

# Coriolis

OPERATIONAL OCEANOGRAPHY

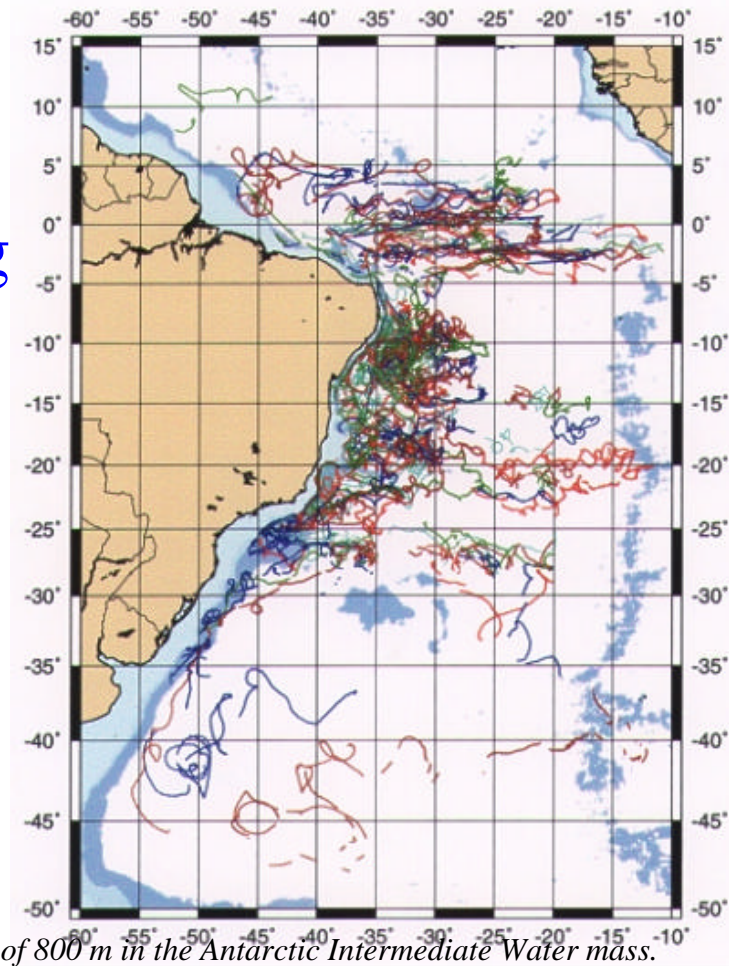
## Provor : a range of profiling floats for Operational Oceanography

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# Provor : the Marvor heritage

