



Advancing AI at NOAA

The NOAA AI Strategy and Implementation Plan

Greg Dusek

Senior Scientist, NOAA NOS

Chair, NOAA AI Exec Comm

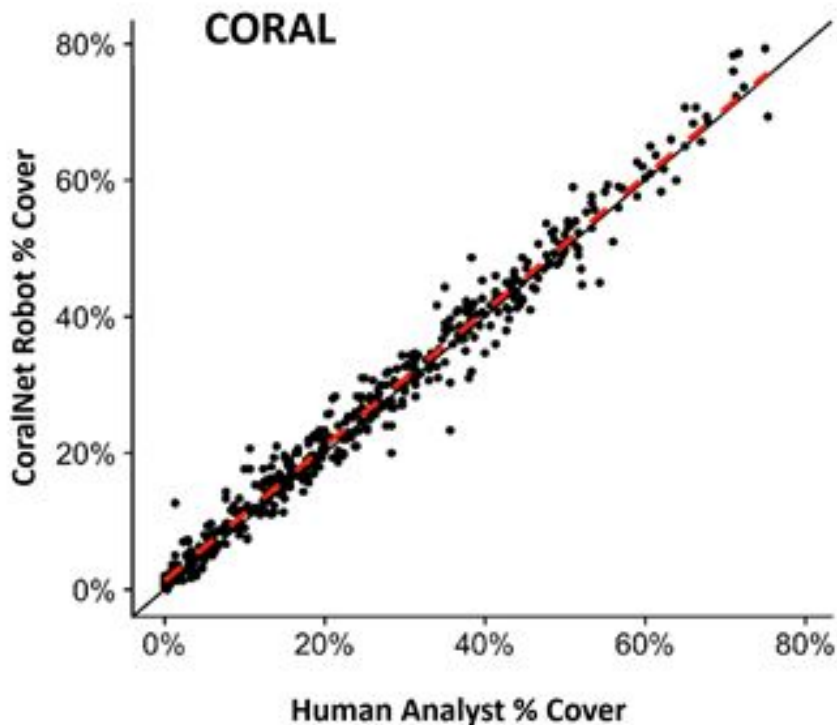
Coastal Coupling Community of Practice Webinar

