

23/05/2024, BESS, Thermae Palace

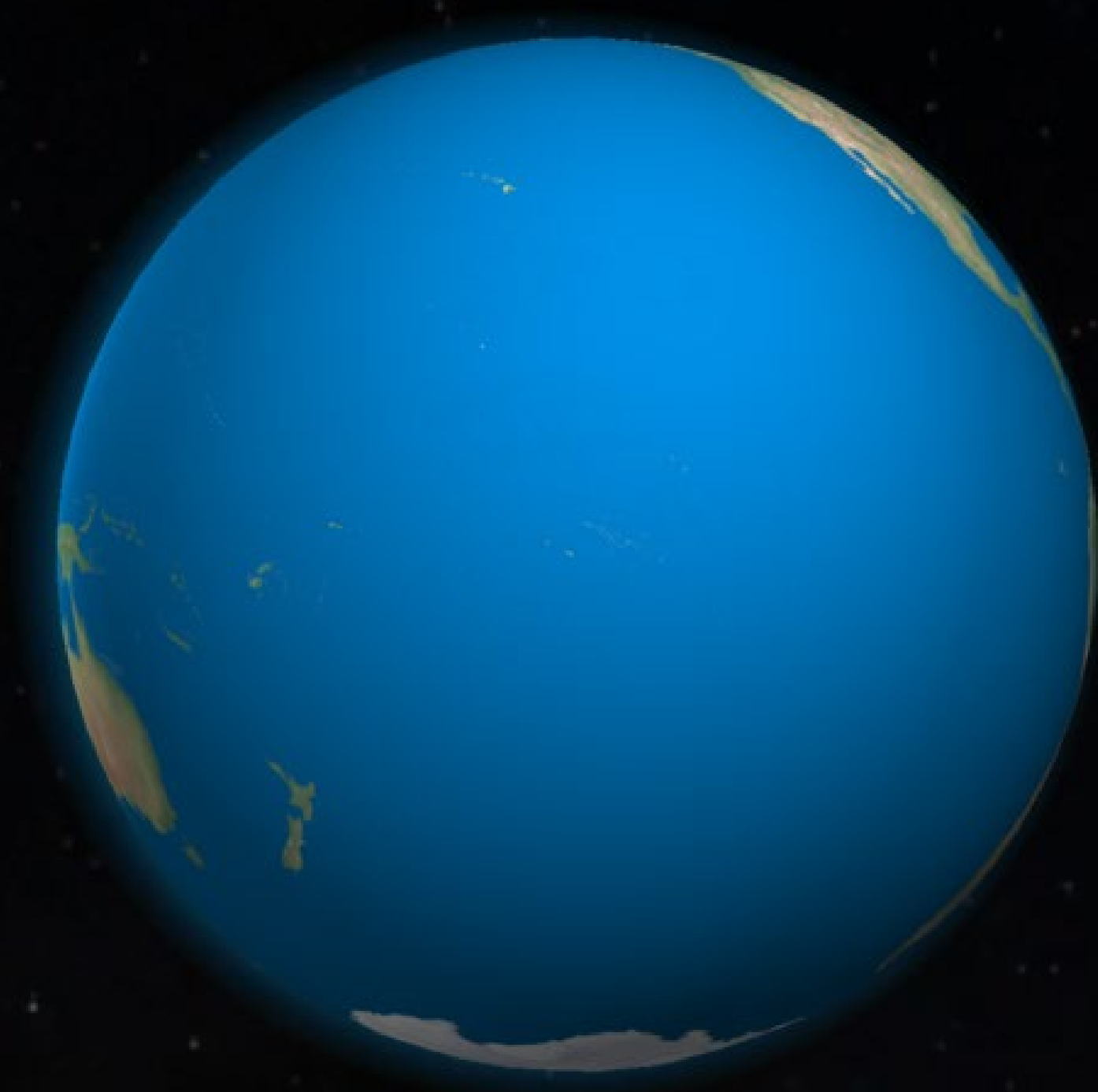
The Digital Sea, Science-Industry-Policy collaboration and the goals of Mission Ocean

