Tackling Complexities of Large-Scale Data Management

From Planning to Publishing: Data Coordination and Integration Panel

Alaska Geo-Summit 2025; Rada Khadjinova, Fugro

Unlocking insights from Geo-data

Purpose: Together we create a safe and livable world

In Alaska, we map, model, and monitor built and natural environment

Data Management Challenges

- Data overload
- Fragmented, siloed data
- Accessibility barriers
- Costly delays

Data Management Challenges

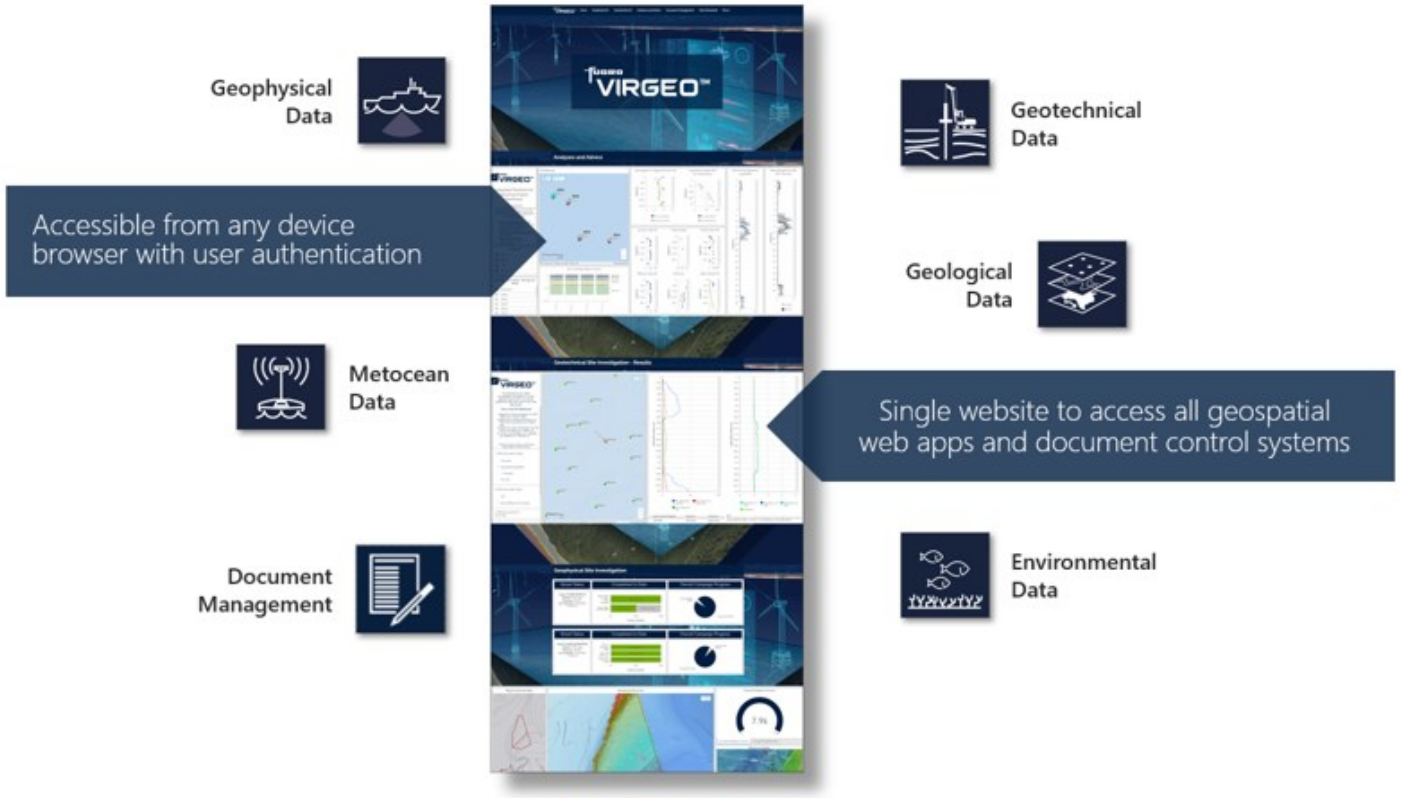
- Data overload
- Fragmented, siloed data
- Accessibility barriers
- Costly delays

Data Management Options

1. Build In-House
2. Outsource
3. Co-Design

Data Management Success Criteria

- Seamless teamwork
- Meaningful insights from data
- Frictionless interoperability
- Maximum value



