



Gardline Marine Sciences do Brasil J.V

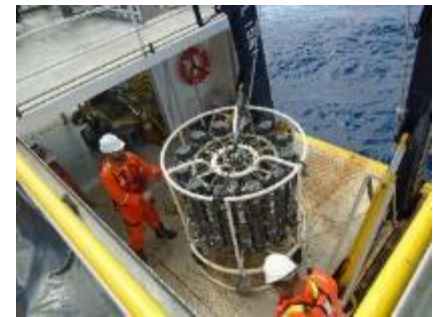
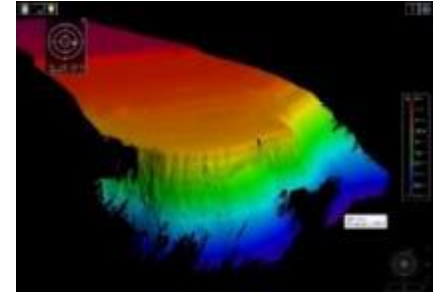
A jointly effort of



Key Aspects

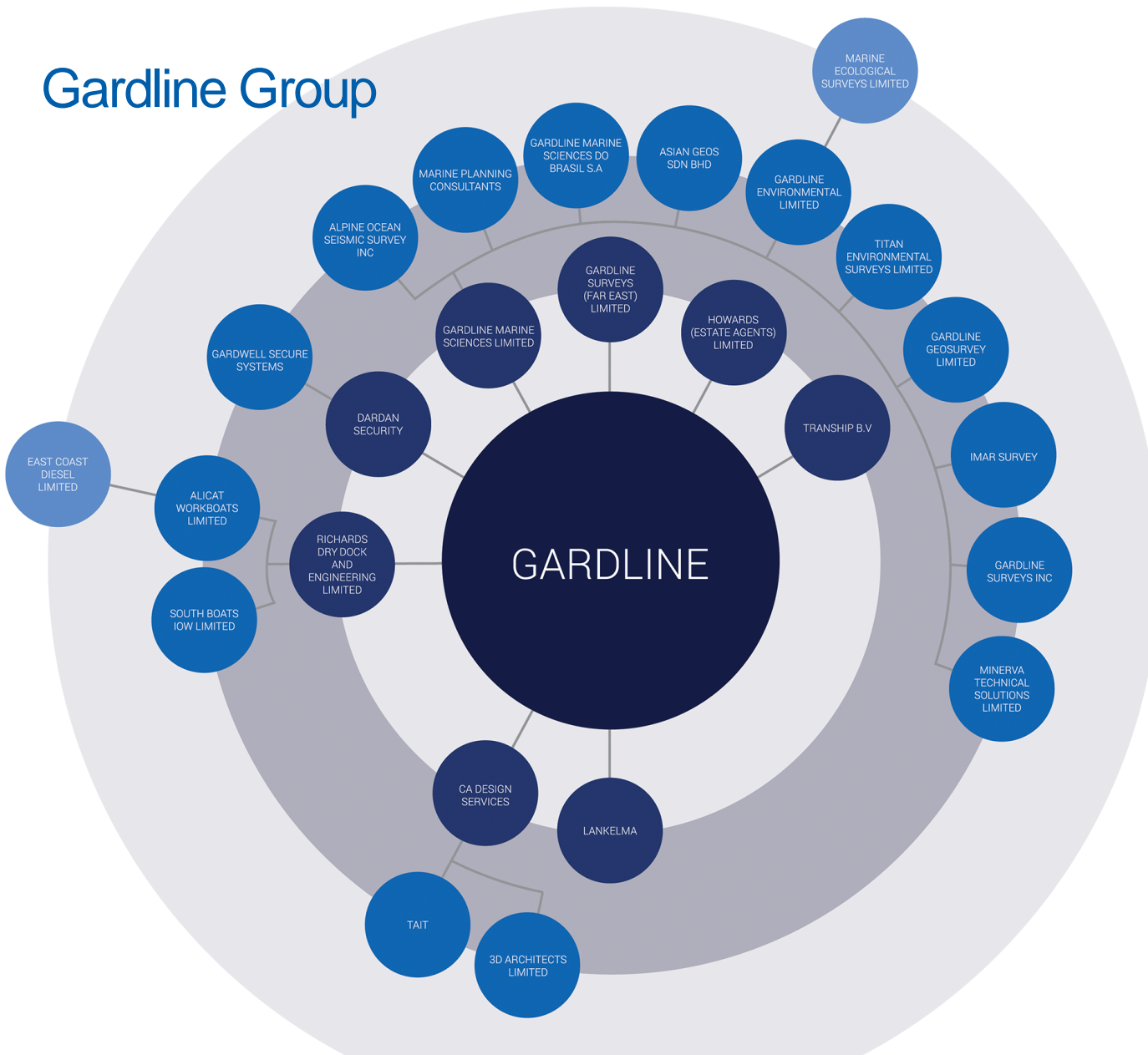


- ✓ Gardline: Since 1969
- ✓ + 1500 employees
- ✓ 14 Multi Purpose vessels
- ✓ Leading contractor for Oil & Gas, Ports & Harbours, Telecommunication, Ocean Mining, Renewables and Government Projects
- ✓ Gardline Brasil
 - ✓ Founded 2013
 - ✓ +60 employees in Brazil
 - ✓ 1 x Deep Water Survey Vessel
 - ✓ 1 x Shallow Water Survey Vessel
 - ✓ +20 surveys per year



