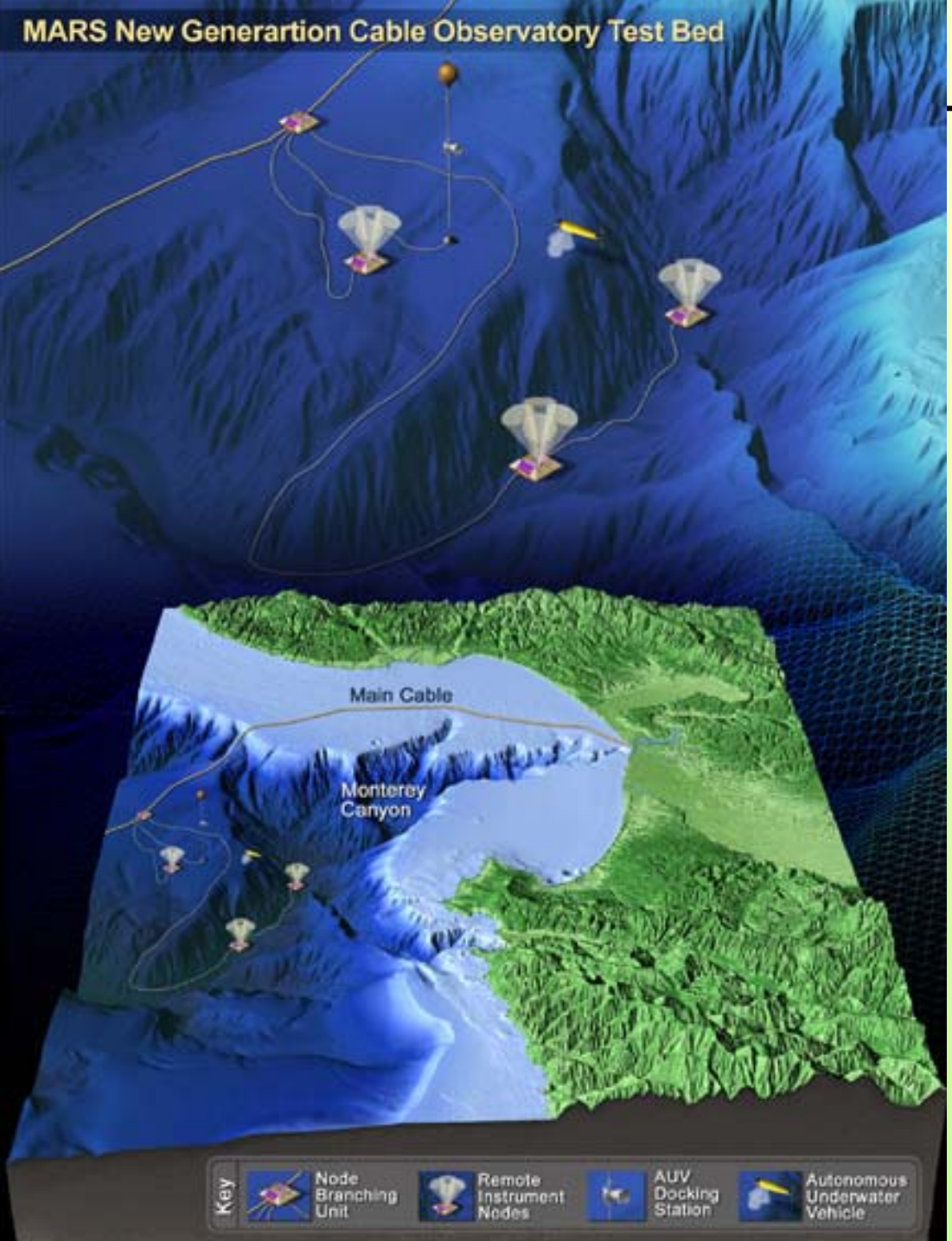
