

ALGOA BAY SENTINEL SITE PROGRESS & LESSONS LEARNT

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SAEON

Elwandle & Egagazini



VISION

A sustained, co-ordinated, responsive and comprehensive South African Earth observation network that delivers long-term reliable data for scientific research and informs decision-making.



SAEON CORE TASKS

- **Data collection (monitoring)**
- **Data management (archiving and dissemination of data). DATA IS SHARED**
- **Analysis and reporting**
- **Education Outreach**

EARLY DAYS

Start from scratch – Challenging

Early technical documents - terrestrially dominated

Core site concept & platform provision mandate of National Facilities.

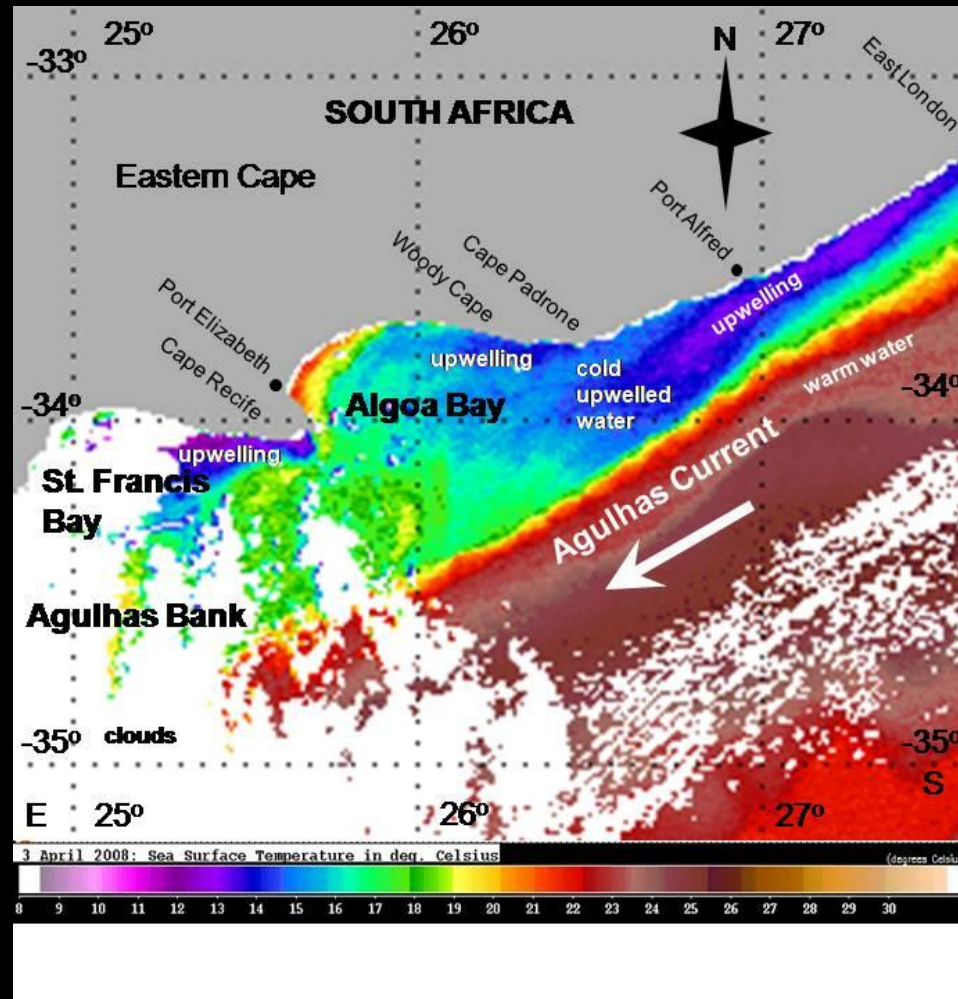
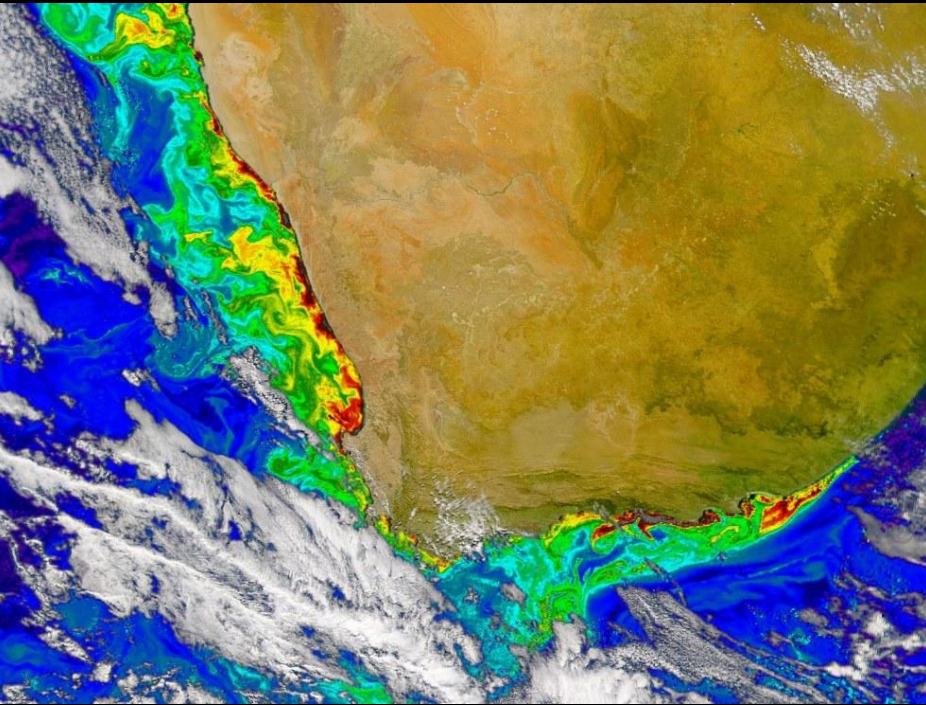
2010 - SAEON Science Plan - One of a range of options (Spatial and temporal scales)



