



SAILDRONE – OCEAN RESEARCH ADVISORY PANEL BRIEFING

Brian Connon, VP Ocean Mapping | December 3, 2024



OUR MISSION

To sustainably explore, map, and monitor the ocean to understand, protect, and preserve our world

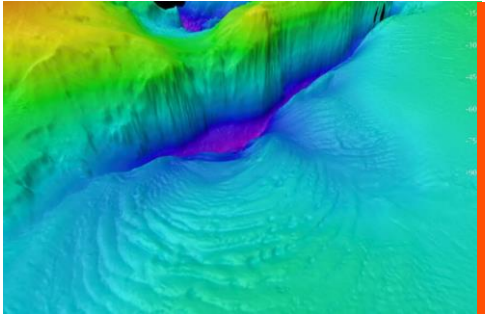
OUR VISION

Is of a healthy ocean and a safe, sustainable planet



Defense & Security

Intelligence, Surveillance & Reconnaissance (ISR)
Force Protection • Law Enforcement • Maritime
Safety • Ecosystem Monitoring



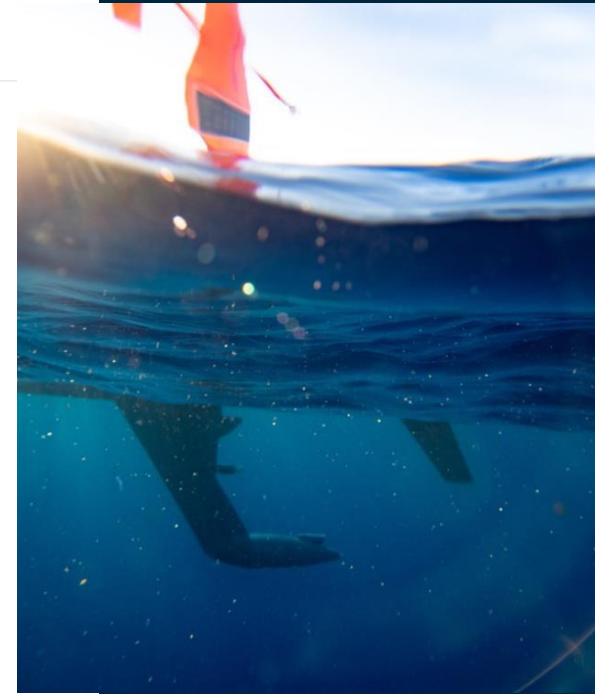
Ocean Mapping

Bathymetric data collection and sub-bottom
profiling for navigation and charting,
telecommunications, offshore energy, and physical
oceanography to 33,000 feet (11,000 m) depth.



Ocean Research

Collecting essential ocean and climate variables.
Fisheries • Metocean Data Collection • Ecosystem
monitoring • Satellite Calibration/Validation



A GLOBAL FLEET OF OCEAN DRONES

Wind and solar-powered,
monitoring the planet in real time,
above and below the surface