October 23, 2020



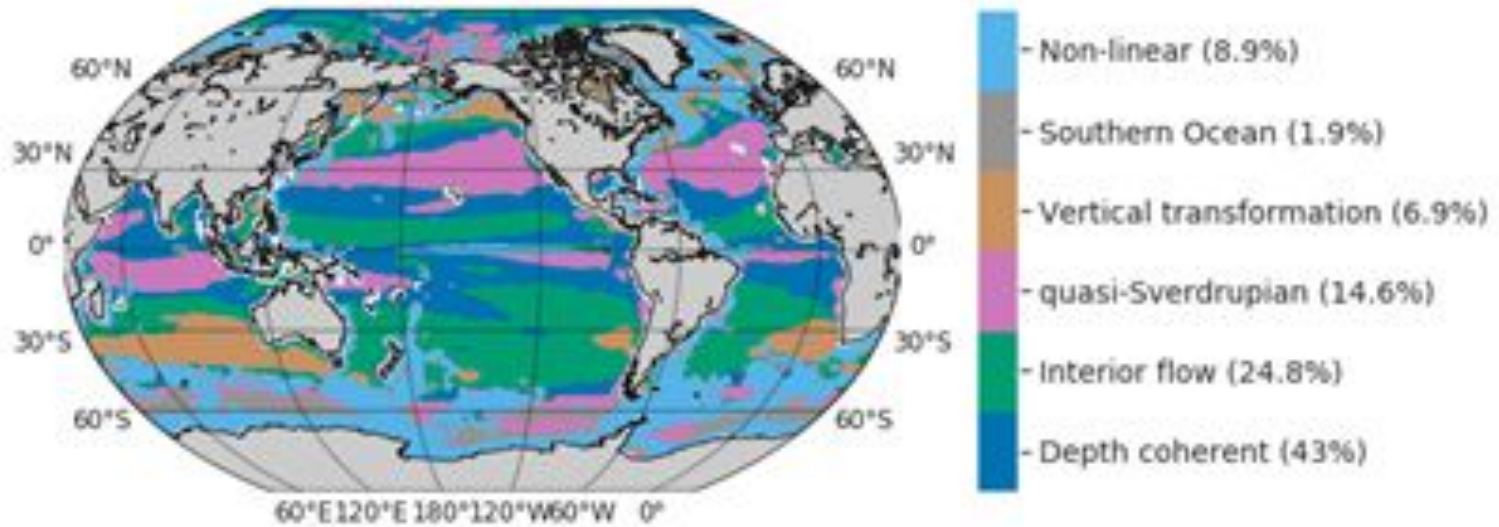
CoralNet

Automated, Human-in-the-loop, Point Annotation of coral reef imagery



Monitoring Ocean State for Improved Climate Predictions

Identify key ocean dynamical regimes using unsupervised learning

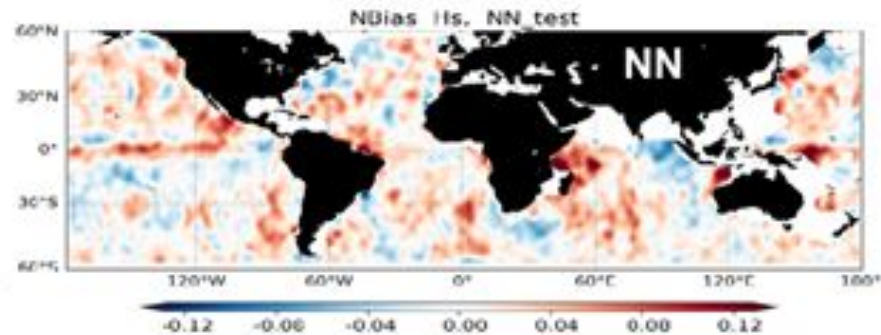
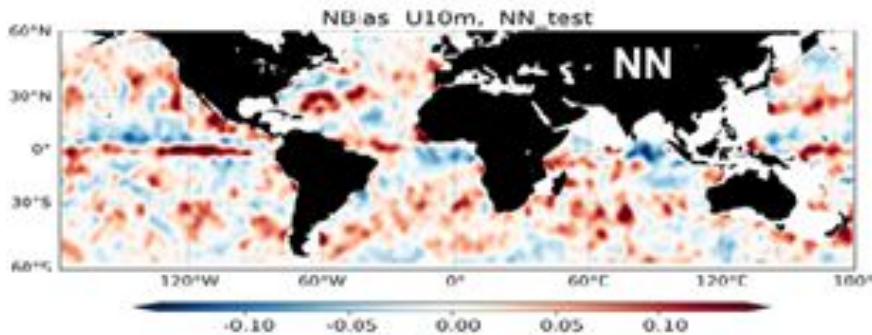
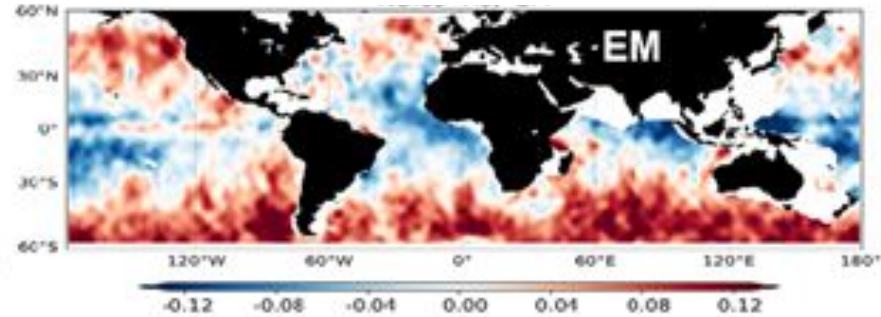
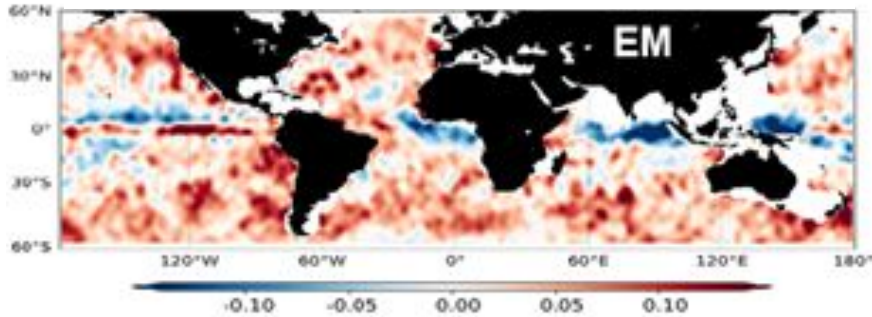