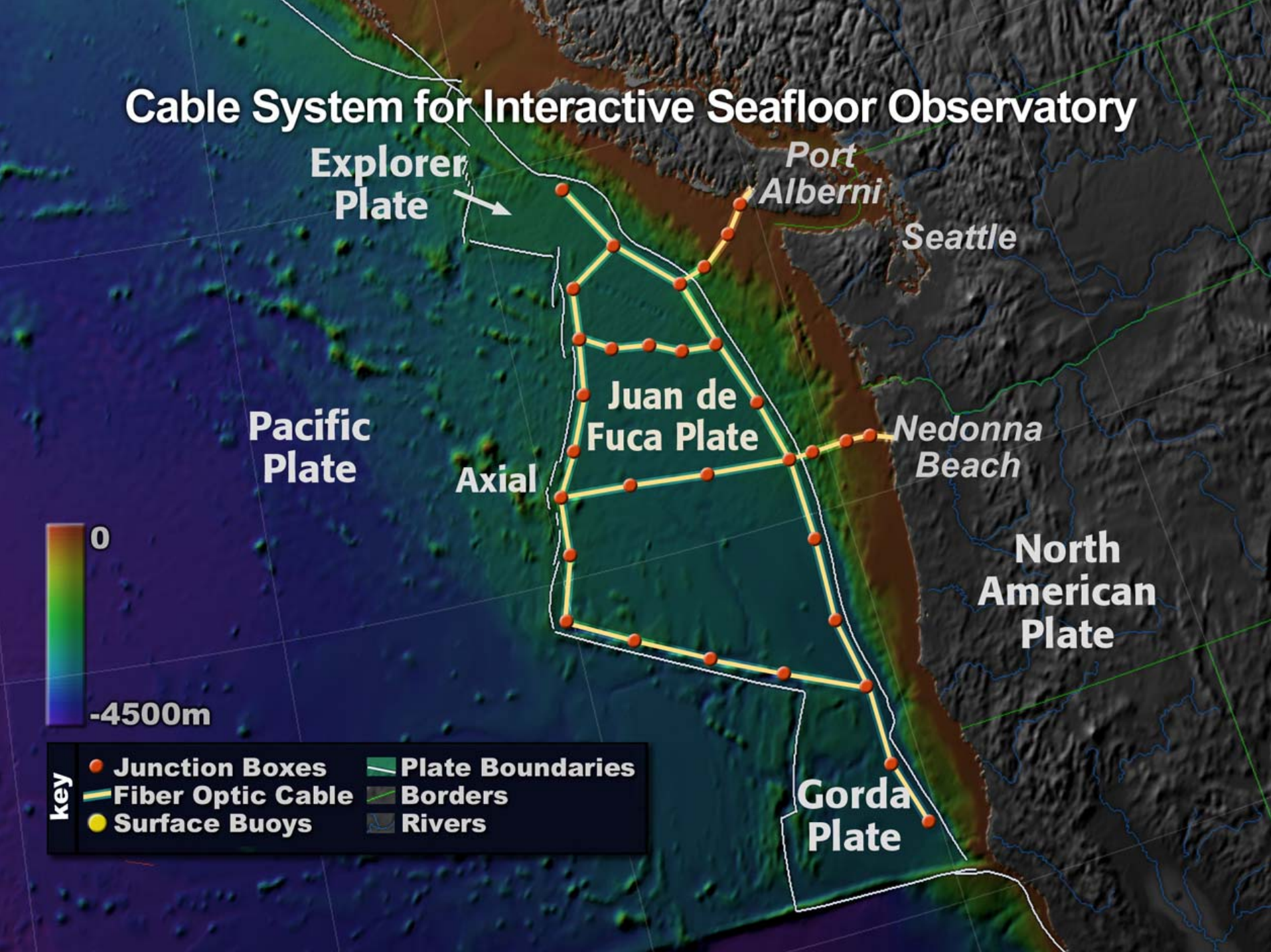
AUV Frontiers:

Next Generation Ocean Observing Systems

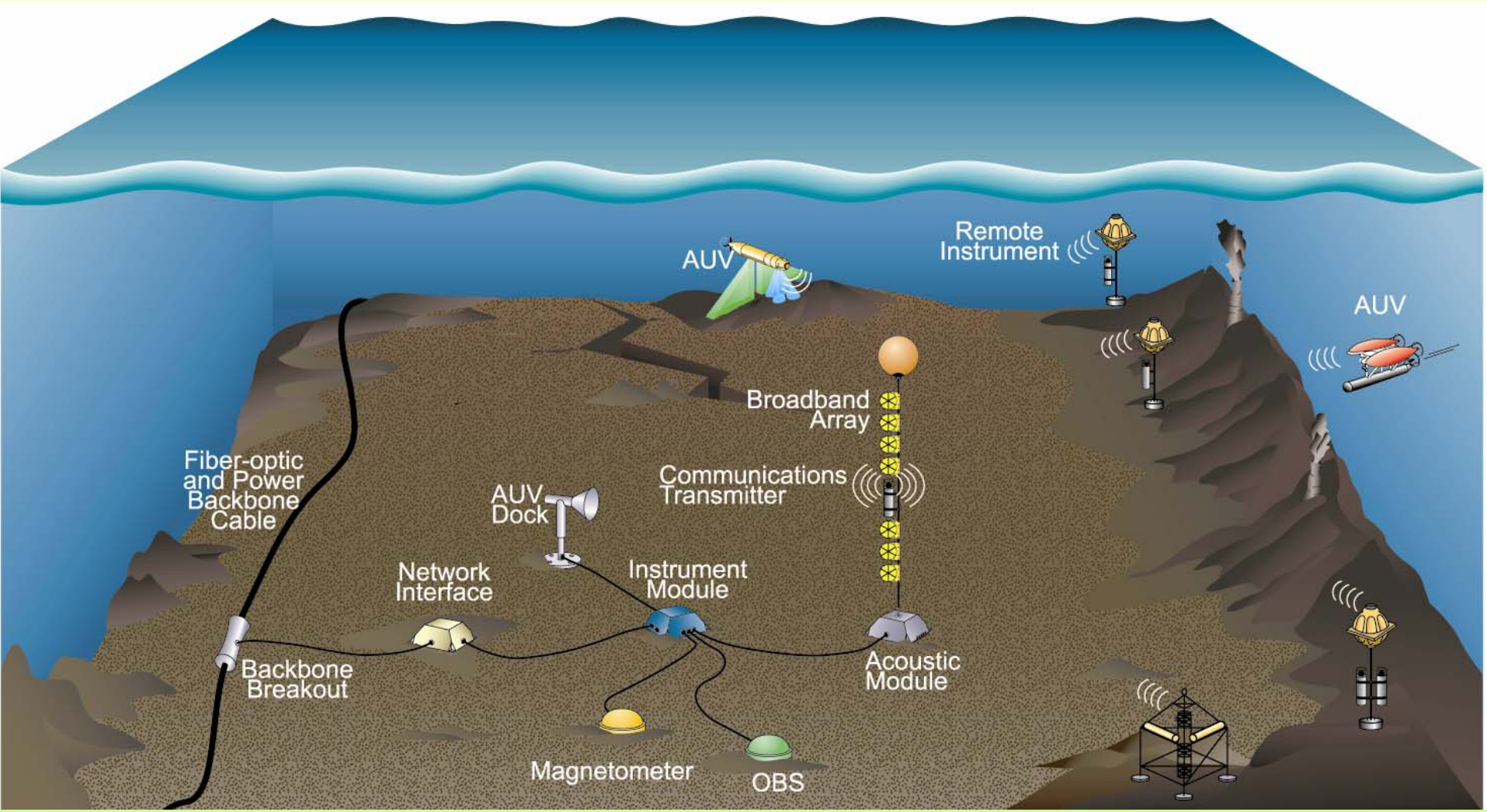


MARS

- 62 km of fiber optic cable
- Single undersea node at 1.2 km depth
- 100 Mbits per second data rate
- 10 kW of power to 4 instrument ports
- Capability of siting instruments on “extension cords”
- Serviced using *Ventana* ROV


Cable System for Interactive Seafloor Observatory
Explorer Plate
Port Alberni
Seattle
Juan de Fuca Plate
Pacific Plate
Axial
Nedonna Beach
North American Plate
Gorda Plate
0
-4500m
key
Junction Boxes
Fiber Optic Cable
Surface Buoys
Plate Boundaries
Borders
Rivers

Acoustic Communications for AUV



(courtesy Lee Freitag, WHOI)