Gardline Group

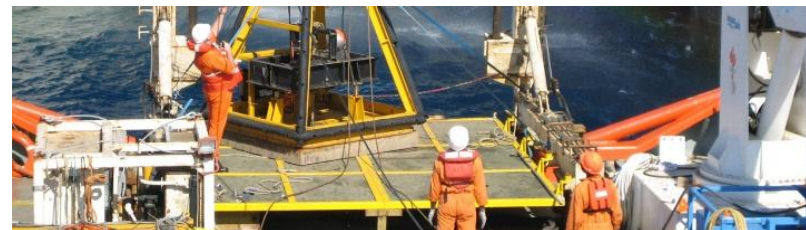
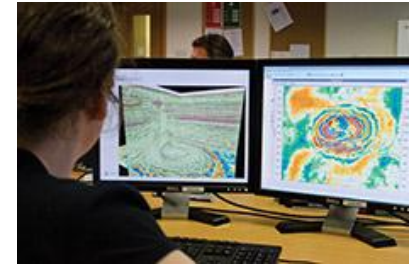
Gardline



Specialists in Marine Sciences



- ✓ Marine Geology & Geophysics
- ✓ Environmental Surveys – Seabed sampling, Water Column sampling; Habitat Assessments; Plankton Surveys
- ✓ MetOcean Surveys
- ✓ Geochemical Surveys – Piston Corer / Heat Flow
- ✓ High & Ultra High Resolution Seismic Surveys
- ✓ Geotechnical Investigations (CPT, Piston Corer, Vibrocorer, boreholes)
- ✓ Emergency Response Surveys
- ✓ Surface & SubSea Positioning Services (Rig Move, Metrology, Construction Support)
- ✓ Marine Wildlife Surveys – MMOs & PAMS



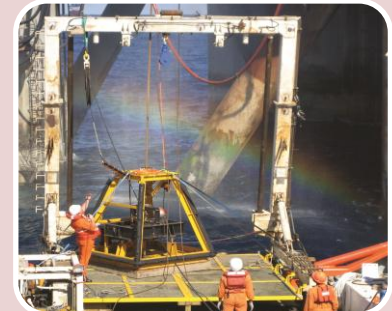
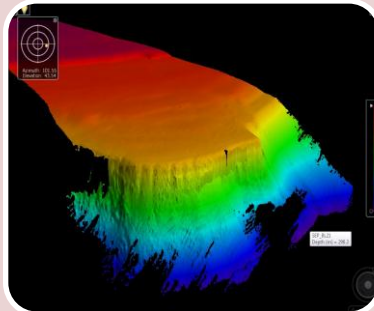
Where we are?



