



Marine  
Monitoring

# Copernicus space program The marine service



Seas, Rivers, Islands  
&  
Coastal Areas

CO-ORGANISED BY:



CPMR  
CRPM



1. A European Green Deal
2. An economy that works for people
3. A Europe fit for the digital age
4. Protecting our European way of life
5. A stronger Europe in the world
6. A new push for European democracy



In Situ

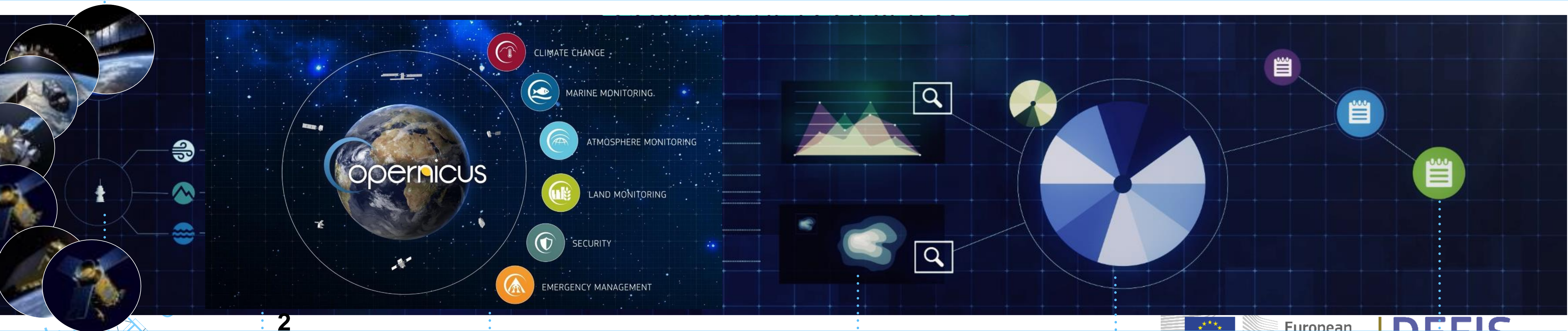
#vdLcommission



