






















Thirteenth International Research Ship Operators Meeting





11-13 October 1999, Mutsu, Shimokita, Japan

Attendees

Country	Representative	Organisation
Belgium	Mr. Andre Pollentier	MUMM, Oostende
Chile	Mr. Enrique Aranda	IFOP, Valparaíso
	Ms. Catalina Gallardo	SSP, Valparaíso
EU	Mr. Gilles Ollier	CEC-DG XII, Brussels
France	Cpt. Armel Le Strat	GENAVIR, Paris
Germany	Dr. Dieter Strohm	RF, Bremen
Japan	Mr. Hajimu (Jim) Kinoshita	JAMSTEC, Yokosuka - Chairman
	Dr. Takeaki Miyazaki	JAMSTEC, Yokosuka
	Mr. Masami Nakano	JAMSTEC, Yokosuka
	Cpt. Masataka Zaitso	JAMSTEC, Yokosuka
	Mr. Yoshifumi Kuroda	JAMSTEC, Yokosuka
	Mr. Masahiko Ida	JAMSTEC, Yokosuka
	Cpt. Akio Nakagawa	GODI, Yokosuka
	Mr. Masatake Okawara	NME, Yokosuka
	Mr. Mitsuo Hayashi	JAMSTEC, Yokosuka
	Mr. Keiji Osada	JAMSTEC, Yokosuka
	Mr. Takuya Onose	JAMSTEC, Yokosuka
	Mr. Yoshihito Arai	JAMSTEC, Yokosuka
	Mr. Yutaka Matsuo	NME, Yokosuka
	Mr. Tsunehiro Katsuki	GODI, Yokosuka
	Mr. Kennosuke Okamoto	GODI, Yokosuka
	Mr. Hiroshi Iwase	GODI, Yokosuka
	Mr. Haruyuki Sakai	JAERI, Mutsu
Netherlands	Ms. Marieke J. Rietveld	NIOZ, Texel - acting Secretary
New Zealand	Mr. Fred Smits	NIWA, Wellington
South-Africa	Mr. Pedro C. Goosen	SFRI, Cape Town
Spain	Mr. José I. Diaz	CSIC, Barcelona
USA	Dr. Donald F. Heinrichs	NSF, Arlington
	Ms. Dolly Dieter	NSF, Arlington
	Commander Elisabeth White	NOAA/NSF, Arlington
	Ms. Sugata Millick	ONR, Arlington
	Prof. Dennis Nixon	URI, Kingston

Apologies for absence

Country Representative Organisation

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Australia	Dr. John Wallace	CSIRO, Hobart
Canada	Mr. Steve Peck	DFO-CCG, Ottawa
Denmark	Mr. Mogens Busse	DFU, Copenhagen
Finland	Ms. Eila Lahdes	FIMR, Helsinki
France	Mr. Allan Cressard	IFREMER, Paris
	Mr. Laurent d'Ozouville	ESF, Strassbourg
	Mr. Jean Xavier Castrec	IFREMER, Centre de Brest
Germany	Prof.dr. Gerhard Kortum	IfM, Kiel
Indonesia	Dr. Anni Kustantiny	BPPT, Djakarta
Italy	Cpt. Claudio Viezzoli	SOPROMAR, Rome
NATO	Dr. Chris Gobey	NATO, Ispra
Norway	Dr. Roald Vaage	IMR, Bergen
OCEANIC	Ms. Katherine A. Bouton	UD, Delaware
Scotland	Mr. John Morrison	FRS, Marine Lab, Aberdeen
UK	Dr. Charles W. Fay	NERC-RVS, Southampton
	Ms. Caroline Harper	NERC, Swindon
	Cpt. Brian Kay	CEFAS, Lowestoft

1. Welcome

Dr. Jim Kinoshita, new executive director of JAMSTEC, welcomed all 32 participants from 10 countries and 1 international organisation to the thirteenth ISO-Meeting organised by JAMSTEC. On behalf of Mr. Hideki Ito, the director of JAMSTEC Mutsu Branch in Mutsu, he invited all participants to visit R/V MIRAI and enjoy a lunch onboard.

The Chairman, *Dr. Jim Kinoshita*, expressed his regrets that Dr. Charles Fay had left Japan untimely because of sudden health problems. And as Dr. Caroline Harper had to cancel at the last minute there will not be a representative from the UK this meeting. The UK had sent some written reports, which were made available as a hand-out. *Ms Marieke Rietveld*, as acting secretary, brought forward the apologies for absence of a number of members. Ms Bouton of OCEANIC, and Dr. Eila Lahdes of FIMR, Finland had submitted a written report. These reports will be incorporated in the minutes. *Cpt. Armel Le Strat (France)* announced the apologies of Mr. Jean-Xavier Castrec, who had to cancel at the last minute. Cpt. Le Strat will present Mr. Castrec's written report.

The Chairman invited all participants to briefly introduce themselves.

2. Review of Minutes of twelfth Meeting

With some minor adjustments the minutes were accepted as a true record of the twelfth meeting held in San Diego, California USA, 13-15 October 1998. ISOM members expressed their appreciation of the comprehensive nature of the minutes. The final version of the minutes will be made available on the web site. (<http://www.nioz.nl/isom/>)

3. Delegates Reports of Activities

3.1. Fleet Activities and Changes (incl. major facilities)

Mr. Pollentier (Belgium) reported on the 1999 operations of R/V BELGICA operated by MUMM - Ministry of Science Policy. R/V Belgica operates with one crew, and is kept at sea for about 200 days per year. Mainly the ship operated in the North Sea and North East Atlantic for national research programmes and environmental monitoring programmes as well as programmes sponsored by the EU such as OMEX, ENAM and COMWEB. A new multibeam system Kongsberg-Simrad 1002 has been installed (September 1999). As to ISM, though owned by the Ministry of Science, the R/V Belgica is sailing under the Belgian Navy flag. So far there was no progress on the implementation of the ISM code. Mr. Pollentier will await the developments.

The cruise schedule 2000 of the R/V Belgica was distributed as a hand-out.

Mr. Aranda (Chile) reported on the Chilean scientific ship fleet composed of the vessels Abate Molina, Carlos Porter and AGOR Vidal Gormaz. These operated during the present year exclusively along the extensive national coast.

The scientific ship Abate Molina was at sea for 230 effective days, realising 11 cruises. These investigations correspond to a contract financed by the Fund of Fishing Investigation (FIP) and some funds from the National Commission of Scientific Investigation and Technology (CONICYT).

The cruises required by the Fisheries Research Fund (FIP) are guided to proportion the scientific-technical basis for the measurements of fishing administration and the hydro acoustic evaluation of the resource jack mackerel in the Economical Exclusive Zone, Evaluation of the resource Chilean hake, Prospecting the resource of the Orange Roughy, Evaluation of the resource hake and Recruitment of the common sardine and anchovy in the zone center-south, besides a bioceanographic Monitoring program in the North zone of the country.

The CONICYT continues its program of support to the oceanographic investigation through the FONDAP advanced studies in the system of current of Humbolt with the realization of three cruises located in Coquimbo (North Zone) and Talcahuano (Center-South Zone).

In connection with the equipment of the scientific vessel there are modernisation plans by the acquisition of a of SIMRAD ITI net monitoring system, a Model CTD Seabird SBE-19 with fluorimeter and a upgrade of the scientific echosounder SIMRAD Model EK-500.

R/V Carlos Porter remained in the North zone of the country, with base in the port of Iquique and developing a total of 7 cruises in this year, representing a total of 62 effective days of operation in the sea. The principal activity of investigation of the scientific vessel is the bio-oceanographic conditions monitoring program for the study of the Phenomenon El Niño. During the month of September the ship participated in the Study of the recruitment of the anchovy testing the Continuous Underway Fish Egg Sampler (CUFES). Contact was made with Mr. Pedro Goosen (South Africa) in order to share their experience with this equipment.

Important to mention is that during the month of May the Scientific vessel Carlos Porter participated in a combined cruise with Peru, Ecuador and Colombia organized by the Permanent Commission of the South Pacific.