WHOI

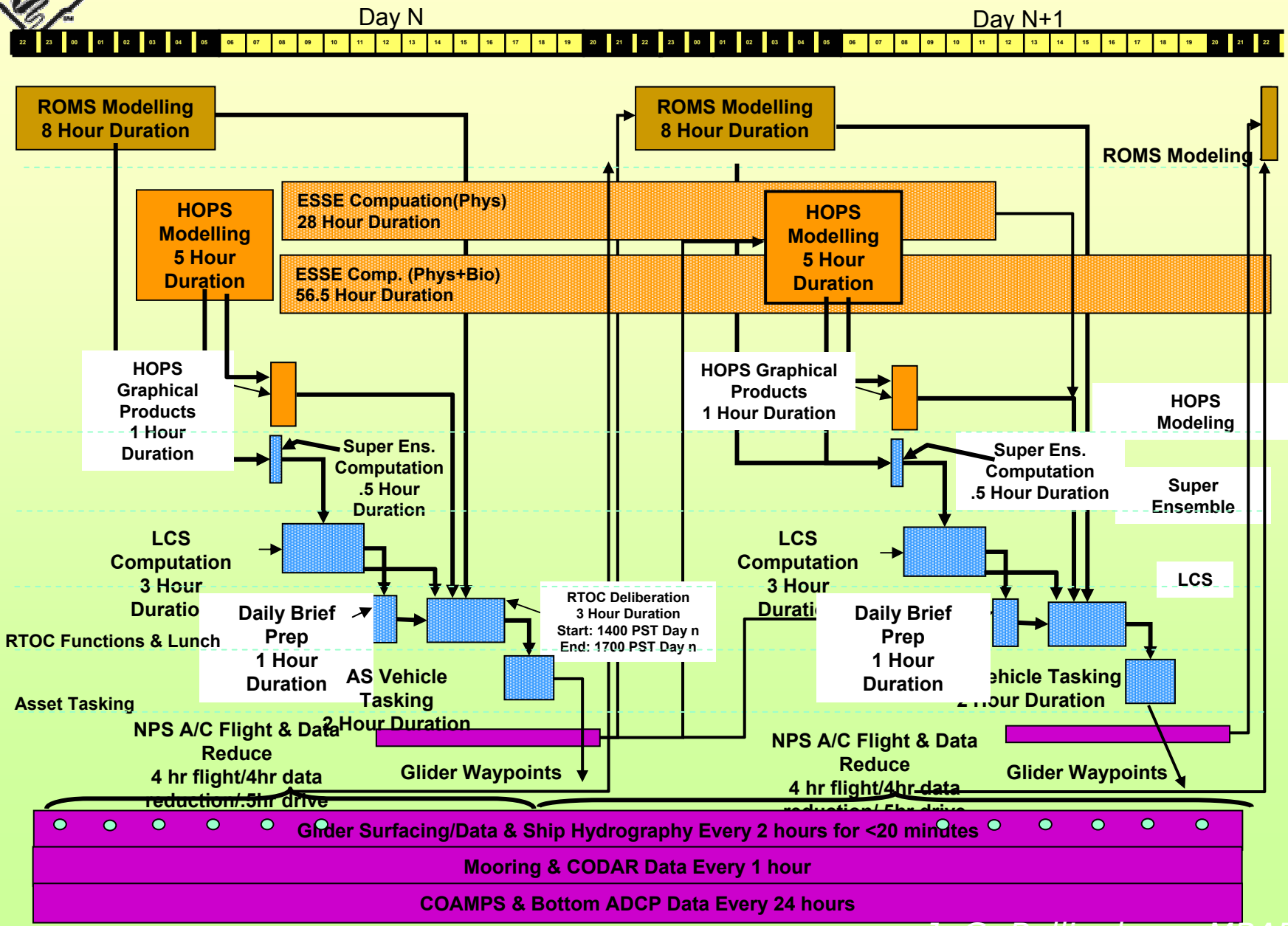
MIT Sea Grant

EDC

NRaD

AOSN II – Natural Fe Fertilization

AOSN II: Timeline for Modeling and Control



Looking to the Future…

- Multi-platform observation systems are now in development
- Prediction systems and ocean observatories are likely to make heavy use of mobile platforms
- Communications difficulties creates a needs for mixed levels of autonomy
- Seafloor observatories provide potential power and communication infrastructure for observation systems
- Engineering of such complex systems in infancy