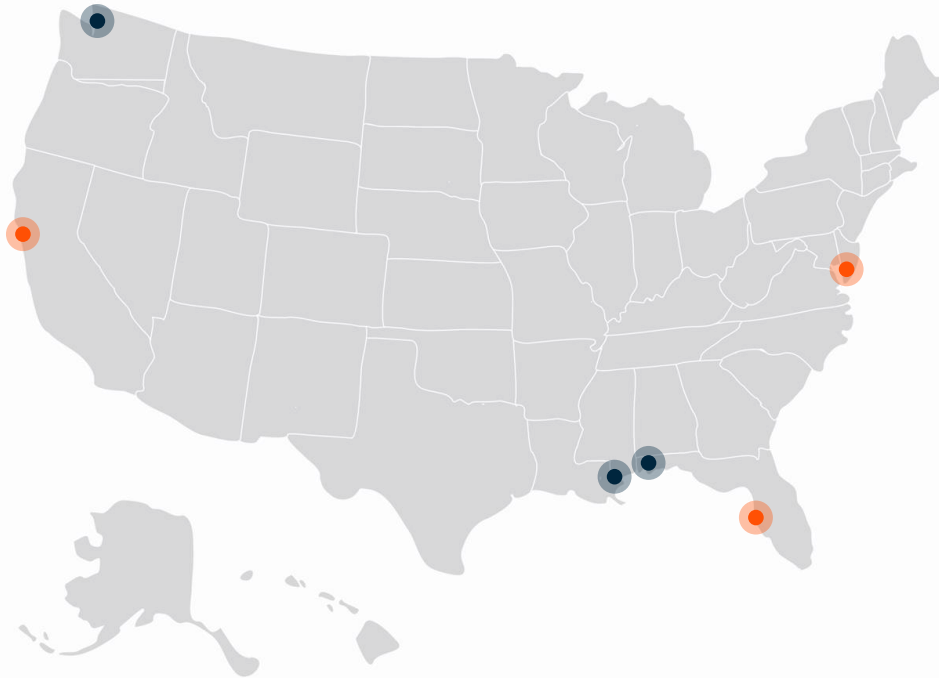
Saildrone Headquarters
Alameda, CA



Ocean Mapping Headquarters
St. Petersburg, FL



Business Development &
Government Relations
Washington, DC



- Saildrone office
- Manufacturing partner

SAILDRONE, INC.

American Made | Owned | Operated



46,000+ DAYS AT SEA

1,600,000+ NAUTICAL MILES SAILED

OPERATIONALLY PROVEN

GLOBAL REACH

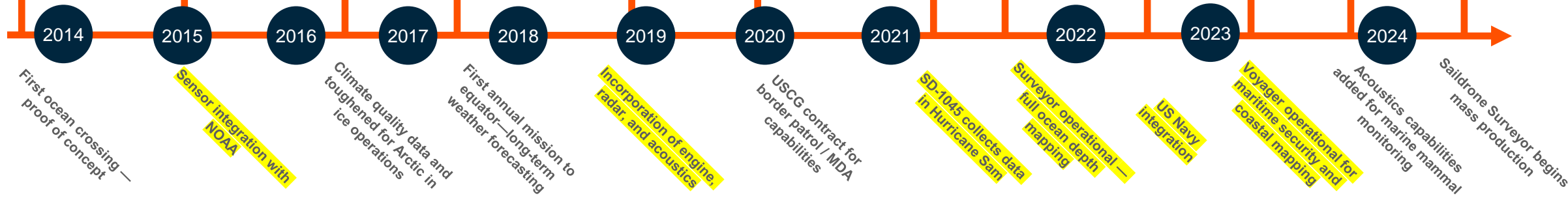
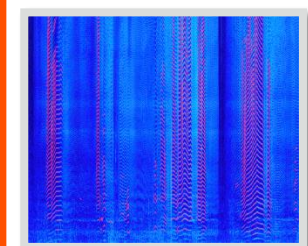
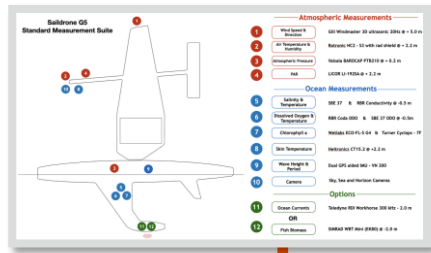
POWERED BY RENEWABLE ENERGY