The Navy vessel Agor Vidal Gormáz participated with the scientific community in two cruises. The first denominated Cruise CIMAR FIORDO 4 was effected between February 25 and March 08 in the zone of channels and fords of the XI Region. The cruise CIMAR 5- Oceanic Islands are directed to investigate Easter Island and Salas y Gómez Island during the period October 01 and November 10 of 1999

Cpt. Armel Le Strat (Genavir, France) reported on operations of four multi-purpose research vessels of Ifremer - R/V's L'Atalante, Nadir, Le Suroit, and Thalassa, and major facilities : Nautile, ROV Victor. There have been no changes in ships.

All the vessels have been upgraded, and tested for the year 2000.

On R/V L'Atalante, new servers and work stations (ultra 60) have been set up for computer system.

On R/V Le Suroit: the upgrading of the vessel is going on and the first trials will begin mid-October till mid-December 1999.

The manned Nautilie submersible has been equipped with a new main propulsion motor and realised 7 cruises (154 days), 108 dives.

During 1999, Ifremer has run some 37 cruises on the four high sea vessels with disciplines roughly divided as follows: 9 geology, 6 physics and biology, 5 fisheries campaign, 17 technology and equipment trials. Among those cruises we have had 2 for our Spanish partner of IEO (Instituto Espanol de Oceanografia) according to our Thalassa's agreement, 2 charter cruises and 3 for scientific co-operation.

1999 has seen R/V L'Atalante operating for 12 months in Pacific Ocean, R/V Nadir for 9 months (included one month of technical refit) in North Atlantic Ocean, R/V Thalassa for 12 months (included one month of technical refit) in Atlantic Ocean. The R/V Le Suroit was during the 1999 year in modernisation and trials.

1999 is the year of the new seismic digital acquisition system.

Ifremer is involved in seismic acquisition campaign for geosciences, since 1988. The previous system operated by Ifremer was an analogue Sercel 96 tracks streamer with a SN 358 DMX acquisition unit. Each track was 25 metres long, so the active length of the streamer was 2.4 km.

Today, Ifremer is testing a new seismic digital acquisition system. This new system is composed by a 4.5 km digital small diameter streamer (360 tracks of 12.5 meters each track and the diameter is 51 mm), and the new marine acoustic control module (SN 408) from SERCEL. Ifremer has a wide range of low frequency (7 to 100 Hz) powerful seismic sources composed by bolt and GI guns, air flow supplied by a set of compressor enable to provide up to 1800 m³/h. Ifremer has also a high frequency source (200 to 400 Hz) using mini GI guns.

Dr. Strohm (Germany) reported on the activities of the three big research ships RV Polarstern, Meteor, Sonne and the middle IZEd ships. There were no changes since last meeting with the 3 German research vessels SONNE, METEOR and POLARSTERN. They are at sea all the year round except the annual ship yard time.

The German medium-sized research vessel fleet was reduced by two ships. Research vessel VALDIVIA was sold to a survey company, based in Scotland and was handed over to her buyers in July this year. Furthermore, VICTOR HENSEN is no longer included in the medium-IZEd fleet. However, she is available for charter for a great variety of jobs. The separation of VICTOR HENSEN is due to the fact that the ship is not included in the budgeting by the Federal Ministry for Research any more.

The German authorities in charge for the medium-sized research fleet (Federal Ministry for Research, ministries of the coastal states and the Scientific Community) plan to replace further two medium-sized research vessels during the next five years. These are the research ships A. v. HUMBOLDT and POSEIDON. The first newbuilding will have the capabilities of working at the ice margin in northern Atlantic areas due to the requirements of the scientific groups at Kiel and Hamburg that are engaged in climate research. It is planned to realise this first newbuilding sometime around 2002/2003. And the second ship should be put into operation two years later.

In Germany the central reviewing system for the medium-sized vessels was introduced successfully two years ago. However, the formation of a centralised logistic and planning pool was postponed due to different institutional affiliation and funding of the vessels. More negotiations are necessary between the Bund and coastal Länder. These administrative and financial constraints do not impede close co-operation of the marine operation officers in Kiel (IfM: POSEIDON and ALKOR), Warnemünde (IOW: HUMBOLDT) and Bremer-haven: (HEINCKE).

Mr. Fred Smits (New Zealand) is a new member to ISOM. He introduced the National Institute of Water and Atmospheric Research (NIWA) based in Wellington. NIWA is for 100 percent Government owned, but the Government funding is limited to 50 percent. As a result NIWA is very active in the acquisition of contract research funded by third parties. NIWA Vessel Management Ltd. operates two research vessels, R/V TANGAROA (70 m) and R/V KAHAROA (30 m). TANGAROA (Maori for God of the Sea), built in 1992, is a purpose-built research ship, ice strengthened with an endurance of 70 days, and a capacity of 40 people. The ship can work both in tropical and Antarctic waters. It has a 48 channel high resolution

seismic profiling system, and is used for geological and geophysical, biological, fisheries and physical research. It is available for charter, also to the commercial market.

Mr. Goosen (South Africa) reported that the three research ships (Africana, Algoa and Sardinops) only operated along the South African coast line and the Antarctic supply ship, Agulhas, undertook her routine cruises (relieve personnel, cargo and research) to islands in the Southern Atlantic.

No major changes to facilities were made to any of the ships. South Africa is still investigating the pro's and con's of changing the bottom trawl gear (trawl warps, net and doors) on Africana. The major breakdown of Africana's diesel-electric propulsion system in June 1999, forced us to bring in experts to investigate the causes of these frequent breakdowns over the last five years, and to advise on what changes to the system will be needed to resolve the problem. It was decided that because Africana would be out of commission for a unknown period of time, to do her half live refit which were scheduled for mid 2000.

As to manning and managing: South Africa is continuing to experience major problems with keeping it's research ships in a reliable seaworthy condition and to appoint permanent officers to get the ships to sea. Sea Fisheries, that can only offer fixed government salary packages, are unsuccessfully competing with the private sector that offers remuneration packages in tax-free dollars. The salary related constraints together with a bureaucratic work environment make it impossible to recruit and retain ships officers. This lack in continuity with regard to crew on our ships, is believed to be the main reason for the breakdowns on Africana. Tender specifications for private manning have been drawn up and published and we expect that our ships will be privately manned from April 2000 onwards.

Mr. Diaz (Spain) presented the news about the R/V HESPERIDES. During the past season, November 1998 to October 1999 she developed 6 cruises as follow: two in the Antarctica, funded by the national Antarctic Programme as well as providing logistic support to the two bases in the area of Antarctic Peninsula. In the Mediterranean and Atlantic area three cruises related to UE projects (one for MATER and two for CANIGO) and one for the national EEZ were developed. An initiative that has been very successful was that from 28 October to 4 of May a WEB page has been maintained with diary information sent through e-mail from the vessel. Every day it was possible to find pictures and 2 text pages, one written by the vessel Commander and another Navy Officer plus a second one from, usually the chief scientist. Both pages, written in plain language have the aim to explain both sailing details while the scientist use to provide highlights of the cruise. A lot of messages, not only from Spain, were sent back to the vessel from people following the page. The intention is to also keep the WEB page this year too.

After the positive experience from the previous year, when during EXPO exhibition in Lisbon 16 students and professors from the four Marine Sciences faculties were on board, it has been decided to continue with the same approach in the transits back and for to Canary Island. Again students together mainly with senior technicians are introduced into modern technology and when possible, scientist going to participate in the cruise collaborates too.

The main modification on the vessel capabilities has been the replacement of the CTD A-frame for a telescopic one that prevents damage in the rosette-CTD package when working under bad weather conditions, something frequently happening in Antarctica. Laboratory equipment also undergone a modernisation process that has lead to the replacements of the Scintillation Counter, Spectrophotometer and Spectrofluorometer, all of them install in late 1990; a new Flow Cytometer has also been added. The shallow water multibeam echosounder EM1000 has been upgraded to EM1002S keeping the same hull unit.

