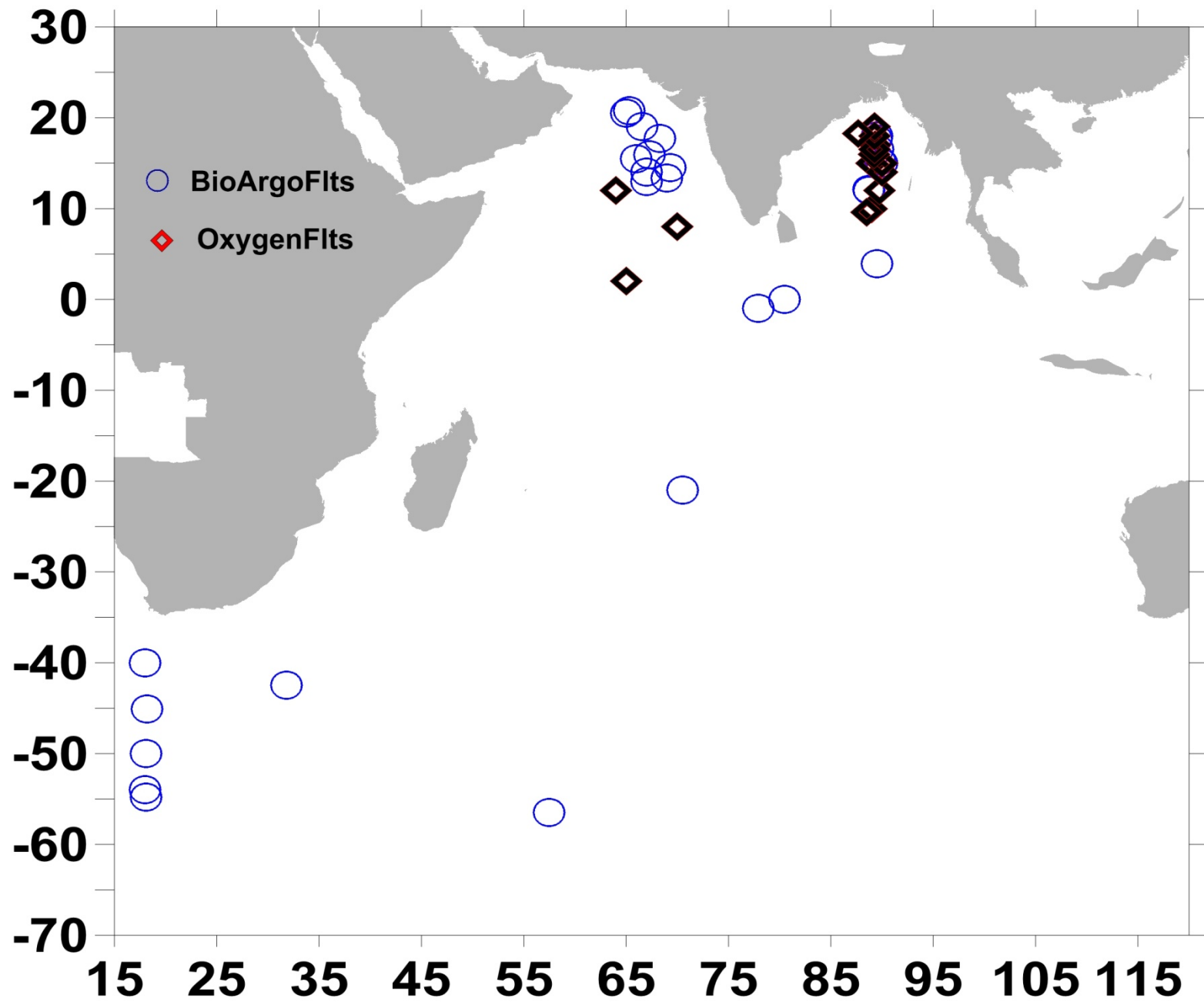


# Bio-Argo management an Indian perspective

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# BioArgo data management

- India Deployed 15 floats with Oxygen alone (12 with SBE-IDO and 3 with Aanderra Optode).
- The true Bio-Argo floats deployment started in Dec, 2012 and deployed 28 floats in Indian Ocean. Of these 18 are Provors and 10 are APEX.
- There is a plan to deploy 20 more in the next two years.