WHY SAILDRONE

Capable | Proven | Trusted

10 YEARS OF R&D → PROVEN RELIABILITY

Significant barriers to entry, uncatchable technological lead





Wind power
for propulsion

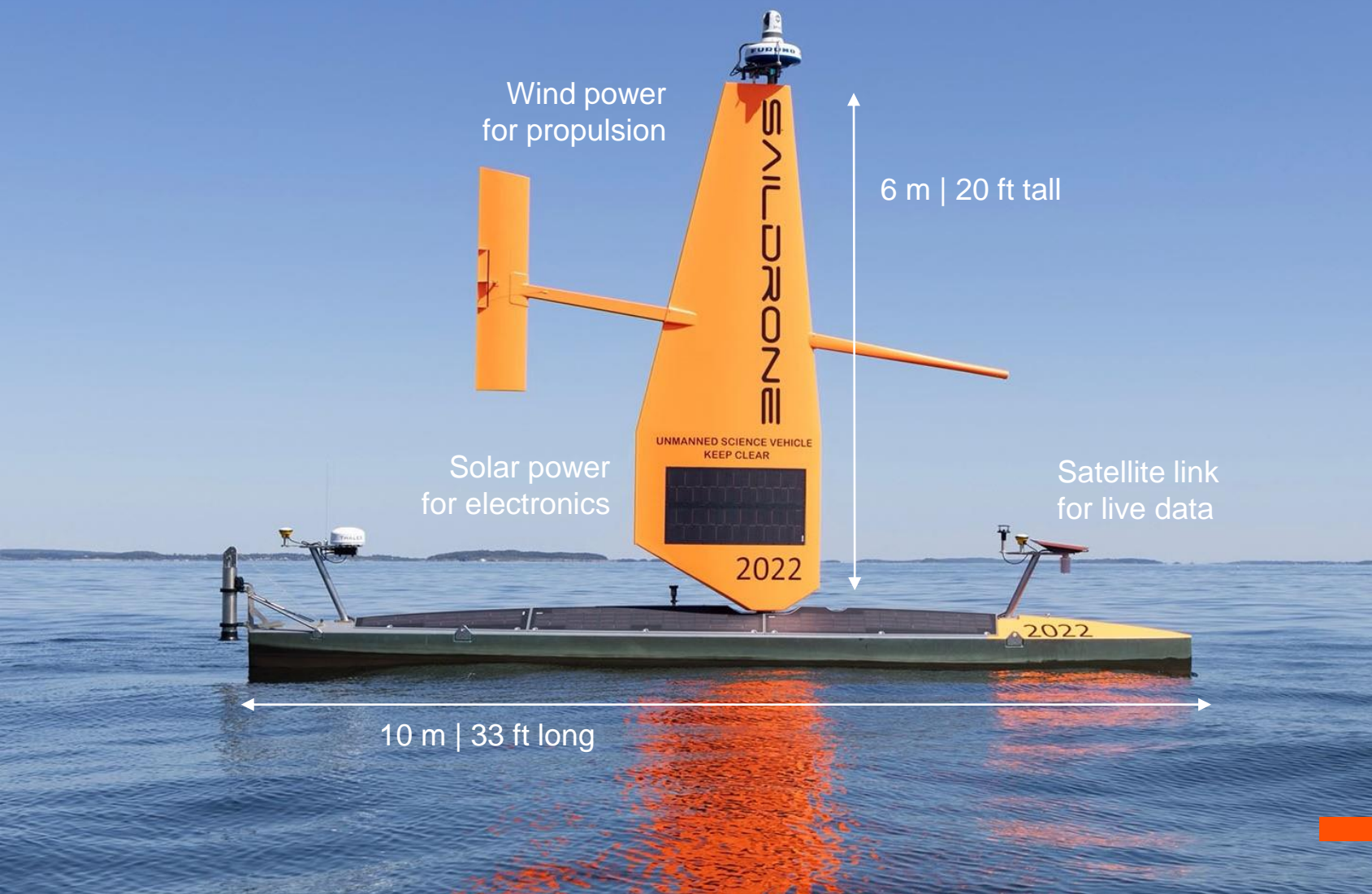
5 m | 16 ft tall

Solar power
for electronics

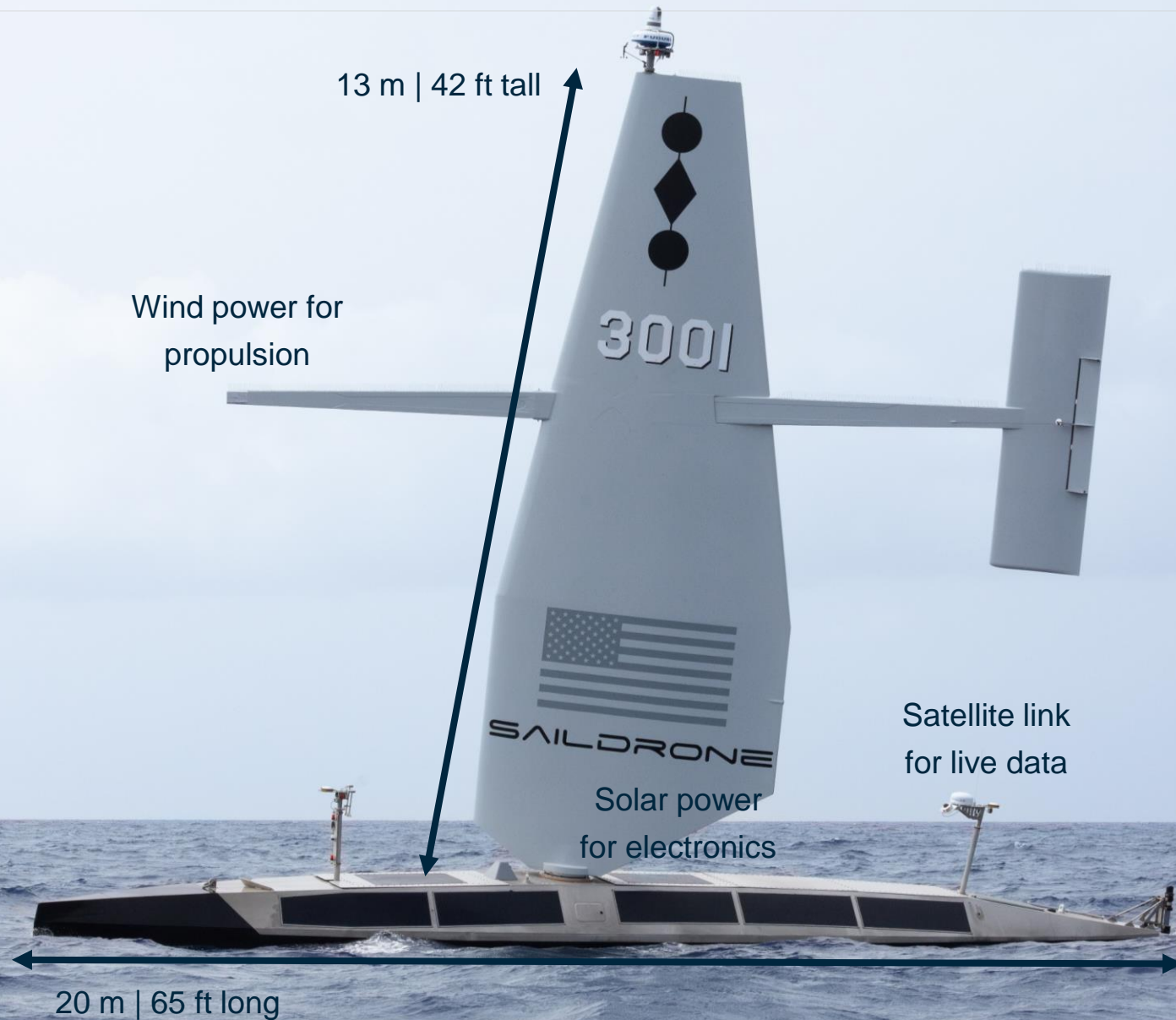
Satellite link
for live data

7 m | 23 ft long

EXPLORER



VOYAGER



Vehicle Specifications

- ▶ Draft: 3 m
- ▶ Primary propulsion: Wind (Saildrone wing)
- ▶ Auxiliary propulsion: 78 hp high-efficiency diesel
- ▶ Mapping speed: 6 kts
- ▶ Endurance: 2,500 nm @ 6 kts under power; 3+ months under sail
- ▶ Payload power: 2,000 W steady state, 4,000 W peak

