Geospatial Intelligence for Transnational System Risk Management

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Models and Tools for Governance of the Adriatic and Ionian Seas
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UNIVERSITÀ DI MACERATA
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HR EXCELLENCE IN RESEARCH

MaReMaP-AIR
Piano di gestione delle risorse marine per la regione adriatico-ionica
Marine Resources Management Plan for the Adriatic and Ionian Region

Summary

- Geospatial intelligence & GIS
- Geographic setting of the Adriatic-Ionian Seas
- GIS Applied research for transnational risk management
- Discussion

Geospatial intelligence & GIS

Geospatial intelligence, GEOINT (GEOspatial INTelligence), GeoIntel (Geospatial Intelligence), or GSI (GeoSpatial Intelligence) is intelligence about the human activity on earth derived from the exploitation and analysis of imagery and geospatial information that describes, assesses, and visually depicts physical features and geographically referenced activities on the Earth.

GEOINT consists of imagery, imagery intelligence (IMINT) and geospatial information

Geospatial intelligence & GIS

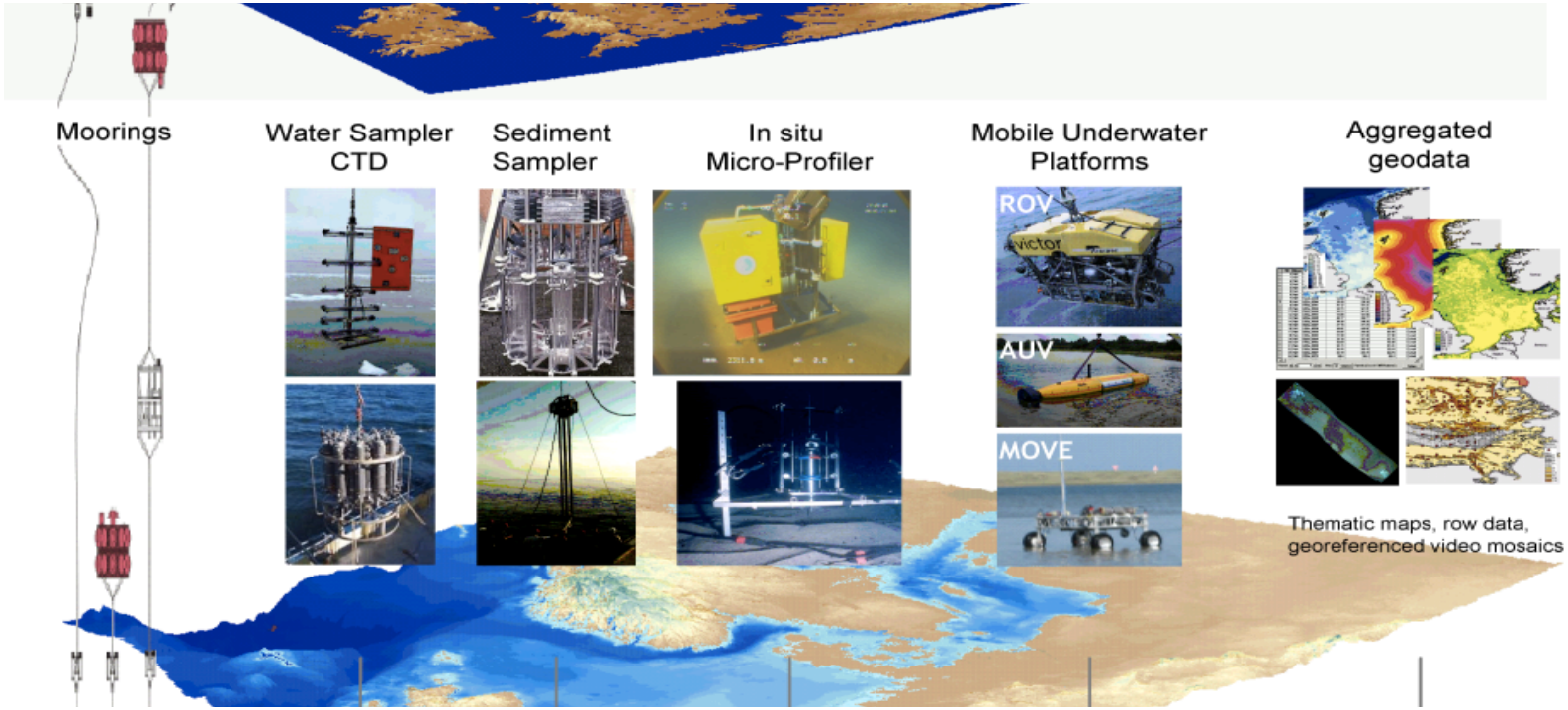
Geospatial Intelligence is a field of knowledge, a process, and a profession. As knowledge, it is information integrated in a coherent space-time context that supports descriptions, explanations, or forecasts of human activities with which decision makers take action. As a process, it is the means by which data and information are collected, manipulated, geospatially reasoned, and disseminated to decision-makers. The geospatial intelligence professional establishes the scope of activities, interdisciplinary associations, competencies, and standards in academe, government, and the private sectors.

