

An aerial photograph of a sunset over a body of water, with the sun low on the horizon and its light reflecting across the water's surface. The sky is filled with soft, golden clouds. A semi-transparent white rectangular box is centered over the image, containing the title and speaker information. The box is framed by thick black L-shaped bars on the top-left and bottom-right corners.

THE OPPORTUNITY IMPERATIVE

Craig McLean

OAR Assistant Administrator

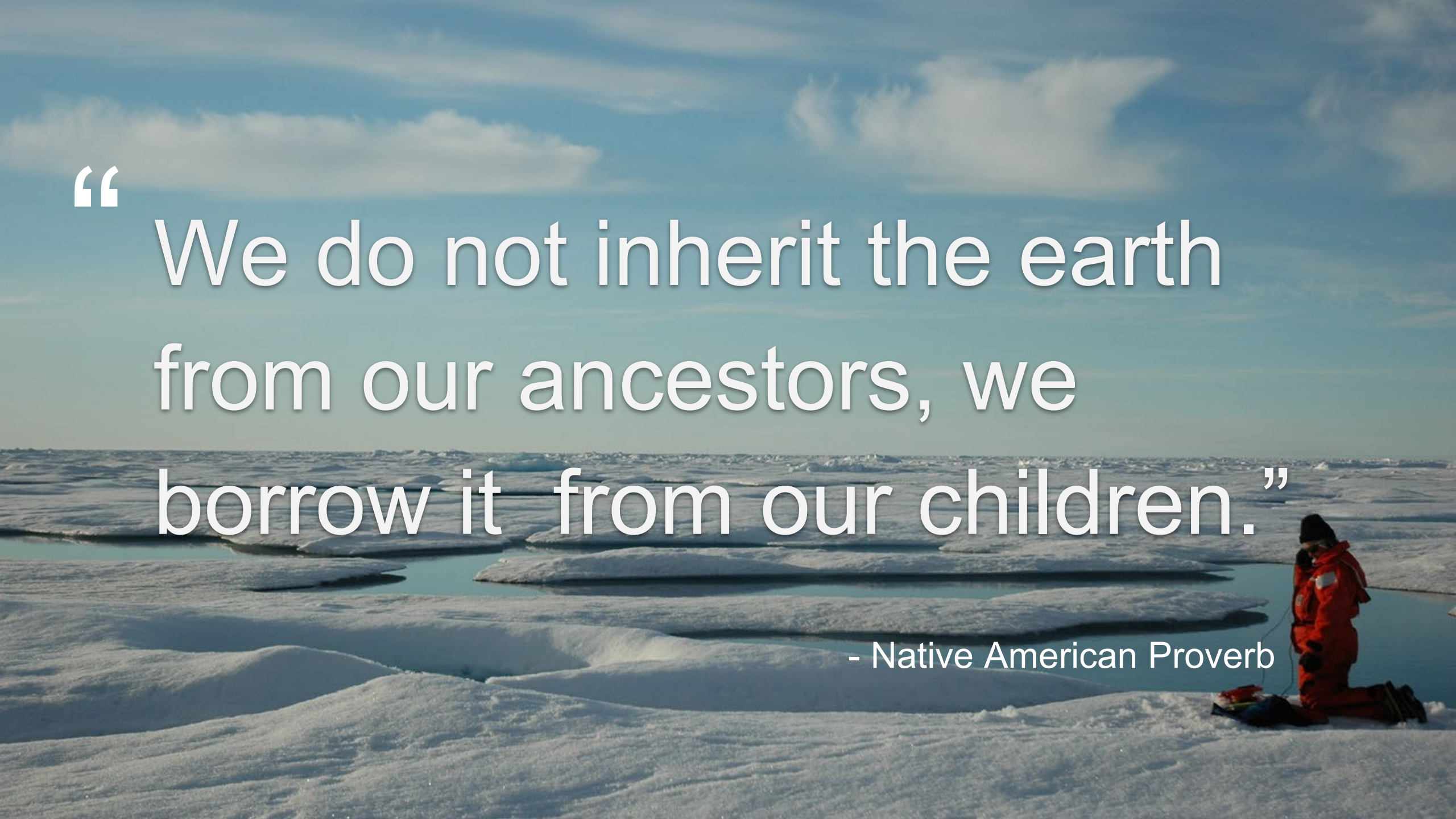
April 16, 2020



Craig McLean

OAR Assistant Administrator

research.noaa.gov

A person in a red survival suit is kneeling on a vast, flat, icy landscape. The ground is covered in a thick layer of white snow or ice, with some darker patches visible. In the background, there are more ice formations and a clear blue sky with some light clouds. The person is wearing a red suit, a black hat, and is looking down at something on the ground. The overall scene is cold and desolate.