## EU SPACE PROGRAMME

FROM GLOBAL EARTH OBSERVATION TO LOCAL INFORMATION AND DECISION-MAKING

### SENTINELS & CONTRIBUTING MISSIONS



IN SITU SENSORS

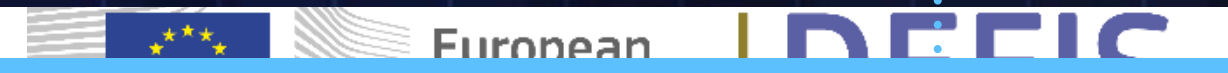
DATA

SERVICES

INFORMATION

TAILORED PROCESSES

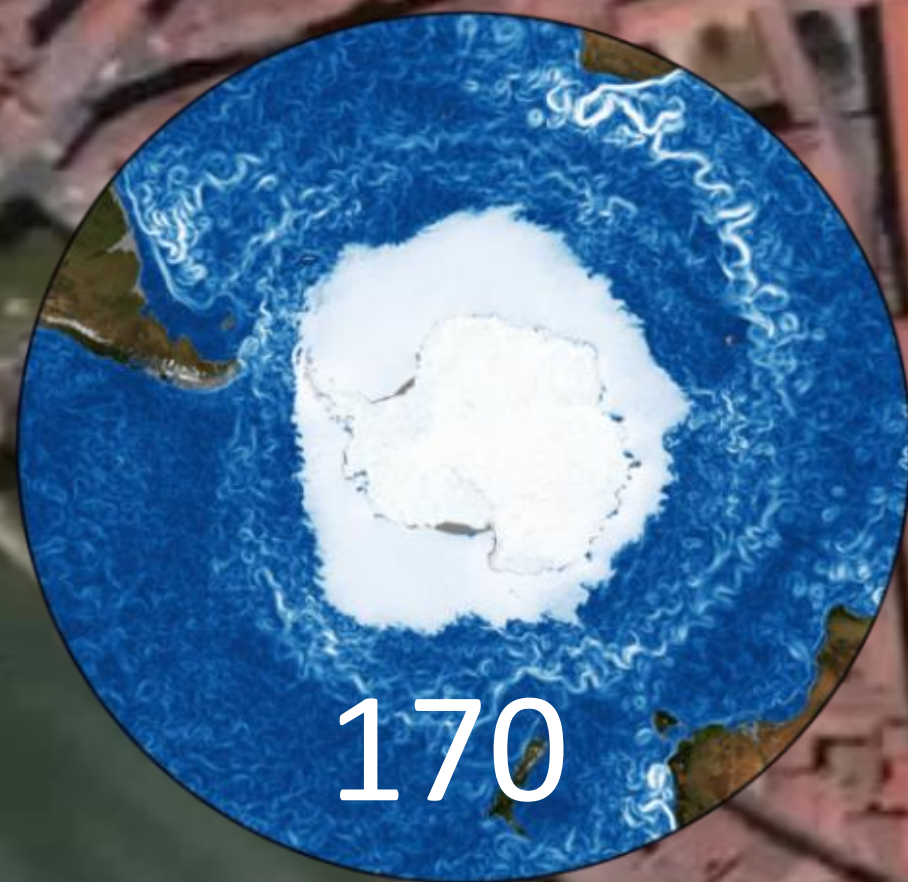
PRODUCTS



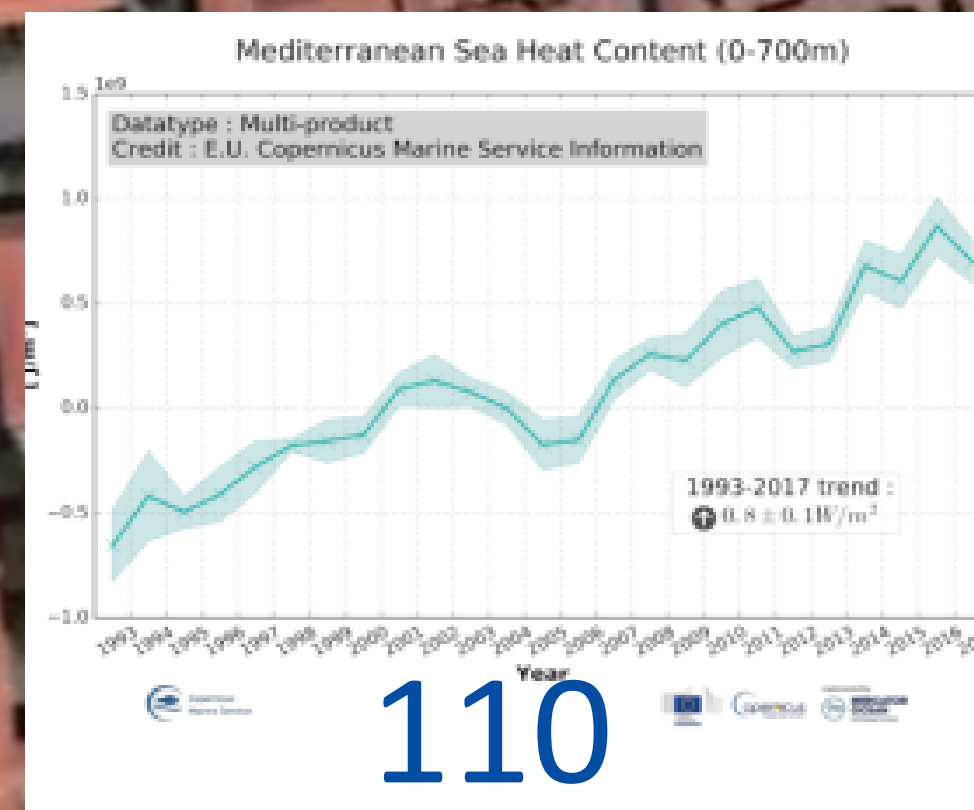
# Ocean information is a public good

Which kind of information ?

For whom ?