The Instituto Español de Oceanografía (national fishery research organisation) is building-up a new 50 m long oceanographic research vessel that is going to be launch this year. The vessel is built with both multipurpose and fishery researches capabilities and will have a drop keel for several scientific transducers. There is another project for another multipurpose research vessel that may replace the coastal vessel García del Cid, but it has not been obtained confirmation for funding.

However, the major event that has affected to the UGBO has been the assignation of the responsibilities on the management of the summer Spanish Base in Antarctica, "Juan Carlos I". After the successful support that the UGBO has been provided during the past 9 years to the R/V HESPERIDES scientific activities, it was decided that the UGBO will become the UGBOIP, being IP the capitals of Instalaciones Polares (Polar Installations). We start in November this year until end of February 2000 for the 1999-2000 Antarctic season.

It has also planned that the R/V HESPERIDES will participate in the Hanover EXPO2000 visiting Wilhelmshaven harbour next June 2000.

Don Heinrichs (USA-NSF) will report on the UNOLS Fleet Review under a separate agenda item. He asked the attention of ISOM for the document: "Turning to the Sea: America's Ocean Future" containing a policy statement of the President of the United States. The document was made available as a hand-out.

Ms Dieter (USA - NSF) reported on the UNOLS fleet for 1999.

The on-going upgrade of the US National Oceanographic Laboratory System (UNOLS) fleet continues. The fleet is now up to 29 ships operated by 21 institutions. The addition of a small ship for the University of Minnesota brings the complement to 6 large, 8 intermediate and 15 small regional ships. In 1999 one large ship was laid-up (KNORR) and several intermediate had lighter than optimal schedules. The light utilization of the ships is the major fleet concern, however UNOLS does not anticipate any full year lay-ups in 2000.

Two new ships are currently in the construction mode. The office of Naval Research (ONR) is supporting the design and construction of a large SWATH to be operated by the University of Hawaii. (ONR will discuss the SWATH in their report). A new catamaran is under construction for the University of Miami and is expected to be fully operational in spring of 2000. The US Coast Guard Icebreaker HEALY is in the final stages of construction. It will undergo testing during 2000 and be fully operational for science in early 2001. The ship's primary mission will be to support science in the Arctic.

The small ships continue with a healthy increase in days in support of coastal research programs. The Atlantis and Alvin were fully booked in 1999 and are oversubscribed in 2000. The facility has been over subscribed for the past three years. The use of the ROV's is also increasing. As a result of the high demand and increased capability Woods Hole is engineering a major upgrade to the ROV system. A new more capable vehicle is expected to be in service in 2001. ALVIN will undergo a major overhaul in early 2000 and will be unavailable until June at the earliest.

Ms Millick (USA - ONR) reported on new developments of the ONR fleet. Most naval research is on acoustics and seismics. The R/V MOANA WAVE of the University of Hawaii now has been retired. The ship is ready for transfer to other nations. The University of Hawaii will be the new operator for the AGOR 26: This new vessel will be a SWATH (Small Waterplane Area Twin Hull). The Navy has completed the design for the vessel. Design agent: Guido Perla. Some desired characteristics are: LOA: 182 ft, beam 88 ft, speed: 15 knots, operational in Sea State: 6 at 12 knts, Range: 10.000 nautical miles at 11 knts, Endurance 50 days, science berths 30, oceanographic equipment. Primary contractor is Lockheed Martin, shipyard Atlantic Marine. Anticipated delivery in 2001.

Cpt. Zaitzu (Japan - JAMSTEC) commented that JAMSTEC experiences problems with Swath ships with cracks in the hull. *Ms Millick* reports that at the Monterey Bay Aquarium Research Institute they had the same problems with the Swath ship: WESTERN FLYER

Ms White (USA - NOAA) reported on the NOAA fleet that currently is composed of 15 ships (it used to be 23) meeting NOAA's fishery, oceanographic and hydrographic research requirements. The R/V RONALD H. BROWN (sistership of the R/V REVELLE) has been equipped with a unique radar system, only comparable to that on R/V MIRAI of JAMSTEC. ORV Sagar Kanya and R/V Ronald H Brown are deeply involved in the INDOEX (Indian Ocean Experiment) programme for Atmospheric research. Obtaining clearances provided mayor problems. As a mooring servicing vessel the R/V KA'IMIMOANA has been

working for the NOAA.

Mr. Miyazaki of JAMSTEC (Japan) introduced the reports on the JAMSTEC fleet, consisting of five ships. These are the deep sea vessel KAIREI and the oceanographic research vessel MIRAI. The support vessel YOKOSUKA, the research vessel KAIYO and the Support vessel NATSUSHIMA. Construction has also started on a drilling ship.

Mr. Okawara of NME (Japan) reported on the JAMSTEC fleet activities in 1999. The support vessel NATSUSHIMA supported the dives of ROV SHINKAI 2000 and ROV DOLPHIN-3K in Japanese waters. Remarkable dives of DOLPHIN-3K were those to the Russian tanker NAKHODKA that sank in the Japan Sea in 1997, and the dives at the ODP station off Sanriku that was drilled and fixed by the JOIDES Resolution. Dives with SHINKAI 2000 are scheduled in November in Manus Basin and at the seismic center off Itape in Papua New Guinea.

On the research vessel KAIYO a new 24 Multi Channel Seismic equipment was installed. Seismic surveys were conducted combining MCS and OBS. R/V KAIYO will cruise the Western Tropical Pacific for TOCS and the Central Equatorial Pacific for Tomography buoy deployment from October 99 till January 2000.

After supporting the dive of SHINKAI 6500 in Japanese waters, the support vessel YOKOSUKA cruised to Hawaii to support the SHINKAI 6500 diving for the co-operative Japan-US study on submarine volcanoes and landslides around Hawaii. When calling for the second time in Honolulu YOKOSUKA had an open house, and received 1016 visitors.

She is scheduled as of February 2000 for the Philippines/Mariana waters to conduct geophysics studies. The deep sea research vessel KAIREI was committed during the first half of 1999 to 120 channel MCS and supported the ROV KAIKO dives.

A special Multi Channel Seismic Survey was carried out, with R/V KAIREI and R/V KAIYO working together, where KAIYO served as a sound source. R/V KAIREI deployed a 4000 m streamer in this MCS research. R/V KAIREI assisted ROV KAIKO with the recovery of some pop-up OBS buoys that did not float due to malfunctioning of the acoustic releases. R/V KAIREI will conduct geophysics surveys in the Philippines/Mariana waters from October 99 till January 2000.

The Operations Schedule of the fiscal year 1999 of the research fleet was made available as a hand-out.

Cpt. Nakagawa of GODI (Japan) reported on the new R/V MIRAI that is managed by GODI. MIRAI is designed for operations in high latitudes and polar seas under heavy weather conditions. She is a large vessel of 8600 GRT, accommodating 80, including 34 crew members. She carries up to 16 ocean observation buoys and is equipped with various advanced observation instruments (Seabeam, Doppler Radar o.a.) She has ice class of NK, is not an ice breaker, so operates mainly in summer in the Arctic Ocean. (Specifications on ship and Arctic Ocean cruise can be found in the hand-out and brochure). R/V MIRAI cruised the Arctic Sea last August, she sailed from Hochinohe (Japan) end of July to Seward (Alaska). She was in Arctic waters for about 10 days and then called at Dutch Harbour (Alaska) end of August. Main observations were CTD, water sampling and plankton net towing. The cruise was successful, notwithstanding that at Barrow Point sea ice forced the ship to adjust her course, and she unexpectedly encountered a thick belt of drifting ice in the Bering Strait. Ice concentration 3/10th to 4/10th. The ship could clear out safely.

After her first docking period R/V MIRAI will be committed to a Joint Research Collaborative Project, uniting scientists from various institutions in Japan and from abroad to join in JAMSTEC research. A hand-out on this Joint Research Project was made available.

