

The Goose Gazette

The newsletter of the *Wild Goose Association*,
the international Loran radionavigation forum.

Volume 93-1 - News of the Winter, 1993

President's Message

Our 1993 election results are in. Congratulations to Dale Johnson, our President-elect, and to his new and re-elected Board of Directors members! Your WGA leaders will need your help and support more than ever in this era of Loran-C expansion in Europe and consolidation at home.

Sometimes it is not explicit in the press releases, but Loran-C is a part of the navigation mix **for the foreseeable future**. Committees of RTCA, Inc. on which Dale Johnson and I are both active are preparing standards for the hybrid combination of Loran-C with GPS to achieve a sole-means navigation capability in the U. S. airspace. The Loran-C instrument approaches program is still very much alive. All the standards we produce for the stand-alone Loran-C program serve to define a back-up or reversionary mode for the hybrid Loran-C/GPS architecture.

WGA people continue to work with the Coast Guard on reviews and suggestions for improving documents related to Loran-C. At the upcoming October Technical Symposium, attendees will receive copies of the brand-new Loran-C Handbook published by USCG with WGA inputs. By then we hope to have the updated Loran-C Signal Specification and a new Loran-C Facts and Figures brochure for your use. Geese helped update both of these papers.

We need to appoint a convention chairman for the upcoming 1995 meeting in Moscow. The WGA chairman will be a member of the steering committee for this meeting, jointly-sponsored with other groups. The chairman will have the help of the WGA Board and other experienced convention planners from past meetings. We will likely also hire a professional planner, given our past successes. Please come forward; this is a real opportunity to serve in an important role! This meeting promises to be a definitive one in international navigation planning and practice. Remember that the WGA gives awards each year to outstanding contributors to the Loran-C art and science and for WGA service. Jim van Etten, our Awards chairman, seeks your nominations.

Find out more about all this! Come to Santa Barbara for the WGA's 22nd Annual Convention and Technical Symposium October 18-21! See details in this issue and in the previous, Winter-1993 Gazette. John Illgen and Walt Dean, our convention leaders, tell me we have a superb collection of technical papers plus an excellent group of side activities, all at reasonable prices! See you there!

You will also read in this issue of the death of our long-time friend and navigation expert Chick Longman. Many of us worked directly with Chick on Loran-C aviation matters. Despite his advancing illness, he participated in our Williamsburg Technical Symposium as the Session Chairman for Loran-C aviation Technology and Applications.

WGA members extend their sympathy to Zeke and Mary Jackson and their family on the death of their son in July.

Bob Lilley

Items of Note

This issue of the Goose Gazette goes out just prior to the 22nd Annual Technical Symposium in Santa Barbara. Convention Chairman John Illgen has brought together an excellent technical program, a nationally known speaker, combined with an excellent social program. It is a fine opportunity to see the many developments in the field of Loran-C, to renew friendships, to do business.

WGA member John Beukers has been waging a one-man campaign against the steamroller of GPS oversell. John has brought to the forefront of discussion concerns about costs, integrity, military control, outages and correction times, and the need for bilateral agreements which are required under State Department Circular 175. John has testified, spoken, written, and presented papers so often on this subject that he is having an important effect on discussions of funding, international control, and technical requirements of satellite navigation systems.

The Coast Guard plans to withdraw the well-publicized Final Rule in 33 CFR 164.13 allowing tankers to operate with an autopilot controlled by an integrated system (read DGPS) in pilot waters. A WGA member pointed out technical flaws in the rule, and its reliance on untested, vaguely defined, experimental navigation and control systems. The valuable parts of the rule requiring two navigation officers on the bridge and a ready engineering watch will remain in effect.

W. G. A.
Technical Symposium
Santa Barbara, CA.
October 18-21, 1993

The Goose Gazette

The Goose Gazette is an official publication of The Wild Goose Association (WGA). The Gazette is published quarterly, with cutoff dates of 1 March for the Winter issue, 1 June for the Spring issue, 1 September for the Summer issue and 1 December for the Fall issue.

