

APNA

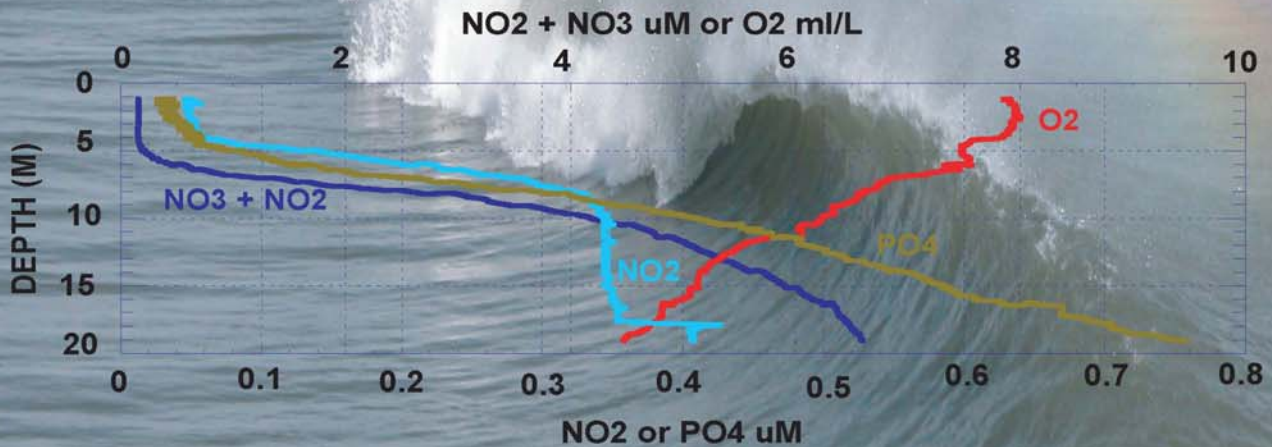
Autonomous Profiling Nutrient Analyzer

- Four to Six Channel Analyzer
- Multi-Chemical Capability
- Fast Response - Trace Concentrations
- Real-Time Data
- Programmable Controller
- Multi-Platform Adaptability



Autonomous or Cabled Multi-Mode Operation

- Autonomous Hi-Res Vertical Profiling
- Continuous Underway Surveying
- Intermittent Long-Term Sampling



Nitrate, Nitrite, Ammonium, Phosphate, Silicate, Iron



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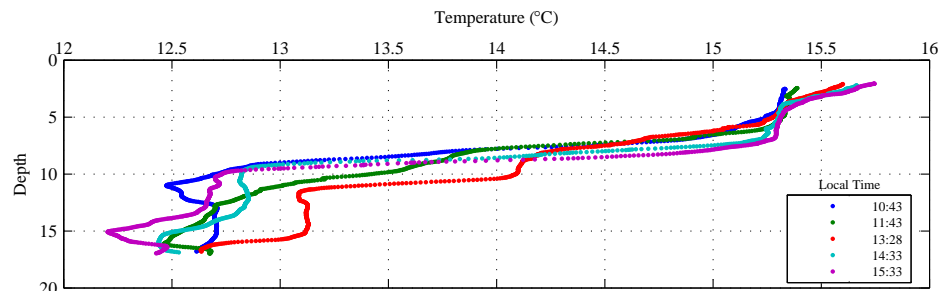
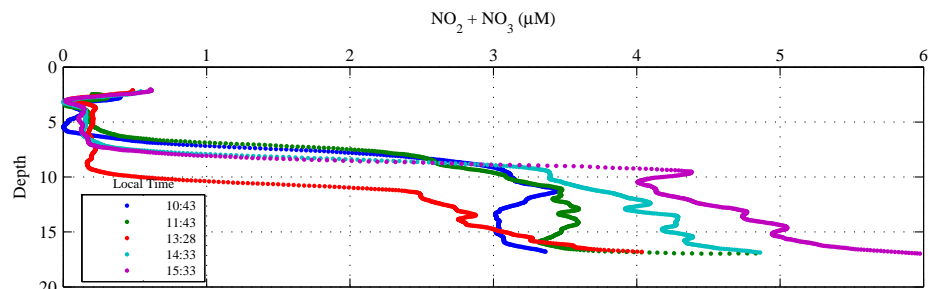
APNA SPECIFICATIONS

Number of Analytical Channels	3, 4, or 5					
Nutrients	Nitrite	Nitrate	Phosphate	Silicate	Iron(II)	Ammonium
Wavelengths (nm)	A 540	A 540	A 820	A 820	A 560	F 370/460 ex/em
Path lengths (cm)	1, 5	1, 5	1, 5	1, 5	1,5	N/A
Range-1 (μM)	0.05-50	0.05-50	0.05-50	0.15-170	0.05-50	0.01-15
Range-5 (μM)	0.02-11	0.02-11	0.02-14	0.05-45	0.02-13	0.1-100
Precision (% range)	2	2	2	3	2	1

Deployment Mode	Continuous	Intermittent Profiling	Intermittent Sampling
Endurance (max)	~7 Days (1 reading/sec)	~400 Profiles (20 m depth– 20 min ea.)	~2000 Measurements (2-3 months at 24/day)
Reagent volume (max)	~1 Liter/channel	~1 Liter/channel	~1 Liter/channel
Battery Usage (max)	~60 Amp-Hr	~60 Amp-Hr	~60 Amp-Hr

Power Supply/Range	12 volt DC / 12-75 volt DC
Power consumption	Analysis: 28 W, Sleep: 33 μW
Dimensions	Length: 12.9 in (32.6 cm), Diameter: 6.6 in (16.8 cm)
Weight	Air: 19.5 lbs (8.8 kg), Water: 3 lbs (1.4 kg)
Displacement	460 cubic in (7.5 liters)
Depth Capability	200 meters, pressure compensated
Instrument Control	Programmable microcontroller with 1-8 Gb compact flash memory
Communications	RS232/485-ACII, 9.6-115.2 kBAUD, Ethernet
Materials	Peek, PVC, Nylon, Aluminum, Delrin, AcetalGP
Multi-mode Deployment Platforms	Ship-deployed vertical or towed profilers, autonomous moored profilers, autonomous underwater vehicles, or fixed-depth on piers or moored buoys.
Optional Capabilities and Extras	Real Time Data Telemetry (Acoustic/RF/cellular/Wi-Fi/Iridium/LAN) External server with local FTP site, web data display Integrated peripheral sensors (CTD, O ₂ , Chl, etc)

A time series of five hourly high-res vertical tot. nitrate and temperature profiles that were obtained in Monterey Bay, CA with the APNA multi-nutrient analyzer deployed on an autonomous bottom-up profiler.



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