SITE CHOICE

- Site in each bioregion
- Start - logistically easiest to establish proof of concept
- Interesting LTER questions at a variety of scales
- Proximity of HEI's
- Existing knowledge base
- Potential for industry and academic collaboration
- Multiple habitat types

- **ALGOA BAY – Three universities, existing info, industry & conservation, multiple habitats, Climate change and global change questions.**



International & SANCOR Guidance

- International – Coastal GOOS; Coastal GTOS; CCOP; ILTER; LOICZ etc etc
- SANCOR – Guiding document of over 20 variables.
- Common thread
 - Get drivers at adequate resolution (temp, currents, wind, salinity, pH, Dissolved oxygen, freshwater input, benthic and zooplankton biomass)
 - These factors will provide basic understanding for a range of questions.
 - Build on this data at higher trophic levels.

SAEON APPROACH

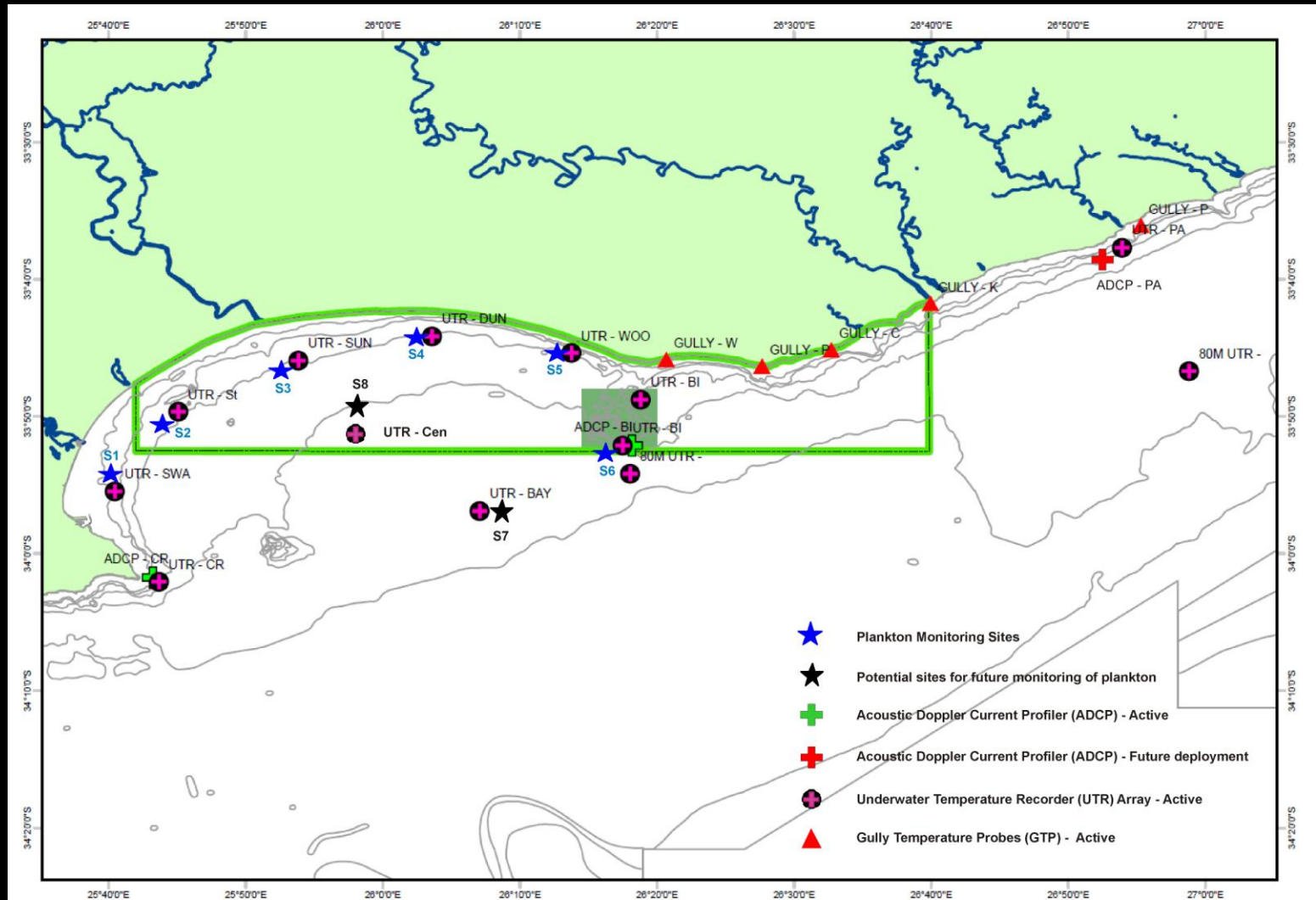
- Node – LTER
 - Thermister chain network = Bay scale hourly 3d thermal map
 - Current meters = circulation patterns, retention times etc.
 - Wind = Collaborate with SAWS
 - Monthly cruises = 3d map of turbidity, Chla, DO, Salinity, Ph, Zooplankton density
- Node platform provision
 - Ongoing collaborator led LTER projects
 - Shorter term specific projects (MSc and PhD)

