

Data Access, Data Science and AI- Based Analysis of Environmental Data

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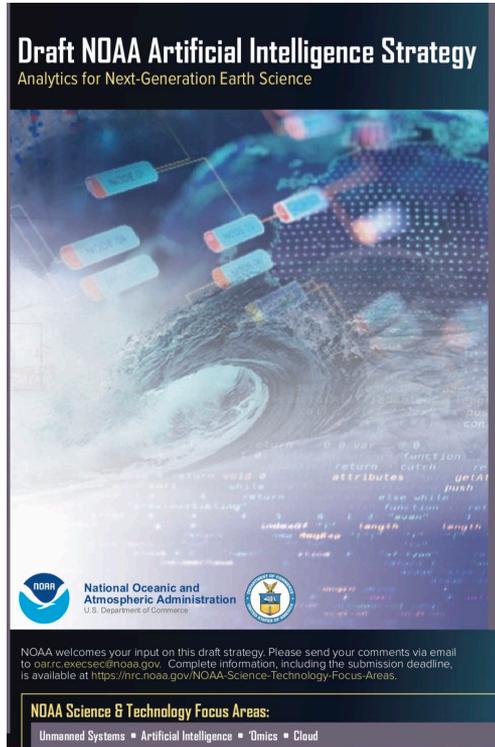
Focus of SAB WG Report on Data Access, Data Science and AI-Based Analysis of Environmental Data

1. Selected applications of AI and data science to the NOAA mission
2. Enabling technology, including the required data management and cloud computing infrastructure,
3. Issues around preparing NOAA data resources to be AI and data science “friendly.” For example, how to lower the cost and effort required for data to be analyzed with AI and data science applications and services.
4. How might AI and data science accelerate NOAA’s economic impact and contribute to an increase in US competitiveness?

Progress to Date

1. Request that DAARWG draft a brief report on: 
 - a. How are we going to make analysis-ready datasets?
 - b. How to re-tool how people work in this area?
 - c. What are the right questions to ask, pathways, etc.?
 - d. What is the best approach to sharing training data?
2. Talk to NOAA AI Working Group about their progress to date and request a  briefing at a future SAB meeting:
 - a. What NOAA missions would AI have the biggest impact?
 - b. What are some efforts to capture and share knowledge across NOAA?
 - c. What is the technology readiness to use AI and data science?
3. Learn about NOAA's future plans to put additional NOAA data into the cloud and its plans to share this data with broader research community

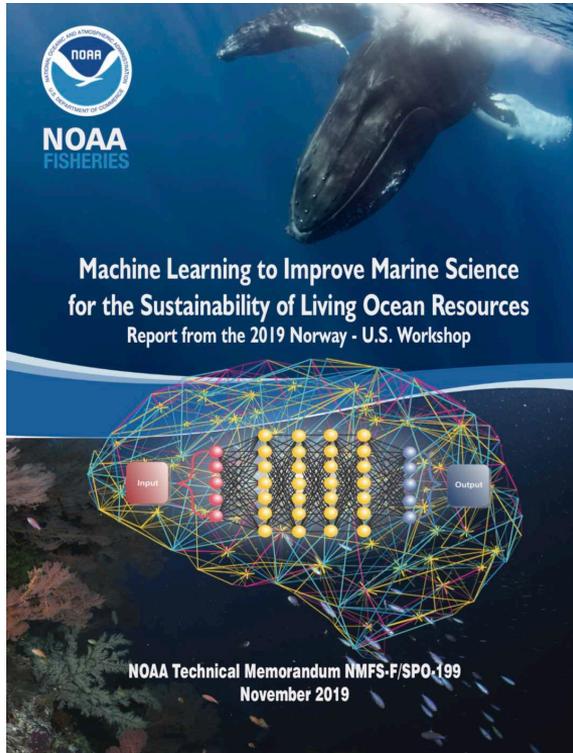
Related Activities – NOAA's Draft AI Strategy



- Goal 1: Establish an efficient organizational structure and processes to advance AI across NOAA.
- Goal 2: Advance AI research and innovation in support of NOAA's mission.
- Goal 3: Accelerate the transition of AI research to operational capabilities.
- Goal 4: Strengthen and expand AI partnerships.
- Goal 5: Promote AI proficiency in the workforce.

