

Interactive Dialogue 3: Ocean acidification, deoxygenation and ocean warming

Johan Stander, PhD, Director Services Department
10:00AM-1:00PM, 29 June 2022, Altice Arena, Tejo Hall



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale



— UNITED NATIONS —
**OCEAN
CONFERENCE**

LISBON
27 JUNE -
1 JULY
2022

Interactive Dialogue 3

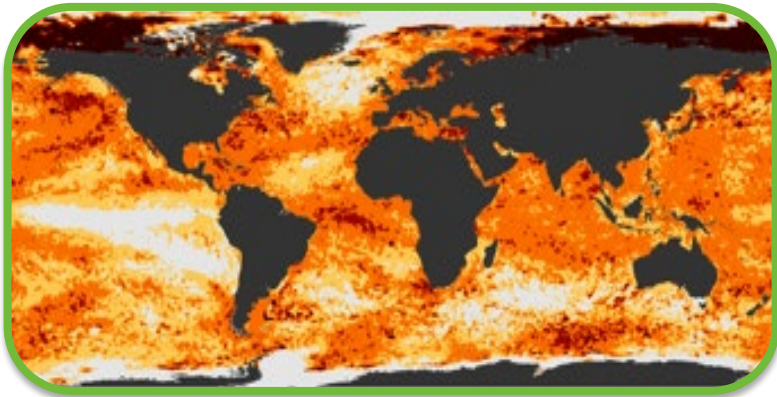
Minimizing and addressing
ocean acidification,
deoxygenation and ocean
warming

#SaveOurOcean

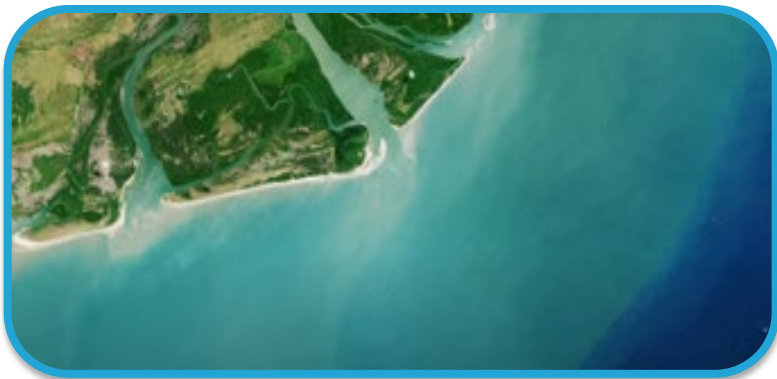


State of the Global Climate

7 Climate Indicators – All 3 Ocean-Based Indicators were at record levels in 2021



90% of excess heat goes into ocean. **Ocean heat was at a record high in 2021**



Sea level has been rising ~3-4 mm per year, increasing risks of coastal flooding. Sea level was at a record high in 2021

