Nineteenth International research Ship Operators Meeting (ISOM)
25 – 26 October 2005,
at the National Institute of Ocean Technology (NIOT), Chennai, India

Attendees

Country	Representative	Organisation	e-mail address
Australia	Mr. Geoff Dannock	AAD, Hobart	Geoff.Dannock@aad.gov.au
Canada	Ms. Lori Henley	CCG/DFO, Ottawa	HenleyL@DFO-MPO.GC.CA
Chile	Mr. Enrique Aranda	IFOP, Valparaiso	earanda@ifop.cl
	Mr. Guillermo Moreno	IFOP, Valparaiso	gmoreno@ifop.cl
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	Dr. Tiegang Li	IOCAS, Qingdao	tgli@ms.qdio.ac.cn
Denmark	Mr. Steen Silberg	DIFRES, Lyngby	sts@dfu.min.dk
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	Mr .Jacques Paul	GENAVIR, Brest	Nelly.Lebelanger@ifremer.fr
Germany	Mr. Klaus Kueper	Briese, Leer	research@briese.de
	Dr. Dieter Strohm	Leibniz InstfM, Kiel	strohm.d@web.de
Iceland	Mr .Vignir Thoroddson	MRI, Reykjavik	vignir@hafro.is
India	Dr. P.S. Goel	GOI, Delhi	Dodsec@dod.delhi.nic.in
	Mr. G. Janakiraman	NIOT, Chennai	janaki@niot.res.in
	Dr. P. Misra	GOI, Chennai	Mmdchennai@vsnl.net
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	Dr. P.S Rao	NIO, Dona Paula	psrao@nio.org
	Dr. M. Sudhakar	NCAOR, Donna Paula	msudhakar@ncaor.org
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Japan	Dr. Hiroyasu Momma	JAMSTEC, Yokosuka	mommah@jamstec.go.jp
	Mr. Tetsuo Uchida	JAMSTEC, Yokosuka	uchidat@jamstec.go.jp
	Cpt. Masataka Zaitsu	JAMSTEC, Yokosuka	zaitsu@jamstec.go.jp
Netherlands	Ms. Marieke J. Rietveld	NIOZ, Texel – Chair	rietveld@nioz.nl
New Zealand	Mr. Fred Smits	NIWA, Wellington	f.smits@niwa.co.nz
Norway	Mr. Per Nieuwejaar	IMR, Bergen, Vice chair	pern@imr.no
	Mr. Kaare Hansen	IMR, Bergen	kaare.hansen@imr.no
Spain	Prof. Dr. Juanjo Dañobeitia	CSIC/UTM, Barcelona	jjdanobeitia@cmima.csic.es
UK	Mr. David Blake	BAS, Cambridge	DMBL@bas.ac.uk
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USA	Ms. Dolly Dieter	NSF, Arlington	edieter@nsf.gov
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Apologies for absence

Australia	Cpt. Richard Burgess	P&O	DBurgess@popolar.com.au
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1. Welcome

All 35 participants, and 10 spouses and children, from 18 different nations were warmly welcomed to the National Institute for Ocean Technology (NIOT) in Chennai by **Dr. S. Kathiroli**, Director of NIOT, followed by an address by **Ms. Marieke Rietveld**, Chair of ISOM and an address by **Dr P.S.Goel,** Secretary to the Government of India, Department of Ocean Development and Chairman of the Governing Council of NIOT. The participants also witnessed the ceremonial lightening of a traditional lamp and the presentation of mementoes.

2. Absent delegates

On the day before the meeting, **Ms. Dolly Dieter** from UNOLS/NSF, USA had a bad fall down the stairs in the hotel lobby and had to be hospitalised. The Danish ISOM member for many years, **Mr, Frode Larsen** has had a heart attack and was unable to attend this time. All members of the ISOM wish them both well and a speedy recovery.
Both **Mr. Ian Calvert**, South Africa and **Mr. Dick Burgess**, Australia had to cancel their participation at the last minute.

3. Presentation of NIOT and Indian research vessels

Mr. G. Janakiraman, Head of the Vessel Management Cell at NIOT, and the meeting organiser, gave a presentation of the NIOT, the current Indian research vessel (RV) fleet and their multibeam seafloor survey capabilities.

3.1 About NIOT

The institute was founded in 1983 under the Department of Ocean Development (DOD), with the objective to develop, promote and demonstrate technologies for specific applications in ocean related areas. The technology areas the NIOT works within are:

Wave energy and desalination of sea water
NIOT has demonstrated technical feasibility of a wave energy device with 55kW peak power output near Trivandrum in India. They are also currently operating a 0.1 MLD plant salt water desalination plant based on a LTTD process at Lakshadweep Island. Currently a barge mounted 1 MLD plant is being designed based on a LTTD process.

Underwater technologies, including mining
NIOT has demonstrated a remotely operated crawler based mining system at 410 m water depth. This system can be extended up to 6000 m with a nodule collector and a flexible riser. A workhorse ROV has also been developed and shall undergo sea trials shortly. In addition a deep coring system to recover gas hydrates is under development.

Coastal and environmental engineering
NIOT is currently working on the following research and design projects within coastal engineering:
- Port & Harbours - Planning & design
- Coastal Power Plants - Water intake and outfall designs
- Coastal Installations - Marine outfall designs
- Submarine Pipeline - Oceanographic / Geophysical survey and environmental engineering:

- Modeling and design of waste water disposal from thermal power plants, municipal sources
- Waste load allocation and waste assimilative capacity studies
- Environmental Impact Studies

Ocean instrumentation
- Development of instrumentation for measuring various oceanographic parameters
- Development of different acoustic transducers for various applications

Special technologies for islands
- Fattening of lobsters using live feed
- Biochemical analysis of lobster and live feed
- Water quality & disease management
- Survey of lobster resources
- Capacity building in Ocean Science & Technology

Multibeam seafloor survey capabilities
NIOT procured its first multibeam survey (MBS) equipment in 1991 and have since then procured a number of systems for both deep and shallow water surveys. The current inventory of MBS consists of:
RESON 8101 – 240 kHz
RESON 7125 – 400 kHz
RESON 8125 - 455 kHz
RESON 8160 - 36 kHz
SIMRAD EM 1002 – 95 kHz

Ocean monitoring

The NIOT also have operational programmes within ocean monitoring with moored data buoys deployed in the Indian seas to collect real time meteorological and oceanographic data, so as to facilitate improved weather forecasting, cyclone warning, monitoring marine environment, ships navigational use, port/harbor and offshore development, etc.

Research vessel management

The NIOT Vessel Management Cell (VMC) is managing three vessels out of which two are coastal research vessels of 30 m length, namely **"Sagar Purvi"** and **"Sagar Paschimi"**, while **"Sagar Shakthi"** is a 72 m floating barge. The vessels Sagar Purvi and Sagar Paschimi are mainly intended for coastal oceanographic work.
See http://www.niot.res.in/vmc/index.html for more details.

For more information about the NIOT and its facilities see www.niot.res.in

3.2 Indian research vessels operated by other agencies

The Department of Ocean Development (DOD) owns the 71,5m oceanographic and fisheries research vessel **"Sagar Sampada"** which is used by the different research institutions and operated by the shipping company Shipping Corporation of India Ltd.

The National Institute of Oceanography (NIO) in Goa owns the 23,5 m coastal research vessel **"Sagar Sukthi".**
For more details see www.nio.org

The National Centre for Antarctic & Ocean Research operates the 100 m **"Sagar Kanya"** which is equipped for geoscientific, meteorological, biological, physical and chemical oceanographic research. For more details, see http://ncaor.nic.in/orvsk.htm

The 85 m Indian Navy ship **"Sagardhwani"** is a Marine Acoustic Research Ship (MARS). The vessel has been configured as a research vessel for the Naval Physical and Oceanographic Laboratory, Kochi. The vessel is also based there. For more details, see www.bharat-rakshak.com/NAVY/Sagardhwani.html

In addition the Indian marine research community has 12 fisheries survey vessels at its disposition.

3.3 Ongoing and planned newbuilds in India

3.3.1 "Sagar Manjusha"

The "**Sagar Manjusha"**, a buoy tender and research vessel was launched on 2 November 2005 at the Hindustan Shipyard Limited (HSL), in Visakhapatnam, for the National Institute of Ocean Technology (NIOT).**Mrs. Shoba Goel**, wife of **Dr. P. S. Goel**, Secretary of Department of Ocean Development, launched the 60 m long, 11 metre wide and five metre deep vessel. It has a speed of 11.5 knots. The vessel is suitable for carrying at least 11 scientists, eight officers and ten crew members. The ship is expected to be operational in 2006.

3.3.2 "Sagar Nidhi"

The "**Sagar Nidhi"** is a 104 m technology demonstrator vessel to be delivered in 2007. The main objective is to build a new multipurpose research vessel for technology services and demonstration.

This will also cater to the ongoing and new mission mode programmes envisaged in the 10th plan period and for undertaking shallow water survey, deep sea mining activities, ROV, AUV handling, data buoy maintenance, gas hydrates extraction technology development and serve as a support platform for the various coastal and deep ocean activities planned by the DOD. For more details, see http://www.niot.res.in/vmc/new%20vessels.htm
Status for the project is that model tests are completed, and the design and technical specifications are drawn. The DOD is currently negotiating a building contract with a yard.

3.3.3 "Gaveshsani II"

An oceanographic vessel to be named **"Gaveshani II"** is planned to be built for delivery in 2008.
The outline specifications are:

Length Overall	80 m
Breadth Moulded	18 m
Draft	4 m
Officers and crew	30 - 32
Scientists	21
Speed	12 Kn

4.3.4 Other projects

There are also preliminary plans for a seismic vessel to be delivered in 2008, an "Antarctic logistics and polar research vessel" to be delivered in 2010 and a swath vessel with geotechnical capability to replace a coastal vessel in 2011.