Geospatial intelligence & GIS

Earth/Ocean observation

Increasing quantity and quality of observations/measures of physical and human-driven processes and features

Geospatial intelligence & GIS

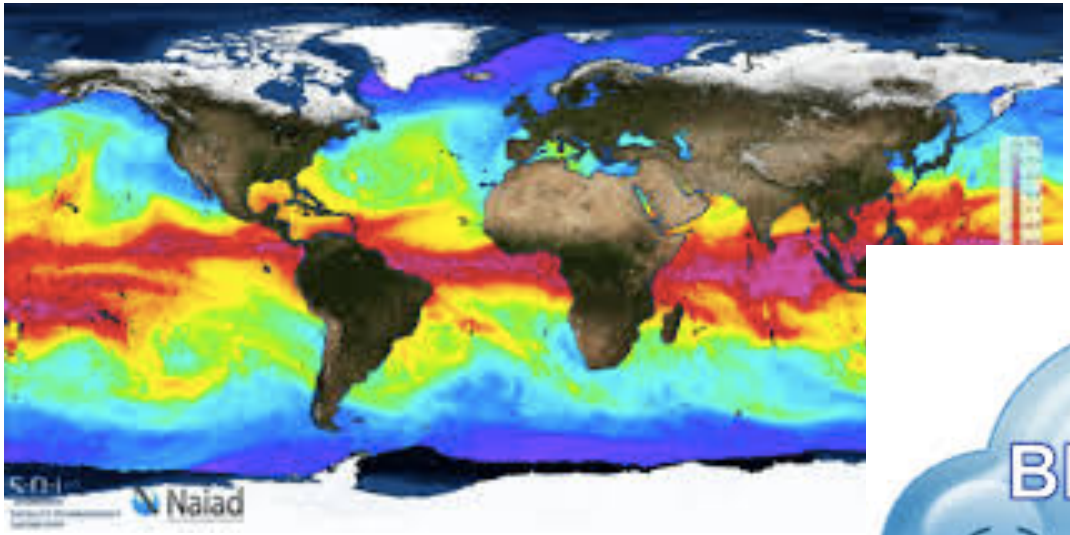


Ocean geospatial data

Measuring ocean bathymetry, climatic/meteo and geo-chemical properties (in space/time)

Monitoring fauna and human activity (cruises, oil tankers, large to small vessels, …)