Jan Mees, General director VLIZ

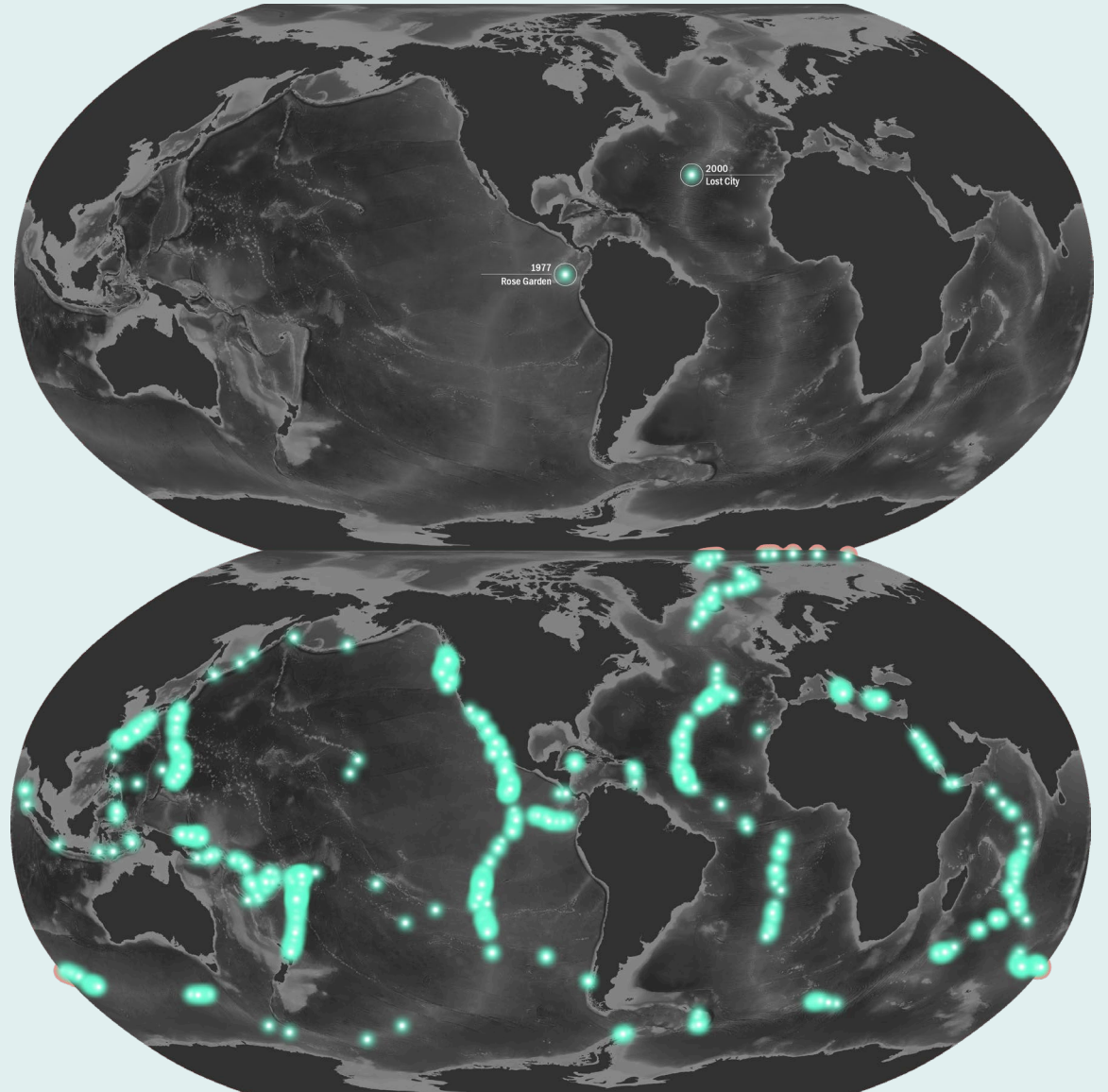