# Processing and QC

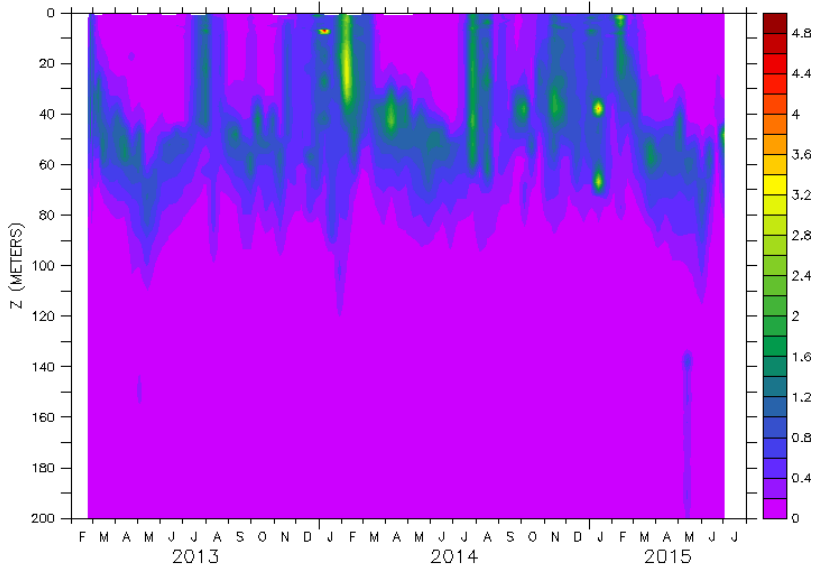
- Probers all transmit via SBDs and APEX by rudics.
- All these are processed and QC is performed as follows:
  - For oxygen as per ADMT.
  - For other Bio parameters no QC is done.
  - Visually spikes are eliminated when used in analysis.
  - VQC system is being setup for further QC.

# Data usage

- Data is being used for bio-parameter related studies like:
  - Bay of Bengal Productivity Vs Arabian Sea Productivity.
  - Harmful Algal blooms studies.
  - Productivity during cyclones.
  - Deep Chlorophyll maxima
  - Tuna Fish tagging and migratory patterns studies.
  - DCM and MLD relation studies.

LONGITUDE : 67E  
LATITUDE : 19N

PERNET Ver 4.6  
NOAA/PMEL TRIP  
Sep 24 2018 11:01:55  
DATA SET: Fit\_2902092



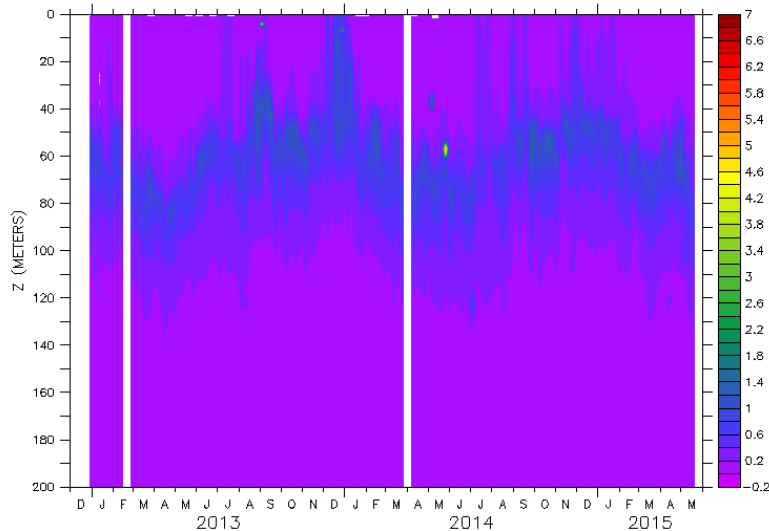
In Arabian Sea it is observed that Chla is Varying semi-annually.