4. Vote of thanks

After the presentations of the Indian marine research vessel infrastructure, **Mr. G. Janakiraman,** thanked the meeting sponsors and organisers, and especially everyone in the NIOT staff who had worked so hard to make this meeting a successful one.

5. Review of Minutes of eighteenth Meeting

The minutes were accepted as a true record of the eighteenth meeting held in Rhodes, Greece, 6 - 7 October 2004. The final version of the minutes is available on the ISOM web site (http://www.nioz.nl/isom/).

6. Delegates Reports of Activities

Mr. Geoff Dannock (Australia – AAD) reported on the Australian Antarctic Division (AAD) fleet activities. There has been no change in the fleet, they still use the P&O vessel **"Aurora Australis"** for their Antarctic expeditions. They have no plans to build a new vessel, but they are looking for a ship for 8 - 10 years after 2006/7. They have not done any ship barters since last meeting and no staff exchanges, but are willing to try. They have not lost any equipment the last year. The major activity now is an upcoming CCAMLR cruise.

Ms. Lori Henley (Canada - DFO/CCG) reported on the Canadian Coast Guard activities related to operation of Science Research vessels. She noted that Canada is a maritime nation with the longest coastline in the world, the longest inland waterway, largest archipelago, and shares the world's largest freshwater system. The Coast Guard fleet numbers 108 civilian vessels, of which 20 are primary Science Research ships. The CCG belongs to the department of Fisheries and Oceans (DFO), which is responsible for policies and programs supporting Canada's scientific interests in oceans and inland waters, the conservation and sustainability of Canada's fisheries resources in marine and inland waters, and oceans and habitats. DFO Science Programs are supported by 10 large (offshore) research vessels, 9 small (inshore) research vessels, one icebreaker providing dedicated research during the Arctic season, in addition to Coast Guard icebreakers used as science platforms in the north and other vessels undertaking specific scientific research programs on an opportunity basis. Ms.Lori Henley presented an overview of the characteristics of the 20 research vessels and provided information on their specifications, annual programs and recent ship operating days. She gave some background on marine research and facilities in the Canadian government and explained how Science programs are allocated ship time in fleet program planning, as well as the costing arrangements. Users pay for all operational costs including fuel and salaries of crew, and maintenance costs are shared with CCG.

Mr. Enrique Aranda (Chile – IFOP) reported on the fleet of RVs in Chile, consisting of three research vessels. The research vessel **"Abate Molina"** which is operated by the Instituto de Fomento Pesquero, with home base in Valparaiso, will during the present year execute ten (10) cruises and these represent a total of 221 days at sea. These cruises executed are stock assessment by hydro-acoustic evaluation of recruiting of anchovy, common sardine, hake, common hake and jack mackerel. During 2005 two cruises in cooperation with the Concepcion University (mooring work) has also been conducted.
The research vessel **"Carlos Porter",** which is 35 years old has only been to sea for 33 days, and it will be laid up next year.
The military research vessel **"Agor Vidal Gormaz"** will be laid up and the Navy is searching for its replacement. This oceanographic vessel (former US AGOR 10-Thomas Washington, belonging to Scripps Institution of Oceanography, University of California) was built in 1965.
Mr. Enrique Aranda is optimistic, and hopes to present a replacement vessel at next years' ISOM!

Dr. Sun Song (China – IOCAS) reported on the activities of the Institute of Oceanology, Chinese Academy of Sciences, located in Qingdao, China. The institute was established in 1950, and its first vessel, **"Venus"** was built in 1957, and the institute today operates three research vessels, the 104 m **"Kexue Yi Hao"** (1980), operating in the China Sea and Yellow Sea, the 68 m **"Jinxing Er Hao"** (1974) to be replaced by the 74 m **"Kexue San Hao"** next year. They also have plans for a new 99 m vessel to be used as a ROV platform, instruments and technology demonstration platform and for hydrographic surveys, and a 20 m vessel for shallow water operations.

Mr. Steen Silberg (Denmark – DIFRES) reported on the replacement programme for the aging **"Dana"** and two smaller vessels. The Danes are in discussions with the Swedish authorities to see if there could be established a joint procurement programme since the Swedish **"Argos"** also is due to be replaced in a few years. He also reported on a marine service center for instrument maintenance which is recently established and he presented the around-the-globe cruise named **"Galathea 3"** which will take approximately 8 months, starting next summer, using a navy vessel.

Dr. Eila Lahdes (Finland – FIMR) presented the new institute building (and new director) since last years' ISOM, and thereafter she presented the **"Aranda"**, Finland's "research flag ship", and the ongoing ship technical and scientific instrumentation upgrades. In 2005 "Aranda" operated in the Baltic Sea both for monitoring and scientific purposes. No charters in 2005. The vessel completed only 120 survey days funded by FIMR, and will be available for chartering. For more information and technical specification see http://www.fimr.fi/en/aranda.html. She also presented the three small RVs **"Muikku", "Geomari"** and **"Geola".**

Mr. Klaus Kueper (Germany – Briese) represents the commercial shipping company who operates a part of the German research vessel fleet. The Briese company is based in Leer, close to the Dutch border, and they operate approx. 70 vessels. Since 2004 they have managed the **"Alkor", "Heincke", "Poseidon"** (to be replaced in 2 years)**, "Prof. Albrecht Penck"** (built 1951!) and the new vessel **"Maria S. Merian"** which is in sea trials. The vessel has some problems with the propulsion system (pods), and the yard is expected to have the problem fixed by late December 2005. The "Merian" is expected to be operational early 2006. The company is still learning the research vessel business, but at the same time they are bringing fresh ideas into the trade! The company has also leased the Irish **"Celtic Explorer"** and the Icelandic **"Arni Fridriksson"** in recent months. For more information about the company and its involvement in RV operations, see www.briese.de.

Mr. Dieter Strohm (Germany – Leibniz InstfM) reported on the Leibniz-Institut für Meereswissenschaften an der Universität Kiel that was founded in January 2004 through the fusion of the research institutes IfM and GEOMAR. The institute has to its disposition the two medium size RVs **"Poseidon"** (60m) and **"Alkor"** (55m), and the two small RVs **"Littornia"** (30m) and **"Polarfuchs"** (13m). He also handed out the cruise programme for 2006 for these vessels.

Mr. Vignir Thoroddson (Iceland – Marine Research Institute) The MRI in Iceland operates two research vessels: The 70 m long **"Arni Fridriksson"** built in Chile 2004 and the 56 m long **"Bjarni Saemundsson"** built in Germany 1970 and partly rebuilt in Iceland 2003. Until July 2005 the MRI also operated the 26 m long **"Drofn"**. The "Arni Fridriksson" and "Bjarni Sæmundsson" are operated around 200 days a year. This is mainly financed by the MRI government budget and by chartering the vessels to local research institutes in Iceland. The government budget allows 160-180 days a year. MRI have also been able to charter out the vessels to foreign research institutes and universities, including a 7000 nm cruise along the west coast of Greenland, their longest cruise ever.
This year they chartered the "Arni Fridriksson" to the Institute fur Geophysics at University of Hamburg for 14 days and "Drofn" for 12 days to the same institute. The vessels have also taken part in several multinational projects like BIOICE (Benthic invertebrates of Icelandic waters), MARECO (Patterns and processes of the Ecosystems of the Northern Mid-Atlantic) and about 10 different EU projects. The operating area is mainly Icelandic offshore waters and coastal waters, but the area has stretched from Spitzbergen in the north, south to Rockall, to the Faeroe Islands in the east, and west to the east coast of Greenland. More details about the institute and the vessels can be found at www.hafro.is.

Dr. P. S. Rao (India –NIO) presented the preliminary General Arrangement (GA) drawing of a new 80 m RV for the National Institute of Oceanography in Goa, India. The vessel is planned to cover a wide variety of functions, using many different types of instruments and eight different labs. The GA was discussed in the group and in particular the location of the transducers for the hydro-acoustic equipment, and a combined A-frame concept for deep sea coring and CTD operations was discussed at some length.

Mr. John Breslin (Ireland - Marine Institute) reported on the two multipurpose research vessels owned by the Marine Institute (MI), the RV **"Celtic Voyager"** and the RV "**Celtic Explorer"**. Specs of the ships can be found on the Marine Institute website: http://www.marine.ie.
The MI operates the vessels, but they use a private company to provide crew, in addition to technical and logistic support. This contract has been tendered and the contract was awarded to P&O Maritime Services (UK) in April 2005. The Marine Institute will shortly initiate the transition phase, whereby operation of the vessels transfers to P&O Maritime Services (UK) from MTDS Ltd.
Mr. John Breslin described the sources of funding for their operations, and they are: EU through the Data Directive (IBTS, Blue Whiting, Acoustic), INTEREG (Nutrients survey & Habitat Map Survey), National Funding (Seabed Survey) and Commercial & External R&D Charter (University of Hamburg, Orange Roughy, University of Bremen). He also mentioned that both research vessels are available for research programmes and commercial chartering, and that survey programmes vary from a few days to 100+ days. He also reported on a new Vessel Tracking System which can be viewed by logging on to the MI website at www.marine.ie. The website displays the current locations of the research vessels, the routes of their current surveys and the routes they have travelled during the year.
The MI is currently tendering in the EU for provision of an Integrated High Resolution 2D Seismic Data Acquisition System and invited anybody else interested in such equipment to join a partnership for owning and operating such equipment. He also described the Memorandum of Understanding (MoU) that was signed by the MI and the Institute of Marine Research (IMR) in Norway earlier this year, which covers such areas of co-operation as Major Equipment (ROV 2005), Staff Exchanges (2006), Fisheries Acoustics (2005), Seabed Surveys (2006), Collaboration on Shiptime and Best Practice RV Operations. He could also present to the ISOM that they successfully recovered a lost CTD using an ROV two days after the loss!

