



GeoSpace-Sea

Singapore's National Marine Spatial Data Infrastructure

Maritime and Port Authority of Singapore (MPA)

IHO MSDI WG 13

9 May 2022

GeoSpace-Sea Strategic Direction

1. Government Agencies *(in operation)*

2. Research & Education & Industry Entities

3. General Public

Contribute to national, regional and global agendas by:

- Being an authoritative source for marine coastal digital data;
- Enabling solutions to achieve SDGs and;
- Contributing to regional and global data ecosystems.



Marine Geospatial Knowledge Hub

GeoSpace-Sea Community and Governance Structure



GeoSpace-Sea Steering Committee

Chair: MPA

GeoSpace-Sea Application & Research Working Group

Chair: MPA

Geospatial Data Management Working Group

Chair: MPA and SLA

- National SDI and MSDI: A Geospatial-Powered Singapore

- Institutes of higher learnings, research institutions collaborators
- Industry collaborators
- GeoSpace-Sea end-users: government, *research, education, industry, general public*



- Singapore Geospatial Masterplan: *GeoSmart government, GeoIndustry, GeoEmpowered people*
- Operationalised an integrated MSDI and NSDI


Maturing GeoSpace-Sea

INCREASING PARTNERHIPS & DATA SOURCES

Driven by



Supported by



Basemaps



Administrative



Physical



Ecological



Human

GROWING NATIONAL CENTRAL MARINE & COASTAL REPOSITORY

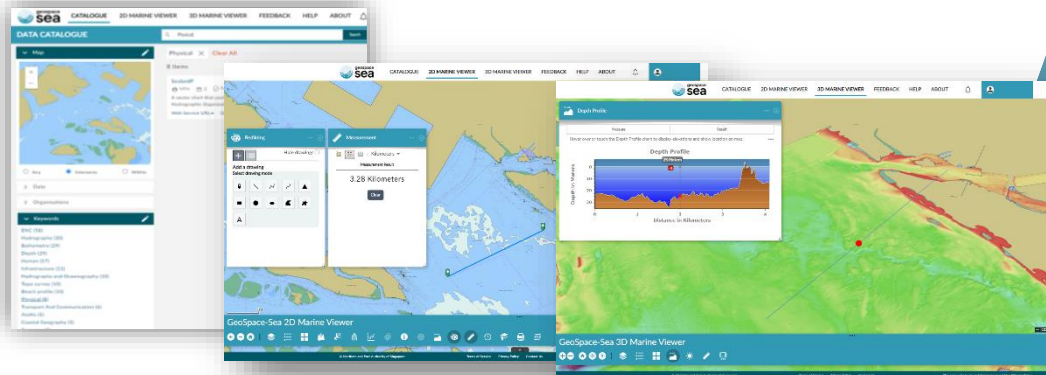
Data consolidation, standardisation, harmonisation and integration