“ We do not inherit the earth
from our ancestors, we
borrow it from our children.”

- Native American Proverb











Erik Mclean

The background image is a dramatic seascape. In the foreground, the white railing and part of the deck of a ship are visible, curving from the bottom left towards the right. The ocean is dark and turbulent, with white-capped waves breaking. The sky is filled with heavy, dark clouds, with a bright light source breaking through near the top center, creating a lens flare effect. The overall color palette is dominated by blues, greys, and whites, giving it a somber and powerful feel.

**“ Leadership is the ability
and willingness to
reconcile opportunity
with competence.”**

- Admiral Thad Allen,
23rd Commandant of the US Coast Guard

The background of the image is a deep blue ocean. In the center, there is a large, dense school of small fish, possibly sardines, swimming in a circular pattern. In the lower foreground, a shark is visible, swimming towards the left. The text is overlaid on the image in a large, white, sans-serif font.

**HOW MANY
FISH ARE IN
THE SEA?**



**WHAT WILL
THE WEATHER
BE TOMORROW?**



**WHAT WILL THE
WEATHER BE 10
YEARS FROM
NOW? 100? 10000?**

**ARE WE WISELY
BUILDING ON
SHIFTING SANDS?**



A dramatic night sky with multiple bright white lightning bolts striking across a dark, stormy cloud cover. In the lower left, a small structure with a red light is visible on a dark horizon.

WEATHER

A photograph of a rocky coastline where blue ocean waves are crashing against dark, mossy rocks, creating white foam and spray. The sky above is a clear, pale blue.

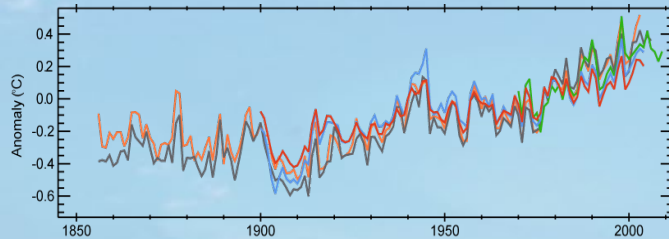
OCEANS

A wide-angle photograph of a dry, cracked landscape. The ground is a light tan color, covered in a network of deep, dark, irregular cracks. In the background, there is a flat green field under a blue sky with scattered white clouds.