Our Fleet



Main Contracts in Brazil



BG - Barreirinhas
Baseline

Statoil - Espirito Santo
Deep Water Moorings

Chevron - Frade
Metocean Buoy

Petrobras - Libra
Metocean

Petrobras - Bacia de
Santos Fundeios
Acústicos

Petrobras - Pipeline
Surveys 2014/16

Peregrino Phase II
Route Survey

SACS, SEABRAS &
BRUSA Cable Projects

LEPLAC: 2D seismic
survey

BG - Barreirinhas EBS

Petrobras –
Monitoramento
Ambiental Costeiro e
Oceânico

Statoil – BMS-8 – Survey

Petrobras – Bacia de
Santos EBS

OGPar – OSX1 & OSX2

Petrobras: Rota 2 &
Rota 3 Geotechnical
Invetsigation

Vessels in Brazil 2012-2017



MV Sea Surveyor

Client: Marinha do Brasil

Project: LEPLAC – Levantamento Plataforma Continental - UNCLOS

Vessels in Brazil 2012-2017



MV Ocean Discovery

Client: Petrobras

Project: Geotechnical Investigation Rota 2 & Rota 3

Vessels in Brazil 2012-2017

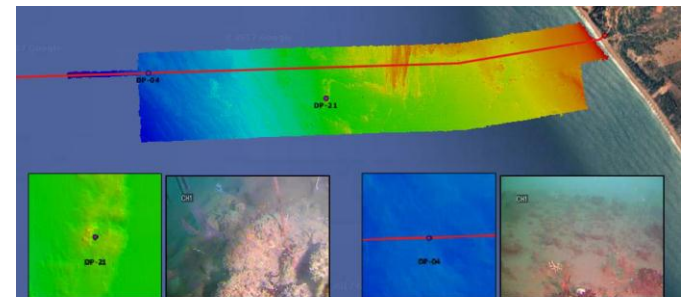
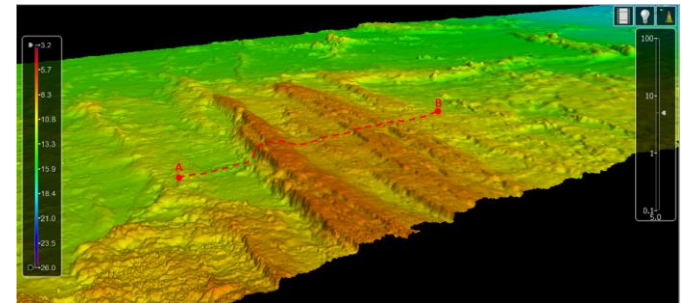


MV Kommandor
Client: Petrobras
Project: Bacia de Santos Environmental Baseline Survey

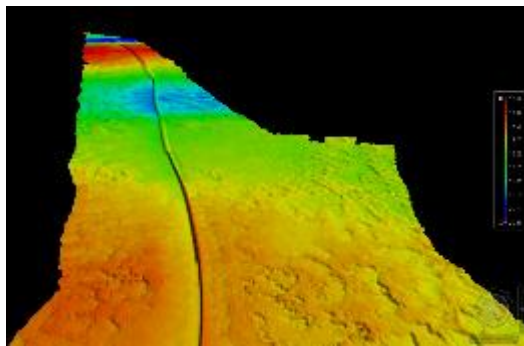
Vessels in Brazil 2012-2017



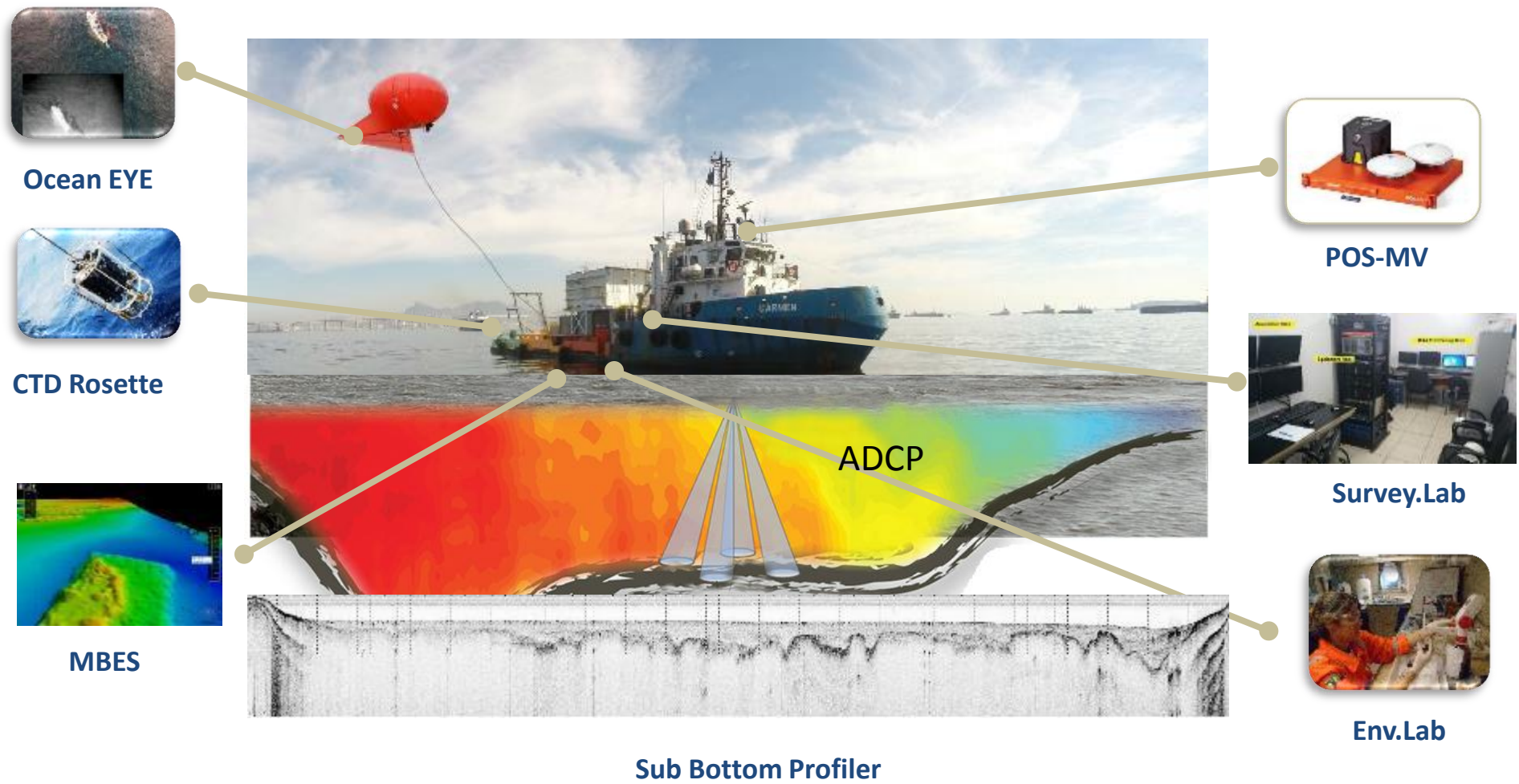
MV Ocean Endeavour
Client: Alcatel ; NEC
Project: BRUSA , SEABRAS and SACS Cable Systems



