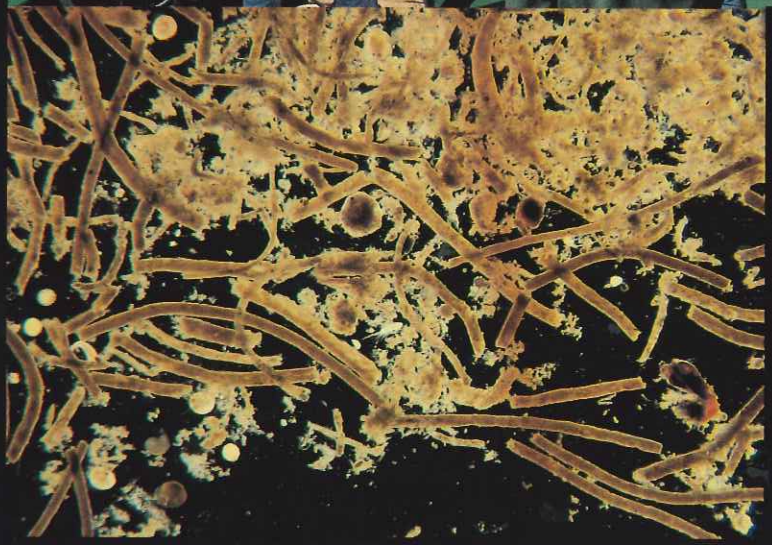
TECHNICAP *the new*

PPS SEDIMENT TRAPS



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During the last decade, sediment traps won acclaim in the study of processes controlling biogeochemical cycling in the ocean. These instruments are considered by the international scientific community as the most versatile and crucial tools for the collection of settling particles in a variety of marine and limnetic environment.

The collected samples allow, through various laboratory analyses, the determination of downward mass fluxes of particles and associated elements as for example organic and inorganic compounds (e.g. organic C, carbonates), or trace elements and polluants (e.g. selected trace metals, radionuclides).

With a more than ten years experience in the design and construction of automated sediment traps, TECHNICAP is now offering a complete, state - of - the - art product range with the latest models of the PPS (Pièges à Particules Séquentiels) time-series sediment trap family.

TRAP DESIGN

Developed in collaboration with French scientist working in the field of particle fluxes, the TECHNICAP sediment traps follow the latest scientific recommendations for efficient design and construction (e.g. U.S.GOFS planning Report n° 10, 1989). High-quality plastics and corrosion-free metallic components are used.
They collect and hermetically seal from ambient water from 1 to 24 consecutive particle samples.
Available in three basic configurations with increasing collecting areas, these traps are suitable to different sedimentation regimes (low to high) and/or research vessel sizes :
- The P.P.S.4/3 (collecting area : 0,05 sqm) and the P.P.S.3/3 (collecting area : 0,125 sqm) are cylindro-conical traps which are particularly adapted to high sedimentation regimes (e.g. ocean boundaries, lakes) and deployment from small research vessels. They can collect up to 12 consecutive samples.
- The P.P.S.5/2 (collecting area : 1 sqm) is a large, baffled conical trap which has been specially designed for deep, low-sedimentation environments such as the deep ocean for example. It collects up to 24 consecutive samples.

CONTROL UNIT AND PROGRAMMING

Motor, electronics and their battery sets are housed in a cylindrical pressure case directly attached to the carousel (= rotary collector assembly) which bears the sample bottles. Rotation of the sampling bottles is ensured by direct entrainment. Electronics comprise two separate solid-state memories and crystal-controlled clock using CMOS logic. One memory holds the programmed times and dates for sample bottle change-over where as the second records the true time and date of all events as they actually occur (spy function).

To minimize energy loss in case of rotary plate jamming due to external factors (e.g. large organism blocked in the rotary disk), a special function enables back and forth rotation of the motor, at preset intervals, until the obstacle is eliminated. All events are recorded.

Programming of the delay time, collection sequence and reading of the recorded information after recovery of the trap is quickly achieved by means of a PSION ORGANIZER II XP (hand held micro computer supplied with trap). A main menu and several sub-menus allow checking of the trap electronics, starting of the collection programme and reading-back of recorded information.

DEPLOYMENT :

The PPS sediment traps can be easily deployed, even from small vessels, either on a bottom-tethered mooring line or in the free-drifting mode. The traps are included in the mooring line via a one-side attachment (all 3 traps) or using a crow's foot (P.P.S.5/2).

RENOVATION PACKAGE :

TECHNICAP also provides a renovation package, comprising a complete carousel with associated motor and electronics, to refurbish existing traps of various models and makes.

TECHNICAL SPECIFICATIONS OF THE TECHNICAP SEDIMENT TRAPS

MODEL	PPS4/3	PPS3/3	PPS5/2
Collecting area (sqm)	0,05	0,125	1
Shape	Cylindro-conical		Conical (36°)
Baffle	on request		Honeycomb cells
Number of samples	12		24
Volume of sampling bottles*	250 ml		250 ml
Sampling interval	1 hour - 60 days		1 hour - 60 days
Operating depth	3500 m (6000 m on request)		6000 m
Materials			
Trap body	Glass reinforced polyester (GRP) on an alimentary gel-coat		Polypropylene, external GRP
Carousel	PETP (very hard thermoplastic)		PETP
Sampling bottles*	Polypropylene		Polypropylene
Electronics/motor pressure case	Aluminium alloy (AG 5086)		Titanium (T40)
Mooring bar	Stainless steel (316)		Titanium (TA6V)
Power supply	AA or/and AAA alkaline batteries		
Dimensions (mm)			
Height	1200	1900	2300
Diameter	250	400	1330
Weight (Kg)			
In air	27	39	95
In water	11	16	32

*** Sampling bottles :** the standard equipment of PPS carousels is 250 ml polypropylene bottles. Interchangeable adaptors that attach the bottles to the carousel allow, depending on the type of analyses performed on the samples, to switch to other types of sampling bottles (glass, teflon, etc..) of volumes up to 1000 ml.

REFERENCES :

- Institutes of marine research :
- Rimouski and Maurice Lamontagne Institute, Canada,
- National Sun Yat-Sen University, Republic of China,
- Finnish Institute Finland,
- CNRS, IFREMER and INSU, France,
- Alfred-Wegener Institute, Germany,
- NIOZ and Utrecht University, Holland,
- International Atomic Energy Agency (marine and environmental laboratory), Monaco,
- CID and ICM, Spain.....