

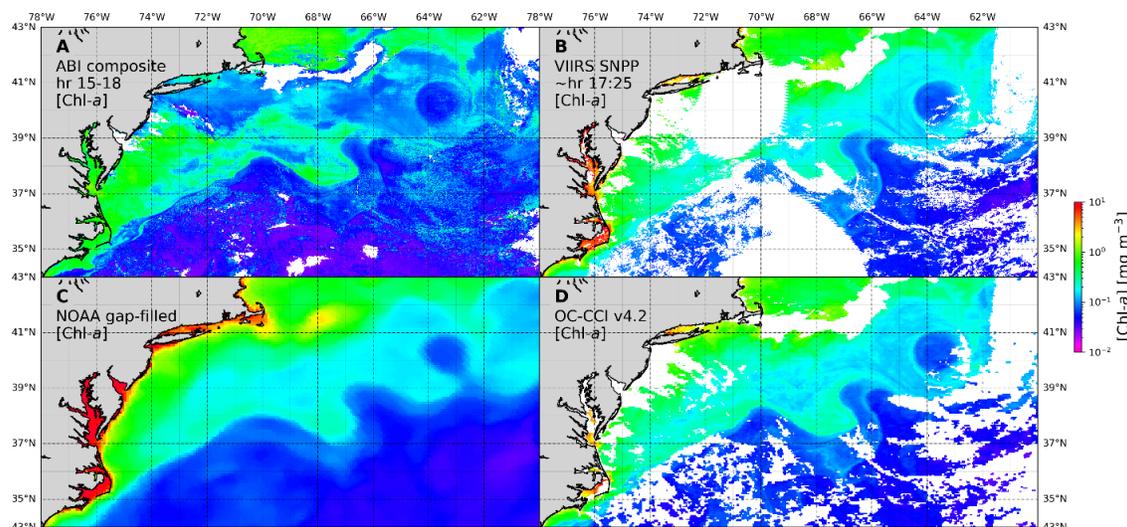
Weekly Report

SCSB/CISESS
Cooperative Research Program Division (CoRP)
STAR/NESDIS
National Oceanic and Atmospheric Administration (NOAA)

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Workshops, Conferences, and Meetings

GOES-16 Chlorophyll A Retrievals using Deep Learning: CISESS Scientist Guangming Zheng (STAR/SOCD) gave a presentation on Thursday, January 21, as part of the *2nd NOAA Workshop on Leveraging AI in Environmental Sciences*. His talk was on retrieving chlorophyll concentrations from the GOES-16 Advanced Baseline Imager (ABI) using Deep Learning techniques. Zheng demonstrated the proof-of-concept of using deep learning to retrieve [Chl-a] for the open oceans from GOES-R ABI which was previously considered unfit for ocean color applications owing to the lack of a green band. The deep learning model did well at frontal feature detection even though the input radiance data were not processed with any atmospheric correction. This suggests that deep learning can recognize subtle patterns barely perceptible to the human eye. Deep learning is a powerful tool to take into account a diverse set of input variables that are difficult for human to handle simultaneously. The figure below, from his slides, shows a comparison of the Deep Learning ABI composite (A) with other Chlorophyll A products. It agrees well with the S-NPP Visible/Infrared Imager Radiometer Suite (VIIRS) product (B) and the Ocean Color-Climatology Initiative (OC-CCI) datasets (D). It shows more detail than the NOAA gap-filled product (C).



His slides and a recording of his talk are available on the workshop website: https://www.star.nesdis.noaa.gov/star/meeting_2020AIWorkshop_agenda.php. Guangming was part of the session: "AI/ML for Information Extraction from Data, Part 2." He chaired Part 3 yesterday, January 28th.

Zheng, Guangming, Retrieving Chlorophyll concentration from GOES-16 ABI using Deep Learning Techniques, *2nd NOAA Workshop on Leveraging AI in Environmental Sciences* (Virtual, 21 Jan 2021), https://www.star.nesdis.noaa.gov/star/documents/meetings/2020AI/presentations/202101/20210121_Zheng.pdf

(POC: *Guangming Zheng*, guangming.zheng@noaa.gov, Funding: *Ocean Remote Sensing*)

CGMS Working Group II - On January 28, R. Ferraro (and other members of CoRP - M. Pavolonis, A. Heidinger) participated in the Intersessional meeting of the Coordination Group for Meteorological Satellites (CGMS) Working Group II (WG-II). WG-II governs the CGMS science working groups, including precipitation, clouds, winds and soundings. The meeting reviewed plans and agendas for the upcoming (virtual) CGMS-49 meeting (to be held in both April and May) and asked for status updates on CGMS action items assigned to the science working groups. As part of WG-II meeting in April, a session dedicated to precipitation measurement from space will be considered.



(POC - *Ralph Ferraro*, Ralph.R.Ferraro@noaa.gov, Funding: *PDRA*)