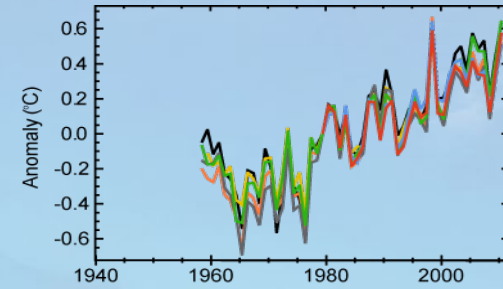
CLIMATE

Earth Trends

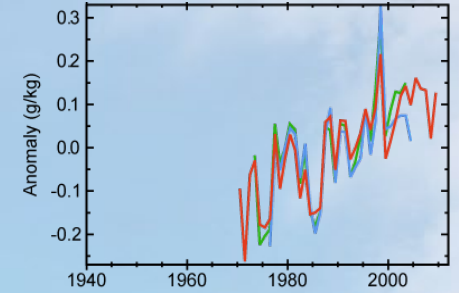
AIR TEMPERATURE OVER OCEAN ↑



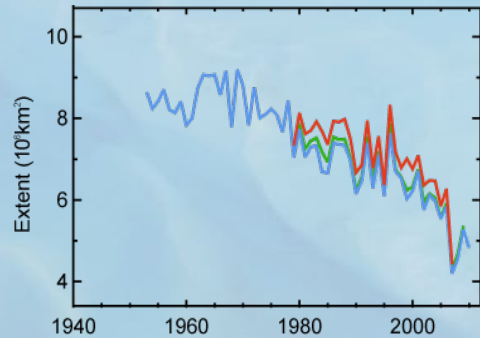
LOWER ATMOSPHERE TEMPERATURE ↑



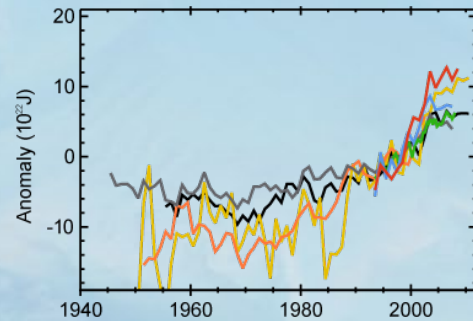
HUMIDITY ↑



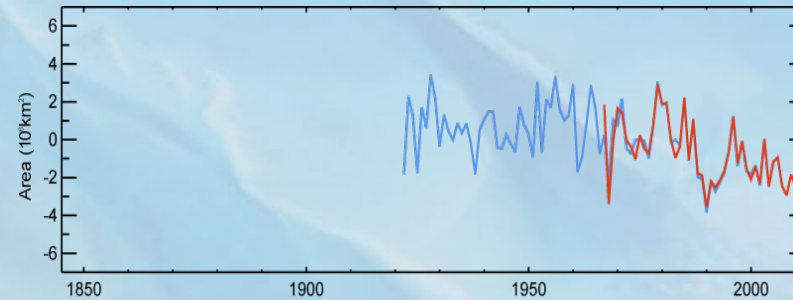
ARCTIC SEA ICE ↓



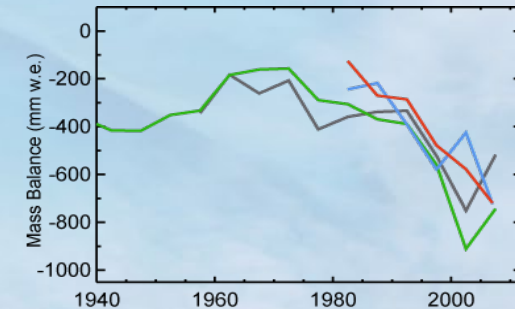
OCEAN HEAT CONTENT ↑



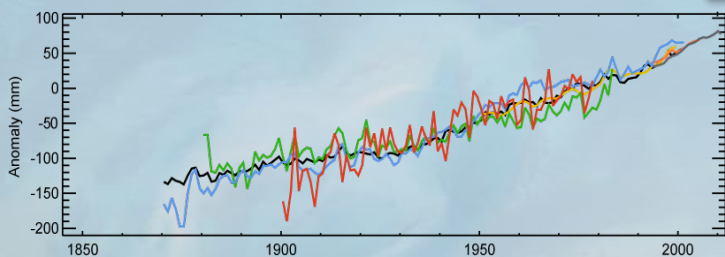
SNOW ↓



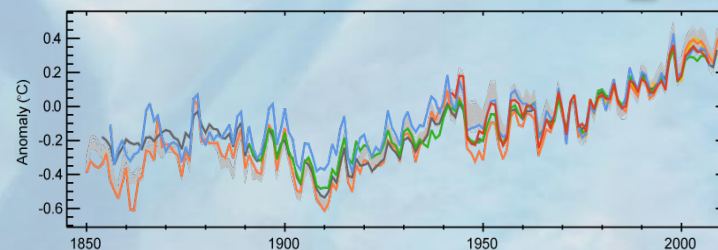
GLACIERS ↓



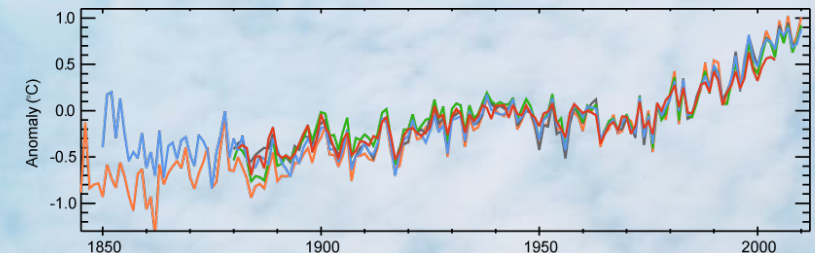
SEA SURFACE TEMPERATURE ↑



GLOBAL SEA LEVEL ↑



OVER LAND AIR TEMPERATURE ↑



Growing Confluence of Priorities

Common themes emerging at recent international conferences

- Marine Protected Areas
- Climate Change
- Sustainable Fisheries
- IUU Fishing
- Marine Pollution, Plastics
- Sustainable Blue Economy
- Maritime Security
- Corals
- Ocean Acidification



A robotic submersible, likely a deep-sea explorer, is shown in a dark, deep-sea environment. The submersible is white with blue accents and is equipped with various sensors and cameras. It is positioned near a large, dark, rocky structure, possibly a hydrothermal vent. The scene is dimly lit, with the submersible's lights illuminating the surrounding area. The text "What are our OPPORTUNITIES?" is overlaid on the image in a large, bold, yellow font.

What are our
OPPORTUNITIES?



