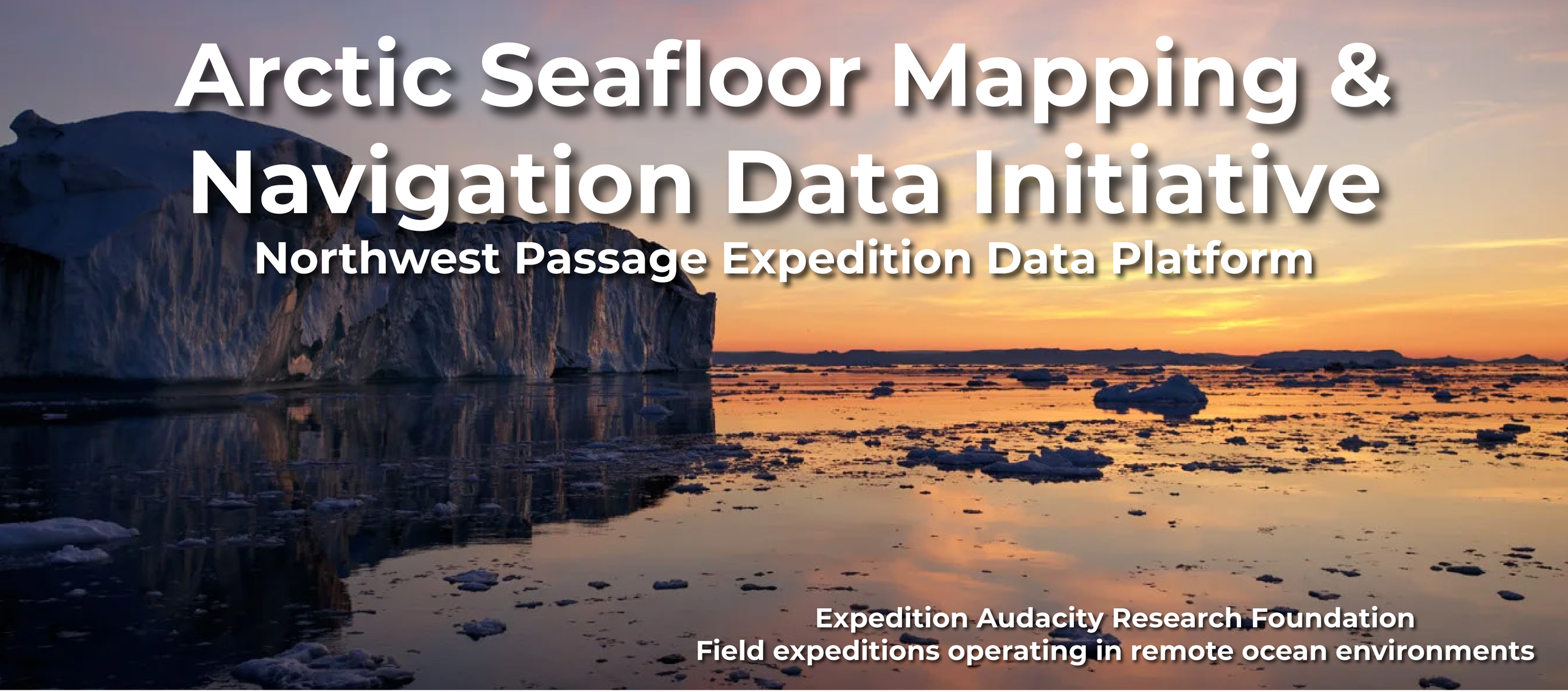
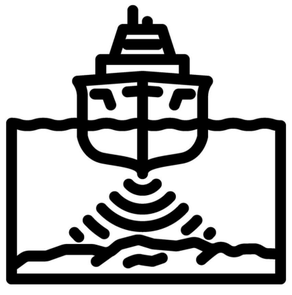
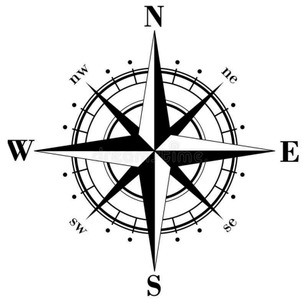
Arctic Seafloor Mapping & Navigation Data Initiative