Global Neural Network Wind-wave Model Ensemble

An ML approach to improve ensemble mean computations

U10m wind

Hs



Campos, R. M., V. Krasnopolsky, J.-H. G. M. Alves, and S. G. Penny (2020)

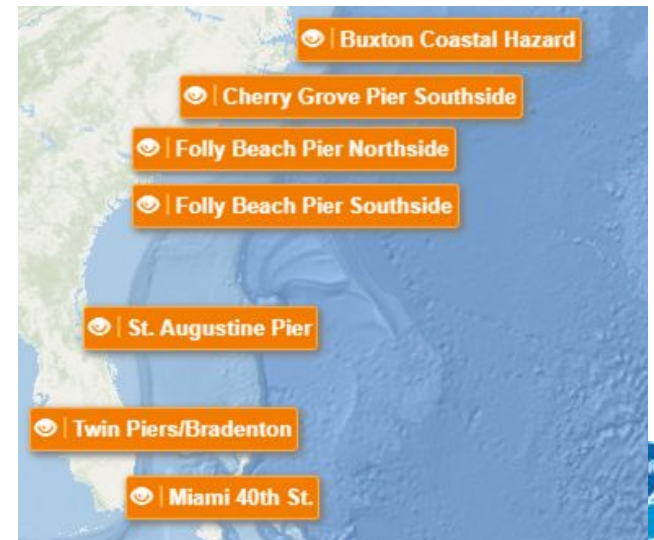


Rip current detection in coastal imagery

ML rip current detection to support the NOAA
rip current forecast model



De Silva, A., I. Mori, G. Dusek, J. Davis and A. Pang (In revision)



Six NOAA Strategies

NOAA Cloud Strategy

Maximizing the Value of NOAA's Cloud Services



NOAA Data Strategy

Maximizing the Value of NOAA's Data



NOAA Uncrewed Systems Strategy

Maximizing Value for Science-based Operations



Draft NOAA Citizen Science Strategy

Applying the Power of the Crowd



NOAA 'Omics Strategy

Strategic Application of Translational Genomics



NOAA Artificial Intelligence Strategy

Analytics for Next-Generation Earth Science



National Oceanic and Atmospheric Administration
U.S. Department of Commerce

NOAA Science & Technology Focus Areas:
Uncrewed Systems • Artificial Intelligence

National Oceanic and Atmospheric Administration
U.S. Department of Commerce

NOAA Science & Technology Focus Areas:
Uncrewed Systems • Artificial Intelligence

National Oceanic and Atmospheric Administration
U.S. Department of Commerce

NOAA Science & Technology Focus Areas:
Uncrewed Systems • Artificial Intelligence

National Oceanic and Atmospheric Administration
U.S. Department of Commerce

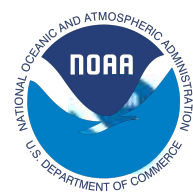
NOAA Science & Technology Focus Areas:
Uncrewed Systems • Artificial Intelligence • Omics • Cloud

National Oceanic and Atmospheric Administration
U.S. Department of Commerce

NOAA Science & Technology Focus Areas:
Uncrewed Systems • Artificial Intelligence

National Oceanic and Atmospheric Administration
U.S. Department of Commerce

NOAA Science & Technology Focus Areas:
Uncrewed Systems • Artificial Intelligence • Omics • Cloud • Citizen Science • Data February 2020

