



Ocean Platforms

- Lecture I
 - Ships
 - Buoys
 - Satellites
 - Cabled Observatories

- Lecture II
 - Manned Submersibles
 - Remotely Operated Vehicles (ROVs)
 - Autonomous Underwater Vehicles (AUVs)
 - The future....

Sailing Ships

- R/V Atlantis
 - WHOI first vessel
 - 1931-1966
 - 143' 6"



Modern Ships

- GPS Navigation
- Dynamic Positioning
- Reverse Osmosis
- Satellite Communications
 - INMARSAT
 - Email
 - Phone



- R/V Atlantis (III)
 - 1997
 - 273.2'
 - 24 Scientists
 - 62 Total personnel

Ships: SWATH Vessels

- Small Waterplane Area Twin Hull
 - Rides smoother in rough seas

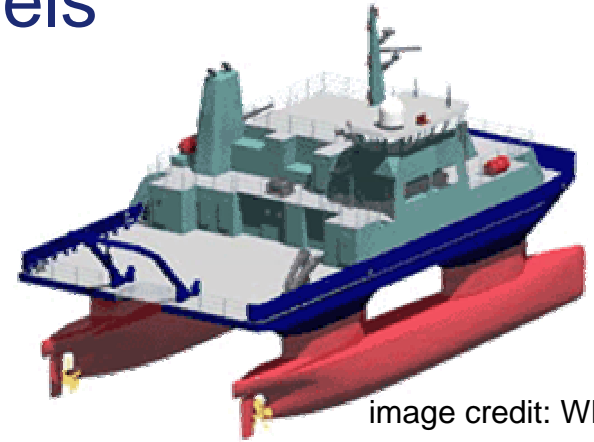


image credit: WHOI

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Please see: <http://www.soest.hawaii.edu/UMC/KiloMoana.htm>

image credit: MBARI



Ships: FLIP

- Floating Instrument Platform
 - 355' total length
 - No propulsion
- Flipped
 - 55' out of the water

Images removed due to copyright considerations.

Please see: http://aquarium.ucsd.edu/learning/learning_res/voyager/flip/index.html