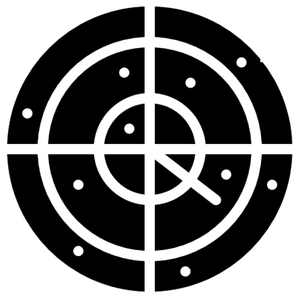
Northwest Passage Expedition Data Platform



Expedition Audacity Research Foundation
Field expeditions operating in remote ocean environments







Digital Ocean Mapping

Expedition data collection can generate:

- High-resolution bathymetry
- Coastal imagery and photogrammetry
- Ice and navigation observations
- Environmental monitoring datasets

Outcome:

A digital model of the Northwest Passage combining.

- **bathymetry**
- **imagery**
- **navigation observations**

The Opportunity

Large areas of the Arctic seafloor remain unmapped at modern high resolution.

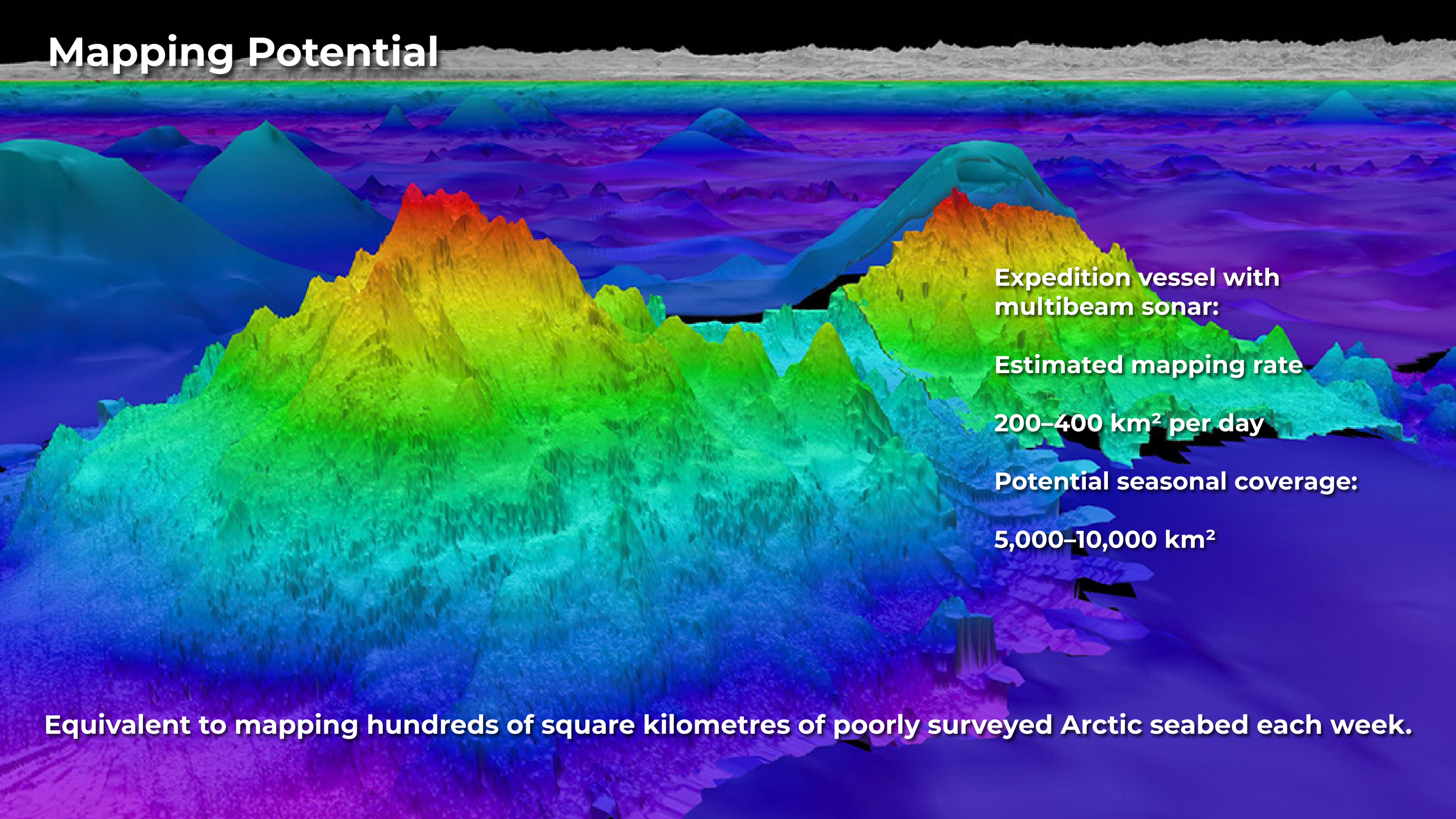
The Northwest Passage is:

