International Ocean Network

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Prof. Adam Schultz
COAS
Oregon State University
104 Ocean Admin Building
Corvallis, OR 97331-5503
USA

Phone: +1-(541) 737-9832
Fax: +1-(541) 737-9833
Email: adam@coas.oregonstate.edu
Website: www.deos.org/ion

To: ION Representatives & Participants
Re: 13-December-2003 ION Meeting at University of California, Berkeley

Draft Minutes – Please comment

1. Present at Meeting-

- Chair: Adam Schultz (Oregon State U + U Cardiff/US+UK)
- France: Jean-Paul Montagner (IPG Paris)
- France: Roland Person (IFREMER)
- Germany: Colin Devey (U Bremen/ – Chair DeRidge+InterRidge)
- Japan: Junzo Kasahara (ERI-U Tokyo)
- Japan: Hitoshi Mikada (JAMSTEC)
- USA: Rhett Butler (IRIS)
- USA: Alan Chave (WHOI)
- USA: Barbara Romanowicz (UC Berkeley)
- USA: Ralph Stephen (WHOI)
- Industrial: Nazeeh Shaheen (Nautronix)
- Industrial: Jason Stanley (Shilling Robotics)

- Italy: Paolo Favoli (INGV Rome) – unable to attend due to research cruise commitment, but submitted detailed report on Italian national activities

Apologies from-
USA: Keir Becker (U Miami), Adam Dziewonski (Harvard U), John Orcutt (UC San Diego), Bob Detrick (WHOI), Chris Mooers (U Miami)
France: Pascal Tarits (U Bretagne Occidentale)

It was noted that the usual ION early morning breakfast venue at AGU was not used this year because of the heavy amount of pressing ION business, requiring a longer working meeting. The Saturday following AGU presented the fewest number of scheduling conflicts, although it did mean that some ION participants were unable to attend. Despite these inevitable scheduling difficulties it was noted there was exceptionally good international representation, and some new participants were welcomed (Devey representing Germany, DeRIDGE and InterRidge, and Person representing EU, ESONET and ASSEM as well as IFREMER). We were also pleased to see, for the first time, strong industrial representation, a pattern we hope to see continuing into the future.

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2. Reports of National/Trans-National Representatives

a. European Commission – Roland Person

ESONET is coming close to completing its observatory planning efforts. The ESONET planning documents will be announced at Oceanology International on 18-19 March 2004 in London. ESONET is being used to determine the European Commission's policy for supporting ocean observatory networks within both Framework 6 and the planned Framework 7. In the period 2004-2008 there will be a demonstration phase at 1-2 observatory sites, and €10-15M will be available over 5 years for observatory operations. It was noted that for many European institutions, EC funding can account for only 50% of total project costs, so the net amount available for supporting observatory operations will exceed the quoted figure. After 2008 ESONET will transition to the implementation phase for the full observatory system, as part of GMES. Between 9-12 sites will be occupied along European marginal EEZ areas in the Black Sea, Marmara Sea, off of Greece and Sicily, offshore Nice, the MOMAR site south of the Azores on the Mid-Atlantic Ridge, the Porcupine Bank between Ireland and the MAR, the North Sea and the Arctic. There are strong indications of full implementation of funding through ESONET. This follows existing observatory funding for EC FP6 project ASSEM, as well as the pending release of observatory sensor/infrastructure development funds under FP6 project EXOCET/D. Negotiations are also underway and nearing completion for release of funds for a Marie Curie Network – MOMARNET, to prepare EC-supported PhD students and postdocs for collaborative research at the MOMAR observatory south of the Azores.

b. France – Jean-Paul Montagner

The University of Nice is using the ANTARES Nutrino Detector seafloor observatory array to install broadband ocean bottom seismometers. Near-term future plans will also do this in the Ligurian Sea. There were technical problems with OBS installation this year. Installation will take place again next year. Confirmation of good EC prospects with regard to MOMAR. The NERO collaboration between France and Japan is on track, providing a global seismic network broadband site in the southern hemisphere in the Indian Ocean. The instrument is a JAMSTEC borehole configuration with sensor donated by Guralp. A magnetotelluric observatory package is to be deployed at NERO by Pascal Tarits. Installation of the seismic and electromagnetic observatory sensors to be completed in 2006/7 in around 1500 mbsl.

c. Germany – Colin Devey

The DFG has identified Priority Program 1144 "From Mantle to Ocean…". This is a six year program funded at €1.1M/year, plus shiptime. Two operational areas identified in the region around the Logatchev vent sites, and the Ascension FZ south of Ascension Island (S of the equator). Intention is subsequently to install an observatory at one of these sites as a follow-on project. From 1-2/2004 Mapping/ROV sampling of vent fields at Logatchev 15°N. In mid-2005 monitoring campaign to begin. Request made to ION to assist with finding a ship-of-opportunity in 2006 to retrieve lander left in previous year. Discussion of using InterRidge as instrument to do this. Second area of operations is Ascension from 2-11°S – in Nov/Dec 2004 – sidescan operations and related water column work to identify vent fields. Discussion followed of EC "MARIDGE EUROCORES" proposal being developed following ESF Exploratory Workshop in Barcelona this autumn. MARIDGE defines European operating areas for long-term observatories, going beyond the core work first being planned for the original MOMAR site south of the Azores.