SAEON Elwandle Node

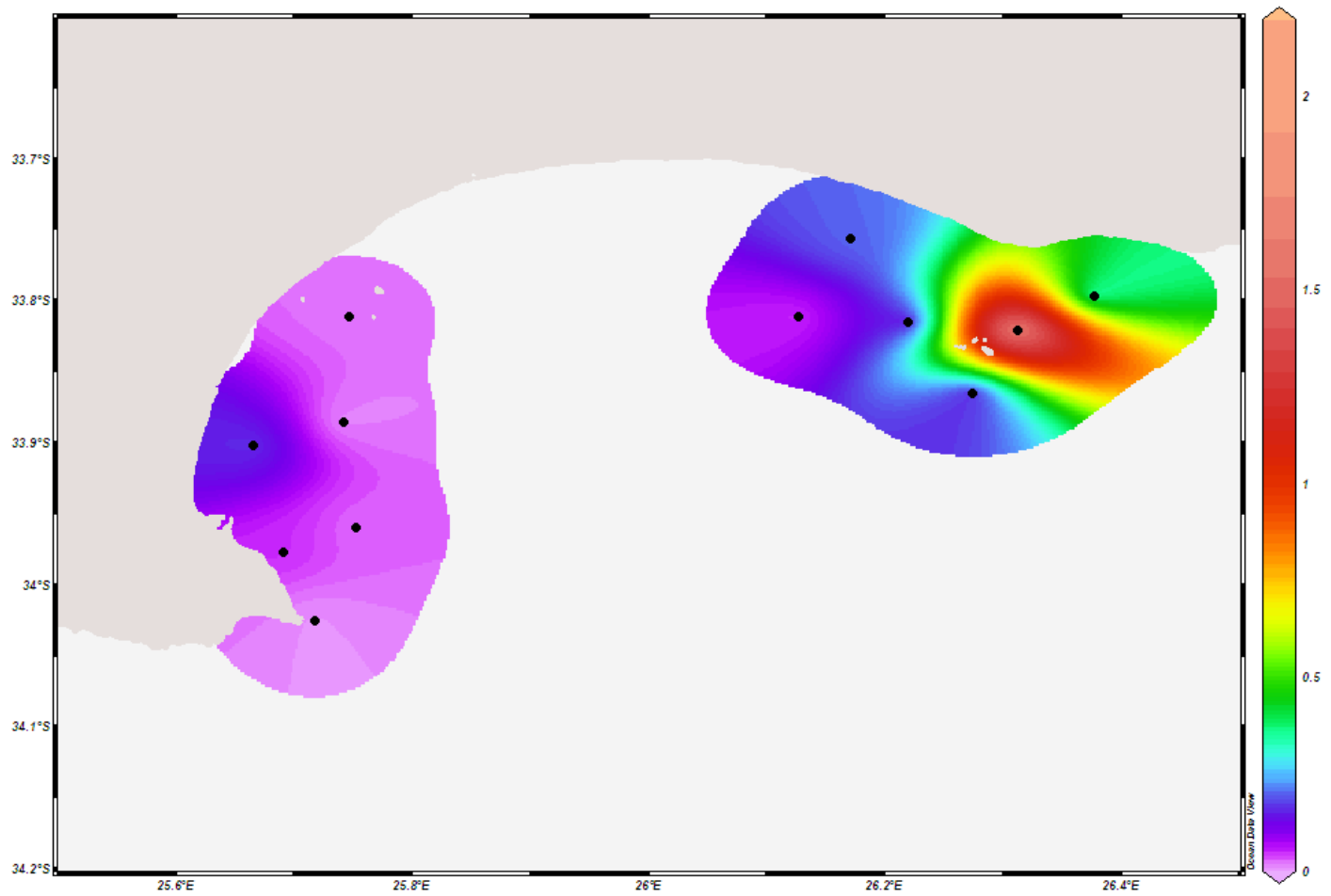
Algoa Bay Long-term Monitoring Programme

