



PAP Site Observatory

Development and Collaboration

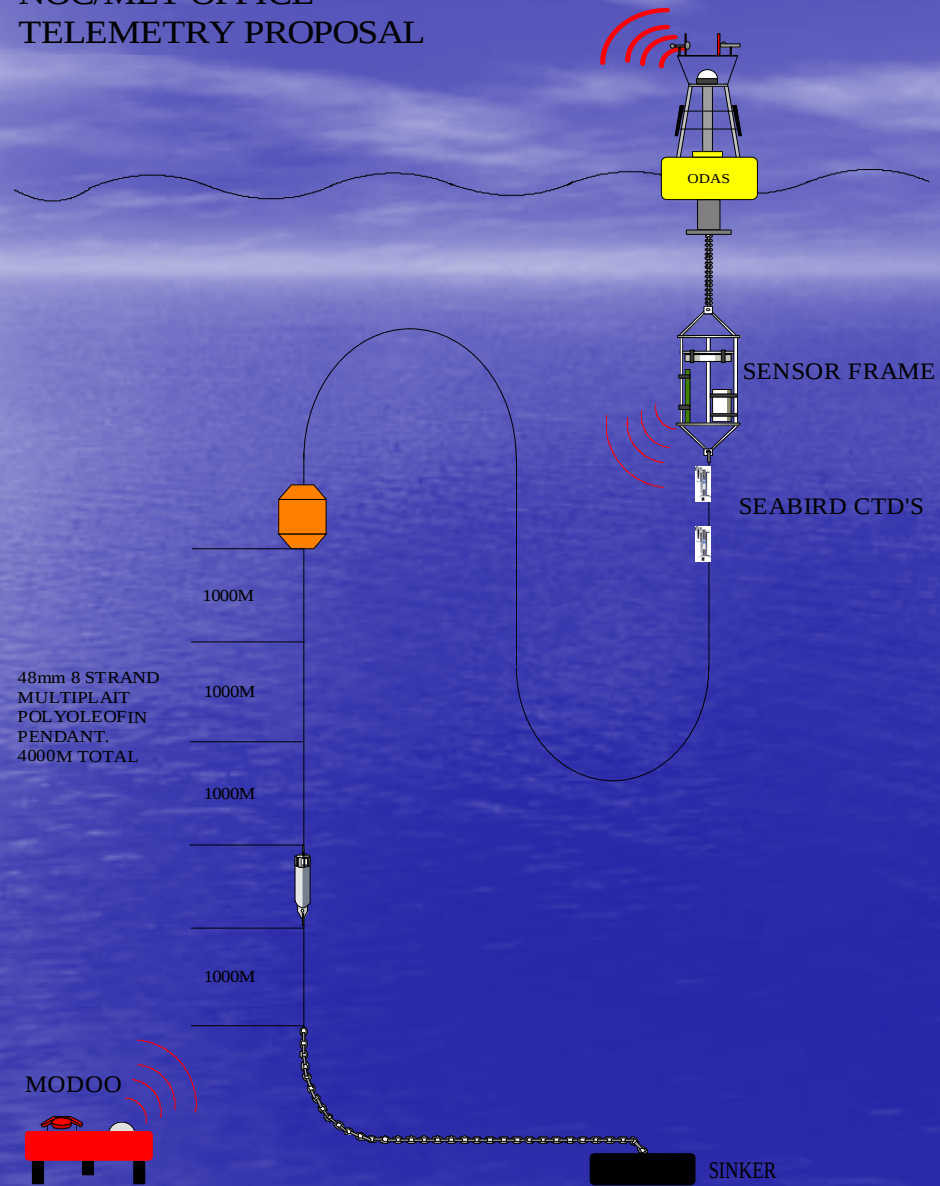
Short History

- Consists of PAP3, Bathysnap and PAP1
- PAP1 close to surface
 - Prone to loss
 - Different methods tried
- PAP3 Usually no problem

