

A Rapid Response Ocean Bottom Seismometer for PREST

Device Features & Mechanical Structure

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Ocean Bottom Seismometers (OBSs) complement land-based seismological networks when studying nearshore or offshore volcanic and tectonic systems. Rapid response OBSs are lightweight and easy-to-deploy systems that allow rapid surveillance of seismo-volcanic crises.

We present the features and the mechanical structure for a prototype.

Mechanical specifications



- Syntactic Foam HP6000 flotation
- Vitrovex 13" Glass sphere
- Integrated underwater connection
- Maximum depth : 6000m

Dimensions



- Length : 43 cm
- Width : 45 cm
- Height : 85 cm (with recovery hoop and ballast weight)

Weight



- Air with ballast weight : **50 Kg**
- Air without ballast weight : **35 Kg**
- Water with ballast weight : **7 Kg**
- Water without ballast weight : **- 3Kg**

Sensor



- KUM K/MT 210 3 axis geophone
- HTI-90-U Hydrophone
- Acoustic transducer
- Integrated Flash and Radio

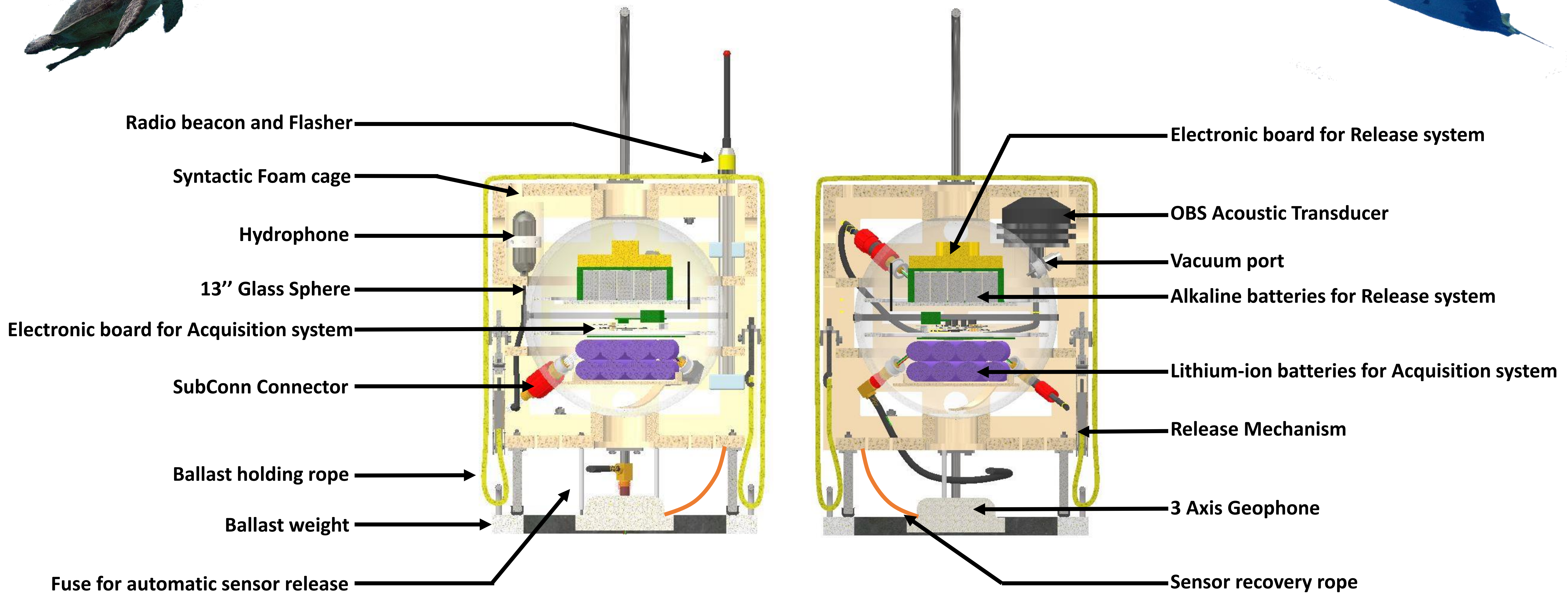
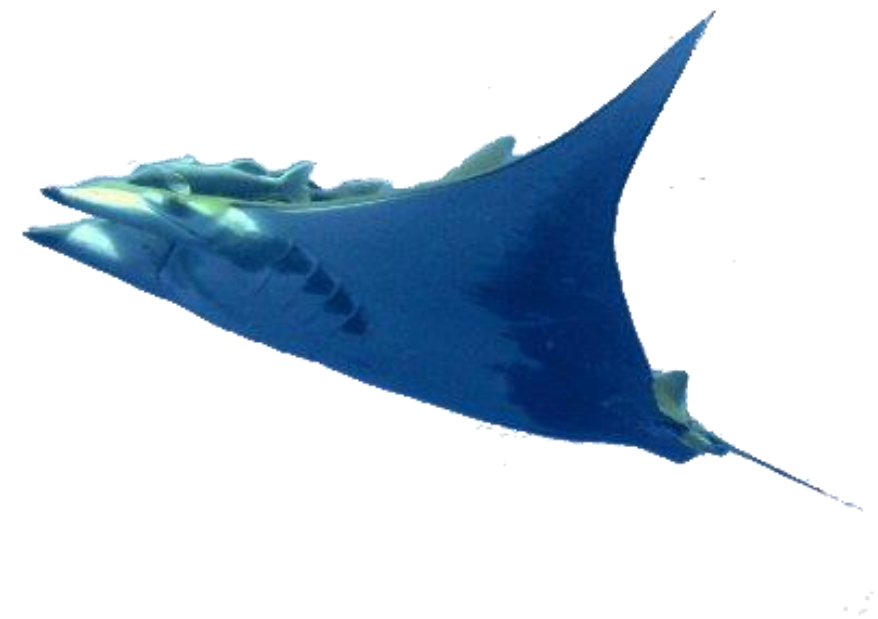
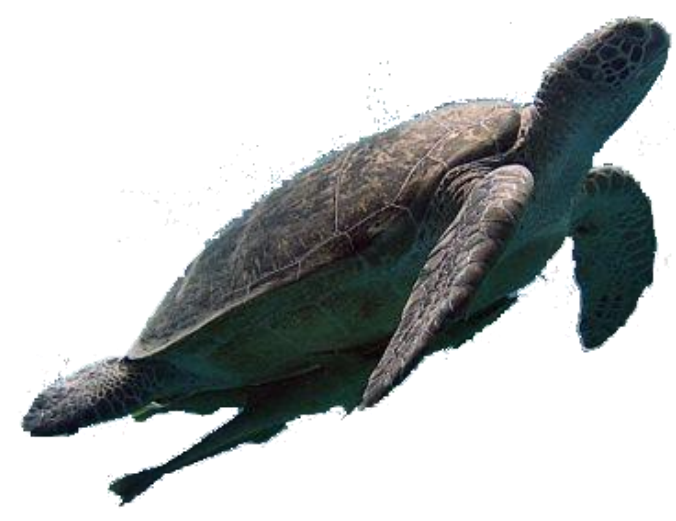