d. Italy – Paolo Favoli

Please see attached report

e. United Kingdom – Adam Schultz

British DEOS planning effort in part subsumed into ESONET – for operations in MOMAR area, which was primary B-DEOS large-scale deployment area. There are remaining interests for the Southern Ocean, particularly in the vicinity of the Drake Passage eastward to the Scotia Ridge. Discussions continue with the British Antarctic Survey about progressing the B-DEOS plan in this area. With the

relocation of B-DEOS personnel to the US, there are no active plans underway to instrument the Southern Reykjanes Ridge. It is presumed that some B-DEOS activities which overlap areas of interest with NSF OOI plans will be subsumed into that activity since Arctic operations were included in NSF cabled regional observatory meeting (RECONN) in October in San Francisco. There is considerable UK interest in the area south of Ascension Island, and several collaborations with German partners are beginning. Other major observational campaigns include those within the NERC RAPID program, studying thermohaline circulation in the north Atlantic, and within the UK SOLAS and QUEST projects, which are aimed at the upper ocean and air-sea interface, and concentrated mainly on the Carbon budget.

f. Japan – Hitoshi Mikada

After the 1998 Kobe earthquake, JAMSTEC was given responsibility to operate cabled observatories. One of the outcomes of this process was the inception of the ARENA planning effort to encircle Japan with a large-scale network of fiber optic cables and observatory nodes. After three annual funding cycles this is not yet approved. It is expected that JAMSTEC will not be in position to initiate any major new projects for the next five years, in part because of the requirements surrounding completion of the IODP riser drilling platform (Chikyu Maru). In the interim the Japan Meteorological Agency is now establishing a cabled observing system east of Nankai. JAMSTEC are collaborating with France in the NERO project in the Indian Ocean. Testing of the NERO reentry system is planned for 2004. There will be a proposal for a 2005 NERO hole condition survey. At this point Colin Devey reported on IODP projects of potential relevance for seismic installations that were likely to go forward were IODP 624, PI Seger and Actin, "Indian Ocean Hotspots" near Reunion; IODP 636Pre, PI Coppers (SIO) "Louiville Ridge S. Pacific". Mikada reported that JAMSTEC are visiting the JT-1 and JT-2 cable sites, will be refurbishing strainmeters, since no data yet returned. Site WP-1 needs conventional battery replacement, and has internal capacity once refreshed for three months operation, while Site WP-2 has a seawater battery good for years. Both need to be visited to extract data. The loss of ROV Kaiko in May complicated this situation. JAMSTEC will attempt use of AUV to service these sites next year. There will be an OBS recovery near French Polynesia in Sept 2004, and a petrology cruise to the EPR. There is a cable fault on TPC-01 close by Tokyo. There are no plans to repair this, so no ongoing seismic monitoring and only passive electric field monitoring still continues on TPC-01. This cable is to be decommissioned for scientific use – the first retired telecoms cable to be so decommissioned. No connection has yet been made to TPC-2. Two Advanced CORK stations have been in place east of Shikoku since 2001. These are to be recovered; they have a 15 year battery capacity, so only data need to be downloaded. Earl Davis is working on the data, and the sensors appear to be operational. JAMSTEC observatory data policy was discussed. JAMSTEC have data priority for one year, then data can be requested from the appropriate principal investigator, e.g. Araki. There is Japanese interest in using TPC-4 for passive electromagnetic monitoring. Deadline within Japan to declare action on TPC-4 is next March. ERI has lowered its priority for cabled observatories relative to last year.

g. USA – Alan Chave

The ORION meeting will take place in San Juan, Puerto Rico 4-7 January, 2004. The intent is to produce the initial science plan for OOI, part of which includes the disposition of the $208M/5 years OOI infrastructure budget. The OOI Planning Office has been awarded by NSF to a consortium comprising JOI and CORE, and lead by Ken Brink, WHOI, who will run the planning office. The OOI/ORION Science Plan is to be released in October 2004, with an Implementation Plan to follow in 2005. The Canada Fund for Innovation and the Province of British Columbia have released C$62M/5 years for Canadian NEPTUNE activities (ed note: of which 25% is for instrumentation). There is a staging problem since the Canadian funding release predates the earliest release possibility for NSF OOI funds by two years. Discussions are underway in Canada about means to deal with this. $7M has been released for the MARS prototype cabled observatory in Monterey Bay. There are various NEPTUNE design reviews underway from now until March 2004. Chave reports that NSF+Keck have invested around $30M in NEPTUNE to date. Within the OOI 20 global buoys are planned, emphasizing higher latitudes.