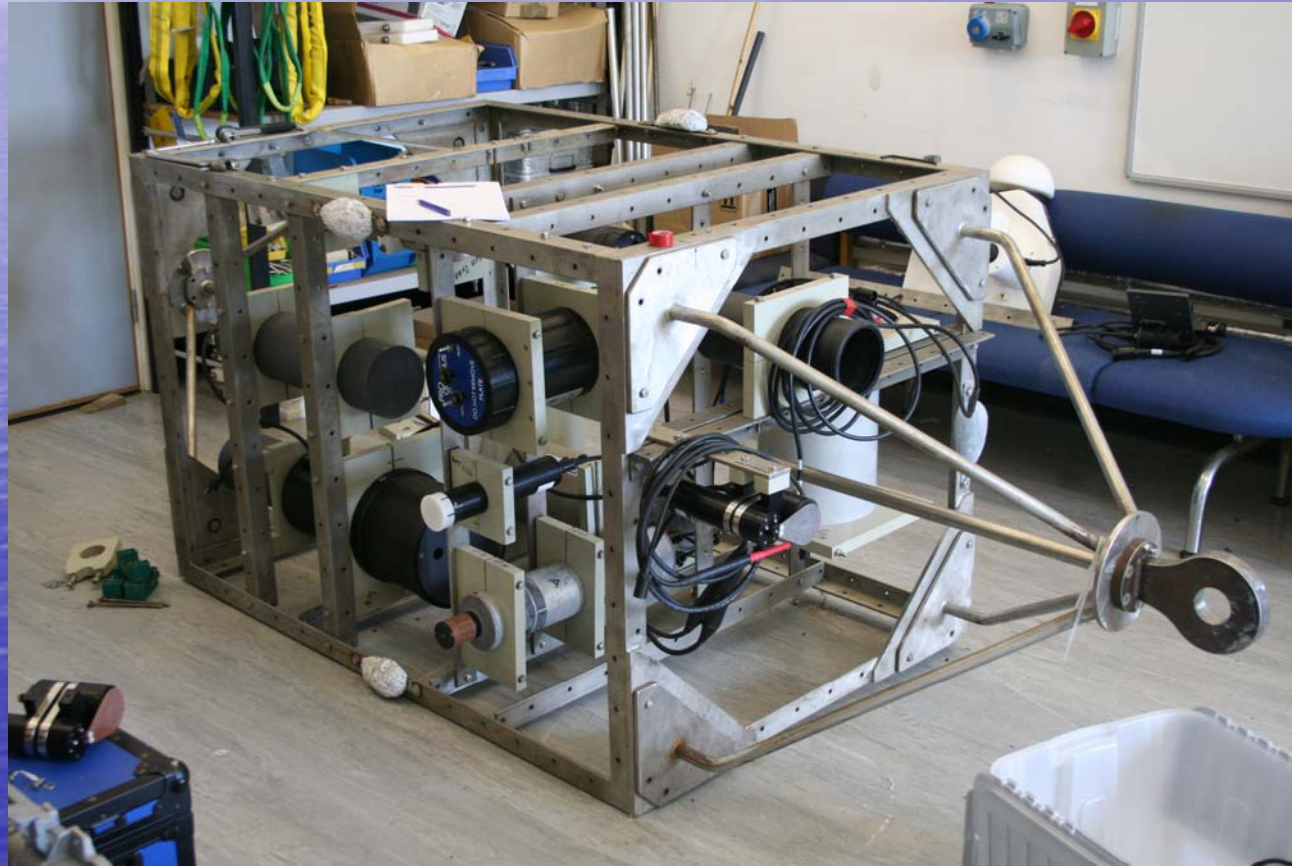
NERC and Met Office

- First Collaboration since Met Office Arrival
 - Long term aspiration for PAP site
 - Mutual benefits
 - Materials
 - Design
 - Modelling
 - Manpower