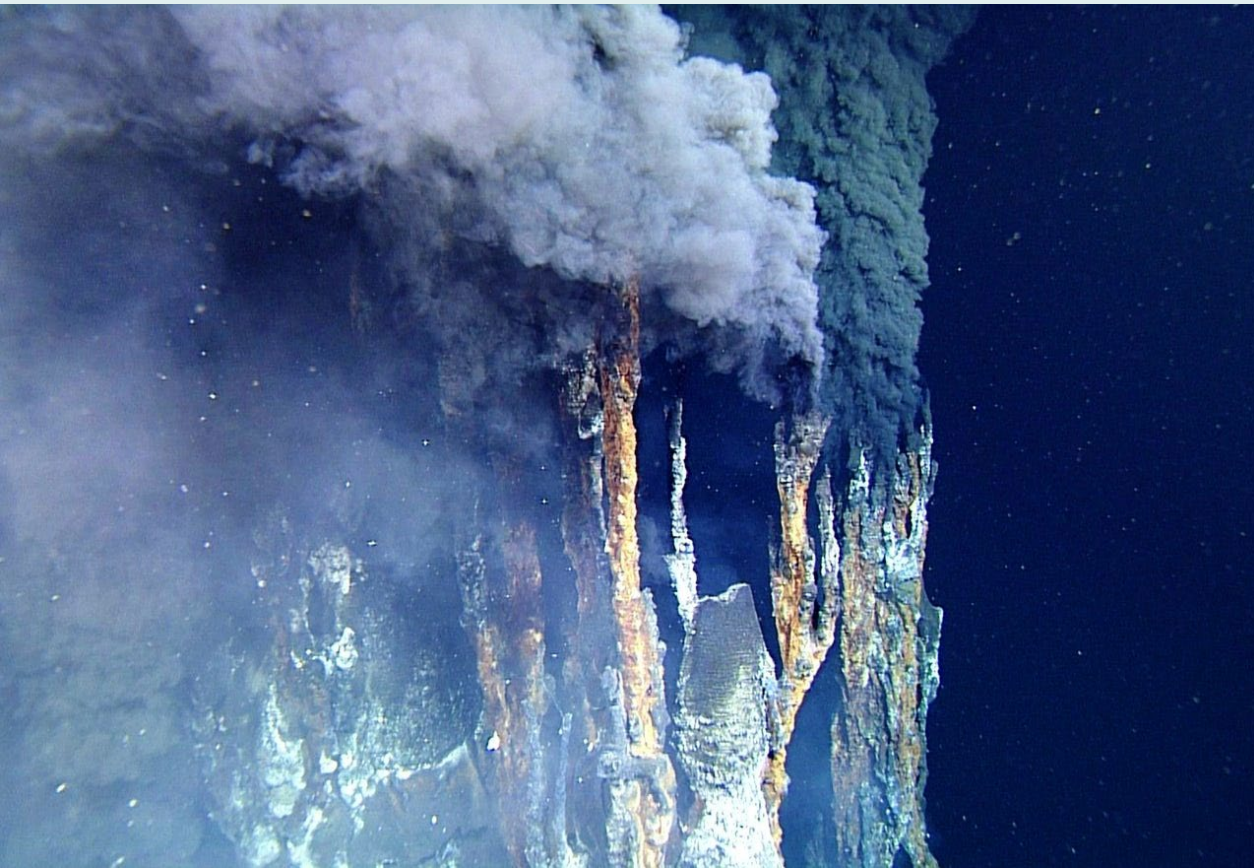
BESS 2024 Science-Industry-Policy collaboration

