OCTOPUSEA

Wave energy buoy for scientific and industrial applications

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COMPANY

Engineering company specialized in renewable energy and power generation

Company based in France, created in 2011

2 co-founders with extensive experience in marine field + 7 engineers

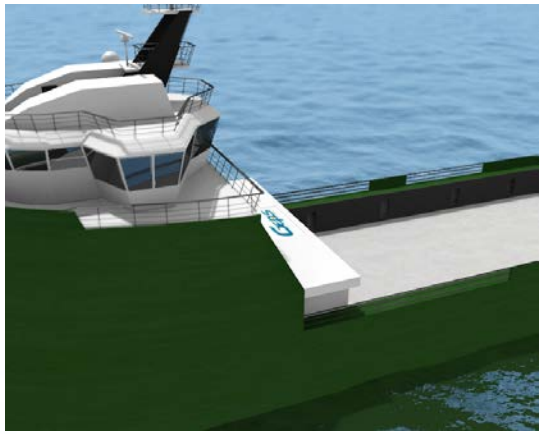
Innovation & development oriented

Partners :

PRODUCTS

OCTOPUSEA
Wave energy buoy for scientific and industrial applications

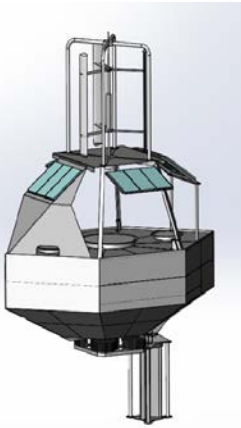
SIRE
Ship passive stabilization system with energy recovery