- **globally famous**
- **environmentally important**
- **increasingly navigated**
- **still poorly documented visually and below the waterline**

Modern expeditions can now collect data that reveals these regions.

Expand high-resolution bathymetric coverage in one of the world's emerging shipping corridors.

Mapping Potential



Expedition vessel with multibeam sonar:

Estimated mapping rate

200–400 km² per day

Potential seasonal coverage:

5,000–10,000 km²

Equivalent to mapping hundreds of square kilometres of poorly surveyed Arctic seabed each week.

The Expedition Platform

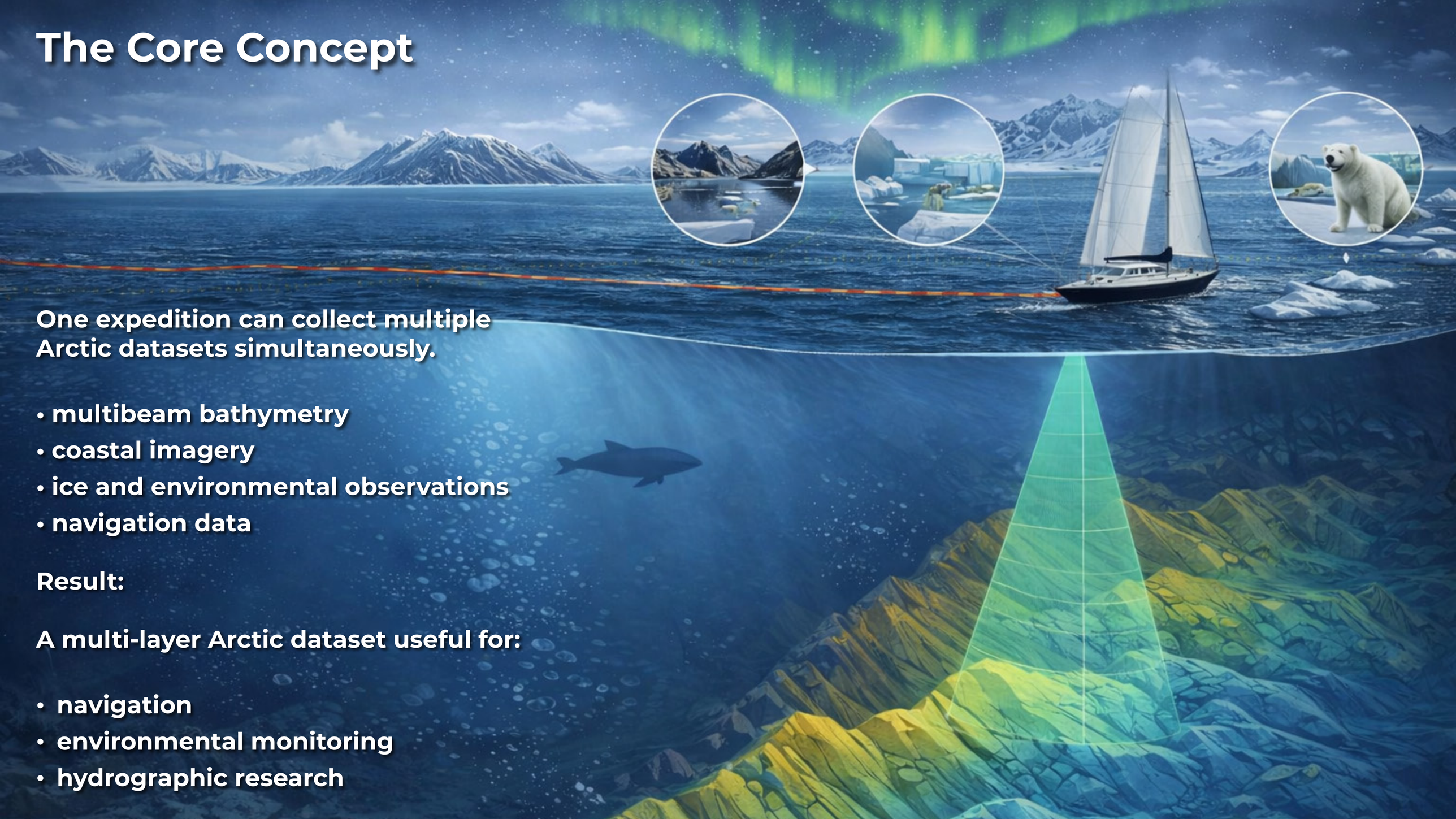
Expedition Audacity operates vessels as mobile ocean research platforms.