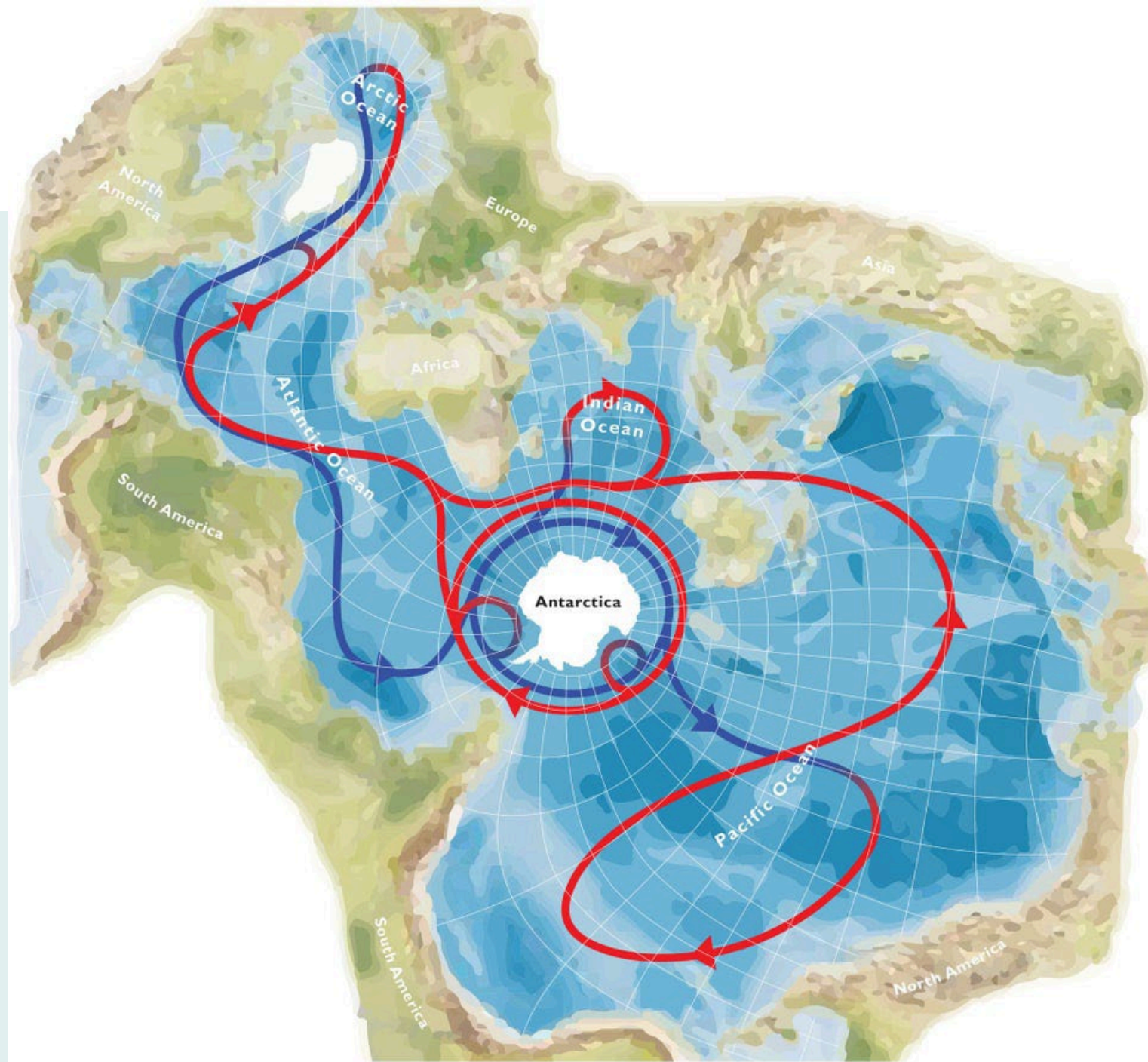
1. Introduction: the challenge
2. The role of science in reaching the goals
3. Collaboration is key