Vessels in Brazil 2012-2017



Vessels in Brazil 2012-2017



South America Largest Equipment Pool





P E R E N C O



Desafios operacionais na utilização de boias Meteoceanográficas no Brasil



Gardline Brasil
Meteocean Business unit

Moorings 2014-2017



- 1 Met buoy 2014-2015 (250m)
- 1 Wave buoy 2014-2015 (250m)
- 5 Oceanographic moorings 2014-2016 (250m-2600m)
- 1 Oceanographic moorings 2016-2018 (2200m)
- 1 Metocean buoy 2016-2018 (2200m)
- 7 Oceanographic moorings 2017-2021 (300m-2850m)
- 1 Metocean buoy 2017-2019 (1500m)

Buoys Deployed 2014-2017



Maranhão, Espírito Santos, Bacia de Campos e Bacia de Santos

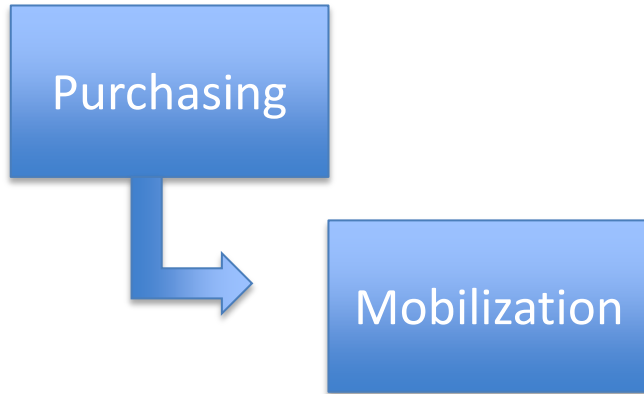
Buoy Projects

Purchasing



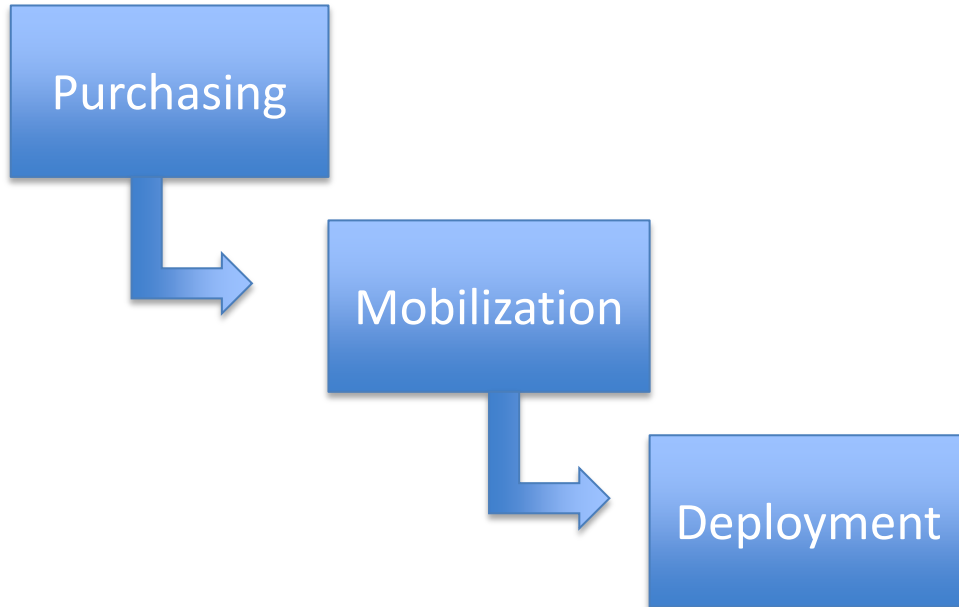
- Contract requirements
- Choose Model
- Payload specification
- Mooring design
- Telemetry type