Expeditions support:

- seafloor mapping
- environmental monitoring
- hydrographic surveying
- navigation observations
- ice conditions documentation
- remote scientific fieldwork

A vessel travelling through the Northwest Passage can generate multiple forms of environmental data simultaneously.

The Core Concept



One expedition can collect multiple Arctic datasets simultaneously.

- multibeam bathymetry
- coastal imagery
- ice and environmental observations
- navigation data

Result:

A multi-layer Arctic dataset useful for:

- navigation
- environmental monitoring
- hydrographic research

Operational Uses of Arctic Data

This type of dataset could potentially complement several industry platforms.

Applications

Shipping
→ Improved Arctic route intelligence

Hydrographic Firms
→ Supplemental bathymetric survey data

Navigation Companies
→ Chart improvement datasets

Insurance & Risk Modelling
→ Arctic route hazard analysis

Government & Hydrographic Offices
→ Arctic mapping initiatives

Climate Science
→ Seabed and ice observation datasets

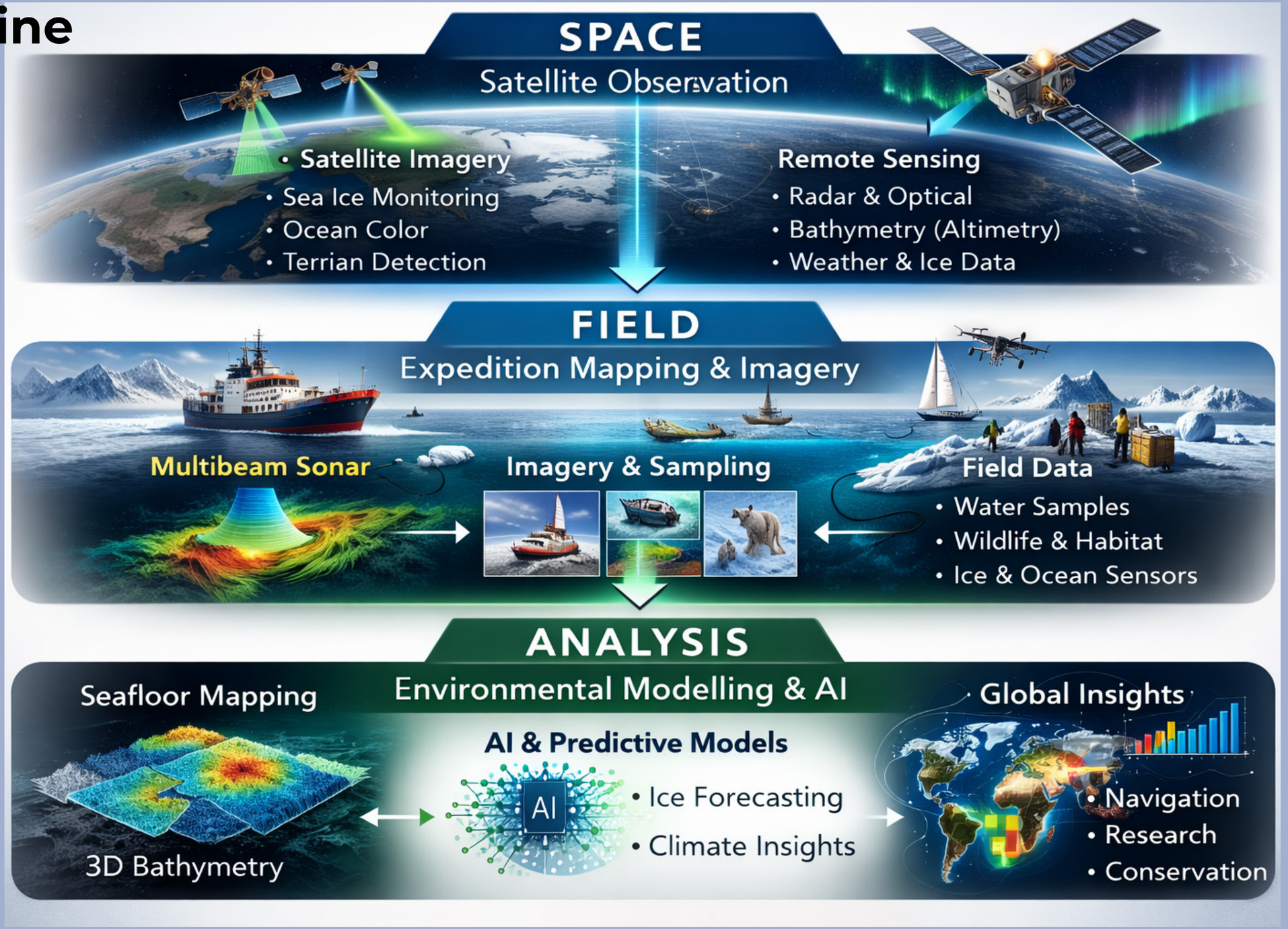
The expedition becomes a source of geospatial and environmental data.

The Data Pipeline

Planetary observation works best when multiple data sources combine.

Expeditions provide ground-level observations satellites cannot capture.

Analysis transforms satellite data and field observations into environmental models and AI-driven insights.