71% surface = ocean
7% of habitable space

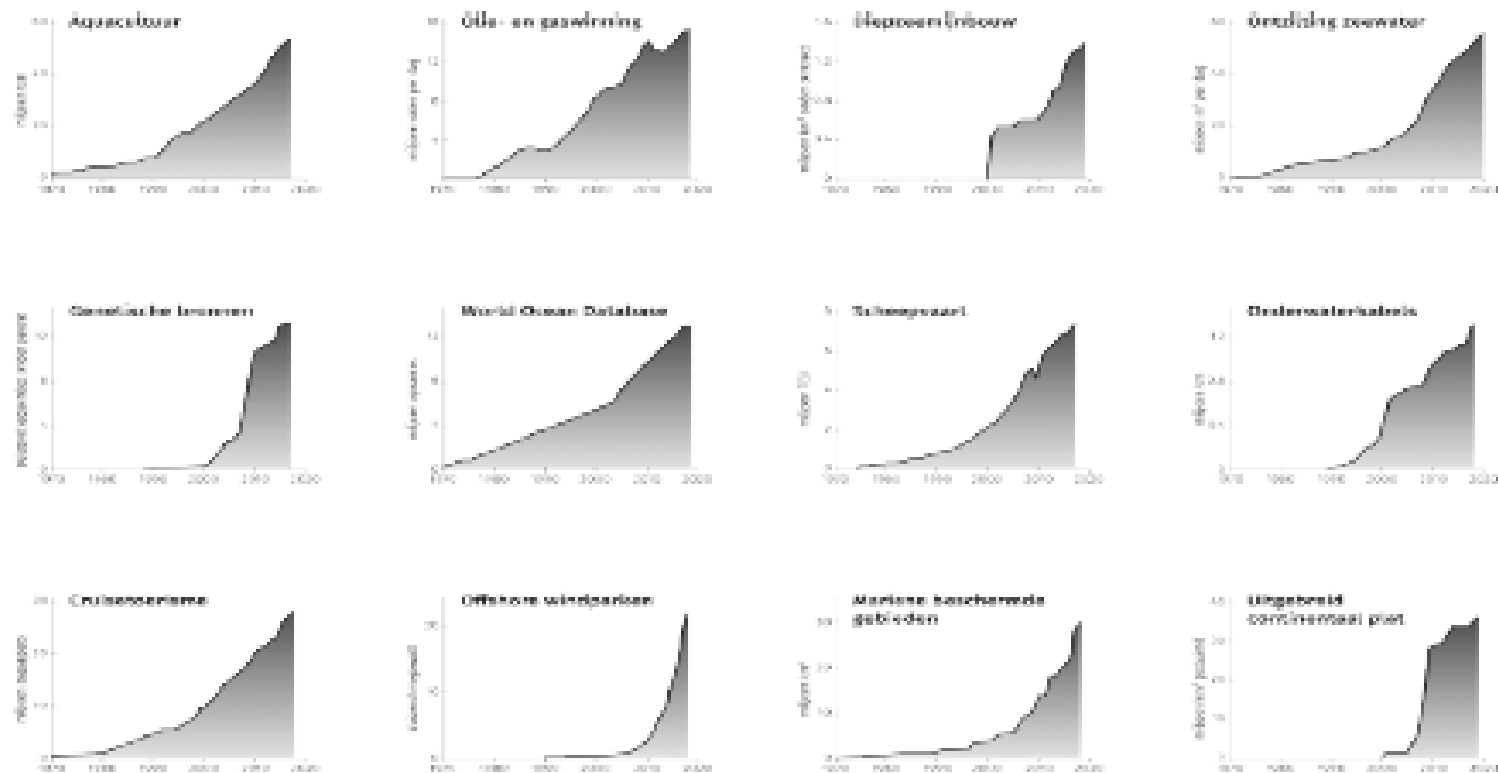


... 'the last frontier' for major discoveries





The Blue Acceleration

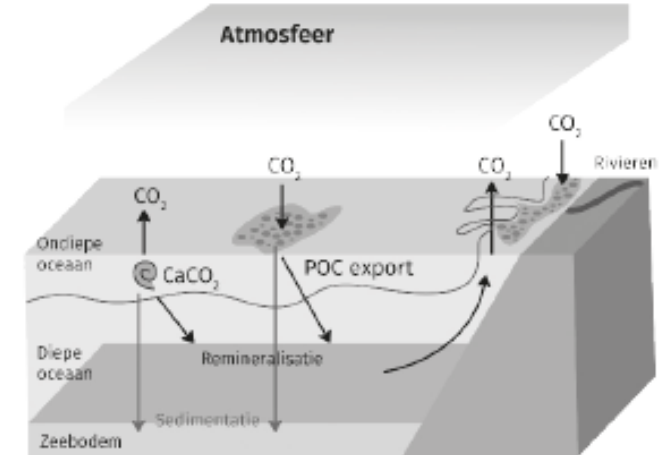
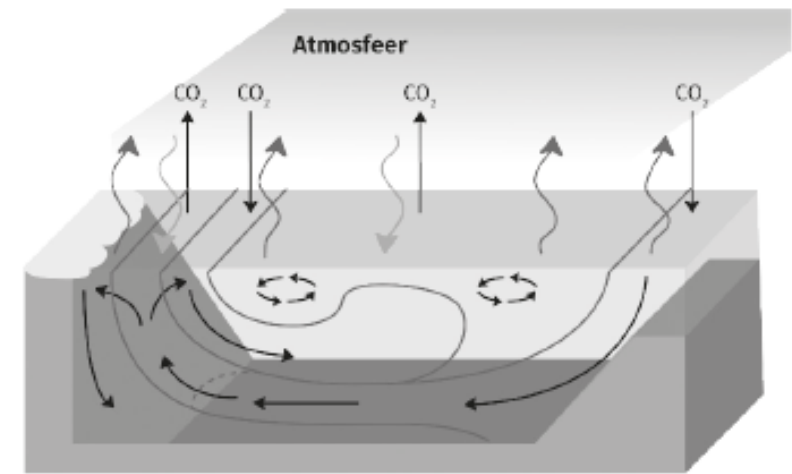


Figuur 11. De blauwe versnelling: enkele voorbeelden van versnelde groei van mariene hulpbronnen. Figuur gebaseerd op Jouffray et al. (2020).