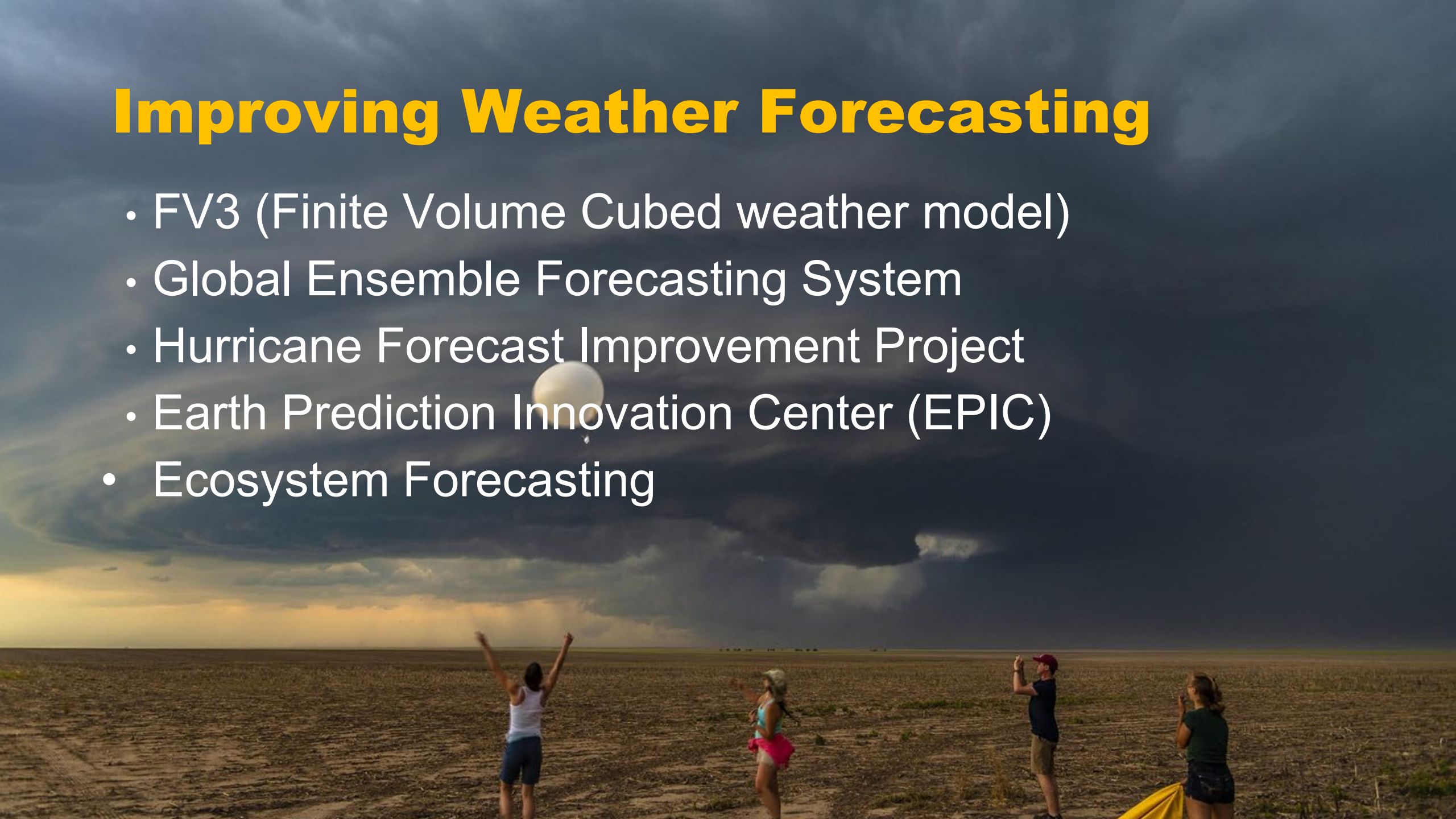
NOAA

SCIENCE. SERVICE. STEWARDSHIP.



Improving Weather Forecasting

- FV3 (Finite Volume Cubed weather model)
- Global Ensemble Forecasting System
- Hurricane Forecast Improvement Project
- Earth Prediction Innovation Center (EPIC)
- Ecosystem Forecasting



ATOMIC

RAAVEN UAS

NOAA WP-3D ORION

BARBADOS

SURFACE DRIFTERS

WAVE GLIDERS

NOAA SHIP RONALD H. BROWN

ATLANTIC TRADEWIND OCEAN-ATMOSPHERE MESOSCALE INTERACTION CAMPAIGN



ATOMIC is the U.S. part of the European field campaign called EUREC⁴A. This collaborative effort involves a unique combination of ships, piloted and remotely controlled aircraft, and remotely controlled ocean vehicles to characterize ocean and atmospheric properties.