Ms. Rietveld (Netherlands) reported on the 1999 operations of the multi purpose R/V Pelagia. Research cruises were mainly in the North Sea and North Atlantic, West of Ireland, Bay of Biscay, Iberian Margin for the international EU funded programmes PROVESS, HIC/TBT, OMEX, and ENAM, and for the WOCE-related programme PROCS plus 3 different charters. The vessel was also involved in training

cruises for university students. PELAGIA cruised for a period of 11 month in total. One week was dedicated to testing new instrumentation. With 4 weeks of maintenance only two weeks are left for the preparation of an ambitious project starting early January 2000 which implies a circumvoyage around the African continent in the first half of the year.

A new deep sea winch and cable will be installed and again a proposal has been submitted for a movable deep sea bottom sampling and measuring device as a further development on the lander techniques of the NIOZ institute.

The NIOZ institute and Marine Research Facilities were reviewed by international panels. The outcome and future prospects are discussed these weeks between the boards of the institute and funding agency. For the MRF their certainly will follow organisational and financial restructuring.

Ms. Lahdes (Finland) could not attend the meeting but reported in writing. R/V ARANDA had her 10th birthday in June 1999. R/V ARANDA (government funded, 59.2 m, GT 1734, 25 scientists) operated by FIMR will have 12 research cruises and in addition 45 days scientific charter period. in 1999. Except the charter cruise Aranda operated in the Baltic Sea. Research cruises included cruises of biological and chemical monitoring (HELCOM), sediment chemistry, ice research (BALTEX/BASIS), physical oceanography (BALTEX/BRIDGE), plankton biodiversity and water turbulence (MITEC), microbiology during blue-green algae bloom and as a new subject the CO2 balance of the Baltic Sea. One week was used to test and calibrate the CTD- and ADCP-instrumentation. Courses for the university students were arranged during the scheduled cruises by FIMR scientists and technicians. Most of the cruises collected scientists from other Finnish institutions and had substantial international participation as well. Samples for other institutes were collected by the FIMR staff (e.g. water and sediment for radioactivity studies). The maintenance of the bow thruster turned to the replacement of the bow thruster and the scientific programme was delayed several weeks in January and February. In the websites of FIMR one can now follow the actual position of Aranda in the map and as well as the weather conditions (water and air temperature, atmospheric pressure and speed and direction of the wind). Especially during the charter cruise families and colleagues of the expedition members followed interested the conditions in the Denmark Strait.

Arandas capacity is not fully used. At the latitudes (Helsinki is locating at the same latitude as the most southern tip of Greenland), where Aranda mainly is operating the seasonal differences are large and the activities are often concentrated to few months, late autumn and winter are not very attractive. Summer time chartering means flexibility to arrange our own activities.

In addition to R/V ARANDA two other smaller vessels are active in marine research in the Finnish coastal areas. R/V GEOLA ("12 h vessel", 40 m, 10 cabins) is operated by the Geological Survey of Finland and is specialised to the research on the geology of the Baltic Sea and sea floor mapping. R/V MUIKKU (23 m, GT 129, 8-10 scientists) is operated by the University of Joensuu and is active also in the extensive lake district of Saimaa connected by a canal to the Gulf of Finland.

Ms Harper (UK) reported in writing.

The three RVS ships, RRSs DISCOVERY, CHARLES DARWIN and CHALLENGER, have been fully occupied throughout the spring and summer, supporting a variety of research projects and charter cruises in the North Atlantic and around the UK. As ISOM 1999 commences, the DISCOVERY is scheduled to be in transit to an area South of the Canary Islands, to carry out experiments on vision, bioluminescence and communication in deep sea fish and crustaceans. During the transit leg the Principal Scientist plans to carry out training and safety drills for all personnel who will be involved in deploying nets and other gear overside, in order to comply with International Safety Management (ISM) Code requirements.

NERC scientists also have access to the British Antarctic Survey research ship RRS James Clark Ross for two months each year. In March/April 1999, the JCR conducted a physical oceanography cruise for NERC scientists in the South Atlantic. The 1999 NERC research Ships Programme is made available as a hand-out.

For year 2000, RVS have taken the short-term decision to lay up RRS CHALLENGER, for reasons of cost-effectiveness. Due to a number of financial constraints within NERC at present, and a dip in the charter market, funding for ship time in 2000 will be less than normal. This has meant that the number of operational ship days required will not be enough to justify running the CHALLENGER. However, predicted demand from new science programmes is expected to increase again in 2001 and beyond. In addition, NERC has recently committed funding to a new training initiative. Representatives of the user community are currently developing short training cruises, which will be carried out on the CHALLENGER, to train postgraduate students in basic sea-going skills and scientific procedures. Funding is also available to enable students to take advantage of any spare berths on future programmed science cruises.

The DISCOVERY and the CHARLES DARWIN are expected to be busy throughout most of the year, operating in the North Atlantic and around the UK. Towards the end of 2000, it is anticipated that either the CHARLES DARWIN or the DISCOVERY will transit to the Indian Ocean, to support a UK-led Indian Ocean campaign throughout 2001. Both vessels are being readied, pending assessment of the various applications for ship time. However, it is most likely that the CHARLES DARWIN will be used in the Indian Ocean, because of the likely requirement for her hull-mounted swath bathymetry system. The DISCOVERY will then operate in the North Atlantic.

The CHALLENGER will become operational again in 2001, assuming that there is sufficient demand for a cost-effective programme.

The 2000 NERC Research Ships Programme is currently awaiting formal approval from NERC Headquarters. Copies will then be available on request from Dr Fay or from Caroline Harper.

Joint Infrastructure Fund: As part of the last UK Government Comprehensive Spending Review announcements, the Wellcome Trust, the UK Government Office of Science & Technology and the Higher Education Funding Council for England have created a £700m Joint Infrastructure Fund (JIF) which seeks to transform the scientific research environment within UK universities. The Fund covers all elements of research infrastructure, including research vessels and major marine equipments. Awards made in the first round earlier this year include funding for a multibeam echosounder to be installed on the NERC British Antarctic Survey research ship RRS James Clark Ross. This facility, on an ice-strengthened research ship, will be available to the whole UK community and to the international community via the ship-time barter mechanism.

Funding has also been awarded to the University of Wales, Bangor, for a new shelf sea research vessel. The new ship will conduct work which would be uneconomical on the larger ocean-going vessels of the RVS fleet, but which would be beyond the capabilities of an inshore vessel.

Plans for a new research ship for RVS

A major development during 1999 has been the approval from NERC Council to seek funding for a new research vessel for the RVS fleet. A Research Vessel Replacement Working Group was set up in January 1999, triggered by the age structure of the fleet, and by an assessment in 1998 of the predicted demand for research ship time over the next 10-15 years. The Group was charged with assessing the various options for replacement, to ensure that the predicted science requirement would continue to be met, and in a cost-effective way. Surveys of the oldest RVS ships, the CHALLENGER and the CHARLES DARWIN, revealed that the CHALLENGER could continue in service for another 10-15 years. The CHARLES DARWIN, however, is of a less sound construction and is reaching the end of her working life. In parallel, a detailed survey of the UK user community revealed a requirement for an innovative research ship a little larger than the CHARLES DARWIN, with the following capabilities:

- Dual frequency seabed mapping system, suitable for shelf edge and deep ocean surveying Full Remote Operated Vehicle (ROV) handling and launching system
- Capability of towing close to the (deep) seabed large scientific packages, including survey vehicles, experimental "fishing" nets, or seabed trawling, and of sediment coring

- Ultra clean facilities for marine chemistry for the detection of trace elements (inorganic and organic) for studying both ocean circulation and contaminant transport
- New atmospheric sampling and analysis systems

NERC Council approved the Working Group's recommendation, in June this year, that a replacement for the CHARLES DARWIN should be commissioned as soon as possible, with a bid to be prepared as part of the NERC submission to the next Government Comprehensive Spending Review in 2000. It is anticipated that the new ship would become operational in 2004, when the CHARLES DARWIN would be decommissioned. The new ship will incorporate the features listed above. As far as possible, she will be designed to combine the functions of the CHALLENGER and the CHARLES DARWIN, without compromising her capabilities. Demand for a replacement for the CHALLENGER will be re-assessed within the next few years.