What the ocean does for the climate
absorbs heat
removes carbon dioxide
buries carbon (ocean carbon pump)

Warming causes
sealevel rise
extreme weather
changing circulation

The deadly trio for marine life
heat (coral bleaching, migrations,...)
oxygen (marine heat waves)
acidification (the 'other' CO₂ problem)



Figuur 6. De koolstofpomp in de oceaan. Bovenaan de oplossingspomp, waarbij CO₂ uit de atmosfeer wordt opgenomen en door stromingen van het oppervlak naar de diepte wordt gevoerd – en terug. Onderaan de complexe biologische pompen. CO₂ wordt aan het oppervlak opgenomen door fytoplankton en zakt als particulier organische koolstof (POC) naar de diepzee. Anderzijds laat calciumcarbonaat dat aan het oppervlak gemaakt wordt CO₂ weer vrij. Organische koolstof wordt in de diepzee geremineraliseerd tot CO₂ en door opwaartse stromingen soms terug naar boven gebracht. Bron: naar Landschützer (2023).

Solutions climate?

- Leave fossils in the ground
- Restore ecosystems:
 - Strengthen the biological carbon pump
 - Biomass is carbon
 - Coastal ecosystems grow with rising sealevels and protect us from weather extremes and ocean related disaster
 - ... and have large underground carbon reservoirs
 - 'Permanent' carbon storage in the deep sea

Ocean high on the political agenda

- UN Decade of Ocean Science for Sustainable Development (2021-2030)
- Blue Growth Strategy (2012) → Sustainable Blue Economy (2021)
- EU Mission Ocean: Restore our Ocean and Waters by 2023

Role of science

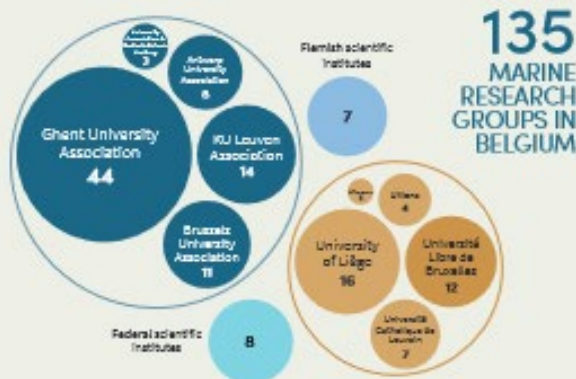
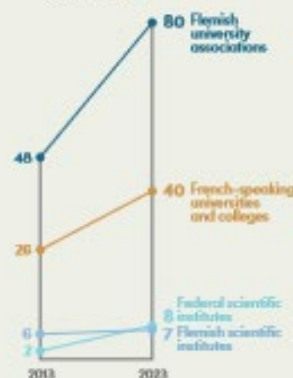
- A lively, well-organized community
- An essential link in the innovation landscape:
 1. providing actionable research results and data to underpin decisions
 2. being at the forefront of new solutions & support their valorization
 3. provide access to research infrastructure (incl. data)
 4. de-risking solutions

2023

MARINE RESEARCH AND INNOVATION

As the importance of seas and the ocean in sustainably addressing major societal challenges is growing, a similar boost in our marine knowledge and innovation capacity is urgently needed. The Belgian marine research landscape lives up to this challenge with a growing and multidisciplinary community, operating within a dynamic and par excellence international context.

