



Underwater Winch (AES-2008 / Mooring Type)

Overview

AES-2008 was developed as one component of vertical profiler in mooring array. The winch is located (deployed) under the profiling buoy, at water depth 150m or so. The winch works according to its time table.

When the wake-up time comes, the winch pays the rope out at about 15m/min, till the setting length. After paying out, then the winch winds the rope to initial position with certain torque. The profiling buoy shifts up and down during winch-work, in proportion to the rope-out length.

While the winch does not work, the profiling buoy is docked on the winch with the latch unit (refer to Unit-1) in order to minimize damage of the rope.

AES-2008 uses the electrical motor to wind the rope with batteries. The winch work depends on the capacity of batteries. Standard model mounts 2 battery packs. 2 battery packs can be worked for 3 months once a day. Optionally AES-2008 can be installed total 6 battery packs.

Components

See the right-side photo

Unit-1: Latch Unit

Docking a buoy on AES-2008 while sleep

Unit-2: Main Float, Unit-3: Sub Float

Having own buoyancy in water, in order to install in mooring array.

Unit-4: Battery Housing

2 housings in Standard Type.

Optionally, maximum 6 housings

Unit-5: Winch Mechanism

Gear-box, Winch Drum, and

Level Winder

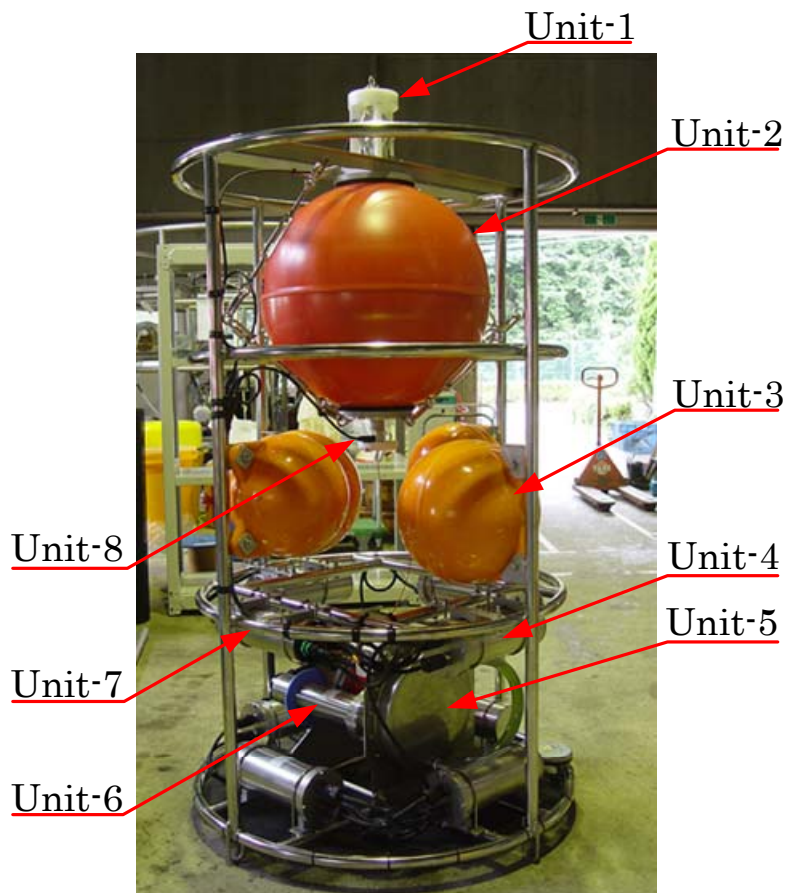
Unit-6: Electrical Motor

Unit-7: Winch Controller

Unit-8: Slack Detector



AES-2008/Sea-Floor type



Appearance of AES-2008

Specification	
Depth Rate	Max. 300m
Deployment Term	3months (1 operation/day)
Weight (air)	abt. 150kg (abt.330 lb)
Weight (water)	abt. -392N (abt.-88 lb)
Dimension	Dia.1,000 × 1,800mm
Material	SUS304, PVC, etc
Power Source	24V DC 120Ah (Al-Mn or Li battery)
Operaiotn Temp	0 to 30 deg-C (32~86F)
Operaiotn Interval	Time Table (programmable by N-COM*)
Communication	RS-232C, N-COM* *Terminal software for Windows
Winch Rope	Kevler Rope (Dia. 3mm x 350m) Breaking Force 300kgf
Winch Torque	50kgf (@Min. Drum Diameter)
Winch Speed	Out (abt.)15m/min, In (abt.)9m/min

Illustration (AES-2008)