Buoy Projects



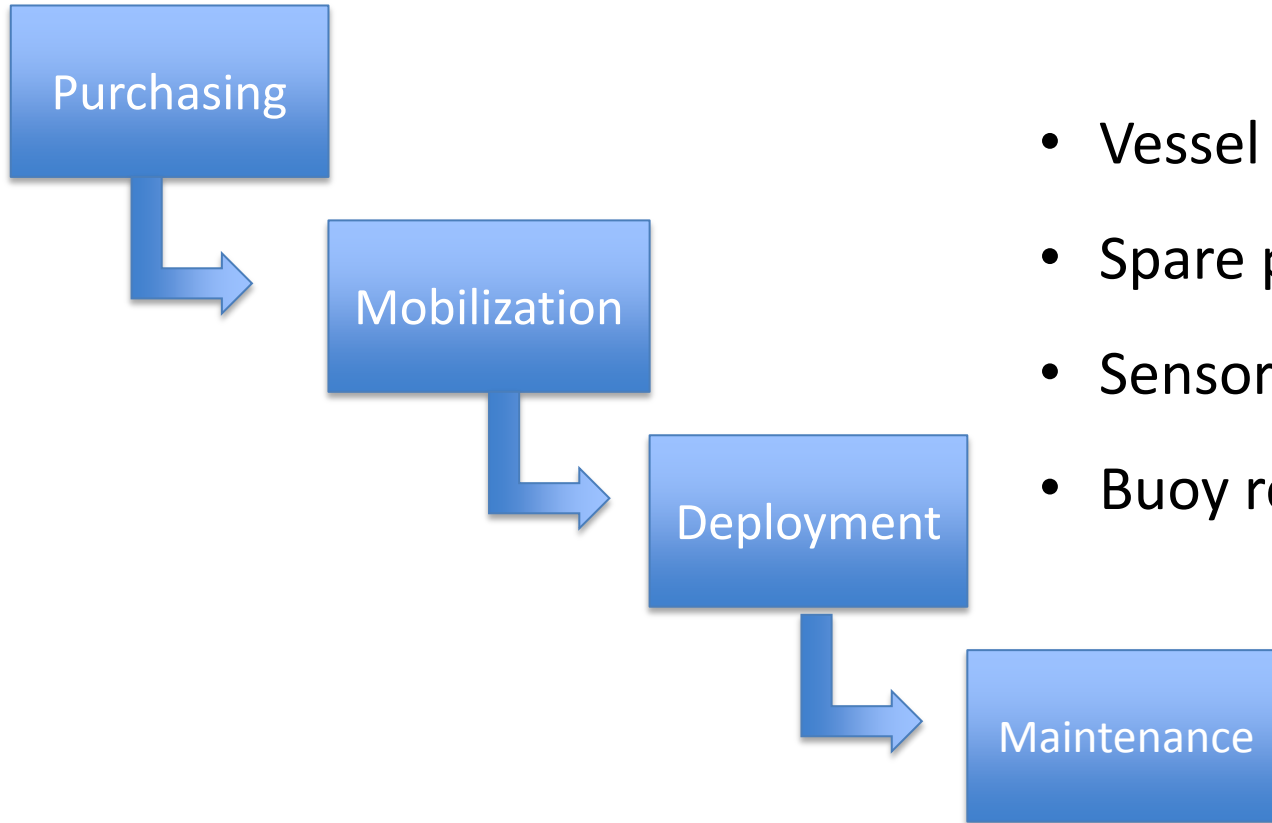
- Shipping
- Testing
- Personnel training
- Moving to port

