellite Earth System Studies (CISESS)

NOAA/NESDIS/STAR

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## TRAVEL AND MEETING REPORTS

### CISESS Presence at the 2026 Ocean Surface Topography Science Team Meeting and Sentinel-6 Validation Team Meeting

From 22–26 June 2026, the 2026 Ocean Surface Topography Science Team (OSTST) meeting was held in Wiesbaden, Germany. The OSTST meeting is an international scientific forum jointly organized by major European and U.S. space and environmental agencies, including EUMETSAT, ESA, CNES, NASA, JPL, and NOAA, with European Union support through the Copernicus program. Additionally, the Sentinel-6 Validation Team meeting was held in conjunction with OSTST on 23 June 2026. CISESS Scientist Christopher Buchhaupt and Mr. Pittayuth "Poom" Yoosiri, a graduate research assistant advised by Dr. Buchhaupt, gave four talks in total. Their contributions addressed important challenges in improving the interpretation of high-resolution altimetry observations across open-ocean, coastal, and sea-ice environments. Summaries of their talks:


Yoosiri, P., and Buchhaupt, C., 2026: *Intercomparison of Supervised Machine Learning Algorithm Performances in SAR Altimetry Waveform Classification*

Yoosiri's presentation compared the performance of supervised machine-learning algorithms using several evaluation metrics, including the F1 score, and demonstrated their applicability for distinguishing different SAR altimetry signal classes.


Buchhaupt, C., Yoosiri, P., and Fenoglio, L., 2026: *A Novel One-Pass Substack Retracker for SAR Altimetry Signals in Coastal Areas*

Buchhaupt presented a one-pass substack retracking approach for SAR altimetry signals in coastal areas. Initial results were very promising and indicate that the method can support more robust parameter retrieval near the coast.

Buchhaupt, C., and Dinardo, S., 2026: *An Analysis of the Sentinel-6A/B Tandem Phase Using an Improved Antenna Pattern and Stack Retracking*

During the Sentinel-6 Validation Team meeting, Buchhaupt presented an analysis of the Sentinel-6A/Sentinel-6B tandem phase. The results showed that Sentinel-6A and Sentinel-6B provide similar

estimates during the tandem phase, supporting the consistency of the two missions.
Buchhaupt, C., Tilling, R., and Farrell, S., 2026: *Resolving the Snow-Ice Interface: A Numerical SAR Altimetry Retracker for Simultaneous Snow Depth and Roughness*
Buchhaupt presented a feasibility study on a numerical SAR altimetry retracker for snow-covered sea ice. The results showed that the approach can jointly estimate sea-ice roughness, snow depth, and additional geophysical parameters from SAR altimetry observations.

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

**CISESS at ICE2026**

The 16th International Conference of Ecosystems (ICE2026) took place from 5–7 June 2026. The event was held jointly online from Chicago, Illinois, and in-person in Tirana, Albania, and was co-sponsored by institutions including the University of Maryland College Park (ESSIC). CISESS Scientists Cesar Kongoli and Peter Romanov gave a talk titled "Multi-Decadal Snow Cover Extent/Snow Water Equivalent/Snow Depth Dataset from Blended In-situ and Satellite Observations". They presented a method that generates a long-term (1987–2024), global, 4-km-resolution dataset of daily snow cover extent, snow depth, and snow water equivalent (a measure of the actual amount of water in snow), of use for monitoring purposes and weather forecasting. The method blends Special Sensor Microwave Imager and Advanced Very High Resolution Radiometer brightness temperatures and snow depth from the Global Historical Climatology Network – Daily dataset. Their analysis of long-term trends in snow mass reveals small long-term changes but large year-to-year variations.

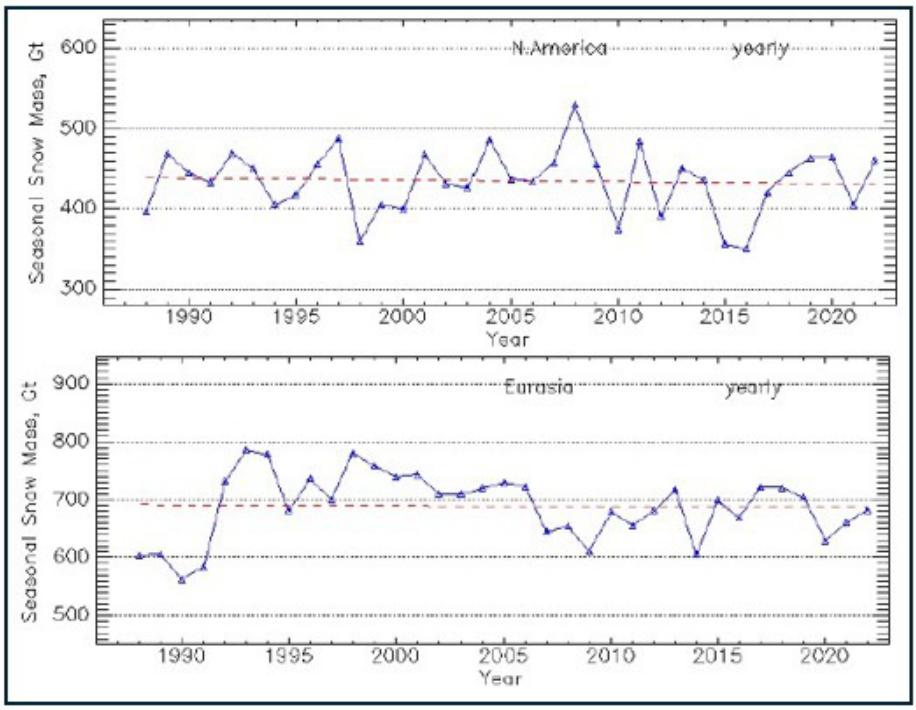

*Figure: Trends in total annual snow mass from 1988 to 2022 for North America (-0.50%/decade) and Eurasia (-0.20%/decade).*