Open & Big data

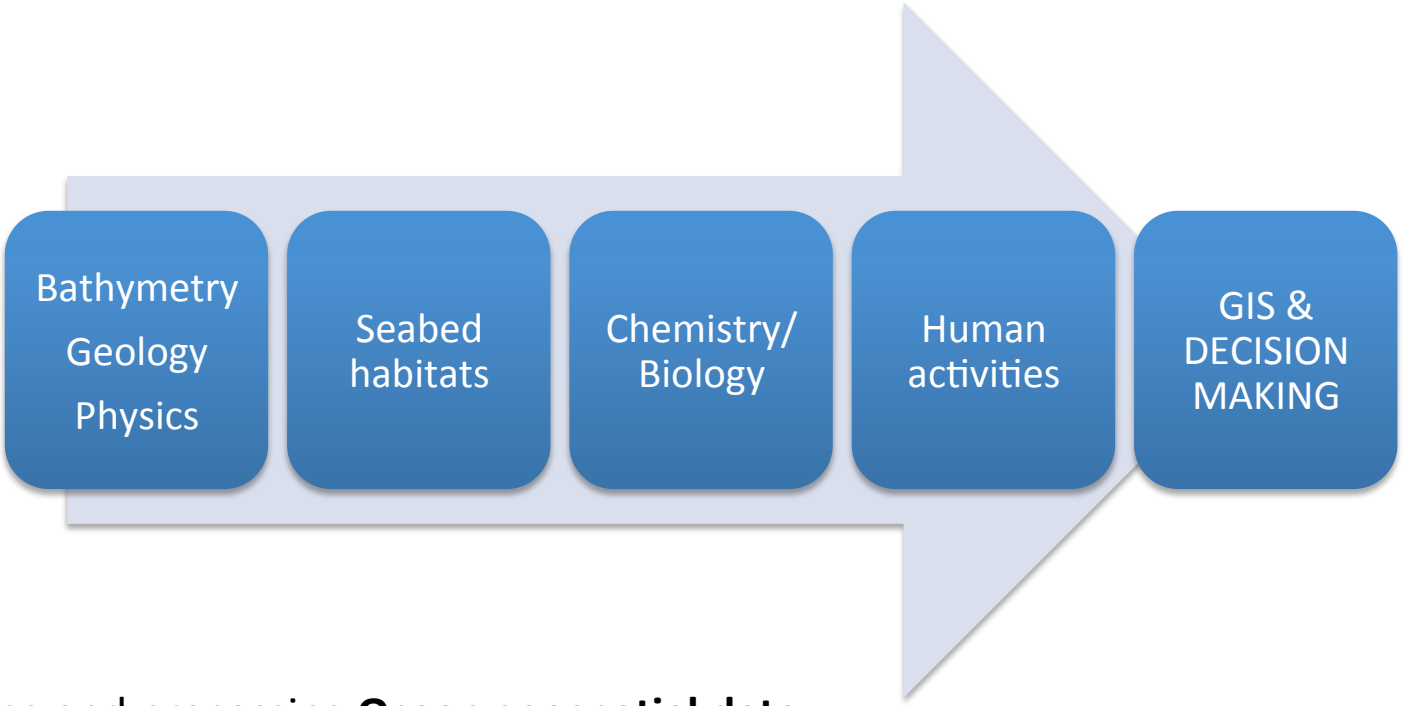


Data rich world and user generated content - > http://open-data.europa.eu/

Measuring ocean bathymetry, climatic/meteo and geo-chemical properties (in space/time)