Mr. Tetsuo Uchida (Japan - Jamstec) reported on the JAMSTEC fleet activities in 2005. Mr Uchida joined Jamstec as "Ship Operation Group Leader" last April. Jamstec owns a fleet of eight vessels: **"Natsushima", "Kaiyo", "Yokosuka", "Kairei", "Mirai", "Hakuho-Maru", "Tansei-Maru"** and **"Chikyu".** Seven of the vessels currently sails for approx. 280 days per fiscal year (April – March). In addition they own the manned submersible **"Shinkai 6500",** two ROVs called **"Hyper Dolphin"** and **"Kaiko 7000"** and the AUV **"Urashima".** Jamstec have a very high user frequency for their ROVs in 2005, and they have also set a world record for AUVs, sailing the Urashima a distance of 314 km using a fuel cell to power the propulsion system! Another impressive result is the dive of Kaiko 7000 down to 7031m depth! Jamstec also reported on a number of equipment losses and the probable causes for the losses. Mr. Tetsuo Uchida also reported on the large increase in fuel costs and asked if anybody had any innovative ideas for how to reduce the extra costs for fuel.

Cpt Masataka Zaitsu (Japan – Jamstec) reported on the new 210 m drilling vessel **"Chikyu"** which is currently undergoing operational testing after delivery on 29th July 2005. He gave the meeting a "virtual guided tour" of the vessel, showing photos from many different parts of this very impressive ship.

Ms. Marieke Rietveld (Netherlands - NIOZ) reported on the Royal NIOZ R/V **"Pelagia"** (66m, multipurpose, built 1991). In 2005 "Pelagia" has worked mainly in the North Sea and the North Atlantic Ocean.
The working season started late (March) and the ship sailed for 230 operational days, including one barter cruise for NERC of 26 days, and 2 interventions for German moorings of 5 days in total. No commercial charters.
Projects were funded by the Netherlands Research Council, NWO (also funding 65 days shiptime, including the EUROCORES programme EUROMARGINS (MOUNDFORCE), the European Union (HERMES) without shiptime funds, and NIOZ (165 days of which 115 matching EU/CLIVAR projects).
Joint cruises/bartering: Other ships used were the UK RSS **"Discovery"** for a barter cruise of 20 days in the Indian Ocean and the Italian N/O Universitatis in the Mediterranean Sea. Joint cruises on the French R/V **"Marion Dufresne"** in the Southern Ocean, and the R/V **"Polarstern"** in the Antarctic.
Major equipment/fleet changes: The moveable lander (MOVE!), a co-operative project under NEBROC (Netherlands Bremen Oceanography) has been tested successfully in depths up to 1500m. Deep water tests are planned for 2006. The new build R/V **"Nereis"** (20m) which delivery by the UK wharf was seriously delayed due to requirements of the Dutch Shipping Inspection, had its first sea trials beginning September. The ship did not meet the NIOZ requirements. Experts are reporting at the moment and procedures in court are ongoing.
"Nereis" is supposed to be a fast aluminium twin hull vessel with water jet propulsion (22 kn) for the shallow Wadden Sea (draught: 0.8m) and nearby coastal work. A shared ship with the Netherlands Organisation for Applied Technology (TNO).
Staff exchanges: No staff exchanges this year.
Equipment lost: "Pelagia" lost a piston coring set.

Mr. Fred Smits (New Zealand - NIWA) reported on NIWA's vessels, the 70m **"Tangaroa"**, the 28m **"Kaharoa"**, and the 10.5m survey launch **"Pelorus"**. During the fiscal year 2004-05 the "Tangaroa" was at sea for 301 days, the "Kaharoa" 204 days, and "Pelorus" was in operation for a total of 128 days.This small survey launch has seen a major increase in utilisation since a SIMRAD EM3000D multibeam echosounder system for coastal hydrographic and habitat mapping was purchased. The "Tangaroa" have done both geological, oceanographic, biodiversity, stock assessment, deep sea trawling cruises, in addition to a volcanic plume study cruise. A Stanford University buoy was successfully recovered by the vessel and various seabed surveys for the national oil and gas industry completed the 301 sea days.

The **"Kaharoa"** was involved in 48 days marine science and 24 days fisheries research. The vessel have had two voyages across the Pacific to Tahiti and Hawaii as part of the ARGO-float initiative, and is currently on a trans-Pacific voyage to Valparaiso, Chile, onto San Diego, California and she will be back in Wellington in May 2006. The vessel has been active in habitat mapping lately, using the SIMRAD EM3000D multibeam system.

Mr. Fred Smits reported about technical problems with the automation electronics on their ageing Brattvaag winches, and that they have lost some trawl sensors as well as a fisheries acoustics towed body.
NIWA has initiated a 3-year electronic replacement programme for the 15-year old "Tangaroa", investing approx. USD 300K per annum. A major refurbishment of the accommodation, deck equipment etc is also planned. A new seismic compressor has recently been procured and Mr. Fred Smits acknowledged that ISOM members have been most helpful in identifying compressor options for NIWA.
NIWA have reduced cruising speed for the vessels in order to reduce the consumption of the extremely high fuel costs. NIWA has also initiated a programme to upgrade the qualifications for junior officers in order to have capable candidates to replace the masters and senior officers due to retire in the coming years.

Mr. Per Nieuwejaar (Norway - IMR) reported on the fleet of the Institute of Marine Research (IMR) in Bergen, Norway. The IMR owns three vessels, operates three for other owners and rents another two vessels. They are the 77,5m **"G.O.Sars"**, the 64,4m **"Johan Hjort"**, the 28m **"G.M.Dannevig"**, the 57m **"Dr Fridtjof Nansen"** (Owner: NORAD), the 47m **"Håkon Mosby"**, (Owner: University of Bergen), The 24m **"Hans Brattström"**, (Owner: University of Bergen) and the rented vessels **"Fangst"**, 15 m, rented approx. 200 days a year and the 64m **"Jan Mayen"**, rented approx. 75 days a year. For more information about the vessels, please visit www.imr.no
Since ISOM 2004, all ships have operated in accordance with their cruise plans. For the 2005 cruise program details, see:
http://www.imr.no/__data/page/4236/Toktprogram_2005_English.xls
At the end of 2004, IMR took the initiative to establish a joint cruise planning committee for all Norwegian RVs, built on the experience from a joint cruise planning committee with the University of Bergen. A national cruise committee for the 2006 cruise program is now established, in addition a national instruments pool is also about to be established. A national renewal plan for research vessels is also under development.
An MoU between IMR and Marine Institute in Galway, Ireland, covering exchange of crew, exchange of ship time and other areas of co-operation was signed earlier this year, and a barter agreement with NERC in the UK was also signed in the spring of 2005.

Prof. Juanjo Dañobeitia (Spain - CSIC) reported on the Spanish research vessel fleet consisting of five vessels, three owned by the CSIC, which is, the 70 m **"Sarmiento de Gamboa"** which will be delivered in 2006, the 37 m **"Garcia del Cid",** and the 24 m **"Mytilus"** and operates the other two belonging to the Spanish Navy; The 82,5 m Antarctic vessel **"Hesperides",** and the 40 m Antarctic Stations vessel supplier **"Las Palmas"**. Another vessel owner is the IEO who owns a part of the 75 m French/Spanish vessel **"Thalassa"**, the 67m **"Cornide de Saavedra",** the 30,5 m **"F. P. Navarro"** and the 24 m **"Odon de Buen**". The third vessel owner is the MAPA who owns the 53 m **"Vizconde de Eza",** the 30m **"Emma Bardan"** which was recently launched, and a 70 m vessel which is under construction.
The RV "Sarmiento de Gamboa", will be launched in late January 2006 and is a multidisciplinary ship with a diesel propulsion twin engines (DC electric), and low vessel-noise radiated into the sea fully in compliance with ICES report No 209, which could support different scenarios (oceanography, fishery, seismic, geology, Rov's, etc).
It has transverse tunnel/azimuthally "combi" bow thruster of 590 kW and a 350 kW stern tunnel thruster for Dynamic Positioning (DP) specification SP1, as well as a unique high-performance Becker-type rudder, and is designed to support deep sea unmanned vehicles, and for that there is already a significant co-operation with IFREMER in order to set-up technical specifications to manoeuvre the Victor-6000.
Prof. Juanjo Dañobeitia also informed the ISOM that they now have a new web page which can be found as **http://www.utm.csic.es**

Mr. Geraint West (UK – UKORS) informed the ISOM the renaming of the Southampton Oceanographic Centre to the National Oceanographic Centre Southampton (NOCS) to reflect the national character of the centre. He also reported on the large number of barter cruises with ships and equipment that took place in 2005, and mentioned the loss of an Autosub AUV, 17 km under the Antarctic ice shelf.
The new vessel **"James Cook"**, which will replace the RSS **"Charles Darwin"**, was scheduled to be launched in Gdansk, Poland on 6 November and then be towed to Flekkefjord, Norway for outfitting. Delivery is planned for August 2006. The vessel will have a novel container load system and it will meet the ICES 209 recommendations for radiated noise, except for the very lowest frequency range.

Mr. David Blake (UK – BAS) reported on the activities of the British Antarctic Survey (BAS) that operates the RSS **"James Clark Ross"** approx. 330 days a year, leaving only 4 weeks for maintenance and refits. From October
2004 to April 2005 the JCR was on Antarctic cruises, giving logistics support for all BAS stations in addition to 15 science cruises covering all oceanographic disciplines. On its way back to the UK in May 2005 the vessel visited Montserrat to investigate recent volcanic activity, and it also picked up a Norwegian lander left on the mid-Atlantic ridge during the Mar-Eco cruise in 2004. In August – September the vessel underwent a major refit and got installed an acoustic reference system for ROV deployments, a new ADCP and a multibeam transmit array. As mentioned by Mr. Geraint West, an **"Autosub"** AUV was lost under ice on 24 February 2004 at 75 south, 50 west.
He also spoke about the RSS **"Ernest Shackleton"**, which BAS leases on a 15-year charter with Rieber Shipping in Bergen, Norway. BAS charters the vessel back to Rieber for 120 days a year for them to use in the offshore market in the North Sea. From November 2004 to April 2005 the vessel performed logistics and science work in Antarctica, and from June to September20 05 it did oilfield support work in the North Sea. A new echo sounder has been installed on the ship.
Mr.David Blake reported that BAS needs an ice breaker rebuild of Halley station in the Antarctic season in 06/07 and 07/08.