NOAA's leadership in the Blue Economy:

- seafood production
- tourism & recreation
- ocean exploration
- marine transportation
- coastal resilience



- NOAA Leadership to Power the Blue Economy

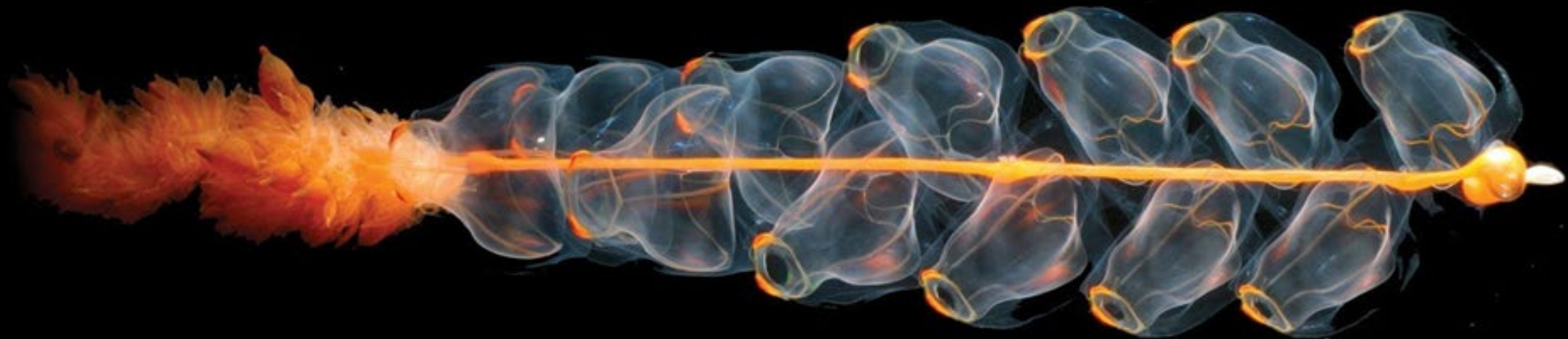
Ocean Exploration



NOAA Office of Ocean Exploration & Research



Edie Widder, ORCA





OKEANOS EXPLORER 2016





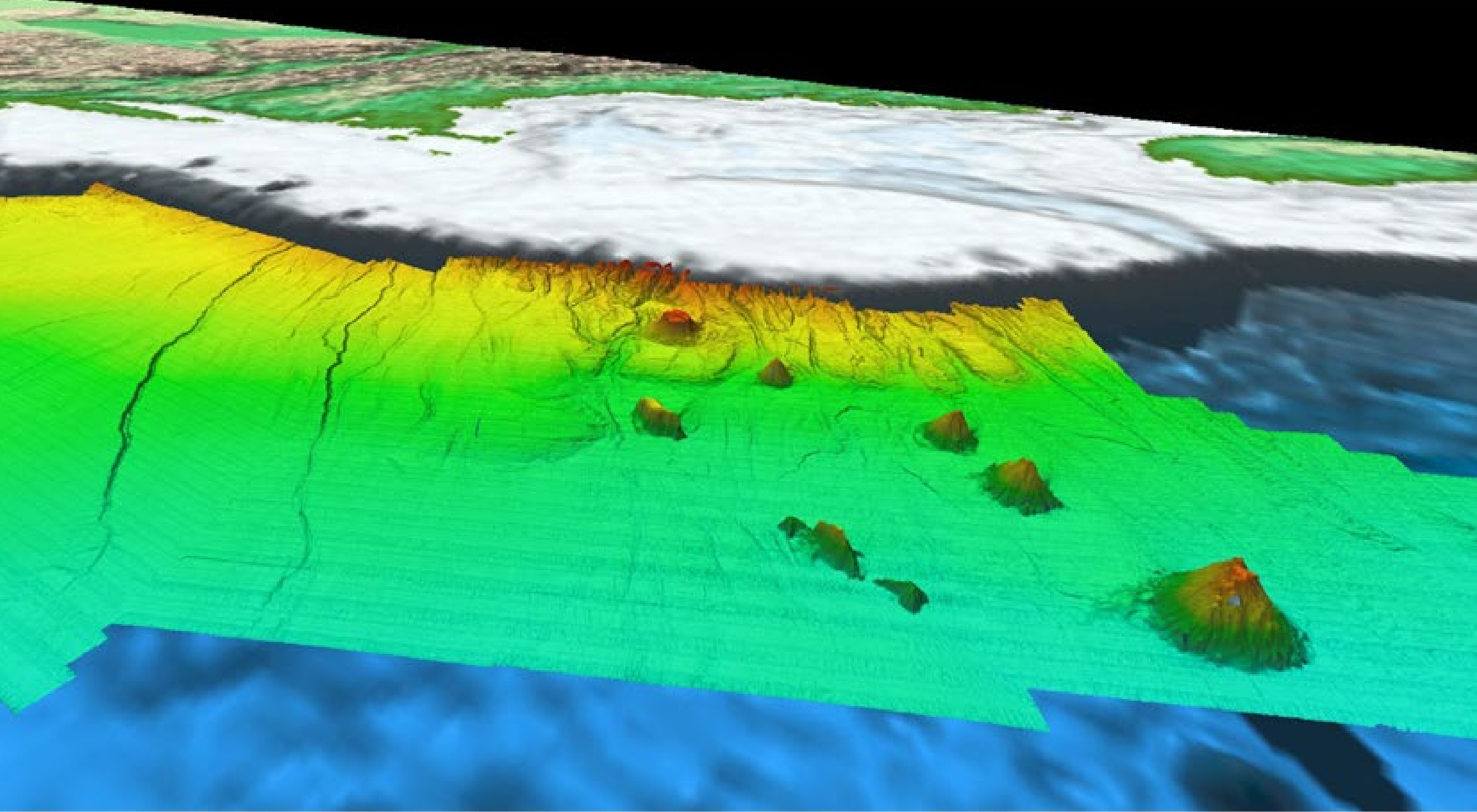
