

# ARVOR CM

## Coastal profiling float Multisensors

**ARVOR-CM** is a subsurface profiling float designed to operate in coastal environment and perform oceanographic measurements as a pseudo-eulerian station. It is designed to embed several sensors in addition to CTD, such as DO and fluorometer sensors.

Its design has been optimized to reduce its drift thanks to a seabed standby and anti-drift claws, an optimized profiling speed (~25 cm/ss), and a short data transmission duration.

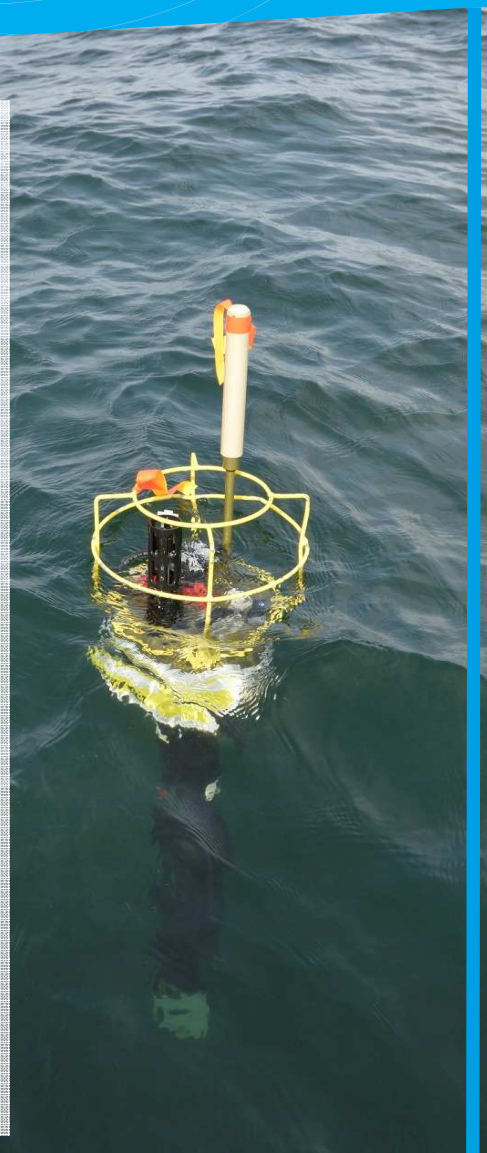
The ARVOR-CM is fitted with "ARGO" used CTD.

The design of the ARVOR-CM has used elements and know-how used in the ARVOR and PROVOR offshore profiling floats range.

At the end of the mission, the recovery is facilitated by "rendez vous" function activated via the "Iridium" downlink.

### Main characteristics:

- "Sea-Bird" proven CTD metrology
- capability to embed additional sensors
- Sampling over the entire water column
- Up to one set of measure per meter
- 300\* cycles (lithium cells)
- Operation depth : 400 meters
- Virtual mooring
- Two ways Iridium transmission / remote control
- Light and easy to deploy (26kg)
- Self ballasted



Profiling floats

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# ARVOR CM

Coastal profiling float. Developed in industrial partnership with Ifremer

## TECHNICAL SPECIFICATIONS TYPE ARVOR-CM (Coastal)

**SBE 41 CP manufactured by Seabird electronics**

- Salinity
  - Range 0 to 40 PSU
  - Initial accuracy  $\pm 0.003$  PSU
  - Observed drift  $< 0.01$  PSU / 5 years
- Temperature
  - Range  $-5^{\circ}\text{C}$  to  $35^{\circ}\text{C}$
  - Initial accuracy  $\pm 0.002^{\circ}\text{C}$
  - Observed drift  $< 0.002^{\circ}\text{C}$  / 5 years
- Pressure
  - Range 0 dbars to 2100 dBars
  - Initial accuracy  $\pm 2.4$  dBar
  - Drift  $< 5$  dBar / 5 years

### Optional sensors

- DO Dissolved oxygen
- Chl-A Turner design / Wetlabs ECO Flbbcd, FINTU
- Turbidity Sea Point / Wetlabs

### TELEMETRY

IRIDIUM SBD transmission ,  
Remote control by Iridium

### DATA TRANSMITTED

One set of measure averaged up to one per meter

### TRANSMITTED RESOLUTION

- Salinity 0.001 PSU
- Temperature 0.001 $^{\circ}\text{C}$
- Pressure offset 1 cbar (reseted when surfacing)

### POSITIONNING

GPS receiver 12 channels

### FLOAT DIMENSIONS

Overall Length 195 cm with antenna  
Hull Length 140 cm  
Hull Diameter 12,5 cm  
Measurement head cap 26 cm  
Weight in the air 25 kg ( according payload )

### FLOAT CONSTRUCTION

GRP tube  
High pressure synthetic foam for floatation

### OPERATION FEATURES

Operation depth: 400 dBar  
Number of profiles: up to 300 cycles ( according payload )  
Operating temperature:  $-2^{\circ}\text{C}$  to  $35^{\circ}\text{C}$   
Power supply: Lithium battery

### STORAGE CONDITIONS

Temperature  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$  to  $+158^{\circ}\text{F}$ )  
Maximum storage time before use: 1 year  
Real time clock saved by separate battery

### BUOYANCY MANAGEMENT

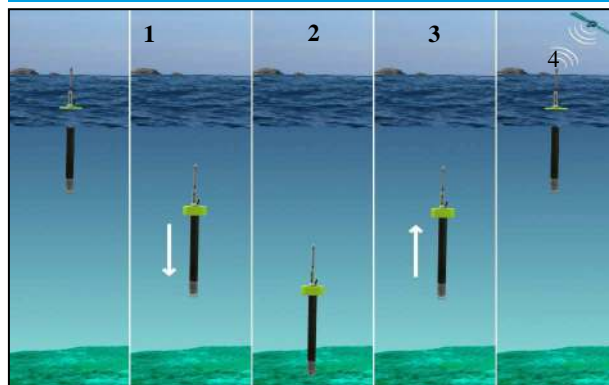
Principle: Oil ballast with pump & valve

### USER INTERFACE

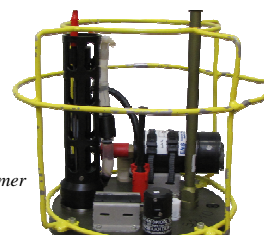
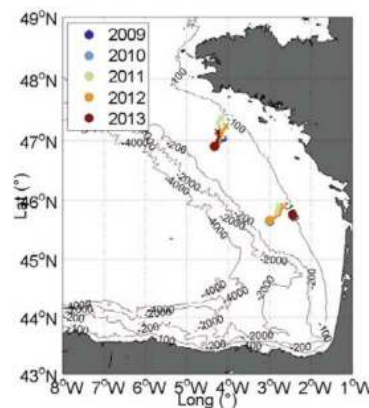
- A - Bluetooth User Interface
  - Mission programming, float checking, etc.
  - Terminal Personal Computer
- B- Activation by magnetic switch
  - Remove magnet launches the float
- C- Remote control
  - Modification of mission parameters via Iridium downlink



## TYPICAL CYCLE



- 1/ Descent
- 2/ Seabed standby until pre-programmed pop up time
- 3/ Pop up and measurements
- 4/ At surface :
  - GPS fix acquisition
  - Reading for new set of parameters (remote control)
  - Data transmission (Iridium)



Pictures and drawing thanks to Ifremer  
And to Olivier Dugornay

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