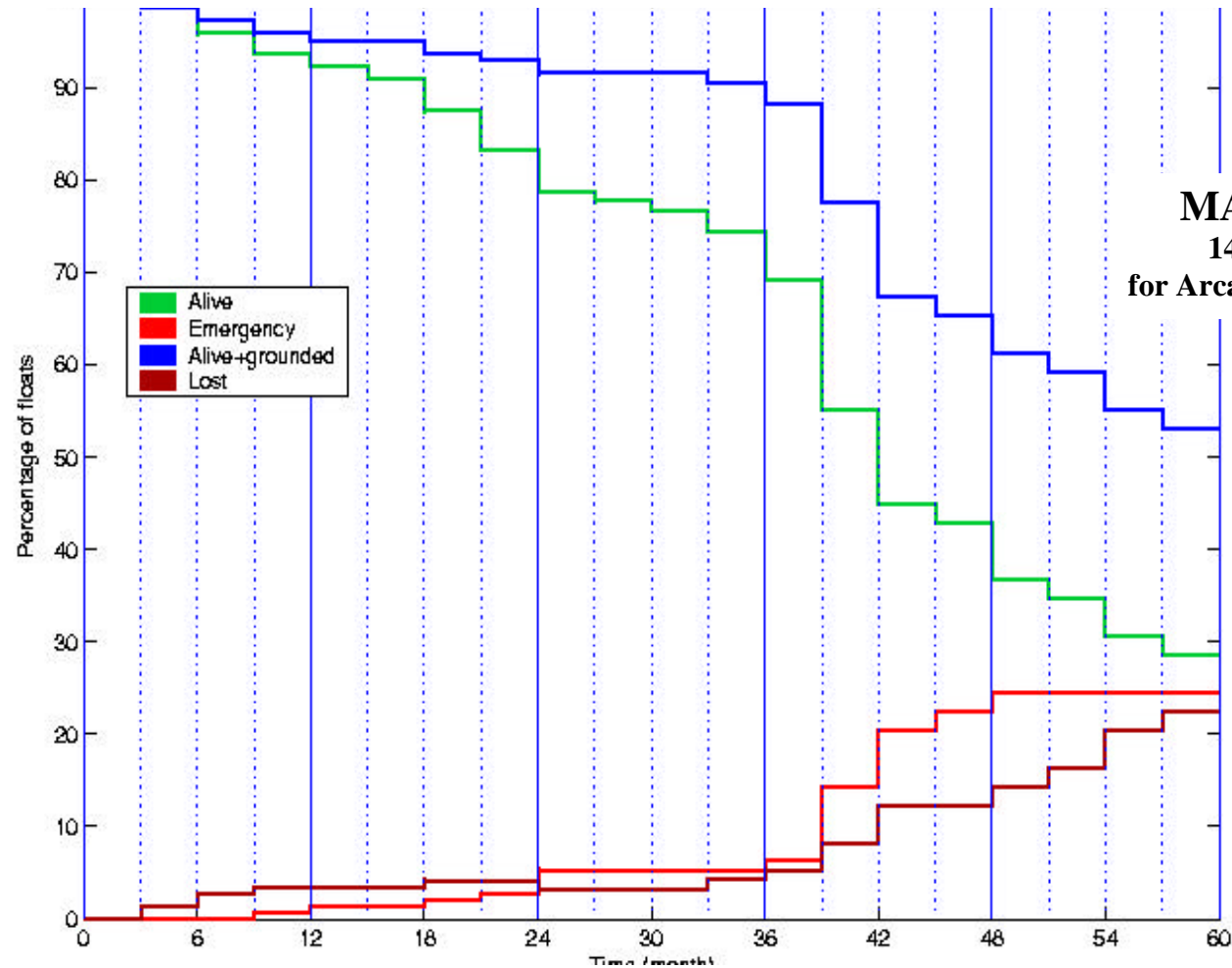
Based on experience  
gained in developing & operating  
multi-cycles MARVOR floats

- ➔ A 7 year at sea experience
- ➔ ~200 MARVOR floats deployed
- ➔ reliable, long life



*Currents at a depth of 800 m in the Antarctic Intermediate Water mass.  
Nearly 100 Marvor floats have been launched during the SAMBA experiment in the Brazil  
Basin between 1994 and 1997 for a 5 year mission*

# MARVOR results: 65% still alive after 3 years



**MARVOR floats statistics**  
143 MARVOR floats launched  
for Arcane, Eurofloat, Samba experiments

# Provor - main features

- FSI or SeaBird CTD packages
- Self-ballasted, with active buoyancy control (hydraulic pump)
- Max profiling depth : 2000 m
- 100 to 150 cycles
- Possibility of data acquisition on down-profile to parking depth
- Great versatility in vertical sampling strategy (upper and deep layers with different resolution)
- ARGOS data transmission