*(Cesar Kongoli, cezar.kongoli@noaa.gov, Funding: JSTAR GCOM; Peter Romanov, peter.romanov@noaa.gov, Funding: DACS, GOES-R AWG & JSTAR)*

**PUBLICATIONS**

**Soil Moisture Products at NOAA**
**Citation: Jifu Yin**, Xiwu Zhan, **Jicheng Liu**, Jong Kim, Chan-Hoo Jeon, and Gillian Petro, 2026: National Oceanic and Atmospheric Administration Soil Moisture Operational Product System: an overview and data assimilation applications. *Vadose Zone J.,* **25**, e70122, https://doi.org/10.1002/vzj2.70122.
**Summary**: CISESS Scientist Jifu Yin's new article in the *Vadose Zone Journal* published online on July 1, co-authored by CISESS Scientist Jicheng Liu and others, describes the Soil Moisture Operational Product System (SMOPS) its applications, strengths, limitations, and future directions. The goal of the article is to introduces SMOPS to the larger community and encourages user engagement in shaping its future development. Yin helped to develop SMOPS for NOAA/NESDIS. This system blends multi-satellite sensor observations to produce global soil moisture (SM) operational products. SMOPS to serve as NOAA's "one-stop shop" for all available microwave satellite SM observations.

The article touches on the most recent application of SMOPS: data assimilation. Through collaboration with NOAA's Earth Prediction Innovation Center, SMOPS has been integrated into the National Weather Service's United Forecast System (UFS) Land Data Assimilation (DA) framework. The UFS Land-DA system also provides new tools for testing the integration of SMOPS products into the UFS model. For more information, the CISESS website has an article on SMOPS Products and Applications.

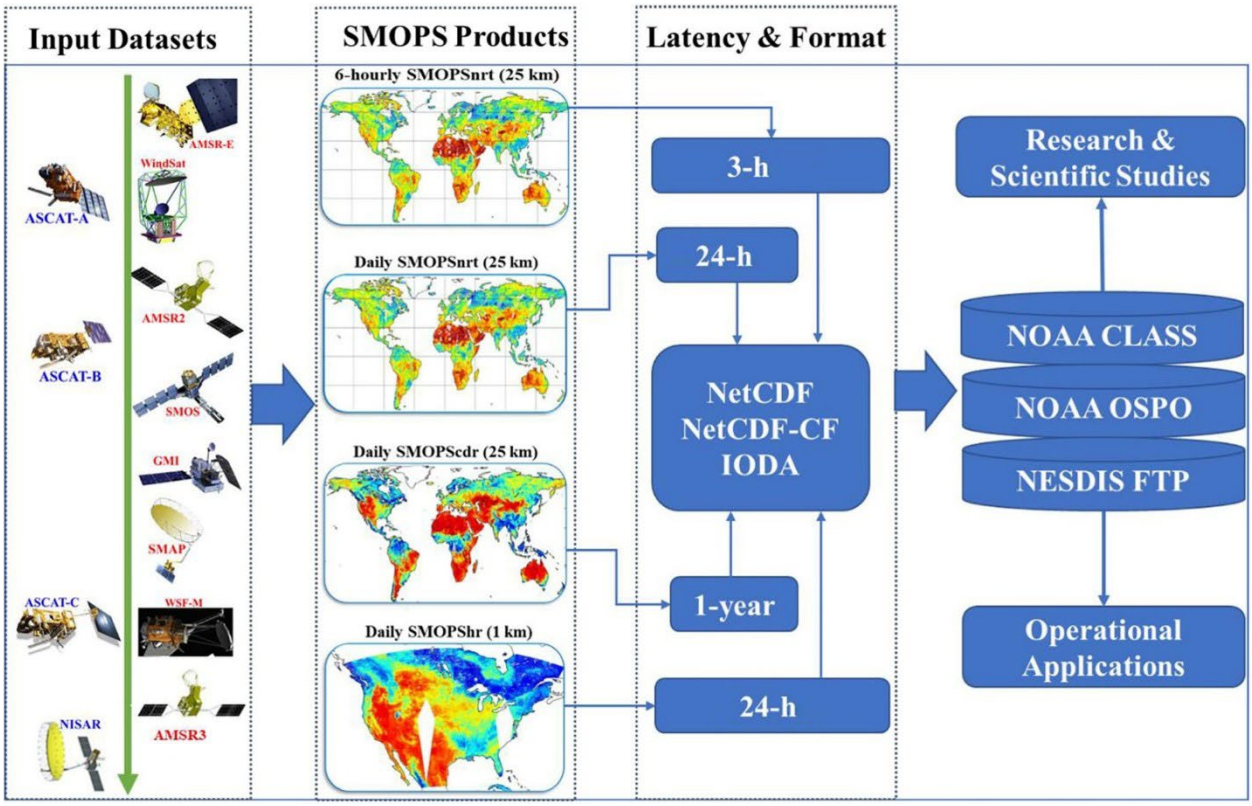


*Figure: The system architecture of SMOPS, its satellite sensor input, and its four products. The chart includes the product latency time, data format, product portals, and current applications.*

*(Jifu Yin, jifu.yin@noaa.gov, Funding: LEO, JSTAR GCOM & IIJA; Jicheng Liu, jliu1220@umd.edu, Funding: IIJA)*

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