The Working Group examined the possibilities for sharing a vessel, or for collaborating on a new build/acquisition with other institutions in the UK or within Europe. Based on responses from other UK/European research ship operators, it concluded that no suitable opportunity for collaboration existed, within the required time scale for replacement of the CHARLES DARWIN. Instead, all partners recommended that European collaboration should continue to be developed, and expanded as required, via the existing tripartite (UK/France/Germany) mechanism, which arranges ship-time exchanges and joint expeditions.

3.2. Ship Time Barter/Exchange

Dr. Strohm (Germany) reported that during the last and this year Germany had two barter deals within the European Tripartite liaison group. Last year the research vessel POSEIDON was in operation for the Southampton Oceanographic Centre. It was a very successful and pleasant cruise to the Azores. This year, actually right now, again the research vessel POSEIDON will be at service for IFREMER with a cruise from Brest to Viana do Castelo (Portugal). During the next few years Germany will have to place considerable more ship time at the disposal of her European partners in order to make up for "borrowed" ship time.

Dr. Strohm (Germany) took over from Dr. Fay (UK) to report on the Tripartite Agreement between NERC (UK), IFREMER (France) and BMBF (Germany), which has established an arrangement for the barter exchange of shiptime and major facilities between each country.

Under the terms of this agreement a Marine Facilities Tripartite Group (MFTG) has been established to deal specifically with ship-time barter and exchanges of major marine equipment. The Group meets annually to compare draft programmes and arrange exchanges. The last meeting was hosted by RVS at Southampton Oceanography Centre on 3 September 1999, and was attended by ISOM members Jean-Xavier Castrec from IFREMER, Gerhard Kortum from Germany and Charles Fay and Caroline Harper from NERC. Also attending was Mr. Jacques Binot, Directeur des Navires Oceanographiques et de l'Intervention Sous Marine, IFREMER.

An equivalence points system has been agreed for the value of each of the ships, to ensure like-for-like. Points are allocated per ship day used. On average, between the three partners there will be one or two ship time barter and one or two exchanges of major equipment each year.

One of the new topics being looked at by the Group is the standardisation of equipment for installation on new ships. Germany is embarking on building a new vessel, and the UK is bidding for a new vessel to replace the Charles Darwin. It is hoped that such new initiatives will be of considerable benefit in the future.

The Group has also produced a booklet, giving the details of the respective ships within the Agreement, which is disseminated within each country, to inform the scientists of what is available. Copies are

available to ISOM members on request, from Dr Fay or Caroline Harper.

Mr. Nakano (Japan) told that in July 1999 JAMSTEC chartered, just like in 1998, the Russian R/V Professor Khromov from Vladivostok for research in the Russian Sea of Okhotsk (east of Sakhalin) comprising CTD, water sampling and mooring deployment. A cruise summary was made available as a hand-out.

Cpt. Le Strat (France) reported on shiptime exchange and exchange of major facilities of IFREMER with Germany.

A French-team, chief scientist Bernard LE CANN, Laboratoire Physique des Océans, has realised the cruise ARCANE (discipline physic) on the German ship POSEIDON from 7th to 14th October 1999 off Spanish coast.

Within the frame of a German/French co-operation Alfred Wegener Institute (AWI) and Ifremer launched a joint project based on the share use of Ifremer ROV VICTOR 6000 aboard the German vessel POLARSTERN from 23rd June (Bremerhaven) to 19th July (Tromsø).

This joint expedition had the character of a feasibility study and gives Ifremer the chance to work with Victor system for the first time on a foreign research vessel in a polar sea.

On the other side, AWI scientist have had the opportunity to learn about the potential capabilities of R.O.V.

Mr. Goosen (SA) reported that financial constraints forced South Africa to limit sea time on its ships for 1999 to only the absolutely essential cruises necessary for the setting of Total Allowable Catch's for her commercially exploited marine resources. Total sea time allocations for April 1999 to March 2000 were limited to: Africana 164 days, Algoa 122 days and Sardinops 180 days. Africana, however, only did a 60 days before being laid-up as a result of propulsion motors breakdown. Although requests were received from several national and international research and commercial institutions to charter the ships, all the requests had to be turned down as a result of our financial constraints (charter fees are not paid into the Sea Fisheries budget but must be paid into central Treasury), Africana's breakdown and half life refit.

Ms Rietveld (Netherlands) reported that the Russian R/V PROFESSOR LOGACHEV was chartered for 53 days to execute a combined national programme of 4 different research projects in the Eastern Mediterranean. Main research objects were Sappropels, Gashydrates and Mud Volcanoes.

3.3. Staff Exchanges

Dr. Strohm (Germany) reported on staff exchanges between IFREMER and Alfred-Wegener-Institut for Polar and Marine Research. Technical personnel from RV POLARSTERN will be incorporated in the IFREMER fleet and vice versa.

Mr. Goosen (SA) reported that the NORAD funded Nansen programme provided regular opportunities to scientists of the SADC to participate on research cruises in the waters of these countries.

The Benguela Environmental, Fishing, Interaction and Training (BENEFIT) programme are providing ongoing opportunities for staff exchanges among the SADC countries. Africana was made available for a 40 day training cruise between Cape Town and Luanda (Angola) for SADC countries in June 1999. Africana unfortunately experienced major propulsion motor problems during the 3rd leg of the training cruise, and Algoa replaced her to complete the 4th and final leg.

Mr. Diaz (Spain) reported that UGBO technicians have supported activities of Spanish scientist on board Thalassa and a Russian charter vessel.

Commander White (NOAA) reported staff exchanges between NOAA, Woods Hole and JAMSTEC.

,BR> *Cpt Nakagawa of GODI (Japan)* reported that a deck officer of R/V MIRAI boarded the Canadian Coast Guard Icebreaker HENRY LARSEN, in order to get training for working in Arctic waters. The exchange took place during an Arctic Icebreaking cruise in July-August 1999.

3.4. Equipment lost

Mr Pollentier (Belgium) reported the loss of a mooring with a Seabird model 21 STD- system including a fluorimeter and Par sensor.

Dr Strohm (Germany) mentioned that last year there was no loss of major or valuable systems. But of course there were quite a few minor losses and damages as they always do occur.

From the written report of Ms Harper (UK): The most significant losses of RVS and UK user equipment were: two moorings, lost during a benthic/midwater biology research programme in late 1998/1999, from the Charles Darwin and the Challenger. The ARGOS beacon from one of the moorings was subsequently recovered. In addition approximately 5000m of main trawl wire were damaged on the Challenger, fouled on the sheave shaft during deployment, and an ADCP mooring and an ARGOS marker buoy were lost on a Discovery cruise.

Mr. Nakano of JAMSTEC (Japan) reported 3 incidents as shown in the hand-out. One was a large IZE Rosette Water Sampler and CTD loss and two referred to other equipment, mostly part of a mooring like two sets of a sea-bottom seismograph, and acoustic release and currentmeter. In the last two cases the transponder or acoustic release did fail. Snapping of the wire line was the cause of the CTD Rosette loss.

Cpt. Le Strat of Genavir (France) reported that Ifremer loosed a small sonar in Mediterranean Sea.

Mr. Diaz (Spain) reported the loss of a heat flow probe in the Antarctic because of a 14 mm coax cable break.

Ms Rietveld (Netherlands) reported the loss and the retrieval of 4 moorings in the Northern North Sea. Two were retrieved by fisherman, two were recovered by dredging. A mooring lost 3 years ago off Brittany France was recovered by a French fisherman. A boxcorer was lost in the North Sea by failure of the cable. Instruments lost by cable failure are covered by insurance.