Continuous Monitoring Platform Locations

2008 - present

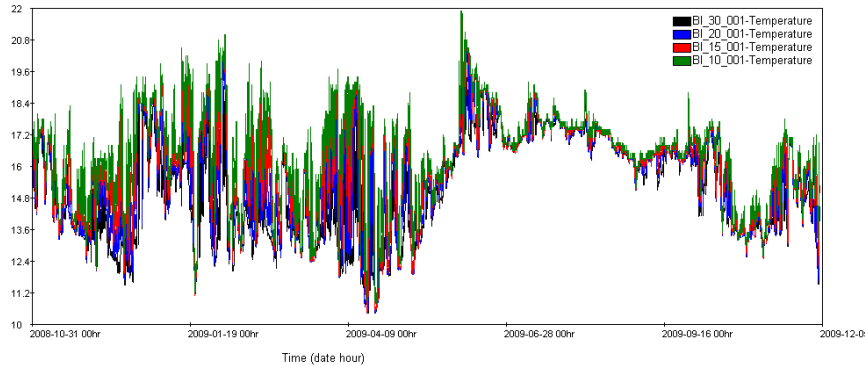


Nitrate @ Depth [m]=Top



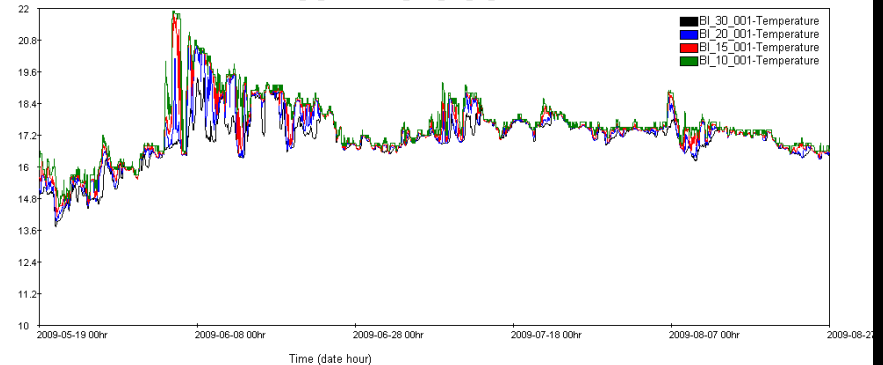
All data

Algoa Bay Long Term Monitoring and Research
BL_30_001 ABLTMRP_BIPAJ_UTR_1/4_001



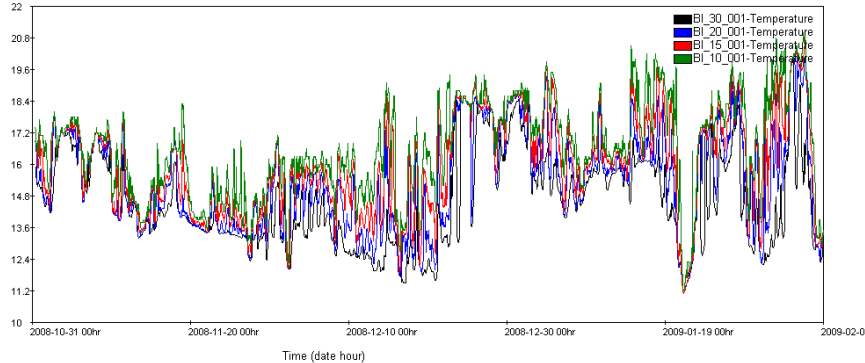
200 – 300 days

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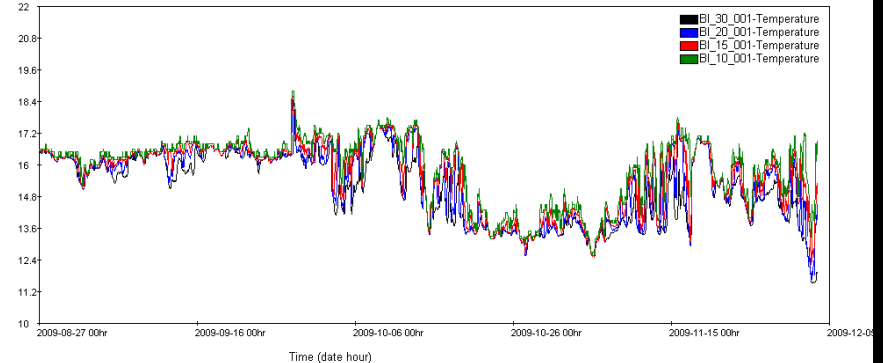
0 – 100 days