ISPRA
Marine Ecosystem Restoration Program of the Italian Coast

Just the Facts: ISPRA Ocean & Coastal Mapping

- Satellite Derived Bathymetry: 9,232 km^2
- Airborne Topo Lidar; Imagery, Gravity: 6,124 km^2
- Airborne Lidar Bathymetry: 12,600 km^2
- Shipborne geophysics: 3,800 km^2
- AUV-borne geophysics + imagery: 4,000 ln/km
- Metocean: 10 buoys x 2 years
- Data Volume: 85 TB and growing
- Duration: 5 years (currently year 2 of 5)
- Key Users: 8 government entities

See stories communicating program results here: Virgeo - ISPRA

ISPRA: Data Coordination and Integration

- Seamless Teamwork

  Innovative data-buy incentivized smart planning and SIMOPS to minimize duplication & gaps.

- Meaning and Insights From Data

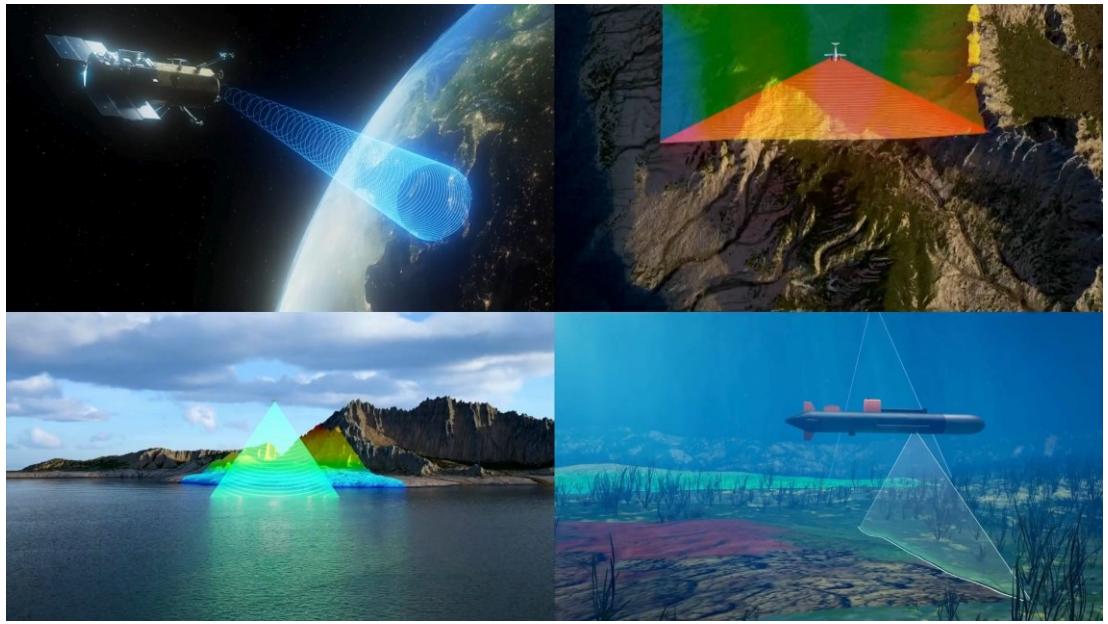
  Portal with GIS and custom tools for planning, progress tracking, visualization, distribution, analyses.

- Frictionless Interoperability

  In service to project managers, GIS professionals, and data analysts.

