AGU FALL MEETING
San Francisco | 12–16 December 2016

OS31A-1993: Efficient Sensor Integration on Platforms (NeXOS)

📅 **Wednesday, 14 December 2016**
08:00 - 12:20
📍 *Moscone South - Poster Hall*

In-situ ocean observing platforms provide power and information transmission capability to sensors. Ocean observing platforms can be mobile, such as ships, autonomous underwater vehicles, drifters and profilers, or fixed, such as buoys, moorings and cabled observatories. The process of integrating sensors on platforms can imply substantial engineering time and resources. Constraints range from stringent mechanical constraints to proprietary communication and control firmware. In NeXOS, the implementation of a PUCK plug and play capability is being done with applications to multiple sensors and platforms. This is complemented with a sensor web enablement that addresses the flow of information from sensor to user. Open standards are being tested in order to assess their costs and benefits in existing and future observing systems. Part of the testing implied open-source coding and hardware prototyping of specific control devices in particular for closed commercial platforms where firmware upgrading is not straightforward or possible without prior agreements or service fees. Some platform manufacturers such as European companies ALSEAMAR

[1]

and NKE Instruments

[2]

are currently upgrading their control and communication firmware as part of their activities in NeXOS. The sensor development companies Sensorlab

[3]

SMID

[4]

and TRIOS

[5]

upgraded their firmware with this plug and play functionality. Other industrial players in Europe and the US have been sent NeXOS sensors emulators to test the new protocol on their platforms. We are currently demonstrating that with little effort, it is also possible to have such middleware implemented on very low-cost compact computers such as the open Raspberry Pi

[6]

, and have a full end-to-end interoperable communication path from sensor to user with sensor plug and play capability. The result is an increase in sensor integration cost-efficiency and the demonstration will be used to highlight the benefit to users and ocean observatory operators.

[1] http://www.alseamar-alcen.com

[2] http://www.nke-instrumentation.com

[3] http://sensorlab.es

[4] http://www.smidtechnology.it/

[5] http://www.trios.de/en/products/

[6] Raspberry Pi is a trademark of the Raspberry Pi Foundation

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