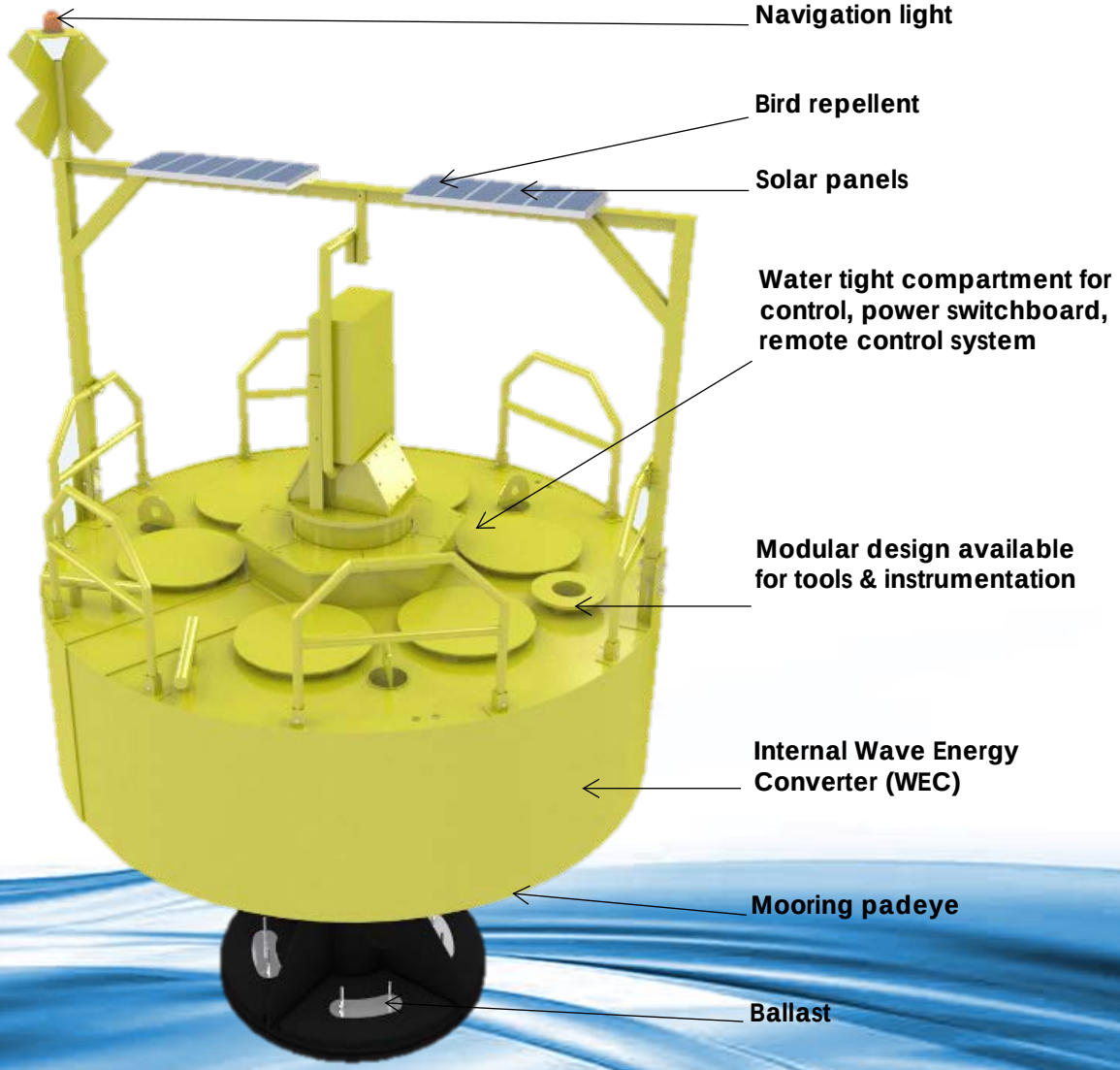
REFERENCES

SMILE PROJECT
OctopuSea technology
Offshore commissioning Apr 2014

PH4S PROJECT
Autonomous energy platform combining four energies:
wave, wind, tidal and sun
Offshore commissioning July 2015



OCTOPUSEA : OVERVIEW




Ifremer
Ifremer

Major scientific objectives:

- Continuous monitoring of biological activity through fluorescence observation
- Validation of hydrodynamical mathemathical model
- Calibration of satellites pictures for chlorophyll-a
- Better understanding of water mass circulation

Technical needs:

- Self sufficient in energy
- Robust
- High level of stability
- Easy maintenance
- Adaptable in order to accept new instruments (free place onboard)

SMILE Solution:

Cross point between 3 partners:

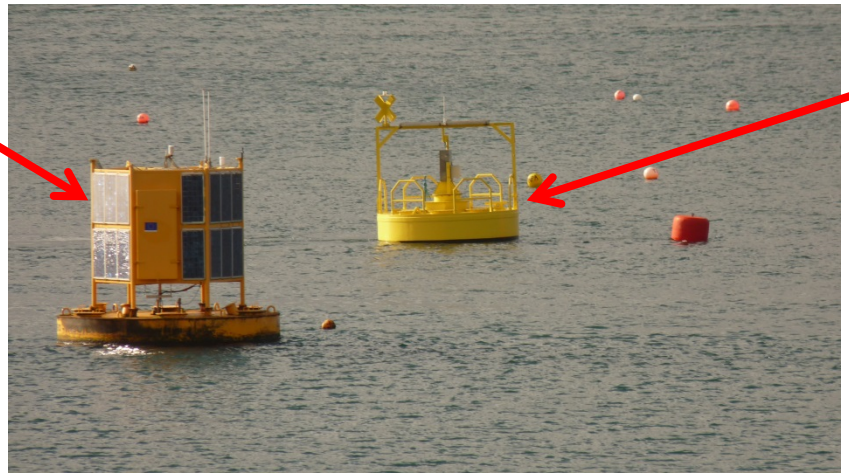
- University of Caen: scientific needs
- Geps-techno: innovative solution for energy production
- Ifremer: expert on oceanographic buoys and coastal monitoring

SMILE First results after 5 months of exploitation:

- Continuous energy production
- Scientific monitoring without any gaps
- No needs of maintenance during this period
- Appreciable stability for onboard work at sea
- Additional instruments ready to be installed

Before

- 17 m² PV
- 800 kg batteries
- 8 tons weight
- 3 tight mooring lines

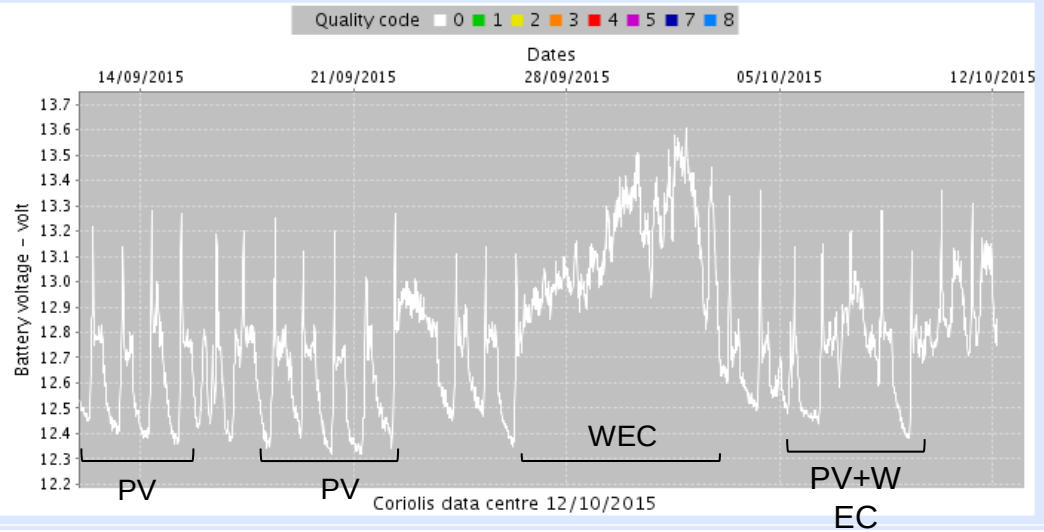


After

- 1 m² PV
- 60 W integrated WEC
- 60 kg batteries
- 5 tons light weight
- 1 loose mooring line