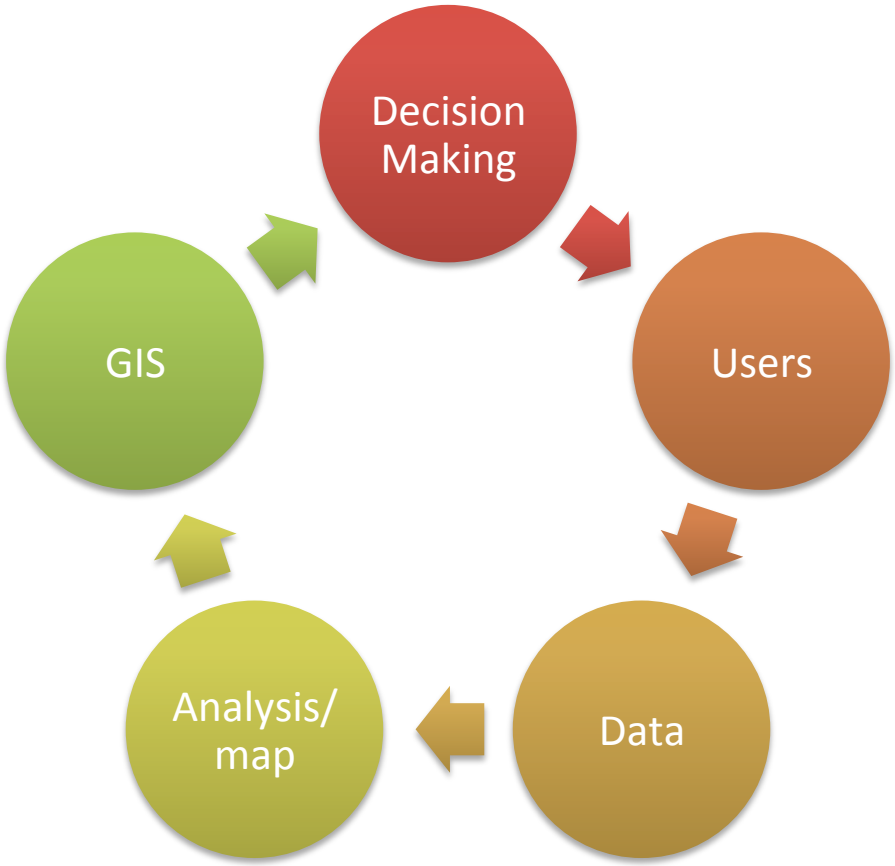
Monitoring fauna and human activity (cruises, oil tankers, large to small vessels, …)

Marine domain observation for Decision Making



Gathering and processing **Ocean geospatial data**
For mapping actual versus planned dynamics -> Supporting Decision Makers
Monitoring fauna and human activity (cruises, oil tankers, large to small vessels, …)

The GIS-based decision making process



Geographic setting

The Adriatic and Ionian Seas link the territories of seven countries: three EU Member States (Greece, Italy and Slovenia), one acceding country (Croatia), one candidate country (Montenegro) and two potential candidate countries (Albania and Bosnia and Herzegovina)

Transboundary Waters

United Nations Educational, Scientific and Cultural Organization
Intergovernmental Oceanographic Commission

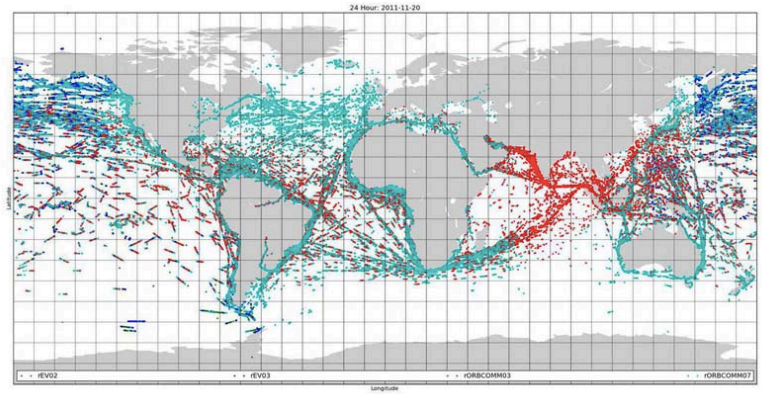
Transboundary Waters Assessment Programme