OBSERVATION  
FORECASTS  
CLIMATE RECORDS



OCEAN  
MONITORING  
INDICATORS



OCEAN STATE  
REPORTS



SEA  
BASINS



SECTORS



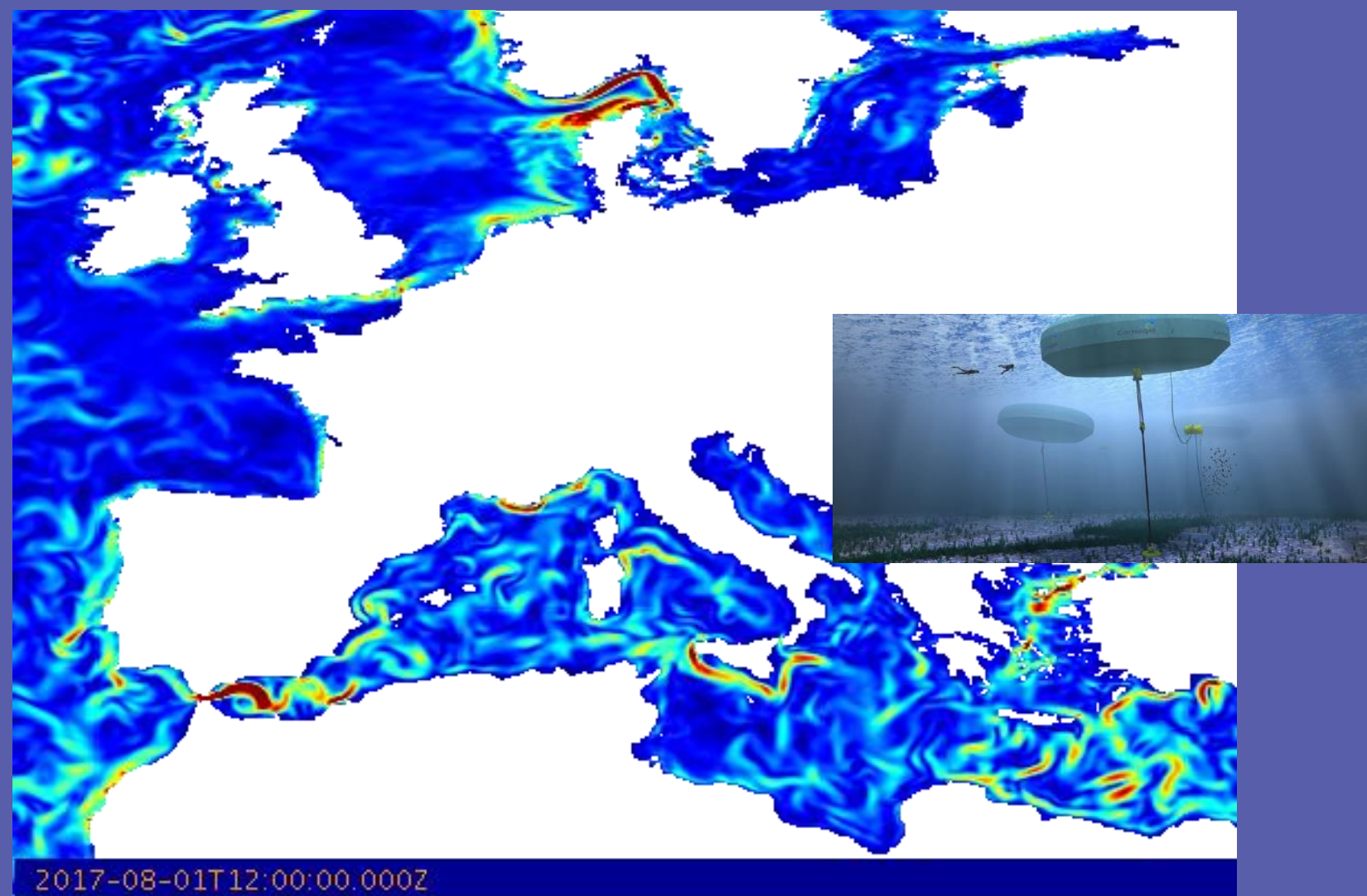
Maritime efficiency : transport saving fuel / shipping company