CAPACITY



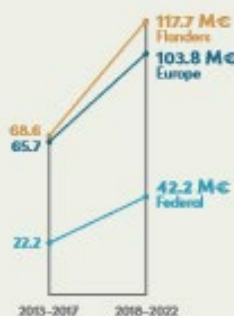
1,904
MARINE STAFF

39.6%
WOMEN

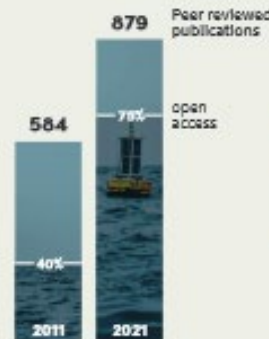
The increase in marine staff during the last decade places Belgium among the top five worldwide in terms of marine researchers per capita. For the first time, the Belgian percentage of women in marine sciences surpasses the global average, yet the representation of women in leading positions remains lower.



FINANCING

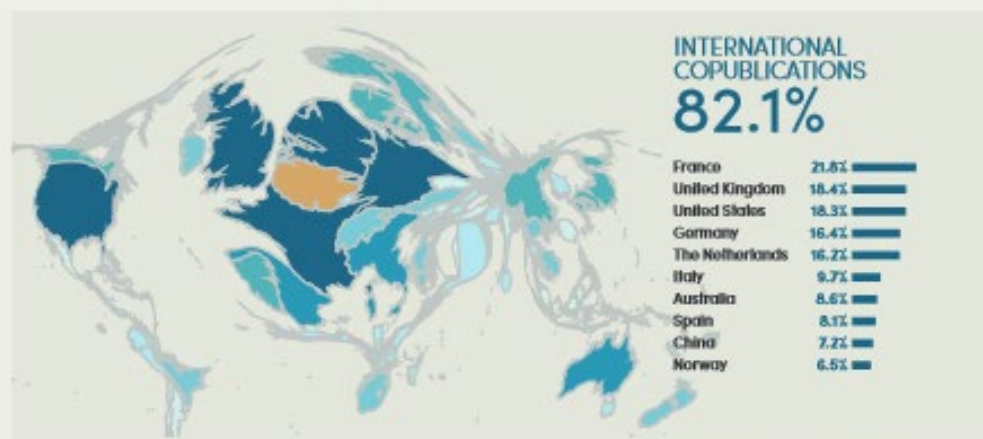
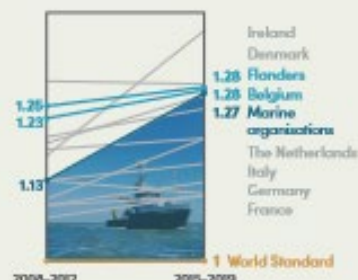
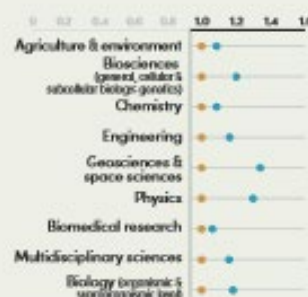