FLIP

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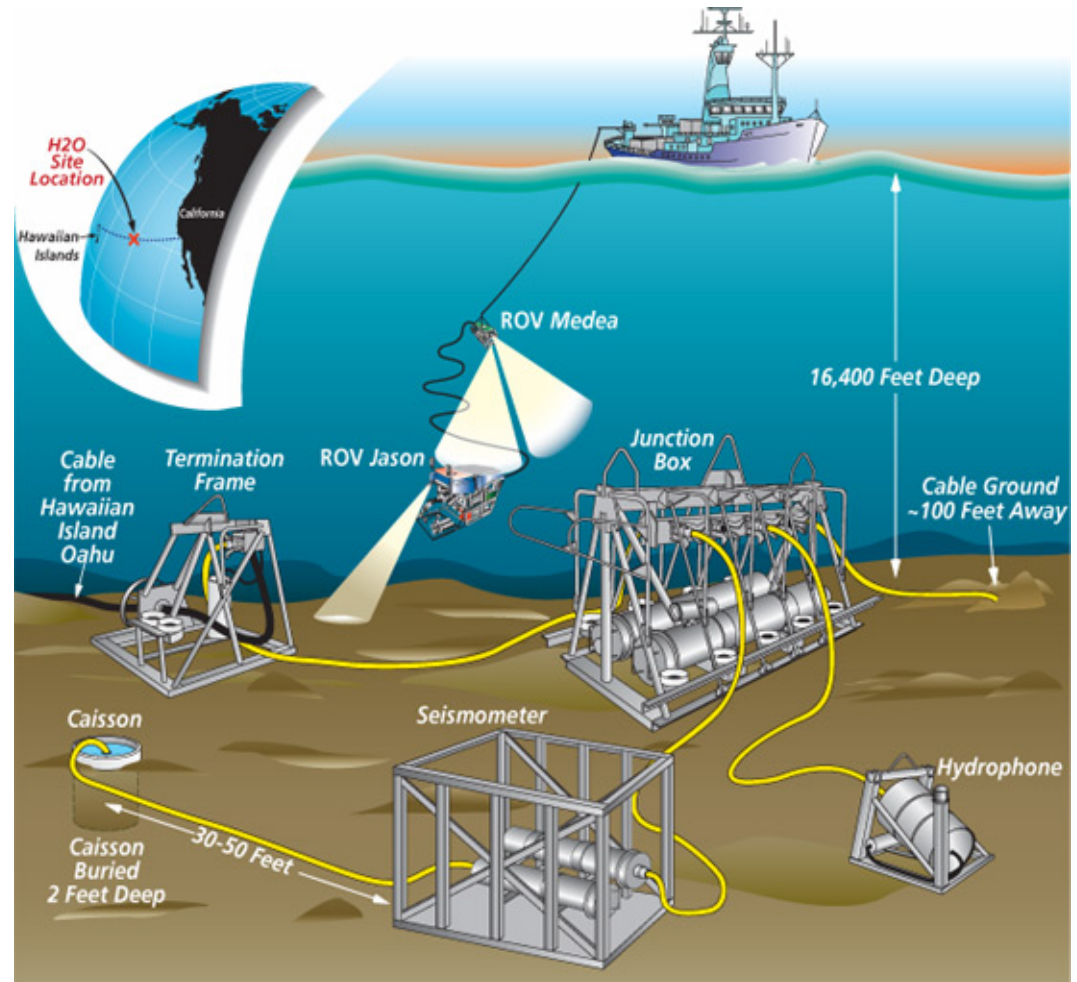


Satellites

- TOPEX/Poseidon
 - Sea surface topography
- SeaWiFS
 - Ocean color

Cabled Observatories

- Use a shore-to-seafloor cable to provide power and real-time communication to instruments on the seafloor
 - Deep ocean
 - H2O
 - Coastal
 - MVCO
 - LEO-15
 - DUCK
 - GoMOOS



