Dear colleague, let me introduce myself:

My name is Klaus Schleisiek and I am the general manager of SEND Off-Shore Electronics GmbH, located in Hamburg/Germany. SEND develops and manufactures seismic equipment for off-shore use.

Since the beginning of 2009 I have been serving as representative of the PESOS group (Providers of Equipment and Services for Observatory Systems) on the ESONET steering committee. In this position I have concentrated on standardization activities, which are relevant to our industry and on marketing tools, which will help us to reach our customers.

In these news I will give an overview of the current state of standardization activities in co-operation with Christoph Waldmann (MARUM, Bremen) and present the concept of the "Yellow Pages", which is a marketing tool developed in the ESONET project.

Please feel free to contact me at "kschleisiek @ send.de".

1   Standardization

There are currently two standardisation directions in the ocean science observatory community, which are or will become relevant to us as equipment manufacturers: PUCK and IEEE1451. Up to now it cannot be foreseen whether either one will be accepted and enforced. However, the underlying concepts and architectures are of relevance for the implementation of ocean observatories.

1.1   PUCK

The first activity addresses the intelligence that should be added to an instrument (sensor) in order to automate its integration (or replacement) into an ocean-bottom system. To this end, MBARI has proposed the PUCK protocol (see: www.mbari.org/pw/puck.htm), which is quite mature and has been submitted to become an OGC (Open Geospatial Consortium) standard.

From MBARI's website: "PUCK is a simple command protocol that helps to automate the configuration process by physically storing information about the instrument with the instrument itself. The stored information could be an instrument description (metadata), driver code, or any other information deemed relevant by the observing system. When a PUCK-enabled instrument is plugged into a host computer the host can retrieve the information from the instrument through PUCK protocol and deal with the information appropriately. For example, the host may install and execute instrument driver code that has been retrieved from the instrument. We refer to this automated configuration process as plug-and-work."

At present PUCK protocol has been specified for RS232 interfaces only. Similar to the old days of the Hayes modem, PUCK defines an escape sequence, which gives access to 12 simple commands.

The "PUCK datasheet" consumes 96 bytes and uniquely identifies the instrument such that the system controller can retrieve its metadata.

The "PUCK payload", if at all present, is an area of non-volatile storage space, which may be written and read using the PUCK protocol. It may actually hold the metadata, which is necessary to operate the instrument in a certain environment. Experiments have been made were the same sensor has been plugged into different ocean-bottom systems. Appropriate metadata had been stored for

these environments and therefore, the instrument could be integrated into these environments automatically.

I like PUCK. Because it is useful. Because it is simple. Because only a minimal set of properties is standardized and there is a lot of room for installation specific extensions. Its implementation into an existing instrument takes on the order of 10 engineering days. Given that enough flash memory is available, of course.

1.2   IEEE1451

The second activity addresses independence from any idiosyncratic way of manipulating instruments. Right now, instrument manufacturers have invented various proprietary ways of how their instrument must be controlled. Incompatible access philosophies and syntaxes prevail.

Pretty much like Postscript (PDF) solved the problem of hardware dependence for printing, a similar universally accepted language for manipulating ocean-bottom instruments would be nice to have, because it would simplify the integration of instruments into ocean observatories considerably. And it would allow to create "higher level" control software (e.g. sensor web enablement), which could be used universally instead of being a "one off" solution for one specific observatory.

In essence, what we need is an "ocean-observatory control language" (OOCL), an abstract instrument (sensor) language, which would be able to address all aspects of potential ocean-observatory topologies. To this end, an Esonet workshop in Brest succeeded in devising a reference model for ocean observatories, which covers all potential topologies. And therefore, it is quite complex (see: esonet.epsevg.upc.es:8080/1451/ref_model.html). This reference model can now serve as a touchstone in order to check the suitability of any proposed OOCL.

For a number of years, academia has discussed the IEEE1451 standard as a potential candidate for this OOCL. Originally, IEEE1451 has been designed as a standard for home automation and it is a NIST committee design. Therefore, it is extensive, complex and time-consuming to understand. Something, nobody wants to touch without being payed for. Furthermore, it became clear during the Brest workshop that IEEE1451 fails to address several properties, which are needed according to the reference model.

I venture to predict that eventually OOCL will resemble IEEE1451, because for too long and too often IEEE1451 has been hailed as the solution to an OOCL in discussions with funding agencies both in Europe and America. But only a subset of IEEE1451 will be suitable, and it will have to be extended in order to fulfill the needs of an OOCL.

2   Yellow Pages

In the framework of the ESONET project the "Yellow Pages" have been created at Lisbon University (see: www.esonetyellowpages.com). This is a database on commercial products and services that are needed for ocean bottom systems. Short profiles for most companies in this field have already been entered. These are the main categories:

Sensors

ADCPs, Conductivity, CTDs, Current meters, Depth, DO sensors, Flow meters, Fluorometers, Hydrophones, Magnetometers, Multiparameters, PAR sensors, pH sensors, Pressure sensors, Redox, Sediment traps, Temperature, Tiltmeters, Transmisiometers, Turbidity, Water samplers.

Hardware components

Acoustic releases, Cameras, Connectors, Data loggers, Floats, Housings, Lasers, Lights, Underwater batteries, Underwater cables, Underwater switches.

Deep sea services.

If your company is not yet listed in the Yellow Pages, please get in touch with support@esonetyellowpages.com. After registration you will receive a username and passwort, which allows you to login to the data base at the "MY EYP" tab. You can directly edit your existing entries; new entries will first be reviewed by the support team before being published. The Yellow Pages are a service of the ESONET project to the commercial community and therefore, entries in the Yellow Pages are free of charge at the moment.

As an added value to new customers, one of the data base fields is the "esonet reference". If possible, this will hold links to users of the product in the ESONET community, who are willing to talk about their experience with the product.

3   ESONEWS

The ESONEWS are a glossy newsletter of the ESONET project covering all aspects of ocean bottom systems. The next issue of ESONEWS is in preparation. **If you have any promotional articles that you would like to submit** to the next issue, the editors will be delighted to publish them. The newsletter is designed to provide articles from industry on operated success and from the science community on the challenges faced implementing the ocean observatory infrastructure. Please get in touch with the editors: Belarmino Barata babarata@fc.ul.pt.