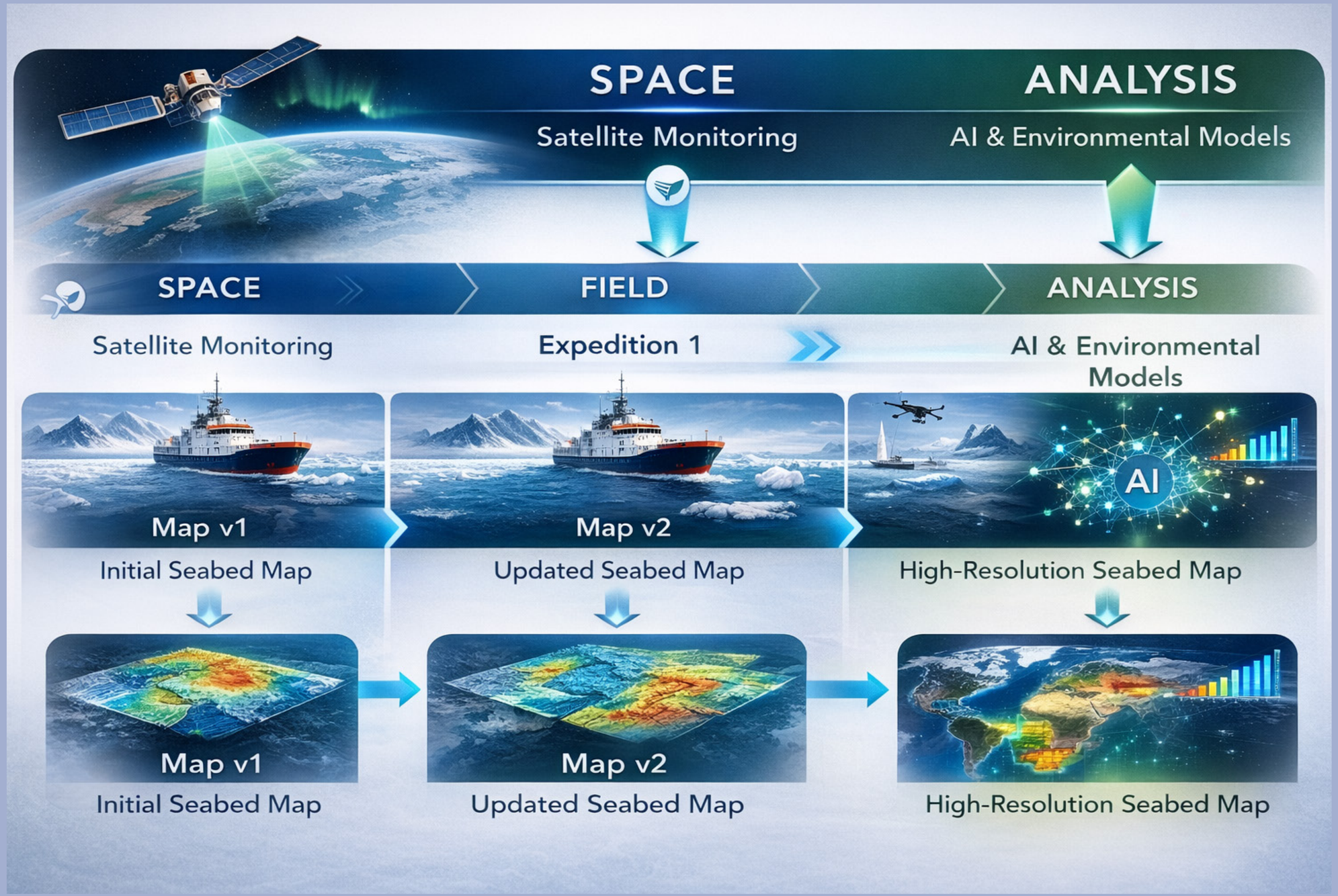
Expedition data will generate new datasets for Environmental modelling & navigation safety

Time-Series Environmental Data

Repeated expeditions gradually expand Arctic environmental datasets.

- glacier change
- sea ice conditions
- coastal imagery
- updated seabed mapping
- updated bathymetric coverage

Together these observations create a long-term environmental record of the region, supporting environmental modelling and AI analysis.



Why the Arctic Matters

Arctic navigation charts remain incomplete in many areas.

The Arctic is changing rapidly.