> “OCTOPUSEA concentrates energy production on a small volume and provides plenty of room available for instrumentation”
>
> *Michel REPECAUD, project manager at IFREMER*

WEC & PV : ideal additional power for constant consumption



Grid of annual production and distribution

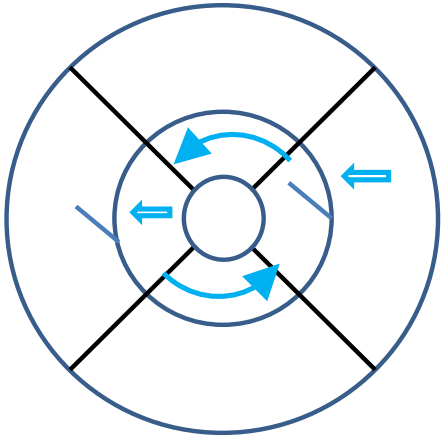
Hs (m)	Instant. Power (W)	Distrib	Pitching
0,25	**11**	22,80%	4°
0,6	**31**	42,00%	8°
1,2	**44**	18,00%	10°
1,8	**57,7**	8,00%	12°
2,4	**79**	5,00%	15°
3.0	**104**	3,00%	18°
>3	**104**	1,20%	18°

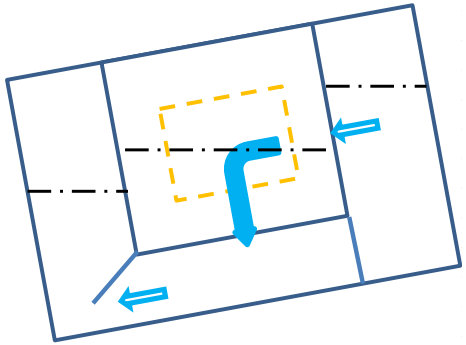
Buoy type: Octopusea 36
Installation site: Luc sur Mer, France

Annual production		P Moy	
278 648	**Wh**	**31,81**	**W**

OCTOPUSEA : WAVE ENERGY CONVERTER

Wave Energy Converter	Internal watertight hydraulic system Direct coupling for sturdiness
Turbine	Overspeed autolimitation
Power control	Sensor-free power regulation