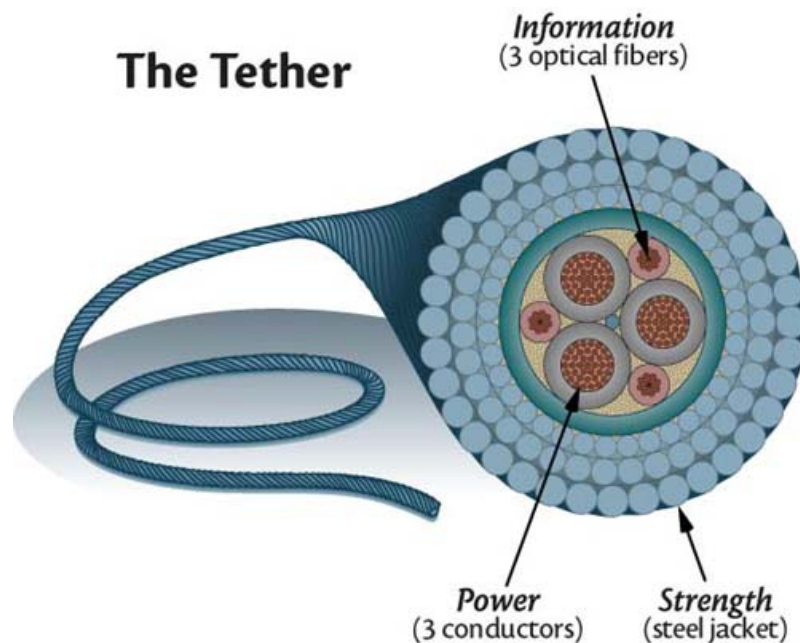


Cabled Observatories – Cables

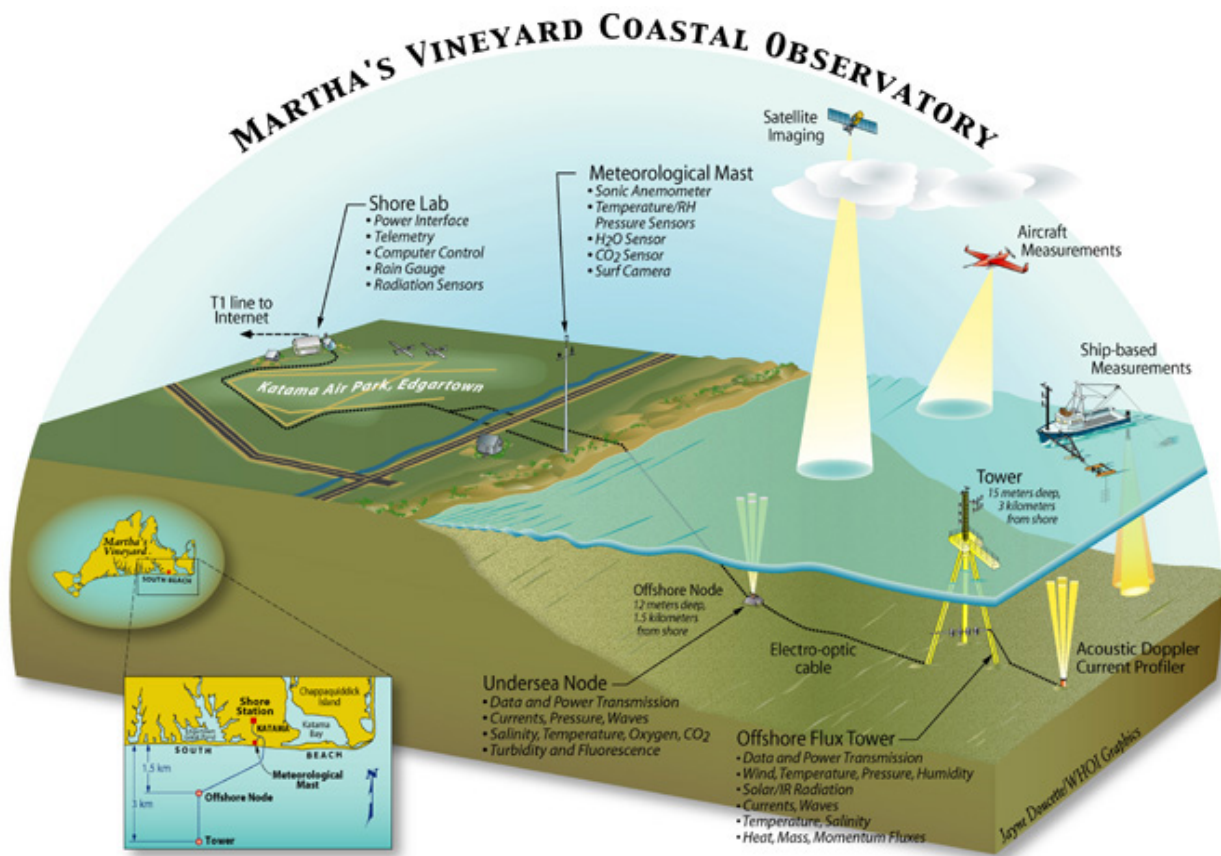
- Copper and fiber
 - Copper provides power
 - Fiber optics provides high data-rate communications

- Data rates
 - Serial (copper) and acoustic communications provide kbps (kilo-bits per second)
 - Fiber can provide Gigabit Ethernet communications

- Range
 - Fiber can go 100 km before amplification is needed



Coastal Observatories – MVCO





Cabled Observatories – NEPTUNE

- Tectonic plate-scale
 - 3000 km fiber optic cable
 - 30 nodes