State of the Global Climate

7 Climate Indicators – All 3 Ocean Based Indicators were at record levels in 2021

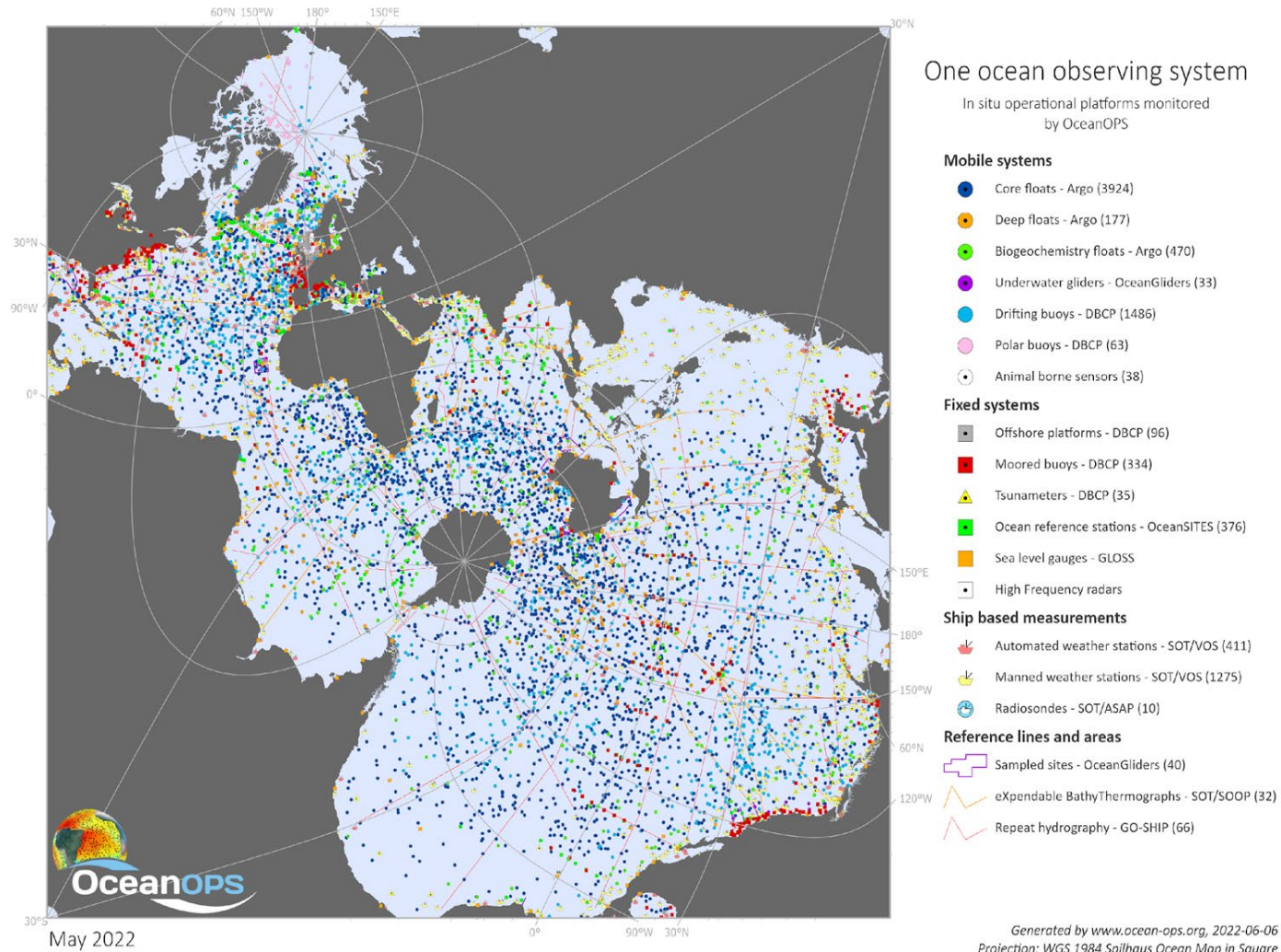


Oceans absorb 23% of emissions, leading to **ocean acidification**, with high ecological cost. **Oceans are now more acidic than they have been for 26,000 years**