Buoy Projects



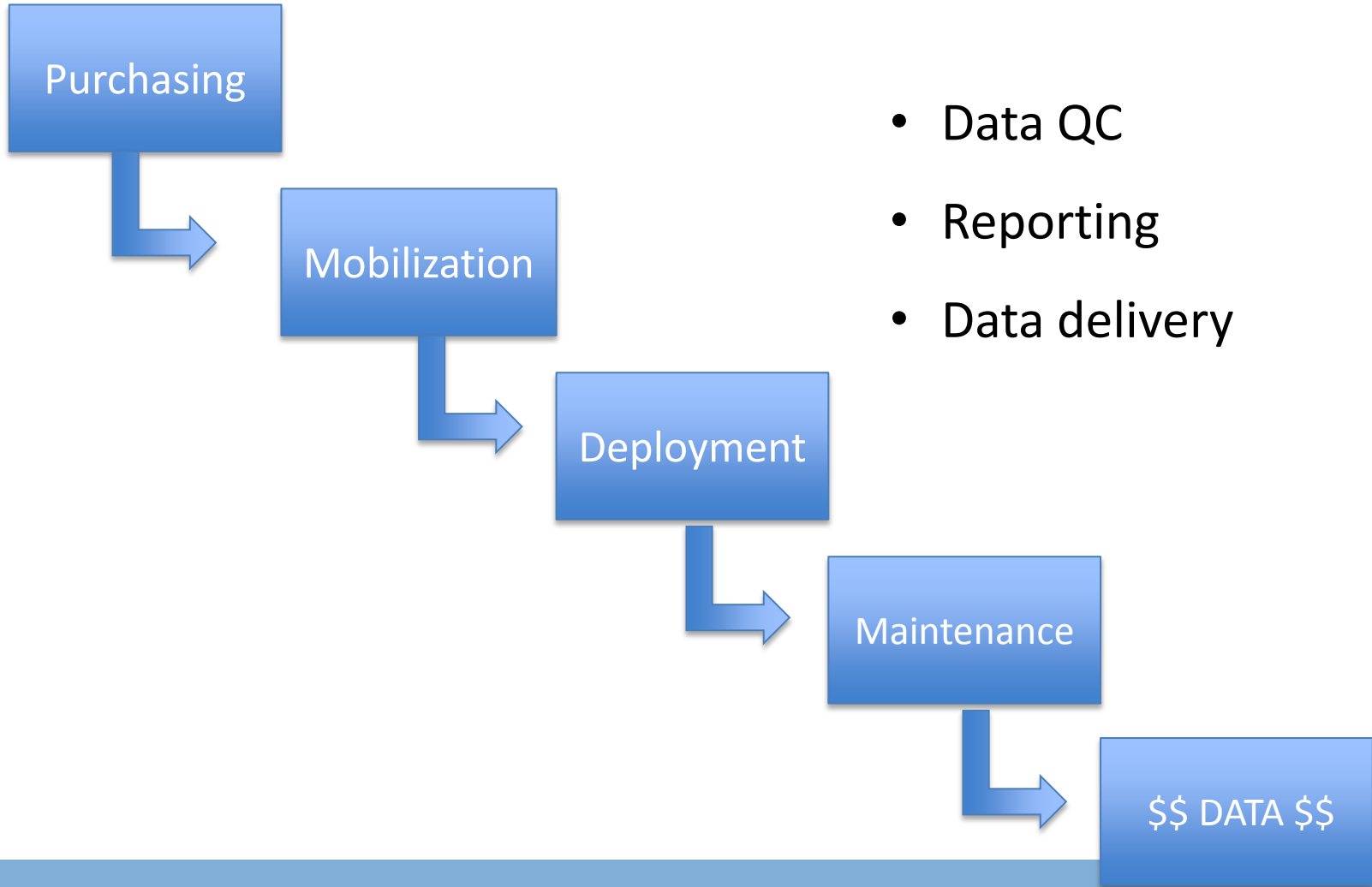
- Vessel Mobilization
- Proceedings approval (HSE)
- Weather window

Buoy Projects



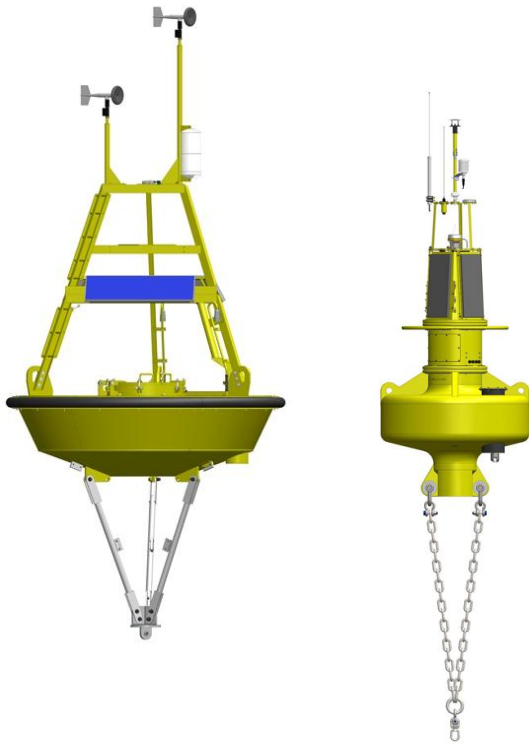
- Vessel Mobilization
- Spare parts
- Sensor replacements
- Buoy repair

Buoy Projects



- Data QC
- Reporting
- Data delivery

Buoy Purchasing



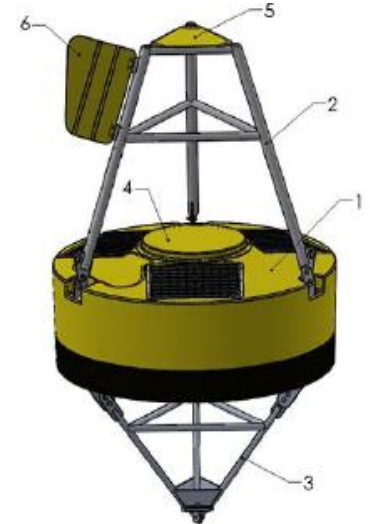
Components

Foam x Aluminum x Fiber glass x Plastic

Project duration (< 2 years)