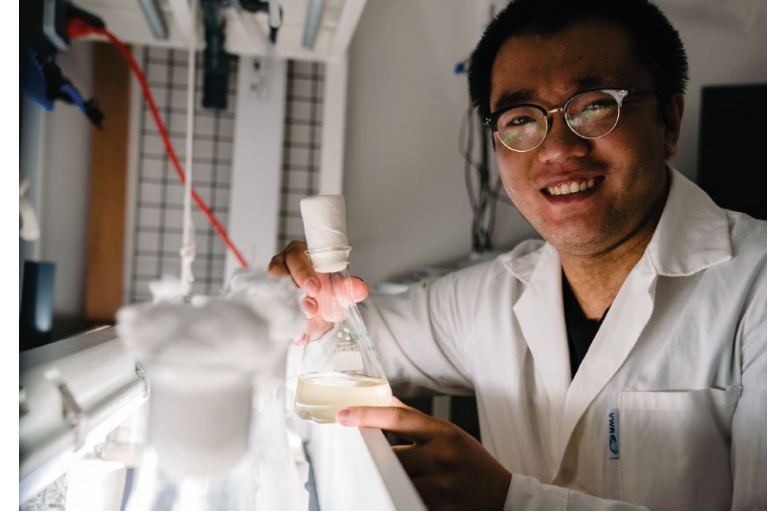
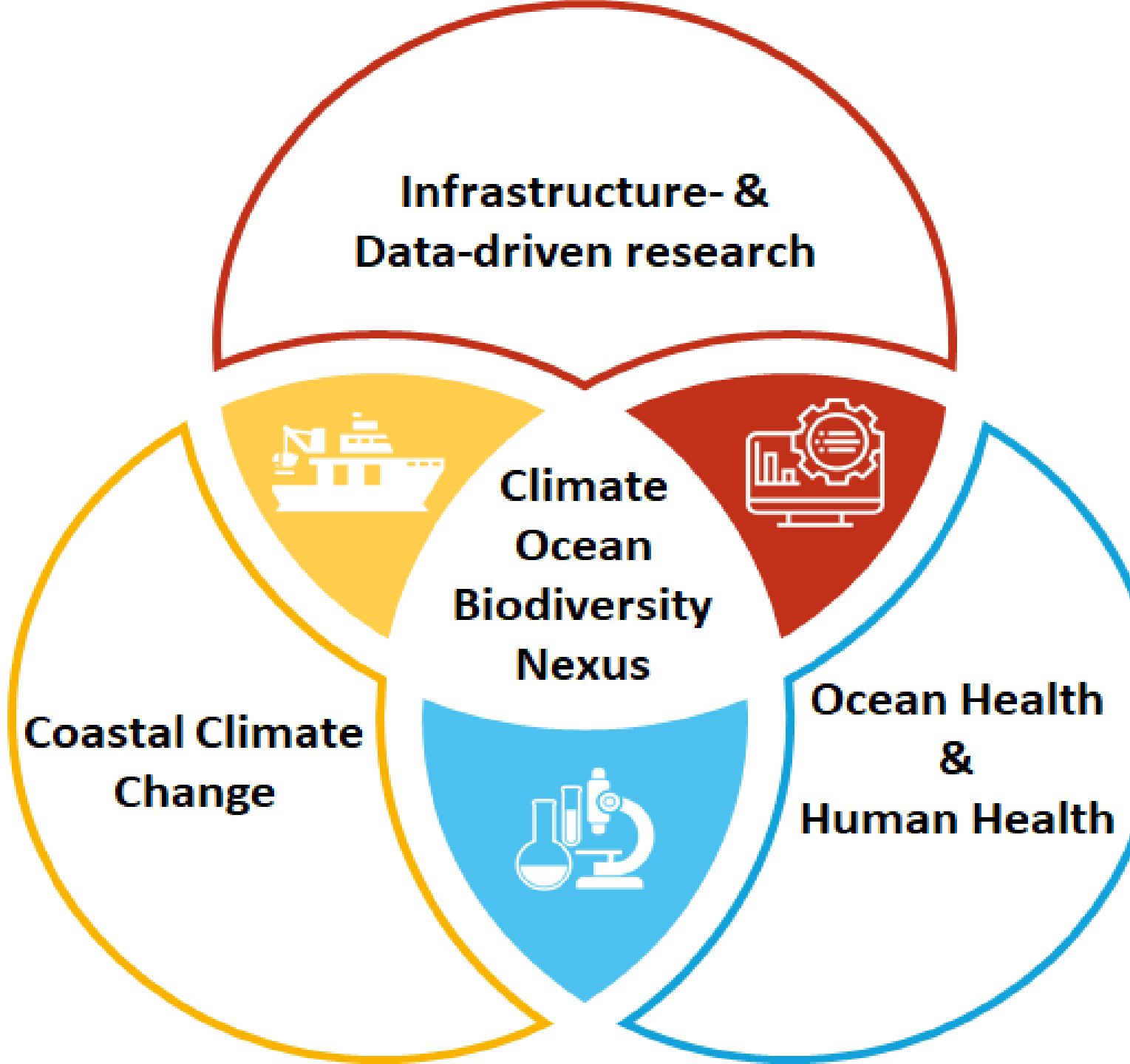
RESEARCH OUTPUT



Relative Citation Rate

The Belgian marine research community - covering various (sub)disciplines - has realized a notable surge in the citation impact over the past decade, currently ranking amongst the leading countries and holding a subtop position within Flemish research domains.





Blue marble vs ICON Earth System model simulation



07.12.1972 : 10:39



Credit: MPI-M, DKRZ, NVIDIA.

Role of science

- A lively, well-organized community
- An essential link in the innovation landscape:
 1. providing actionable research results and data to underpin decisions
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Collaboration is key

1. International collaboration

2. Quadruple helix collaboration

- science-policy interface
- researchers and industry
- engaging citizens and developing blue skills