## Provor range of floats



Provor T  
Seascan



Provor CT-F2  
FSI Excell



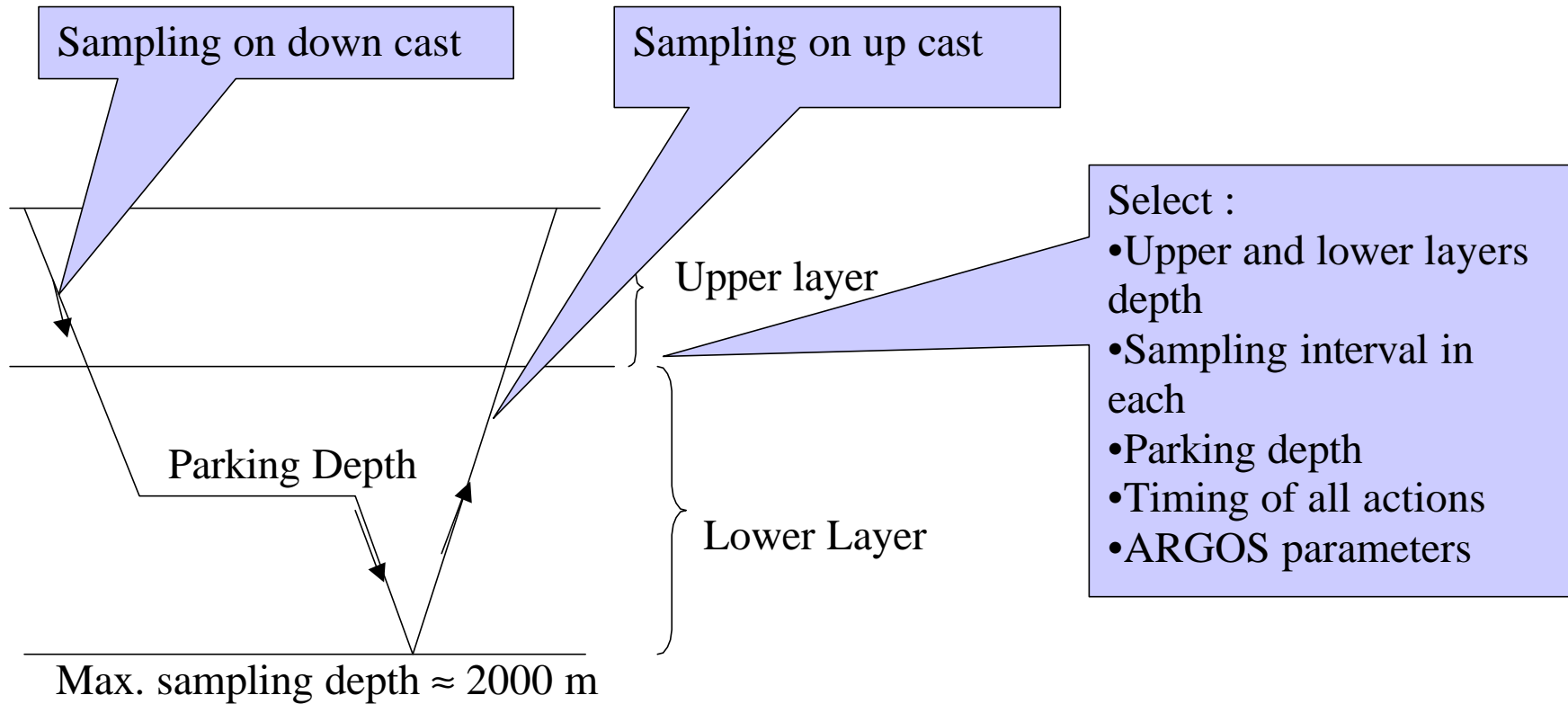
Provor-CT-S  
Seabird 41 CP

# MetOcean Provor CT-S

- SBE sensor
- ready to deploy  
(removable magnet)
- 150 cycles (36 lithium  
D-cells)



# Provor mission programme



# Buoyancy control

- Transfer of oil between an internal reservoir and an external ballast
- No ballasting operation before launching
- +/- 30 dbars at depth
- About 2.3 liters of usable oil:
  - emergence at the surface : >1 liter
  - from surface to depth : 350 cm<sup>3</sup> (function of difference of density)
  - quality of machining : 500 cm<sup>3</sup>



# Data Acquisition

	P	T	C/S	Reduction
Provor-T	1 dbar	0.01 °C	-	Chords
Provor-CT-F2	1 dbar	0.01 °C	0.01mS/cm	Slices
Provor-CT-S	1 dbar	0.002 °C	0.005 PSU	Slices