Size, payload, telemetry

Deployment Location



Buoy Purchasing

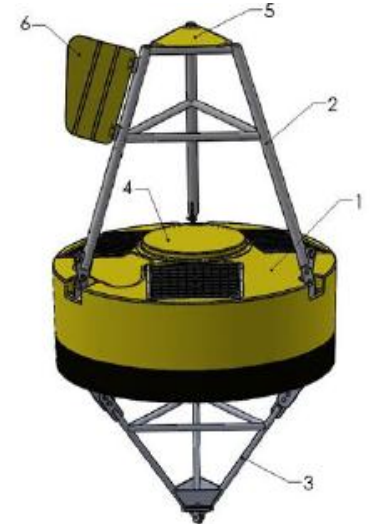


Imported

- Longer lead time
- More expensive shipping
- Quality control
- No client restrictions

National

- Shorted lead time
- Reduced shipping
- More flexible customization
- Client restrictions



Buoy Mobilization



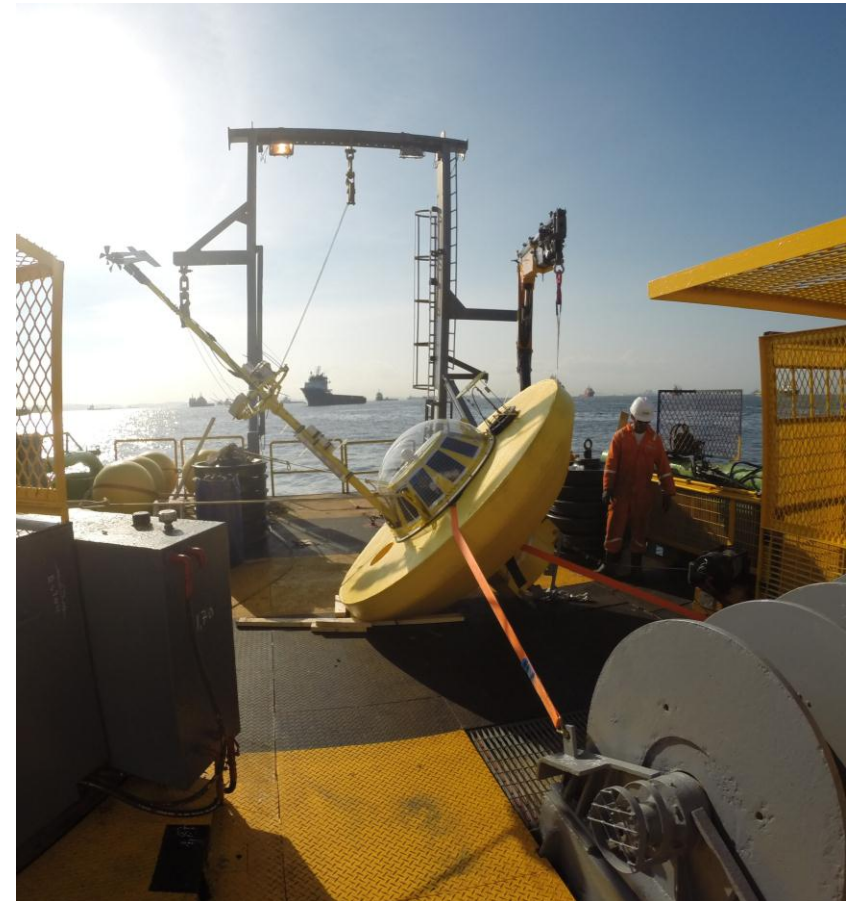
- Shipping – Air freights
- Unpacking/re-packing
- Port Logistics – handling, storage, lifting