WGA Board of Directors

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Address correspondence for the WGA to the Operations Office:

Mrs. Ellen Lilley
Wild Goose Association
150 S. Plains Road
The Plains, Ohio 45780
(614) 797-2081 voice and FAX

President Lilley may be reached at:

Ohio University
Avionics Engineering Center
Athens, Ohio 45701
(614) 593-1514
FAX: (614) 593-1604

The WGA encourages readers to submit material for publication.

Send information to the Editor:

Capt. Bill Brogdon
506 W. Washington Ave
Kinston, NC 28501
(919) 527-9349
Call to send FAX

Printer:

Messenger Publication Service
Athens, Ohio 45701



WILD GOOSE ASSOCIATION

Member and Non-Member Price List

	Member	Non Member
Proceedings: 1972 -		
Bound volumes of papers resented at past Conventions, each volume	\$40.00	\$55.00

Bibliography		
List of titles and listings of all Authors for papers presented at Conventions	\$7.50	\$10.00

Papers		
Individual papers presented at Conventions, each	\$5.00	\$10.00

Journals (1975-1986)		
Back Issues of the Radionavigation Journal, each	\$10.00	\$15.00

Videos		
Loran - A Quick Refresher Course	\$15.00	\$20.00

Loran-C and GPS as a Navigation Mix for the United States Airspace	\$15.00	\$20.00
<i>(Federal Aviation Administration)</i>		

Loran-C - A Navigator's Approach	\$35.00	\$39.50
<i>(Capt. Henry Marx, Landfall Navigation)</i>		

Payment and Shipping
Shipping and handling on all orders\$5.00

Items are shipped UPS ground. Overseas shipments are sent surface mail. Please remit payment with order in **U.S. funds, drawn on a U.S. bank, to:**

Ellen G. Lilley, Operations Director
150 S. Plains Rd. Phone/Fax:
The Plains, OH 45780 (614) 797-2081

Official WGA Merchandise

Golf Shirts	\$18.00
Caps	\$8.00
WGA Paper Decals 3" (minimum order of 4)	50 ea.
Lapel Pins	\$5.00

Mastercard/Visa Available

Chick Longman 1931-1993

Chester L. (Chick) Longman passed away in March after a two-year battle with cancer. He served in the Army in Alaska, and moved to Oklahoma in 1955, and was an electronics engineer for 35 years with the FAA. He is survived by his wife Candice, his daughter Sharon Hogan, stepdaughters Dana Steele and Jo Jones, and three grandchildren. Chick worked with many WGA members in his field of expertise, aircraft navigation. We will miss you, Chick.



WGA Charter

"The Wild Goose Association is formed to provide an organization for individuals who have a common interest in Loran and who wish to foster and preserve the art of Loran, to promote the exchange of ideas and information in the field of Loran, to recognize the advances and contributions to Loran, to document the history of Loran, and to commemorate fittingly the memory of fellow Wild Geese.

"The Association is named after the majestic bird that navigates thousands of miles with unerring accuracy. Its membership represents many interests including those of planners, promoters, designers and users of loran equipment throughout the world."

Membership

Any individual or organization that has an interest in loran is eligible for membership. There are several classes of membership:

Individual

Annual membership is \$25.00 for the first year and \$20.00 annually after the first year. Life membership is \$200.00.

Members in countries other than the U. S., Canada and Mexico are assessed an additional \$10.00 per year to defray international mailing costs.

Organizational

Corporate Class 1 and 2 memberships provide options for organizations that wish to be involved directly in WGA activities. Class 1 permits nomination of ten regular members from the corporate member; Class 2 permits five. Dues for Class 1 are \$435.00 for the first year and \$400.00 afterwards. For Class 2, dues are \$220.00 and \$200.00.

Associate membership is provided for organizations which desire only to receive WGA publications. Associate membership is \$105.00 for the first year and \$100.00 annually thereafter, and does not carry the privilege of voting or holding WGA office.

Payment for all WGA matters may be by check, Visa, or Mastercard.

WGA Clothing

Show your colors! The WGA Operations Office has the following items of clothing available:

- WGA baseball caps U.S.\$ 8.00
- WGA white golf shirts S, L, XL 18.00
- WGA silver pins 5.00
- WGA decals 4 (min) for 2.00

Payments may be by check, or by Visa or Mastercard. If you consider golf a four-letter word, the shirts are suitable for boating, polo, tennis, general loafing around, picnics, etc.