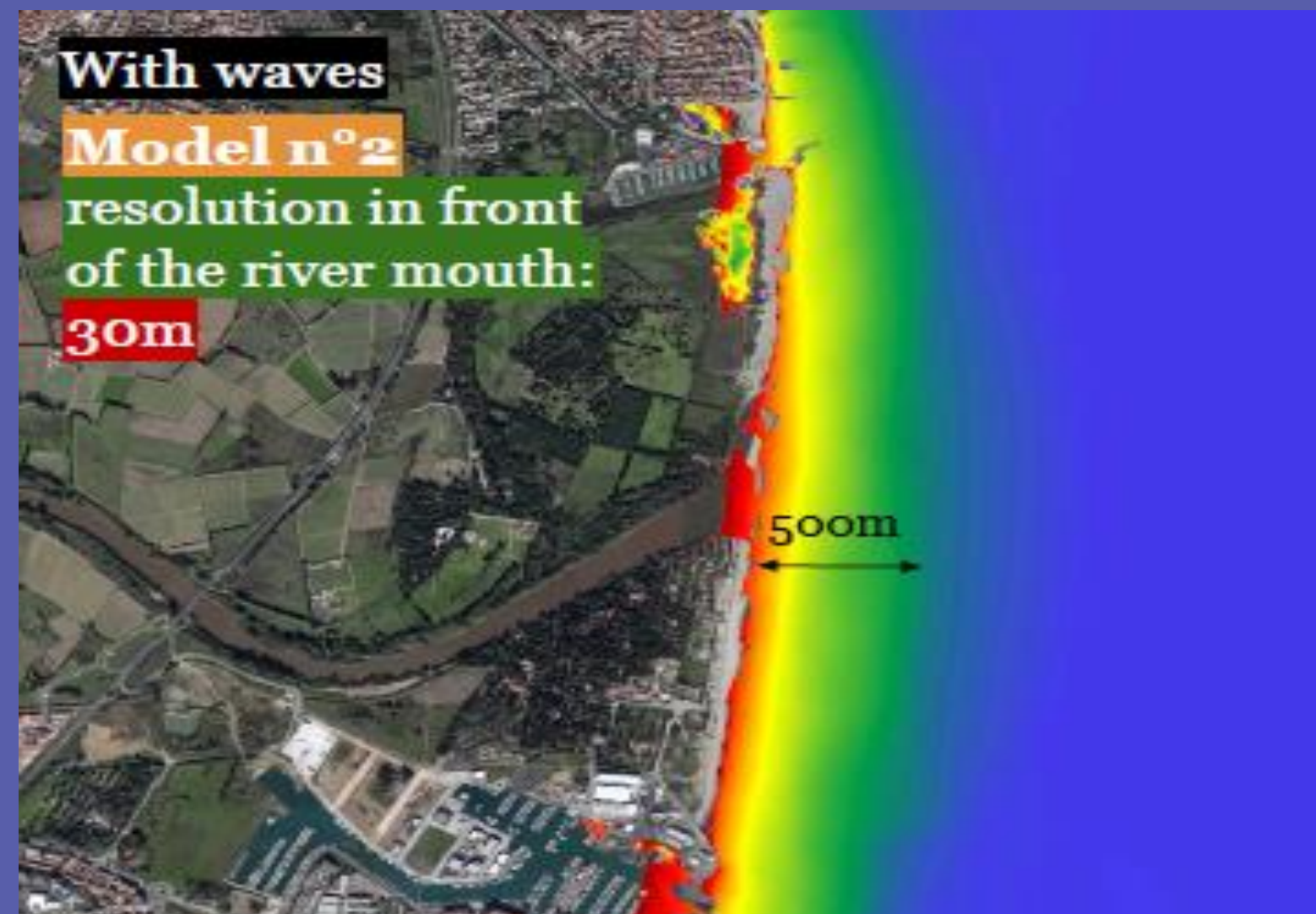
Pollution - The Sargassum service



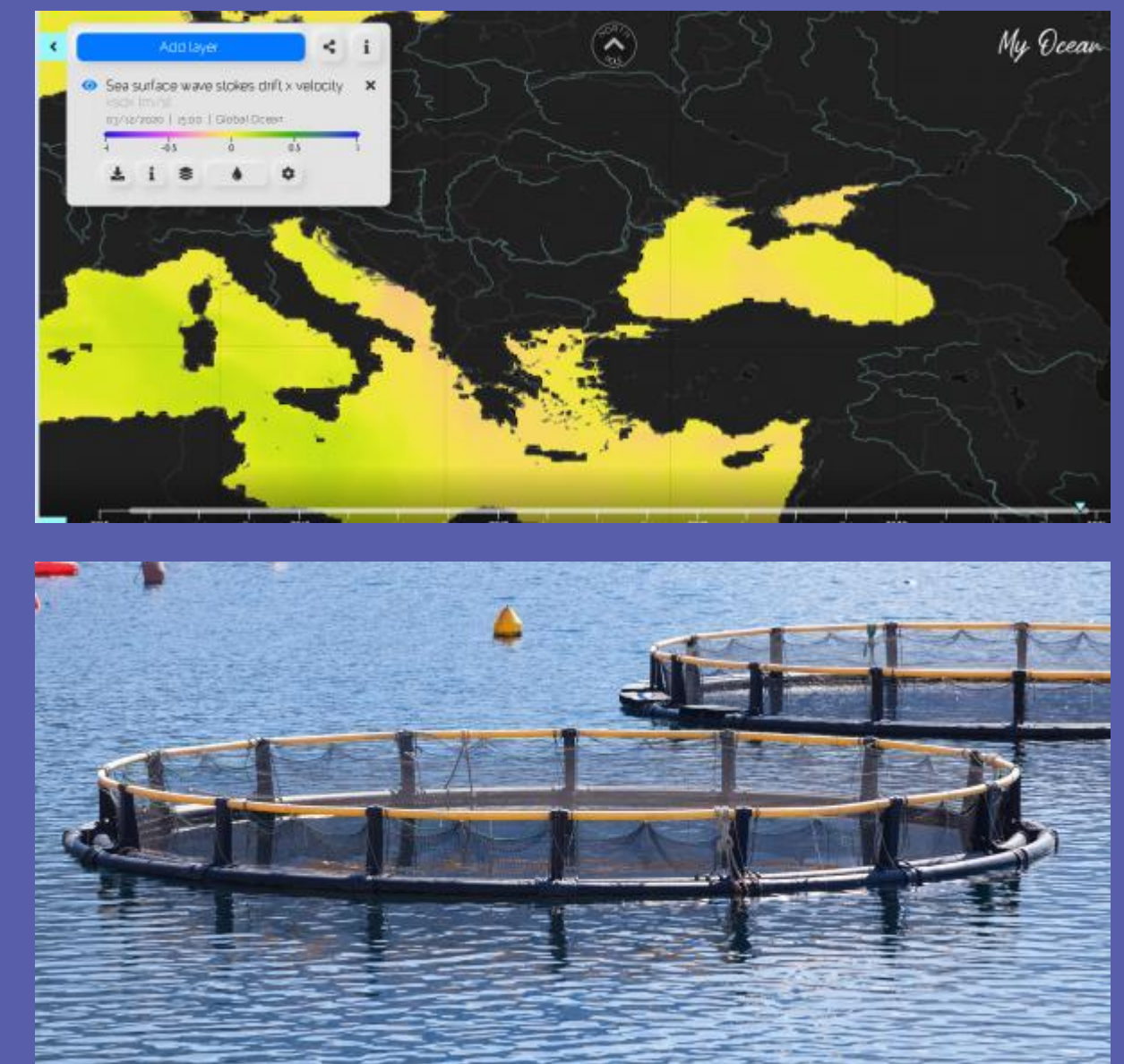