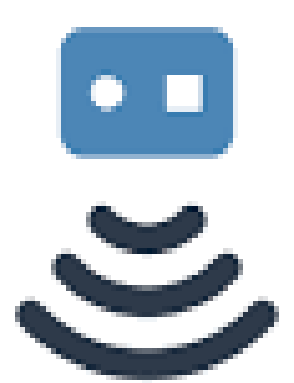
Figure 1 : Schematics of the Rapid Response Ocean Bottom Seismometer



Acoustic communication system with the surface for easy relocation of the OBS to the bottom of the ocean



Automatic clock synchronization by GPS for precise data dating and drift measurement



Geophone automatically decoupled from the main structure for better quality measurements



Easily handled and deployed by two people
Easy storage and transportation

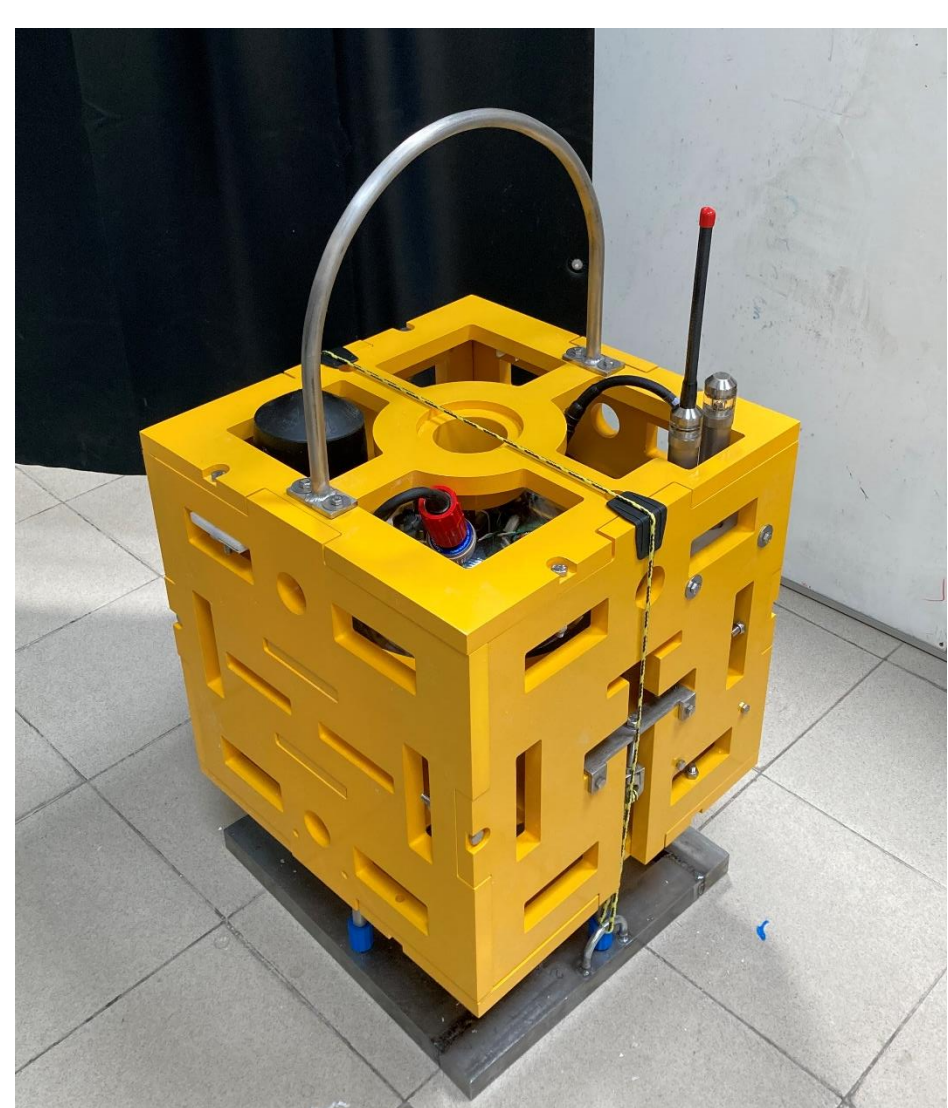