Mr. John Freitag (USA - ONR) informed the meeting that the US academic fleet had experienced a decline in sea days due to lack of funding and high fuel prices. From a peak of 5,400 days at sea in 2004 the trend has been downward with 4,700 in 2005, and 3,800 projected for 2006. The following changes has been made to the fleet:
•R/V **"Gyre"** (Texas A&M University) retired
•R/V **"Alpha Helix"** (University of Alaska) 2006 Lay up
• RV **"Maurice Ewing"** (LDEO) went out of service at the end of February.
The Western Geo vessel M/V **"Western Legend"** was purchased to replace Ewing.
•Bermuda Biological has purchased **"Seward Johnson II"** to replace **"Weatherbird II"**
•R/V **"Cape Henlopen"** has left service to be replaced by a new vessel named **"Hugh R Sharp".**
This vessel will be the first one with heave compensated winches.
Equipment lost: Two Triaxus towed vehicles and one CTD.

Dr. Mike Reeve (USA – NSF) reported on the University National Oceanographic Laboratory System (UNOLS) fleet funded by NSF. He presented the Seismic vessel **"Western Legend"** that was purchased in August 2004 ($6.2M), and renamed the R/V **"Marcus Langseth".** This vessel will replace the R/V **"Maurice Ewing"** which was sold in September 2005 ($5.5M). A Conversion Oversight Committee has been established, in addition to a UNOLS Science Oversight Committee. A Request For Proposal (RFP) for major conversion activities was released in October 2005 and seismic science equipment is currently being purchased. The vessel is anticipated to be in service in Fall 2006, collecting 3-D seismics using four 4-6 km streamers.

The Phase I of the Human Operated Vehicle (**HOV**) replacement project to replace the 30 year old HOV **"Alvin"** is now underway, an Oversight Committee is established and active in the design process. A contract was finalized in October 2005 between WHOI and Southwest Research Institute (SwRI) for the design of the personnel sphere, and NAVSEA is involved with design technical aspects.
A new UNOLS Subcommittee is being formed to develop safety guidelines for certification and operation of submergence vehicles. The HOV will have an operating depth of 6500 m and have more space, more instruments, and better look out capabilities than the Alvin.

The Multi-agency Developmental Program for an Hybrid Remotely Operated Vehicle (**HROV**) is also under way. Sea trials are anticipated in early 2007, and more details about the project can be found in **Nature, Vol 437, Sept 29, 2005.** An interesting feature is that the vehicle is controlled from the surface using a 12 miles long, 1 mm diameter fibre optic cable!

Alaska Region Research Vessel (**ARRV**) is a project to replace the 40 year old R/V **"Alpha Helix"**. The ARRV is planned to be a 240 feet, ice-strengthened ARRV which would operate in the challenging seasonal ice covered Alaskan waters, expanding current capabilities for oceanographic research in the region. The vessel design package is complete and approved by the National Science Board as an MREFC project in August 2003, and in June 2005, it was identified by NSB as first priority item. It is currently planned for inclusion in the FY2007 budget and the RFP will solicit build/operate proposals.

The **Regional Class Research Vessels program** is a three 145 feet length vessels program, and the NSF has signed an MOA with NAVSEA to act as contract authority. They will follow an IPT Process for ship acquisition, and in Pre-Phase I, at least two industry teams will be identified to compete on developing vessel designs based on UNOLS SMRs. Then in Phase I, a down selection from industry team designs will take place and in Phase II, Detailed Design & Construction will be done. Building of ships is planned to take place in the following time frame: Ship 1 – 2007-2008, Ship 2 – 2009-2010 and Ship 3 – 2010-2011.

Dr. Mike Reeve also reported that replacement of the Ocean class vessels are in competition with other Navy vessels, and that it is therefore more difficult to secure funding for that, and that the future for the largest US research vessels is uncertain.

Dr. Mike Reeve was asked why there has not been built more SWATH vessels, and he explained that over the side operations in heavy weather had proven to be difficult because the water and the vessel do not move in tandem since the Swath is such a stable platform. Even the use of motion compensated winches has proven to be of limited success on a SWATH. So for the foreseeable future, monohulls seem to be the best option.

7. European RV Operators (ERVO) 2005 meeting

Mr. Per Nieuwejaar (ERVO chair 2005-2006) reported on the European Research Vessel Operator (ERVO) 2005 meeting held in Lisbon, Portugal on 7-8 April 2005. In total 14 countries were represented at the meeting.

The ERVO meetings are informal annual meetings of managers of European research-ships, for the purpose of developing and maintain personal networks, in addition to discussing subjects and solving problems of mutual interest. It is attended voluntarily, and is hosted by and in participating countries. The initiative to establish ERVO came from the European Science Foundation (ESF), Marine Board. ERVO has grown continuously since its first meeting in December 1999. Having started with 19

representatives from 7 countries, the "ERVO-network" today consists of almost 48 members from 18 countries and 2 international organisations. Topics at the ERVO 2005 meeting were: National Updates, New Vessels, Ocean Fleet Working Group (OFWG) Report, BONUS, status report, ISOM 2004 Report, INMARTECH 2004/2006, ISM and ISPS implementation, EurOcean Web Portal, Marine ERANet, Identification of funding opportunities for large scale acquisitions, OFEG report, Sea mammal disturbance and ERVO way ahead. Minutes of meetings can be found on ESF, Marine Board web pages: http://www.esf.org
Click on "Marine Board - ESF Meetings" and choose "ERVO meeting". The ERVO 2006 will be held in Reykjavik, Iceland on 19-21 June 2006 and Marine Research Institute will be the host. POC for the meeting is Vignir Thoroddson and more information about the Icelandic Marine Research Institute can be found on their web site http://www.hafro.is

8. Future plans on research fleets and Marine Infrastructure

8.1. The Federal Oceanographic Fleet Renewal Plan Status and Schedule

Cdr. Beth White (–USA - NOAA -) gave an update of the Federal Oceanographic Fleet Renewal Plan. The Federal oceanographic research and survey fleet provides the infrastructure needed to support the nation's science and operational requirements funded through specific federal agency missions. Regardless of the budget environment, ships age and need to be replaced. To finalise the plan a working group developed an initial draft by 31 March and the Interagency Oceanographic Council (NORLC) was briefed on the status of the Plan development at their "last" meeting in July, and a final draft for FOFC approval will be briefed in September. Based on agency budget projections, the overall fleet size will decrease from 48 ships to 47 by 2015; 18 ships will be retired and 17 new advanced ships are planned during this period. Assuming a typical ship has a functional service life of 30 years, by 2025 an additional 14 ships will be retired while only 2 new, advanced ships are planned, decreasing the fleet size to 35 ships. If funding for these replacements, and others not yet being planned, is not appropriated, the fleet will decrease from 48 to 21 ships by 2025, seriously compromising the ability to support agency missions. The planned way ahead is to incorporate FOFC feedback, prepare for Agency approval by mid December 2005 and release the report in Spring 2006. Thereafter the plan will be updated annually.

8.2 Future plans, Canada

Ms. Lori Henley (Canada - CCG -) presented the Canadian plans for new research vessels. Canada will build two new Offshore Fisheries Science vessels within the next five years. These vessels will conduct both fishery and oceanographic research in the Northern Atlantic and Pacific Oceans. Features of the new vessels include an ice strengthened hull (ice class type A), propulsion ice class type B, meeting ICES 209 acoustic noise recommendations, maximum length 70 m, maximum draft 6.5 m, range 10,000 nautical miles, endurance 40 days and multi-tasking capability. The building program presently has preliminary funding and the technical statement of requirements and design work should be completed in the summer of 2006. Approval for full funding is expected later in 2006 followed by a request for proposals and contract approval (to be built in Canada). The first vessel would replace **"Needler"** or **"Templeman"** in 2010, and the second would replace the **"Ricker"** in 2011. Preliminary plans are to build a third vessel to replace **"Teleost"** in the future. The cost of the first two vessels is approximately $200M (Cdn).

Another program to replace three inshore research vessels is also underway. The first will be built by 2007 to replace **"Shark"** on the Great Lakes, with a length of 18 m. The second will be completed by 2008 to replace **"J.L. Hart"** on Atlantic Coast with a length of 21m, and the third is to be built by 2009 to replace **"Shamook"** in Newfoundland, with a length of 27 to 33 m. The cost for all three is approximately $40M.

Mr. Fred Smits (New Zealand - NIWA –) commented that a price of approx. 1M USD per meter ship length to him sounded a bit optimistic. He said he had a report on ship costing that he volunteered to send to Lori.

8.3 EU/ESF – Marine Infrastructure & Research Fleets

Ms. Marieke Rietveld (Netherlands – NIOZ) had prepared an update on the European efforts to reach a co-ordinated approach on operation and strategic planning for the European research vessel fleet. The MarinERA, which is an attempt to co-ordinate national and regional marine RTD activities in Europe, started 1 November 2004 with the objectives to map what is in existence of programmes and infrastructure, facilitate networking of Marine RTD funding agencies and providing a basis for sharing available resources. A Marine Infrastructure Forum (MIF), a meeting place for such managers in order to establish contacts, networks etc. was established in June 2005 and had its first meeting in Brest, France and its second meeting in Athens, Greece in October 2005. Another initiative is the Ocean Fleet Working Group (OFWG), tasked to propose ways to better utilise available RVs in Europe. The OFWG has identified 45 RVs in Europe, of which 10 are equivalent to the US Global class vessels, 14 are of Ocean class size and 21 Regional class vessels. The OFWG has also found that within 20 years, the European RV fleet will be reduced by 70% if no new vessels are built. So evidently there is a need for a rather aggressive new build programme across

Europe if the capacity shall be kept up to today's standard. The OFWG has also identified a need for better utilisation of large, exchangeable instruments such as geology and geophysics tools, submersibles, container labs, towed vehicles, sea bed survey equipment, seabed observatories and large winches.
An inventory of existing equipment is made which has to be maintained.
The OFWG has also mapped the different planning and ship time allocation procedures in Europe, and the different funding regimes that exist. The OFWG will recommend that a number of barter organisations for the different regions in Europe are developed, using the existing OFWG as a model, and that existing networks and meeting places are used and strengthened in order to accommodate better use of the existing RV infrastructures and to seek partners for joint ownership and use of new vessels and equipments.

