

Wire Walker

Profession: An autonomous wave powered profiler



Vertical profiles to study small scale turbulence



RBR (CA)

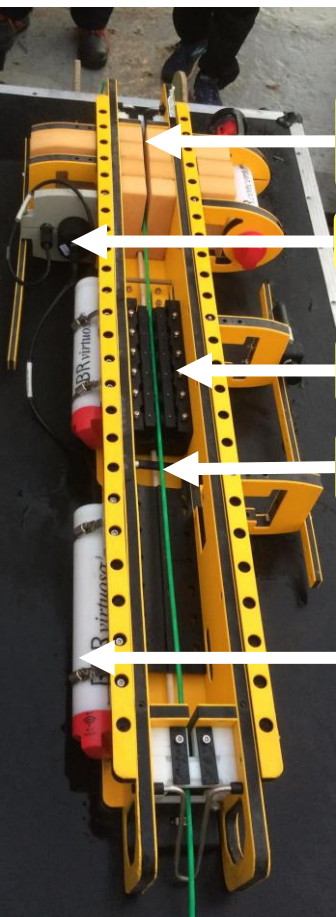


Underwater



100 000 €

Professional overview



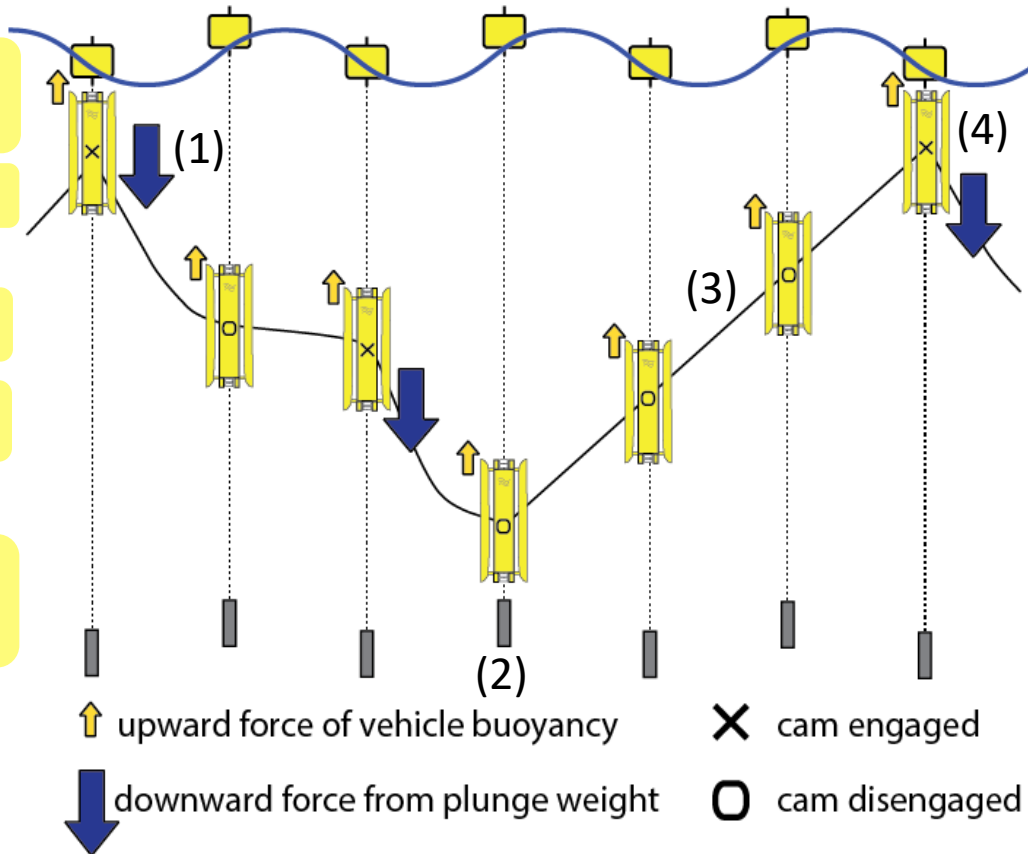
Floataion (foam)

Probes

Cam

Wire

Probe battery



Step 1: A wave pulls the buoy and the wire up, the cam mechanism is engaged. The WW plunges with the mass of the wire below the profiler and the weight at its end.

Step 2: The WW hits a mechanical stop that causes the cam to remain open.

Step 3: The profiler floats toward the surface, reaching 40cm/s.

Step 4: At the top the cam is reset.

© Illustration adapted from Del Mar Oceanographic

WW before its deployment
© Angèle Nicolas

Education

- 1945 : Creation of a « sea sled » to study shoaling waves by J. Isaacs
- 1970s : Utilisation of wave powered devices
- 2001 : Birth of WW
- 2021-2022 : IFREMER trials in the Brest Bay
- 2022 : Deployment for 10 days during the RESILIENCE cruise (1st instrument of this type deployed by a french laboratory)

Skills highlights

- ❑ Completely mechanical design
- ❑ Robust, precise and reliable profiler
- ❑ Inexpensive
- ❑ Equipped with CTDs, oxygen sensors, fluorometers, and turbulence sensor packages highly adaptable
- ❑ Equipped with ADCP on the seafloor to measure currents

Interests & curiosities

Study of oceanographic phenomena that vary rapidly in depth and time

Measurement of small scale turbulence

Drifting or mooring mode

Deployed in coastal and open ocean environments