Sensor Suite

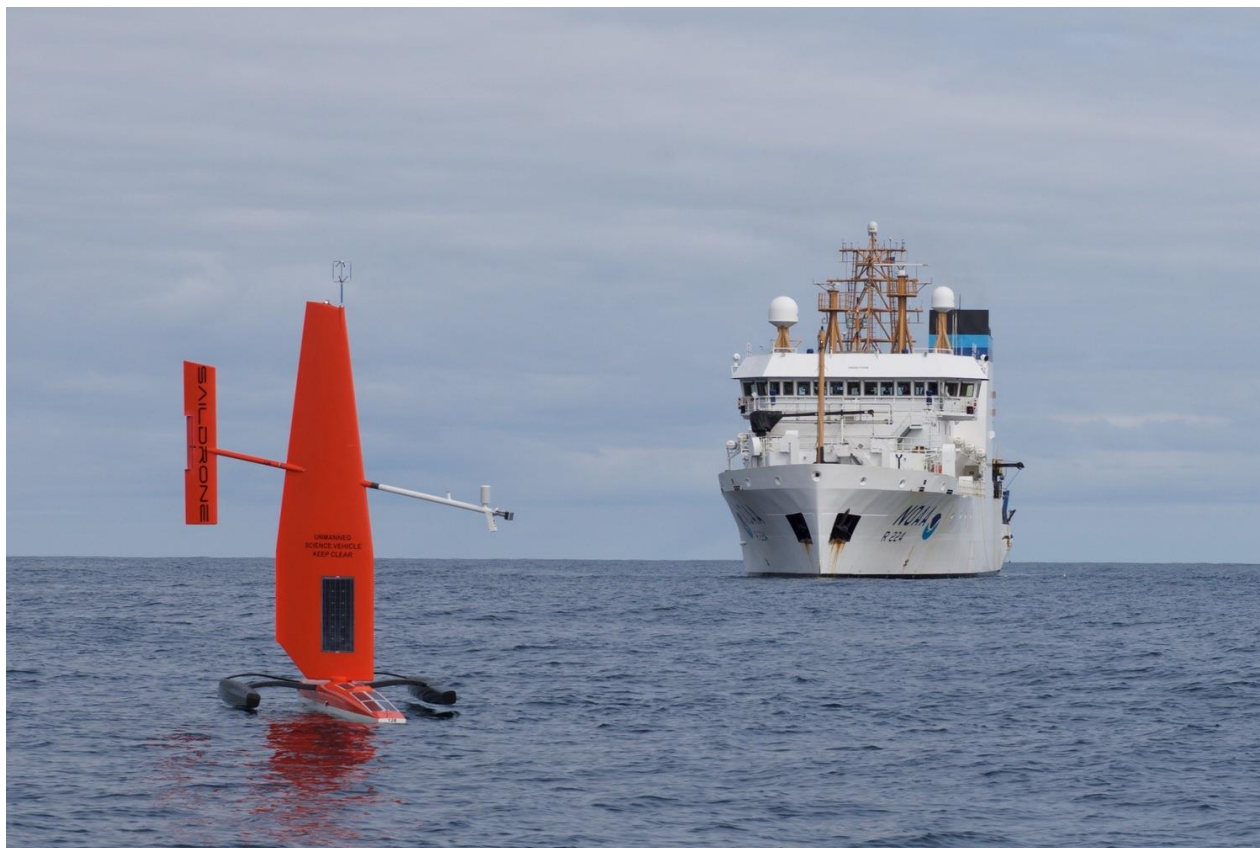
- ▶ Kongsberg EM304 MkII and EM2040
- ▶ Applanix POS MV OceanMaster
- ▶ AML-3 CTD w/ 400m winch line
- ▶ Starlink Communications
- ▶ Teledyne Pinnacle ADCP