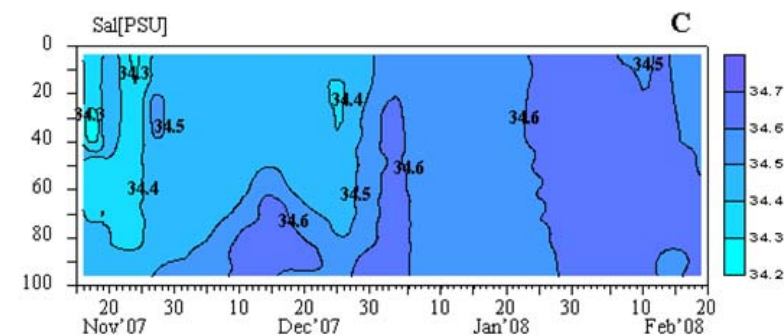
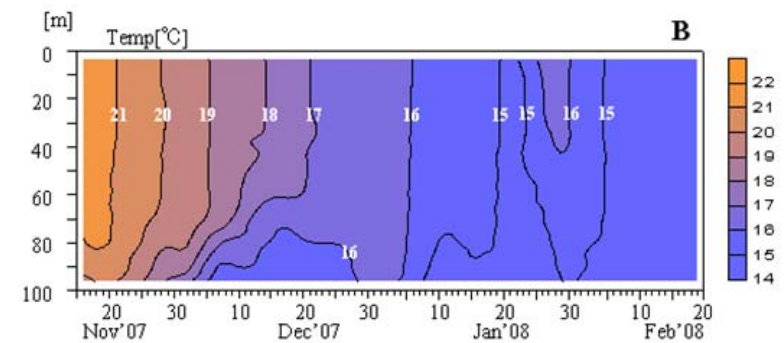
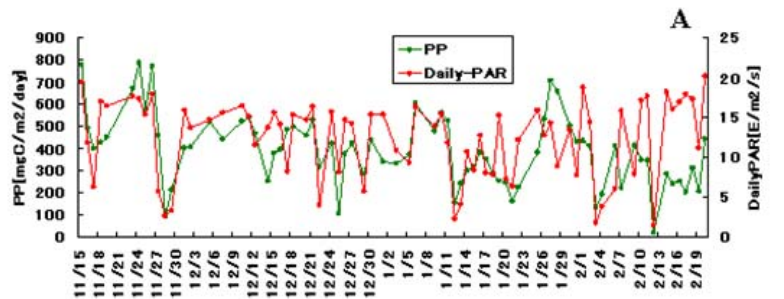
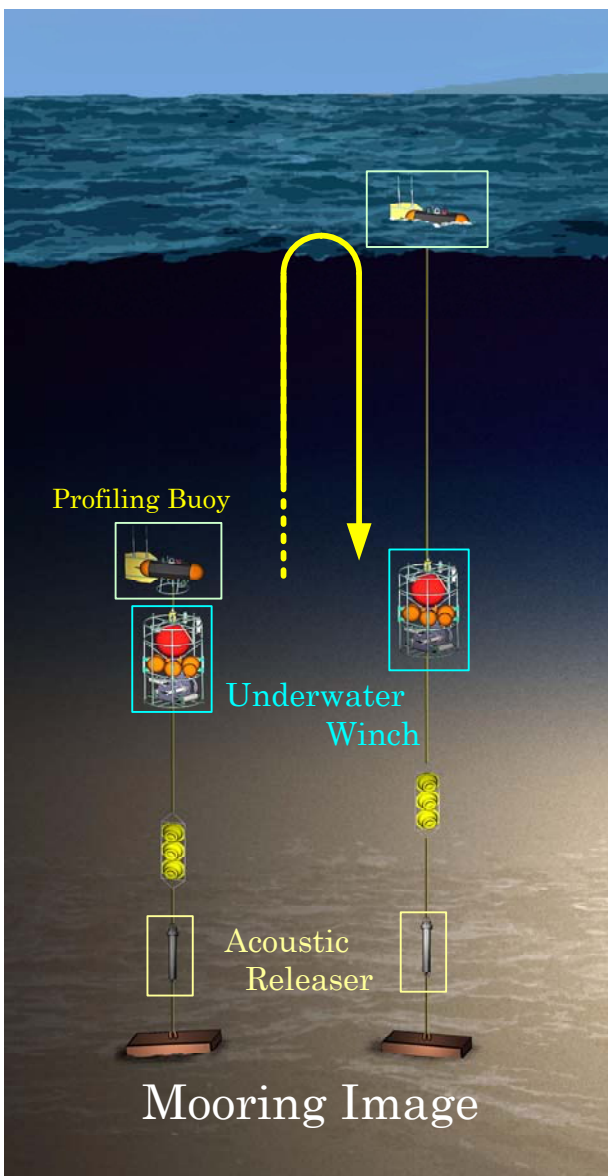


In POPPS* Project, AES-2008 is used as one of most important goods of vertical profiler system in a mooring array. The system (see the photo) is composed of one sensor buoy (profiling buoy) and one AES-2008.

CTD, DO, PAR and FRRF sensors are installed in the buoy. And Iridium is also installed, in order to transfer the daily data to a land station.

Following Contour Graph is made from daily noon data, while AES-2008 shifts the profiling buoy in water column.

*POPPS: Project on Ocean Productivity Profiling System



presented by Dr. Saino

POPPS Project is supervised by Dr. Saino (JAMSTEC), and funded by CREST/SORST, Japan Science and Technology Agency (JST)

■ Contact in Korea
 MD System Co. Ltd
 #1015 DongmoongoodmorningTower 2nd,
 1324 Baekseok-dong, Ilsandong-gu,
 Goyang-si, Gyeonggi-do, Korea
 PHONE : +82-31-907-8567
 FAX : +82-31-905-8568

■ Manufactured by
 Nichiyu Giken Kogyo Co Ltd., (ngk ocean)
 Advanced Development (Ocean)
 2-22-1 Minami-Ikebukuro Toshimaku,
 Tokyo , Japan 171-0022
 URL: ocean.nichigi.com/english/index.html