4. Special issues brought forward by Japan

4.1. Piracy Problem

Mr. Okawara of NME (Japan) introduced the issue and gave an overview of the incidents reported by the IMB (International Maritime Board), who defines piracy as: "An act of boarding any vessel with the intent to commit theft or any other crime and the intent or capability to use force in the furtherance of the act". As could be seen from the figures the number of incidents in S.E. Asia are increasing. Especially Malaysia and the Indonesian archipel are risky areas as experienced during TOCS cruises. JAMSTEC takes serious considerations on the piracy risk when deciding on research cruise plans. When a cruise takes place in such an area several preventive measures are taken. These vary from doubling watchkeeping, closing all doors from the inside except one, ensure adequate lighting of all deck areas and prepare search lights, preferably only work during daytime, rigged fire hoses on each deck, barbed wire on outside of vessel, install alarm systems. All crew members get adequate instructions on how to handle to prevent casualties. An extensive list of precaution measures etc. was made available as a hand-out. In a round table ISOM members shared their experiences with piracy and robbery. Not much serious could be reported.

Though sometimes a zodiac or freezer was missing, no one ever saw the theft. Areas where some problems were met, were Africa (Dakar, Nigeria and Somalia) - for work off Somalia most ship operators take precautions measures - and Singapore.

4.2. Vandalism on TRITON buoy

Mr. Kuroda of JAMSTEC (Japan) introduced the problem of vandalism on the TRITON (Triangle Trans-Ocean Buoy Network) buoys. TRITON is the follow-up of TOGA and the JAMSTEC part of the program is focusing on the warm pool region in the Western Pacific for obtaining long term data for process studies on ENSO (El Niño/Southern Oscillation) and the intermediate water formation and air-sea interaction in the frontal region between the subtropical gyre and the subpolar gyre followed by buoy deployment focussing on oceanic change and air-sea interaction associated with the Asian monsoon in the far Western Pacific and the Eastern Indian Ocean. R/V MIRAI and the Mutsu Branch of JAMSTEC is dedicated to the TRITON program. For this expensive program a lot of precautions have been taken, technically: a 10 tons breaking strength wire instead of the normal 5 or 2.5 tons for moorings, and also by means of education. All possible fishing organisations and authorities in the local areas have been informed on the importance of the program and been requested to preserve the buoys. Nevertheless, some were vandalised and even parts of steel broken off. Not for robbery evidently, but just destruction motives. Most vulnerable regions: East of Indonesia and North of New Guinea. JAMSTEC will take further measures to prevent vandalism, but the suggestion was put forward that it might help, if Indonesia and New Guinea would be a member of ISOM.

5. Insurance/liability of Research Ships

5.1. Update on world insurance and Legal and Liability issues

Prof. Nixon (USA), the Risk Manager and Legal Advisor for the US UNOLS fleet, gave a presentation on Marine Insurance World Outlook and ISM Legal Impact. MARINE INSURANCE WORLD OUTLOOK AND ISM LEGAL IMPACTS As to the CURRENT STATUS OF THE MARINE INSURANCE MARKET: According to Nigel Jenkins, Chairman of the Marine Committee of the International Underwriter's Association of London, the numbers have not been working out very well for the marine insurance industry. Although he hoped to see an increase in premiums to slow the tide of losses, that has not as yet materialised and the market continues to show an underwriting loss. The figures for 1998 were released in May, 1999.

	1997	1998
Premiums	\$1.98 billion	\$1.75 billion
Claims	\$3.06	\$2.64
Loss Ratio	160%	150%

Jenkins stated that although there was a hope that there would be a turnaround in profits in 1999, the prospects for a good year seem very remote. There was an increase in the number of ship losses in 1998, but a decrease in the total tonnage lost. (figures are for vessels over 500grt)

	1997	1998
Number lost	89	96
Tonnage lost	739,164	546,915

The most expensive losses were attributed to large, expensive containerships fully laden with high value cargo encountering severe weather events.

According to John Hickey, President of the American Hull Insurance Syndicate, "A year ago, the market was abysmal. Now it's ridiculous!" He went on to say, "Prices just keep dropping. I've never seen them

this low, but then I said the same thing last year. This is nuts!" Why?

According to John Engle, head of hull business at Marsh, Inc., in London, the reason is that there is still considerable overcapacity in the market - something only a series of catastrophic accidents could reduce. Those accidents are less likely because of the improved seaworthiness of modern fleets. The overcapacity was created by the strong financial performance of the investment divisions of the insurance companies. Robert Somerville, President of the American Bureau of Shipping, agrees and attributes the better record to the Oil Pollution Act of 1990, greater port state enforcement, and the International Ship Management (ISM) Code. Another major impact in the past two years is that owners are scrapping older vessels and investing in newer ones because of higher prices on the scrap side and tighter regulations. Last year, a few insurers quietly hoped that Year 2000 computer problems would cause enough losses to justify a rate increase - but recent surveys have indicated that most fleet owners have taken the issue seriously and are prepared. In truly startling news, the International Group of P&I Clubs is reviewing the surcharge system on tankers entering United States waters because of a favorable claims record. The bottom line is that despite the appearance of unprofitability, excess capacity driven by investment results and a better safety record will act to keep prices down for at least one more year.

As to the Legal Impacts of the ISM Code:

The popular American author John McPhee wrote of his travels on the merchant ship STELLA LYKES in his best-seller "Looking for a Ship." He described the ship's mates as "floating law clerks" and stated the conventional wisdom among seafarers that the ship's logbook serves "no useful purpose beyond a thorough preparation for an appearance in admiralty court." A year's experience with the ISM Code hasn't done much to change that impression. Keeping track of paperwork has never been more serious - it can be the start of something much more serious.

I am reminded of the story of the American gangster Al Capone, a notorious criminal from Chicago alleged to have committed many murders. For some reason, the witnesses always remained silent. Capone evaded conviction for many years, until he committed the grievous crime of ...income tax evasion! It was a trail of documents, not bullet-riddled bodies, that led to his demise. The maritime equivalent of Al Capone's demise took place in US waters this year: the Coast Guard suspected that Royal Caribbean Cruise Line was illegally dumping waste oil into US waters, but could not get the evidence firsthand. Ultimately, it was a port state inspection which led to a logbook discrepancy. The vessel, it turns out, had been keeping two sets of logs: one for their own purposes, and a second set for port state inspectors they referred to as the "fairy tale book." The discovery led to a guilty plea for filing false records AND an admission of guilt under the Oil Pollution Act. They have now paid over \$10 million in fines because their "paper trail" could not withstand scrutiny by a port state inspector. The paper trail required by the ISM Code gives the port state inspector an even greater opportunity to stop both unsafe and illegal activities. I would like to comment on a series of ISM issues that have arisen over the past year. Despite the benefits cited in the insurance section discussed above, there have been a few "bumps in the road" to full ISM implementation. For example, Lloyd's List reported earlier this year that "ISM Cheats Using Temporary Crews." According to Alan Cubbin, Director of Marine Safety and Pollution with the UK's Maritime and Coast Guard Agency, at least two cases have been reported in Europe where temporary "professional" crews have been recruited to ensure vessels gain ISM certification. As soon as the auditor goes down the gangway, the "professional" crew departs and the "real" crew returns.

The issue which has dominated discussion of the ISM Code in both the UK and US this year is reminiscent of John McPhee's "Looking for a Ship:" the transparent paper trail could be seen, particularly in the US, as a virtual invitation to litigation. Prof. Craig Allen, a colleague at the University of Washington law School, recently published an article on the subject. In his view, the problem with "transparency" is that the documents will reflect audits that detect "non-conformities" and even if later rectified will give an opportunity to attack the shipowner. Most troublesome is the category of "near-misses" - part of aviation culture, but widely seen as a career-ending move by a seagoing officer. Allen raised the question of whether ISM documents should have privileged status and remain confidential - otherwise the safety benefit of learning from "near-misses" will never be achieved because they never

will be reported. Allen's article, coupled with complaints from industry, has convinced the Coast Guard to commission a study to examine whether there should be a special status for ISM documents, shielding them from the normal discovery process of a lawsuit.

After only a year of experience, it is difficult and perhaps foolhardy to make an assessment of its impact on the safety of world shipping. It has, however, produced a major "culture shift" in which the marine superintendent now plays an important legal role and the shipowner can no longer hide behind shadow corporations. This change will be very interesting to evaluate in the years ahead, and will certainly provide an interesting area of discussion for next year's ISOM in the Netherlands.

