



OCEANIC ENGINEERING SOCIETY

NEWSLETTER

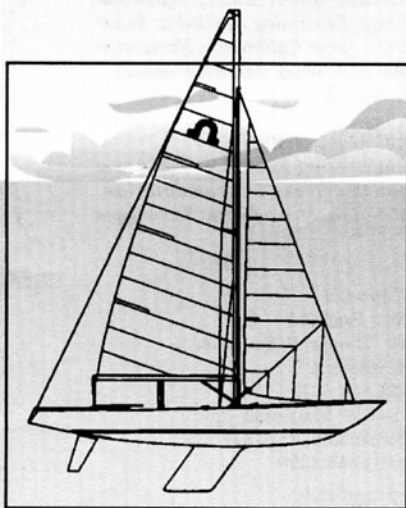


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EDITOR: FREDERICK H. MALTZ

WINTER 1991 (USPS 420-910)



OCEANS 92 Conference

OCTOBER 26 THRU 29, 1992 IN NEWPORT, RHODE ISLAND





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(Continued on inside back cover)

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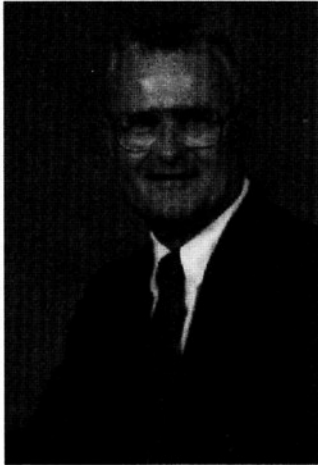
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Glen N. Williams

President's Message

Ah, another opportunity to share a few thoughts with the IEEE/OES community. However, as this issue of the Newsletter is concentrating on the Oceans '91 Conference, I will restrict my comments to that event, for the most part.

The Hilton Hawaiian Village was the place to have been during October 1-3, 1991, for the Oceans '91 Conference. In summary, there were about 700 attendees at the conference, with about 35 exhibits. The technical sessions were overflowing, and the exhibit area was continually moving with attendees.

Two of the highlights of the conference were the student activities which were held throughout the day period. First, there were six university students from the United States and Canada who presented poster papers of their research activities at their institutions. The costs for these students to attend the Conference was at least partially covered by the IEEE/OES. There was a lot of traffic in the poster area, with all six presentations garnering quite positive reviews. The students and their universities are:

<u>Name</u>	<u>University</u>
Alessandro Converai	Scripps-La Jolla
Bruce Hartweg	Texas A&M University
Ian House	Florida Atlantic University
Duncan McGehee	Scripps-La Jolla
G.H. Niezgoda	Concordia University
Andrew Palowitch	Scripps-La Jolla

Poster sessions are also planned for the upcoming Oceans Conferences.

Another student activity during the conference was the attendance by approximately 200 high school students and teachers from throughout the state of Hawaii. The IEEE/OES was also a cosponsor of these students, along with the state of Hawaii and others, who attended both Oceans '91 technical sessions, as well as sessions held specifically for their benefit. Evaluative comments from these conference participants were outstanding, with a major plus being the opportunity for them to "rub elbows" with the oceanic science and engineering researchers and developers, as well as the "movers and shakers" in the discipline.

Every Conference has a group of people who make it a success. Oceans '91 was definitely

that, due in no small way to the individuals whom I want to recognize for their contributions. Thanks, ladies and gentlemen.

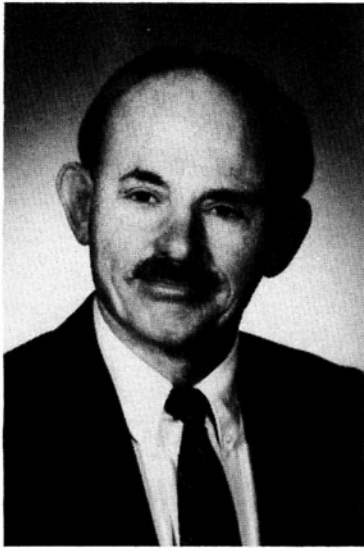
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Mike Balderson	GTE Hawaiian Telephone	Publicity
Bill Bass	High Tech Dev Corp.	Financial Support
Stan Chamberlain	Raytheon	OES Tech Coord
Lianne Loo Chan	Consultant	Conf Coordinator
Ed Early	Consultant	Oceans Conf Coord
Dan Greeson	US Navy	Navy Liaison
Mary Kamiya	Univ of Hawaii (Manoa)	Tech Comm Coord
Earl Kanehire	GTE Hawaiian Telephone	Local Arrangement
Norman Kawachike	M&E Pacific, Inc.	Conf Registration
Charlotte Matsumoto	Deloitte & Touche	Finance
Craig McDonald	State of Hawaii	Financial Support
Norm Miller	West Sound Associates	Student Posters
Matt Miura	GTE Hawaiian Telephone	Publicity
Dean Sakabe	GTE Hawaiian Telephone	Final Program
Joe Vadus	NOAA/NOS	Technical Program
Kim Wong	GTE Hawaiian Telephone	General Chairman
Roy Yee	Electric City	Exhibita
Paul Yuen	Univ of Hawaii (Manoa)	Technical Program

Corporate sponsorship was also a key factor in the success of the Conference. I would like to thank GTE Hawaiian Telephone, M&E Pacific, Inc., Navatak Ships, Ltd., the University of Hawaii at Manoa, and the State of Hawaii for both their personnel and financial support.

As a short announcement, please be aware of the upcoming AUV '92 Conference to be held at the Dulles Airport Marriott Hotel on June 2-3, 1992. Based on attendees' comments after AUV '90, AUV '92 will be another success. Please register early, as space may get tight.

Also, Oceans '92 is coming up during October 26-29, 1992 in Newport, Rhode Island. The Preliminary Technical Program is due out in the May time frame, and, based on a pre-look, it will be another outstanding technical event.

Glen N. Williams
President, Oceanic Engineering Society



Editor's Comments

As Glen aptly stated, the Hilton Hawaiian Village was the place to be in October for the Oceans '91 Conference in Hawaii. We are now looking forward to a successful Oceans '92 Conference in Newport, Rhode Island in October. The last issue of the OES Newsletter included an article by Stanley G. Chamberlain, Oceans '92 Executive Chairman, calling for participation by OES members, which is being run again in this issue. Also of importance in this issue is a call for student posters, which we are hoping to get widely circulated, with

encouragement to our student population for their participation. The winner of the student poster competition at Oceans '91 was Bruce Hardweg from Texas A&M University.

To quote Stan Chamberlain, "Oceans '92 is also being held in the very attractive environment of Newport, Rhode Island." In addition to its natural beauty, historically, Newport has much to offer with 20% of our country's national historic landmarks. Another plus is that October promises to be a good time for viewing the Famous New England fall foliage. If you would like to know more about Newport and its attractions, you can contact:

Newport County Convention & Visitors Bureau
23 America's Cup Avenue
Newport, Rhode Island 02840
1-800-326-6030 (in R.I. 401-849-8090)
FAX (401)-849-0291

I want to thank members for your inputs to the OES Newsletter during the past year, and am looking forward to your continued support in 1992. I would appreciate receiving material for publication relating to upcoming conferences, and especially Oceans '92 and '93. If you have any other material, articles, or bits of information that you would like to have published, send it to my home address.

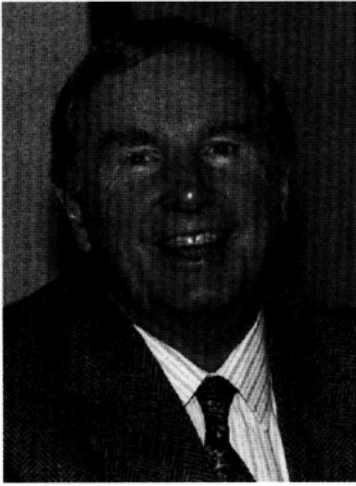
Frederick Maltz
OES Newsletter Editor



The 1992 OTC is the information source you seek.

Bring your questions to Houston May 4-7 and discover the answers.

May 4-7, 1992 • Astrodomain Complex • Houston, Texas



DISTINGUISHED TECHNICAL ACHIEVEMENT AWARD

**Oceanic Engineering Society
Oceans 1991**

DR. HENRY COX

This award recognizes Henry "Harry" Cox's record of technical innovation in the field of ocean engineering, particularly in signal processing, acoustics, and sonar. Over his 30-year career, Dr. Cox has written more than 50 technical papers and presentations in the fields of active and passive sonar, sound propagation, ambient noise, and signal processing. He has served on a number of national advisory panels, including the SECNAV Advisory Panel on Undersea Surveillance, the Naval Research Advisory Committee Panel on the Soviet Submarine Threat, and the Panel on ASW Applications of Artificial Intelligence. Dr. Cox also served as a consultant to OSD and DARPA on ASW matters.

Dr. Cox received his B.S. in Physics from The College of the Holy Cross and his Sc.D. in Electrical Engineering from Massachusetts Institute of Technology. He gained much of his ocean engineering experience during a 25-year career in the Navy, where during his work for the Office of the Assistant

Secretary of Defense, he developed the "Cox" model of sonobuoy field performance. Later, working for DARPA, he applied advanced technologies to undersea warfare problems. After retiring from the Navy in 1981, Dr. Cox spent 10 years as Divisional Vice President at BBN Systems and Technologies, where his groundbreaking research led to new robust beamforming software algorithms that control random error sensitivity. Currently, his position is Chief Scientist and Corporate Vice President for ORINCON Corporation.

Among Dr. Cox's numerous awards are the Gold Medal from the American Society of Naval Engineers, the David Taylor Award for Scientific Achievement, and a presidential citation and award for cost reduction as a result of signal processing innovation. Dr. Cox is a Fellow of the Institute of Electrical and Electronic Engineers and of the Acoustical Society of America and an honorary member of the American Society of Naval Engineers.

OCEANIC ENGINEERING SOCIETY

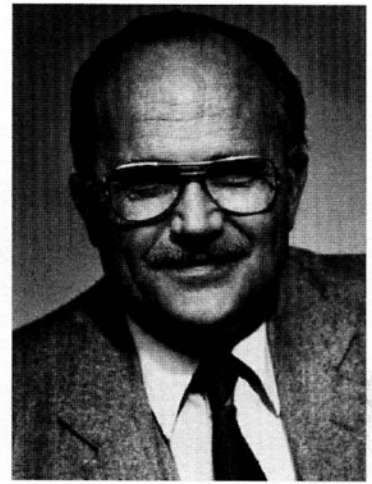
Distinguished Technical Achievement Award

1975 Robert Frosch	1981 No Award	1986 Robert J. Urick
1976 Werner Kroebel	1982 Ira Dyer	1987 James R. McFarlane
1977 Howard A. Wilcox	1983 Alan Berman	1988 Chester M. McKinney
1978 Richard K. Moore	1984 John B. Hersey	1989 Victor C. Anderson
1979 David W. Hyde	1985 William N. Nierenberg	1990 Robert C. Spindel
1980 Neil Brown		

DISTINGUISHED SERVICE AWARD

Oceanic Engineering Society
Oceans 1991

DR. FREDERICK H. FISHER



This award recognizes Frederick H. Fisher's record of distinguished service to the ocean engineering community. Dr. Fisher's current position as a research oceanographer and Deputy Director of the Marine Physical Laboratory (MPL) of the Scripps Institute of Oceanography caps a 40-year research career centered around acoustics in the ocean, including propagation, ambient noise, and the physical chemistry of sound absorption.

Throughout his career with MPL, Dr. Fisher has made dramatic technical and service-oriented contributions to the field of ocean engineering. Besides codesigning and testing the manned ocean buoy, FLIP, Dr. Fisher has been the principal investigator for various National Science Foundation (NSF) grants and Naval Research contracts related to sound propagation measurements.

Dr. Fisher contributes his time and expertise to numerous government and technical committees and panels. A Fellow and former President of the Acoustical Society of America,

Dr. Fisher served as associate editor for the *Journal of the Acoustical Society of America* and on various acoustics technical committees for the Society. In 1984, he served on a panel of the Naval Research Advisory Committee (NRAC) for Environmental Science.

Since Dr. Fisher received his B.S. and Ph.D. degrees from the University of Washington, Seattle, he has supervised the Ph.D. theses of two doctoral candidates and has published over 60 journal articles and received 3 patents.

Besides his extensive work with the Acoustical Society, Dr. Fisher was elected to Sigma Xi and Pi Mu Epsilon honoraries. He's a member of the American Physical and Chemical Societies, the American Association for the Advancement of Science, the American Geophysical Union, the American Meteorological Society, Sigma Pi Sigma, the Marine Technology Society; the Navy Submarine League, and the American Defense Preparedness Association. He is currently serving as the fourth editor of the *IEEE Journal of Oceanic Engineering*.

OCEANIC ENGINEERING SOCIETY

Distinguished Service Award

1975	Arthur S. Westneat	1981	Lloyd Z. Maudlin	1986	Stanley G. Chamberlain
1976	Frank Snodgrass	1982	Arthur S. Westneat	1987	Stanley L. Ehrlich
1977	Calvin T. Swift	1983	Elmer P. Wheaton	1988	Harold A. Sabbagh
1978	Edward W. Early	1984	John C. Redmond	1989	Eric Herz
1979	Richard M. Emberson	1985	Joseph R. Vadus	1990	Anthony I. Eller
1980	Donald M. Bolle				

OCEANS '91

The Opening Plenary



Admiral Kelley at podium



Paul Yuen at podium



Adm. Kelley, Glen Williams, Joe Vadus, Kiman Wong at podium.



Adm. Kelley, Joseph Vadus, Glen Williams

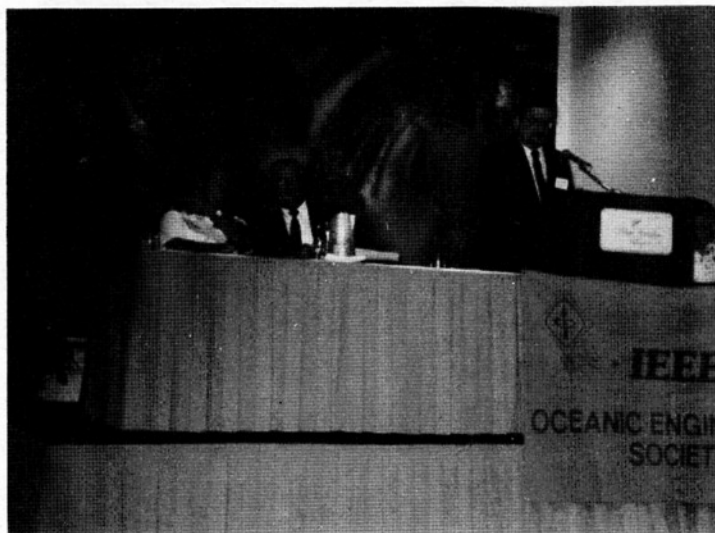


Admiral R.J. Kelly, CINCPAC, Honorary Co-Chairman, Glen Williams and Joe Vadus

CONFERENCE

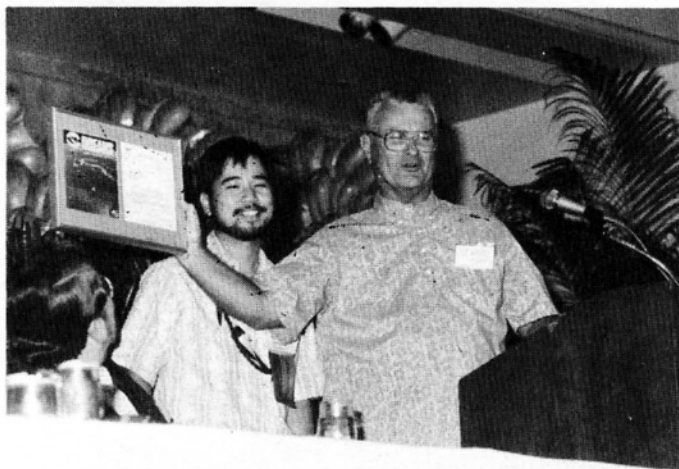


John Carey, Ass't Admin NOAA, Joe Vadus, Dr. Sylvia Earle, Glen Williams



Admiral Kelley, Glen Williams, Joseph Vadus

and The Awards Luncheon



Glen Williams presents award to General Chairman Kiman Wong



Technical Co-Chair Joe Vadus and Kiman Wong



Technical Merit Award, Henry Cox presented by Glen Williams

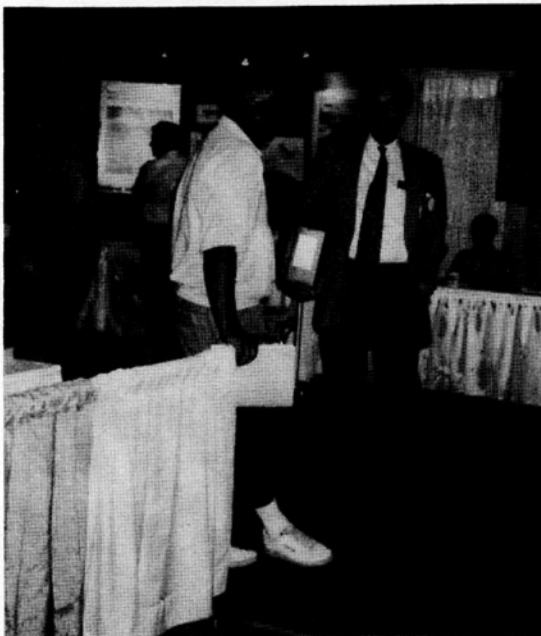
Scenes from



Jean-Luc Lambla, Joseph Czika, Ferial El-Hawary



Stanley Chamberlain, Daniel Alspach



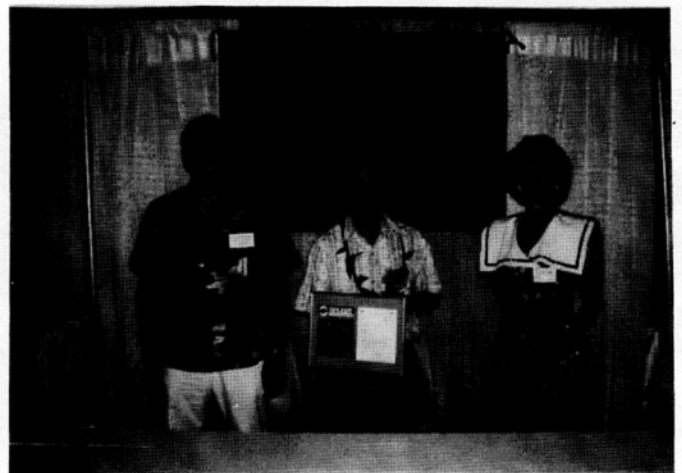
Robert Farwell (right)



Kimon Wong, Kathy Williams, Mary Williams, Glen Williams



*L to R, Vandelyn Czika, Ferial El-Hawary, Pierre Sabathé,
Chairman of Oceans '94*

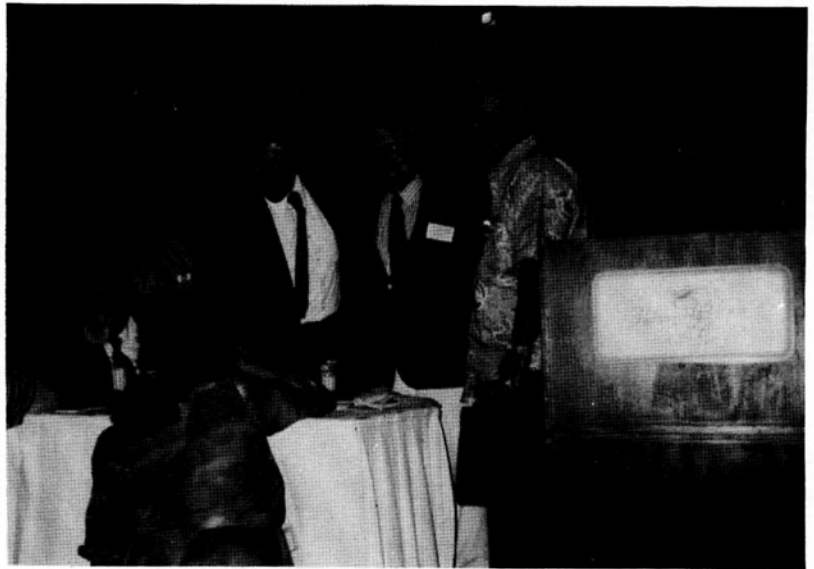


L to R, Joe Czika, Kimon Wong, Vandelyn Czika

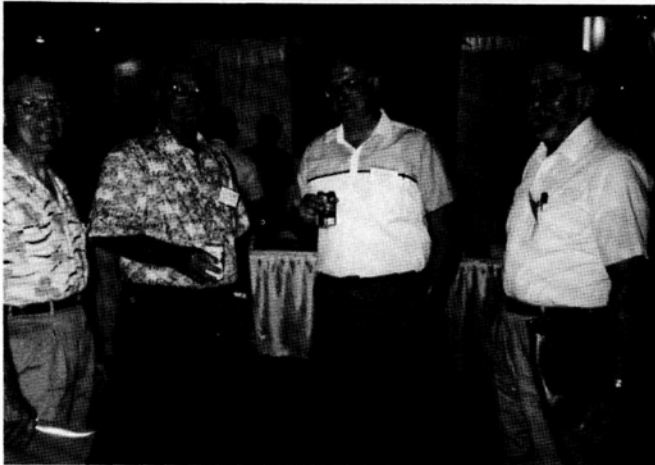
Hawaii 1991



Paula Lau (right) & Lynn Merriam SAIC (left)



Spilhaus, C.Y. Li (Taiwan) background, John Craven, Joe Vadus, Glen Williams



Norma Miller, Glen Williams, James Collins, Richard Robinson



Joe Czika, Mrs. Czika, Vandene Early, Mary Williams, Ferial El-Hawary



Norm Miller - Vice President West, Ferial El-Hawary - Vice President International, Jean-Luc Lambla - Vice Chairman Oceans '94, France, at Oceans '91, Honolulu, HI



Vandene Early, Ed Early, Mary Williams, OES/O '92 Booth

More Scenes



Debate with Athelstan Spilhaus and John Craven



Local T.V. Interview, Dr. Pat Takahashi, University of Hawaii



OES AdCom Meeting, David Weissman, Fred Maltz, Sheldon Balk, Don Alspach, Joe Czika, Stan Chamberlain, Glen Williams, Jim Collins, Paula Lau, and Charles Stuart



Athelstan Spilhaus, Joe Vadus, Gloria Vadus



OES AdCom Banquet, Joe V, Dick Krahl (OCS Inc), Prof. H. Maeda (Univ. of Tokyo), Mr. E. Kataoka (Hitachi Corp), Mr. Michel Gauthier, IFREMER, France



OES AdCom Banquet, Gloria Vadus, Dick Krahl, Lucy and Fred Maltz

The Luau



Gloria Vadus, Sally Chamberlain, Stan Chamberlain, Bob Spindel at luau



Glen Williams and Arrangements Chair, Earl Kanehira



Kiman Wong



Gloria Vadus, Stally & Stan Chamberlain, Bob Spindel



Glen and daughter



Norm Miller, Ferial El-Hawary, Mrs. Jean Luc Lambla, Gordon at Oceans '91, Honolulu, HI

DR. SYLVIA A. EARLE

Government:
(Presently)

Chief Scientist
National Oceanic & Atmospheric Administration
(NOAA)
U.S. Dept of Commerce
Washington, D.C.

Industry:
(1981-1990)

Founder, President, and Chief Executive of Deep
Ocean Engineering, Inc. and Deep Ocean
Technology, Inc., San Leandro, CA

Academia:

B.S. - Florida State University
M.S. & Ph.D. - Duke University
Radcliffe Institute Scholar

Institutional:

- Member, National Advisory Committee on Oceans & Atmosphere
- Member, Marine Board, National Research Council
- Council Member, World Wildlife Fund/Worldwide Fund for Nature
- Director, Explorer's Club
- Trustee, Charles A. Lindbergh Fund
- Research Fellow, University of California
- Research Fellow, Harvard University
- Fellow, California Academy of Sciences, Marine Technology Society, and American Association for Advancement of Sciences

Marine Research
& Expeditions:

- Led 50 expeditions - over 5,000 hrs underwater using conventional & saturation diving techniques, various submersibles, & atmospheric diving system: JIM, WASP, MANTIS, & DEEP ROVER
- Led first team of women aquanauts in TEKTIME Project in U.S. Virgin Islands
- Holds depth record for solo deep-diving (3,000 ft)

Professional:

- Marine Scientist, Undersea Researcher/Explorer, Lecturer, Advisor, Industrial Leader, and Government Executive
- Marine Science & Technology: Authored over 70 publications & lectured in over 50 countries

Honors & Awards:

- Doctorate in Humane Letters, Monterey Institute of International Studies
- The Explorer's Club Lowell Thomas Award
- U.S. Dept of Interior Conservation Service Award
- Order of the Golden Ark (by the Prince of Netherlands)
- Los Angeles Times Woman of the Year (1970)
- California Museum of Science & Industry Woman of the Year (1981)
- New England Aquarium David B. Stone Medal
- Society of Woman Geographers Gold Medal
- Radcliffe College Alumnae Association Medal
- Compass Industrial Award (Deep Ocean Engineering, Inc.)



Dr. Sylvia A. Earle - Guest Speaker at the Awards Luncheon



Institute Elects First Woman President

IEEE MEMBERS CHOOSE MARTHA SLOAN 1992 PRESIDENT-ELECT

NEW YORK, Nov. 15—Martha Sloan, a professor of electrical engineering at Michigan Technological University in Houghton, Mich., has been elected 1992 president-elect of The Institute of Electrical and Electronics Engineers, Inc. (IEEE). Sloan will become the Institute's first woman president on Jan. 1, 1993.

When Sloan assumes the office of president-elect on Jan. 1, 1992, Merrill W. Buckley, Jr., 1991 president-elect, will become 1992 IEEE president.

Sloan, who joined the IEEE in 1959, was named an IEEE Fellow in 1991. She served as executive vice president of the Institute in 1990, and she was president of the IEEE Computer Society in 1984-85. She is the first officer of the Computer Society to be chosen IEEE president-elect.

Among her many other IEEE offices and activities, she served as IEEE treasurer in 1988 and director of Division V in 1986-87, and was on the Board of Directors from 1986-88 and again in 1990.

Martha Sloan received B.S.E.E., M.S.E.E. and Ph.D. degrees from Stanford University in 1961, 1963 and 1973. From 1961-63, she worked at the Palo Alto Research Laboratories of the Lockheed Missile and Space Company in communications research. Following that, she taught for two years at the Frankfurt International School in Oberursel, Germany.

A professor in the department of electrical engineering at Michigan Technological University since 1969, Sloan is currently concentrating on the areas of computer networks, graphics and fault tolerance.

Sloan has published three textbooks and more than 50 technical papers. She has been awarded a National Merit Scholarship, an IEEE Centennial Medal, the Frederick Emmons Terman Outstanding Young Electrical Engineering Educator Award, and the IEEE Computer Society's Richard E. Merwin Award for distinguished service.

She is a member of Tau Beta Pi, Sigma Xi, Phi Beta Kappa, the American Association for the Advancement of Science, the Association for Computing Machinery, the American Society for Engineering Education and the Society of Women Engineers.

OCEANS 92



MASTERING THE OCEANS THROUGH TECHNOLOGY

OCTOBER 26-29, 1992 ■ NEWPORT, RHODE ISLAND

OCEANS '92 - A Call for Participation by IEEE Members

The annual OCEANS Conference is the Flagship Conference of the IEEE Oceanic Engineering Society. As such, it has established a long standing reputation for technical excellence and as an outstanding forum for the exchange of ideas among oceanic engineers and scientists.

However, only a small percentage of IEEE members with interest in oceanic engineering applications attend the Conference each year. In 1992, a special effort is going towards attracting IEEE members to the OCEANS '92 Conference, which will be held on October 26-29, 1992. The Conference Committee is taking advantage of this being a year in which the Conference is sponsored by only one national society, the IEEE Oceanic Engineering Society, to provide the following attractions:

- The technical program will be focused towards the technical interests of OES members, especially as expressed in the specialty areas addressed by the OES Technical Committees. The OCEAN '92 Technical Program Committee is comprised of the Chairpersons of the OES Technical Committees, plus a Chairperson and Vice-Chairperson.

- While previous OCEANS Conferences have had high technical quality, we are seeking to raise the quality level even higher in OCEANS '92. This will be done in part by requesting more information from the authors to allow the best possible grouping of papers into appropriate sessions, by performing a higher level of abstract screening and by requiring all papers presented to be published in the Conference Proceedings.

- The Conference is also being held in the very attractive environment of Newport, Rhode Island.

- As an additional incentive to attend, all IEEE members (including current OES members) who attend OCEANS '92 will receive free membership in OES for 1993.

- For those with appropriate interests, the 1992 OCEANS Classified Conference, sponsored by the U.S. Navy, will be held on the day following the OCEANS '92 Conference.

Why not plan now to attend and participate in the stimulating exchange of ideas that will occur during the OCEANS '92 Conference. For the technical areas to be addressed, see the Call For Papers that appears elsewhere in this newsletter.

Stan Chamberlain,
OCEANS '92 Executive Chairman

CONFERENCE COMMITTEE

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Woods Hole Oceanographic
Institution
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Executive Chairman
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STUDENT POSTER COMPETITION

OCEANS '92

October 26-29, 1992
Newport, Rhode Island

The IEEE Oceanic Engineering Society and sponsoring local sections of MTS, IEEE and OES/IEEE solicit student posters dealing with new technology concepts, developments and applications which provide a basis for advances in science and engineering in the ocean environment. The theme for OCEANS '92, *Mastering the Oceans through Technology* places heavy emphasis on high technology content and high quality in the technical program. Proposed technical sessions at OCEANS '92 will be focused on the following areas:

Computing and Information Management

- Modeling, Simulation and Databases
- Knowledge-based Systems and Neural Networks
- Geographic Information Systems

Sensing and Processing Technologies

- Satellite Remote Sensing
- Underwater Acoustics
- Nonacoustics

Communications and Navigation

- Autonomous Vehicles
- Manned Platforms
- Acoustic Telemetry

Instrumentation and Measurements

- Laboratory and Analytical Techniques
- In situ Techniques
- Climate Monitoring
- Severe Environments

Technology Advances

- Underwater Robotics
- Data Compression and Storage
- Power Sources
- Vehicles
- Materials



ELIGIBILITY

- Undergraduate and graduate students enrolled in degree programs on a full time basis at an accredited college or university.

SUBMISSION REQUIREMENTS

Submit the following material:

- Abstract (up to 500 words)
- Author biographical sketch (1 page)
- Faculty advisor endorsement

The poster should focus on one of the technical areas listed for OCEANS '92. The abstract should specify technical area and describe problems/questions addressed, summarize work performed and present results/conclusions.

SELECTION

- Abstracts will be evaluated on quality of technical content, originality and relationship to technical areas of OCEANS '92
- Selected students (principal author only) will be invited to present posters at OCEANS '92
- Conference expenses (travel, lodging, registration) will be provided by OES/IEEE for students invited to present posters
- Posters will be judged at OCEANS '92 and winner presented with cash award

PUBLICATION

- Abstracts of posters selected for OCEANS '92 will be published in conference proceedings
- Author of winning poster will be invited to submit paper for publishing in OES Newsletter

SCHEDULE

- Abstract deadline - March 31, 1992
- Notification of acceptance - May 31, 1992
- Poster instructions provided to selected students - June 30, 1992

MAIL ENTRY MATERIAL TO:

OCEANS '92
655 Fifteenth Street, N.W., Suite 300
Washington, D.C. 20005
Attn: Leslie Prewitt, Phone: 202/347-5900



**INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
OCEANIC ENGINEERING SOCIETY**

AUV 92

CALL FOR PAPERS

**SYMPOSIUM ON AUTONOMOUS UNDERWATER VEHICLE TECHNOLOGY
June 2 and 3, 1992**

The IEEE Oceanic Engineering Society is sponsoring a symposium on Autonomous Underwater Vehicle Technology, to be held in the Washington, D.C. metropolitan area at the Dulles Airport Marriott Hotel on June 2 and 3, 1992. The objective of the symposium is to disseminate knowledge of recent technological advances and to identify technological shortfalls.

TECHNOLOGIES

The Symposium will focus on technologies that are related to the AUTONOMOUS OPERATION OF UNDERWATER VEHICLES, such as:

- | | |
|--|-----------------------------|
| Mission planning, control and management | Communication and telemetry |
| Sensors and signal processing | Navigation |
| Simulation | Reliability |
| Energy systems | Vehicle design |
| Launch and recovery systems | |

ABSTRACTS

Abstracts should be limited to 300 words and must include the title of the paper and be accompanied by full names of the author(s), with affiliations(s), complete address(es), telephone number(s), and telecopier number(s) if any. Relevance to the topic of autonomous underwater vehicles must be made clear in the abstract.

DEADLINES

The proceedings will be distributed at the symposium. Material must be received by the following dates in order to make advance printing possible. Papers that miss these deadlines will be dropped from the program.

- | | |
|-------------------|--|
| 1 October 1991: | 300 word abstract due — mail to Gordon Raisbeck, 40 Deering Street, Portland, Maine 04101-2212 |
| 15 November 1991: | Corresponding author will receive notice of acceptance or rejection |
| 1 March 1992: | Original manuscript due in photo-reproducible form |

CONFERENCE STEERING COMMITTEE

- | | |
|--------------------------------|--|
| General Chairperson: | Capt. William Shotts, USN UUV Program Office |
| Technical Program Chairperson: | Dan Steiger, Naval Research Laboratory |
| Executive Secretary: | Gordon Raisbeck |

INFORMATION

For further information, call:

- Gordon Raisbeck, (207)773-6243
Dan Steiger, (202)767-3265



**The Institute of Electrical and Electronics
Engineers, Inc.
United States Activities**

Announces the 20th Annual Competition for

1992-1993

IEEE-USA Congressional Fellowships

PROGRAM: Electrical and Electronics Engineers and Allied Scientists are competitively selected to serve a one-year term on the personal staff of individual Senators or Representatives or on the professional staff of Congressional Committees. The program includes an orientation session with other Science-Engineering Fellows, sponsored by the American Association for the Advancement of Science (AAAS).

PURPOSE: To make practical contributions to more effective use of scientific and technical knowledge in government, to educate the scientific communities regarding the public policy process, and to broaden the perspective of both the scientific and governmental communities regarding the value of such science-government interaction.

CRITERIA: Fellows shall be selected based on technical competence, on ability to serve in a public environment, and on evidence of service to the Institute and the profession. Specifically *excluded* as selection criteria are age, sex, creed, race, ethnic background, and partisan political affiliations. However, the Fellow must be a U.S. citizen at the time of selection and must have been in the IEEE at Member grade or higher for at least four years. Additional criteria may be established by the selection committee.

AWARDS: IEEE-USA plans to award at least two Congressional Fellowships for the 1992-1993 term. Additional funding sources may permit expansion of awards.

APPLICATION: Further information and application forms can be obtained by calling W. Thomas Suttle (202) 785-0017 at the IEEE-USA Office in Washington, D.C. or by writing:

**Secretary, Congressional Fellows Program
The Institute of Electrical and Electronics Engineers, Inc.
1828 L Street, N.W.
Washington, D.C. 20036**

Applications must be postmarked no later than March 31, 1992 to be eligible for consideration.

General Chair: Clifford Lau
Honorary Chair: Bernard Widrow
Program Chair: John J. Shynk

**CONFERENCE ANNOUNCEMENT
AND CALL FOR PAPERS**

Papers for oral and poster presentations are solicited. Topics include:

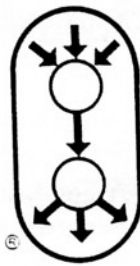
- Applications
- Artificially Intelligent Neural Networks
- Associative Memory
- Electronic Neurocomputers
- Fuzzy Neural Networks
- Image Processing
- Invertebrate Neural Networks
- Machine Vision
- Neurocognition
- Neurodynamics
- Optical Neurocomputers
- Optimization
- Pattern Recognition
- Robotics and Control
- Sensation and Perception
- Sensorimotor Control Systems
- Speech Processing
- Supervised Learning
- Unsupervised Learning

Conference includes Tutorials, Exhibits, Plenary Sessions, and Social Activities

Deadline is January 15, 1992. Six copies of the paper must be submitted, six page maximum, including figures. Papers must be camera-ready on 8 1/2 x 11 white papers, one-column format in Times or similar font style. 10 points or larger with one inch margins on all four sides. Title, author name(s) and affiliation(s) must be on top of the first page followed by abstract. Papers will be printed as submitted. A covering letter must show:

1. Title of paper
2. Name, address and telephone number of corresponding author
3. Your choice of technical session.

Meeting Management
IJCNN '92 Conference Coordinator
5665 Oberlin Drive, Suite #110
San Diego, CA 92121
Telephone (619) 453-6222
FAX (619) 535-3880



IJCNN

**INTERNATIONAL
JOINT
CONFERENCE ON
NEURAL NETWORKS**

**Baltimore, Maryland
June 7-11, 1992**



THE INSTITUTE OF
ELECTRICAL AND
ELECTRONICS
ENGINEERS INC

INNS
INTERNATIONAL
NEURAL NETWORK
SOCIETY

IEEE-USA NEEDS YOUR HELP TO IMPROVE PENSION PORTABILITY

LEGISLATIVE ALERT IEEE-USA

Portable Pensions: Their Time Is Now

The boom/bust cycle that has characterized the U.S. aerospace/defense industry for more than 40 years is on the downhill slide again, after a steep defense buildup and a prolonged commercial expansion. Cutbacks and layoffs during the past year have disrupted thousands of careers and prompted numerous industry professionals to ponder whether this is the right business to be in.

As in the early 1970s, the latest aerospace drought is forcing the industry to confront a persistent problem: It does not offer its people a decent retirement system. Most aerospace companies have competitive retirement plans; they must if they are to attract needed talent. But few ever pay out full pensions, because relatively few employees can stay with one company long enough to qualify.

It is increasingly rare to find managers, engineers, technicians, production line workers or mechanics who have worked full careers with a single aerospace company. Most have experienced multiple layoffs or have changed jobs

voluntarily, following major programs from company to company. These "acro-bracers" eventually end their working careers with no retirement fund other than what they have put aside privately.

"Portable Pensions" are needed to provide retirement security for these highly mobile employees. The concept is not new. It is being discussed in Washington now as a cushion for the 50% of Americans who reach retirement age with little or no financial security. Corporate managers typically take a mobile workforce for granted. In fact, they depend on it. If U.S. technology-intensive industries are to mature, while remaining competitive on a world scale, their leaders must recognize that skilled manpower is technology's lifeblood, not to be squandered.

AVIATION WEEK & SPACE TECHNOLOGY
MAY 6, 1991

Preservation of Benefits--The bill provides for the imposition of a 25 percent penalty tax on pre-retirement distributions that are not transferred to another qualified plan or to an individual retirement account.

Minimum Benefit Pension System--If pension coverage and portability do not improve substantially after 5 years, *H.R. 2390* establishes, for those not already receiving equivalent or better retirement provisions, a privately administered minimum benefit pension system to which employers must contribute a minimum of 6 percent of compensation. Employees will be permitted to make matching contributions on a salary reduction basis.

Suggested Letter of Support

"Dear Representative (or Senator):

"I am writing to you as a constituent and engineer to urge you to support *H.R. 2390, The Pension Coverage and Portability Improvement Act of 1991.*

"*H.R. 2390*, as introduced by Congressman Sam Gibbons (D-FL), will expand pension coverage, reduce vesting requirements, improve portability, and help preserve pension benefits when workers change jobs. The resulting increase in savings by companies and individuals will also enlarge the pool of capital available for productive investment in the nation's economy.

"Prompt enactment of *H.R. 2390* is needed to strengthen the nation's voluntary private pension system and improve the retirement income security of America's increasingly mobile work force.

"Thank you for your support."

Sign your letter, and mail to U. S. House of Representatives, Washington, D.C. 20515, and to U. S. Senate, Washington, D.C. 20510. Send copies to Vin O'Neill, IEEE-USA, 1828 L Street, N.W., Suite 1202, Washington, DC 20036.

Your help is needed to secure passage of legislation that will improve pensions for engineers, scientists, and other mobile professionals.

H.R. 2390, The Pension Coverage and Portability Improvement Act, sponsored by Congressman Sam Gibbons (D-FL), is based on retirement policy recommendations developed by IEEE-USA. *H.R. 2390* will expand pension coverage, reduce vesting requirements, improve the portability of benefits when workers change jobs (including defined benefit plans), promote individual savings, and help to ensure the retirement income security of our increasingly mobile work force.

As a concerned engineer or scientist you should communicate your support for this important legislation to your Congressman and both Senators in Washington at once!

Urge them to support the pension portability provisions of *H.R. 2390* when the House Ways and Means and Senate Finance Committees take up pension reform and simplification proposals.

Highlights of H.R. 2390

Coverage Expansion--Employers lacking current retirement plans would be required to offer voluntary salary reduction savings arrangements for their employees. Employees who wish to do so could contribute, on a salary-reduction (pre-tax) basis, up to 25 percent of compensation (or \$30,000) per year.

Vesting Standards--One hundred percent vesting, required after one year of service, will earn for all full-time employees a non-forfeitable right to a pension benefit.

Portability in Defined Benefit Plans--Terminating employees would have the option of leaving earned benefits in a former employer's plan or transferring those benefits to another qualified plan or to an Individual Retirement Arrangement. The rollover or transfer value of earned benefits would be determined using an assumed (deflated long term) interest rate of 3 percent, rather than prevailing market rates, to help preserve the purchasing power of such benefits when workers change jobs.

102ND CONGRESS
1ST SESSION

H. R. 2390

To amend the Employee Retirement Income Security Act of 1974 and the Internal Revenue Code of 1986 to expand pension coverage, improve pension portability, increase retirement savings, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MAY 20, 1991

Mr. GIBBONS introduced the following bill; which was referred jointly to the Committees on Education and Labor and Ways and Means

A BILL

To amend the Employee Retirement Income Security Act of 1974 and the Internal Revenue Code of 1986 to expand pension coverage, improve pension portability, increase retirement savings, and for other purposes.

- 1 *Be it enacted by the Senate and House of Representa-*
- 2 *tives of the United States of America in Congress assembled,*
- 3 That this Act may be cited as the "Pension Coverage and
- 4 Portability Improvement Act of 1991".

IEEE USA HOT LINES

IEEE-USA Office, 1828 L Street, N.W., Suite 1202, Washington, DC 20036-5104, USA (202) 785-0017
IEEE-USA telephone hotline recording: (202) 785-2180
James A. Watson, Editor—Georgia C. Stelluto, Associate Editor

Pensions Committee Member Meets With Senator, Testifies at Senate Hearings

IEEE-USA Pensions Committee Member Mona K. Draper met with Senator John B. Breaux (D-Louisiana) to explain the views of IEEE-USA and the Engineers and Scientists Joint Committee on Pensions (ESJCP) on pending Individual Retirement Account (IRA) legislation. Senator Breaux is a member of the Senate Finance Committee, which considers pension legislation.

Both IEEE-USA and ESJCP are strong supporters of legislation sponsored by Senators Lloyd Bentsen (D-Texas) and William V. Roth, Jr. (R-Delaware) that would help increase personal savings by expanding eligibility to make tax-favored contributions to IRAs. The **Bentsen-Roth Super IRA Proposal**, S. 612 and H.R. 1406, would permit all taxpayers to contribute up to \$2,000 a year to a conventional tax-deductible IRA or to a new type of IRA, in which interest earnings on contributions held for at least five years would be tax-exempt upon withdrawal. The proposal would also permit penalty-free withdrawals for first-time home purchases, for educational expenses, or for financially devastating health care costs.

In testimony given before the Senate Finance Committee, Draper said that this legislation is urgently needed, "not only to boost personal savings for retirement, but also to expand the pool of domestic savings that can be used for productive investment in the national economy." She added that increased savings resulting from the proposal should also help to lower interest rates, stimulate investment, create new jobs, expand the tax base, and improve living standards, as well as guarantee a more secure retirement for thousands of American workers and their families. Copies of the testimony are available from the IEEE-USA Office in Washington, D.C.

Pensions Committee Alerts U.S. Members

IEEE-USA's Pensions Committee recently sent Legislative Alerts urging IEEE's U.S. members to write their Representatives and Senators in support of H.R. 2390, the **Pension Coverage and Portability Improvement Act**, sponsored by Congressman Sam Gibbons (D-Florida). The 45,000 members who received the Alerts are constituents of members of the Senate Finance Committee and the House Ways and Means Committee. The Act will expand pension coverage, improve the portability of benefits when workers change jobs, and increase individual savings for retirement. These provisions are based on IEEE-USA's policy recommendations. IEEE-USA also supports H.R. 1406 and S. 612, bills that would restore universal eligibility for making tax-favored IRA contributions.

Local IEEE leaders have distributed the Alert in their Sections and encouraged member support, according to

correspondence received at the IEEE-USA Office. PACE leaders and Section, Society, and Chapter leaders should ask their Colleagues to support this important pension legislation. All IEEE members are urged to write their Senators and Congressmen in support of H.R. 2390, H.R. 1406 and S. 612. Address letters to the House of Representatives, Washington, D.C. 20515, and to the U.S. Senate, Washington, D.C. 20510. Send copies to Vin O'Neill, IEEE-USA, 1828 L Street, N.W., Suite 1202, Washington, D.C. 20036.

1992 Congressional Fellows Appointed

The United States Activities Board recently approved recommendations for three 1992 Congressional Fellowships. Larry L. Stern, Kenneth D. Wagner, and Richard J. Jaeger will begin their Fellowships on January 1, 1992 and will work in selected staff assignments on Capitol Hill for one year.

A Program Manager for Hughes Aircraft Company, Mr. Stern manages software on an SDI surveillance satellite and has assisted in developing a real-time simulation project for an F-14 aircraft mission trainer.

Since 1986, Dr. Wagner has worked for IBM Corporation in Poughkeepsie, New York, as a Senior Engineer in the Systems Technology Division. He is responsible for Design for Testability Rules for IBM products, and for educating the IBM engineering community in such areas as logic design and test methodologies.

After a 35-year career with Bell Telephone Laboratories, Mr. Jaeger retired in 1987. He now teaches short courses on digital switching to government and industry-related groups.

Intellectual Property Committee Chairman Testifies Before Senate

David M. Ostfeld, Chairman of IEEE-USA's Intellectual Property Committee, recently testified before the Senate Commerce, Science, and Transportation Subcommittee on behalf of the **Technology Improvements Act of 1991**, S. 1581. The Act would allow Federal agencies to secure copyrights for computer software prepared in whole or in part by U.S. Government employees working under a cooperative research and development agreement (CRDA) with the private sector.

"In an age of increasing pressure to stabilize taxation and reach a balanced Federal budget, industry has been encouraged to assist in funding joint research and development projects with the Federal Government," Ostfeld said. Without computer software protection, the private sector has less incentive to enter into CRDAs, and the value of such projects diminishes.

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James A. Watson, Editor—Georgia C. Stelluto, Associate Editor

USAB Chairman Urges Congressional Action

USAB Chairman Michael J. Whitelaw recently sent letters to the Senate on behalf of several IEEE-USA committees. The letters expressed IEEE-USA's views on nuclear energy, microwave measurements, telecommunications anti-crime legislation, and high-performance computing.

Whitelaw's letter to Senator J. Bennett Johnston (D-Louisiana), Chairman of the Energy and Natural Resources Committee, is written on behalf of IEEE-USA's Energy Policy Committee. Expressing support for nuclear provisions in S. 1220, the *National Energy Security Act of 1991*, the letter said IEEE-USA believes that nuclear reactor licensing reform is necessary for advancing nuclear power development.

Urging restoration of \$1.945 million in the FY 1992 appropriation for a National Institute of Standards and Technology (NIST) microwave measurements initiative, Whitelaw wrote to Congressman Jamie L. Whitten (D-Mississippi), Chairman of the House Appropriations Committee. Letters were also delivered to Congressional Members slated to serve on a House-Senate conference committee on H.R. 2608, the *Department of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Bill, 1992*.

Commending the Judiciary Committee Chairman, Senator Joseph R. Biden, Jr. (D-Delaware), on his recent actions concerning S. 1241, the *Cooperation of Telecommunications Providers of Law Enforcement Act*, Whitelaw urged resistance to other floor amendments that would allow Federal law enforcement officials access to computer security codes. Whitelaw expressed IEEE-USA's alarm that legislation of this nature would be a direct threat to national security and harm the international competitiveness of U.S. firms.

In his letter to Senator Barbara Mikulski (D-Maryland), Appropriations Committee Member, Whitelaw expressed IEEE-USA's strong support for the High-Performance Computing and Communications (HPCC) initiative. He said HPCC will support U.S. economic development by linking academic and industrial researchers and students with one another and with databases and specialized computer systems needed to access their work.

USAB Presents Awards at 1991 PACE Workshop

The 1991 PACE (Professional Activities Committees for Engineers) Workshop was held over Labor Day Weekend in Philadelphia, Pennsylvania. Approximately 205 IEEE members and others participated in addressing a broad range of issues of concern to IEEE's U.S. members. The presentation of IEEE's United States Activities Board (USAB) awards was a Workshop highlight.

In a ceremony on September 1, Michael J. Whitelaw,

Vice President, Professional Activities, announced that Lawrence P. Grayson was the recipient of USAB's Award for Distinguished Contribution to Engineering Professionalism, USAB's highest award. While unable to attend the ceremony, Grayson was recognized for his outstanding leadership in creating a significant program of activities in precollege mathematics and science education for IEEE and for his role in organizing the National Coalition of Engineering Societies for Precollege Mathematics and Science, the nation's largest volunteer effort in support of education.

D. Allan Bromley, Director of the White House Office of Science and Technology Policy, was named the recipient of USAB's Distinguished Public Service Award for his contributions to the development and implementation of Federal policy on science, engineering, and technology and for enhancing the U.S. technology policy interests of IEEE's U.S. members. IEEE leaders will present Bromley's award to him at a private ceremony in Washington, D.C.

Citations of Honor, given to individuals who have made outstanding contributions toward achieving recognition of national professional activities, were presented to William R. Tackaberry and William D. Whipkey. Richard B. Marsten will receive his citation in Washington, D.C., at a National Capital Area Council awards ceremony. *

Journalist Robert K. Bellinger received the Award for Distinguished Literary Contributions Furthering Engineering Professionalism, recognizing those who have made outstanding literary efforts to the advancement of IEEE's professional objectives in the United States. Author Eleanor R. Adair and National Public Radio's Richard F. Harris each received the Award for Distinguished Literary Contributions Furthering Public Understanding of the Profession, which recognizes journalistic or other communication efforts that contribute to the enhancement of public understanding of the profession.

Six members were awarded USAB's Regional/Divisional Professional Leadership Award for outstanding efforts in advancing IEEE's professional aims in the United States. R. Steven Brown (Region 6), Oscar N. Garcia (Divisions V and VIII), Gerald F. Jennings (Region 1), John W. Meredith (Region 5), and Glenn R. Thoren (Region 1) received their awards at the Workshop. George J. Simonis (Division I) will receive his award at a later time.

Andrew C. Knapp and Will Stackhouse each received the Professional Achievement Award, recognizing significant contributions, achievements, and individual efforts in the development and implementation of U.S. professional activities. Not present at the ceremony, David M. Ostfeld and Lawrence R. Knapp were also named Professional Achievement Award recipients.

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IEEE-USA Urges Congressional Action on R&D, Computing, and Tax Policy

Before ending his term as USAB Chairman, Michael J. Whitelaw sent letters on behalf of several IEEE-USA committees to the Vice President of the United States and Members of Congress.

At the request of IEEE-USA's Aerospace R&D Policy Committee, Whitelaw wrote to Vice President Dan Quayle to urge support of NASA's Earth Observation System and Mission to Planet Earth programs. Both programs are under pressure due to projected flat NASA appropriations coupled with the increased space station funding requirements. IEEE-USA believes that cutbacks to these programs will lead to serious reductions in U.S. competitiveness in remote sensing instrumentation, spacecraft, systems engineering, data processing and dissemination, and associated analytical capabilities.

Whitelaw sent two separate letters concerning Federal Independent Research and Development (IR&D) legislation and regulations on behalf of IEEE-USA's Defense R&D Policy Committee. In his letter to Senator Sam Nunn, Chairman of the Senate Armed Services Committee, Whitelaw asked for support of Section 231 of H.R. 2100, the House version of the **Defense Authorization Act**. The section would eliminate advance agreement requirements between defense contractors and the Department of Defense on recoverable IR&D costs, permitting full allowance of such costs. The second letter, sent to the General Services Administration, addresses a proposed Federal Acquisition Regulation raising the maximum cost thresholds below which defense contractors are not required to negotiate advance agreements to reflect inflation. IEEE-USA endorses even higher limits to promote more efficient use of corporate and government resources.

On behalf of IEEE-USA's Committee on Communications and Information Policy, Whitelaw sent letters to Representatives George Brown (D-California), Martin Sabo (D-Minnesota), Robert Walker (R-Pennsylvania), and Richard Gephardt (D-Missouri) thanking them for supporting high-performance computing legislation. Voicing concern that a "Buy America" clause involving Government procurement will threaten approval of the final bill, IEEE-USA strongly urged removal of this impediment to the bill's adoption.

Finally, Whitelaw wrote to Senator Patrick Moynihan (D-New York) on Section 1706 of the **Tax Reform Act of 1986**, encouraging him and other Members of Congress to introduce legislation to repeal or amend this section. Section 1706 established very controversial rules for determining whether consulting engineers and computer specialists who work for technical services firms are to be

classified as employees or as independent contractors for income tax purposes. IEEE-USA agrees with recent U.S. Treasury Department findings that the provision may have an adverse effect on the efficiency of labor markets for technical service workers.

USAB Approves Position Statements

IEEE's United States Activities Board approved these position statements during its last two meetings of 1991. Copies are available from the IEEE-USA Office in Washington, D.C.

- **Engineering Utilization and the U.S. Standard of Living**—IEEE-USA recommends that the Federal Government develop programs to make more effective use of engineers in defense and non-defense industries, as well as Federal agencies, and support private sector strategies through legislative and financial means.
- **Toward an Architecture for the Interoperation of High-Resolution Systems Across Industries**—Recognizing that High Resolution Systems (HRS) development will have a significant impact on many industries, IEEE-USA encourages all entities participating in standards development to develop and adopt an open architecture where flexible standards for HRS systems can be implemented.
- **Fusion Power**—While research in fusion power is aimed at a timely demonstration of fusion as a viable, inexhaustible power source for base load electrical power generation, IEEE-USA supports Federal funding levels adequate for studying the physics of a high-gain burning plasma, in addition to physics research for the development of fusion technology.
- **Research Needs in Health Effects of Power Frequency Electric and Magnetic Fields**—IEEE-USA points out the general areas of investigation that would make the greatest contribution to understanding the interaction of relatively low-intensity, low-frequency electric and magnetic fields with living matter, in addition to identifying specific risk assessment objectives.
- **Spectrum Auctioning**—The Federal Communications Commission must continue to make spectrum allocations on a public interest basis, not subject to auction. Consideration should be given to using auctioning in the licensing process and use the process to improve spectrum utilization and management. IEEE-USA believes that these suggestions will enhance the benefits of the license auction process and help clarify where auctioning is appropriate.

Clarification

Apologies to Andrew C. Lindberg, recipient of the 1991 Professional Achievement Award, who was misidentified in a story about IEEE's United States Activities Board Awards in the December 1991 issue.

IEEE USA HOT LINES

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IEEE-USA telephone hotline recording: (202) 785-2180

James A. Watson, Editor—Georgia C. Stelluto, Associate Editor

New Department of Commerce Initiative Promotes Strategic Industry Partnerships

The U.S. Department of Commerce's Technology Administration has announced a new Productivity, Technology, and Innovation Strategic Partnership Initiative designed to promote private sector partnerships for the development and exploitation of large-scale enabling technologies.

The Strategic Partnership Initiative (SPI) outlines new procedures under which the Commerce Department can provide forums for private sector interest groups to discuss establishing strategic partnerships for technology development and commercialization.

IEEE-USA's Technology Policy Council is engaged in informal discussions with the Technology Administration's Office of Technology Policy Analyses and Studies on possible subjects and technologies suitable for strategic partnerships.

USAB Approves Position Statements

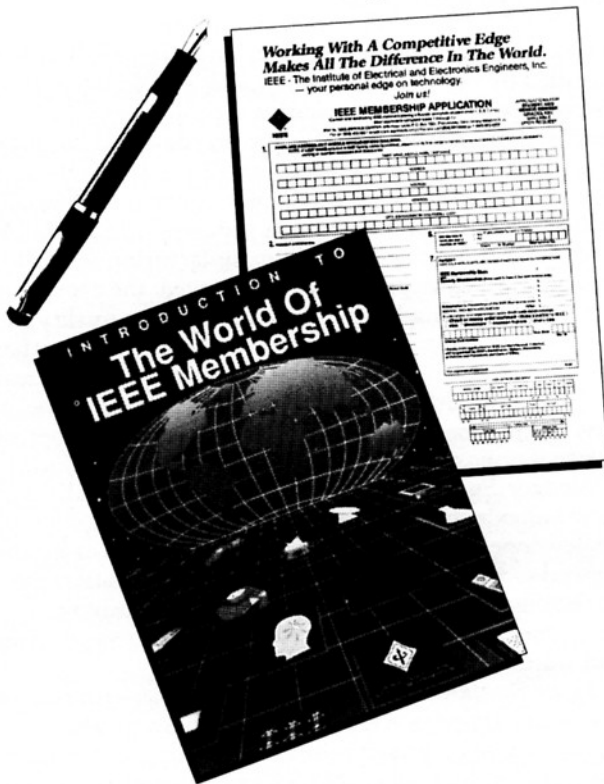
IEEE's United States Activities Board approved these position statements during its last two meetings of 1991. Copies are available from the IEEE-USA Office in Washington, D.C.

- **Domestic Transfer of Federally Funded Technology**—IEEE-USA strongly supports effective transfer of Federally funded technology to the commercial sector to promote U.S. competitiveness.
- **Dual Use of Technologies**—Noting the growing importance of leveraging Federal research dollars through investment in dual-use technologies, which contribute to national security and economic competitiveness in the United States, IEEE-USA supports efforts to stimulate the development and effective transfer of technologies having both military and commercial applications.
- **Medical Device Evaluation**—IEEE-USA recommends that the U.S. Food and Drug Administration consider using failure-mode analysis in evaluating medical devices, in order to reduce risks to patients, operators, and other medical staff, and for developing standards and pre-market approval.
- **U.S. Government Advisory Entities Concerned With Health-Related Issues**—To promote safety, efficacy, and reasonable cost, IEEE-USA urges that the selection process for membership on U.S. Government commissions, committees, and advisory panels involving health care technology include consideration of engineers with a biomedical specialty.
- **U.S. Government Management Positions Responsible for Engineering Decisions in the Field of Health Care**—IEEE-USA recommends that all government positions

responsible for engineering decisions affecting health care be filled by biomedical professionals skilled in engineering disciplines or computer sciences appropriate to the technical matters involved in the decision-making process.

- **United States Competitiveness**—To improve the U.S. competitive edge over other major countries, especially in critical electrical and electronics industries, IEEE-USA strongly advises that the U.S. manufacturing process and total quality of its products be improved; the economics of the manufacturing business be changed; the quality of U.S. education, particularly in Grades K-12 be enriched; U.S. R&D efforts be re-focused in more practical areas; antitrust laws be modified; a realistic trade policy be developed; tort reform be implemented; and a coherent national policy be adopted.
- **Nuclear Fuel Cycle in the United States**—IEEE-USA recommends that a comprehensive nuclear fuel cycle plan be developed and implemented on a timely basis by the Federal Government in consultation with utilities, the nuclear industry, and the public to include mining, enrichment, utilization, temporary storage, reprocessing, and waste disposal.
- **Space Station**—IEEE-USA believes that with consistent budgetary support, a revised space program balancing automated and manned projects, including a redesigned space station focused on NASA's life science research mission, will help re-establish U.S. technological preeminence.
- **National Energy Policy**—To ensure an environmentally sound, continuous and reliable supply of all energy, IEEE-USA strongly urges the development of a National Energy Policy.
- **Tax Policy and Technological Competitiveness**—Because tax policies have a powerful influence on business investment decisions, IEEE-USA encourages and supports stable Government tax initiatives that stimulate the U.S. industrial community to invest in engineering R&D and to act aggressively in commercializing resulting technological developments.
- **Employment Discrimination by Employers of Engineers**—IEEE-USA's position is that employers of IEEE's U.S. members should manage in a manner that encourages high productivity and morale among all employees; provide equal opportunity to all levels of employees to receive continuing education as well as training through seminars and challenging assignments; give recognition and promotions based on merit; provide employment opportunities that enhance the pursuit of engineering as a lifetime career; and recognize that experience acquired during a career has continuing value to the enterprise.

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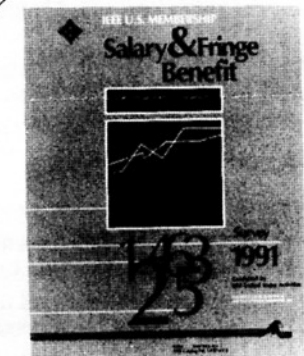
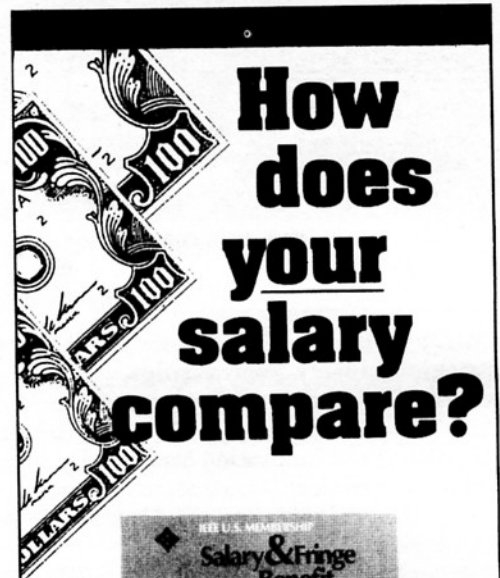
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