8.4 Ocean Facilities Exchange Group
Ms. Marieke Rietveld (Netherlands – NIOZ) had also prepared an update on the Ocean Facilities Exchange Group (OFEG), formerly known as the Marine Facilities Tripartite Group (MFTG) that has been in operation since 1996. The first members were UK, France and Germany, but since 2003 The Netherlands has joined as a member and Spain as an observer. The group meets twice a year, with a technical/operational meeting in Spring and a strategic meeting in the Fall. The barters agreed between the parties consist of both vessels and/or heavy instruments. The group has established a "barter point" system that specifies the "barter value" of each unit. They also take a geographical programming approach, trying to avoid moving ships over long distances if a barter arrangement can be used instead. In the beginning there was 1-3 barters per year, but in 2003 this had increased to 16 barters with a total of 250 days, in 2004 this was 14 barters (140 days) and in 2005 nine barters (100 days). For 2006 it is expected to barter at least 200 days. The OFEG announcement of opportunity was released in October 2005 and more details can be found on http://ofeg.nerc.ac.uk . The current issues for the OFEG are: absorbing new members, increase ship exchanges, increase inter-operability of major equipments, co-ordination of major investments, sharing investment costs, shared RVs and development of joint cruises. The OFEG hopes to welcome Spain as a full member in 2006 and Norway is invited to participate in the discussions at the Spring 2006 meeting. The OFEG has also accepted the existence of a virtual OFEG equipment pool and accepted the format of the NIOZ web for the presentation of the equipment pool.

9. ICES 209 recommendations regarding radiated noise to water

Canada had asked specifically for a session on the ways to reduce radiated noise to water in order to meet the ICES 209 recommendation on noise levels. **Mr Kaare Hansen (Norway – IMR)** gave a presentation on the Norwegian experiences, specially based on the **"G.O. Sars"** project. He explained that it is believed that radiated underwater noise within the frequency ranges that are known to be the "hearing range" for different species may affect the behaviour of the fish close to the vessel and thereby create uncertainty in the biomass estimation using hydro-acoustic equipment. The change from conventional propulsion machinery to diesel-electric propulsion machinery and specially designed fixed pitch propellers have contributed much to reduce the level of radiated low frequency noise (10-100Hz). The operating frequencies of echo sounders and sonars used for fisheries research are normally from 10 to 500 kHz, and within this frequency range, the main challenge is to increase the possible detection depth by reducing the broad band noise where the propeller often is one of the most significant sources. Controllable pitch propellers may cause variable levels of low and high frequency noise and are not recommended for fishery research vessels. Attention is now more given to the design of low noise fixed pitch propellers where high frequency noise is more related to shaft speed.
The first document in which a limiting underwater noise level for building of new research vessels was recommended was the ICES CRR No 209, were the recommended upper limit for radiated noise is for all survey speeds up to 11 knots and the distance limit is set to 20 m from the vessel where no fish avoidance behaviour should occur.
This document was very much based on experience gained from the building of the FRV **"Corystes"** which came into use in 1988. The "Corystes" was fitted with diesel electric propulsion machinery and special care was taken when designing and building the vessel in order to minimise the underwater noise radiation. When the FRV **"Scotia"** was designed and build, the CRR 209 formed part of the building contract. Later on, the guidelines given in the CRR 209 has been the "de facto" standard for the building of noise reduced fishery research vessels. When the "G.O.Sars" was built, the Statement of Requirements demanded that the radiated noise level should be 3 dB below the level indicated in the CRR209 and a noise level above the CRR209 would be reason for rejection of the vessel.
Diesel-electric machinery with DC propulsion motor directly coupled to the propeller was chosen, because AC propulsion motors have proven to be unsatisfactory with regards to noise levels. All research vessels fulfilling the CRR209 requirements for noise levels are equipped with diesel-electric machinery with DC propulsion motor systems. In addition these RVs are equipped with propellers with 5 blades or more to reduce the pressure per blade in order to minimise the risk for cavitation. Accordingly, "G.O.Sars" was equipped with a specially constructed 5 blade propeller.

So far, controlled experiments to verify fish avoidance due to radiated noise from "G.O. Sars" in open sea have not been conducted, but measurements in a closed fjord system has been carried out on herring, with ambiguous results.
It is expected however, that the relative low radiation of low frequency noise will minimise the avoiding effect and thereby give more accurate measurements of fish density which again will lead to more precise abundance estimates.

Apart from radiated noise and the vessels self noise, other factors which influence the detection range of echo sounders and sonars are the ambient noise level in the sea (due to wind, seastate, thermal noise, etc), absorption loss, targets ability to reflect sound (target strength), frequency and dynamic range of the instruments and the internal noise in the instrument. It is experienced increased detection range for scientific echo sounders used for fishery research (18 to 400 kHz) on "G.O. Sars" compared to similar equipment on other IMR vessels and relative noise free recordings on multibeam echo sounders utilised for seabed mapping and bottom penetration. The main reason for this is believed to be a successful design of the low noise propeller, as the propeller normally is the most significant source of noise at higher frequencies. One example of this is during an expedition to the Mid-Atlantic ridge in 2004 (The MarEco survey), when scientists on the "G.O.Sars" were able to detect and quantify acoustic layers to depths between 2000 and 3000m using the EK/ER-60, 18 kHz scientific echo sounder.
Another benefit is the interior noise levels on the vessel. The human ear can hear vibrations ranging from 15 to 20.000 Hz, within a dynamic range of approx. 120 decibels. The noise level within this frequency range is very low onboard the "G.O.Sars" , which makes her a very popular and comfortable working platform for sailors and scientists.
The CRR 209 was put forward by a ICES Study Group in 1995 with a later Guidance Note. The recommendation describes a maximum noise limit based on :
a. 20- 1000 Hz: 135 – 1.66 log freq **(Hz)**
b. 1 - 100 kHz: 130 - 22log freq **(Hz)**
The frequency area from 10–20 Hz seems to be an uncertain zone and this area is perhaps also uncertain with regards to the fish hearing threshold. The frequency range from 10 – 20 Hz is the area where it is often detects peaks in the vessels noise signature. These peaks are normally caused by the propeller blades (or slots between the blades) passing the closest section of the hull. The frequency of this noise will then be:
number of blades (slots) x propeller shaft rpm /60

The concluding questions could then be:
Is the CRR 209 curve actually a valid "standard" in the frequency range from 10 –20 Hz ?
Or
Should this part of the slope be excluded from the curve ?

During the discussion following the Norwegian ICES 209 presentation, **Ms. Lori Henley** brought up the question on how to apply the ICES 209 recommendations on small vessels of 20-30m length? The general consensus was that the small vessels may have both weight and space constraints since the propeller should be large and slow rotating, the engines should be large (and diesel electric), and the engines must be dampened. Mr. **David Blake (BAS – UK)** knows of some Russian experts on small vessel noise, and Mr.**John Morisson** of SEERAD in Aberdeen is looking for a replacement of the ageing **"Clupea"**, which also should be ICES 209 compliant, so he may be another source of information for those looking into building small noise reduced RVs.

10. After the tsunami activities

Cdr. Beth White (NOAA -USA) presented the US post-tsunami activities, including the proposed Dart buoys to be deployed along the Pacific rim and in the Mexican Gulf, and a proposed world wide Dart buoy network. The US is also looking into an expanded tide gauge network in the Pacific, and in total the US plan for the next two years is to deploy 39 DART-2 buoys, expand the existing tide station network, provide 24/7 operations at Tsunami Warning Centers, and enhance seismic monitoring and improve community preparedness.

Dr. Hiroyasu Momma (Jamstec – Japan) reported on the Japanese Underwater Survey of the Sumatra earthquake source area, after the earthquake that caused the tsunami on 26th December 2004. This was the first trial to know directly what happened in the deep sea floor of the 'tsunami source' area in tsunami generation by observing directly the sea bottom floor at the outer high, off Aceh Basin, as an inferred large scale displacement zone (off Aceh LsDZ) and to examine high resolution geomorphologic features and subsurface structure in off Aceh LsDZ.
The research vessel **"Natsushima"**, equipped with the 3000m depth rated ROV **"Hyper Dolphin"** was used for this mission starting February 14 and ending on March 26, 2005. The survey methods used was Multi Beam Echo Sounder (SEABAT 8160) for bathymetric data (50 kHz), ROV "Hyper Dolphin" for visual observation, Ocean Bottom Seismograph (OBS) for long and short term seismic observation, and Single-Channel Seismic Reflection Surveys (SCS) for seismic reflection data. A remarkable escarpment along the rim of the outer high was identified, and the relief of the escarpment reaches over 1000 m and extends about 50 km along the rim. No benthic animal was observed, and soft covered sediments were completely washed out! In summary the cruise findings were that the fracture system of main thrust with

a splay fault is observed in the tsunami source area, and that tsunami model, geomorphology and direct sea floor observation by ROV are conformable. The depth of the main earthquake fault is shallower than 20 km (from OBS data).

