Weekly Report – March 21, 2025

Cooperative Institute for Satellite Earth System Studies (CISESS)

NOAA/NESDIS/STAR

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HIGHLIGHTS FOR NESDIS LEADERSHIP

People

Liqing Jiang's Publication Recognized by the American Geophysical Union

A paper published in 2023 by CISESS Scientist Liqing Jiang and colleagues, describing a model-data fusion product covering 10 global surface ocean acidification indicators, is among the top 10 most-cited papers published that year by the *Journal of Advances in Modeling Earth Systems*. This product represents the current best projection of ocean acidification indicators and could play an especially vital role in guiding society's mitigation and adaptation efforts.

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

PUBLICATIONS

A New Way of Calculating Global Seawind Trends

Citation: Saha, Korak, Prasanjit Dash, **James Frech**, Huai-Min Zhang, **Paul DiGiacomo**, and Steven D. Miller, 2025: Trends in satellite-based ocean parameters through integrated time series decomposition and spectral analysis. Part II: NOAA/NCEI blended seawinds. J. Atmos. Ocean. Tech., 42, 281–294, https://doi.org/10.1175/JTECH-D-24-0008.1.

Summary: Although seawinds are critical in studying extreme weather events over the oceans and important for, among other things, marine transportation and fisheries, wind trends are deemed unreliable. Using more sophisticated mathematical techniques, namely, multiple seasonal-trend decomposition using locally estimated scatterplot smoothing (MSTL), CISESS Scientists James Frech and Paul DiGiacomo have generated nonlinear dynamic trends of global blended sea surface winds. Their recently published paper in the *Journal of Atmospheric and Oceanic Technology* reports that the calculated average trend rates are notably higher for the Southern Hemisphere oceans than for the Northern Hemisphere, with peaks around 0.1–0.15 m s^{-1} $decade^{-1}$ around the higher midlatitudes. The global trend rate estimated from 35 years of global surface sea winds is ~0.022% ± 20% m s^{-1} $decade^{-1}$, a value close to that reported in studies that used reanalysis and/or satellite radiometric data. They note that although the data

they used were well calibrated, the uncertainty in this dataset can affect their trend and trend rate estimations, warranting further examination.

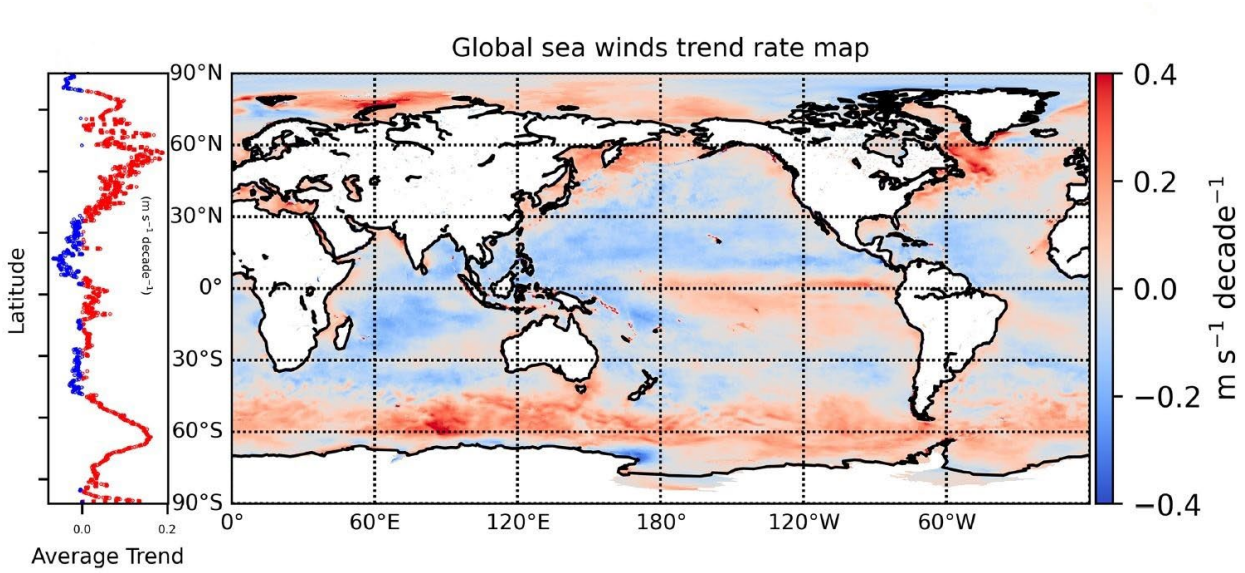

Figure. Global map of trend rates based on 35 years of monthly mean wind data, using MSTL. The left plot shows the latitudinal variation of longitudinally averaged trend rates (with red for positive and blue for negative trend rates).

(James Frech, CISESS, james.frech@noaa.gov; Funding: NCEI; Paul DiGiacomo, CISESS, paul.digiacomo@noaa.gov; Funding: GOMO, JSTAR, & ORS)

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