First time subsurface structure of HABS Is observed with Bio-Argo floats.

Studies relating to oxygen and HABS is being Pursued.

LONGITUDE : 87E  
LATITUDE : 12N

PERNET Ver 4.6  
NOAA/PMEL TRIP  
Sep 24 2018 09:18:17  
DATA SET: Fit\_2902086



Chlorophyll (mg/l)

Where as In BoB it is observed that Chla is Varying annually.

Clear indication of Chla subsurface and high Energy required for mixing to bring it to surfac is observed on BoB

# Modelling and planned cruises

- Modelling studies are taken up (MOM and ROMS) to simulate the observations.
- HABS cruises are also planned.
  - Three Bio-Argo floats are deployed along with observations during feb, 2015.
  - Inter comparisons are done with ship borne in-situ data.

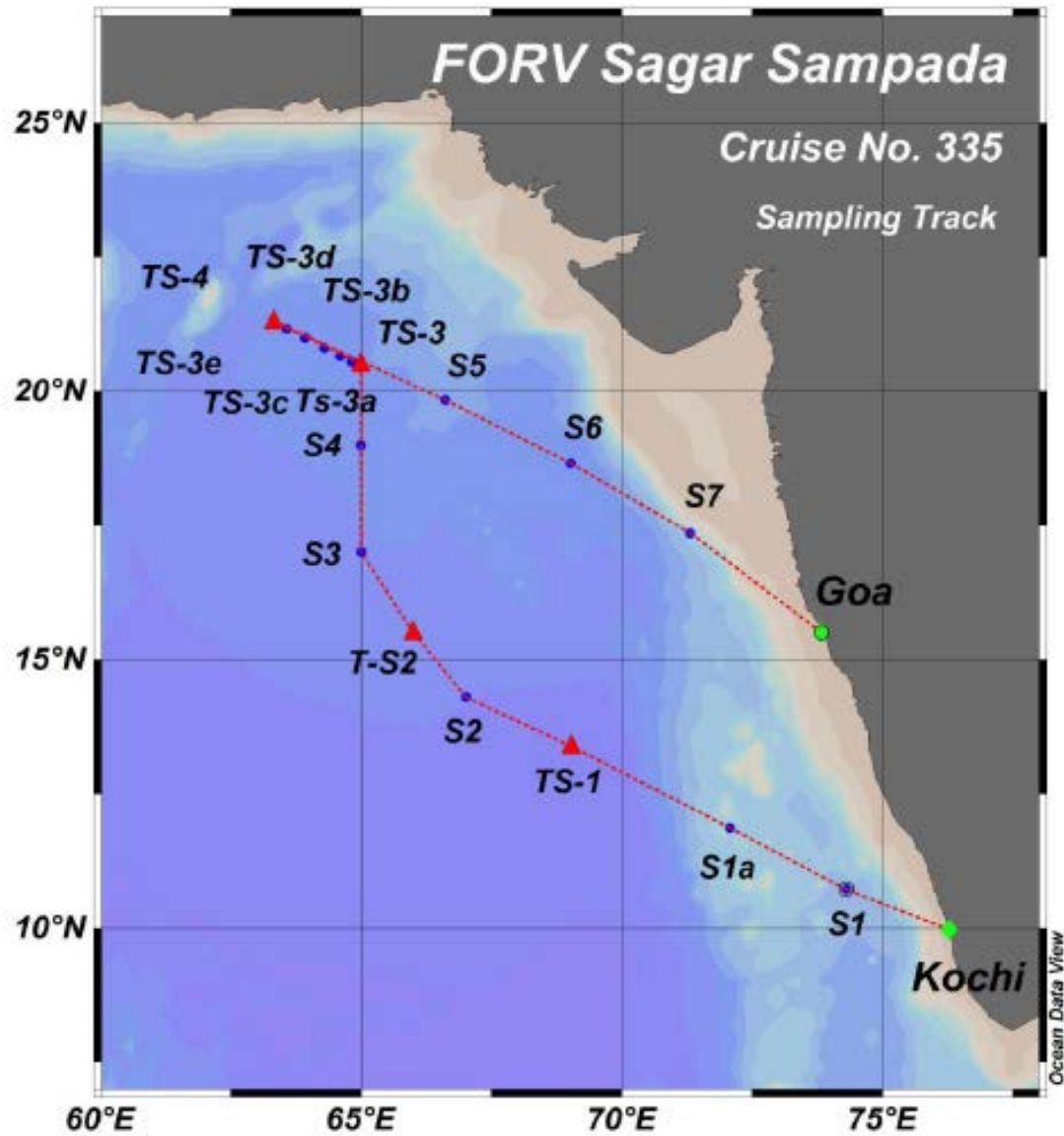
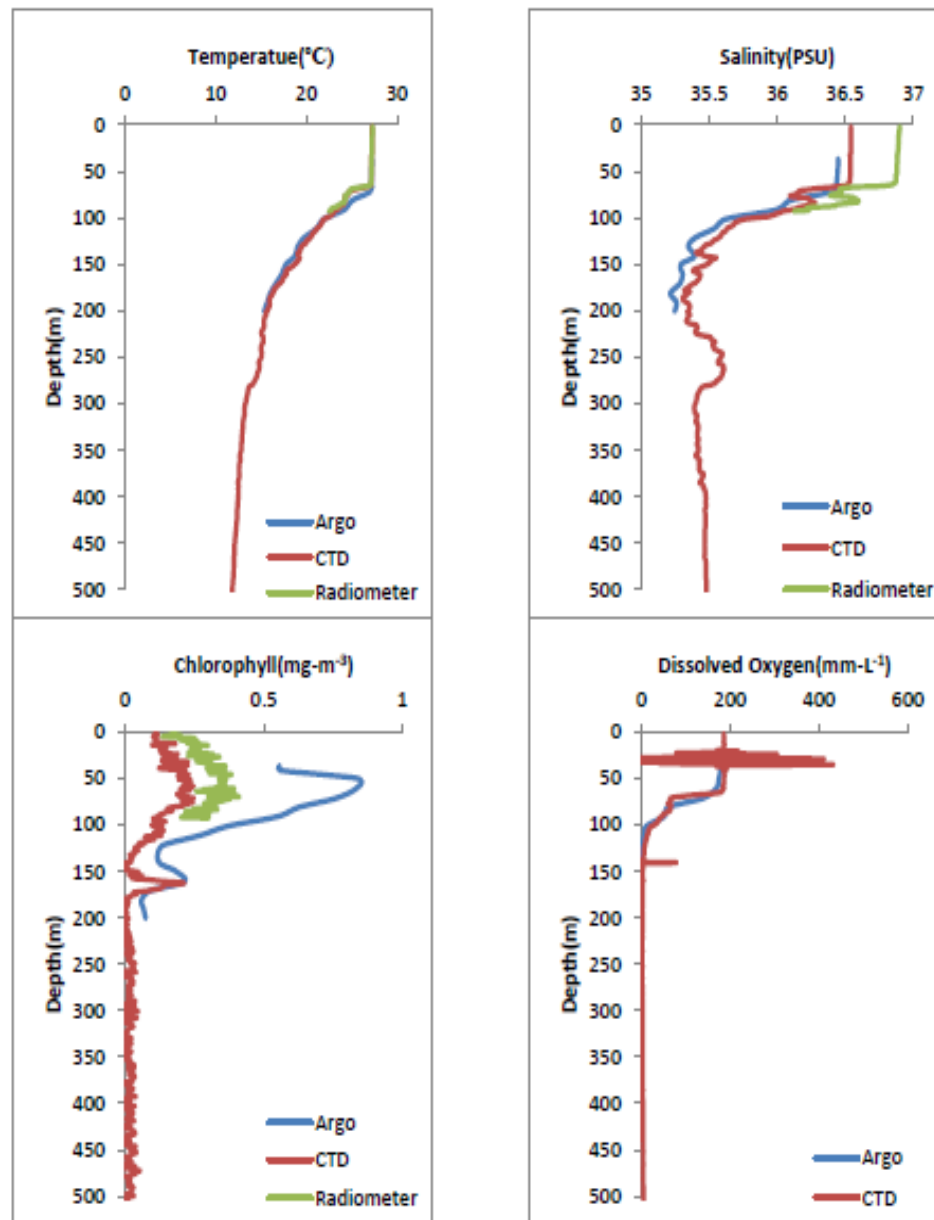
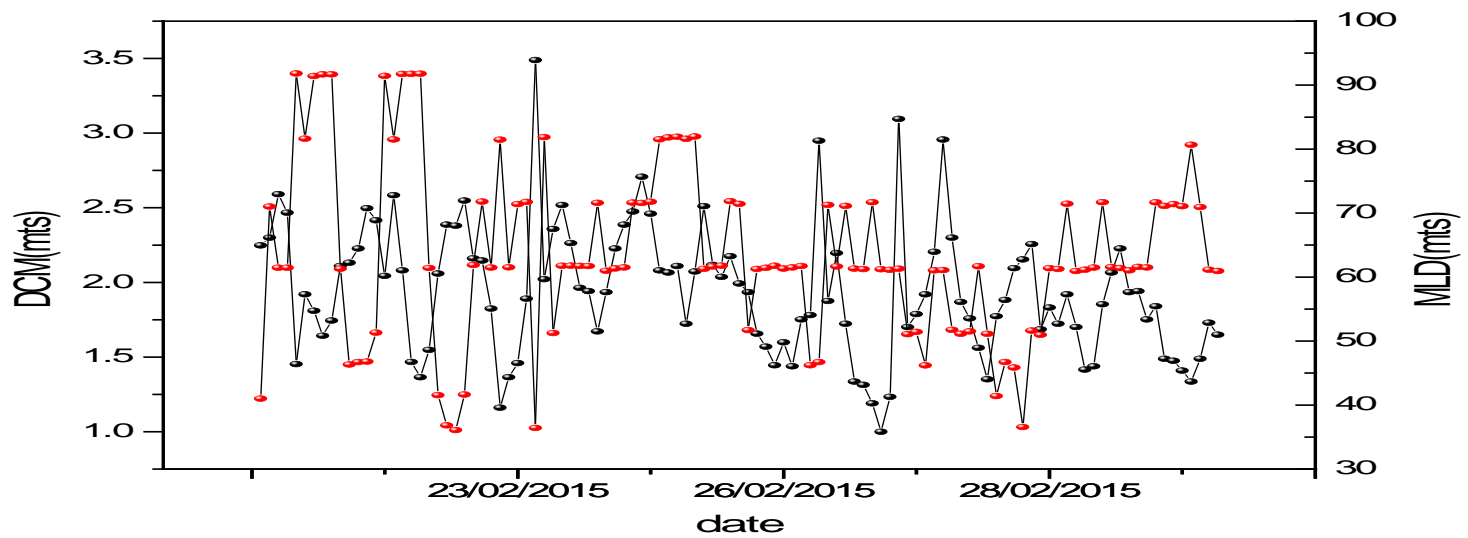
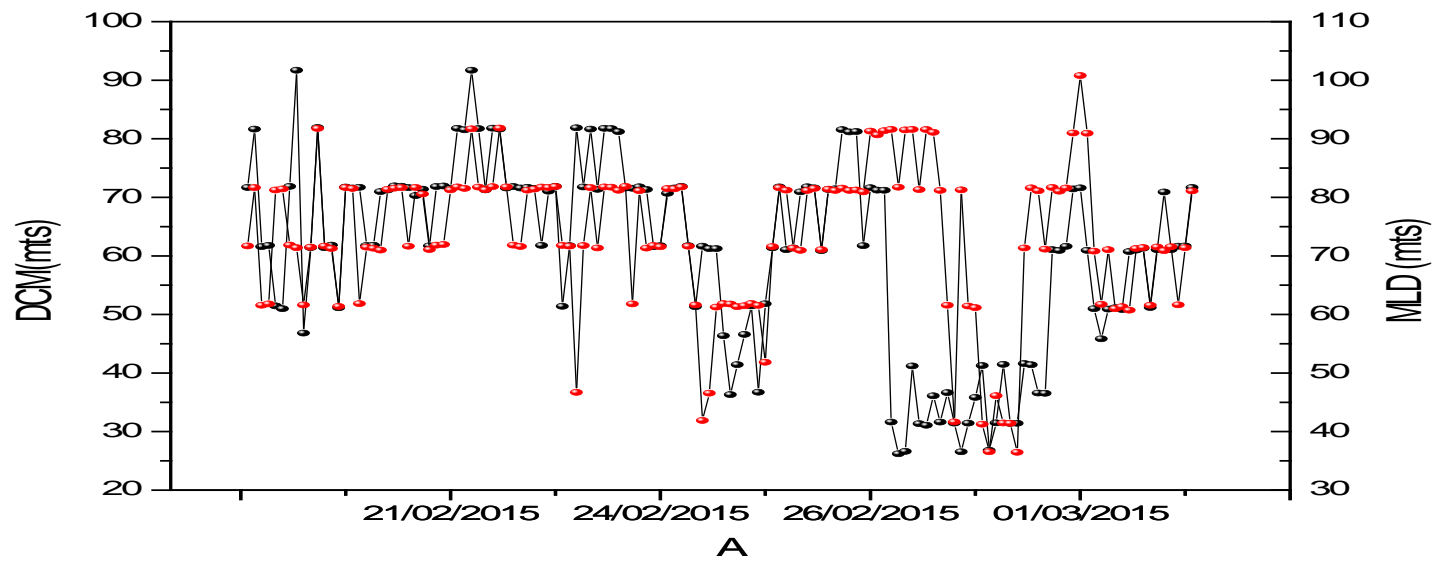