WORLD OCEAN FLOOR

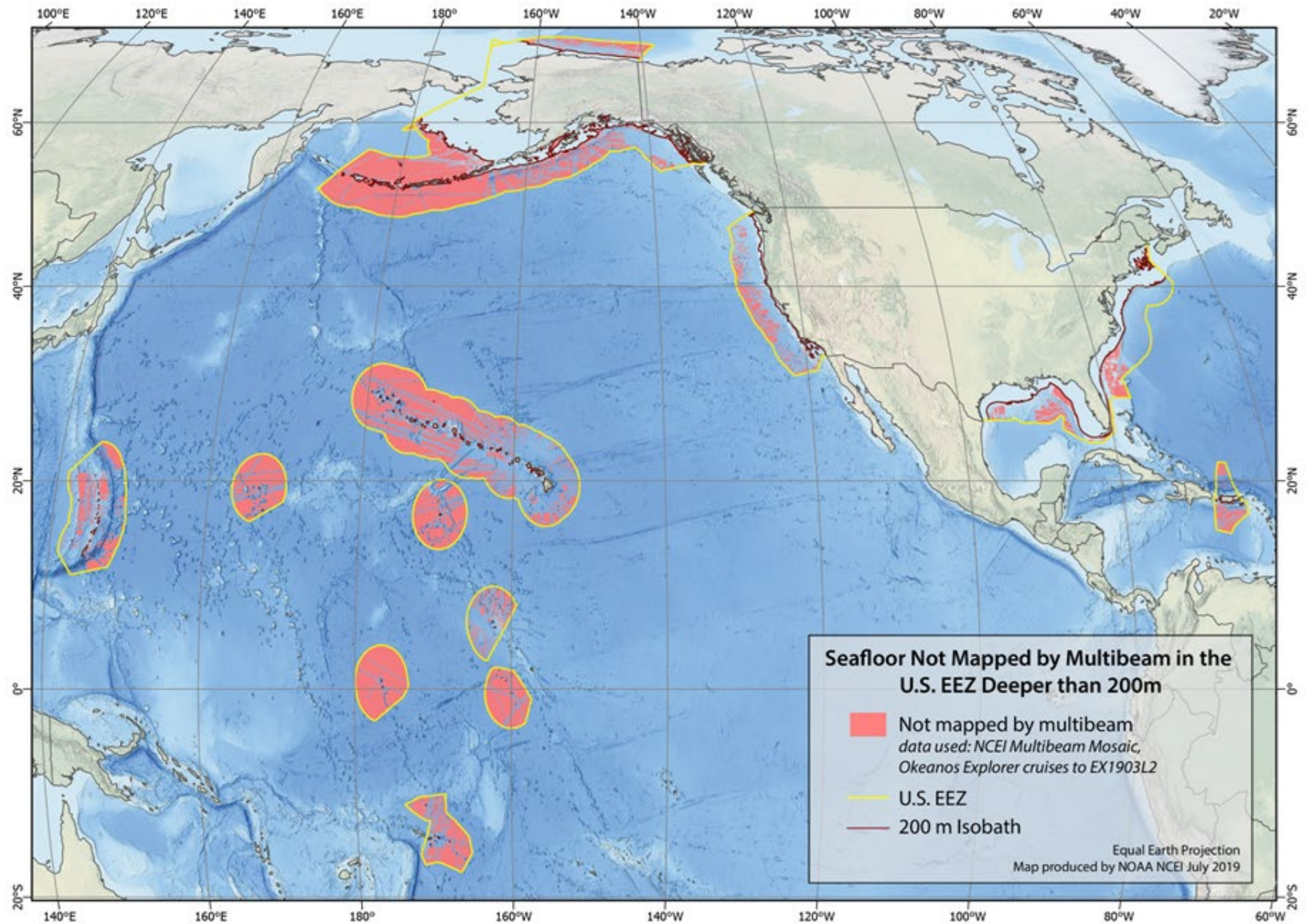
AS KNOWN BY SOUNDING AND RECENT DATA

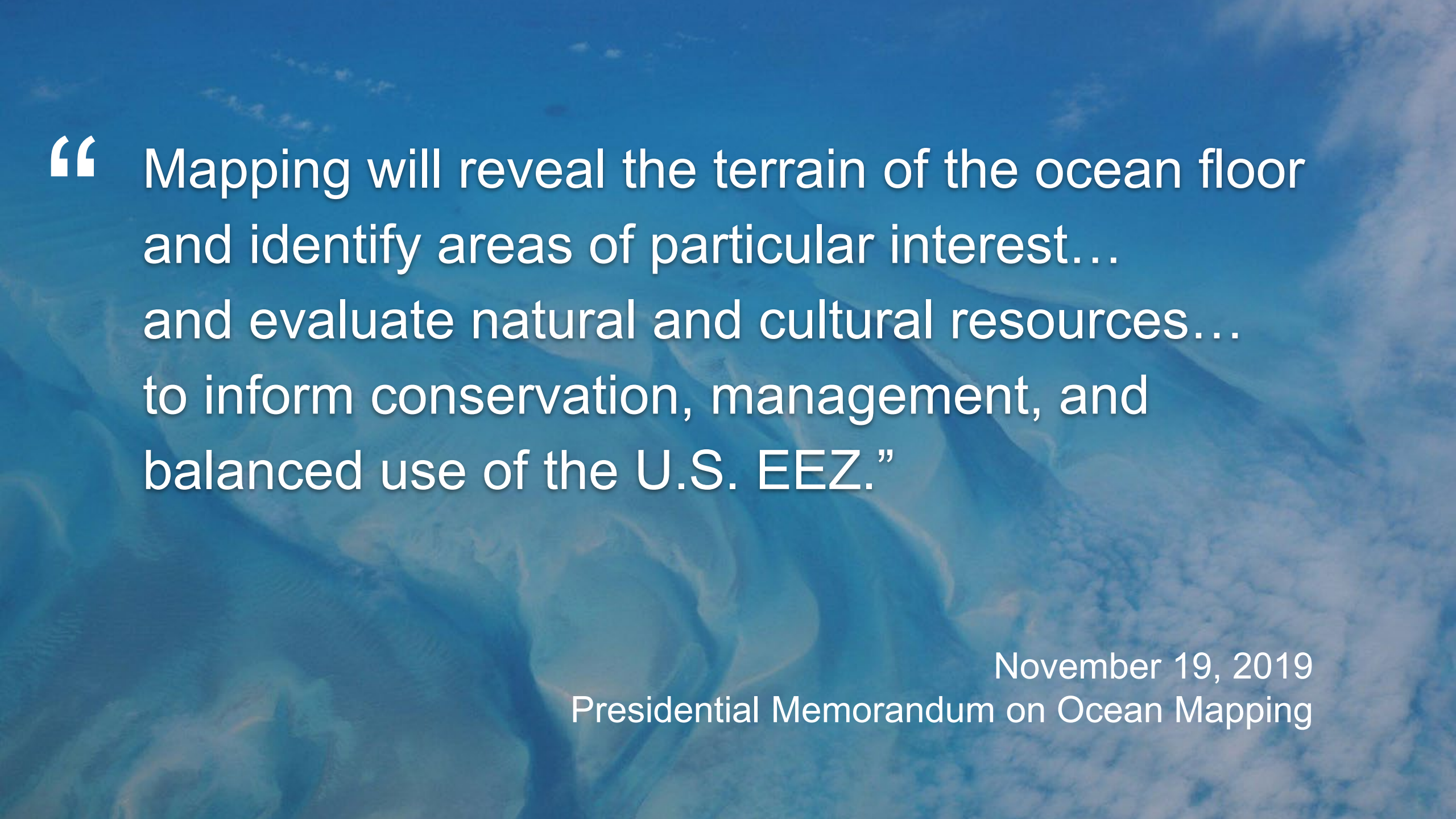
BY THE U.S. NAVY, 1953

NAVY DEPARTMENT, WASHINGTON, D.C.