- Maximum Value

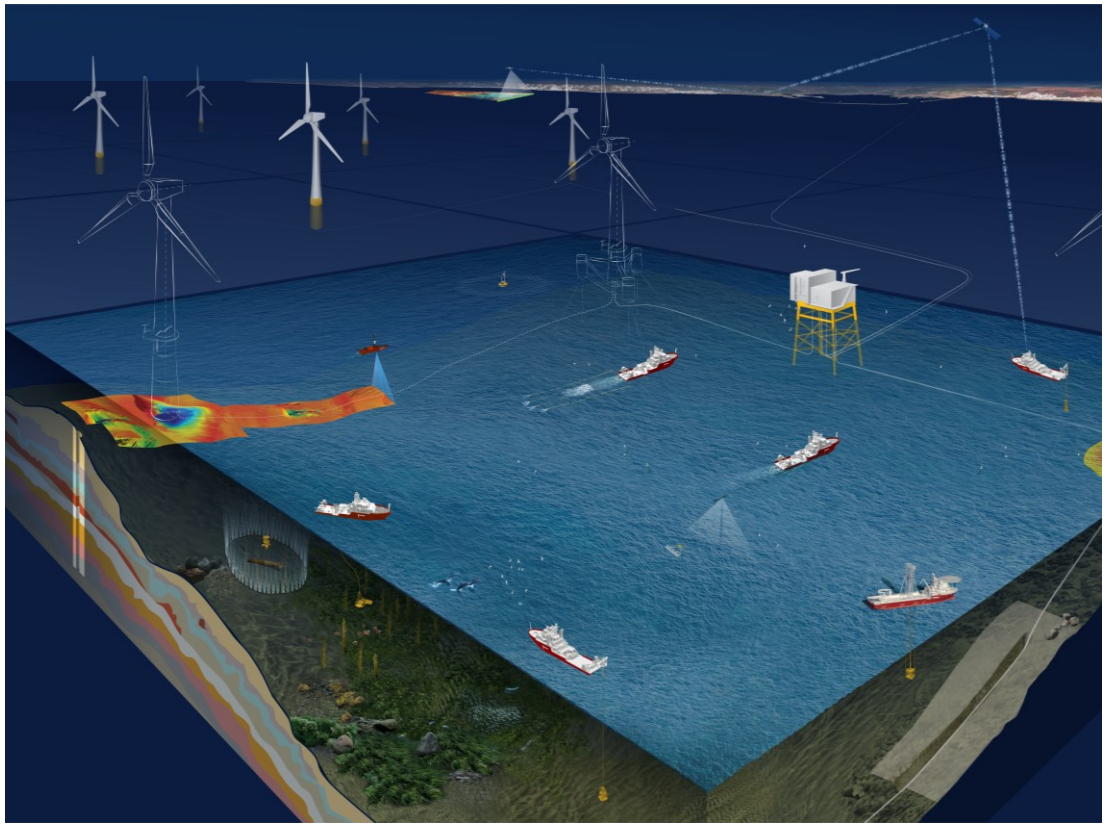
  Custom apps, automation, derivative products.



Atlantic Shores
Offshore Wind Development Program

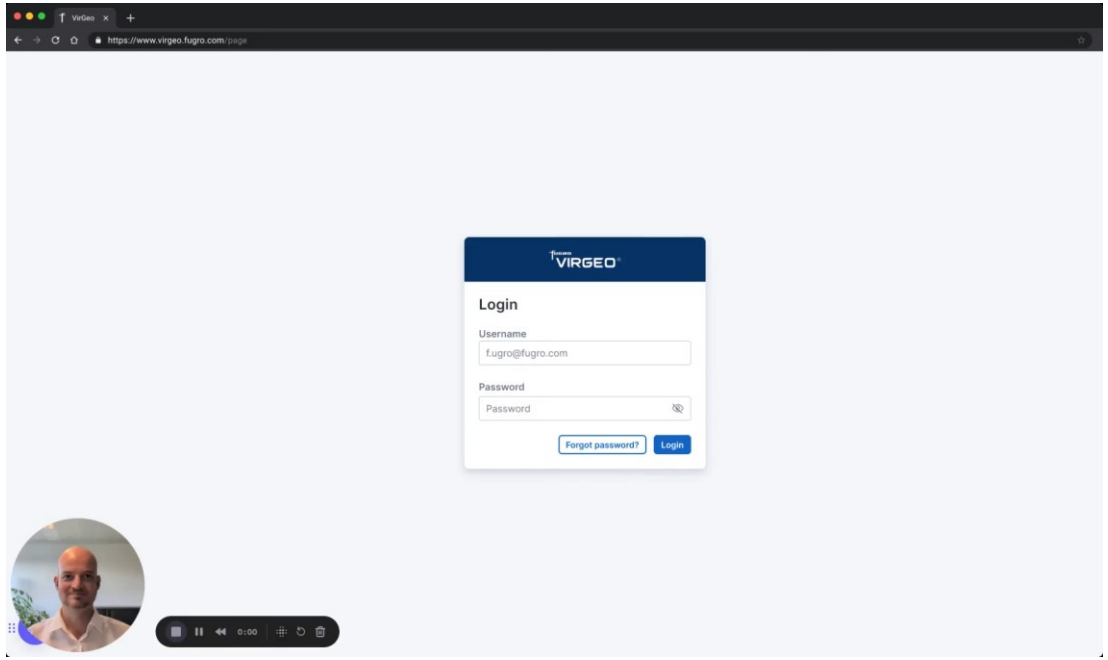
Just the Facts: ASOW, Offshore Energy Development

- 1,000 km^2 over 3 OCS leases
- Geophysical: 51,000 ln km
- Benthic: 375 stations
- Metocean: 2 lidar buoy x 3 years
- Geotechnical: 27,400 m of drilling data recovered
- Survey Platforms: 8
- Data Volume: upwards of 100TB
- Duration: 5 years
- Key Users: Developer, Regulator