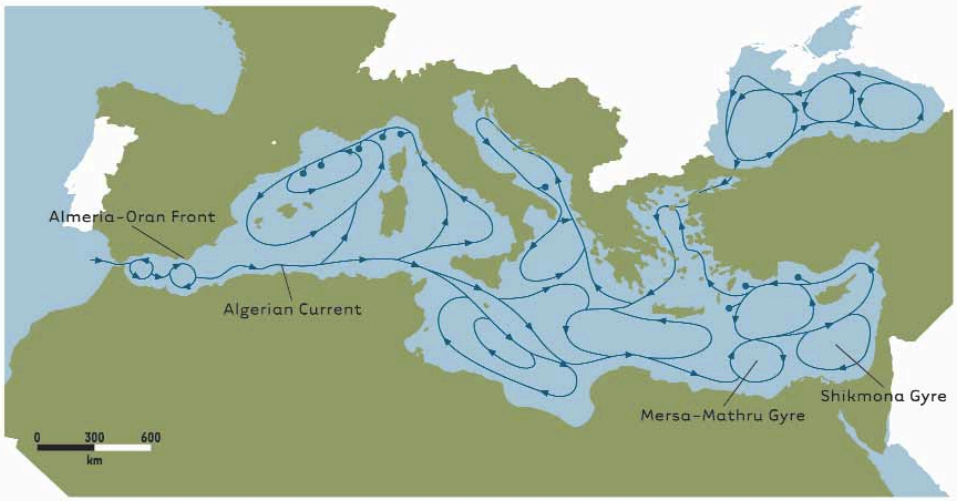
- Groundwater
- Surface water (Lakes and rivers)
- Ocean and Seas

The Intergovernmental Oceanographic Commission (IOC) of UNESCO is leading the assessment of the Open Ocean, which is the largest of the planet's transboundary water spaces.

Transboundary Water Assessment program

TWAP
TRANSBOUNDARY WATERS ASSESSMENT PROGRAMME

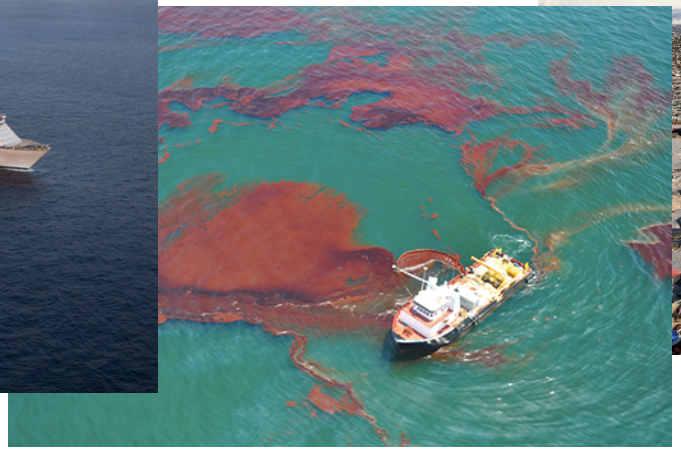




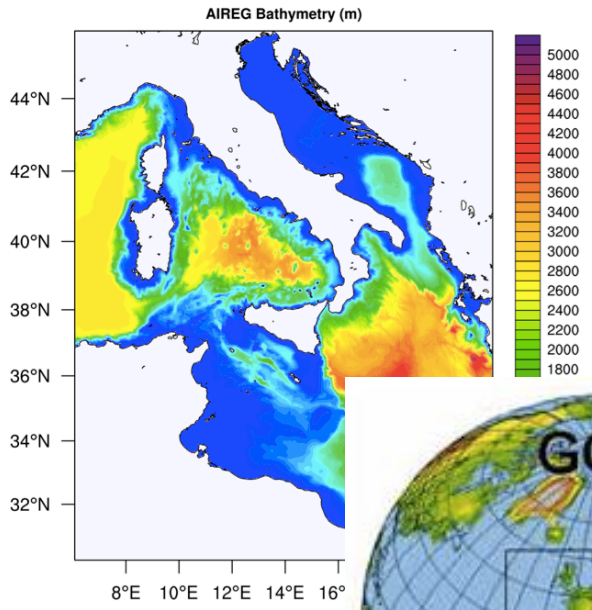
Transboundary waters also include the open ocean and 55 large marine ecosystems (LMEs) collectively covering almost 70% of the Earth's surface