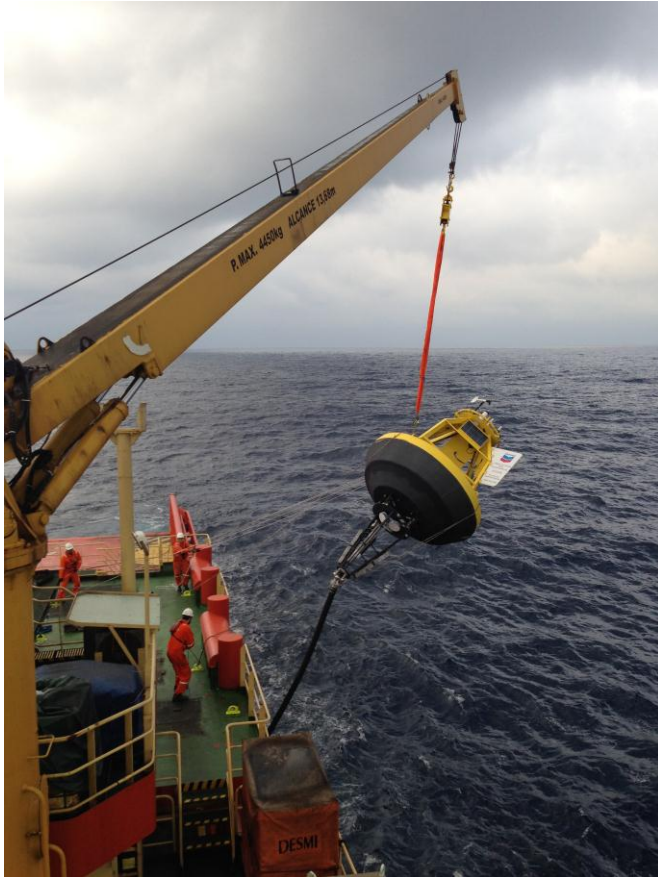
Buoy Deployment



- Spot market vessel
- Mooring components
- Contract restrictions
- HSE/safety/Hazards



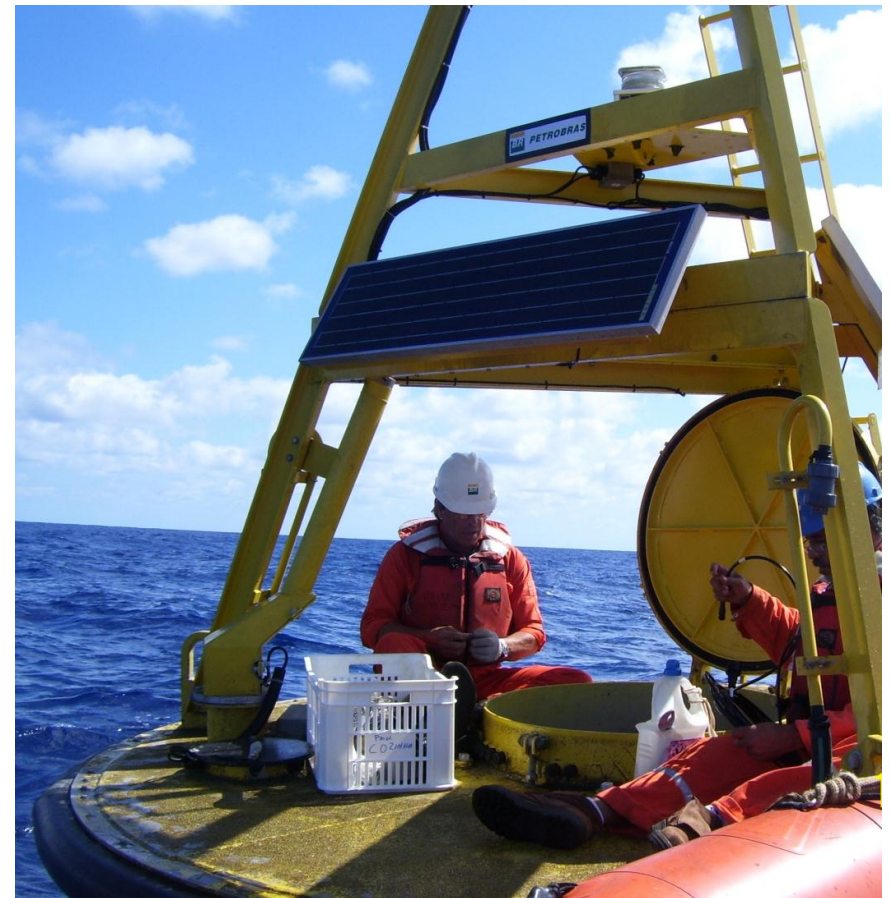
Buoy Deployment



Buoy Maintenance



- Vessel Cost - Short missions with long interval
- Spare parts
- Offshore repairs on realistic timeframes
- Minimum 6-8 hrs per Service Visit –Mission Aborts
- Complex systems - Lots of Opportunities for Mistakes & Failures



Buoy Maintenance



- Fishing activity - Vandalism
- On field testing – limited budget time
- Sensor replacements – Buoy recover
- Spare parts – long lead time



Sensors Calibration



Foreign labs

- Long transit time
Min 45-60 days

Local lab

- Limited models
- Most for Met sensor
- Not standardized (inmetro)



Vandalism VS Buoys

- Unidentified boats (no license)
- Over motivated vessels
- No respect for warnings
- Violent threats
- Mooring overload
- Non-intentional Depredation
 - Cables, solar panels, sensors, etc



Vandalism VS Buoys



Future for Buoy Business



- Government Fishing activity monitoring and control
- National material development – Standard products
- National buoy – Production quality control
- National sensors validation and accreditation
- Calibration labs (CTD and waves)
- Day rate contracts vs lump sum
- Vessel pool for buoy programs

Obrigado !!!

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