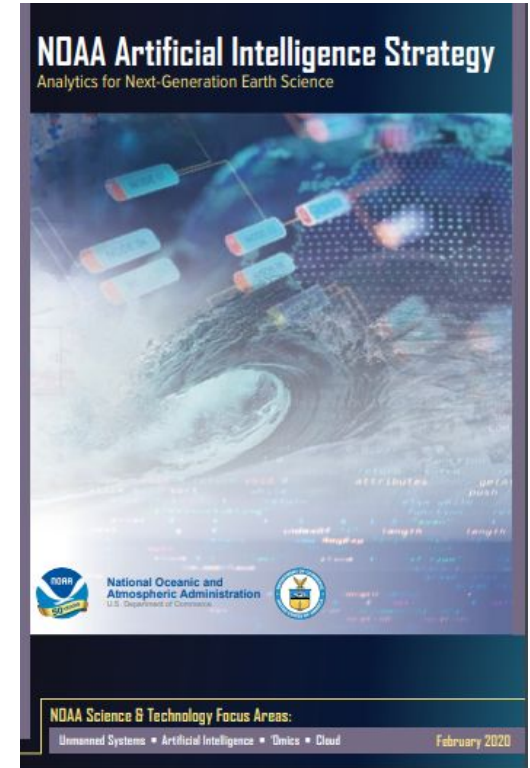


NOAA AI Strategy

Dramatically expand the application of Artificial Intelligence in every NOAA mission area by improving the efficiency, effectiveness, and coordination of AI development and usage across the agency

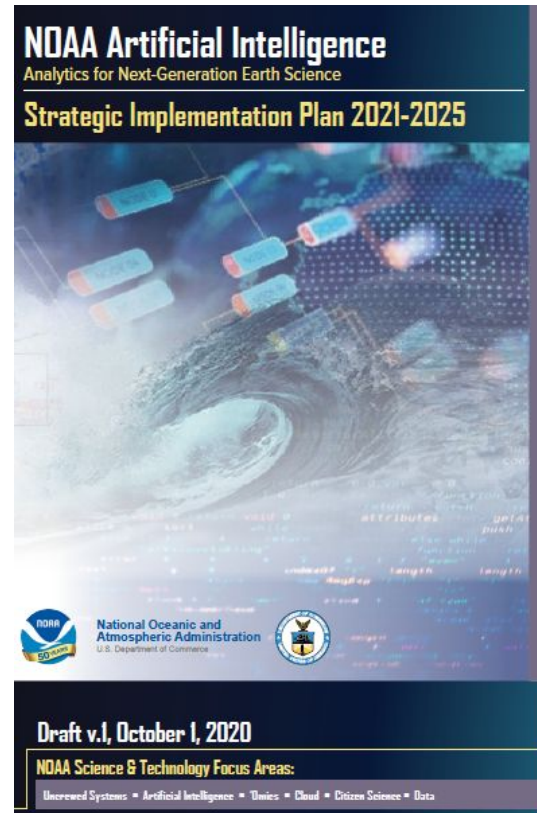
Released February 2020

Available: https://nrc.noaa.gov/LinkClick.aspx?fileticket=pJUx_XRePbl%3d&tabid=91&portalid=0

