

# MicrOBS

## a new generation of low cost OBS for wide angle seismic experiments

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From the experience gained with the use of our pool of 15 conventional OBSs (210 experiments), Ifremer (DRO/GM) started in early 2002 the development of a new generation of OBS (Figures 1 and 2) based on three main criteria:

- similar data quality compared to conventional OBSs,
- light unit, easy to handle and to operate at sea,
- use of up-to-date technology and implementation of a specific integrated acoustic release system (pending patent).

### Mechanical specifications

Vitrovex 13" glass sphere, integrated flash and gonio, weight in air less than 15 kg, maximum depth 6000 m.

### Acquired parameters

- One hydrophone and three geophones, sampled from 10 to 500 Hz,
- Four 24-bit channels compressed in real time,
- 1 GB data storage available, extended to 6 GB in the near future,
- TCXO clock with +/- 10<sup>-7</sup> accuracy, better accuracy with higher stable clock available. Clock set up by external GPS clock,
- Programming of the instrument and data retrieval via USB link (at 2 MB/s) without opening the sphere,
- Integrated acoustic release system.

### Energy

Rechargeable batteries (Lithium-ion), about 10-days autonomy, without opening the glass sphere.

Sea trials will be completed by August 2003.

Industrial partnership with ORCA instrumentation.