Fig 3.1: Sampling track for FORV Sagar Sampada 335. Triangles indicates time-series stations.





*Fig. 6.7.1: Vertical profiles of temperature (top-left), salinity (top-right), chlorophyll (bottom-left) and dissolved oxygen (bottom-right) measured with the sensors attached to shipboard CTD, Argo profiling float and radiometer*



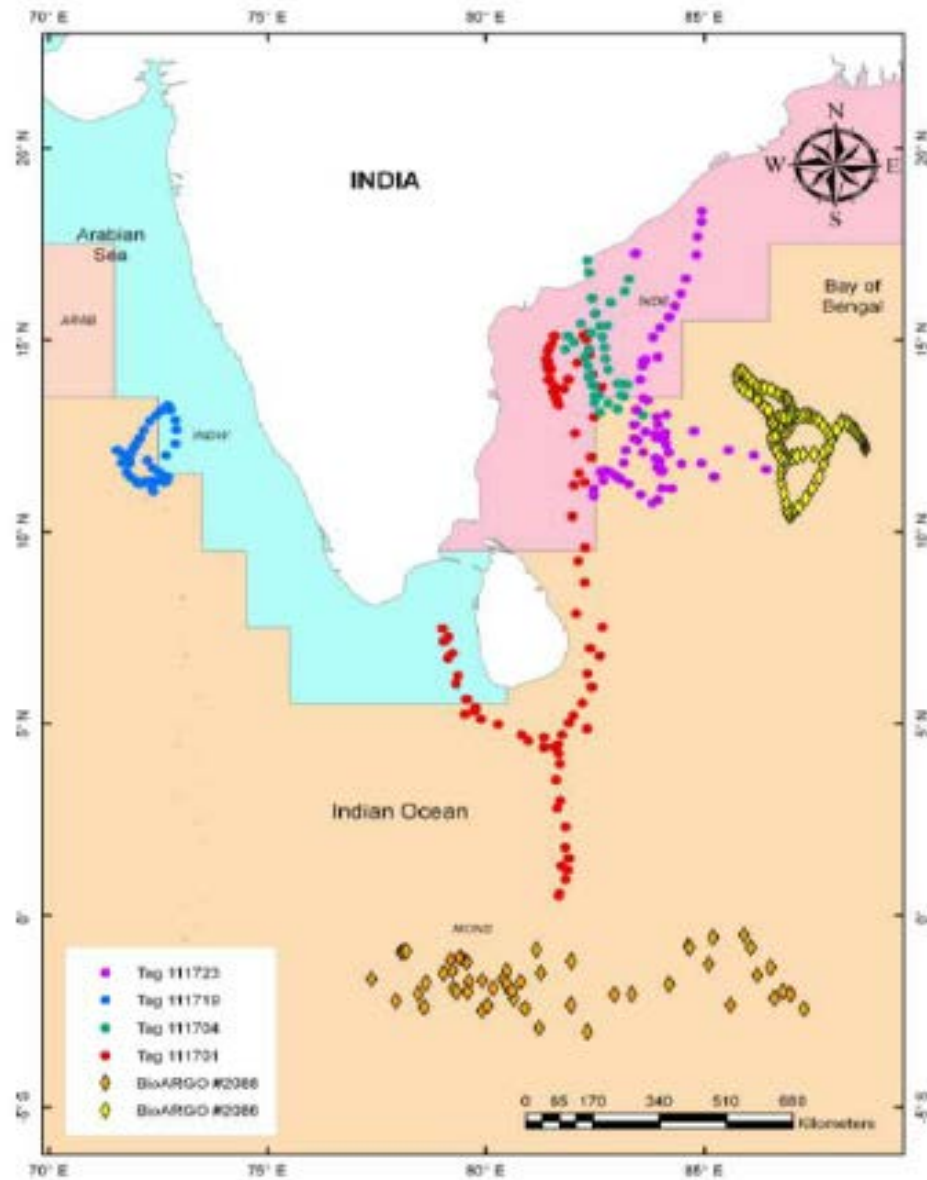


Fig1 Study area with YFT movements and tracks of Bio-Argo floats in the proximity (colored regions are biogeochemical provinces *Longhurst, 2010*)