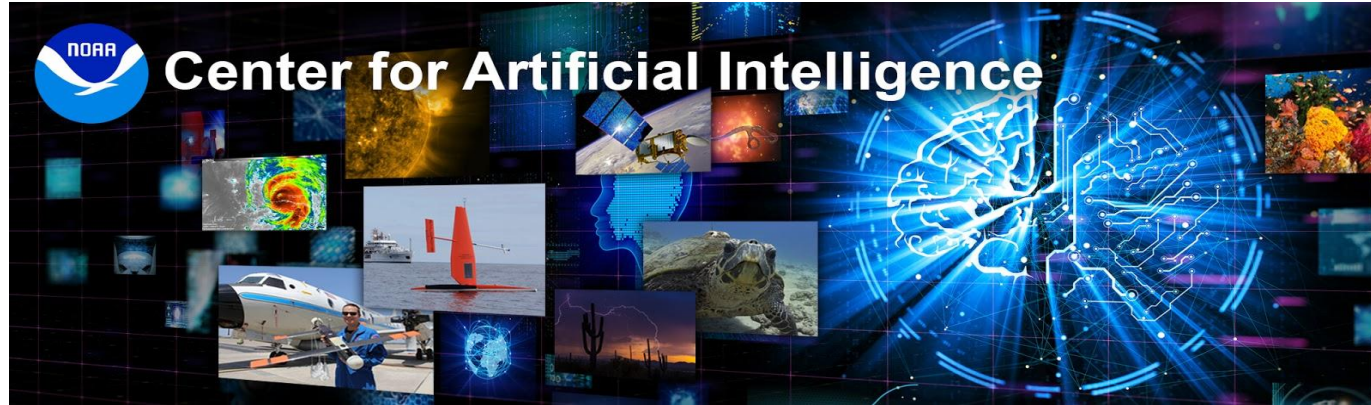


NOAA AI Strategic Implementation Plan

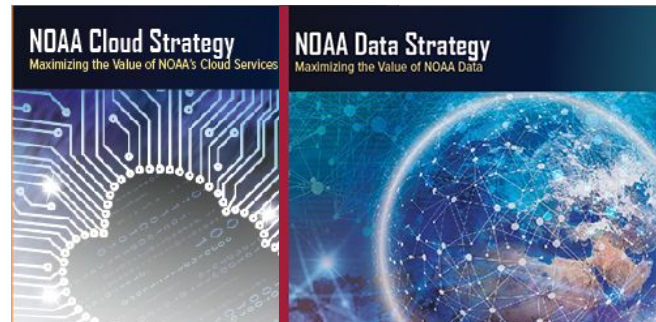
- Makes the AI Strategy actionable
- Built from input during AI Implementation Workshop in February
- Identifies specific actions with leads and target completion dates
- Synergistic with other S&T plans
- To be published before the end of the year



Goal 1: Establish an efficient organizational structure and processes to advance AI across NOAA.



NOAA AI Executive Committee

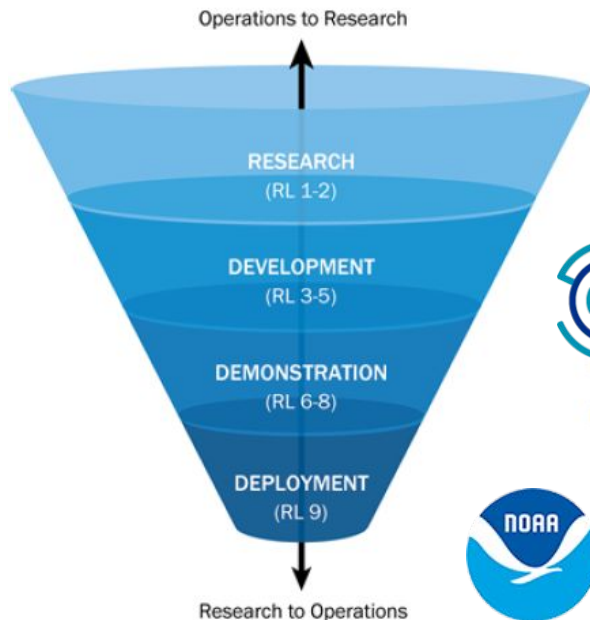




Goal 2: Advance AI research and innovation in support of NOAA's mission.



Goal 3: Accelerate the transition of AI research to operational capabilities.



AI Best Practices



IOOS | Ocean Technology Transition



NOAA RESEARCH & DEVELOPMENT DATABASE
Project Management Data for NOAA Research and Development



Goal 4: Strengthen and expand AI partnerships.



Goal 5: Promote AI proficiency in the workforce.



coursera



Master of Computer Science
University of Illinois



Master of Applied Data Science
University of Michigan



Master of Machine Learning and
Data Science
Imperial College London



The 2nd NOAA Workshop on Leveraging AI in Environmental Sciences

*Exploiting Space and Ground-Based Observations
and Enhancing Earth System Predictions*

Relaunched AI Workshop features:

- *More than 50 presentations*
- *Tutorials*
- *Poster sessions*
- *Panel discussions with thought leaders
and experts*
- *All virtual format*



30 July 2020 - 25 February 2021

NOAA Center for Weather and Climate Prediction
5830 University Research Court
College Park, MD

▶ [Main meeting page](#)

▶ [Agenda](#)

▶ [Tutorials](#)

https://www.star.nesdis.noaa.gov/star/meeting_2020AIWorkshop.php