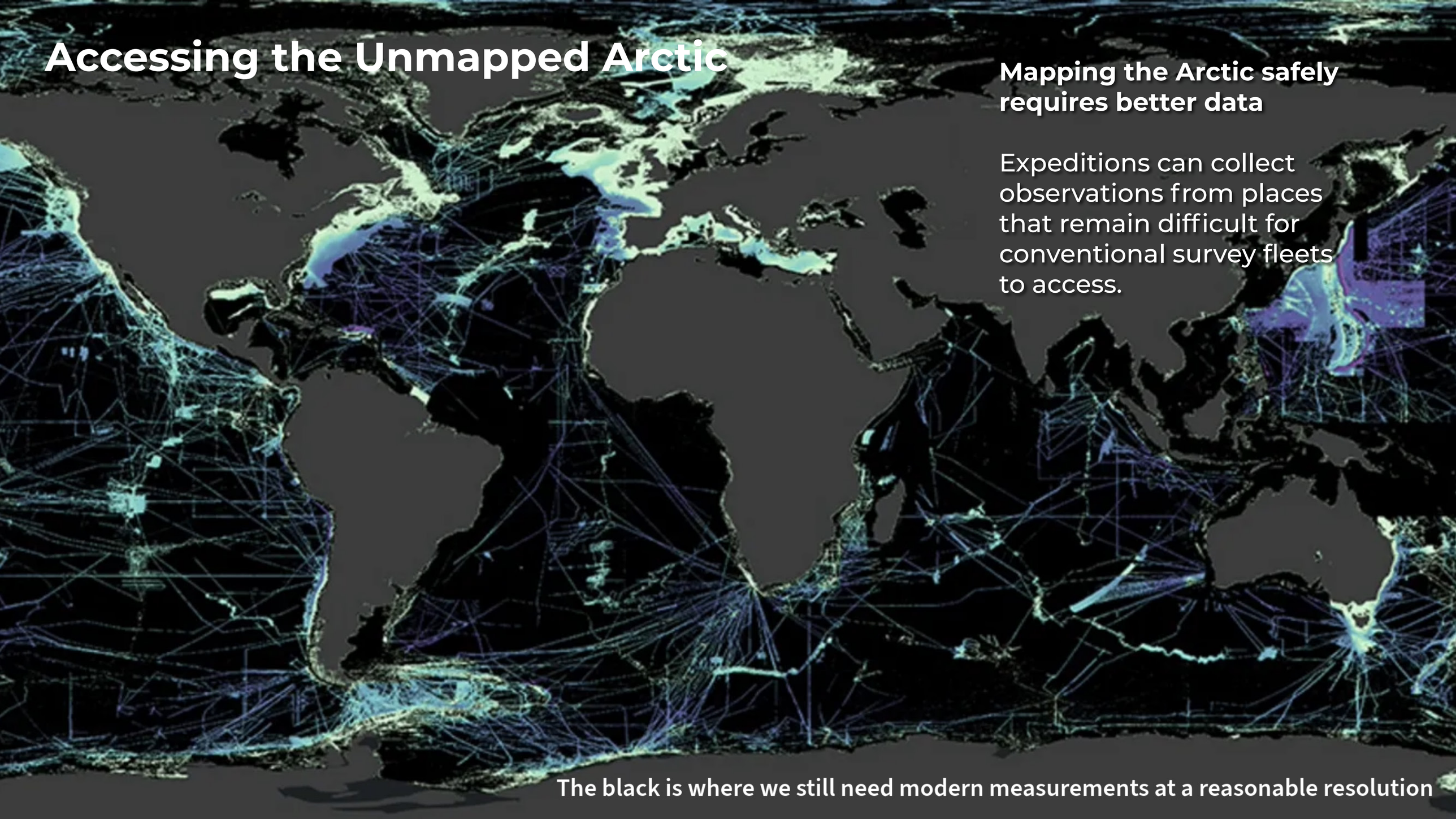
- Emerging shipping corridor
- Increasing vessel traffic
- Limited hydrographic data
- Rapid environmental change

Digital exploration makes the Arctic visible to the world.

Accessing the Unmapped Arctic

Mapping the Arctic safely requires better data

Expeditions can collect observations from places that remain difficult for conventional survey fleets to access.



The black is where we still need modern measurements at a reasonable resolution

Call to Action

We are seeking industry partners interested in:

- Arctic mapping
- navigation datasets
- hydrographic collaboration
- field testing of marine technology

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