Dr. Momma also presented the "Disaster Prevention/ Mitigation caused by Earthquake and Tsunami Planning in JAMSTEC" which is focused on use of the oceanographic buoy networks in the world (Ocean-surface/subsurface), including the TRITON Buoy Network (by JAMSTEC) and the development of Ocean-bottom Network in Japan (off Tokai Region/east of the Kii Peninsula/off Shikoku).
The TRITON, or "TRIangle Trans-Ocean" buoys has been deployed in the tropical regions by JAMSTEC, in cooperation with the US, France, Korea, Taiwan, Indonesia, and countries in the South Pacific since March 1998.
The purpose is to check the effects of warm water in the equatorial regions on the world's weather conditions, and the observations made are wind, air temperature, humidity, rainfall, sunshine, seawater temperature, salinity, and current. Two of the Triton buoys are deployed near the Sumatra earthquake source area, and they were recovered in August 2005 to see if they have observed the tsunami in any way, and the data are currently being analyzed.
He also presented a simpler and smaller buoy, called the m-TRITON, which Jamstec is currently developing.
The requirements are to simplify the buoy operation by minimizing and lighten the floating body, to reduce cost of
manufacture and maintenance by review of observation means, power saving and domestic products such as circuit board, sensors, etc. Test schedule for the M-Triton is deployment on September 26, 2005 and recovery in December 2005. It is placed Suruga Bay at a water depth of 2,270m. The operational version of the m-Triton will be deployed in the Indian Ocean in December 2006.

Dr. Momma continued with a discussion about the application of buoy network for disaster prevention/ mitigation, with the advantage that it is easy to construct using existing technology, but with the disadvantages that they require ship time and has a high cost for maintenance in every year and is vulnerable for vandalism, collisions etc., compared to an ocean-bottom network system for real time monitoring. Since there is a 50-60% possibility of the giant submarine earthquakes in the Nankai Trough in Japan in the next 30 years, Jamstec has proposed to develop an Ocean-bottom Network near the expected earthquake source to build a high performance estimating model of earthquake using sea bed observatories and high speed data links in order to detect and report on seismological activities under the sea floor.

Dr. Dieter Strohm (Leibniz IfM – Germany) reported on the development of a German – Indonesian Tsunami Early Warning System (TEWS), including the shipment of 8 buoys and Ocean Bottom Units (OBUs) to Indonesia, using the RV **"Sonne"** to map out where to deploy the OBUs and the buoys, and the coordination with the International Oceanographic Commission (IOC) on the deployment and data gathering.

Ms. Lori Henley (CCG - Canada) reported that the Pacific Coast of Canada is the most high risk area for earthquakes and tsunamis. Canada is a member of the International Co-ordination Group for the Tsunami Warning System in the Pacific (ICG/ITSU) which was formed in 1965 following destructive tsunamis in 1946, 1960 and 1964. The area therefore has a well established warning system in place. The Atlantic Coast also experienced a major tsunami off the coast of Newfoundland in 1929 which was triggered by a sub-sea landslide. A Tsunami warning system for the Atlantic coast of North America is currently under development in conjunction with the USA and European nations. Canada is also working through the UN and subsidiary bodies and providing funding support for implementation of an Indian Ocean and global warning systems.

Mr. Janakiraman (NIOT –India) reported on the Indian efforts and explained that India plan on deploying 50 stations around India, each of them consisting of an OBS and an attached buoy. 12 stations are deployed so far and the budget for the program is 30M USD.

In the general discussion following the presentations, the issue of how to warn the public if a tsunami is under way was raised, and in addition the need for more ship time to deploy and maintain the buoys was discussed. The way the OBSs communicates with the warning centers was also discussed, and the general feeling was that communication via cables from the OBS to land is a more reliable and maintenance free solution compared to floating buoys and satellite communication links to shore. But distance is of course a limiting factor if the OBS are deployed far away from the nearest land masses.
In the future buoys may take over some of the work being done by vessels to day, but on the other hand the increased number of buoys will also demand ship time for deployment, repair, maintenance and recovery, so the fleet may not decrease due to the increasing number of buoys.

11. Marine mammal mitigation measures

Mr. Geraint West gave an update to the report on marine mammal mitigation measures that he has given at the two previous ISOMs. The general awareness of the potential problem with large emitters disturbing the sea mammals are increasing, and there are many efforts being made around the world to better understand the possible

implications of the use of sonars, seismic equipment etc, and at the same time legislators are becoming more interested in the issues.
So far the expert opinions are that "there is no evidence to suggest that the sound produced during oil and gas industry seismic surveys has resulted in any physical injury. Nor have research studies or operations monitoring indicated any physical impacts, or suggested behavioural effects leading to impacts on the viability of any marine population." But at the same time these issues cannot be ignored, so therefore guidelines are being developed, and they are e.g. use of minimum transmission power levels, "soft start" of transmissions in order to "scare" the animals away, use of look-outs to try to "clear an area" for sea mammals before transmission starts and immediate stop in transmissions if sea mammals are observed within a given distance from the transmission source and stay out of areas altogether at times when sea mammals are known to be there. Arrange internal work-shops to establish own guidelines, allocate responsibilities etc, establish good working relationships with concerned NGOs, find ways to establish whether the sea mammals are affected by noise from sonars, echo sounders or seismic guns, develop noise budgets for the marine environment, and introduce risk management concerning sea mammal disturbances.
Still, internationally agreed rules, procedures and standards are called for, in order to make sure that the sea mammals are protected properly and that no unnecessary strict rules are applied concerning use of hydroacoustic systems or seismic equipment at sea.

Ms. Lori Henley (Canada - CCG) introduced the Marine Environmental Handbook for the Arctic Northwest Passage. This was produced in 1999 and is available from the Canadian Hydrographic Service. It provided detail on environmental sensitive areas and species, and provides mitigation measures to follow.

The proposed way ahead on this is that each and everyone "emitting noise" in water should develop their own procedures for planning, preparing and executing surveys that includes use of "noise". All ISOM members are invited to pass around information about websites, workshops etc available to the public and if someone are making procedures, manuals etc, to pass copies around to ISOM members for comment or to be used as strawman documents for developing own versions.

12. Sea bed surveys

Sea bed survey programs was chosen as a "main topic" at this meeting.

12.1 New Zealand Ocean Survey 2020

Mr. Fred Smits presented the New Zealand sea bed survey program that was initiated by the Cabinet in 2004, including funding for the operation of RV **"Tangaroa"**.

The survey program will cover a wide variety of topics such as **Hydrography** (Maritime safety and Sovereignty), **Seabed and biological data for ocean and coastal resources** (Aquaculture, erosion, coastal planning, seabed dumping), **Biological Resources** (Fish stock assessments, biodiversity, bioprospecting), **Oil and gas and mineral exploration** (Oil, gas, sands, gravel, gold, high value volcanic deposits, methane hydrates), **Natural hazards** (Earthquakes, tsunami, seabed slope stability), **Risk management** (Oil spills, coastal erosion), **Submarine pipelines and cables** (Telecommunications, oil and gas pipelines), **Conservation** (Marine reserves) and **Data for marine sciences** (Currents, climate, volcanoes)

The total marine territory that New Zealand covers is very large, approx. 8% of the earth, but far from all of it will be surveyed, e.g. areas with more than 2500m waterdepth, areas to far away from land to be of commercial interest, and areas with no known exploitable resources. In order to prioritize the work, a number of working groups were established, covering the following topics: Maritime Safety and Sovereignty, Hazards (landslides, earthquakes, Tsunami), Marine non-living resources (oil, gas, minerals), Fisheries and biodiversity, Climate, Science and Antarctica. After selection of priority areas, survey programmes have to be chosen for each Priority Survey Area, and data that can be collected in each survey area are seabed bathymetry and composition, geophysical data (sub-bottom profiling, deep seismics, high resolution seismics, magnetics, gravity), water characteristics (temperature, salinity, chemistry), ocean circulation (currents, tides, waves), atmospheric observations (trace gases, weather), seabed animal communities (reefs, seamounts, coastal, shelf & slope), other marine life (plankton, krill, fish) and marine mammals and birds.

New Zealand has developed five survey programmes:
1. Standard Seabed Programme (Single and multi-beam, sub-bottom profiling, currents, water chemistry, bio-mass, mammals and birds)
2. Seabed and Subsurface Programme (as for 1 plus high resolution seismics, magnetics, gravity)
3. Shallow Water Survey Programme (as for 1 or 2, but targeted at coastal surveys)
4. Seabed and Aquatic Life Programme (as for 1, plus seabed camera's, sledges, nets, trawls, grabs etc)
5. Special Outputs Programme (satellite altimetry, coastal LIDAR, deep seismics)

The estimated total cost of the programme is USD 210M over 15 years. This includes the survey of all priority areas, with the survey techniques identified, data processing, storage and dissemination, but excludes all coastal regions, and the aim is to have this programme ratified by Cabinet on 25 November 2005.

12.2 Irish national sea bed survey programme

Mr. John Breslin presented the Irish sea bed survey programme and showed that the survey of the deep water parts of the Irish economical zone (435000 km²) is completed, and that the next phase of the program is to survey the medium depth waters (250 – 50m depth), which is around 30500km², and finally the shallow parts, approx. 1000km², will be surveyed. The information sets to be collected are bathymetry, seabed character, shallow geology, gravity measurements and magnetic measurements, all in all approximately 4,5 Terabytes of data. John described in detail the organisation, equipment used and the calibration of the equipment before the surveys, and he made comments about how time consumption goes up as the water depth decreases because the swept area for the multi beam echo sounders decreases accordingly. He also pointed at the fact that more and more competence is required to operate the systems involved as they become more sophisticated and the amount of data collected increases dramatically. They had also found that differential GPS is not accurate enough, so they use Fugro Starfix-HP for positioning. In addition the equipment must be well calibrated and be accurately referenced on board the vessel. He also showed examples of striping effects on the bathymetric data, and he regarded that as a relatively easy fix, but was more concerned about how to filter out errors due to heave motions in heavy seas. There are no International Hydrographic Organisation (IHO) standards available for multi beam surveys, so Ireland is using the New Zealand standard, see www.linz.govt.nz for details.