Navigation

- ▶ Redundant GNSS
- ▶ AIS
- ▶ Teledyne 360° pan/tilt/zoom FLIR camera
- ▶ Furuno Radar

SURVEYOR

SENSOR INTEGRATION WITH NOAA

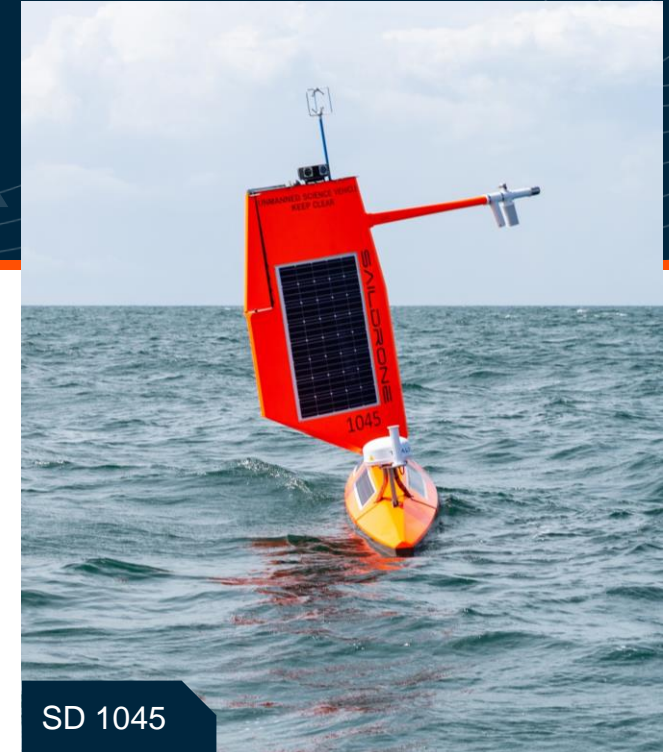


Partner: NOAA

Enabler: CRADA

- Saildrone and NOAA PMEL established a public-private partnership using a Cooperative Research and Development Agreement.
- Resulting collaboration has expanded to support research missions across NOAA, but not at scale.

HURRICANE WING



The biggest challenge to hurricane forecasting is rapid intensification, which can have a huge impact if a storm intensifies just before landfall.

Saildrone and NOAA worked together to sail into the eye of the storm, where it is too dangerous for crewed vessels to venture, to collect critical data from above and below the sea surface.

ASVCO2 TRANSITION

Technology transfer, integration and field trials of PMEL's ASVCO2™ (Autonomous Surface Vehicle CO2) sensor. The overall goal is to make high quality CO2 measurements that are traceable to WMO standards with data available to the SOCAT (Surface Ocean CO2 Atlas) repository.

Partner: NOAA PMEL

Enabler: CRADA



SONAR INTEGRATION

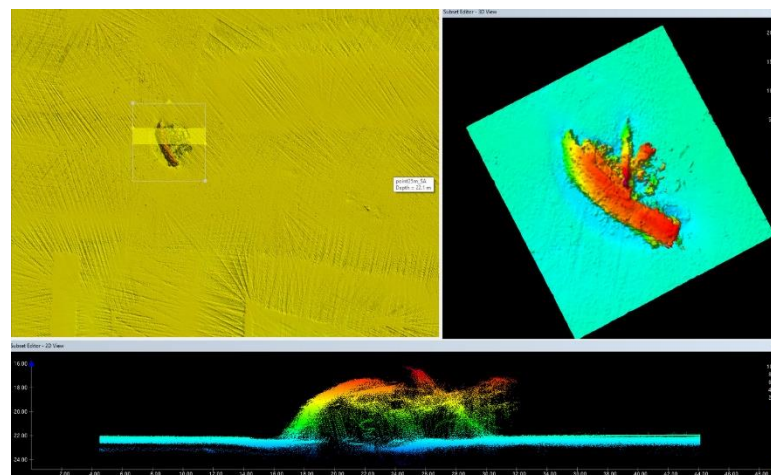
Proof of Concept project to launch a Saildrone USV equipped with a shallow-water multibeam echo sounder in the Gulf of Mexico.