g.1 USA - Rhett Butler

TPC-1 is to be decommissioned. HAW-2 is down as of October 2003. An engineering review of HAW-2 is underway, but the problem is at the observatory and not the cable (power/telecoms problems). The seafloor junction box was picked up for repairs in May 2003, there were significant operational difficulties at that time, and the junction box has not been operational since then. Prior to that, there was a 98-99% Quality of Service from Oct '99-May '03 at HAW-2. With regard to scientific re-use of TAT-X, European operators have not yet agreed to turn over cables to scientific community. NSF attempting to preserve key equipment for future use, particularly for coastal observatories. On the west coast this includes the Guam-Phillipines-Taiwan GPT cable and TPC-3, but neither yet funded. Project ALOHA is funded for use of HAW-4. On Makaha cooperating with AT&T to try to store TPC-3 transmission equipment at University of Hawaii. GPT is being used by AT&T as a cold spare for telecoms, but no attempt being made to save Guam or Japanese shore side equipment, while attempts are being made in the Philippines. Pt. Arena equipment is likely to be discarded since no science project has yet come forward. There is an implied clean-up cost at that site of $50k. There is permission for passive electric field monitoring on HAW-4 (Flosadottir). Discussions have started about scientific use of HAW-5 and PACRIMWEST. Rhett Butler is stepping down as head of IRIS Ocean Cable at the end of December 2003. IRIS will get out of cable business. NSF suggests OOI office take it over. Note – TAT-10 equipment is already gone.

3.

Lengthy discussion of IOOS; need for our community to be represented adequately in large multidisciplinary efforts. Role for ION to articulate our requirements with (non-exclusive) focus on solid Earth, but with coordination with other disciplinary communities. Butler advocating focus on GSN, Romanowicz suggesting broader view.

Action – request Bill Fornes to post ION reports on ORION web site.

Discussion of need for ION to produce implementation plan/time-line for completing instrumentation and recovering data from existing ION drill hole sites as well as submission of new IODP drilling proposals. Progress-to-date in implementing good data return could be accelerated. Lengthy discussion reaffirming that ION is not exclusively focused on IODP sites, but that the way forward points to completion of global array with a staged approach. Deployment of 20 seafloor seismometers, in boreholes where possible, and with telemetry where possible; but not to wait for or depend on OOI or other observatory initiatives to complete global array – ION's concerns intersect with OOI and other observatory programs, but are larger and will require sustained efforts both inside and outside of these other programs. Suggested approach will include deployment of autonomous packages, including non-borehole seismic and related geophysical sensors (e.g. electromagnetic) in first instance, to be replaced/upgraded ultimately by OOI-style telemetry, cables, buoys, boreholes in due course. It was agreed that any data is better than waiting long periods for the highest possible quality data, even if this returns only larger teleseisms with imperfect coupling or noise attributes.

Existing ION holes include:

H20 and NERO (Indian Ocean). There are current, active plans to instrument these sites.
Equatorial Pacific (Leg 203). Discussion of submitting proposal to US ODP Office/NSF to emplace broadband instrument plus electromagnetic sensors at this site. A. Schultz to Action.
DSDP site in mid-Atlantic. Plans need to be developed as part of implementation strategy to follow internal ION discussions.

Japan reported it has four instrumented boreholes as part of its national effort.

A lengthy discussion followed about OOI/ORION and importance of increasing information flow from ION to ORION. Concluded that additional ION presentation to be requested during ORION workshop. B. Romanowicz to Action.

4.

Discussion on relationship of ION (presently IASPEI committee) to IUGG. ION approached by IUGG about possibility of being recognized as an IUGG Union Committee. It was concluded unanimously that this opportunity should be agreed. Action- A. Schultz to contact Bob Engdahl.

5.

Standards and Interoperability. An international meeting is to be organized by ESONET concerning international standards for multidisciplinary ocean observatories. This will be held in October 2004 in Brest. It was agreed that this would be a joint ESONET-ION meeting, and that ION would spend the next ten months preparing documents and organizing working groups in preparation for this event. Foremost among such documents is a "Statement of Principles" to be agreed as the underlying basis for Standards and Interoperability agreements. This Statement will be drafted and circulated within ION by email. It will be a draft high level set of agreed principles and goals covering areas of observatory design and operations appropriate to the ION community, but including to the greatest extent possible input and representation from other observatory planning and implementation groups. The continuing value of ION as the only organization bringing together observatory planning and implementation representatives from the US, Japan and Europe was agreed, particularly in respect of international standards. ION will play a useful and important role as an umbrella under which key international groups may meet and agree principles and commonalities. This is to be emphasized at upcoming ORION meeting.

It was agreed that ION to approach NSF and OOI office to define its role in the specific context of the US collaborating with EU and Japan. EU and Japan have said they want ION to serve such a coordinating role, and IUGG has similarly requested that ION take on this role. In the light of the awarding of the NSF OOI planning office to JOI-CORE, it was deemed timely to make such contacts with NSF in the immediate future. Action – A. Schultz to contact Larry Clark at NSF.

6.

It was agreed that the next ION meeting will be held in San Juan, Puerto Rico concurrently with the ORION meeting on 4-7 January 2004. Details to follow. It was also agreed that the next subsequent ION meeting will be in Brest, France in October 2004 – co-hosting with the ESONET meeting on international standards. The traditional Fall AGU meeting in San Francisco is anticipated to follow in December 2004.