Oceantech for Observation
A snapshot from 2022

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Overview

Discuss some efforts underway I am personally familiar with (courtesy of philanthropy and startup partners)
- MPA Monitoring USVs & Acoustics
- New Interfaces
- Novel Platforms
- New Data tools

Highlight some other exciting developments from Oceanology International last week (courtesy of in person events)

Inspire discussion
USV: Robo-carrier

System Overview
Robotic team and autonomous operation

- sUAS
- Landing Platform
  - Securing
  - Charging
  - Networking
- WAM-V 22 ASV
  - Coordinated control
  - Networking
  - Communications
  - Power
USV: Robo-carrier
Solar (and Solid) USV

**Data Xplorer Technical Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>3.56 Meters (11.66 feet)</td>
</tr>
<tr>
<td>Beam</td>
<td>0.89 Meters (35 inches)</td>
</tr>
<tr>
<td>Draft</td>
<td>0.46 Meters (18 inches)</td>
</tr>
<tr>
<td>Dry Weight</td>
<td>82 kg (184 lbs)</td>
</tr>
<tr>
<td>Payload Weight</td>
<td>75 kg (165 lbs)</td>
</tr>
<tr>
<td>Hull Material</td>
<td>Carbon fiber and S-glass</td>
</tr>
</tbody>
</table>

**Capabilities**

- **Communications**: Satellite, 3G/4G cellular, and 900 MHz radio
- **Solar power**: 300 watts
- **Battery**: 3.5-10.5 kWh
- **Modular Sensor Payloads**: Underwater (4), air (5), active sonar (6), dry (7)
- **Propulsion**: 1.1 kW / 2.0 kW / 4.0 kW exchangeable pod motor
- **Speed**: Up to 8 kts / 15 kts / 30 kts dependent on motor
- **Mission Duration**: Up to 6 months
Bristlemouth Connector: USB Subsea?!
Novel Platforms

Project NEMO

Mapping

Battery Charging

Satellite Communication

Profiling Float

Antenna

Energy Harvesting

Temperature Difference

Energy

GPS Fix & Data Transmission

Just Innovation
STRATEGIC SOLUTIONS FOR COMPLEX TECHNOLOGIES

March 2022
Data as a Service

GEOSPATIAL DATA PLATFORM

Absolute Ocean is a unique cloud-based solution that makes geospatial data more accessible. Offering secure browser-based visualizations, AO enables users to search, retrieve, share and rapidly QA/QC data with ease.

Absolute Ocean magnifies the power of Terradepth’s solutions – providing ocean and seabed mapping data more effectively and efficiently than ever before.
Oceanology International: Sensors

eDNA SAMPLER
Environmental DNA Sampling
Autonomous eDNA Multi-sampling for the Detection of Biological Genomic Signatures in Water
Oceanology International: Platforms

KONGSBERG

HEFRING ENGINEERING

notilo plus

SEABER

CEIIA
Conclusions

Platforms are diversifying and becoming more affordable

New classes of sensors are emerging

Business models are evolving

Global scale ocean observing will demand a collaboration across industry, academia, government, and the broader public

There is so much to discuss . . .
Discussion

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