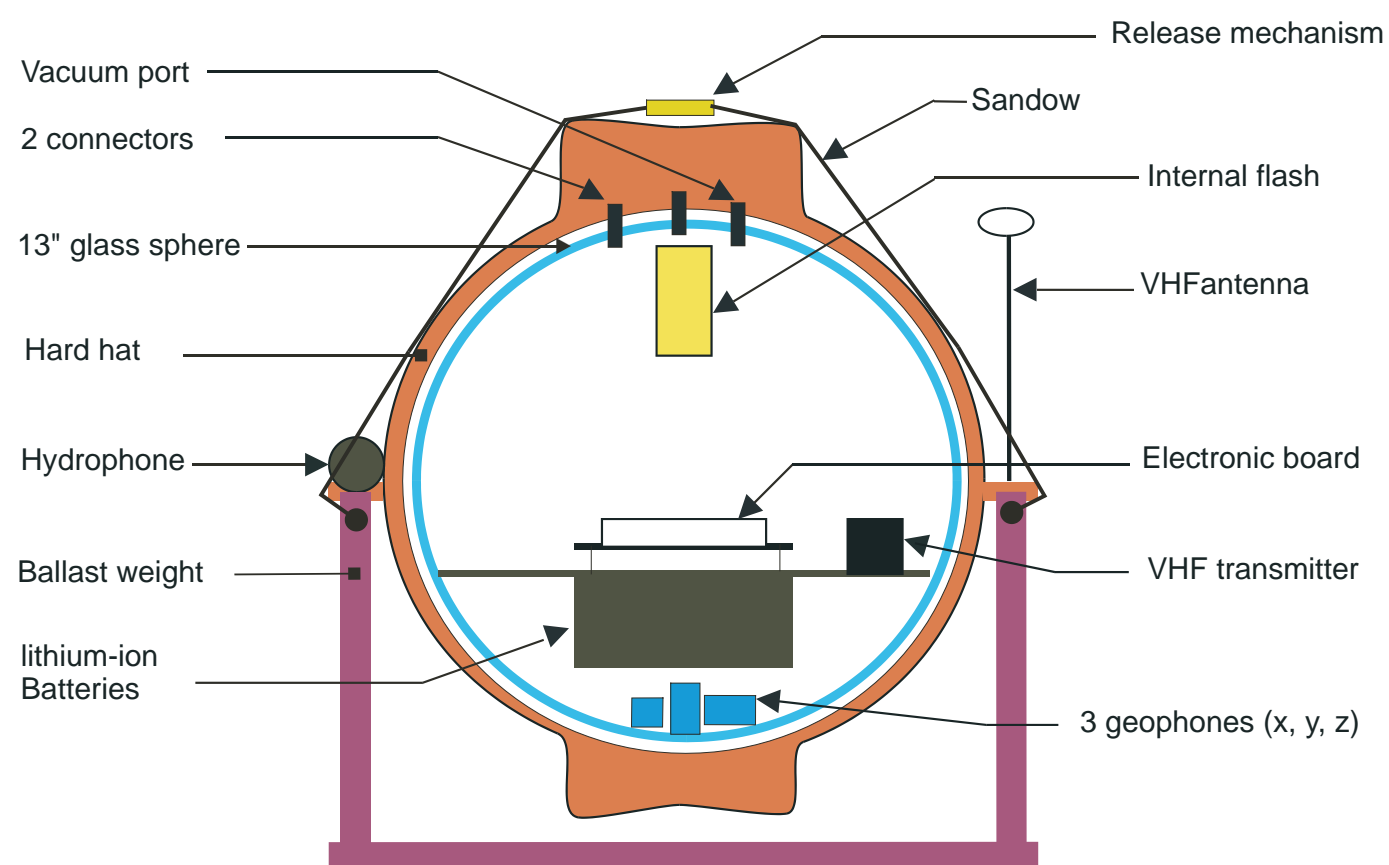


Figure 1 : Schematics of MicrOBS Ocean Bottom Seismometer

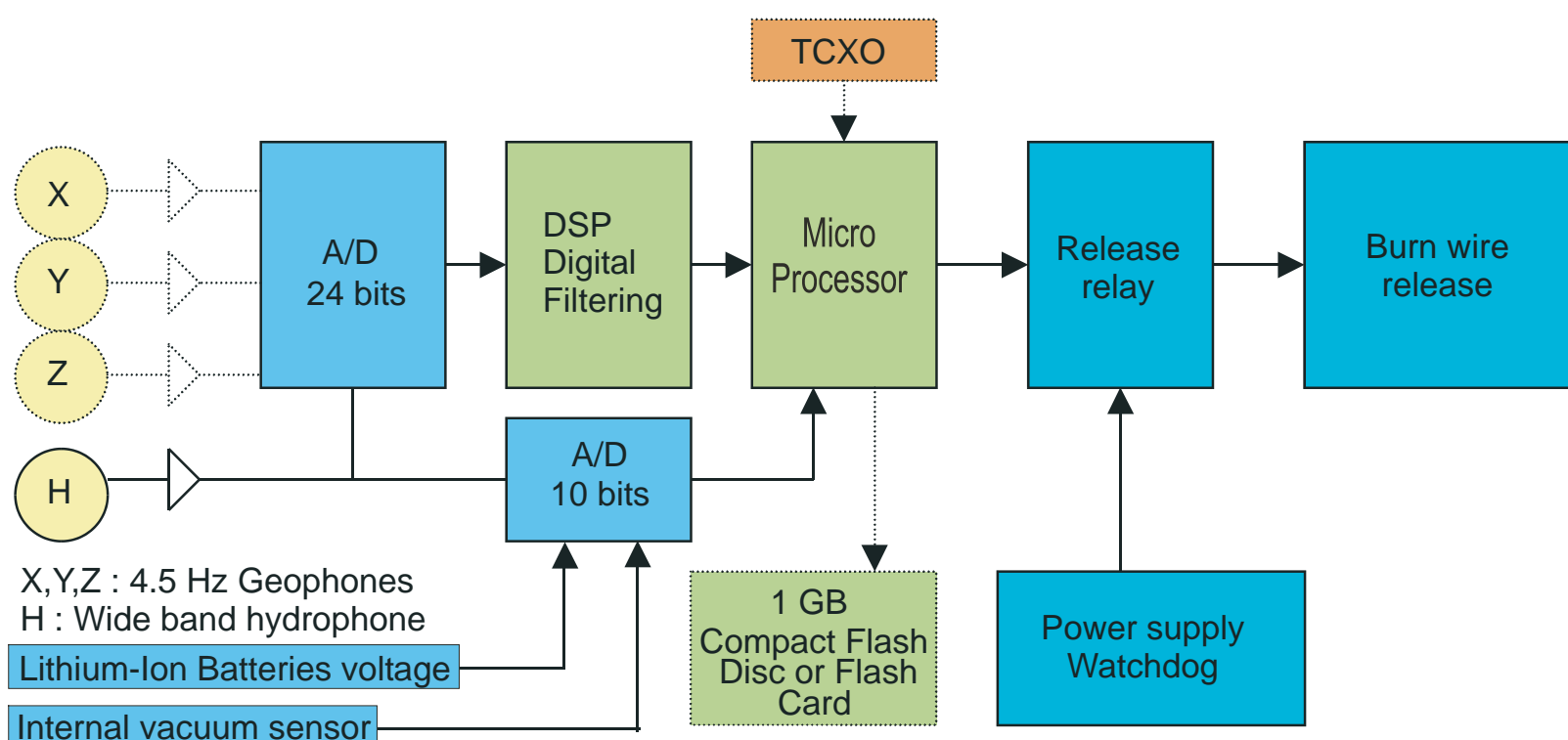


Figure 2 : Diagram of MicrOBS

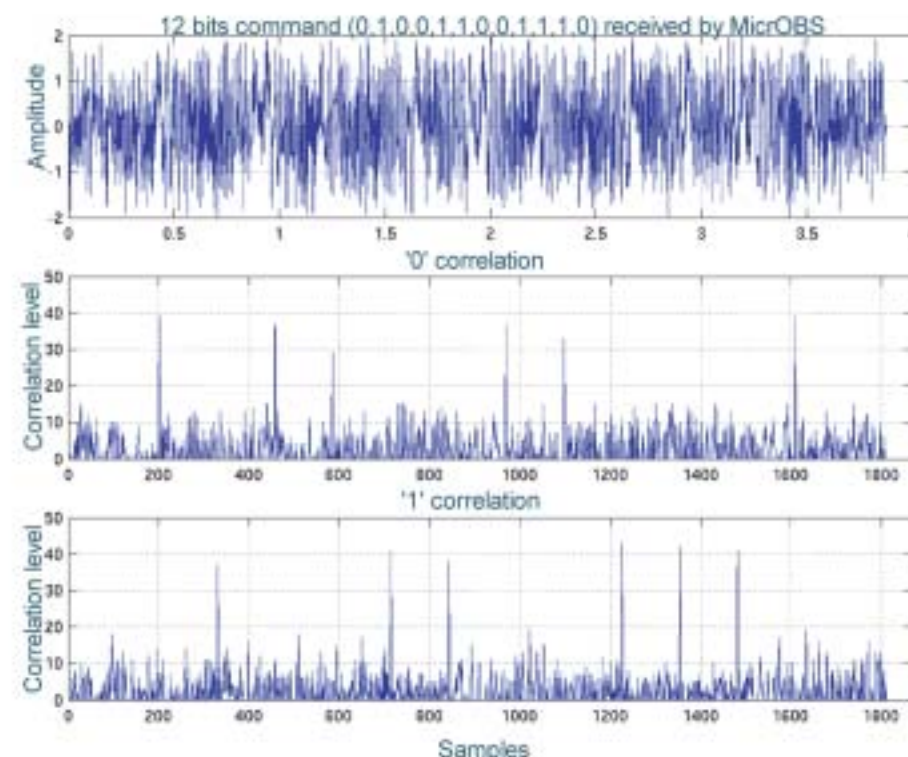


Figure 3 : Example of MicrOBS demodulation for the release system



Figure 4 : MicrOBS prototype during sea trials



Figure 5 : MicrOBS Electronic printed circuit board prototype for data acquisition and release. Scale given by the 1 Euro coin.