Citizen app - Plastics drifts



Ocean energy: wave/ tidal currents/ salinity/ cold sea water

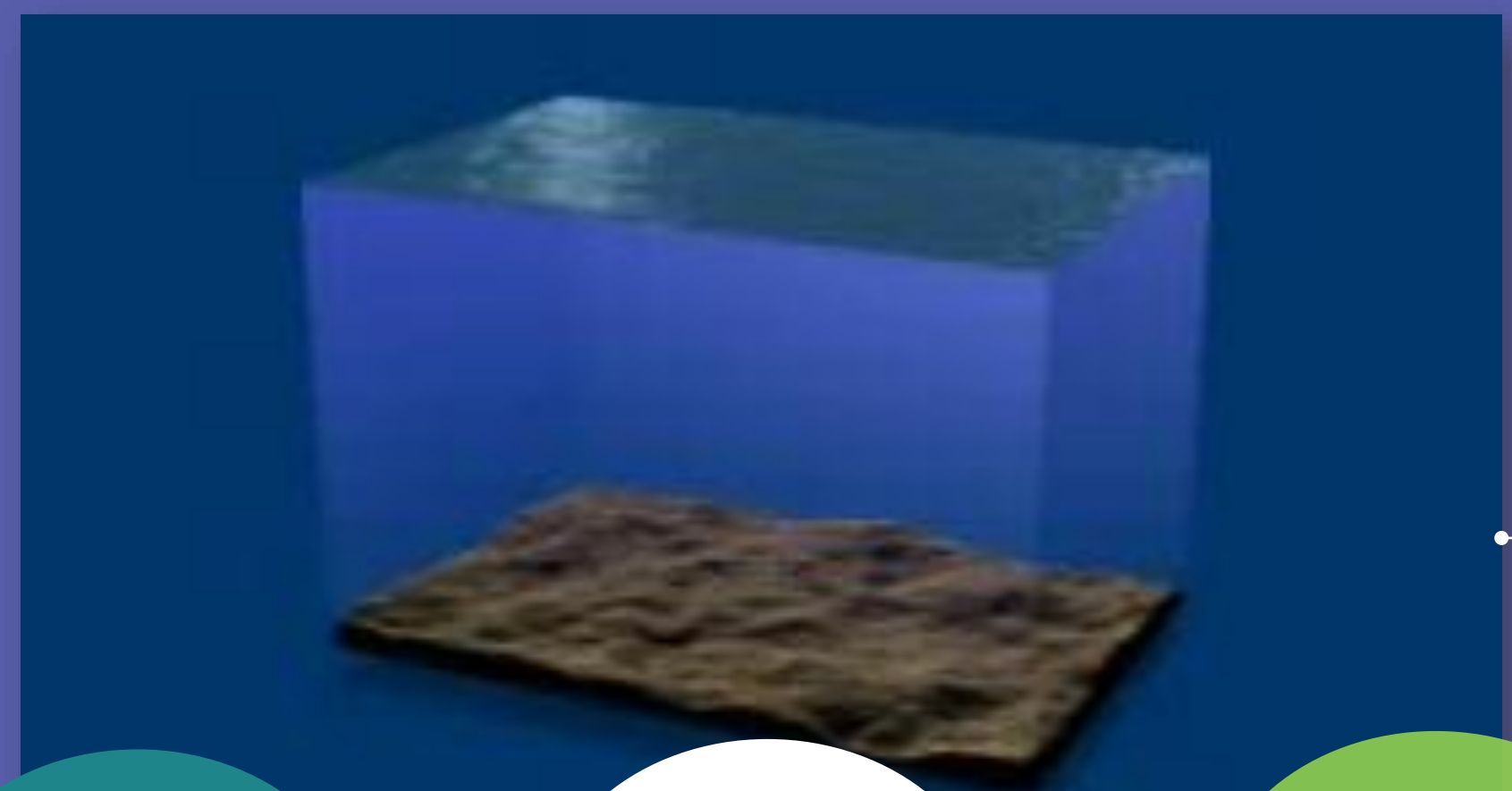
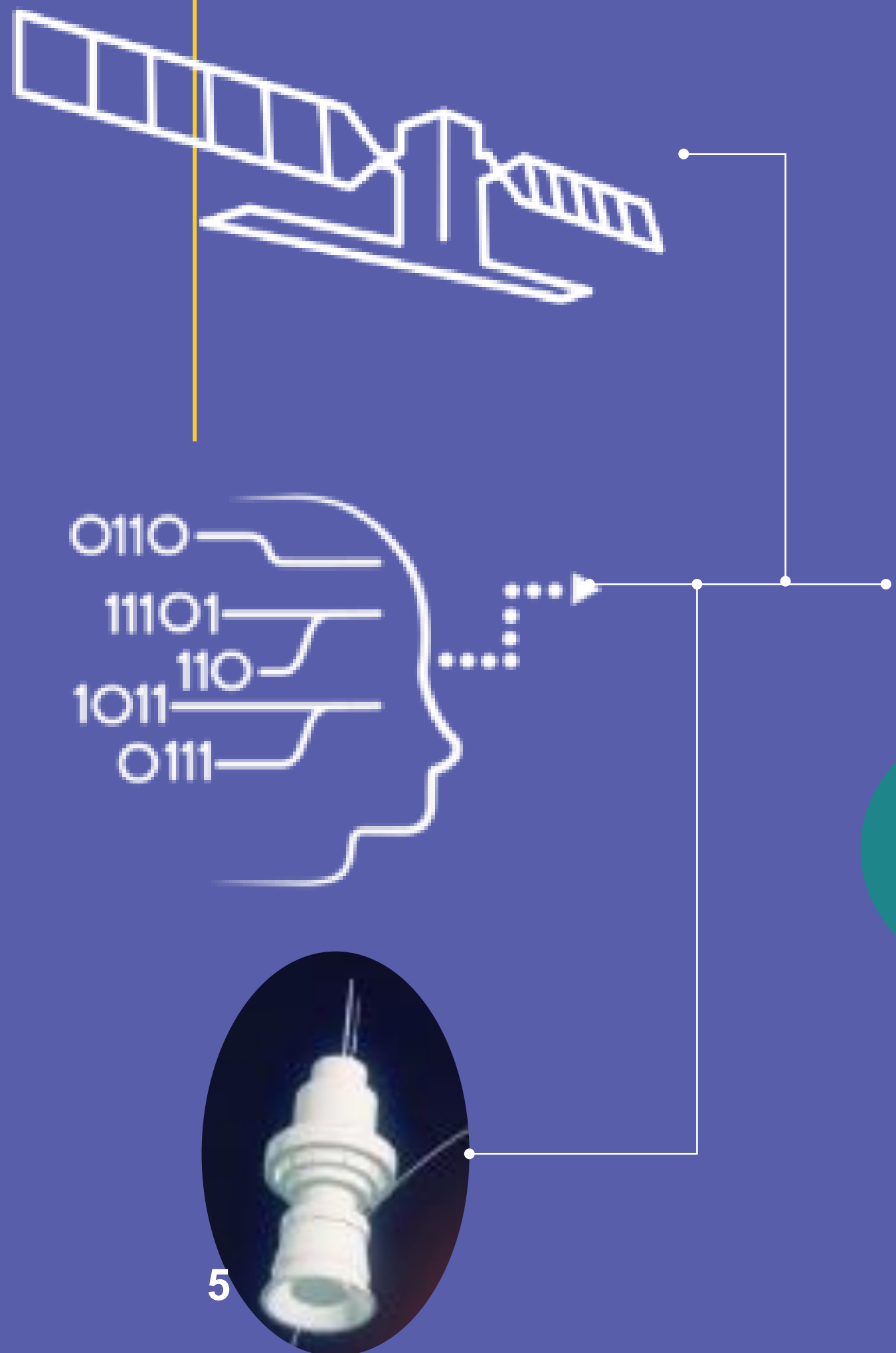