NOC/MET OFFICE TELEMETRY PROPOSAL



Sensor Frame



K Series Buoy



Not just S and M and MO

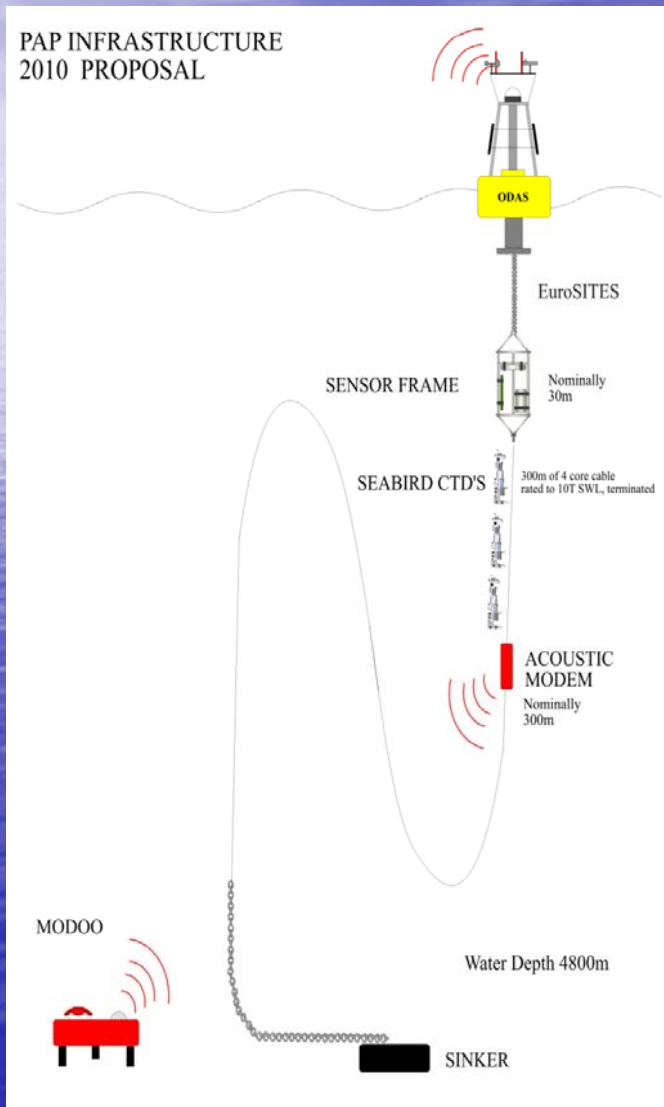
- Sea Systems
 - Met Office
 - USL
 - OBE
- Trinity House
 - BAS
 - Kiel

Design Approach

- Static and Dynamic Assessment
 - Met Office Experience

PAP – Deep Ocean Mooring System

Modelling and simulation with WHOI cable v2.0 software



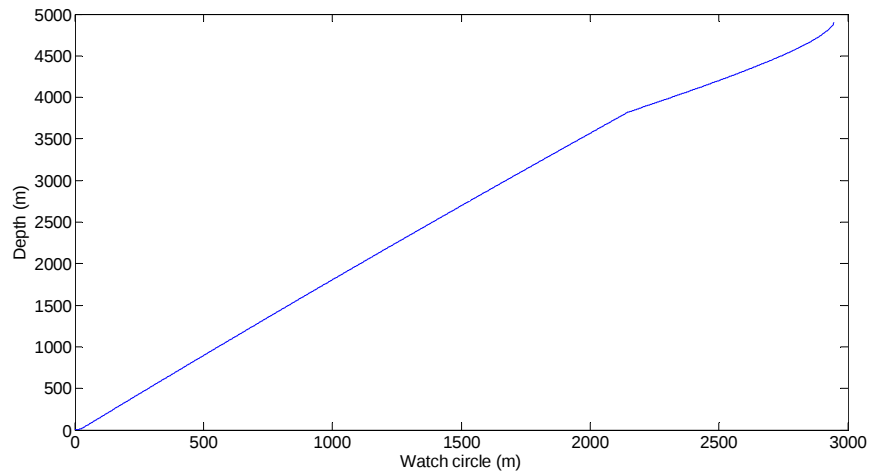
Conditions:

- 20 m waves
- 1 m/s currents
- 25 m/s wind speed
- Water depth 4900 m
- Rope length $\approx$ 5500 m