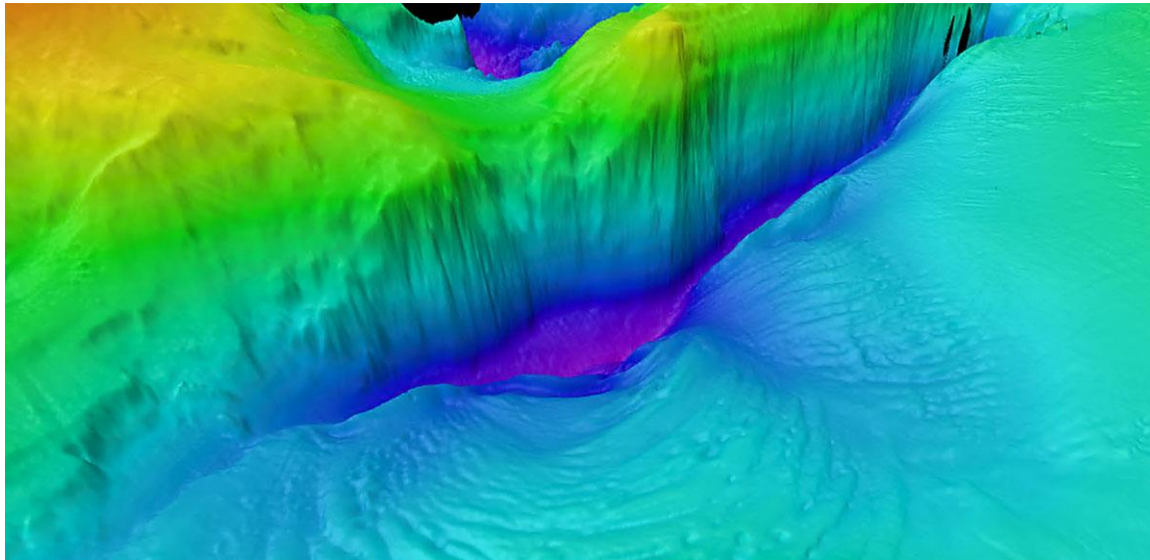
Partner: NOAA Office of Coast Survey

Partner: University of Southern Mississippi

Enabler: Grant / NGI

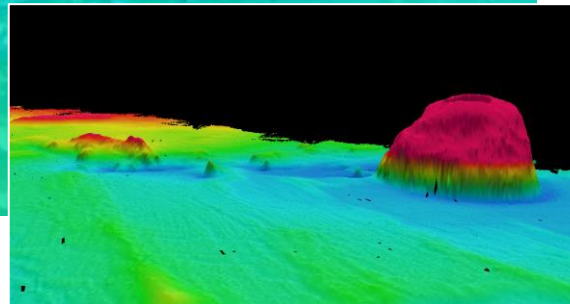


DEEP OCEAN MAPPING



Amukta Canyon

Seamount discovered
off CA coast



Partner: NOAA Ocean Exploration and Research
Partners: BOEM, USGS, Univ of New Hampshire
Enabler: Grant / OEI

Saildrone partnered with NOAA and other Federal Partners to perform a long-term survey around the Aleutian Islands and off the coast of California to address mapping gaps in remote areas with USVs.

Funding provided via the Ocean Exploration Cooperative Institute.