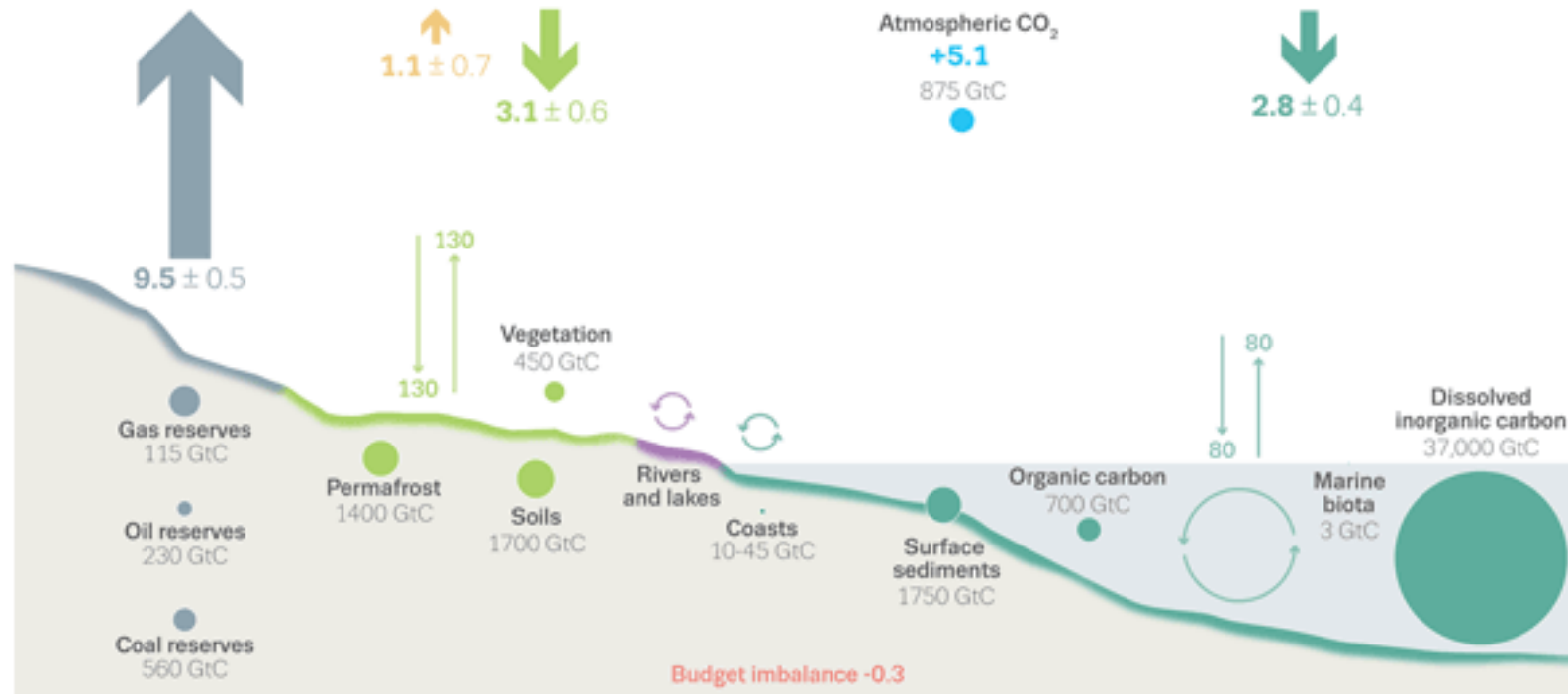
Greenhouse gases at record levels and rising. Effect of COVID-19 lockdowns too small to be distinguishable from natural variability

Significant Challenges Face the Ocean Observing System required to monitor this information



Better observations and modelling are required for Members to truly monitor CO₂ to inform actions to achieve the Paris Agreement

The global carbon cycle



Anthropogenic fluxes 2011-2020 average GtC per year

- Fossil CO₂ E_{FOS}
- Land-use change E_{LUC}
- Atmospheric increase G_{ATM}
- Carbon cycling GtC per year
- Land uptake S_{LAND}
- Ocean uptake S_{OCEAN}
- Budget Imbalance B_{IM}
- Stocks GtC

We need enhanced data policies to support data exchange (including political support in EEZs)



