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Voyage toward the Future

Kobe International Exhibition Hall, Kobe Japan, April 8-11, 2008



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President's Corner

As the society returns from a successful OCEANS 07 MTS/IEEE- Vancouver it is already time to consider making plans to attend OCEANS 08 MTS/IEEE- TechnoOceans in Kobe, Japan. The Kobe event is scheduled for the week of 7 April. For those of you submitting papers the time is nigh. There will be a poster session included in the conference in addition to the usual student poster event. However, to be included in the conference proceedings one must still have an accompanying paper. The venue will be the convention center as it was in 2004 with the Protopia Hotel as the headquarters hotel. It would be well to get your reservations early. Also, OES members in good standing can receive their society lapel pins by visiting the OES membership booth.

At the Vancouver conference the OES recognized our two newest IEEE Fellows from the class of 2007—Colin Jones and Tamaki Ura. Our Distinguished service award went to Steve Holt – the society secretary for the last seven years. The Distinguished Technical Award was presented to Don Barrick the co-founder and President of CODAR Ocean Sensors, LTD. These awards were presented at the OES luncheon.

Jim McFarlane and his committee should be congratulated for their efforts in providing an informative and enjoyable



well attended event. Thanks should be extended to Dr. Richard Spinard of NOAA and the Honorable B. J. Penn for their interesting and thought provoking key note speeches.

The IEEE has elected a new President-elect, John Vig, and numerous other administrative positions through the institute. I hope you all have voted for a candidate of your choice as they will shape the future of the institute. It is also time to consider candidates that you would like to nominate for the Administrative Committee for the society to start serving in 2009. The AdCom is responsible for the direction that the society will take over the next few years as the term is for three years. Therefore, you should nominate candidates that will reflect your interests. Your membership is more valuable to you the more you have involvement in the organization. The society can always make use of more reviewers for journal and conference papers. Volunteer is not a dirty word. Anyone that has interest in becoming more involved in the society can contact me at j.barbera@ieee.org. I am sure we can find a use for your talents.

Jim Barbera, IEEE/OES President

From The Editor

This is my last issue and I would like to take this opportunity to express my thanks and appreciation to the society and all those who have helped me in the support of this effort. This has been an incredible journey! It started in 1988 when, then president Dan Alspach, asked me at the Baltimore Oceans Conference to become editor. The previous editor, Hal Sabbaugh, was retiring after 12 years of distinguished service. Hal brought much levity to this position and showed much good humor. Dan Alspach and I knew one another from many years earlier, in the Control Systems Society. Those were the heydays of Kalman Filters and their nonlinear extensions, in the late 60's, about the same time that the OES was just forming. I joined the OES in 1986 to become part of the Elected Administrative Committee (AdCom), after giving papers on Raypath Acoustics at Oceans '83 in San Francisco and Oceans '85 in San Diego. I was working at the Naval Underwater Systems Center in New London, Connecticut at the time.

In the ensuing years as Elected AdCom member and Newsletter editor, I had the good fortune to meet and work with distinguished founders of the society, Lloyd Maudlin, Ed Early and presently, Norm Miller and Joe Vadus. I want to express my sincere gratitude to each of these gentlemen and to the first president Stan Chamberlain and those presidents under which I served, namely Tony Eller, Dan Alspach, Glen Williams, Joe Czika, Claude Brancart, Tom Wiener and Jim Barbera. Each of these gentlemen played a significant role in fostering the development of the newsletter. I also want to thank the Journal editors, Stan Ehrlick, Fred Fisher, Bill Carey, Jim Lynch and Chris De Moustier for their indirect support. The newsletter started as part of the Membership Committee and presently is under our Vice President for Professional Activities, Jim Collins. Other Vice Presidents such as Joe Vadus, Stan Chamberlain, Ferial El-Hawary and Rene Garello have also been very generous in their support, and likewise, Sandy Williams and the Technology Committee Chairs, as were many others too numerous to mention.

On his retirement as EIC, Hal Sabbaugh remarked on the survival of the OES Newsletter over its first dozen years, and some daily newspapers that did not survive, such as the Chicago Daily News and the Los Angeles Herald-Examiner. The newsletter still survives and thrives. In contrast, things are rapidly changing in the daily newspaper world. Note the recent article in the March '08 issue of the IEEE Spectrum, that states "The newspaper, that daily chronicle of human events, is undergoing the most momentous transformation in its centuries-old history." This may have been a tong-in-cheek remark by Hal 20 years ago about an



L-R : Rene Garello, Fred Maltz and Gamal Hassan at Oceans '08 Conference in Vancouver

anomaly but, ironically, this is the norm today.

Again, I want to thank you all and especially the folks at IEEE headquarters and their Magazines and Newsletters Department in Piscataway New Jersey. Special thanks to Fran Zappulla and Bob Smrek who seemed to have always been there for those so many years and the fine staff and other personnel that supported them. Thanks also to our own Web people at Veraprise and our Webmaster, Todd Morrisson and supplementary E-newsletter under Diane DiMassa who also has a new column, "Internal Waves", in the OES Newsletter .

John Irza has agreed to assume the editorship. John has assisted me in the news gathering process with his "Soundings" column in the newsletter which reports on the broad spectrum of news items from the mainstream ocean engineering community. This is something that I will now be helping John with. I'm sure John will also appreciate your inputs and support. The newsletter is one of our main vehicles for society communications, giving visibility to the activities within the society and in the larger community of ocean engineers. There are many new and exciting developments within our professional community, following the global earth observing initiatives of the IEEE and broader view of the engineer's role in today's changing world of greater social and environmental consciousness. The OES has a central role, given this increased focus on the world's oceans and the important problems associated with them that need our attention. Thanks again to those who have been involved and to our newer members, we urge you to get involved and we welcome your help.

May, 2008 **Frederick H. Maltz**



Boston Professor Honored for Exploring the Sounds of the Sea

Melville, NY-5 October 2007-William M. Carey, a Boston University professor, has been named recipient of the Pioneers of Underwater Acoustics Medal of the Acoustical Society of America (ASA). The medal will be presented on 30 November at the 154th Meeting of the Acoustical Society of America in New Orleans, Louisiana.

The Pioneers of Underwater Acoustics Medal is presented to an individual who has made an outstanding contribution to the science of underwater acoustics, as evidenced by publication of research results in professional journals or by other accomplishments in the field. The award was named in honor of five pioneers in the field of underwater acoustics: H.J.W. Fay, R.A. Fessenden, H.C. Hayes, G.W. Pierce, and P. Langevin. Dr. Carey was cited "for contributions to understanding ocean ambient noise and in defining the limits of acoustic array performance in the ocean.

"It is a surprise and quite an honor to have my work recognized by my colleagues," Carey said. "This particular award is terribly important because underwater acoustics is very important to our society and our country. We are a maritime nation and the safe-clean utilization of the oceans requires an understanding of underwater acoustics, particularly the noise background."