5.2. Charter party liabilities: Millenium and Pollution Clauses

Ms Rietveld (Netherlands) enquired after the readiness of ISOM members regarding the Y2k problem. All members were quite sure they had tackled the problem quite well. Most would keep their ships in harbour on the 31st of December. She came back to her experiences with chartering-out R/V PELAGIA. Pitfalls encountered when chartering out for commercial organisation(s) for commercial research this last year. Again she stressed the importance of a standard and internationally recognised Charter Party, and gave an explanation of why it is difficult to change from an academic research vessel to an industry support vessel overnight. Especially for the offshore industry it is difficult to accept that if the scientific work to perform does not deviate from the usual practice the shipowner would like to stick to the prevailing rules and safety regulations of scientific survey practices.

To illustrate this she gave a case on the interpretation of a standard pollution clause, where an oil company had to replace the standard clause, probably because of fear on oil pollution from the ship itself, and according to the P&I Club in London the clause in its original form could have been maintained. The same applies to Charterer's requirements of evidence of being Millennium proof, where a few weeks' charter would not even reach the date(s) of 22 August or 9 September 1999.

Ms. Rietveld (Netherlands) had no further news on the insurance issue for research ships in Europe. She mentioned that some members that have their ships Government/self insured only sought insurance for the time they chartered out their ships. This had been the case for UK and Finland.

6. ISM Code update

Dr. Fay (UK), though absent, had provided a written report on the successful implementation of the ISM Code at RVS. This very useful overview elaborating the achievements over the past three years was distributed to all members as a hand-out. In writing there was also available the summary of the ISOM-ISM survey. Of the total responses of 13, 8 were ISM required of which 6 had their DOC and ISM Certificate. Two just on marine operations and four also including scientific operations. Two of these based on scientific operations. The other two based on risk assessment.

The summary was distributed as a hand-out.

Cpt. Nakagawa of GODI (Japan) reported briefly on the JAMSTEC approach to ISM Code. The five ships owned by JAMSTEC are managed by two private companies, NME and GODI. So, for each ship two companies needed to obtain the Document of Compliance (DOC). A start was made in the second half of 1998. Most work was the assessment of the documentation set and Safety Management Manual. The ISM assessment authority of Japan is Nippon Kaiji Kyokai (NK), the only classification authority in Japan. Early 1999 certification procedures were started, and in February R/V MIRAI was certified, followed by the other ships. The whole fleet was certified in July 1999 and had obtained the SMC (Safety Management Certificate) and NME and GODI had received the DOC in May and February 1999 respectively.

7. EU fifth Framework: European Initiative on Large Marine Facilities

Mr. Ollier (EU-CEC, Brussels) gave a presentation on the European Initiative on Large Marine Facilities.

The deep towed bathymetric Instrument (TOBI) of SOC, the submersible NAUTILE of IFREMER, and the SOC GLORIA received the status of LMF. The Fifth Framework Programme of the EU is now in a transitional phase. For the future further initiatives are foreseen to support for marine research infrastructure. Next year the EU will further elaborate its plans in close collaboration with the Marine Board of the European Science Foundation.

8. Deep Submergence Facilities (manned and unmanned)

Ms. Dieter (USA - NSF) introduced the issue of submersibles & ROV's, and mentioned that the manned Deep submersible ALVIN would have its major overhaul at the end of 2000. Also the ROV JASON was due for an extensive overhaul. There were already some building plans for a JASON-2, but before being able to assess further planning there is a need to know what direction science is going in the next decade in respect of the need for manned submersibles and ROVs.

She put the question before ISOM members.

ISOM agreed with the statement of Ms. Dieter. The manned submersibles evidently are overcommitted, in the US, Europe and Japan. JAMSTEC has no plans for new manned deep sea submersibles at the moment, confirming that the existing are indeed overcommitted.

9. Update on diplomatic clearance

Ms Rietveld (Netherlands) introduced the issue on diplomatic clearance, and gave an update of the situation from a European perspective. Further attempts towards Norway for a shortened procedure were unsuccessful. As to the Russian Federation, the ratification of the Helsinki Convention (HELCON) make it possible to obtain permission for scientific work in the Russian part of the Baltic Sea under the new "Law of the inner waters, territorial sea and the sea area adjacent to it of the Russian Federation". For Japan not such a possibility exists as to the Sea of Okhotsk. JAMSTEC is exploring the possibility of an intergovernmental MOU between Japan and Russia for specific programmes. So far chartering a Russian vessel overcomes the problem.

Ms Rietveld asked ISOM members for advice on obtaining clearance in African countries for the planned Around Africa cruise of the Netherlands. *Mr. Goosen (South Africa)* recommended that it could be worthwhile to contact the SADC (South African Development Committee) for facilitating clearance in Namibia, Mozambique and Madagascar.

Dr. Strohm (Germany) brought forward that RF involves the Shipping agent in the respective country. All members acknowledged the problem with Somalia. Also India was mentioned as a country providing extreme difficulties. Though Pakistan is not providing severe difficulties, Karachi is a difficult harbour. Though Oman might be safe as a harbour, berthing better be motivated by training purposes.

10. US/NSF Academic Fleet Review

Dr. Heinrichs (USA-NSF) gave a presentation on the outcome of the review of the Academic Research Fleet. The review concerns the total UNOLS fleet of 28 R/V's. The aim is the most cost effective operating and managing of ships, whereas the questions have been posed whether the present capacity meets the requirements, and whether the advisory, funding and management structures are adequate. The outcome of the review was favourable for the present UNOLS system. "We are doing good, but we can do better". Summarised: "The UNOLS system should be retained. The NSF-UNOLS current practices, using institutional operators funded by NSF and other federal agencies with centralised scheduling through UNOLS seems to provide excellent access to the sea for US investigators."

The cost seem comparable to or better than government operators and not much different from contracting commercial ships.

To be able to assess the future capacity needs: "NSF must accelerate and expand efforts within the oceanographic research community to articulate a broadly based vision for the future of ocean science and technology requirements."

Such a plan will provide the foundation for planning and procuring major facilities.

As to quality control: "The funding agencies and UNOLS need to support fleet improvements by enhancing quality control, expanding training of personnel in technical and safety procedures, and developing even higher standards for shared use facilities."

As to the importance of technology for the advancement of ocean sciences: " There is a need for a strong, continuing program of new technology introduction; steady improvement of existing facilities and technologies; greater, continuing attention to quality control and safety; and a more systematic, standard approach to maintenance, renovation, upgrading, and replacement."

The review strongly recommends to establish a long range plan for the oceanographic research fleet well into the 21st century.

On a question of *Mr. Ollier (EU-CEC, Brussels)*, *Dr. Heinrichs* clarified that all research projects were scheduled according to the same procedure, after they were approved AND had guaranteed funding. *Ms. White (USA-NOAA)* contributed that the NOAA vessels are mission-oriented, and are not within the UNOLS scheduling system.

Copies of the Executive Summary of the Review were available as a hand-out.

11. Outline of JAMSTEC

Mr. Osada of JAMSTEC (Japan) presented an outline of JAMSTEC, sustained by some extremely beautiful sheets.

He explained shortly on the history of JAMSTEC, gave an outline of the activities of JAMSTEC and JAMSTEC's Long Term Plan, and international co-operation.

The objectives of JAMSTEC can be summarised as:

- Through challenges to untapped areas, keep contributing to man's assets of knowledge and giving dreams to the public.
- Help solve global-scale problems with research results fed back to society.
- Build JAMSTEC into a Center of Excellence, a pulling power in the scientific community and a base for education and training for the young.

Mr. Osada gave ample illustrations on the main areas of research:

- Oceanic and climatic changes
- Ocean floor plate dynamics and seismic processes
- Ecosystems and the environment
- The Earth's dynamic system
- The infrastructure and new marine technology development

The full colour sheets were distributed as a hand-out.