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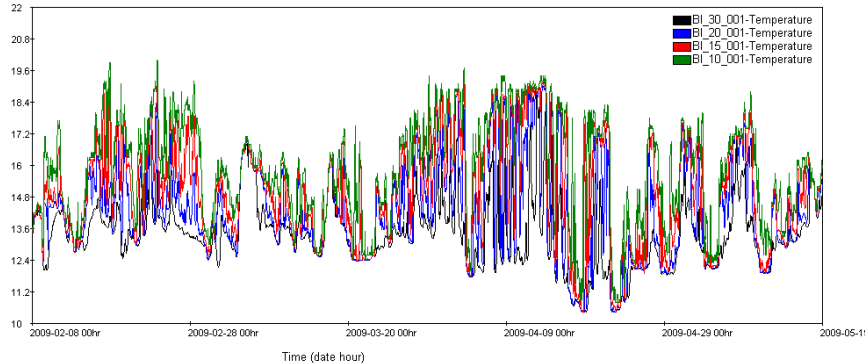
300 – 400 days

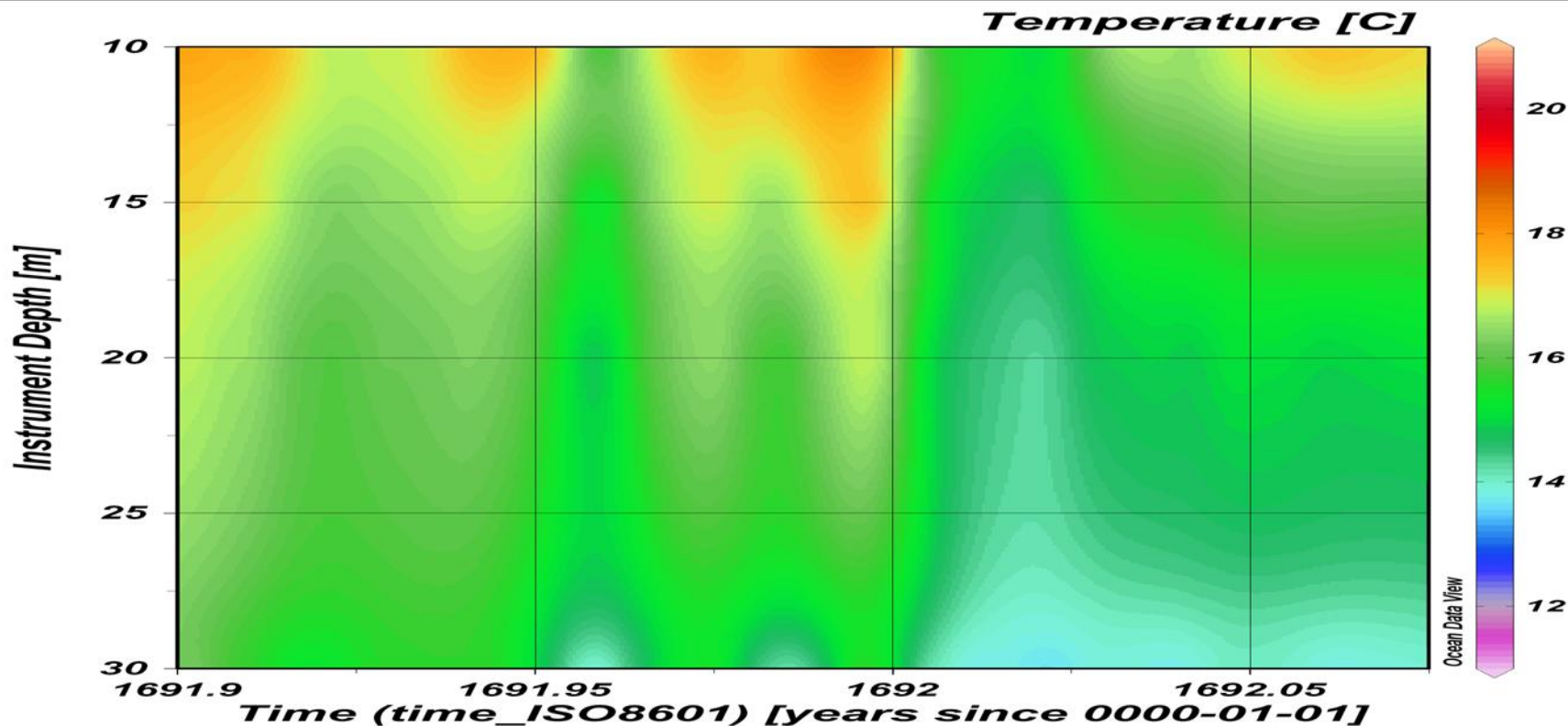
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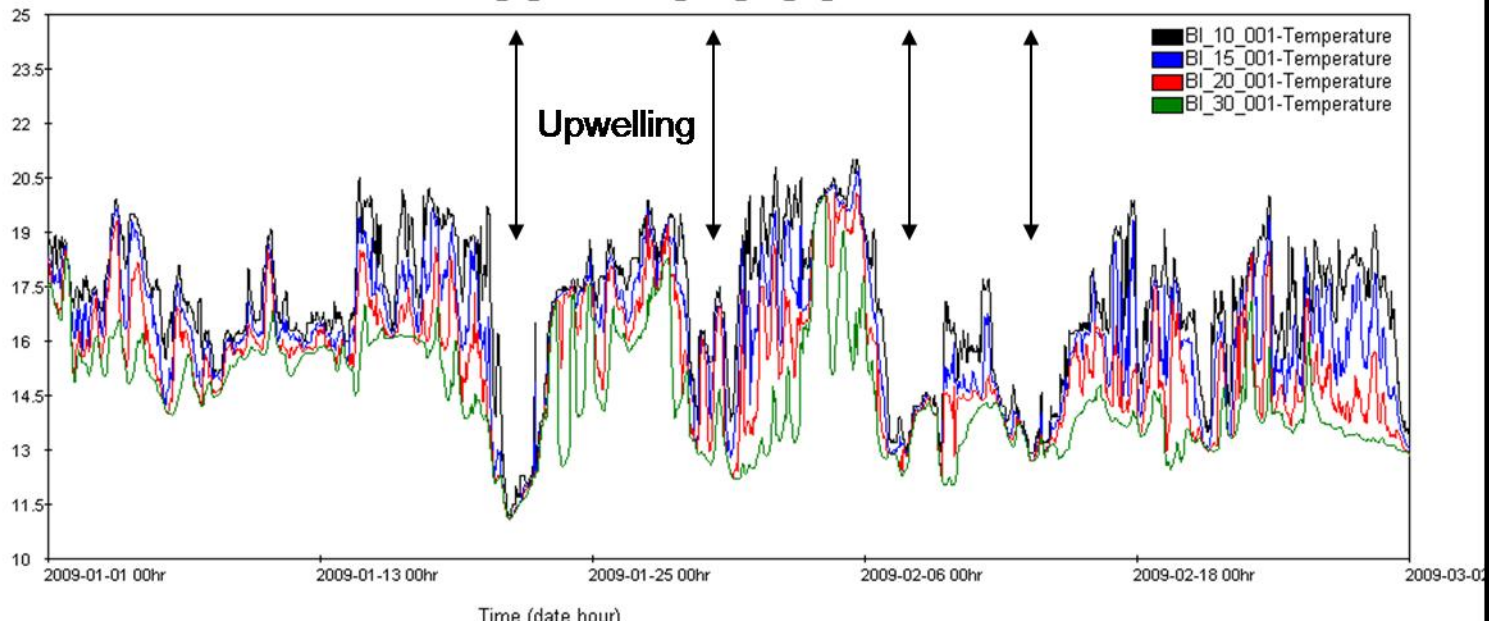
100 – 200 days