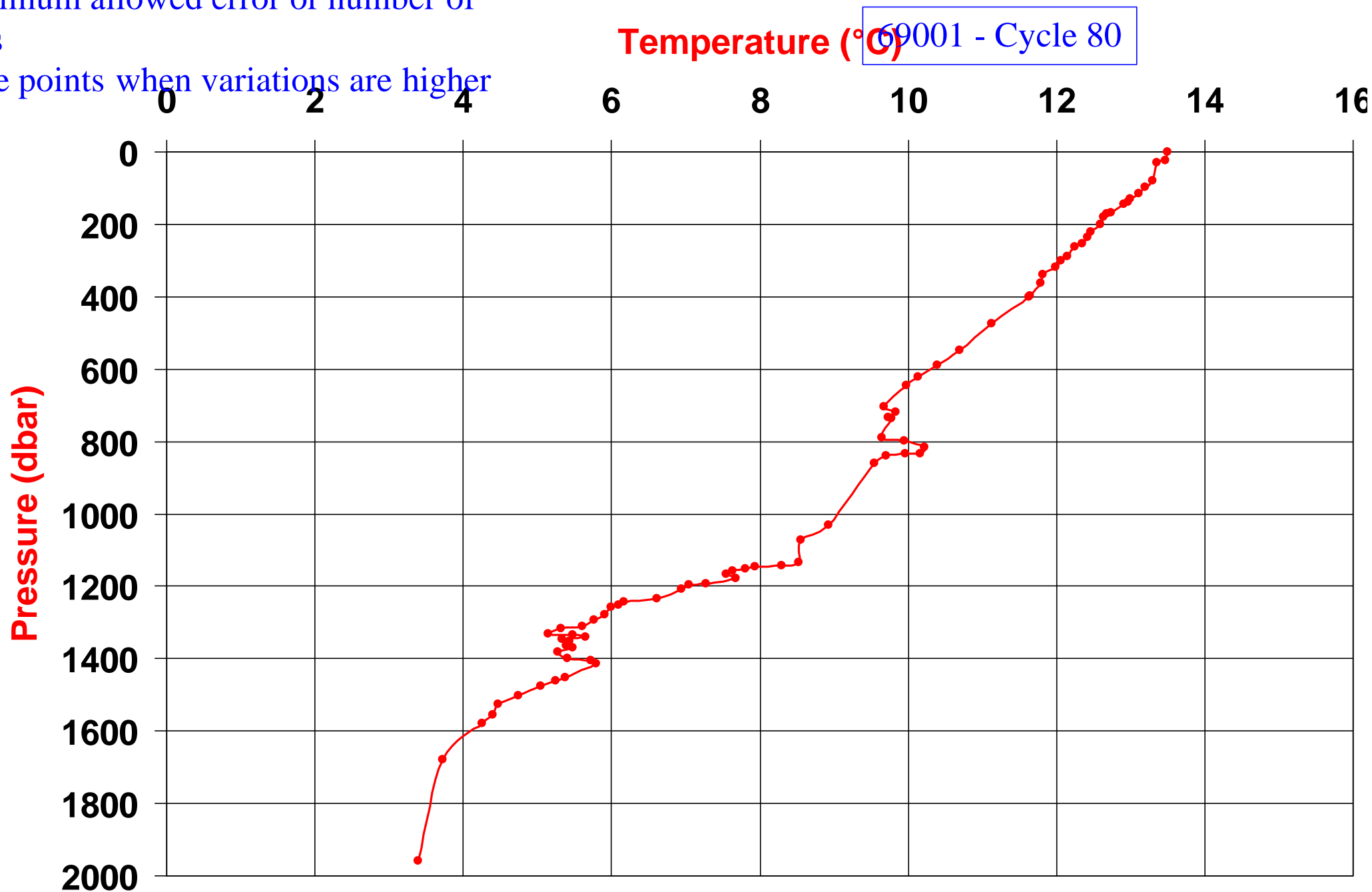
- One sample every 10 seconds (1 sample per meter).  
No power switching to avoid electrical noise
- From 2000 points to 100 to reduce the time at the surface  
(using Argos data transmission system)
- 2 data reduction methods : chords or slices