12. OD21 progress

Mr. Zaitso of JAMSTEC (Japan) presented an summary on the OD21 programme. In March 1999, the Japanese Diet approved the budget for the initial phase of the Scientific Riser Drilling Vessel construction. One month later, April 1999, JAMSTEC started the basic design for the OD21 drilling ship. It actually took JAMSTEC 9 years to start the construction since they initially began to study New Deep-Sea Drilling Technology in 1990.

Based upon the Conference on Co-operative Ocean Riser Drilling (CONCORD), which was held in 1997, The OD21 program will focus on the following themes:

- the study of the global environment

- the study of gas hydrate problems
- the study of lives in the deep earth
- the direct and long-term observations of the seismogenic zone
- the study of dynamics of the Earth's unknown interior
- advance technologies in the deep sea

The new riser drilling ship's principal particulars are:

Length overall: about 210m; Breadth : about 38m; Draft : about 9.2m; Gross tonnage : about 50,000 t

Water depth for riser drilling: 2,500m(first phase) - 4,000m(final phase)

Area of operation: World wide except Ice-Covered Areas

This ship will be constructed adopting state-of-the-art technology used by the offshore oil industry such as "dual derrick", "azimuth thrusters" and other advanced technology.

Ship construction will be started in April 2000 with a scheduled delivery in 2004. JAMSTEC will begin operational trials soon after the delivery and it is expected to begin the international scientific drilling operation in 2006.

13. Winch and Wire Symposium

Ms. Dieter (USA-NSF) gave a short outline of the Winch and Wire Symposium that will take place in New Orleans, LA from 30 November to 1 December 1999 followed by the Work Boat Show from 1-3 December. The symposium is funded by NSF and organized by UNOLS, and focuses on the future needs of winches, wires and the over the side handling of scientific equipment. When preparing for this meeting an inventory has been made of the wishes of the sea-going scientific community. These include:

- deployment of larger and heavier equipment packages
- desire for faster data transfer
- need for greater winch/wire flexibility during operations
- faster winch speeds
- lighter cables for use on smaller ships for more complex cruises.

Topics will be the question of standards for the different cables, maintenance procedures, operational safety requirements. There will be a number of manufacturers to address the different topics followed by panel discussions.

It is intended that output from this Symposium will result in a new edition of Driscoll's "Handbook of Oceanographic Winch, Wire and Cable Technology".

On the UNOLS website more information can be found of the Symposium. Ms. Dieter invited all ISOM members to pay attention to the meeting and encourage their technical/operational staff to attend.

14. OCEANIC Database Update

Ms. Bouton (OCEANIC) could not attend this year's meeting and submitted a written report, that unfortunately could not be presented at the meeting. It is incorporated in this minutes:

"Many changes have occurred with OCEANIC this year. Our computer system manager, Walt Dabell, who some of you may have known, resigned to move to another job. I have taken a job which has me working part time in Southampton, England, and part-time here in Delaware.

Walt's replacement, Doug White, (dw@udel.edu) is looking forward to working with the ISOM section of OCEANIC. The plan is to complete the move of the ship schedule off of the Ingres database on our UNIX computer, and into a Microsoft Access database on a Windows NT system. This move will allow us to more easily update the information and create different kind of search procedures, both across the

schedules and the ship characteristics.

As we make this move, we intend to update all the information we have. To this end we will be mailing all ISOM members copies of the information we currently have in the database, including ship schedules and ship characteristics and information. We ask you to correct the information we have, and mail these corrections back to us as quickly as possible. Remember that the OCEANIC ship schedule and the information is only as good, and as useful, as the information which we can put in it. And you are our main source for this information. With this in mind, members have been very lax in sending us their latest ship schedule updates. I urge members to get us the latest schedules as quickly as they can, and to send us updates as they are made available.

Regarding SEMRIS, and joint work with OCEANIC, we would just like to re-iterate should the program be revived, we will help out in any way we can."

15. International Marine Technicians Workshop (INMARTECH) 2000

The Netherlands would be happy to host the third INMARTECH Workshop in 2000 at the Netherlands Institute for Sea Research (NIOZ) on the island of Texel. The dates will be 20 - 22 September 2000.

Ms Rietveld (The Netherlands) presented an outline of the set-up of the Workshop, and a first inventory of topics.

As to the set-up she mentioned that the emphasis was on facilitating easy interaction between technicians: So the idea is

- to invite technicians directly, by name, country, technical back-ground
- that all participants give a short description of their expertise, what they would like to learn, and what questions they have. This will be incorporated in a participants list to improve making the right contacts
- to limit the total number of participants to facilitate discussions in small groups
- to have parallel sessions in small groups
- to invite an enthusing chairman, and enthusing scientists to introduce topics, and stimulate discussions
- to start the meeting with a 'wild' ice-breaker party

As to the topics she invited ISOM members to comment and add suggestions to the following list:

- Cable technology (fibre optics)
- Mooring technology
- Long coring > 24 meters
- Lander technology
- Modern CTD technology
- Laboratory container/van technology
- vFuture developments

A steering committee will be installed. As chairman of the Steering Committee Dr. Ken Robertson, retired from SOC (UK) has been invited. Dr. Robertson has confirmed to be delighted to chair the committee.

From ISOM members came the following suggestions:

- simultaneous operation of magnetometer/airgun systems from the aft
- multi-channel seismic deployment & maintenance
- multibeam trouble shooting
- bio-acoustics (fish detection/catching)
- ADCP data: calibration & handling data ('how to get the best out of it')

Also UNOLS/RVTEC will be asked to comment on the topics' list, and to add suggestions. RVTEC will

meet end of October.

Ms. Rietveld will send out a separate mailing to all ISOM members within a few weeks for completion of the inventory, and to provide names of potential participants.

16. Other Business.

Extending ISOM: new ISOM members

Dr. Kinoshita of JAMSTEC (Japan) submitted the wish of JAMSTEC to expand the ISOM group to S.E. Asia and Russia. Ms. Rietveld mentioned that Russia had been a member once, but unfortunately has financial constraints regarding the travel expense. Also Kordi of South Korea has once attended ISOM, but probably lost interest. Another try could be given to Indonesia, from which country BPPT formally still is a member. JAMSTEC would very much appreciate if Indonesia could attend again. Mexico was mentioned, also Canada, whose attendance has been missed the last two years. This year Italy has announced to be interested as a ISOM member, thanks to the effort of Mr. Ollier. Ms. Rietveld offered to contact colleagues in Ireland. Dr. Kinoshita will try the same in China.

Shipping agents

Cpt. Le Strat (France) informed members of plans to make an inventory of reliable shipping agents, especially for difficult harbours, as e/g in Africa. This could be an issue for next ISOM.

Equipment/Cable

Ms Dieter (USA-NSF) enquired if JAMSTEC has information on Titanium cable/wire.

Mr. Smits (New Zealand) enquired after an ADCP-Undulating platform, and a second-hand winch for deep sea piston coring (22-18 m). Mr. Smits was advised to contact the Oceanspace Newsletter (<Oceanspace@spearhead.co.uk>)

17. Date and Place of Next Meeting

All ISOM members present were in favour of continuation of ISOM.

Ms. Rietveld (Netherlands) invited all members to next ISOM in Amsterdam. Dates would be in the first half of October 2000, and would be announced as soon as the dates could be fixed.

For ISOM 2001 Ms. Rietveld informed ISOM members on the invitation of Mr. John Wallace of CSIRO, Australia. CSIRO would be happy to host ISOM 2001. All members accepted the kind offer.

As this was the last ISOM that Dr. Don Heinrichs would attend, as he would retire from NSF/UNOLS end of this year, *Dr. Kinoshita* spoke to him on behalf of all ISOM members, and expressed their thanks for his contribution during all those years right from the start of ISOM, 13 years ago, until now. ISOM members expressed their gratitude with a goodbye present, that Dr. Heinrichs much appreciated.

Ms. Rietveld spoke on behalf of all ISOM members and thanked the Japanese hosts for their more than generous hospitality.

The meeting was adjourned, and was followed by a guided tour to R/V MIRAI.

A visit to JAMSTEC Headquarters at Yokosuka, and a visit to the other JAMSTEC ships and submersibles were planned for the following days.