



OCEAN OBSERVING

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Ocean Observing, the last 10 years

- ALOHA
- DONET
- KM3NET
- MARS
- NEPTUNE
- OOI
- PLOCAN
- VENUS



A mix of assets...

- Ships are meant to be expeditionary platforms for exploration
- Observatories provide persistence for conducting spatial and temporal interaction with the environment
- Cables provide the benefit of power and bandwidth but expensive and difficult to move
- Uncabled observatories expanding power capabilities through renewables and fuel cells but limited to satellite communications for most open ocean applications



What are common issues?

- Cables and connectors
- Corrosion
- Instrument/platform longevity
- Big data



How do we start to address problems

- Fault databases
 - Cause, remediation, result
 - Provides trends which can identify recurring hardware, software, procedural or environmental
 - Many problems are hidden due to the “hero” oceanographer/engineer
 - Successful commercial network operators have used this for years
 - Centralized repository
 - You will not get this data from the vendors



Arctic Fibre – Quintillion Networks





Future of Observing

- Mobile assets
 - Propulsion systems
 - Recharging
 - Communications
- Dual use cables – ITU/WMO/UNESCO IOC
- Marine renewable energy
 - Leveraging utility scale sites
 - Autonomous devices supporting observatory infrastructure



We are in an exciting time, as the next paradigm shift is taking place in ocean sciences. New platforms and instruments, providing additional information which will be available through oceanography's big data projects