William Carey received his education at the Catholic University. He has been a key contributor to the study of underwater and industrial acoustics for nearly 40 years. His primary

contributions have been in the development and use of acoustic arrays in the ocean and the characterization of the oceanic noise background. Several of his mentors encouraged him to accept a position at the Chesapeake Instrument Corporation in the late sixties to work on the development of towed acoustic arrays for the U.S. Navy that initiated his work in underwater acoustics. Carey has worked for Naval laboratories, the Advanced Research Projects Agency with an assignment to the Massachusetts Institute of Technology, and has held academic appointments at the Boston University, Rensselaer Polytechnic Institute, and the Woods Hole Oceanographic Institution.

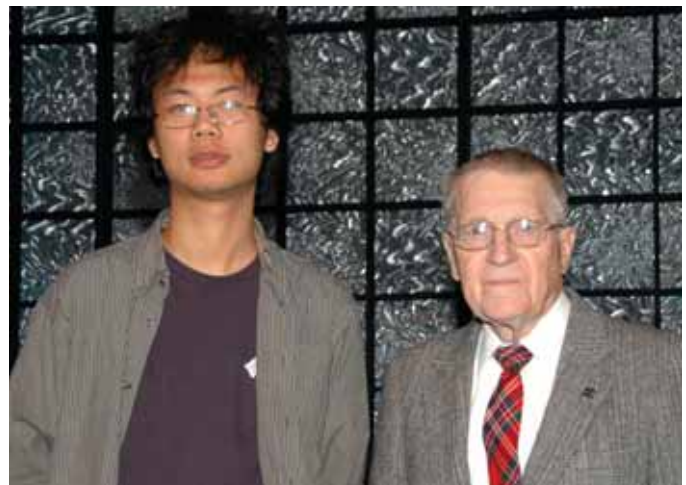
He has achieved such honors as election to Fellowship in ASA (1996) and appointment as Associate Editor of its journal (2001). He is a Fellow of the IEEE (1996), recipient of an IEEE 3rd Millennium Award (2000), and the IEEE-OES Distinguished Technical Achievement Award (1999), and the Editor of the Journal of Oceanic Engineering (1992-2006).

The Acoustical Society of America is the premier international scientific society in acoustics devoted to the science and technology of sound. Its 7000 members worldwide represent a broad spectrum of the study of acoustics. ASA publications include the Journal of the Acoustical Society of America-the world's leading journal on acoustics, Acoustics Today magazine, books, and standards on acoustics. The Society also holds two major scientific meetings per year. For more information about the Society visit <http://asa.aip.org>.

Scholarship Award

At the IEEE Awards Luncheon at OCEANS07MTS/IEEE Vancouver the first IEEE Student Scholarship award winner was announced. Mr. Ye Li was awarded an OES Scholarship. Ye Li is a second year PhD student at the University of British Columbia. His doctoral work is on tidal current turbines, their hydrodynamic interactions and the relative location of such turbines to extract maximum power. He expects to complete his studies in May 2008. Ye Li was a Student Poster Participant at OCEANS06 Boston and received a Third Place award. He served as a judge for the Student Poster Session at OCEANS07Vancouver. The Scholarship Committee was pleased to award an IEEE Scholarship to him.

Norman D. Miller
Student Activities Coordinator



Oceans 2007 MTS/IEEE Conference and Exhibition

The Marine Technology Society (MTS) and the Institute of Electrical and Electronics Engineers (IEEE) hosted the Oceans 2007 conference in Vancouver, Canada, between September 29 and October 4.

In the words of the chairman, Dr. James R. McFarlane of International Submarine Engineering Ltd. (Port Coquitlam, Canada), the event was “a huge success.”

Held at the Vancouver Convention & Exhibition Centre and the Pan Pacific Hotel, the conference hosted 170 booths and more than 350 presenters of technical papers.

Awards

At the Awards Luncheon hosted by the IEEE on October 2, Jim Barbera, president of the IEEE/OES, presented four awards—the IEEE Oceanic Engineering Society Distinguished Technical Achievement and Distinguished Service Awards, and Awards for two IEEE Fellows of the Oceanic Engineering Society.

Donald E. Barrick, founder of CODAR Ocean Sensors, Ltd was the 33rd recipient of the Distinguished Technical Achievement Award and Stephen M. Holt, Lead Systems Engineer for Noblis in Falls Church, VA and elected OES Administrative Committee Member appointed society Secretary was the 33rd recipient of the Distinguished Service Award.

Colin Jones, former Navy Director of Ocean Engineering and Supervisor of Salvage and Diving and Tamaki Ura, Director and Professor of Underwater Technology Research Center at the Institute of Industrial Science (IIS) of the University of Tokyo were recognized for achieving the honor of IEEE Fellow of the Oceanic Engineering Society in the year 2007.

At the MTS Awards Luncheon on October 3, C. Amos Bussmann, president of Compass Publications Inc. and publisher of Sea Technology magazine, presented two awards—the Compass Distinguished Achievement Award and the Compass International Award.

Andrew M. Clark, president of Maritime Communication Services, Harris Corp. (Melbourne, Florida), was the 42nd recipient of the Compass Distinguished Achievement Award. Rolex Watch USA participated in the award for their 34th year, providing Clark with a Rolex Submariner watch.

TSS (International) Ltd. of Watford, England, were the recipients of the Compass International Award this year, and technical sales manager Euan Mackay accepted the award.

Attendees

Attendees to the conference represented agencies, institutions, foundations, universities, companies and governments from all over the world.

The international flavor of the conference was consistent with the original goals of the organizing committee.

Nearly every language spoken in the international business of ocean sciences was used at the conference. The countries represented covered Europe, Asia, the Middle East and North and South America.

The total number of fully registered attendees was 1,650.

Keynote Speeches

Keynote speeches were presented by Assistant Secretary of the U.S. Navy B.J. Perm, Deputy Director of the National Oceanic and Atmospheric Administration (NOAA) Dr. Richard Spinrad, Dr. Christopher Barnes of the University of Victoria and Dr. David Welch of Kintama Research Corp. (Nanaimo, Canada). The keynote speeches were each attended by audiences in excess of 500.

The speeches were timely and specific. All four speakers brought forward information that will help to enhance the ocean sciences and ocean industry, said the organizers.

From Penn's talk on the Navy's position on the ocean environment to Spinrad's talk on NOAA's work in the oceans to Barnes' talk on the Northeast Pacific Time-Series Undersea Networked Experiments project and its impact on scientific data gathering to Welch's talk on Pacific Ocean shelf tracking, the speakers provided the conference with current and leading-edge information regarding ocean sciences and moving forward “on the edge of tomorrow” the conference's theme.

Social Events

The social aspects of the conference were superb, said the organizers. The luncheons and dinners were extremely well attended, and the spread of knowledge and connections achieved at these functions met and exceeded the hopes of the organizing committee.

Dr. Phil Nuytten of Nuytco Research Ltd. (Vancouver, Canada) arranged, provided and participated in a First Nations welcoming dance that was the highlight of the evening immediately prior to the gala dinner. Danced by members of First Nations bands from the lower mainland of British Columbia, Canada, the dance showed off a facet of British Columbian culture to the conference attendees.

Organization

One of the things that many attendees mentioned as a plus for the conference was the ease of getting to the venue and the five-star level of accommodations, which were available across the street from the convention center.

Additionally, the booth layout in the large convention center hall allowed the attendees to easily stroll and view all the booths provided by the oceans industry. Staff from International Submarine Engineering were available to answer questions or solve problems, allowing attendees to remain focused on the conference.

The MTS/IEEE Oceans 2007 conference was a very successful event and brought the focus of the oceans sciences and exploration community onto British Columbia and the Pacific Northwest, said the organizers. Senior members of both MTS and IEEE indicated that they thought the conference was extremely well organized, well run and a major success.



General Chair Jim McFarlane



OES President Jim Barbera



MTS President Bruce Gilman



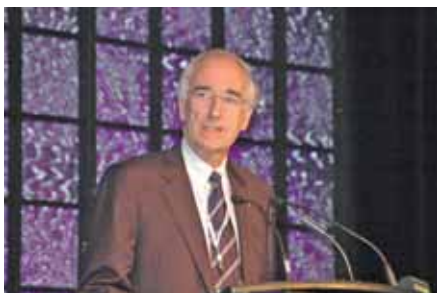
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Dr Richard Spinrad, NOAA Assist
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Commodore K E Williams, Assistant
Chief Maritime Staff Canada



Dr Chris Barnes, Neptune Venus
Programs



Dr David Welch, Pacific Ocean Shelf
Tracking Array Project



Honorable Richard Neufeld, Minister
of Energy, Mines and Petroleum
Resources



James McFarlane Jr



Bruce Gilman, B J Penn, Jim McFarlane,
Rick Spinrad and Jim Barbera



Canada Place, Vancouver Convention
and Exhibition Center

**Oceanic
Engineering
Society**
Distinguished
Technical

Achievement Award

1975 Robert Frosch
1976 Werner Kroebel
1977 Howard A. Wilcox
1978 Richard K. Moore
1979 David W. Hyde
1980 Neil Brown
1981 No Award
1982 Ira Dyer
1983 Alan Berman
1984 John B. Hersey
1985 William N. Nierenberg
1986 Robert J. Urick
1987 James R. McFarlane
1988 Chester M. McKinney
1989 Victor C. Anderson
1990 Robert C. Spindel
1991 Henry Cox
1992 Arthur B. Baggeroer
1993 William J. Plant
1994 Edmund J. Sullivan
1995 Mack O'Brien
1996 Frederick H. Fisher
1997 Newell Booth
1998 Burton G. Hurdle
1999 William M. Carey
2000 Albert J. Williams
2001 Werner Alpers
2002 James Candy
2003 Georges Bienvenu
2004 John P. Craven
2005 Douglas C. Webb
2005 Douglas C. Webb
2006 Fred Noel Spiess
2007 Donald E. Barrick

**Distinguished Technical
Achievement Award**
Oceanic Engineering Society
OCEANS 2007

Donald E. Barrick



Dr. Donald E. Barrick is an expert in radar backscatter and the associated signal processing. He has turned his knowledge into practical equipment for operational and research purposes.

His scientific interests and experience include radio wave propagation, interaction with, and scatter from the earth and sea at lower frequencies than microwave. His engineering interests and activities have focused on development of compact low-frequency radar systems with novel waveforms for remote sensing.

From 1972 to 1983, as Chief of the Sea State Studies for the U.S. National Oceanic and Atmospheric Administration's Wave Propagation Laboratory, he developed compact HF radar systems for real-time mapping of ocean currents and waves.

In 1983 he founded CODAR Ocean Sensors, Ltd. To design and build the SeaSonde® family of coastal HF radars that map ocean surface currents and monitor waves in real time. Under Dr. Barrick's direction, the company has developed analytical tools to optimize ULF/ELF/VLF sensors that detect and classify subsurface objects.

His recent research has involved use of HF-radar surface current data for improving ocean circulation models in bays and estuaries. He has spearheaded buoy-based bistatic expansion of SeaSonde coastal UHF bistatic radars for river flow gaging; and a compact skywave HF radar design that can map ocean surface conditions to 4000 km.

Distinguished Service Award Oceanic Engineering Society OCEANS 2007

Stephen M. Holt



Oceanic Engineering Society Distinguished Service Award

- 1975 Arthur S. Westneat
- 1976 Frank Snodgrass
- 1977 Calvin T. Swift
- 1978 Edward W. Early
- 1979 Richard M. Emberson
- 1980 Donald M. Bolle
- 1981 Loyd Z. Maudlin
- 1982 Arthur S. Westneat
- 1983 Elmer P. Wheaton
- 1984 John C. Redmond
- 1985 Joseph R. Vadus
- 1986 Stanley G. Chamberlain
- 1987 Stanley L. Ehrlich
- 1988 Harold A. Sabbagh
- 1989 Eric Herz
- 1990 Anthony I. Eller
- 1991 Frederick H. Fisher
- 1992 Gordon Raisbeck
- 1993 Edward W. Early
- 1994 Daniel Alspach
- 1995 David Weissman
- 1996 Glen Williams
- 1997 Ferial El-Hawary
- 1998 Norman D. Miller
- 1999 Pierre Sabath
- 2000 Frederick H. Maltz
- 2001 Claude Brancart
- 2002 James Collins
- 2003 Joseph Czika
- 2004 William M. Carey
- 2005 Claude Brancart
- 2006 René Garello
- 2007 Stephen M. Holt

Stephen M. Holt has been a member of the Oceanic Engineering Society since 2000. He was elected to its Administrative Committee and appointed Secretary, a position he has held since then. During his tenure, he has introduced new practices and tools in its implementation. He has produced comprehensive reports for each OES Executive and Administrative Committee meeting. He developed databases for the capturing and tracking of all minutes, action items and motions. His other activities included all arrangement planning for select OES meetings. Finally, he has been accumulating and digitizing all past minutes, action items, motions, and reports from past OES meetings for the OES History Project.

He was one of three Executive Co-Chairs For OCEANS '05 Washington. He was active in all conference activities for over a three year period.

He also serves as the Vice-Chair for the OES Global Earth Observation System of Systems (GEOSS) Technical Committee. In this role he has provided a comprehensive mapping of scientific and technical standards for each task of the new Group on Earth Observations (GEO) work plan for 2006. He is also an active Member of the IEEE GEOSS Integrated Standards Working Group (ISWG), which is involved in producing the new GEOSS Standards



OES President Jim Barbera



Colin Jones Receiving IEEE Fellows Plaque From Jim Barbera



Tamaki Ura_IEEE Fellow



Steve Holt Receiving Distinguished Service Award From Jim Barbera



Donald Barrick, OES Distinguished Technical Achievement Award Recipient



DonaldBarrick - Distinguished Tech Achievement Award, Jim Barbera and Steve Holt – Distinguished Service Award



AdCom Meeting



AdCom Meeting



Norman Miller - Student Poster Program



RECON Meeting



JOAB Meeting



Sandy Willilams' Technology Committee Chairs Meeting



Changstan Xiao and Joe Vadus



Ken Takagi, OCEANS'08 Kobe,
General Chair



Ferial El Hawary, OCEANS'08
Quebec City, GeneralCoChair



AdCom Dinner



Bob and Mrs Wernli



Liz Creed and Diane DiMassa



Pat and Jim Candy



Jim and Faith Collins with Van and
Joe Czika



Arthur Gleason receiving First Place
Student Poster Award



Debbi Kill and Stan Chamberlain



John Watson, Rene Garelo, Harumi
Sugimatsu and Tamaki Ura



Mark Rognstad, Sandy Williams,
Mike Wrinch and Mike Harris



Mrs. and Jay Pearlman with Steve Holt



GEOSS Meeting



Bob Bannon and Bob Wernli



OES Presidents, Stan Chamberlain, Tony Eller, Joe Czika, Tom Wiener and Jim Barbera



Sandy Williams, Rene Garello and Philippe Courmontagne



Faith Collins, Jon Preston, Jim Collins with Van and Joe Czika



Diane DiMassa, Liz Creed, Marina Martini, associate and Dick Butler



Brock Rosenthal and Kevin Hardy



John Craven and Adm Rick Seesholtz



Barbera Fletcher and Liz Creed



Peter Curtis, Tore Lera and Jim Barbera At IEEE Booth



Dorothy, Michelle and Steve Holt



Jay Pearlman at GEOSS Meeting



Ken Foote and Guest



Student Poster participants with Norm Miller and Jim McFarlane



Chuck Beltz, Pam Hurst with Beverly and Bob Wernli



Steve Holt, Jim Collins and Ken Foote



Bob Bannon, Peggy Barbera, Norm Miller and Pam Hurst



Izzy and Sandy Williams with Tom Wiener



Rene Garello With Dancing Milica Stojanovic and Joelle Garello



Massachusetts Maritime Academy Cadets



Harumi Sugimatsu, Tamaki Ura and Joelle Garello



Ken and Mrs Takagi



Isao Yamaguche, Shinichi Takagawi, Tadashi Yao, OCEANS'08-KobeBooth

OCEANS 2007 MTS/IEEE VANCOUVER STUDENT POSTER PROGRAM AND COMPETITION

The 21st Student Poster Program was held as a part of OCEANS07MTS/IEEE Vancouver. The Student Poster Program and Competition has been an integral and important part of the OCEANS Conferences since 1989. The program is designed to foster and promote student involvement in technical societies and conferences and to provide a forum for the student to interact with marine professionals. It is open to engineering and science graduate and undergraduate students of any tertiary level university or college worldwide. Twenty two students were selected from 53 submitted abstracts from schools in Asia, Africa, Europe and North America to present their posters. Nineteen were able to attend. Once again we were able to receive support from the US Navy Office of Naval Research. A judging team made up of members from OES and MTS judged all of the posters and selected the top six for awards. The awards were announced and presented at the Wednesday Night Gala Reception at the Pan Pacific Hotel Atrium.

The roster of students and poster titles are:

Mahmoud Aildadi – University of British Columbia

“Numerical Investigations of the Effects of Towing Tank Walls on Vertical Axis Tidal Turbine”

Ryan J. Bell – College of Marine Science, St. Petersburg, FL

“Simultaneous Pressure-Corrected Dissolved Gas Profiles in the Gulf of Mexico Determined using an In-Situ Membrane Inlet Underwater Mass Spectrometer”

Jonathan Byron – University of Rhode Island

“Designing a Vertical/Horizontal AUV for Deep Ocean Sampling”

Yin-Jun Chen – National Chia-Yi University, Taiwan

Ordered CSMA: A collision-free MAC protocol for underwater acoustic networks”

Karen Leigh Dreger – University of South Florida, St. Petersburg, FL

“Unmanned Surface Vehicles for Seagrass Monitoring”

Arthur C.R. Gleason – University of Miami, Florida

“Automated classification of underwater multispectral imagery for coral reef monitoring”

Matthew Kai Johnson-Robertson – University of Sidney, NSW, Australia

“Generating Visually Consistent Benthic Surface Meshes Using Visual Features”

Windell Jones – University of Hawaii at Manoa

“NUROV: The Network-controlled Underwater Remote Observation Vehicle”

Thibaut Lurton – ENST Bretagne, France

“A Simulation of the Synthetic Aperture Radar Observation of a Manufactured Object in Sea Clutter using Finite Differences”



Student Posters participants with Norm Miller and Jim McFarlane

Hayato Mizushima – The University of Tokyo

“Autonomous recognition of bubble plumes for navigation of underwater robots in active shallow vent areas”

Donald T. Murray – UW-Milwaukee Great Lakes WATER Institute, WI

“Monitoring and Controlling System Performance In the Pioneer Buoy”

Paul Rigby – Australian Center for Field Robotics – University of Sidney, Australia

“Effective Benthic Surveys with Autonomous Underwater Vehicles”

Marcos Manuel Sastre – UMASS School of Marine Science and Technology

“Measurements of the turbulent microstructure of a buoyant salinity plume using acoustics: Field observations and theory validation”

Nayrah Shalout – National Institute of Oceanography and Fisheries, Alexandria, Egypt

“The distribution of CO₂ partial pressure and air-sea CO₂ flux in El-Mex Bay, Alexandria, Egypt”

Sergio Rui Silva – Porto University, Portugal

“An Autonomous Boat Based Synthetic Aperture Sonar”

Andrea Verena Striz – Franklin Olin College of Engineering, Needham, MA

“Design, Construction and Field Testing of an Autonomous Surface Craft for Engineering and Science Education”

Daniel G. Walker – MIT, Cambridge, MA

“XAUV: A Modular Highly Maneuverable Autonomous Underwater Vehicle”

Chris Watts – University of Glasgow, Scotland

“Biomimetic Propulsions Systems for Mini-Autonomous Underwater Vehicles”

Michelle Weirathmueller – University of New Hampshire, Durham, NH

“Acoustic Positioning and Tracking in Portsmouth Harbour, New Hampshire”

During the Gala Reception all of the Students were called forward and introduced to the Conference Attendees by Dr. James McFarlane. He then introduced COL Norman D. Miller who inducted the students into the “Student Poster Hall of Fame” and then announced the award winners:

First Place – Arthur C. R. Gleason , University of Miami, Florida

Second Place – Chris Watts, University of Glasgow, Scotland

Second Place – Michelle Weirathmueller, University of New Hampshire

Third Place – Windell Jones, University of Hawaii, Manoa
Marcos Manuel Sastre – UMASS School of Marine Science and Technology
Daniel G. Walker – Massachusetts Institute of Technology

Following the presentations the Conference attendees gave the students a big round of applause. Another successful Student Poster Program had been completed.

*Norman D. Miller, P.E.
Student Poster Chair
OCEANS07MTS/IEEEVancouver*

IEEE Oceanic Engineering Society (OES) Administrative Committee (AdCom) Meeting

*Vancouver, British Columbia, Canada
1 October, 2007*

1.0 Report to the IEEE OES on the Vancouver, British Columbia, Canada, 2007 Administrative Committee (AdCom) Meeting

This report on the IEEE Oceanic Engineering Society (OES) Administrative Committee (AdCom) Meeting, held in Vancouver, British Columbia, Canada on 1 October, 2007, is hereby presented.

In the attachments, I have included reports submitted to me up to the time of the meeting. New business occurring after the conclusion of the conference was not included in this report.

The IEEE OES AdCom Meeting commenced at 8:30 A.M. at the Vancouver Convention Centre in Vancouver, British Columbia, Canada. The meeting began with a call to order and an official welcome from James Barbera, the OES President.

The attendees were:

Jim Barbera	Liz Creed
Rene Garello	Barbera Fletcher
Claude Brancart	Norm Miller
Stan Chamberlain	Ken Foote
Christoph Waldmann	Ferial El-Hawary
Christian deMoustier	Milica Stojanovic
Jim Collins	Diane DiMassa
Steve Holt	Tamaki Ura
Joe Czika	Ken Tagaki
John Watson	Marinna Martini
Bob Wernli	Todd Morrison
Jerry Carroll	John Irza
Tom Wiener	Fred Maltz
Sandy Williams	Pam Hurst
Joe Vadus	Bob Bannon

- A **motion** was made to approve the 2007 Aberdeen, Scotland AdCom Minutes, which were then voted upon and passed unanimously.

- Jim Barbera then discussed the agenda and several important issues for the OES. His agenda is included as Attachment A. Jim stated that:

Jim Barbera gave his commentary on several issues:

- He attended the Panel of Conference Organizers (POCO), from 13-14 July 2007, at the Hyatt Regency Vancouver, BC, Canada. He also attended the TAB Strategy Meeting afterwards. A Memorandum of Agreement (MOA) is now required for all technical co-sponsoring. He stated that all the presentations for this event are on the IEEE web site at: www.ieee.org, conferences, organize a conference, right side box, POCO 13-14 July, 2007.
- Jim also said that the TAB Hierarchy is in the process of developing a strategic approach to more effectively use societies/volunteers to establish a more efficient running of the TAB.
- The recent International Submarine Races had 26 contestants, which were a record number of participants. Also, the team from Montreal set a speed record of 8.035 knots in one of their trials.
- The IEEE Committee on Earth Observation (ICEO) is now a TAB committee organization and Tom Wiener and Jim Barbera are on the ExCom. However, a new group is being proposed for the out years and Tom is the Chair Elect. The funds from the IEEE New Initiatives AdHoc Committee (NIC) will need to be approved each year.

Jerry Carroll gave his comprehensive Treasurer's Report. It is included in Attachment B.

Steve Holt gave his Secretary's Report. It is included in Attachment C. In addition, he stated that:

- He wrote three ExCom and one AdCom Meeting Reports so far in 2007; maintained the list of outstanding action items and motions; wrote summary articles for OES Newsletter

and sent them to Fred Maltz; reviewed contact information for all AdCom and ExCom members (TCC and Newsletter) for corrections; and continued with meeting and food arrangements for several AdCom and ExCom meetings.

- He continued to work on the GEOSS Standards Registry in area of defining standards taxonomy.
- He reported that work on digitizing the past OES Secretary Meeting Reports was continuing.

Steve Holt reviewed all outstanding action items. Their status is:

AI-Bost-ExCom-04-10: Diane DiMassa will continue pursuing putting all tutorial information on the OES web site, including the title of the tutorial, who taught it, and the attendees. POC: Diane DiMassa. Status: **Open**. Action: Diane will list tutorials on our web site soon (Expert Now Issue). This action item will be sent to Liz Creed, and cc'ed to JB and DD. Due Date: ExCom Meeting, Houston (2007). Status: **Closed**.

AI-Wash-ExCom-05-10: Each chair of the Technical Committee needs to develop a basic description (101 level) of their technical group which would describe their discipline. Hopefully, each description would consist of about 20-25 overheads and 3-5 references. POC: Sandy Williams/Barbera Fletcher. Status/Due Date: Vancouver Oceans '07 conference. Status: **Ongoing**. Barbara Fletcher sent an example (Current Measurements) to Jim Barbera. Barbara also sent AUV one to Sandy Williams and Claude Brancart for a QA sanity check.

AI-Hous-ExCom-05-01: There is a need to develop an OES calendar to show that no major OES events and meetings conflict with the conferences. POC: Militia Stojanovic Status: **Ongoing**. Everybody needs to get calendar info to Militia ASAP.

AI-Brest-AdCom-05-02: JOAB needs to see how we incorporate education into IEEE OES conference tutorials. POC: Rene Garello. Status: **Ongoing**.

AI-Hous-ExCom-06-4: Charge the VP of Professional Activities to generate a printed and electronic version of a brochure touting the advantages of OES membership. POC: Jim Collins. Due Date: Start of Vancouver Oceans '07 (September, 2007). Status: **Closed**.

AI-Bost-AdCom-06-1: Jim Barbera appointed Jim Collins to form an Ad Hoc committee to prepare a Marketing Study Report for the OES AdCom which reviews the effectiveness of the OES in satisfying the objectives identified in the OES Constitution. POC: Jim Collins. Status: **Ongoing**.

AI-FaCh-ExCom-06-2: Chris and Stan will correspond to figure out the particulars for the OES 40th Anniversary Edition of the JOE. To have an article in the JOE ready for April, 2008, he needs the final version finished by January, 2008. POC: Stan Chamberlain. Due Date: **Closed**.

AI-FaCh-ExCom-07-6: Jim Barbera will send a motion on

continued Veraprise support, which was submitted by Todd Morrison and Sandy Williams, to the entire ExCom to review before the Houston ExCom Meeting in April 2007. POC: Jim Barbera. Status: Sandy & Todd's reworded motion on continuing support of Veraprise effort, \$10K (USA\$) budget item in OCEANS budgets for conference management system, papers management and registration module usage – the motion is tabled so it could be reworded. The cost to small workshops for use of the tools still needs to be worked out, since \$4K is unaffordable in some cases. Status: The motion was tabled and it will be reworded and raised again at the Aberdeen AdCom Meeting. Status: **Deferred**.

Jim Collins gave his report on Membership and Chapters issues. His comprehensive presentations are included in Attachment X.

Norm Miller gave his presentation on his activities with the Student Scholarships and Student Posters.

- Yi Li's award will be announced at the OES Awards Luncheon. He received his scholarship money following the 2007 Aberdeen Conference.
- Marinna Martini and Pam Hurst will serve as Student Poster Judges along with Yi Li and four MTS representatives.
- The Scholarship Program will be promoted at OCEANS '07 Vancouver. It is hoped that as the news gets out, we will receive more applications.
- We offer \$1,000 scholarships to undergraduates and graduate students.
- The Ocean Science Bowl program is doing very well
- **Motion:** To add Joe Czika and Pam Hurst to the Student Activities Committee (SAC). This motion was voted on and approved unanimously.

Todd Morrison gave his comprehensive Webmaster Report. It is included in Attachment X.

Stan Chamberlain gave his report concerning his activities with the OES History Project. His presentation is included in Attachment X.

Tom Wiener presided over the elections for OES officers. Two offices were for Treasurer (Jerry Carroll) and Vice President of Conference Development (Joe Vadus). Since they ran unopposed, they were both elected unanimously by Acclamation. The office of Vice President for Professional Activities was sought by both Jim Collins and Fred Maltz. After a vote by ballot was taken, Jim Collins was elected.

Chris DeMoustier discussed several matters relate to his work as the Editor of the IEEE Journal of Oceanic Engineering (JOE). His comprehensive report is included in Attachment X.

Fred Maltz gave his comprehensive report on his Newsletter activities. His report is included in Attachment X.

Joe Vadus gave his presentation on his activities as OES Vice President for Conference Development. He stated that he would continue this role for only two more years. He has especially remained very heavily involved with both the US/EU-Baltic symposiums and the proposal process for the last several years. He has prepared eight proposals via the IEEE Grants Office. He has been the only OES person seeking grants via the IEEE Grants Office. There are several issues associated with the US-

Chile Workshop. Joe submitted proposals in June 2007 to NSF and to ONR Global for grants. NSF responded that no 2007 funds were available for this proposal - they would "fund, if funds were available" and suggested resubmitting in FY 2008. A similar reply was received from ONR Global. Therefore, it is not feasible to have this workshop in December 2007, but perhaps it could be postponed until December 2008. It appears that one issue was submitting the proposals too late in the FY '07 fiscal year.

Joe described the US/EU-Baltic Symposium OES 2008 in Tallinn, Estonia. Proposals for financial assistance through grants are still pending at NOAA and at ONRG. This symposium was also trying to resolve issues between Todd, Sandy, Vic and Steve related to the delayed opening of the Submission Gateway for electronic submission of abstracts. No abstracts were received at this time and there are only 3 months before the abstract deadline, January 10. He was concerned about the impact of the delay. A Second Announcement for the US/EU-Baltic Symposium OES 2008 in Tallinn, Estonia is included in Attachment X.

Rene Garello gave his presentation as VP of Conference Operations. His first presentation addressed his activities and future conferences. The second presentation addressed ocean conference operational guidelines. Both are included in Attachment X. His latter presentation was presented as the actual draft version of the Guidelines for operating an OCEANS conference. These guidelines are under the supervision of JOAB and have received the agreement of MTS. The final 2007 version will be available by November 2007. An updated version will be

available every year in the Fall, after the North-American Oceans conferences. An electronic vote will be solicited for the 2007 version when ready.

There were several other presentations following Rene's introduction:

- John Watson discussed some results on the Aberdeen conference the previous June. It was a very successful conference a draft report has been prepared.
- Ken Takagi gave his report on MTS/IEEE OCEANS'08 – TECHNO-OCEAN'08 in Kobe, Japan. His presentation is included in Attachment X.
- Acoustics '08 Conference in France – Action Item: It was noted that we need to have an IEEE OES booth at the conference.
- Ferial El-Hawary gave a status on Oceans '08 Quebec City.
- Manfred Schloesser gave his report on Oceans '09 Bremen. His presentation is included in Attachment X.

Diane DiMassa gave her presentation on tutorials and the OES Newsletter and stated that the Electronic Newsletter is alive and well, but could be used more. Any messages important to the membership can be sent by electronic news. e-News is archived on the website. Please do not ask me to send lengthy emails or attachments.

Bob Wernli gave his comprehensive presentation on his RECON activities. His two reports are included in Attachment X. He was followed by several presentations concerning future conferences:

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- Ted Brockett gave a presentation on OCEANS 2010 in Seattle.
- John Wilshire gave a presentation on OCEANS 2011 in Hawaii (at the Hilton Waikoloa Village).
- Laura Marie Bravo Sanchez and Juan Jose Rodriguez (of the University of Cantabria) were present, and Juan gave a presentation on OCEANS 2011 in Santander, Spain.
- Tamaki Ura discussed UT'07 conference and stated that it had 220 papers. All showed up - this was an excellent conference, and it made over \$100K.

Motion: Bob Wernli asked for a motion to accept the MTS/IEEE OCEANS 2010 Conference to be held in Seattle. This motion was accepted unanimously.

Motion: Bob Wernli asked for a motion to accept the IEEE OES OCEANS 2011 Conference to be held in Santander, Spain. This motion was accepted unanimously.

Motion: Bob Wernli asked for a motion to accept the MTS/IEEE OCEANS 2011 Conference to be held in Hawaii. This motion was accepted unanimously.

Bob Wernli's report on the RECON Meeting, held on Tuesday, 2 October, 2007, is included in Attachment X.

Pam Hurst gave a presentation proposing that the OCEANS 2012 conference be held in Providence, RI. Bob Wernli stated that additional information is required.

Deidre Sullivan gave a presentation on understanding and predicting changes in the ocean sciences, technology, and the operations workforce. Part of her discussion also involved trying to solicit our thoughts about granting certification for ocean professionals to stay current with the latest developing technology. Also, she wanted to inform the ocean observing systems (OOS) community of a new research project related to the OOS workforce. This project is designed to:

- produce a more complete description of the present state of the ocean science, technology, and operations (OSTO) workforce;
- anticipate future developments in this workforce;
- characterize the educational programs that will be needed to respond to those developments.

She stated that although their focus will be on the work-force

required to support current and future ocean observing systems (OOS), they were also going to examine related sectors of the ocean economy that require similar knowledge and skill sets (KSS), such as the oil and gas industry, telecommunications, navigation, hydrographic surveying, ocean engineering, and basic and applied ocean research.

Summary of new Motions and Action Items:

There were three motions and no action items generated at this meeting. They are:

- Mot-Vanc- AdCom-07-1: To approve the 2007 Aberdeen, Scotland AdCom Minutes, which were then voted upon and passed unanimously.
- Mot-Vanc- AdCom-07-2: Bob Wernli asked for a motion to accept the MTS/IEEE OCEANS 2010 Conference to be held in Seattle. This motion was accepted unanimously.
- Mot-Vanc- AdCom-07-3: Bob Wernli asked for a motion to accept the IEEE OES OCEANS 2011 Conference to be held in Santander, Spain. This motion was accepted unanimously.
- Mot-Vanc- AdCom-07-4: Bob Wernli asked for a motion to accept the MTS/IEEE OCEANS 2011 Conference to be held in Hawaii. This motion was accepted unanimously.
- AI-Vanc- AdCom-07-1: Acoustics '08 Conference in France – Action Item: It was noted that we need to have an IEEE OES booth at the conference.
- All outstanding motions and action items, both legacy and new are included in Attachment X.

2.0 IEEE OES AdCom Meeting (Vancouver, British Columbia, Canada 2007) Conclusions

- It was decided that there were four motions and one action item generated at this meeting. The meeting was then adjourned at 5:00 PM on 1 October 2007.
- The minutes, assigned action items, approved motions, and OES AdCom member's presentations and reports of this meeting are hereby and respectfully submitted for review by Stephen M. Holt, IEEE OES Secretary, this day of 27 October 2007.

Stephen M. Holt

IEEE Fellow Class of 2007

For contributions to establishment of autonomous underwater vehicle technologies.

Tamaki Ura

Professor Tamaki Ura has dedicated himself to R&D of Autonomous Underwater Vehicles (AUVs) since 1984, and has developed more than ten different kinds of AUVs. When he started his research, AUV technologies were at an immature stage, and far from practical usage. The primary difficulties were lack of efficient energy sources and the lack of high-level of intelligence essential for AUV's operation. Professor Ura developed a small-sized closed cycle diesel engine for the "R-One Robot". In 1998, the R-One recorded 12-hours continuous operation, and carried out full autonomous exploration of Teisi Knoll in 2000. This development allows AUVs to make vital contributions to undersea vulcanology. His latest AUV "r2D4", a middle-sized AUV equipped with an inertial navigation system can dive to 4,000 meters with a range of 60 kilometers. Its primary mission is the



close examination of hydro-thermal vent areas. Successful operations include NW Rota 1 underwater volcano in May 2004 and the caldera of Myoujin-shyo in August 2005. He developed fundamental guidance technologies for AUVs. These include the use of neural network systems navigation and for altitude keeping. He also introduced a vision-based navigation system for AUVs. In 1996, he demonstrated autonomous image-based cable tracking at Lake Biwa using "Twin-Burger 2". The newest vehicle, "Tri-Dog 1", surveyed the port facility at Kamaishi Bay in 2004, collecting images of underwater man-made structures. In 2001, he succeeded in using an AUV to recognize and track humpback whales by detecting their "song". As large mammals are at the top of food-chain, their ecology reflects the whole ocean ecology. This offers a new survey technique to ocean ecologists.

IEEE Fellow Class of 2007

For contributions in deep ocean exploration, search and recovery operations using mathematical models and practical engineering methods.

Colin Jones

Colin Jones' contributions to the science of ocean search started with recovery of the Hydrogen bomb lost off the coast of Spain in 1966. This led to the development of probability analysis used in subsequent successful Ocean Searches and object recoveries. Many were classified, but one of the most well known unclassified examples was finding the USS Monitor, the Civil War Ironclad lost in 1862. He was the Expedition Leader of the project that found and first filmed this wreck. Other major search operations he participated in include the search for the Scorpion, a nuclear submarine lost in the Atlantic; numerous aircraft, both military and civilian; and several classified operations. He personally participated in one of the early deep dives, going below 1000 feet. The decompression time for this dive exceeded 30 days. Much of the early work to develop saturation diving was done by the U.S. Navy, some of



which was under his direction. He was responsible for developing techniques for excursions below and above the saturation depth, which added great flexibility to the Navy's saturation diving capability and enabled operations that would otherwise have been impossible. This has also proved very beneficial to the off-shore oil industry. He was the Deputy Commander of the Suez Canal clearance salvage operation in 1974 when the U.S. Navy cleared the major wrecks in the canal left from the 1967 War between Egypt and Israel. Capt. Jones served as the Navy Director of Ocean Engineering and Supervisor of Salvage and Diving during the critical years that marked the end of the cold war. His efforts led to the development and procurement of the current Emergency Ship Salvage Material bases. This equipment has been used in every major U.S. salvage operation and many elsewhere.

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IEEE/OES Activities in South America

Joseph Vadus & Jerry Carroll reporting on visits in Chile and Argentina, February 23-March 1, 2008; with a brief description of activities and accompanying photographs.

IEEE/OES Chile Workshop 2008

On the way to Vina Del Mar, a stop was made in Santiago to meet with William Melton, Associate Director for Science & Technology of the ONR Global Office in Santiago to discuss workshop plans. This office oversees ONRG activities in Latin America. Mr. Melton and Jessica Robin, Program Officer, Americas Program, NSF Office of International Science and Engineering are invited to the workshop.

In response to OES proposals, this workshop is receiving partial support from NSF and from ONR Global. The workshop will take place in the coastal city, Vina Del Mar, Chile, next to Chile's main port of Valparaiso, on November 4-5-6, 2008. The Club Vina Del Mar is the site of the workshop and the Hotel O'Higgins nearby provides accommodations. Bernardo O'Higgins is a famous Chilean Patriot of the 19th Century.

Planning meetings were held with Dr. Juan Diaz and Marisel Medina of the Pontificia Universidad Catolica de Valparaiso (PUCV). The proposed topics for workshop discussion include: 1. Ocean Observation Systems, including Acoustic Measurements, 2. Remote Sensing of the Coastal Environment, 3. Observation and Assessment of Gas Hydrates, and 4. Seismic/Tsunami Observation Technology. The topics selected were in response to the Broad Agency Announcements (BAA's) of NSF and ONRG, and show relevance to their priorities.

J. Vadus is Co-Chair and PI and Jerry Carroll is Co-Chair, Finance & Logistics. Fred Maltz will provide program coordination for the US participants, all of which were identified in the NSF proposal for their expertise. The NSF Grant provides for their travel assistance. They will provide papers and participate in the workshop deliberations. Post Docs and Grad students were included.

Argentina Activities Proposed

The IEEE Section in Argentina learned of our workshop plans in Chile and J.Vadus received 5 unsolicited E-Mail requesting a stopover enroute to Chile. We were invited by members of the IEEE Section who met us at the airport followed by a dinner meeting hosted by the IEEE Argentina President Dr. Raimundo D'Aquila. Gerardo Acosta coordinated our schedule and agenda. There were 9 members present at the IEEE meeting in their offices on Cordoba Avenue. The main action was to begin planning to propose an ARGUS workshop in Buenos Aires in November 2009. Workshop topics were discussed based on their areas of expertise and keeping in mind the US government agency BAA's and Chile organization's priorities. Potential supporting organizations were identified.

A visit to the Servicio Hidrografia Naval (SHN) was arranged by IEEE member, LCDR Ariel Troisi. Capt. Llorente and Capt Picasso presided at the meeting and offered in-kind workshop support and suggested Hotel Regente Palace, previously used for a workshop. Workshop proposals should be submitted before the end of the year.

A prominent participant in the IEEE meeting was Javier Valadares, Ministry of Science, former Navy Captain and currently Chair of the Paris-based IOC. He was very supportive of Argentina and US cooperation. In particular, he and other IEEE members gave a strong endorsement for an IEEE/OES Latin American Symposium in 2010. That year will be the Bicentennial Celebration of both Argentina and Chile, and the 50th Anniversary of IOC. November 2010 was proposed as the date in Buenos Aires. In 2010, OES has two OCEANS conferences: in Australia (June) and Hawaii (September); a symposium in Buenos Aires in November can be manageable with good OES support. Latin America comprises 11 countries in South America, 8 countries in Central America and the countries of the Caribbean. This symposium can be a timely opportunity for IEEE to support its many members in Latin America.



J.Vadus, OES, William Melton, ONR Global; J. Carroll.
OES meeting near the US Embassy in Santiago



Club Vina Del Mar Workshop Site



Hotel O'Higgins nearby



J. Vadus, Juan Diaz, PUCV; J.Carroll, meeting in Hotel O'Higgins



Restaurants in Vina Del Mar



Juan Diaz, PUCV; J. Carroll, Marisel Medina, PUCV; J.Vadus meeting at Club Del Mar



Crossing over the Andes—Santiago to Buenos Aires



9th of July Avenue—Widest in the world



IEEE Meeting in Buenos Aires. Lto R: front-Vivian Lutz, J. Vadus, J. Carroll; back- Ricardo Valek; Adrian Moldirolas, Gerardo Acosta, Ariel Troisi, Pablo Santellar, Mario Jordan; Missing are: Raimundo D'Aquila and Javier Valladares



Gerardo Acosta, J. Vadus , J. Carroll at the Servicio Hidrografia Naval Facility



Naval Building at Cordoba & Florida---The heart of Buenos Aires Activity



At the Servicio Hidrografia Naval Offices. L to R—Capt. Picasso, J.Carroll, Capt. Llorente, J. Vadus, Gerardo Acosta, Mario Jordan



Tango on Florida Ave., a long shopping street closed to traffic.



Casa Rosada (Pink House) Government Building. Made famous by Eva Peron



Old Boca Section artist's quarter

Preliminary Advance Program

**OCEAN OBSERVATIONS,
ECOSYSTEM-BASED MANAGEMENT & FORECASTING**

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Symposium Co-Chairs:

Joseph R. Vadus, Vice President, Oceanic Engineering Society, IEEE
Jüri Elken, Director, Marine Systems Institute, Tallinn University of Technology

Technical Program Co-Chairs

Albert J. Williams 3rd Woods Hole Oceanographic Institution
Urmas Raudsepp Marine Systems Institute, TUT

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Kenneth Ferer	IEEE Ocean Engineering Society	kferer@earthlink.net

Finance Chairs

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Jaana Laanemets	Marine Systems Institute, Tallinn University of Technology	jaana@phys.sea.ee

Symposium Contact: Gennadi Lessin

Marine Systems Institute, Tallinn University of Technology

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Web Site: <http://www.us-eu-baltic2008.org/>

PARTIAL PROGRAM--OPENING & PLENARY SESSIONS

Monday 26 May 2008 - 18:00 - Registration & Ice Breaker

Tuesday, 27 May 2008

Opening Session – 08:30- 09:45

Session Co-Chairs: Joseph R. Vadus, IEEE/OES

Jüri Elken, Tallinn University of Technology

Invited speakers:

H.E. Toomas Hendrik Ilves, President of the Republic of Estonia

H.E. Stanley Davis Phillips, U.S. Ambassador to Estonia

H.E. Jaanus Tamkivi, Minister of Environment, Estonia

Prof. Jüri Engelbrecht, Vice President, Estonian Academy of Sciences

Prof. Peep Sürje, Rector, Tallinn University of Technology

Coffee Break: 09:45- 10:00

Plenary Session 1A-- 10:00 – 12:00

Session Co-Chairs: Joseph R. Vadus, IEEE/OES

Jüri Elken, Tallinn University of Technology

Dr. Richard W. Spinrad, Assistant Administrator, NOAA's Oceanic & Atmospheric Research, USA, "International Cooperation in Ocean Observing"

Dr. James Pitton, Associate Director, Ocean and Undersea Science, ONR Global, London UK, "ONR Global Programs in Ocean Observation Research"

Dr. Andrew Clark, IOOS, USA, "The US Private Sector Role in Ocean Observation"

Dr. Kaisa Kononen, BONUS, Finland, "Marine Science Contribution to the Ecosystem-Based Management of the Baltic Sea"

Lunch: 12:00 - 13:00

Plenary Session 1B--13:00 – 14:30

**Session Co-Chairs: Jüri Elken, Tallinn University of Technology
Joseph R. Vadus, IEEE/OES**

Dr. Hans Dahlin, Director, EuroGOOS, "HROMB- A Mature Regional Core Service"

Dr. Tiit Kutser, Estonian Marine Institute, "Baltic Sea from Space"

**Dr. Zdenka S. Willis, Director, NOAA's IOOS Program, National Ocean Service, USA
"United States IOOS—A National Look"**

Coffee Break-14:30 – 15:00

15:00- 1800—Parallel Technical Sessions**

19:00--Reception

Wednesday, 28 May 2008

Plenary Session 2-- 08:00- 09:30

**Session Co-Chairs: Jüri Elken, Tallinn University of Technology
Joseph R. Vadus, IEEE/OES**

Dr. Markus Meier, SMHI, Sweden, "Impact of Climate Change on Physical and Biogeochemical Variables of the Baltic Sea"

Dr. Wolfgang Fennel, IOW, Warnemuende, Germany, "Modeling of the Baltic Sea Food Web"

Dr. Anatoly Sagalevitch, IORAN, Russia, " Deep Ocean Under Ice Operations of the MIR Submersibles on the North Pole"

Coffee Break--09:30- 10:00

10:00—12:00-- Parallel Technical Sessions**

Lunch-12:00-13:00

13:00-14:00—Parallel Technical Sessions**

14:00-17:00--Excursion

Thursday, 29 May 2008

08:00—12:00 Parallel Technical Sessions**

Lunch 12:00--13:00

13:00—14:30 Parallel Technical Sessions**

Coffee Break--14:30--15:00

Plenary Session 3—15:00--17:00

Session Co-Chairs: Albert J. Williams 3rd, Woods Hole Oceanographic Institution, USA & Urmas Raudsepp, Tallinn University of Technology, Estonia

Session Chair's Summaries; Highlights, Findings, Research Needs & Recommendations

18:00 Final Banquet

**** For parallel technical sessions refer to <<http://www.us-eu-baltic2008.org> >**

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