ASOW: Data Coordination and Integration

- Seamless Teamwork
  - An authoritative source for data exchange, visualization, and collaboration.
- Meaning and Insights From Data
  - Platform to share project science to build consensus and mutually beneficial outcomes
- Frictionless Interoperability
  - Domain experts form various fields collaborate to optimize design within environmental constraints
- Maximum Data Value
  - API tools enable creation of surplus value when data is shared beyond the initial purpose



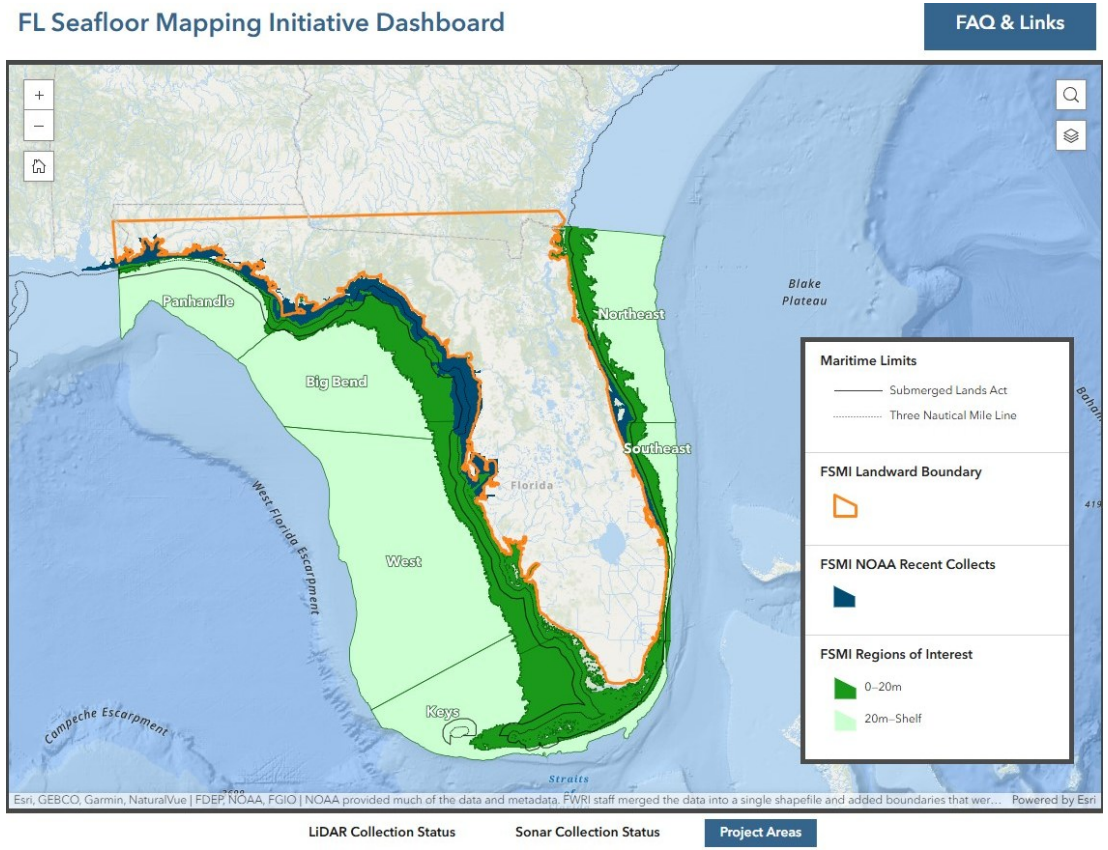
Florida
Seafloor Mapping Initiative

data to fill priority areas and gaps across the State

Just the Facts: Florida Seafloor Mapping Initiative

- Airborne Lidar Bathymetry: 14,000 km^2
- Shipborne MBES and backscatter: 42,000 km^2
- Multi-Modal ops: 5 vessels + 1 aircraft
- Data Volume: 113 TB and growing
- Planning and Procurement: 2017-2023
- Implementation: 2024-2026
- Key Stakeholders: State and Federal Partners including Florida DEP and Florida GIO
- Ultimate Beneficiary: Science entities and Public

XXX



Technology alone is not enough.

Maximizing the value of mapping requires a “win together" mindset.

Although ISPRA and ASOW are very different programs, to tackle challenges of large-scale data management, they both:

- Incentivize synergies
- Incentivize innovation
- Incentivize collaboration

FUGRO

Unlocking **Insights**
from **Geo-data**

Rada Khadjinova, PMP
Sr. Commercial Manager
rada@fugro.com