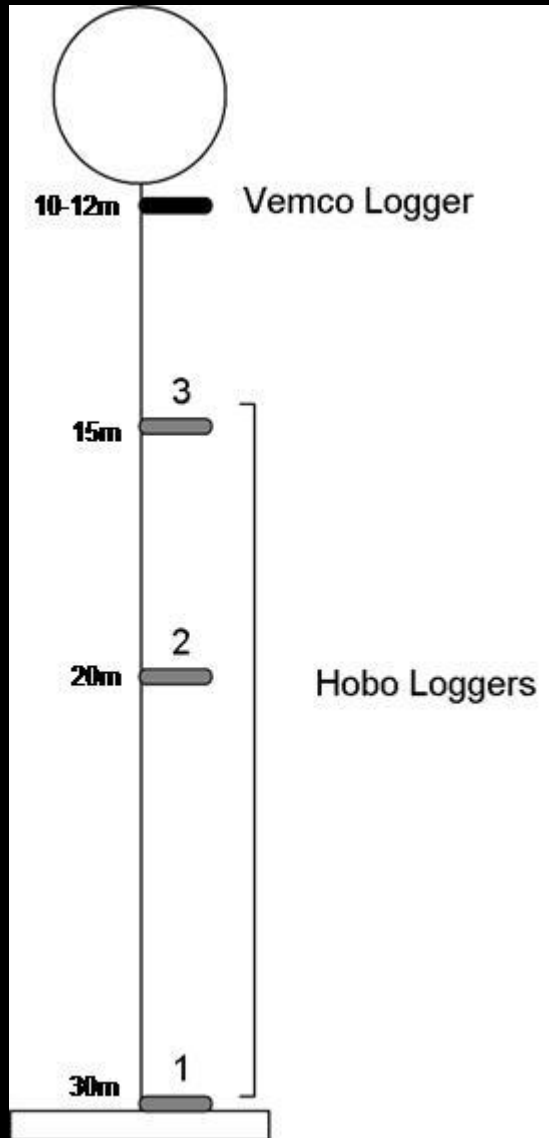
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BI_10_001 ABLTMRP_BIPAI_UTR_4/4_001







PLATFORM MANDATE EQUIPMENT & RESOURCES

- 8m semi-rigid rubber duck
- 4x4 & boat trailer
- 13m cat
- Remotely Operated Vehicle
- Various underwater photographic equipment
- Scientific diving unit (with >10 scientific divers + 1 supervisor)
- 6 qualified coastal skippers
- Various sampling equipment, including YSI, Niskin, plankton nets, fishing gear, etc.



CORE SITE LTER - COLLABORATORS

- Physical parameters – Egagasini
- Nutrients and water chemistry – NMMU
- Phytoplankton & Productivity – NMMU, SAIAB
- Soft substrate fauna – NMMU
- Zooplankton – Rhodes; Fort Hare
- Reef fauna – Rhodes; SANParks
- Fish – Rhodes; SANParks
- Fish larvae – NMMU
- Fish telemetry – SAIAB & OTN
- Whales & Dolphins – BayWorld & SAIAB
- Sharks – Bayworld
- Penguins – PercyFitz UCT
- Estuaries – SAIAB
- Atmospheric – Rhodes and Bristol



CHALLENGES & LESSONS

- Start small – Data grows exponentially
- Good technicians are essential
- Taxonomic reference collections
- Metadata standards
- Cohesion of individual projects
- Weather windows and competition for resources

WAYFORWARD

- AGES
- OTN
- INDUSTRY & MUNICIPALITY

ROLL OUT OTHER BIOREGIONS

- St Helena Bay (O&C; CSIR, UWC, UCT etc)
- Sodwana/St Lucia complex (Isimangaliso, EKZN, ORI, UNIZUL, UKZN, CSIR etc)