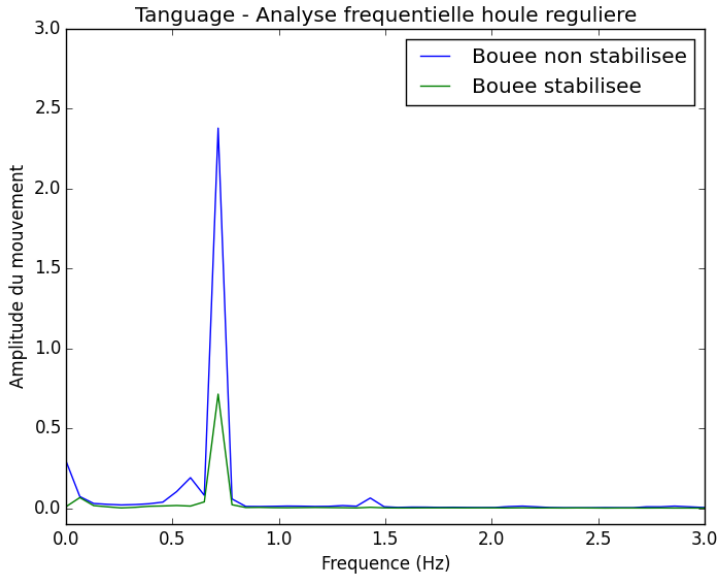


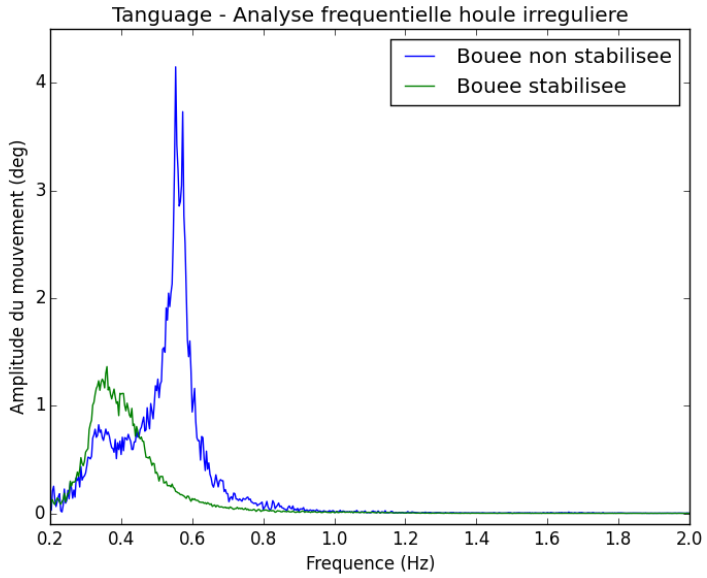
OCTOPUSEA : ACTIVE STABILIZATION

Buoy's dynamic behaviour damped by WEC

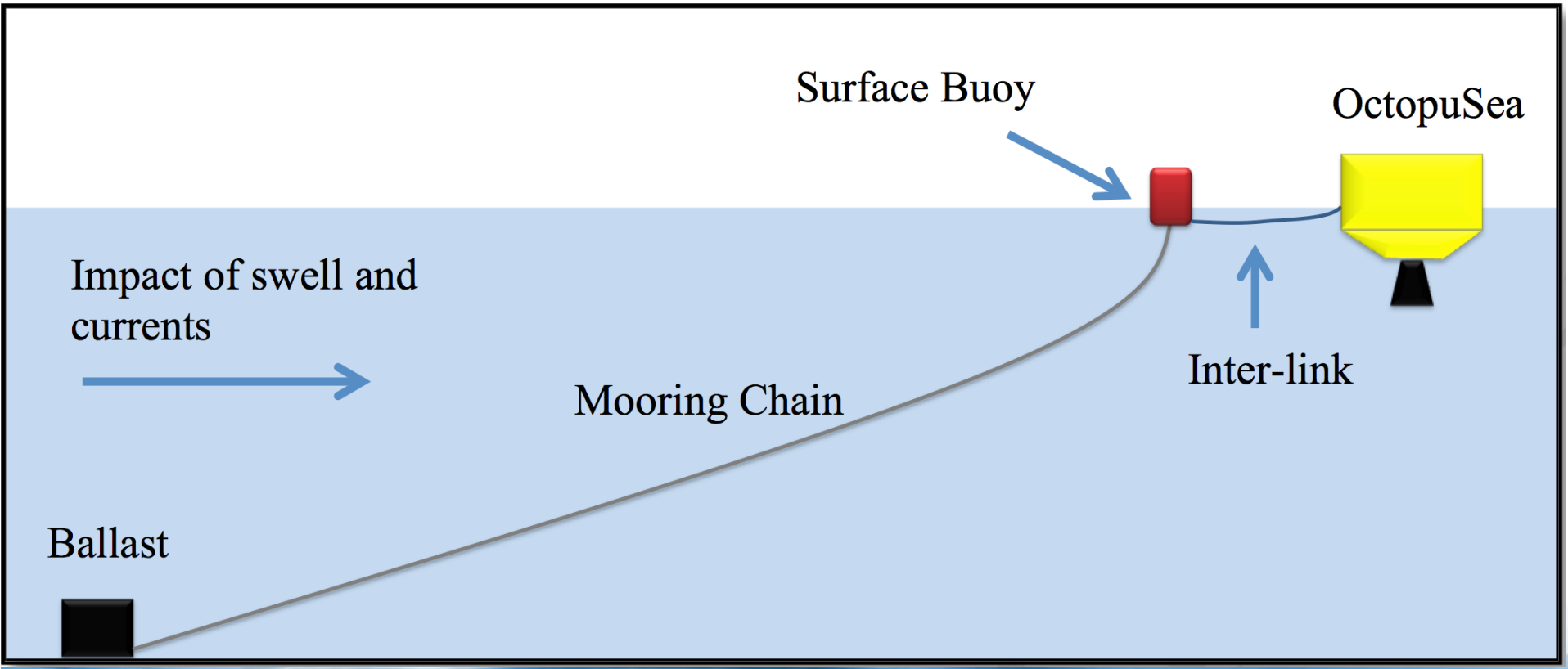
Enhanced **measurement accuracy**

Reduced motion ideal for sensitive devices





OCTOPUSEA : MOORING



OCTOPUSEA : OPTIMIZED OPERABILITY

Large areas and volumes available for **integration**

High **accessibility deck**

Operator access possible up to **sea state 4**

Low maintenance technology

Easy **towing and handling** operations

Special mooring to facilitate **installation**

SUMMARY : NEW TECH AVAILABLE

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THANK YOU !