

THE REFINE PROFILING FLOAT

more sensors for more clarity



The REFINE profiling float is an enlarged BGC-Argo float with improved capabilities. It has a longer battery life and can store more data. In addition to the sensors it shares with a BGC-Argo float, the REFINE float also has a transmissiometer to measure the flow of particles in the Twilight Zone and a miniature underwater camera to identify planktonic animals.

A multitude of sensors...

The oxygen sensor

The salinity, temperature and density sensor

The pH sensor

The underwater camera

The brightness sensor

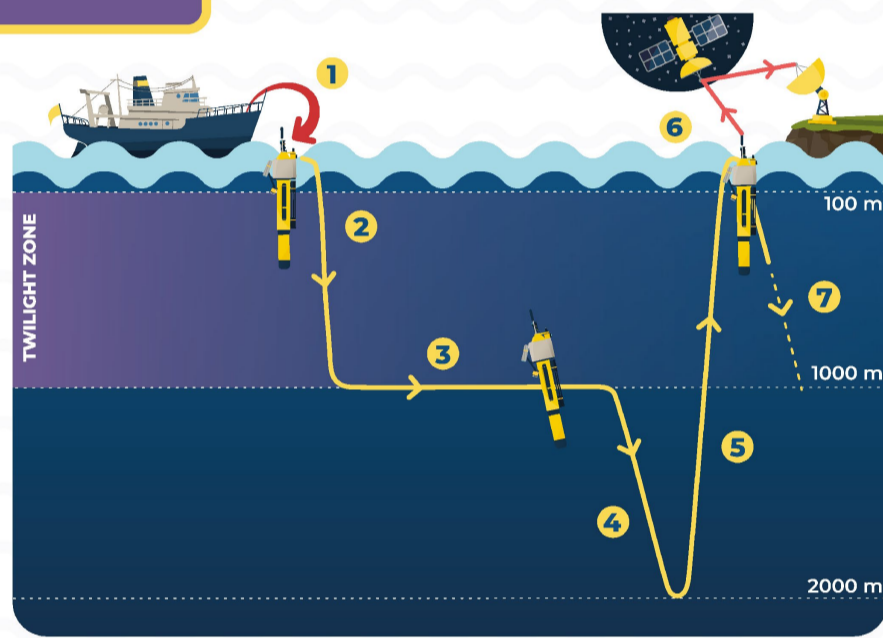
The biogeochemical sensor

The transmissiometer

The nitrates sensor



How does the profiling float recuperate data?



- 1 Deployment from a ship
- 2 Descent to the depths while drifting with currents
- 3 Drifting at 1000 metres deep for 10 days
- 4 Descent to 2000 metres deep
- 5 Resurfacing: this is the stage when the sensors measure the different properties
- 6 Transmission of data to a satellite, then to land and laboratories
- 7 The cycle begins again

SPECIFICATIONS

SIZE 2.55m

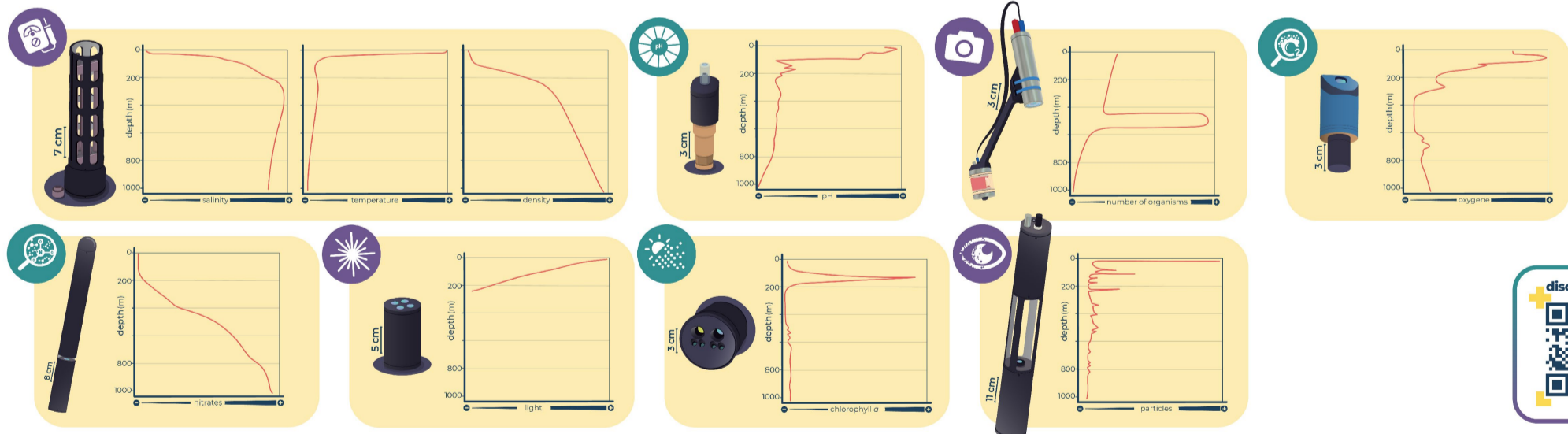
LIFE SPAN 5-7 YEARS

WEIGHT 75 kg

MAXIMUM DEPTH -2000m

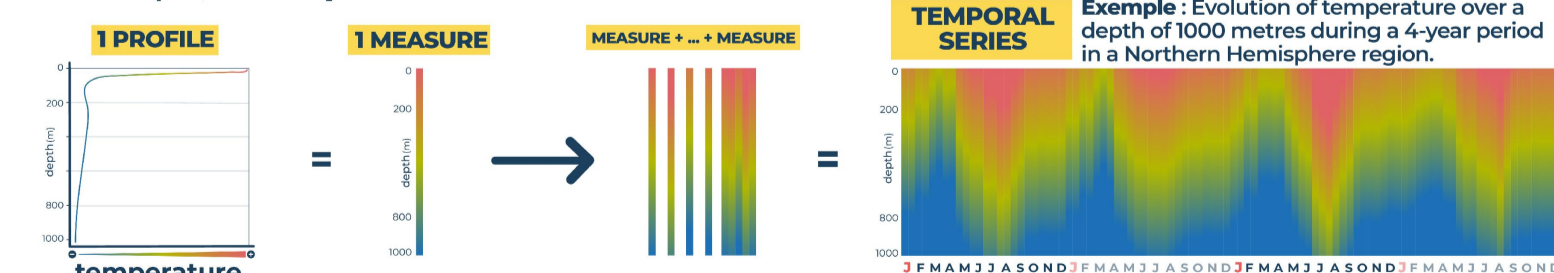
... for a multitude of measurements

While rising back up to the surface, the profiling float's sensors measure various properties (temperature, pH, chlorophyll, light...). Thanks to the data collected, scientists can produce "profiles". A profile corresponds to the evolution of a property as a function of depth. Here are some examples:



A succession of all profiles obtained for the one property over time can be compiled to create a "temporal series".

For example, for temperature:



Example: Evolution of temperature over a depth of 1000 metres during a 4-year period in a Northern Hemisphere region.

Temporal series indicate how a measured property evolves over time (month, year, decade).

REFINE profiling floats are expanding the BGC-Argo network in varied and specific regions of the World Ocean.