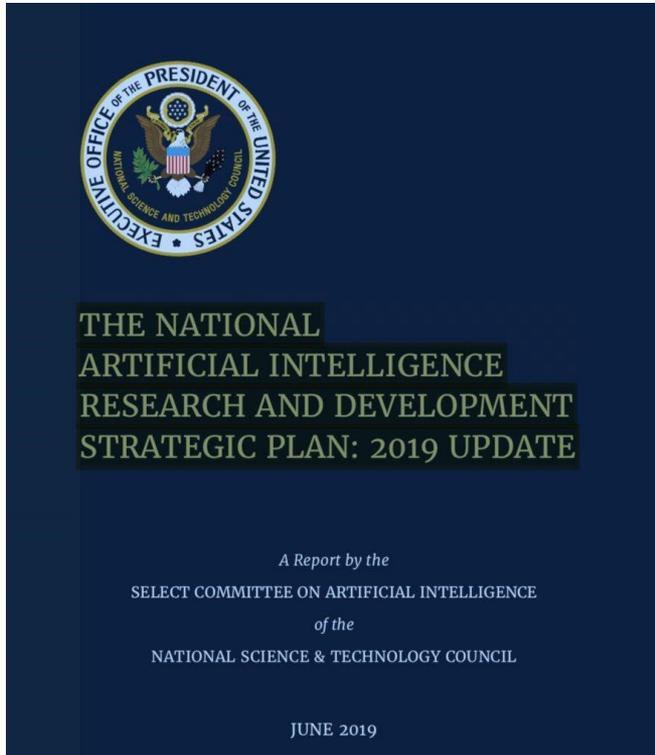
Draft Nov 13, 2019, 8 pages – references.

Related Activities – Norway Machine Learning Workshop to Improve Marine Science



- The Norway - U.S. Workshop entitled “Machine Learning to Improve Marine Science for the Sustainability of Living Ocean Resources” was held in Bergen, Norway on 23-25 April 2019.
- A 108 page report was released in November, 2019.
- Four case studies: Deep Vision and Image Analysis; ML Applied to Surveys; ML for Electronic Monitoring; & ML Methods.

Other Related Activities



- There are many other related activities that are producing reports on AI, including reports on AI from multiple federal working groups and other organizations.

DAARWG Report

“Preparing for a cloudy future”

Prepared by NOAA's Science Advisory Board (SAB) Data Archive and Access Requirements Working Group ([DAARWG](#))

Chair: Chelle Gentemann, Earth and Space Research
Molly Jahn, Jahn Research Group
Thomas Huang, NASA/JPL
Shane Glass, Google
Ana Pinheiro Privette, Amazon
Karen Stocks, Ocean Observatories Initiative
Eoin Howlett, Applied Science
Kandis Boyd, NOAA
Lucas Joppa, Microsoft

This is a brief report from NOAA's Science Advisory Board (SAB) Data Archive and Access Requirements Working Group ([DAARWG](#)) on key issues and potential recommendations related to preparing analysis-ready datasets, training researchers to work in the cloud, preparing training data for machine learning, and the process for agile cloud implementation and deployment.

- DAARWG met virtually every few weeks to work on the report
- 13 page report with multiple recommendations.

Discussion with NOAA AI Executive Committee

- Led by William (Bill) Michaels and Sid Boukabara
- The NOAA AI Executive Committee is part of a broader strategy that includes:
 - NOAA AI Strategy
 - NOAA AI Implementation Plan
 - NOAA AI Executive Committee
 - NOAA Cloud and Data Strategy
- Their recommendations include:
 - Establish an AI Center
 - Establish Partnerships and CRADAs

Next Steps

- Within the next 60-90 days, our SAB working group will synthesize what we have learned from:
 - DAARWG report
 - NOAA AI Executive Committee
 - NOAA AI (Draft) Strategy
- and put together a short report.

Questions and Discussion