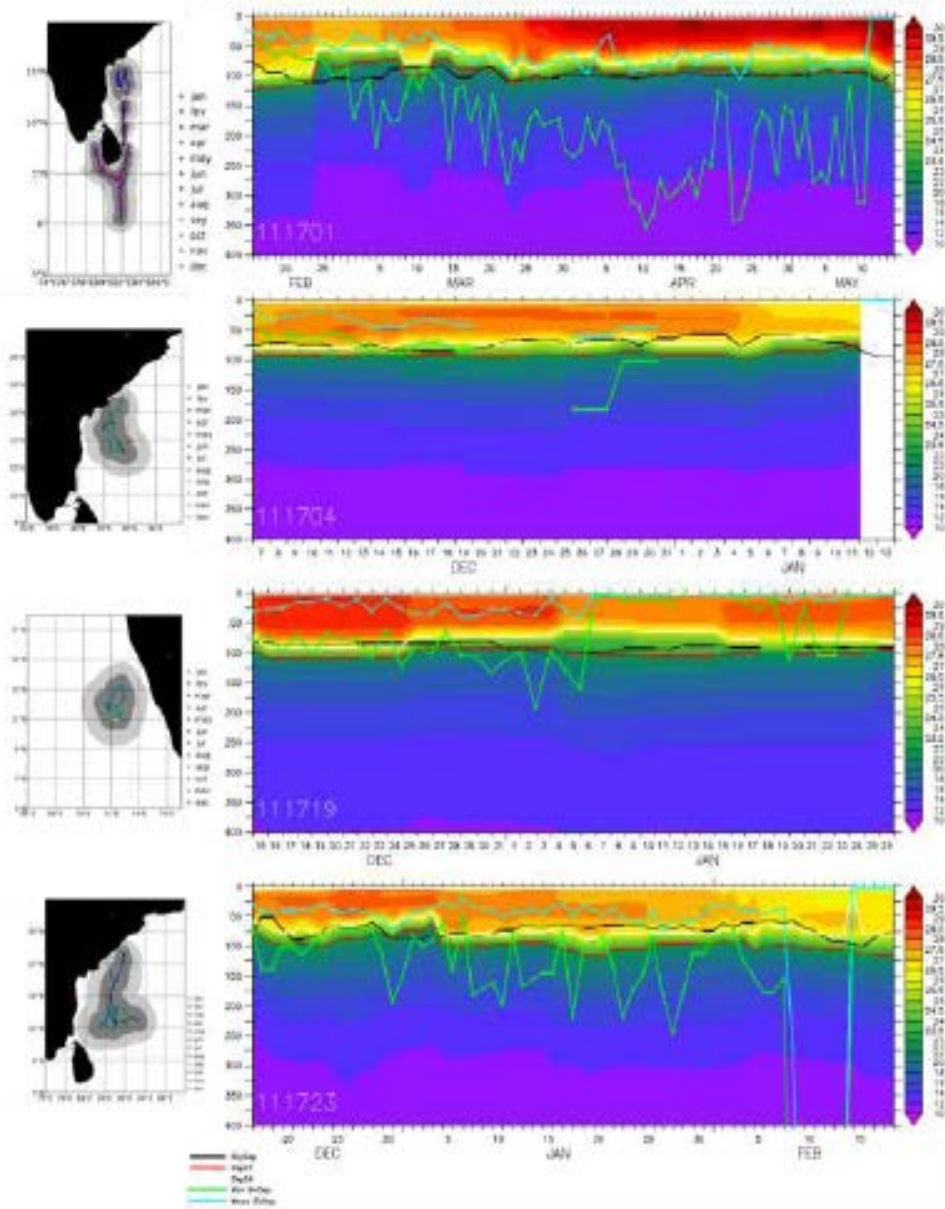
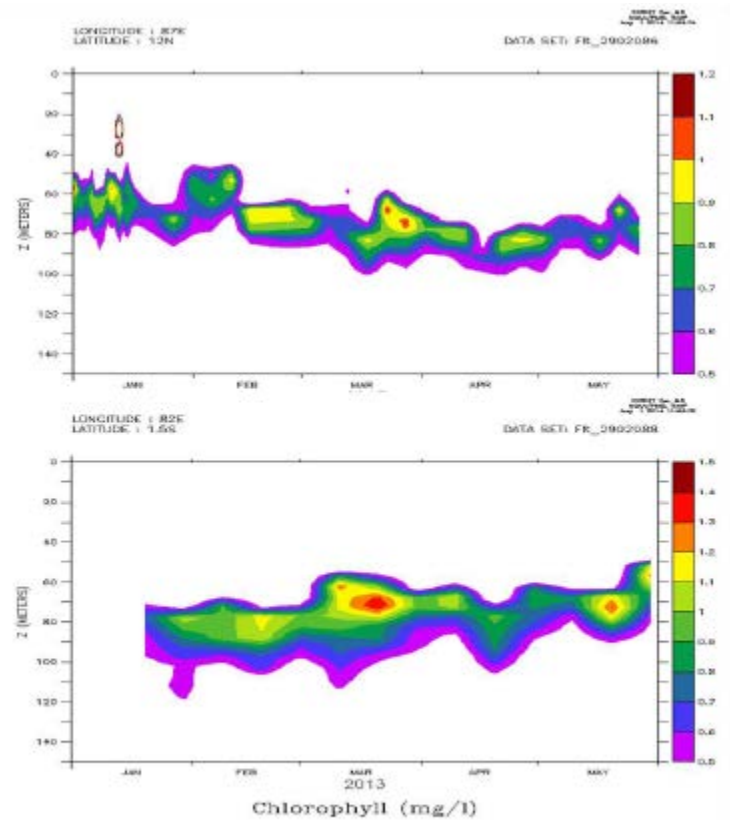


Fig2 Tuna vertical movements against along track Temperature profile and Oxycline



FigS2 Deep Chlorophyll Maxima (DCM) derived from Bio-Argo floats in the proximity

# Future

- India is committed to deploy 20 floats in Indian Ocean.
- Archiving of high quality ship borne bio profiles for inter comparison study.
- Improve the model outputs with the use of BioArgo data.
- Conduct planned cruise to obtain one-to-one profiles of bio parameter to check for sensor stability.