# Data Reduction - CHORD

Segments between real points

Maximum allowed error or number of points

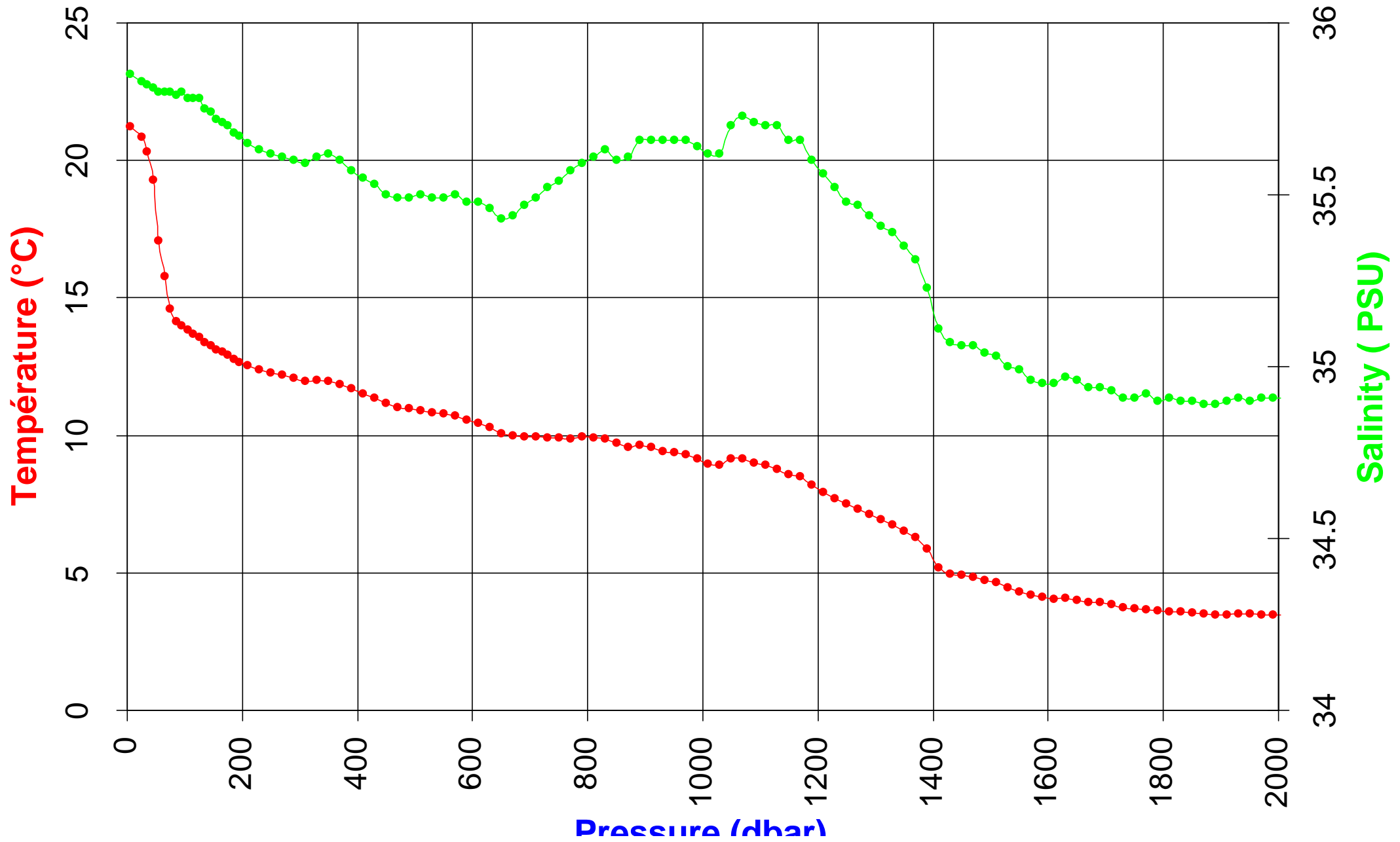
More points when variations are higher



## Data reduction : Slices Method

- 2 layers (upper and lower)
- each layer is divided into slices which height is user-defined
- all measurements which are gathered inside every slice are averaged (1 sample /meter)

Q6900045 - 03/09/01 - 43.082°N , 16.96°W



# Provor deployments

- On going experiments (North Atlantic)
  - 1999-2000: technology experiment *Pommier* (5 profilers)
  - 2000-2001: scientific experiment *Pomme* (16 profilers including 6 Provor CT-F2)
- *GyroScope* (funded by EU) (40 profilers - PROVOR-CT-F2)
  - deployments in 2001 and 2002
- *Coriolis* (50 profilers - PROVOR-CT-F2)
  - deployments in 2002
- *Jamstec floats* : 70 METOCEAN PROVOR-CT-S
  - deployments in 2001 and 2002

Provor float deployment  
from a ship of the French  
Navy near the Azores