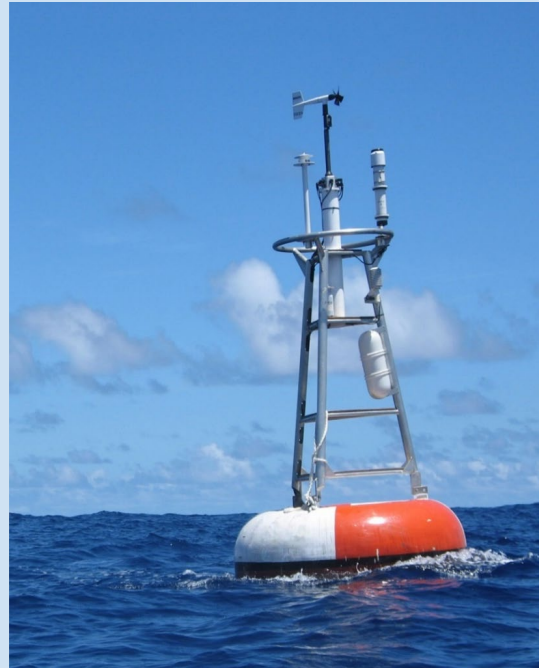
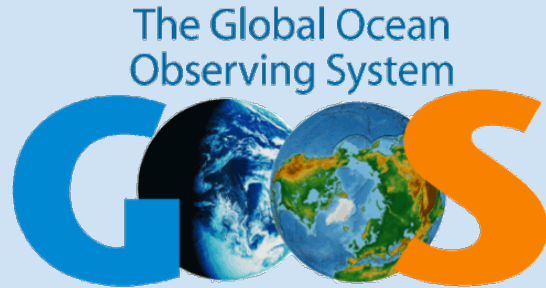
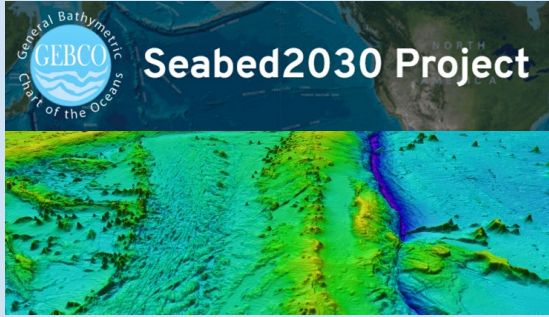


The background of the slide is a deep blue ocean with a faint, light-colored map overlay. The map shows various geographical features, including what appears to be the continental shelf and deeper ocean trenches, rendered in a lighter blue and white color scheme. The text is overlaid on this background.

“ Mapping will reveal the terrain of the ocean floor and identify areas of particular interest... and evaluate natural and cultural resources... to inform conservation, management, and balanced use of the U.S. EEZ.”

November 19, 2019
Presidential Memorandum on Ocean Mapping

Public-Private Partnerships



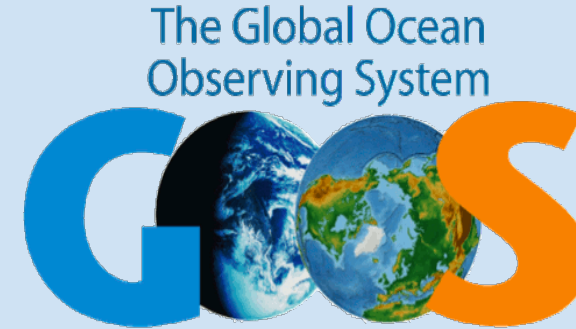
OceanX



International Cooperation



Intergovernmental
Oceanographic
Commission



UN Decade of Ocean Science for Sustainable Development

Proposed R&D Priority Areas



Map the
entire ocean
floor and
processes



Bolster
ocean
observation
systems in
all basins



Conduct an
inventory of
ecosystems
and their
functioning



Develop a
data and
information
portal



Establish an
integrated
multi-hazard
warning
system



New
integrated
models for
ocean
prediction



Strengthen
capacities
and
accelerate
technology
transfer and
ocean
literacy





Leadership: Maxims and Precepts

1. Do what's right; don't overthink it. Rely on what got you this far.
2. Support your people – “I wear your jersey.”
3. Avoid micro-management; trust your people.
4. Life is a team sport ! Engage and play hard. It's not about you.
5. Choose mentors wisely, and let them also choose you.
6. Network, explore Professional Societies.
7. Volunteer! Take leadership roles.
8. Brick by brick, build your foundation, then build your house.
9. Build Constituency for your ideas, your vision, your people.
10. Understand your own ethics and limits; Pick your battles.
11. Never, never, tolerate a bully.
12. Leaders Lead.



THANK YOU

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