Figure 2 : Side view



Figure 3 : Front view

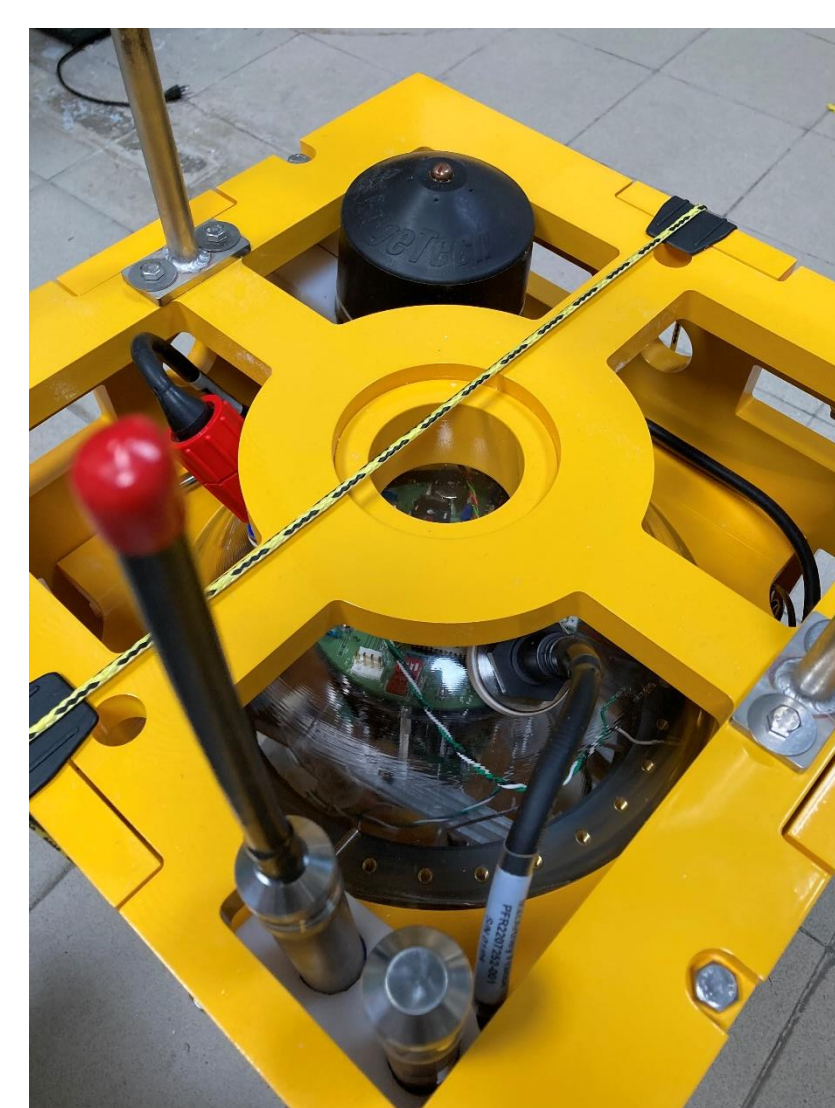


Figure 4 : Top view

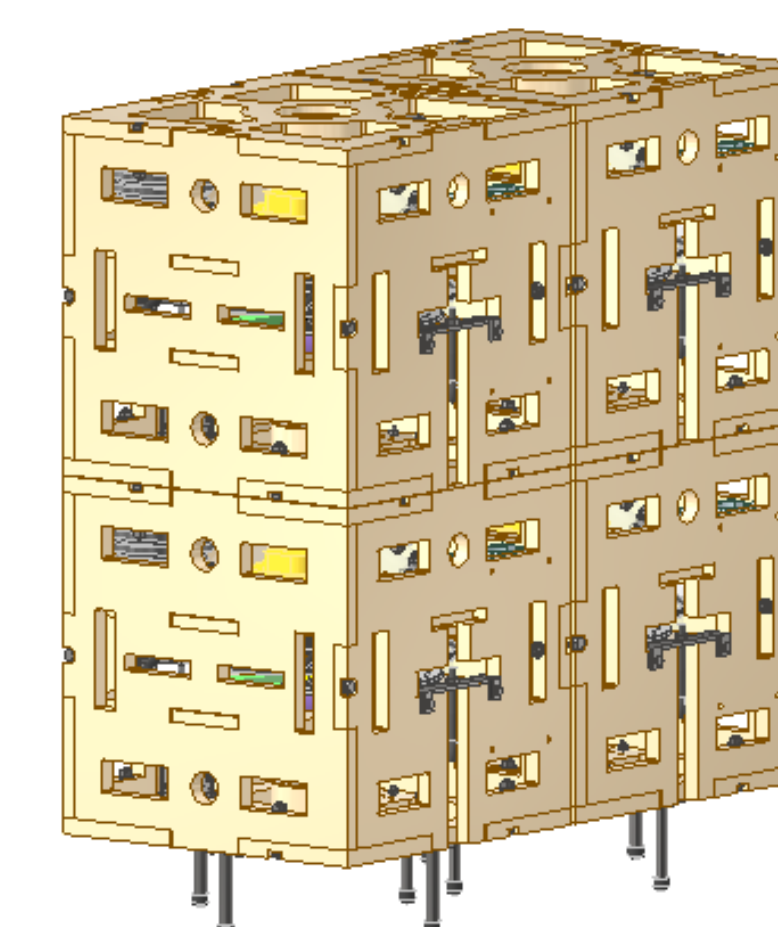


Figure 5 : OBS Storage

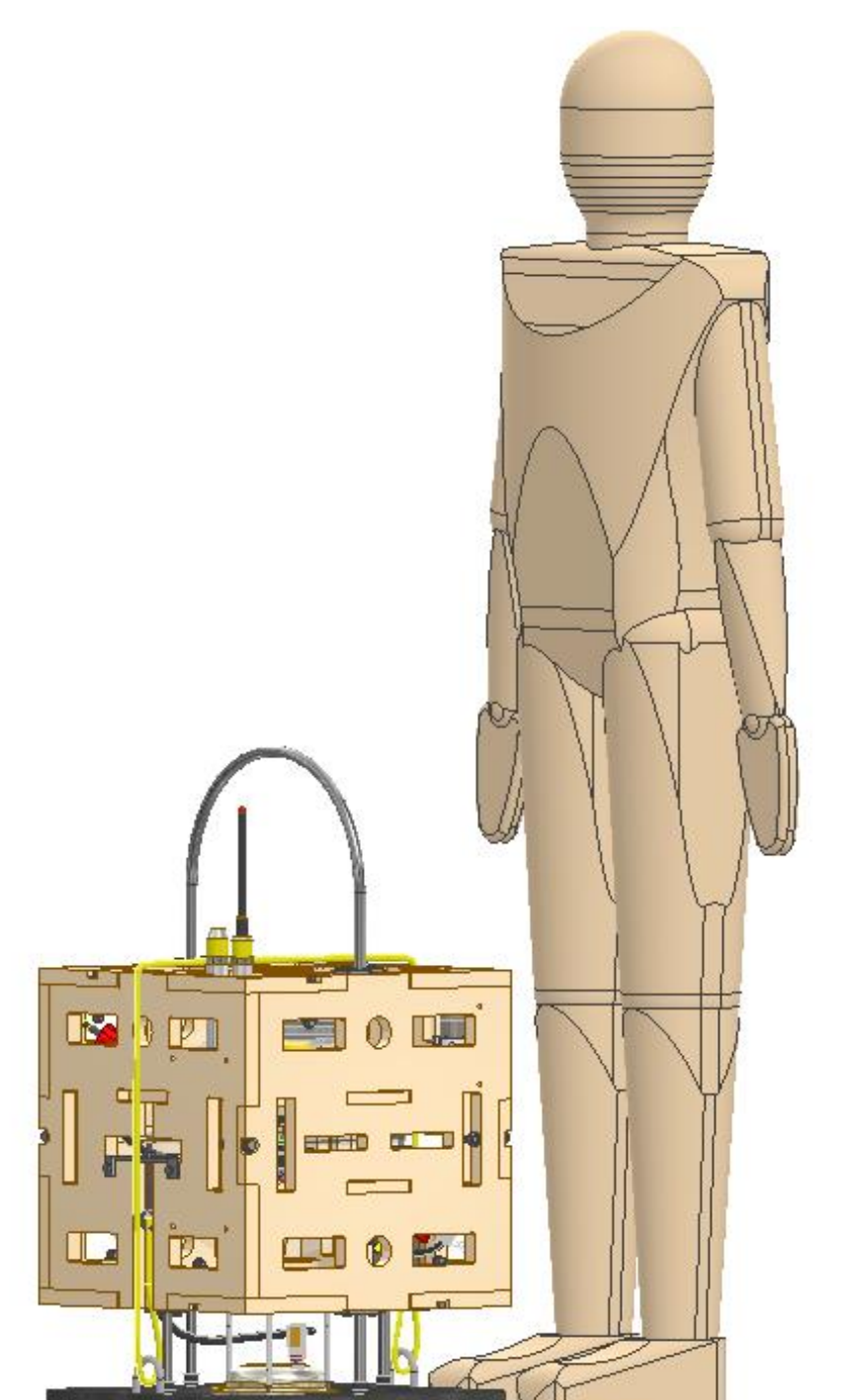


Figure 6 : OBS next to a 176 cm mannequin