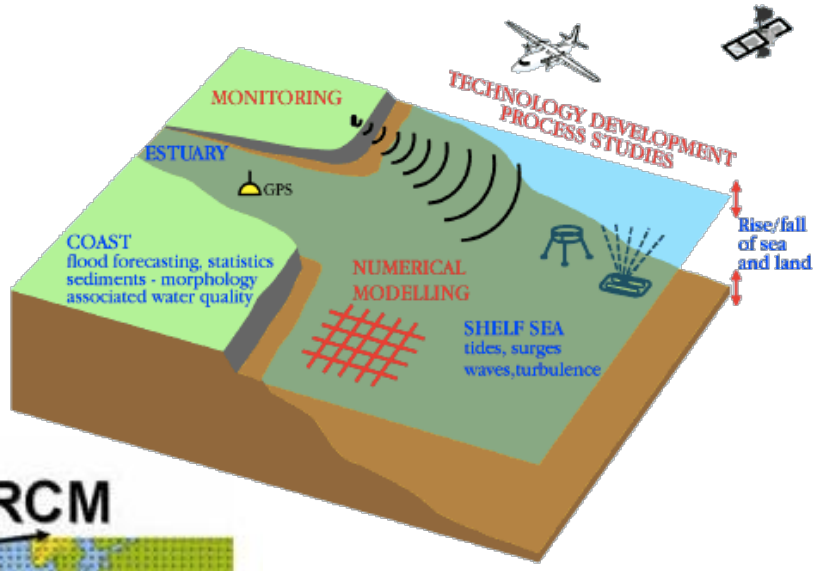
GIS applied research for transnational risk management

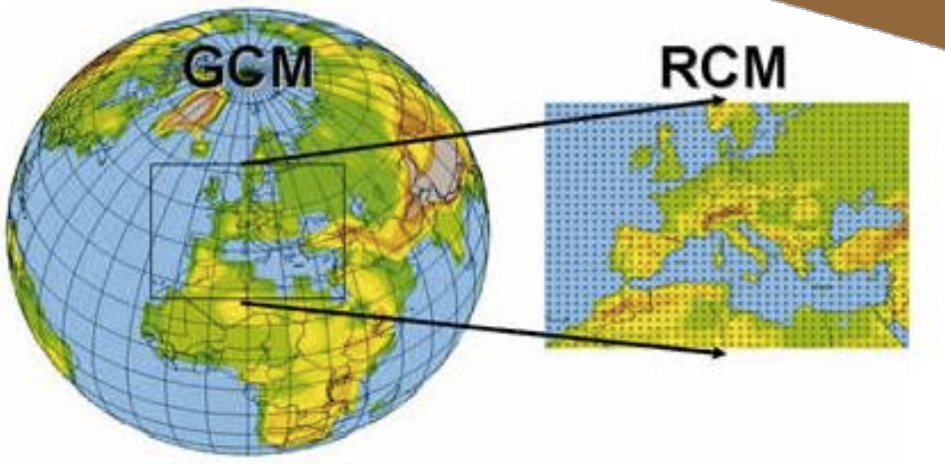
- Natural hazards (Storm surge, tsunamis)
- Ocean pollution (oil spills, …)
- Oil exploitation and shipping
- Cruises and touristic vessels



Ocean geospatial and numerical modelling







Discussion

- Wealth of geospatial data for mapping static/dynamic marine processes and features
- Trending topic of open/big data (User Generated Content) for map udpates
- GIS and geospatial intelligence as the Knowledge Base for data/information robusteness and homogeneity
- Risk management by means of geo-water numerical modelling
- Data Portal and web interfaces feeding GIS-based decision making process (Government activity)

Thanks for your attention. Questions?

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