12.3 Norwegian sea bed survey programme

Mr. Kaare Hansen started with a description of how **"G.O. Sars"** is equipped for sea bed surveys, and the results achieved with the vessel so far, and the way the technicians have been trained to operate the equipment and handle the vast amount of data collected. He then continued with a presentation of the **N**orwegian **MAREANO** program, which is a co-operation between

- Norwegian Geological Survey (NGU)
- Institute of Marine Research (IMR)
- Norwegian Hydrografic Service
- Norwegian Petroleum Directorate (NPD)
- Defense Research Institute (FFI)
- Norwegian Pollution Control Authority (SFT)
- Directorate for Nature Management (DN)
- Norwegian Polar Institute (NPI)
- Directorate of fisheries (FD)

to map the seabed in the southern part of the Barents Sea in 2005 – 2010. The objectives are mapping of the biological, physical and chemical environment on the sea floor, organising the collected data in a marine area database for Norwegian coastal waters and adjacent ocean areas, and making available the data from the MAREANO-project and other relevant sources in a web based GIS-system within four areas: Topographic sea floor maps, geology, pollution and environment and biological diversity, type of nature and marine resources. The web-portal **http://www.mareano.no** will be the access point to an information system based on the databases owned by the participating institutions, and in the longer term these databases will cover all Norwegian coastal and deep-sea areas. The MAREANO should also function as a management tool for decision makers on issues related to Norwegian adjacent waters.

12.4 Spanish sea bed survey programme

Prof. Juanjo Dañobeita presented the Spanish sea bed survey activities. He also showed samples of data collected since 1991, by the Spanish EEZ Commission, with the R/V "**Hesperides"** which has mapped thousands of km2 of seabed in the Mid-Atlantic, Antarctica, Mid & South Pacific, Spanish EEZ and the Western Mediterranean using EM 120, EM 1002 and TOPAS.

12.5 German sea bed surveys

Dr. Dieter Strohm explained that in Germany all data collected from sea bed surveys shall be handed over to the German Hydrographic Office, and then the data are made available to everyone, both government and industry.

12.6 Canadian sea bed surveys

Ms. Lori Henley described the Canadian approach to sea bed surveying, which to date has been focused on multi-beam mapping and sweep system surveys of navigation channels and corridors in high priority areas. The Geo-Science for Ocean Mapping group are mapping complete areas for bathymetry, seabed sediment, and benthic habitat, and they plan to produce a map series as base maps for integrated management. Canada ratified UNCLOS in 2003 and funding became available in 2004. The project is being led jointly by Natural Resources Canada (Geological Survey of Canada) and Fisheries and Oceans Canada (Canadian Hydrographic Service). Roughly two-thirds of the budget is for seismic work to determine prolongation of the continental shelf and sediment thickness, and one-third for bathymetry. Roughly two-thirds is for Arctic work and one-third for Atlantic work. The plan is to contract out much of the surveying.

12.7 Danish sea bed surveys

Mr. Steen Silberg described the Baltic Sea survey programme were all the Baltic nations participates, and that they are now selecting some areas in the Baltic for more in-depth investigations. There is also a web site set up by the Swedish Geological Institute were the collected information is available. See http://www.balance-eu.org.

13. Insurance and legal issues

Professor Dennis Nixon, legal council of UNOLS, started out with a brief on the **insurance** market, and his prediction is that the cost of insurance is likely to rise in

the future due to heavy losses, mainly in the transport and cargo sector, less due to marine liability and hull. He also pointed to the fact that insurance rates are lower today than they were in 1994 when ISOM started to address insurance issues! The low point for insurance rates was in 1999-2000, but are now on a steady increase again. He said that insurance against terrorist acts is available, but expensive and with limited coverage. He also mentioned the big hurricanes hitting America in 2005 as another reason for increased premiums to be expected. His best guess is an at least 25% increase in insurance rates since 2005 was a record year in terms of property losses due to natural disasters.

He then continued with **legal issues** and showed that the main cause for accidents still are human errors (62% of the incidents) divided on 30% done by deck officers, 15% by deck hands and only 2% by engineers!

Prof. Dennis Nixon also ran through a number of liability cases were sailors have sued their employers after being injured. In these cases 2005 was a good year seen from the employers point of view!

Another legal issue coming up is the question of alcohol consumption on board ships, and there is a German proposal to the IMO to make all vessels carrying hazardous materials and ferries completely "dry", and a maximum of 50 milliliters of alcohol per liter of blood for mariners sailing all other ships.

Other issues covered in his presentation was criminal liability of the vessel owner when a vessel is dumping waste illegally, and when a vessel has unsafe stability, causing the vessel to capsize. In the latter case it is important to note that it is the ship owner's responsibility that the vessel is stable, not the maritime authorities or the classification societies.

Prof. Dennis Nixon then went on to talk about legal issues concerning fixed buoys, such as the Orion which is an interactive oceanographic observation system, which includes the need for informing the community about its existence (Notice to Mariners etc), markings and lights on the buoys, physical and electromagnetic interference that could be caused if a number of cables are laid in close proximity of each other, the impact the cables could have on the environment, causing limitations to fishing, loss of fishing gear and other towed objects etc.

He then rounded off with a talk on the **"Hold Harmless Agreements"** which is a scheme that was developed by cooperation between offshore oil and gas industry contractors operating on the UK continental shelf to clarify the allocation of liability and consequent avoidance of overlapping insurance and identical risk when a number of different parties e.g. are working on board the same vessel. For more details see www.imhh.com . It may be an idea to develop hold harmless agreements for scientists and technicians participating in joint cruises on other institutions vessels, using the standard agreement to be found on www.imhh.com, or similar agreements to be found on the IMO web portal. It was also reported that the OFEG members are looking into a hold harmless agreement for their activities and the ISOM would appreciate any information available on this.

In conclusion, Prof. Dennis Nixon stated that:
- Expect further instability in insurance markets because of natural disasters and depleted financial reserves
- Legal issues remain complex because of new technology and human factors
- Hold harmless clauses are a useful but not foolproof tool in joint operations - lawsuits can be reduced, but not eliminated

14. Safety issues

14.1 Peeling the safety onion

Mr. Fred Smits gave a brief on the "Kaharoa on the Rocks" experience when **"Kaharoa"** surveyed all coastal areas of the Wellington South Coast in water depths between 10m and 100m in Owhiro Bay, Island Bay, Houghton Bay, Lyall Bay and Taraki Bay Between 27 August and 4 September 2005. On 5 September 2005 "Kaharoa" hit a submerged rock in Breakers Bay, resulting in damages to the vessel and equipment for about USD 120K.

Noting that just prior to the grounding sea conditions were ideal with winds less than 5 knots, calm seas, no swell, visibility unlimited, "Kaharoa" has completed over 450 days of coastal multi-beam since 2000, her crew is highly experienced in coastal surveys, the multi-beam operators were highly experienced, the rock was charted on hydrographic charts and the rock had been mapped by EM3000D on previous runs, how could this grounding happen and who is to blame? On 13 September an internal NIWA inquiry was held, attended by full crew, the multi-beam operators and NIWA operational management to determine what happened and what could be learned from it? The lessons learned was that:
- Prior to each coastal survey a meeting needs to be held between vessel operational management, ship's deck officers, and the multi-beam operators.
- During this meeting the minimum depth the vessel shall operate in shall be agreed upon: "Rabbit line"
- Master shall not take vessel in waters shallower than Rabbit line.
- "Holes will be holes"
- SIMRAD software to be replaced by package that shows previous collected multi-beam bathymetry on helmsman display.

- Helmsman to determine when to change course and NOT the Master or the multi-beam operator.

Under the New Zealand Maritime Transport Act 1984 a grounding like that happened to "Kaharoa" is classified as a "Class B" maritime accident, which means automatic prosecution of both the vessel operator and Master. However following a meeting between the Maritime Safety Authority and NIWA, the MSA accepted NIWA's "Peeling Safety Onion" argument and has decided not to prosecute.

14.2. Safety training

Cpt. Masataka Zaitsu gave a presentation about the safety training for personnel on the new drilling vessel **"Chikyu"** and how it is modeled after safety manuals in the oil industry since "Chikyu" is a drilling ship, with the same equipments, performing the same work, and therefore is exposed to the same dangers. He then described the training areas: Personal Sea Survival Technique (PST), Helicopter Underwater Escape Training (HUET) and Fire Fighting and Breathing Apparatus training courses. This is called BOSIET (Basic Offshore Safety Induction & Emergency Training) and is conducted in accredited training facilities by OPITO (Offshore Petroleum Industry Training Organization), so the "Chikyu" personnel needs to go to an OPITO accredited facility for this training. The problem is that there is no training facility which is accredited by OPITO in Japan, and to go abroad for such training is too expensive and time consuming, so JAMSTEC will develop their own training facilities. The plan is to purchase a helicopter simulator (floating type), a life raft, life jackets and immersion suites and use JAMSTEC's diving training pool. They will also develop a Train-The-Trainer Program. (Bring up own instructors) and use Maritime Disaster Prevention Center (Japanese fire fighting facility) for fire fighting and breathing apparatus training.
All of this will enable them to issue JAMSTEC's original certificates for trainees.
The schedule is to have the first Fire fighting and breathing apparatus training completed by early December 2005, and run a Train-The-Trainer program on Dec. 19th-23rd, and by early March 2006 have the first PST and HUET for JAMSTEC/CDEX trainees run by JAMSTEC's own instructors.

It was commented that "Crowd management training" is required for crews on board German RVs and maybe this is something to consider for others too?

