

# Ocean Bottom Seismometer (OBS) of IFREMER

Ifremer

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Since 1998, Ifremer has developed and operated its own OBS pool. Today, it consists of 15 identical instruments based on the Geomar electronic system (SEND GmbH) and on the Ifremer mechanical design. All instruments are equipped with an external OAS E2-PD hydrophone and external 3-component geophones (4.5 Hz) released automatically by an electrolytic system. Less than one hour is needed to setup one instrument. The OBSs can be adapted either for wide angle seismic recording or for short-term seismological studies (e.g. Taiwan).

Maximal depth	6000 meters
Acoustic release	MORS (France) AR 671-CE - Aluminium 7075 T6 - Frequency 12 kHz
Electronic housing	Titanium cylinder (KUM, Germany) internal diameter 150 mm ; external diameter 172 mm
Connectors	Subconn (USA) BH 2F et BH 8F Titanium
Data logger	SEND (Germany) MBS-Methusalem
Analog to digital converter	21 bits including digital filtering by DSP TMS 320C32
Pre-amp	SEND (Germany) Lown 20, 21, 22 (0-50 Hz ; 0-150 Hz ; 0-500 Hz) 26 dB
Clock	TC XO < 0.05 ppm ; -20 à +40° C
Memory	Up to 4 GB (4 PCMCIA slots)
Power supply	1.5 W 10-24V
Autonomy	Up to 18 days with 48 alkaline batteries
Hydrophone	OAS E-2PD 0-5000 Hz (USA)
Geophones	3 components external geophone 4.5 Hz inside a titanium housing (KUM, Germany) with an electrolytic release (IMC, Ifremer France)
Flash beacon	Novatech (Canada) ST 400A
Radio beacon	Novatech (Canada) ST 700A
Mechanical frame	Aluminium frame (Hitec, Ifremer France)
Buoyancy	Syntactic foam (Euroshore)
Weight in air	240 kg
Weight in water	-15 kg (without ballast weight)
Ballast weight	60 kg