EXPANDING USERS & ENHANCING GEOSPACE-SEA PORTAL

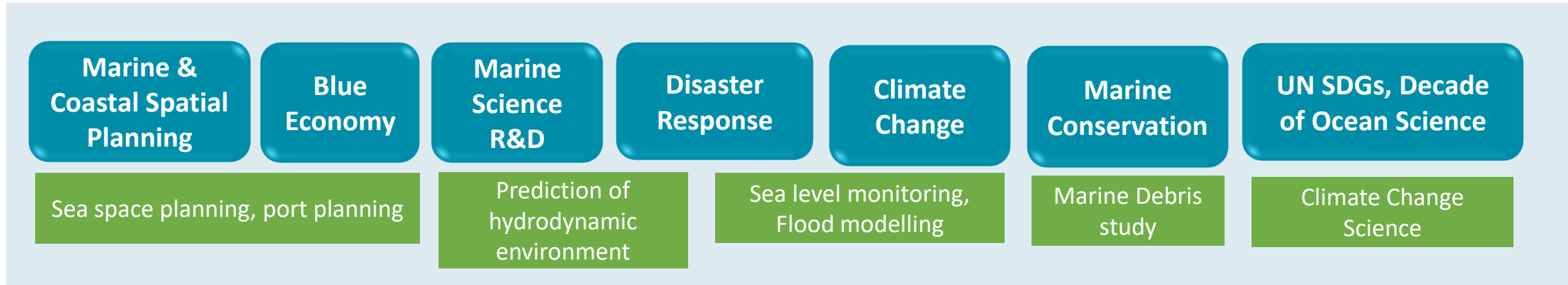


Data discoverability, access, visualisation and analysis



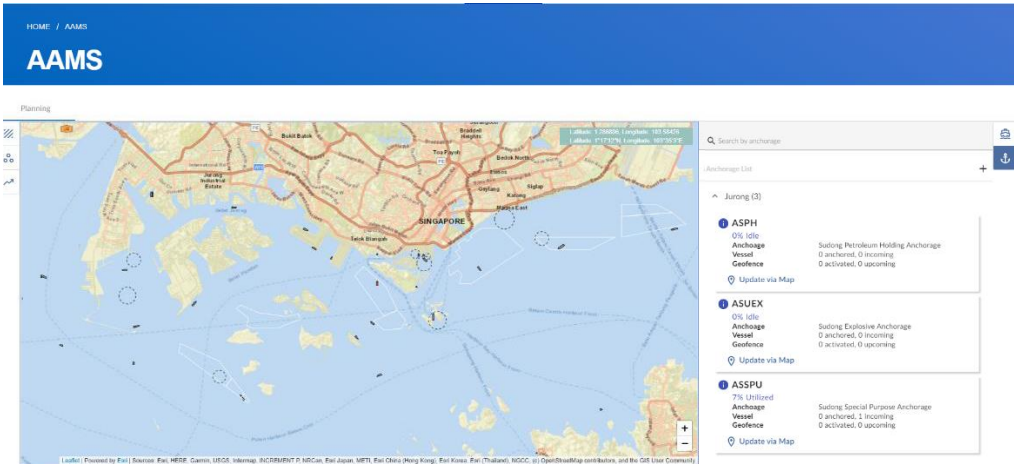
4 featured applications:
Data Catalogue, 2D & 3D Marine Viewer, Data dashboard

GeoSpace-Sea Application and Research



GeoSpace-Sea Use-cases

Active Anchorage Management System (AAMS) in digitalPort@SG 2.0



Lead: MPA

Optimise anchorage spaces:

- Optimization and safer utilization of anchorage spaces to support future growth of Singapore Port
- Minimizing delays and waiting time at anchorage through proactive planning, enhanced information visibility and communication among port community stakeholders
- Improving safety of vessels in anchorage via system's advanced detection capabilities

Vessel and sea data are used to plan the assignment of vessels to anchorage spaces

- E.g. Anchorage areas, bathymetry

Coastal-Inland Flood Model

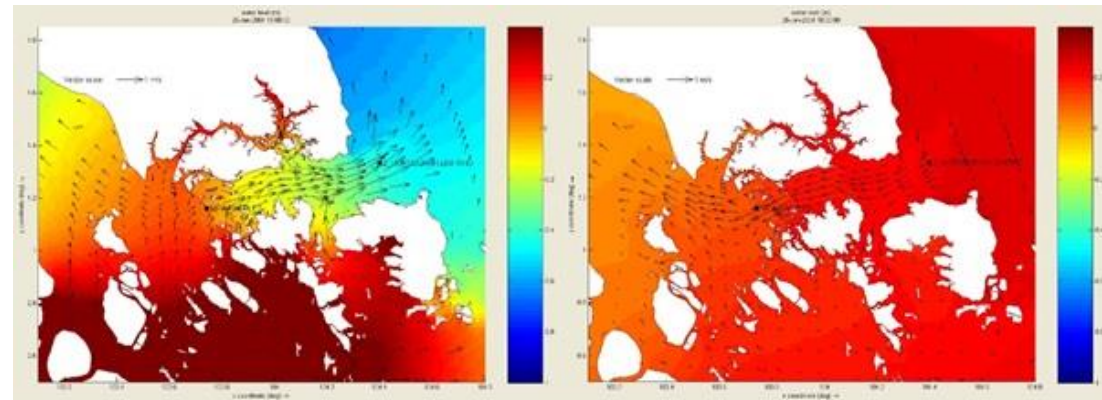
Lead: PUB

Holistic flood risk assessment

- Simulate combined effects of extreme sea levels and inland flooding caused by intense rainfall under different climate change scenarios

Hydrographic data

E.g. Tidal stream, tidal current, bathymetry



Source: PUB (Credit: National University of Singapore)

Looking Ahead



- **Partnerships and collaborations:** GeoSpace-Sea Community, Government-Academic-Industry, Public-users and contributors



- **Operational Sustainability:** Communicating the benefits and value, pricing value-added data and services
 - ✓ Unlock the value of data with application and research
 - ✓ Literature review of costs and benefits of MSDIs and case studies
 - ✓ UN-GGIM Integrated Geospatial Information Framework Strategic Pathway 3 – Financial



- **Enhancing GeoSpace-Sea (data, metadata, standards, services, technology):** S-100 and MSDI
- **FAIR and UN Shared Guiding Principles**

Thank you



M P A
SINGAPORE



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