15. International Polar Year (IPY) marine logistics issues

Mr. Steve Peck (Canada – CCG) took part by phone from Canada on this agenda item, and he had prepared a briefing that was shown on the screen in the meeting room as he was speaking over the phone! He began with a description of what the IPY 2007/2008 is meant to be; a unique, intensive international program of coordinated research and observations focused on the polar regions, with six international research themes, covering
- Current state of the polar environment
- Change in the polar regions
- Polar-global linkages and interactions
- Investigating new frontiers
- Polar regions as vantage points
- Circumpolar human societies

He went on stating that marine logistics is an integral part of marine research in polar regions, especially the Arctic, and that matching ships to research projects is an iterative process since scientists plan the research, and operators find a way to support them.
There are issues to be solved, such as availability or physical limitations impact on capability to support research, and to find platforms, included ships, aircraft and ice, and all three especially in year-round deployment. One of his questions were:
To what extent can we integrate ships operated by their countries into an international fleet supporting integrated international science, with the basic idea that the sum of an integrated fleet should be larger than the sum of individual ships/countries?
In order to do this we need to establish areas of commonality, co-operation and co-ordination on operational and logistical issues, and look at combined fleet's capabilities to meet total research programs to provide maximum logistical support.
Lead time is now needed for: activities such as planning refits (ships' certification, scientific fitness), planning to ensure backfill with other units to replace vessels deployed to IPY and co-ordination of international operational planning.
He then went on to give some examples of areas that would benefit from international co-ordination, such as:
• Co-ordination of scheduling
• Liability and insurance
• Vessel clearance
• ISPS considerations (Ports or anchorages off villages)
• SAR co-ordination
• Operations and communications network (i.e. Iqaluit)
• Daily position reports of all units containing common elements (fields) and common dissemination to established
operations centers and home country
• Coordination of ice services (examples: NASA, Canadian Ice Services)
• Capability of ships to provide aviation fuel and secure alongside or into floes to provide airstrips.

He finished his brief with the question: Coordination – Any Volunteers?, and then he listed a number of topic that should be looked by those planning on operating in the polar regions during the IPY:

• If elements are already in place, who do we contact?
• Are there similarities and solutions applicable to both polar regions?
• What has worked well in the past?
• Costing and cost-recovery (suggestion)
– Fixed costs (attributed to ships' managing agencies)
– Voyage costs (attributed to users [scientists and their funding agencies])
• Establishment of IPY Joint Logistics Committee (i.e. International) with feed-in from National IPY Logistics Committees (which may incorporate marine and terrestrial logistics)
• Anyone have a better name than logistics?

During the discussion following Mr.Steve Peck's brief, Mr. David Blake noted that coordination of logistics in the Antarctic can be found in the COMNAP database, were most of Mr. Peck's questions are answered for that region. It was also mentioned that an IPY office, headed by Dave Carson is established at British Antarctic Survey (BAS) in Cambridge, UK. He also noted that the main bids are not in marine science, and that there should be sufficient number of vessels available for IPY cruises in the Antarctic.

He also mentioned that there are established working groups for logistics with both scientists and operators taking part. Another source of information is the European Science Foundation, Polar Board, and their web site can be found on www.esf.org

16. IMO regulations in high latitudes – Update on Arctic and Antarctic rules

Ms. Lori Henley informed the group that IMO has not yet approved the polar class rules for ship construction, but this is expected to happen in 2006. Regarding the Antarctic rules, no change since the last ISOM. See http://www.tc.gc.ca/marinesafety/CES/Arctic/guidelines-msc-2002.pdf. for more details.

17. ISM and ISPS

No reports at this meeting.

18. Diplomatic clearances

Prof. Juanjo Dañobeitia reported that Spain had had very good support from NSF and Ms. Dolly Dieter in gaining access to US waters around Puerto Rico, and the general consensus was that it can be useful to utilise ISOM and ERVO contacts when needed.

It was also reported that an IOC working group is looking at rules and regulations for buoys and drifters drifting into a country's economical zone. It is important to remember to get a diplomatic clearance before an AUV or glider is deployed, although it probably will be returned if it runs astray into another country's area, but it is better to ask permission up front! Another issue with AUVs and other autonomous vehicles is the security issues involving data collected by the vehicles.

19. Piracy problems/war zone update

No reports at this meeting.

20. Energy saving

Mr. David Blake introduced the topic by stating that BAS procures 2500 tonnes Marine Gas Oil per year for the RRS "Ernest Shackleton", and 5000 tones/year for the RRS "James Clark Ross", and that 73% of fuel is used by the ships and 27% by the bases in Antarctica. He also noted that the price of oil has increased from approx. USD 28/barrel in 2003/04 to about USD 60/barrel in 2005, and that it could vary from USD 40 to USD 110 over the next years. He also reported that the fuel price in the Falklands has gone up from $295/tonne in 03/04 to $795/tonne in 05/06! This has resulted in a 1,6 M£ deficit for BAS on their fuel budget in just two years. They are therefore very interested in all kinds of energy reduction methods! Some methods are; clean hull, reduce speed, reduce engines, change engines, change ship or reduce operations. Use of sails is also an option being looked at now.

Other ideas are use of heavier fuel types to save costs, but this means more emissions. Other ideas is to look for energy saving measures when new equipment is procured, avoid DP-operations if possible, reduce service speed and ask for extra money if higher speed is required. More efficient use of ship time through better planned, multidisciplinary cruises, and extended use of barter cruises to save transit times are other possibilities.

21. Post-cruise assessment

A number of operators are using post-cruise assessment forms as a tool for continuous improvement of their services.

Dr. Mike Reeve said that the UNOLS experience with such feed back mechanisms were variable, and that they revised their form two years ago. It is a standardised form with 17 questions and five grades of satisfaction, and it is used to make statistics per vessel and is also used as basis for bi-annual ship inspections, and as basis for applications for money for replacement of equipment etc. The form is posted on www.unols.org. NERC has based its form on the UNOLS form, and NIWA have made their form based on the NERC form, and Ireland and the Netherlands have done the same, so this is a good example of re-using good ideas!

22. INMARTECH 2006

The next INMARTECH meeting will take place in early October 2006 in Woods Hole. Preliminary topics are:
• Shipboard handling equipment safety issues
• International shipping – chemicals, samples, instrumentation
• Underway data collection and archiving standards
• AUV operations
• Vessel security

• Long-term instrumentation deployments
If other ideas/inputs, please contact Barrie Walden, email: bwalden@whoi.edu , phone: + 1 (508) 289-2407.
One suggestion was long corer operations.

23. RV web portals and databases

Mr. Per Nieuwejaar gave a short introduction to the two main RV web portals today, the OCEANIC in the US (www.researchvessels.org) and EurOcean in Europe (www.eurocean.org). He highlighted the new items on EurOcean:
- Ships at Sea - Positions and weather observations
- Maritime regions – Misc. links and info
- National info - Misc. links and info

He also mentioned that a new director of EurOcean to be appointed this fall and that new members of EurOcean are most welcomed! Both web portals are now operational regarding RVs, but the challenge now is maintenance! Regarding OCEANIC he mentioned that cruise schedules can be included in the OCEANIC dB if made available to them, but the current funding regime for the web portal ended August 2005.

A meeting is planned for December 2005 in Silver Springs, Maryland with reps from: NOAA, ISOM, PMEL, IOC/JCOMM, EurOcean and OCEANIC to identify features needed in an ideal database of research cruises and determine how the existing dB would need to be changed to meet the needs of the scientists, to discuss ways to improve information flow from ship operators and research projects to OCEANIC, to discuss free and easy data access vs security concerns, and to identify a new source of funding. OCEANIC also asks for ISOM's needs and concerns, to be taken into account if a reworking of OCEANIC takes place.
Per Nieuwejaar also reported that IMR are developing a web portal on the EurOean for "Large, exchangeable instruments" which will be completed before the end of the year. He also pointed to good examples of "equipment web pages" such as UKORS and NIOZ web pages, and that the NIOZ format for instrument data will be used by the OFEG members.

During the following discussion it was stated that IOC/ARGOS needs cruise plans for planning ARGOS buoy deployments and that POGO is willing to partly fund the OCEANIC if their cruise plan dB is operational. The problem is security concerns regarding information about ship schedules.
It was also mentioned that NIOZ are working on a "bar code" system for equipment tracking, something many operators would like to have!

24. BONUS

Dr. Eila Lahdes gave a report on the BONUS program, which is an ERA-NET project of the EU 6th Framework Programme (3.03 mill. € 2004-2007).
BONUS brings together research funding organisations of all Baltic Sea EU Member States to form a network and partnership, and the aim is for common funding system in the Baltic Sea Science. The consortium is composed of 12 partners, including Russia. BONUS will not fund research, but aims for joint research programmes and it consists of six work packages and several tasks. A BONUS-169 Science Plan has been designed for the basis of scientific marine research planning under Article 169 of the Treaty of the EC. In the Baltic Sea, due to the new member countries, a complete and detailed infrastructure inventory, including both research vessels and other facilities, was needed in order to identify the existing lacks in infrastructure availability to address the scientific questions crucial for the Baltic Sea research, to identify possible prerequisites and means for a common use of these facilities for researchers, similar to the barter-based Ocean Facilities Exchange Group (OFEG). The new task coordinator is Barbara Tanner (b.tanner@fz-juelich.de). Based on an RV inventory search using OCEANIC, BONUS has put forward an initiative of acquisition of a joint mid-size, multipurpose Baltic Sea research vessel, including fishing ability. EU has agreed to finance 15% of the costs, and the vessel would mostly cover the needs of marine research in the eastern and south-eastern parts of the Baltic Sea, i.e. sea areas of new EU member states. At least Estonia has already agreed to operate the planned vessel by converting of a former fishing vessel to research vessel, and also Poland is interested to replace their s/y **"Oceania"** if gaining EU funding.

25. Election of vice chair for the 2006 and 2007 ISOM meetings

Mr. Fred Smits, NIWA – New Zealand was elected as vice-chair for the 2006 and 2007 ISOM.

25. Dates and Place of Next Meeting

ISOM 2006 will be held in Galway, Ireland in the new office building of the Marine Institute / Ocean Science Services, located 15 miles outside Galway. Meeting dates to be confirmed, but most likely at the end of October 2006.
ISOM 2007 will be held at IOCAS in Qingdao, China, a 55 years old oceanographic institute which will take delivery of two new vessels next year.

ISOM 2008 will be held in New Zealand.

26. Adjourn

On behalf of all attendees the Chair expressed her thanks to Mr. Janakiraman and his staff for an excellent organised meeting, great hospitality and wonderful food during a meeting held in a beautiful location, and after that the meeting adjourned.