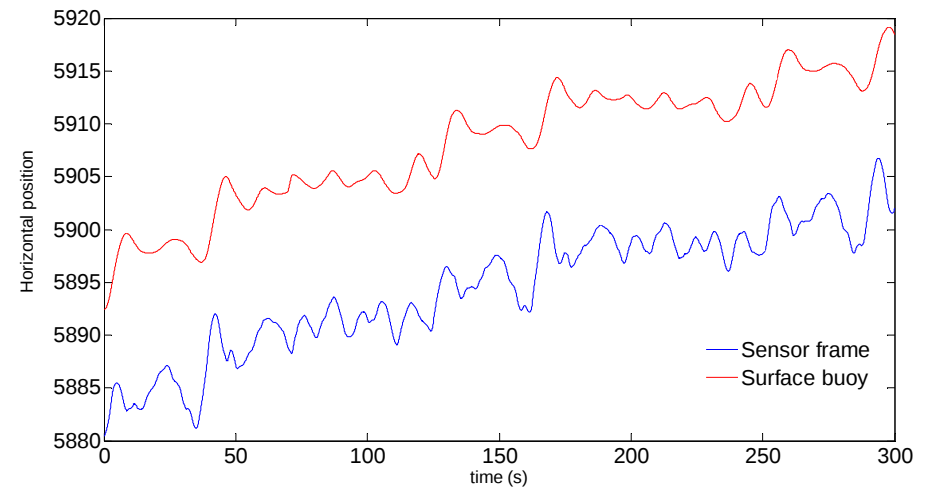
Simulation period: 300 s

Results

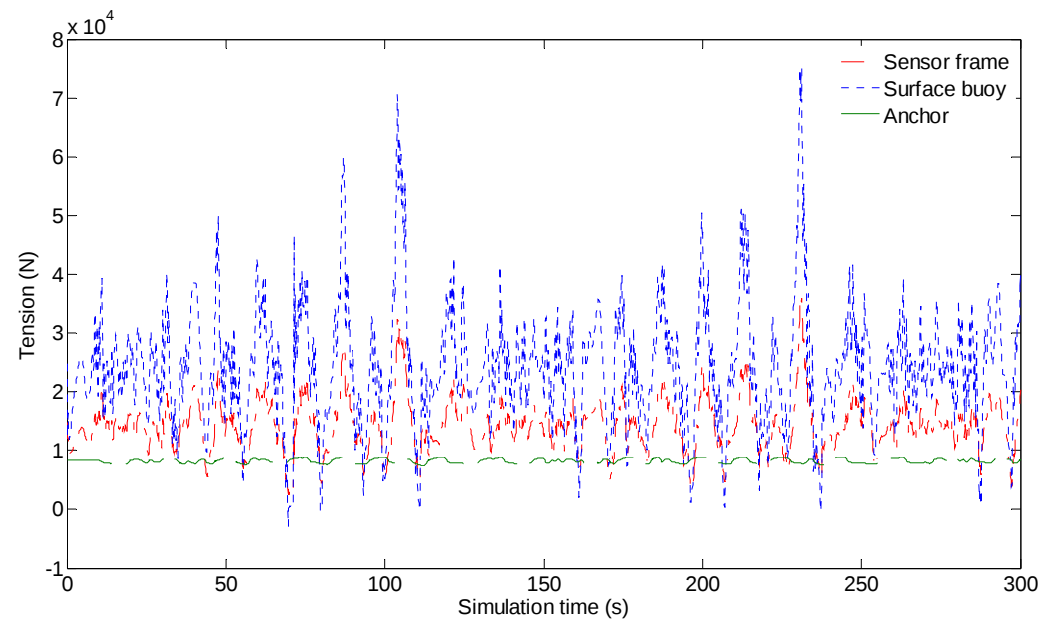
“Spaghetti” diagram



Horizontal positioning of nodes



Tension at different nodes



PAP Mooring & WHOI cable

Results are similar to the ones that a static modelling software suggests +++

Different conditions different results → +++

Often programme did not converge → Code problem or mooring design? --

WHOI cable → User friendly (??); one of the few dynamic simulation mooring software

Future?

- Design Improvements
 - Lighter Ropes
 - Shock absorber
- Instrument upgrades
 - Deep real time
 - Long term stability