U.S. NAVY INTEGRATION



Enabler: Defense Innovation Unit

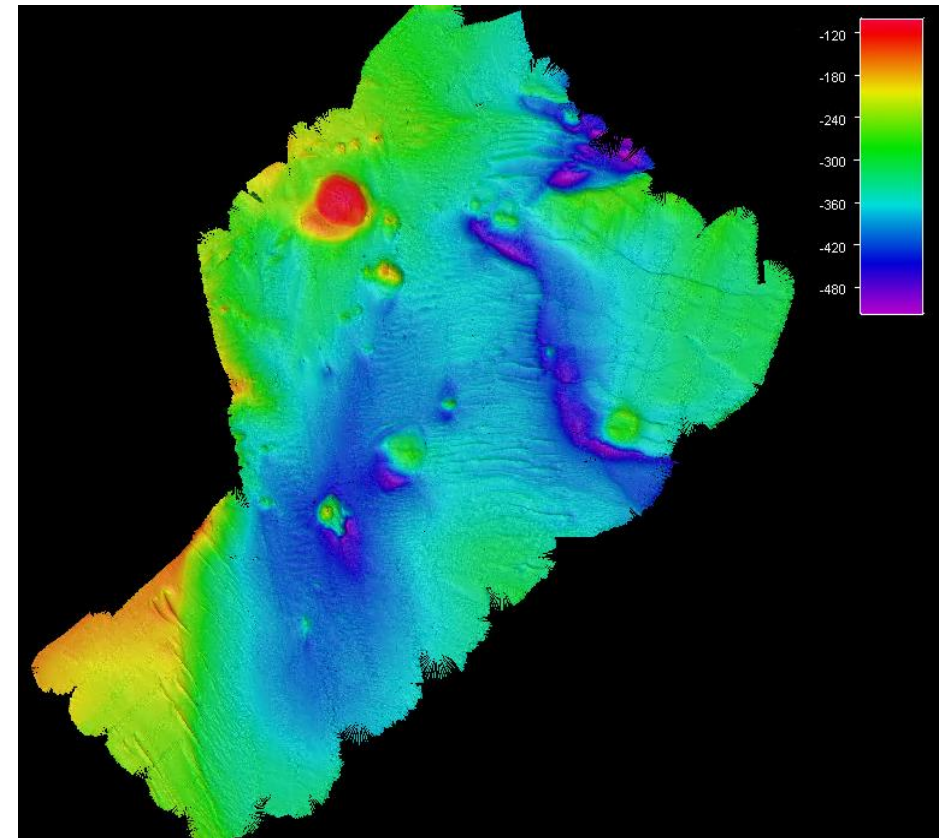
Operation Area: Arabian Gulf

Operation Area: Caribbean Sea

DIU provided funding for a first-of-its-kind mission to explore integration of Saildrone USVs into the operational environment with the U.S. Navy's Task Force 59. The successful mission was later expanded to 4th Fleet, providing increased capacity for counter-trafficking operations.

EXISTING MECHANISMS

- **CRADA**
 - Great for partnering on specific projects
- **IDIQ opportunities**
 - Pre-qualification of vendors in specific areas
 - Example: NOAA OMAO UxS
- **Small business**
 - Example: ProTech family
- **Long term frameworks**
 - Example: Hydrographic Services Contract
- **Broad Agency Announcements**
 - Useful for R&D projects to tackle specific need
 - Example: ONR – Saildrone Evaluation of USV for US Navy Ocean Mapping
- **Accelerators**
 - Example: DIU



CHALLENGES & RECOMMENDATIONS

- R&D projects with no transition path to operations
 - USG needs to commit long term funding once R&D validates the solution
- Data or Mission as a Service models not understood
 - USG must embrace these models to rapidly integrate
- Annual funding and budget delays put private sector at risk
 - Multi-year funding programs that can weather CRs, etc
- Contracting timelines and processes are often arduous
 - Very risk averse approach – need USG to be willing to accept new approaches
- Establishing a “program of record” to solidify long term funding is a complex and lengthy process
 - USG must adopt more agile and flexible acquisition processes
- Challenge industry-we will provide solutions!





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