Figure 1 : OBS characteristics

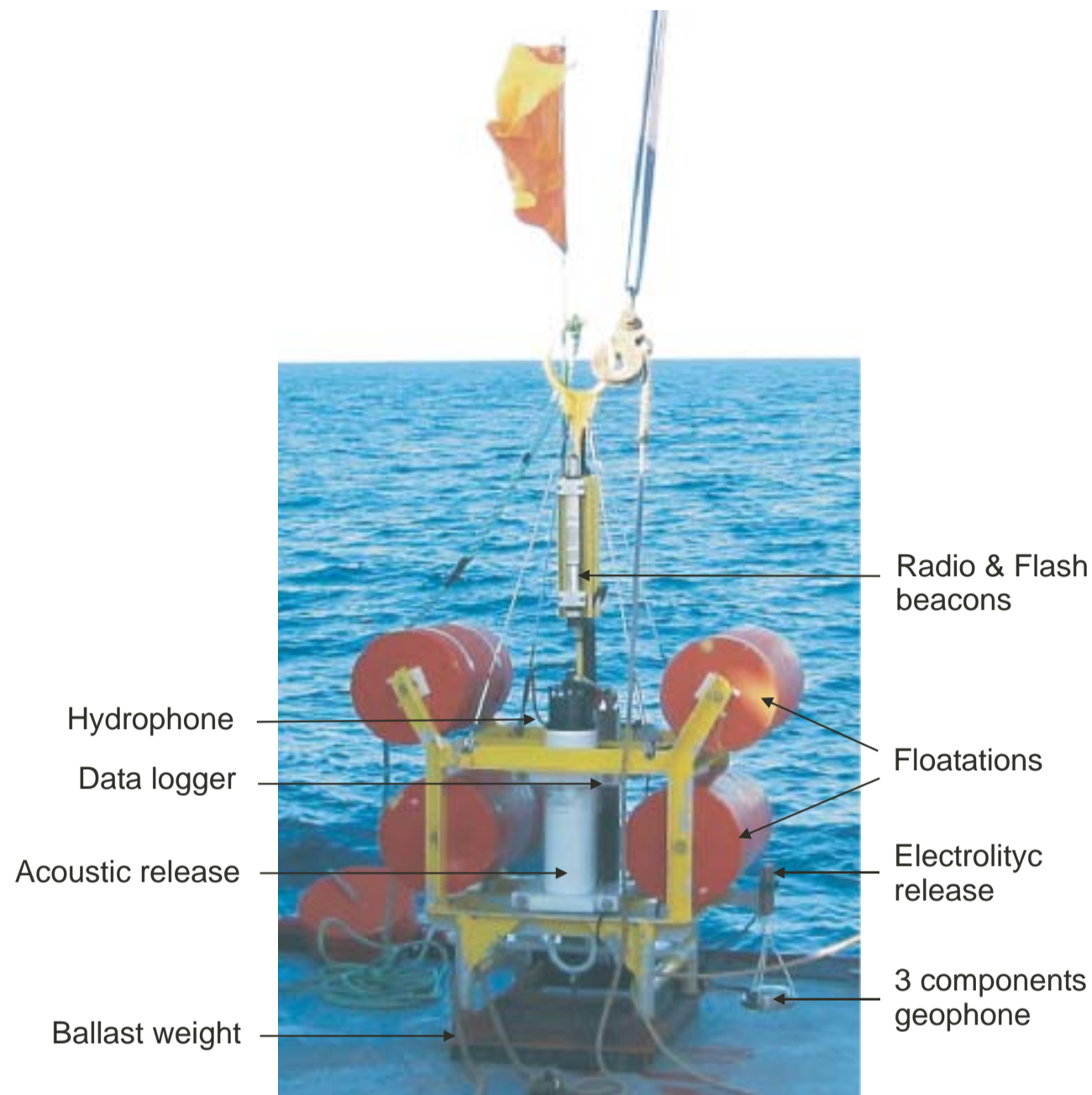


Figure 2 : OBS view of the mounted instrument before launching

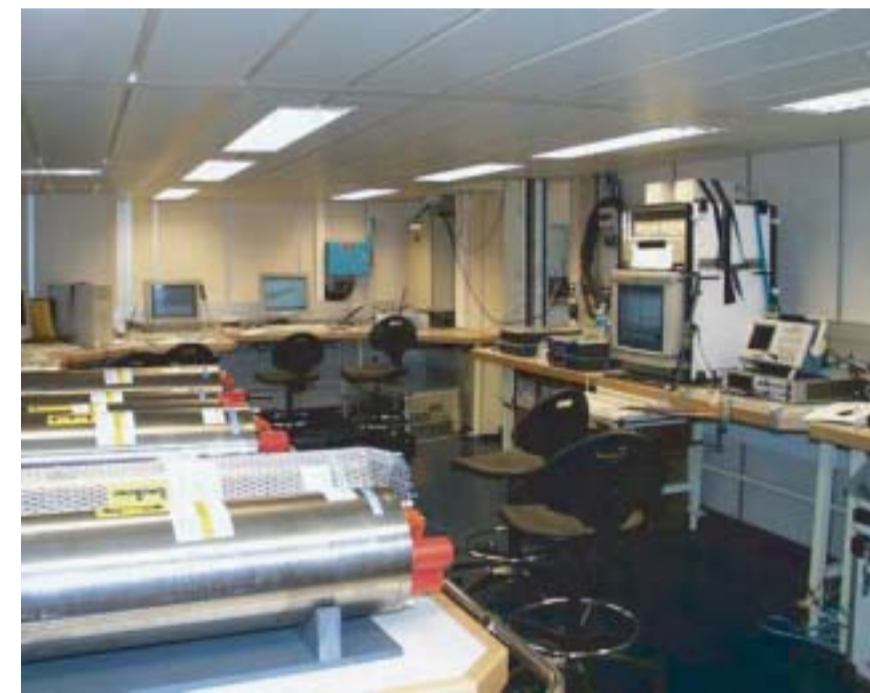


Figure 3 : Laboratory for programming, data recovery and processing



Figure 4 : Ifremer OBS during preparation on the deck of the R/V Suroit



Figure 5 : Close up of the electronic system and battery

WIDE ANGLE SEISMIC SOURCE – « GROSSE BERTHA »