Flood prevention in coastal area



Aquaculture siting

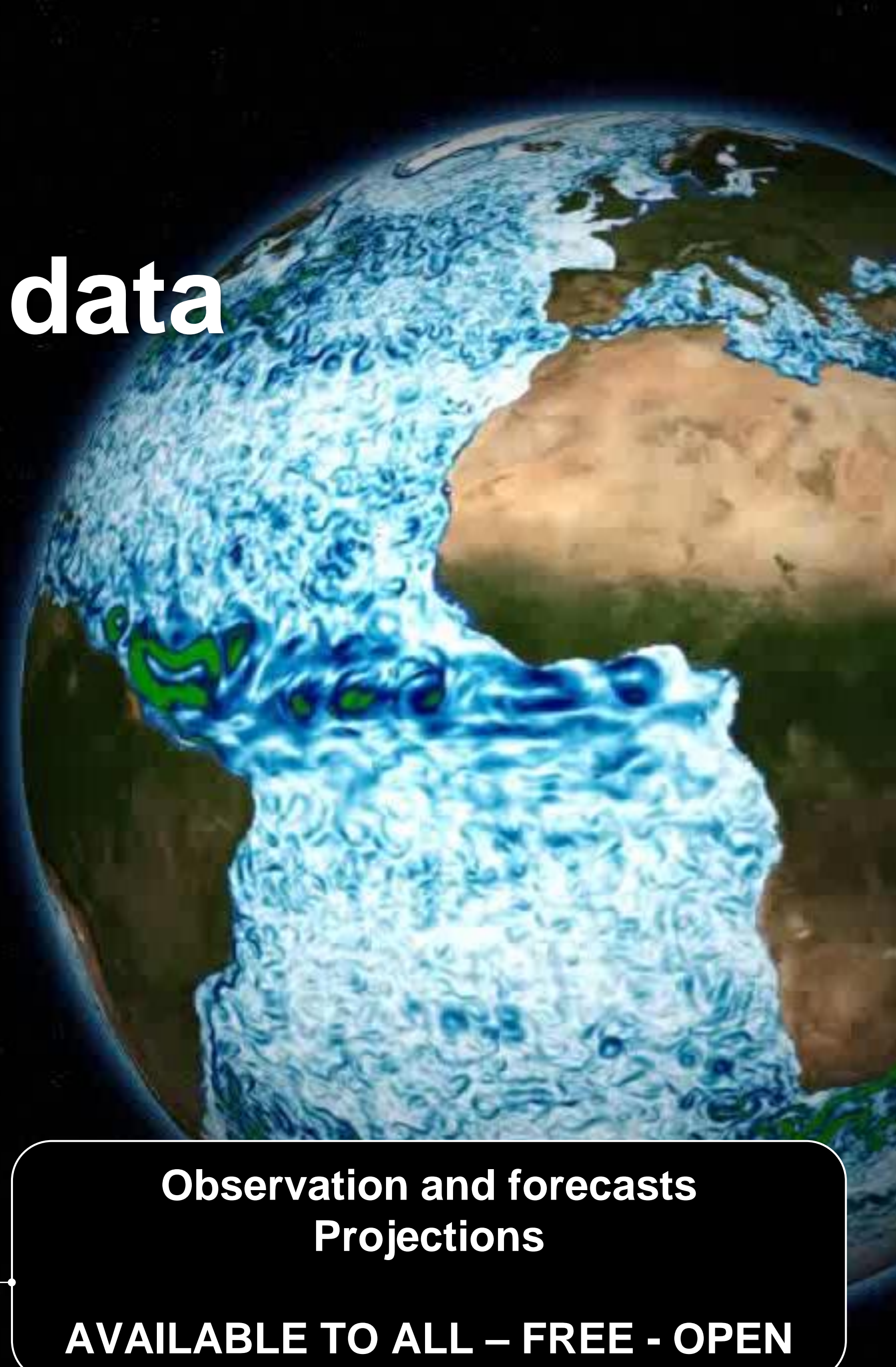
# We cannot do without operational sustained in-situ data