EARLY WARNING SYSTEMS

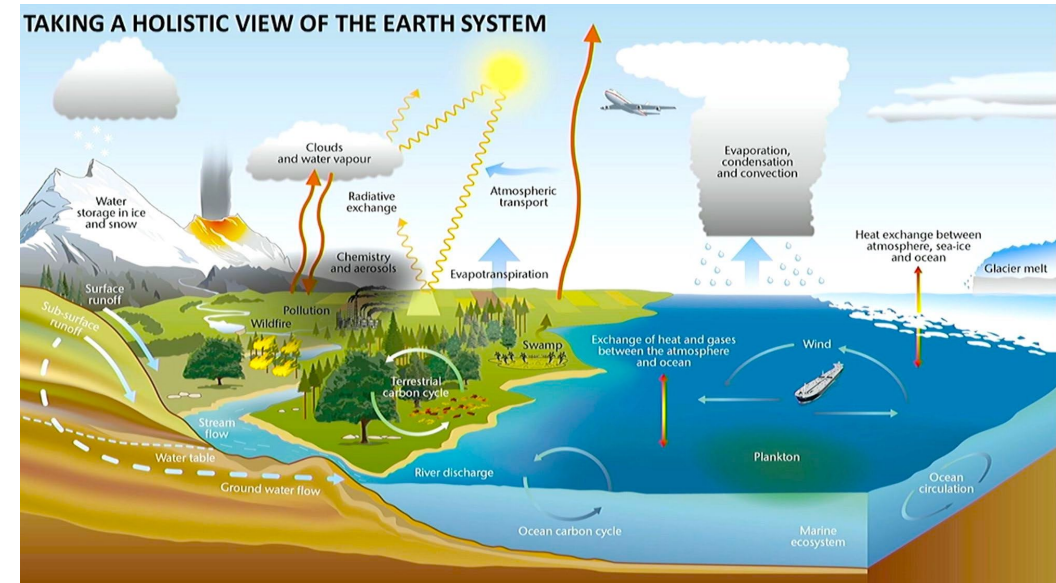
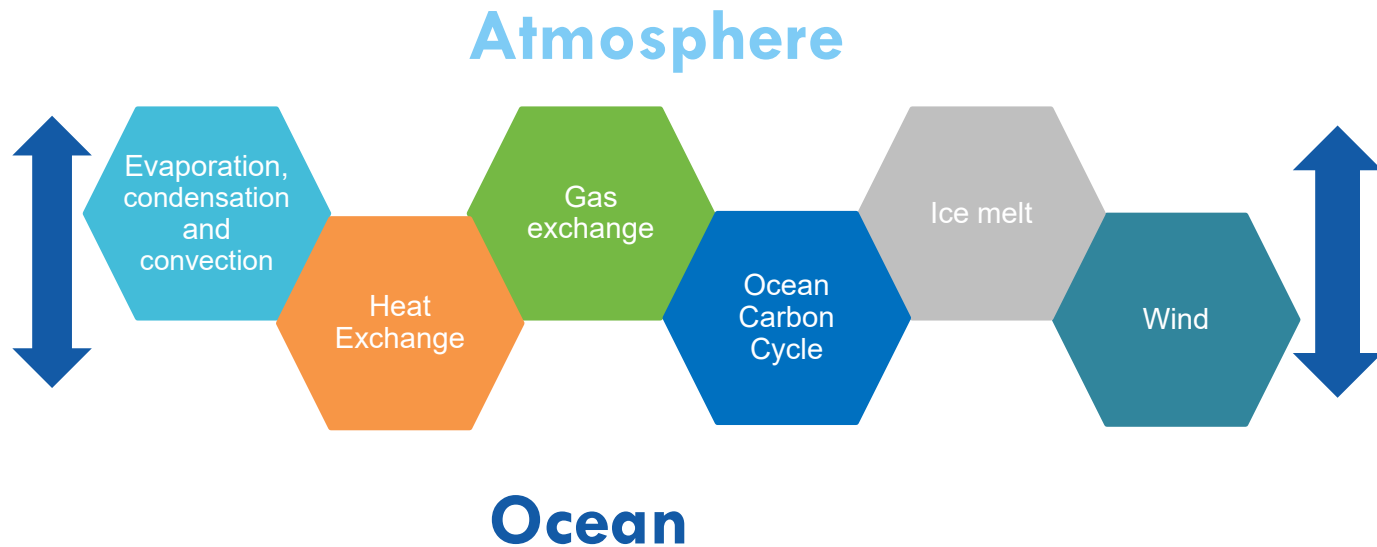
“Early warnings and action save lives. To that end, today I announce the United Nations will spearhead new action [led by WMO] to ensure every person on Earth is protected by early warning systems within five years.”

António Guterres

Secretary-General of the United Nations
23 March 2022, World Meteorological Day



Partnerships and an Earth System Approach are essential for both effective Climate and Ocean action



Ocean Action = Climate Action
Climate Action = Ocean Action

Thank you



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale