



Loran Lines

August 2000

Newsletter of the International Loran Association

Volume 2000-2

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Washington,
DC

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ILA Annual Convention Planned for November 13-15, 2000 in Washington, DC

THE 29TH ANNUAL CONVENTION and Technical Symposium of the International Loran Association (ILA) will be held in Washington, DC under the title "Radionavigation and Precise Time: Regional Policies and Practices." The sessions will be concerned with the integration of regional terrestrial services and satellite services in user equipment as well as the influence of regional policies on the use of state owned satellite systems.

The Washington, DC site was chosen to permit U.S. Congressional staff and government agency personnel to obtain an overview of current policies and practices in other regions of the world. The 30th Annual Convention is planned for Europe and the 31st in the Far East where the meeting will be hosted by a member state of FERNS, the Far East RadioNavigation System organization.

Recognizing that dependence on a single vulnerable system for precise positioning and timing information is neither safe nor economic, different regions of the

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Wire transfers received by the ILA Operations Office do not contain information about the sending party. As a consequence, the Center does not know whom to credit with the payment.

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Please note ILA's web site address:
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U.S. Government discontinues GPS Selective Availability, effective May 1, 2000

BASED ON THE RECOMMENDATION of the Secretary of Defense in coordination with the Department of State, Transportation, Commerce and other Executive branches and agencies, the intentional degradation of the Global Position System (GPS) signals available to the public was discontinued at midnight, May 1, 2000.

While there is a continuing effort to upgrade the military utility of systems using GPS, a threat assessment has concluded that at this time reducing the signal degradation to zero would have minimal impact on national security. It has been demonstrated that the U.S. has the capability to selectively deny GPS signals on a regional basis when national security is threatened.

Originally developed by the U.S. Department of Defense as a military system, GPS has found global uses in many applications: air, road and marine navigation, as well as communications and emergency response. With the cessation of SA, civilian users will benefit from a significant improvement in GPS accuracy. ■

Cessation of SA does not eliminate the vulnerability of a sole means navigation system

IN RESPONSE to many requests for comment on the announced cessation of Selective Availability (SA), ILA President Linn Roth has distributed the following statement on the impact of this action on the need for an integrated backup system:

The International Loran Association (ILA) welcomes the cessation of SA. However, the discontinuance of SA has no

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ILA Convention

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world are developing solutions to this problem. Loran, with its unique properties which are complementary to satellite systems, is part of the solution in most areas. With these facts in mind the conference has been planned to include papers and reports on such topics as:

Global Loran Activities

New Generation Integrated Equipment

Assuring Precise Time Distribution for Critical Applications

Solving the Liability Issues at the Regional level

Eurofix as a partner to WAAS, EGNOS and MSAS

Regional Approaches to Wide Area Satellite Augmentation

The organizers invite all ILA members, government and agency representatives, user groups, manufacturers of satellite/Loran navigation and timing equipment, and interested observers. The Conference program will be organized to accommodate single day attendance for those with specific interests or time limitations.

Convention Chairman in Washington will be Dr. Linn Roth, assisted by Policy co-chairs Terje Jørgensen and Langhorne Bond, and Technical co-chairs Christian Forst and John Beukers. Dr. Bob Lilley will be the Sponsor/Exhibit chair.

While the nominal cutoff date for submitted papers was set for July 1, the convention organizers are very aware of the dynamic nature of developments both technical and political in today's Radionavigation world and would urge those considering submitting a "late paper" to communicate with the Convention Chair Dr. Linn Roth (e-mail:

roth@locusinc.com) as soon as possible so they can be included on the program.

The Convention Hotel is the Holiday Inn on the Hill, Washington, DC, with special rates for ILA of US\$159 and US\$179. The cut-off date for the ILA room rate is October 12, 2000.

The convention registration fee is US\$400 for ILA members and \$485 for non members and includes all sessions, exhibit attendance, convention luncheons, banquet, hospitality suit and a CD copy of the Proceedings.

Additional Conference and Registration information can be obtained from Ellen Lilley by e-mail at:

ila@loran.org

or by regular mail:

ILA Operations Center
741 Cathedral Pointe Lane
Santa Barbara CA 93111 USA

or on the ILA website:

www.loran.org/meetings.

Those attending the Convention are reminded that by arriving in Washington, DC on Saturday, November 11, they will be able to take advantage of the reduction in air fare offered by many airlines to travelers whose stay includes a Saturday night. In this connection, we have been advised that Navtech Seminars, Inc. plans to offer one-day tutorials on Sunday, November 12, from 8:30 am to 5:00 pm. Additional information on course content, registration, etc., will be posted on the Navtech website at www.navtechgps.com.

ILA Ops Center wants to hear from YOU!

If you have not yet received either by e-mail or regular mail information regarding the upcoming ILA Conference in Washington this November, please get in touch with Ellen Lilley so this material can be sent and ILA mailing records updated.

In this connection it would also be most helpful if all members on the Internet would communicate their e-mail address to the Operations Center. Please contact Ellen Lilley at the ILA Ops Center as shown above.

Loran Lines is an official publication of the International Loran Association (ILA).

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The ILA encourages readers to submit material for publication. Any and all news related to Loran and ILA members is welcome. Send information (with pictures, if possible) to either of the co-editors:

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Other Meetings

International Workshop on Integration of Loran-C/Eurofix and Galileo/EGNOS

March 22-23, 2000

CONVENED TO CONSIDER the future of positioning, navigation, and time dissemination in Europe, the meeting, organized by the German Institute of Navigation and supported by the Northwest Europe Loran-C Systems (NELS) and the German Ministry of Transport, was attended by over 100 delegates from 15 nations.

As reported by ILA Board Member John Beukers, the presentations were a mixture of policy, management and technical papers and shared a common theme: rejection of dependence on a single navigation technology. It was stressed that as advanced technologies become operational, diversity must be retained and an optimum mix of satellite and terrestrial systems be determined.

It would appear that the NELS consortium, presently composed of six members (Denmark, France, Germany, Ireland, the Netherlands, and Norway), may be expanding in the near future. The United Kingdom has applied for membership, Italy is considering membership and reactivating two Loran-C stations. In addition, Austria, Poland and others have expressed an interest that might lead to additional Loran-C stations in eastern Europe coupled to the Russian Chayka system.

Use of the Loran-C navigation system for distributing satellite error corrections and position integrity and other data received much attention.

A team at Delft University has developed an advanced error corrective technology known as Eurofix which is now being installed for operational use in Europe. Innova-

tion in the Eurofix concept providing an alternative to the GPS Wide Area Augmentation System (WAAS) was presented by the U.S. Coast Guard.

Following the symposium there was a meeting of the NELS GAUSS specification team. GAUSS (Global Augmentation for Satellite Systems) covers both terrestrial and satellite augmentations. The GAUSS committee is preparing specifications for the International Telecommunications Union (ITU-R) and International Maritime Organization (IMO) for integrated navigation receivers. ■

Moscow 2000 Third International Radionavigation Conference and Exhibit October 9-11, 2000

FOLLOWING THE LEAD of NAV99/ILA28 in London in November 1999, this conference will address the integration of satellite and terrestrial systems including Eurofix and the complementary use of Chayka and Loran-C. Papers will be presented on the integration of satellite services (GLONASS, GPS and Galileo) and the linking of Loran-C and Chayka. Emphasis will be placed in the availability of user equipment and a supporting infrastructure.

The Conference will take place in Moscow at The Sovincentr International Center of Trade which includes a five star hotel and a wide choice of restaurants. The center is located on the Moskva River near the center of Moscow.

The Registration fee is US\$480 and includes the official banquet, transportation to and from Sheremetyevo airport to the Conference Complex Hotel, and a copy of the Conference Proceedings in English or Russian.

Early registration is essential to arrange for necessary travel visas. Enquiries should be set to the Registration Manager, Mrs. Kudriavtseva, or to the Exhibitions Manager, Mr. Volchenkov (both at e-mail vkntc@cityline.ru). ■

Spain to host GNSS-2001

THE SPANISH INSTITUTE OF NAVIGATION is organizing the next GNSS (Global Navigation Satellite Systems) symposium in Seville May 1-4, 2001.

GNSS 2001 will bring together delegates who represent signal and service providers, equipment manufacturers, research and development personnel, strategic planners and policy makers.

The program will focus on new and future developments in satellite navigation systems at the international level with emphasis on EGNOS/GALILEO and its application. The conference will include plenary sessions, oral and poster sessions. Further information can be obtained from:

Institute de Navegación de España
Edificio Aena Dirección General
de Navegación Aérea
c/ Juan Ignacio Luca de Tena
14 - 28027 Madrid (Spain)

e-mail: GNSS.2001@aena.es ■

PTTI November 28-30

The 32nd Annual Precise Time and Time Interval (PTTI) Systems and Applications Meeting will be held November 28 to 30, 2000 in Reston, VA.

PTTI 2000 will focus on the latest developments in timing systems, time and frequency distribution. A wide range of frequency and timing system needs and applications will be addressed. Further information on the program and registration is available

(Continued on page 6)

JOHN M. BEUKERS has been elected President of the International Loran Association (ILA) for a one year term starting in November 2000. Four members of the ILA Board of Directors were elected to three-year terms:

Terje Jorgensen
Robert Lilley
William Roland
Durk van Willigen

James Doherty was elected for a one-year term, filling the Board vacancy created by John Beukers when he becomes President. The ILA Board of Directors will also appoint up to three additional directors to serve for one-year terms beginning in November 2000.

The ILA Board of Directors for the year 2001 is as follows:

John Beukers
Langhorne Bond
Margot Brown
Jim Doherty
Erik Johannessen
Dale Johnson
Terje Jørgensen
David Last
Robert Lilley
Marty Poppe
William Roland
G. Linn Roth
Durk van Willigen
Nick Ward

John Beukers

Three years after graduating from London University in England, John Beukers emigrated to the United States to continue a career in radio-navigation. In

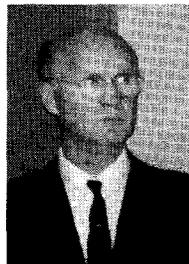


1963 he formed Beukers Laboratories, Inc., specializing in the implementation and use of radio-navigation systems. Now with over 40 years of technical and managerial experience in the field of radionavigation, he is a consultant to the U.S. Government, the European Union, the Commonwealth of Independent States (CIS), and the private sector on matters of radionavigation policy. He has written extensively on the subject of radionavigation and made numerous presentations at international conferences. Mr. Beukers is a Fellow of the Royal Institute of Navigation (UK), a member of the Institution of Navigation (U.S.), and a senior Life Member of the Institute of Electrical and Electronics Engineers. He is a Director of the International Navigation Association. In 1996 he was elected to the Institution of Academicians in Russia for his work in radionavigation. Mr. Beukers is a charter member of the ILA and was President 1977-78. He is currently an ILA Director.

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Prof. Dr. Durk van Willigen

Dr. van Willigen recently retired as professor at the Delft University of Technology in The Netherlands where he headed radio-navigation researchers in three major projects, DELPHINS (Delft Program for Hybridized and Integrated Navigation Systems), MEDLL (Multipath Estimating Delay Lock Loop) and Eurofix. Professor van Willigen was also the coordinator of the interfaculty Avionics education program from 1994 to 2000. In 1975, he founded and serves as President for Reelektronika by, a consultant for



integrated navigation systems, which is currently implementing the DGPS Eurofix reference stations at four NELS Loran-C stations. Reelektronika is also involved in EC studies on the planned Galileo satellite navigation system and on signal processing techniques for radar used for vessel traffic services. In 1996, the ILA awarded Dr. van Willigen the Medal of Merit for his contributions to the technological advances of Loran-C and for his education activities at the Delft University of Technology. In 1999, he became a Fellow of the Royal Institute of Navigation in recognition for his research in many aspects of navigation and especially for his initiative to develop Eurofix.

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d.vanwilligen@reelektronika.nl

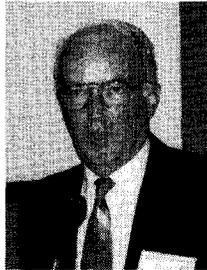
James T. Doherty

A senior analyst with the Institute for Defense Analyses (IDA), Alexandria, VA, Mr. Doherty supports the GPS Independent Review Team and is developing the Militarily Critical Technology List for Space Systems. Prior to joining IDA, he served on active duty as an officer of the U.S. Coast Guard. In his Coast Guard career he served in a variety of assignments involving use, design, development, operations, and program management of Loran. His last assignment was Commanding Officer, USCG Navigation Center (NAVCEN). He served as operational commander of the worldwide Omega Radionavigation System, the U.S. and Canadian Loran-C System, the U.S. Maritime and Nationwide Differential GPS Service, and the Navigation Information Service, and was Deputy Chair of DOT's Civil GPS Service Interface Committee.

e-mail: jdoherthy@ida.org

Robert W. Lilley

Dr. Lilley is Vice-President, Satellite Navigation and Communications, Ilgen Simulation Technologies. He has marketed, managed and performed technical development



and laboratory/flight evaluation of systems, and participated in the development of policy relating to communications, navigation and surveillance. He is responsible for Ilgen's Loran-C and satellite navigation projects, including antenna testing for documentation of p-static reduction and receiver algorithms for combined GPS/Loran-C operations. Dr. Lilley earned his PhD at Ohio University and is an instrument-rated commercial pilot. He is Director Emeritus of the Avionics Engineering Center, Ohio University, and was the first to fly the military mobile MLS system and flew early GPS/LAAS precision-approach tests to touchdown. He received the FAA's first Excellence in Aviation Award in 1997 as part of the Joint University program in Air Transportation Systems. He has been a member of the ILA Board of Directors since 1989 and served as President in 1992-93. He has also been Newsletter Editor, Bylaws Committee Chair, Convention Chair (1996) and Technical Co-Chair (1998). In 1995, he was awarded the ILA's Medal of Merit. He continues to assist with the activities of the ILA Operations Center.

e-mail: rlilley@illgen.com

Terje H. Jørgensen

As Head of the Coordinating Agency Office (CAO) of the North-west European Loran-C System (NELS), Mr. Jørgensen has been responsible for the day-to-day oper-

ation and also for the continued development of the European Loran-C system since 1995. Mr. Jørgensen has a military background with a degree from the Royal Norwegian Naval and Military Academies. He is a member of The Royal and Nordic Institutes of Navigation and is a current member of the ILA's Board of Directors. Mr. Jørgensen received the ILA President's award in 1999.

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William F. (Bill) Roland

Active as a consulting engineer with PVT Associates, Burlington Massachusetts, USA, Mr. Roland recently retired as President of Megapulse, Inc. Prior to joining Megapulse, he served as a commissioned officer in the U.S. Coast Guard for 30 years. A graduate of the USCG Academy and an electronics engineer with an MSEE from the US Naval Postgraduate School, Mr. Roland specialized in development engineering, including program manager assignments for the development of the first low-cost Loran-C receivers, and for the development of the solid state Loran-C transmitter. He has written many papers on Loran-C signal coding and timing. Mr. Roland is currently participating in the evaluation of the use of Loran-C in U.S. air space. He is a charter member of the ILA, served on the Board of Directors for the first ten years, and is currently an ILA Board member.



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ILA Board of Directors adopts revised schedule of membership fees

ILA membership fees have been revised by action of the Board of Directors as shown below. Any individual or organization with an interest in Loran is eligible for membership. Payment may be by check (drawn on U.S. bank), Visa or Mastercard. Wire transfers can be made but please be sure to contact the ILA Operations Office first.

Categories of Membership:

Individual:

Annual membership dues are US\$50.00 with an initiation fee of US\$20.00.

Life Membership is US\$300.00.

Organizations:

Corporate Class I and Class II membership categories provide options for organizations that wish to be involved directly in ILA activities.

Class I permits the nomination of ten regular members from the corporate member. Dues for Class I are US\$500.00.

Class II permits the nomination of five regular members from the corporate member. Class II dues are US\$250.00.

Associate membership is provided for organizations that desire only to receive ILA publications. Associate membership is \$150.00. Associate membership does not carry the privilege of voting or holding ILA office. ■

Statement on SA cessation

(continued from page 1)

effect on the fundamental principles and positions the ILA continues to advocate for all nations, applications, and individuals. Those principles and positions are restated below:

I. The cessation of SA is beneficial for two primary reasons:

1. The accuracy of the global positioning satellite system (GPS) and of differentially corrected GPS is improved for marine, terrestrial, aviation, and timing applications for individual, commercial, and government applications – in whatever country they are utilized.

2. The uncorrected or corrected GPS signal becomes a more accurate calibration source to improve the accuracy and performance of integrated backup systems. Integrated systems are necessary to ensure that safe, reliable, and independent operations can continue whenever GPS is lost because of man-made interference (intentional or unintentional), natural interference, system failure or U.S. government actions.

II. The discontinuance of SA is irrelevant to the fundamental limitations and risks of a sole-means radionavigation system – i.e., no individual, business, or nation should place safety of life and transportation/commerce/telecommunications infrastructure on a single system. Dangers associated with reliance on a single system are exacerbated when it is space borne and subject to interference, system failure, and control by a single state.

III. Therefore, the ILA remains committed to the following principles and positions:

1. All nations should use at least two systems that can function autonomously, with a minimum of one system under regional or national control. Only through use of such integrated systems will

system reliability and the associated safety and continuity of performance attain the levels needed by countries desiring independent development and control of vital infrastructures.

2. Systems combined to eliminate sole-means risks should be dissimilar to avoid common failure modes.

3. Loran is an excellent complement to GPS and other satellite systems for many reasons:

i. Loran and GPS are synergistic; i.e., combining GPS and Loran results in a hybrid system with greater accuracy, availability, and integrity than either system alone.

ii. Loran is multimodal; i.e., it can be used to complement/backup satellite systems in virtually every application associated with critical transportation, commerce, and telecommunications infrastructures, including marine, aviation, terrestrial, and timing.

iii. Loran is dissimilar to satellite systems: terrestrial versus space based, high signal strength versus low signal strength, low frequency versus high frequency, and regional control versus single state control.

iv. Loran infrastructure is remarkably inexpensive, reliable, and proven.

v. Loran and satellite systems are multimodal, and therefore, economies of scale will ensure users get extremely price competitive products from numerous sources.

IV. In summary, basic ILA principles and positions remain unchanged by the cessation of SA. The enhanced accuracy of GPS does not affect personal safety, system reliance, commercial and national vulnerabilities inherent in a sole-means system. Loran remains necessary and represents the best backup and complement to satellite systems for numerous safety, performance, economic, and political reasons. ■

Meetings

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on the PTTI website:
<http://tycho.usno.navy.mil/ptti.html>

NBF April 28–29

The Annual Spring Meeting of the National Boating Federation was held in Portland Oregon April 28 and 29, 2000. One of the speakers at the meeting was Dale Johnson, past president and currently member of the ILA Board of Directors. Dale provided current information on the status of Loran, emphasizing the importance of having redundant navigational systems, especially when confronted by severe weather or other adverse conditions. ■

Change of Command at the U.S. Coast Guard Loran Support Unit Wildwood NJ.

LCDR Charles Schue III retired from the U.S. Coast Guard and as Commanding Officer of the Loran Support Unit (LSU), Wildwood, on July 21, 2000. In a recent letter Linn Roth, writing on behalf of the International Loran Association (ILA), extended his congratulations to LCDR Schue on his service in the Coast Guard and on an outstanding job leading the LSU and supporting the national Loran infrastructure under difficult circumstances. He gave credit to LCDR Schue and his colleagues in the USCG for their sustained efforts that have ensured that the Loran system is now poised to take advantage of the substantial funding now beginning for infrastructure upgrade and to assume a prominent role in future radio navigation and timing applications. In conclusion he extended the thanks of ILA to LCDR Schue for his efforts in support of Loran and very best wishes for the future.

On the retirement of LCDR Schue, CDR Gordon K. Weeks assumed command of LSU, Wildwood. ■



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ILA 2000

The ILA 2000 Convention and Symposium will be held in Washington, D.C. on November 13-15.

Please note that the deadline for the Call for Papers (now available on the web page) has been extended to September 1.