**Blue**  
(Physics)

**White**  
(Sea Ice)

**Green**  
(Biogeochemistry)



**Observation and forecasts  
Projections**  
**AVAILABLE TO ALL – FREE - OPEN**



**GENERAL PUBLIC**



**SCIENCE**



**PUBLIC SERVICES**



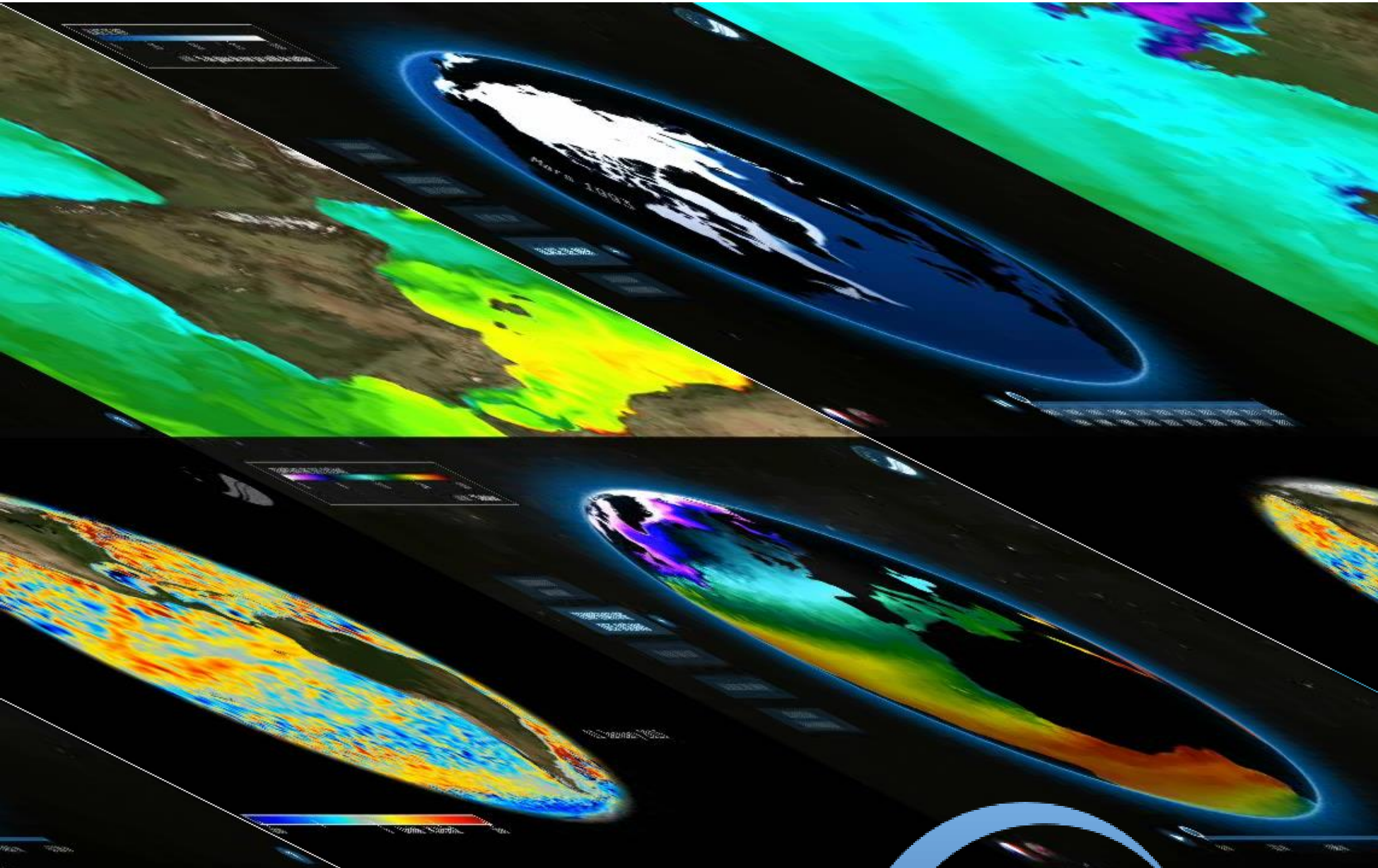
**POLICY MAKERS**



**BUSINESS**



**NGOs**



1993-2015 decadal trends

**ARCTIC SEA-ICE EXTENT**  
-76300 km<sup>2</sup>/year ↓

**ANTARCTIC SEA-ICE EXTENT**  
+44900 km<sup>2</sup>/year ↑

**SEA SURFACE TEMPERATURE**  
+0.02 °C/year: +0.4°C total (GLOB)  
+0.04 °C/year: +0.9°C total (MED)  
+0.08 °C/year: +1.9°C total (BS) ↑

**TOTAL SEA LEVEL**  
+3.3 mm/year (GLOB)  
+2.9 mm/year (MED)  
+3.1 mm/year (IBI)  
+2.6 mm/year (NWS)  
+3.2 mm/year (BS) ↑

**THERMOSTERIC SEA LEVEL**  
+1.0 mm/year (GLOB)  
+1.5 mm/year (MED)  
+1.5 mm/year (IBI)  
+1.1 mm/year (NWS) ↑

**OCEAN HEAT CONTENT**  
+0.6 W/m<sup>2</sup> (GLOB)  
+0.8 W/m<sup>2</sup> (MED)  
+0.9 W/m<sup>2</sup> (IBI)  
+0.8 W/m<sup>2</sup> (NWS) ↑