



Differences between DOME and other Decade-endorsed programmes

DOME will build an international network of research platforms, using observational, experimental, modeling, and technological approaches to study deep-ocean microbiomes and ecosystems (DOMEs) of both the water column and seafloor sediment biosphere in all oceans, to determine how microbial diversity influence ecosystem functions in response to climate change. There are fundamental differences in scale, scope, and outcomes between DOME and other Decade-endorsed programmes, e.g., Challenger 150, DOOS, GEOS, GOOD, DITTO, POGO, OBON, Digital DEPTH, SmartNET, TOWER, Global ONCE, Marine Life 2030, etc. For example, Challenger 150 focuses on the water column deeper than 2,000 m, and study primarily animals rather than microbes. DOME is unique in that it will also characterize microbial diversity and ecosystem processes in the water column as well as sediment biosphere of the deep ocean. GEOS is a solution-oriented programme, focusing on reducing and removing CO₂ from the ocean and repairing critical ecosystems. TOWER focuses on the Twilight zone of the West Pacific, rather than all deep ocean ecosystems in all five oceans. The OBON programme studies life “from viruses to whales” “from coastal areas to open ocean”, from viruses and whales. Digital DEPTH focuses on specific deep-sea habitats, like seamounts, cold seeps, etc., rather than the seafloor biosphere and all the deep-water columns. DOME adopts the biodiversity-ecosystem functioning paradigm and stands alone in that it studies all ecosystems in the deep ocean, particularly focuses on studying the three currencies of life and their transfer and interconversions within and among deep ocean ecosystems.

The current Ocean Decade-endorsed programmes and projects do not cover all ocean basins or all depths, let alone the seafloor sediment biosphere. DOME is a globally coordinated and inclusive large-scale deep ocean programme, complementary to and will create positive synergies with the existing Decade endorsed programmes.