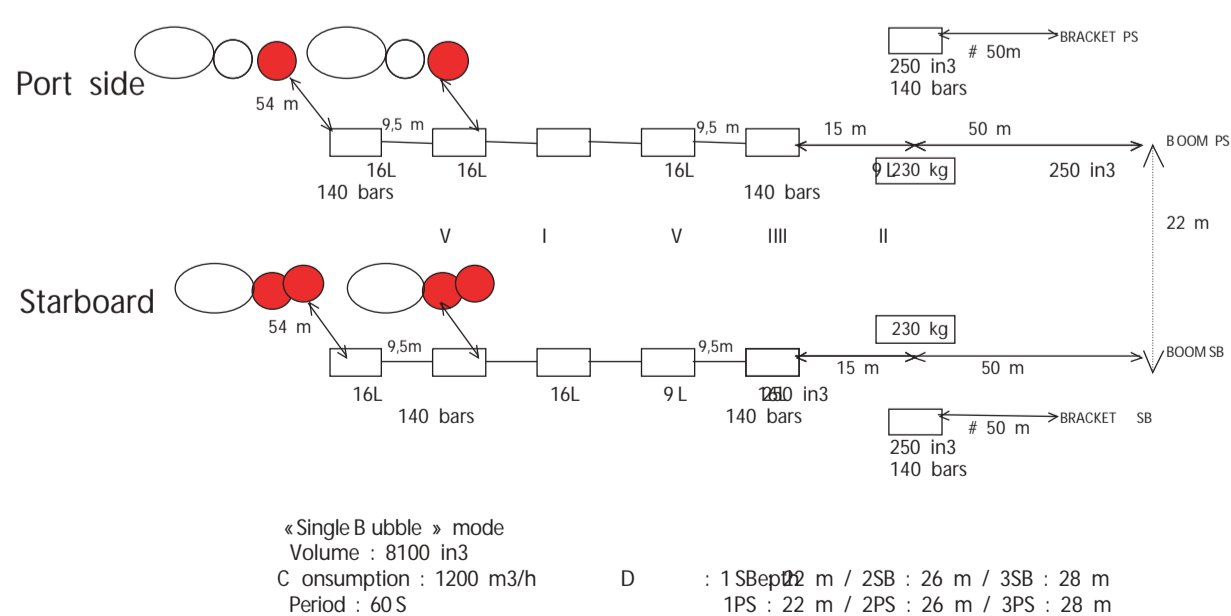


Figure 6 : Example of source array used by Ifremer for deep wide-angle seismic experiments

WIDE ANGLE SEISMIC SOURCE – « Tuned Single Bubble »

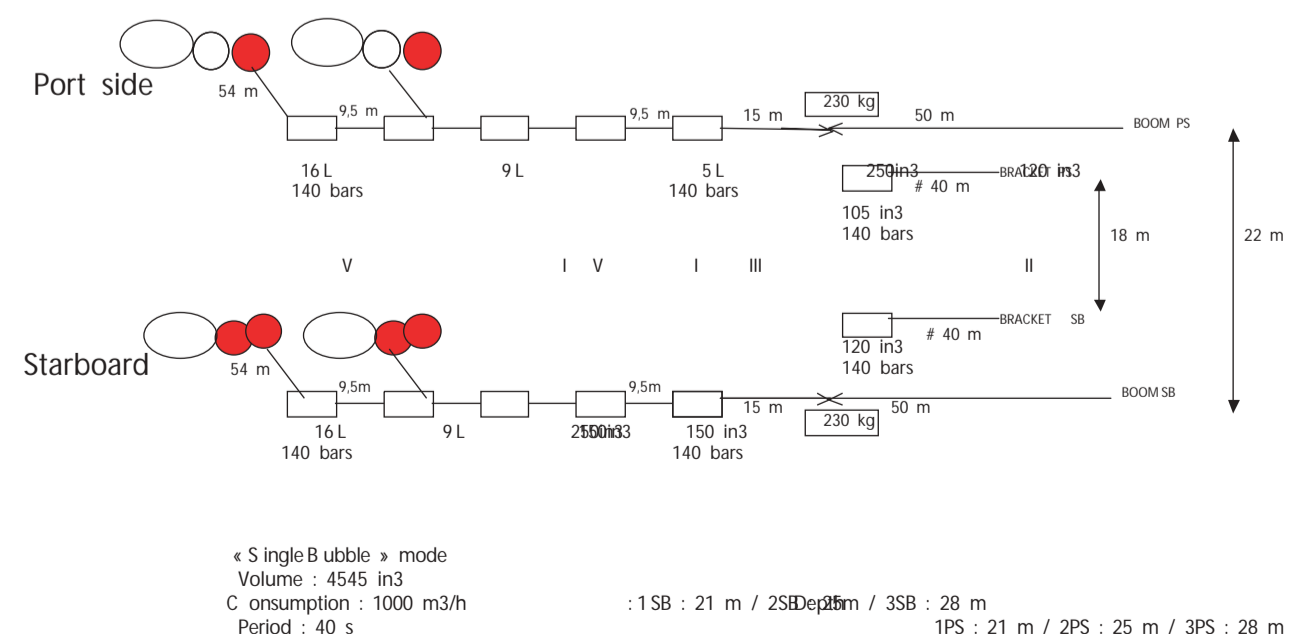


Figure 7 : Example of source array used by Ifremer for deep wide-angle seismic experiments