Loran-C User Handbook

The U.S. Coast Guard has published a new Loran-C User Handbook, 1992, COMDTPUB P16562.6, which is much more comprehensive than the previous edition. It gives a broad range of technical information, navigation uses, interference sources, coverage diagrams, and a bibliography. Mr. Daniel Maxim of the USCG Auxiliary wrote the bulk of the handbook, and several WGA members assisted in reviewing it. It will be available in Santa Barbara.

Corporate Members:

The Wild Goose Association is pleased to list the corporations which support our organization:

- Bendix/King
- Code Alarm, Inc.
- U. S. DOT/RSPA/DRT-20
- Federal Aviation Administration
- Japan Association for Aids to Navigation
- JET Electronics & Technology
- LSSRRI
- Megapulse, Inc.
- NAVCOM Systems, Inc.
- Nat'l Center for Atmospheric Research
- NAVTECH Seminars, Inc.
- Norwegian Defence Communications Administration
- Ohio University Avionics Center
- Synetics Corporation
- Telecom Solutions
- Trimble Navigation Company
- U. S. Coast Guard
- U. S. Coast Guard Academy
- Vaisala Oy
- Volpe National Transportation Systems Center

Election Results

Congratulations to Dale Johnson, our president-elect. Jim Alexander and Mark Morgenthaler will leave the elected Board of Directors in October, 1993. There are three Directors appointed annually by the President. In 1993, the appointed directors were Bruce Hensel, John Illgen, and David Last. Doug Taggart ran well up in the election, but Coast Guard legal advised him not to serve in a governance capacity with WGA.

The board of directors and their terms, including the newly elected directors, is as follows:

Carl S. Andren	1995
David H. Amos	1994
John M. Beukers	1996
Frank Cassidy	1995
Laura Charron	1994
James F. Culbertson	1996
Walter N. Dean	1994
John D. Illgen	1996
Dale Johnson	1995
President-elect	
Bob Lilley	1994
Past President	
Maurice J. Moroney	1996
Ben Peterson	1995
Bill Roland	1994
David C. Scull	1994

LSES Arrives!

The Center for Navigation at the USDOT's Volpe National Transportation System Center has completed delivery of nine Loran Site Evaluation System (LSES) units to each of the nine FAA regions in the U.S. These units are designed to gather Loran-C data at airports which have been designated by the FAA for development of non-precision approaches (NPA).

The main LSES components are a combination Loran-GPS receiver, a computer, and a printer. The units also have a self-contained power supply capable of providing five hours of continuous operating time. All of the LSES components are commercially available, except for the two custom-designed storage cases and the equipment racks, which were modified for LSES.

The LSES was designed to operate in a wide range of weather and environmental conditions. It makes a preliminary assessment of the suitability of the Loran signals in the field, measuring Loran signal strength, atmospheric noise, signal-to-noise ratio, time differences, and the GPS position. The data are stored permanently for more comprehensive analysis later.

The final phase of the LSES program will include training of FAA personnel and providing maintenance to the units. Delivery of the LSES to the FAA marks a significant milestone in the FAA program to incorporate Loran-C into the National Airspace System.

DGPS via Loran-C

In September, Durk van Willigen of University of Delft announced a way of modulating Loran-C for Differential GPS corrections giving positions within three meters, with GPS selective availability on. It gives wide-area differential coverage at extremely high reliability. It would only be necessary to receive one Loran-C station to use the differential corrections.

This technique would use the existing cesium timers, take advantage of Loran-C's high reliability, and impose much smaller costs than other proposed methods of giving wide area differential GPS coverage. Dr. von Willigen expects to present an updated paper at Santa Barbara.

Letters to the Editor

Dear Sirs:

We use the Ohio River chart, and it has mile markers charted, but the latitude/longitude of the markers is not on the chart. Can you help us get those numbers charted, so it's easier to use these markers when using Loran-C?

Sincerely,

Cincinnati Power Squadron

WGA reply:

The chart for the Ohio River is produced by the U.S. Army, and doesn't show latitude and longitude, or any other reference grid. The C. G. Light List gives only the mileage and left or right bank, so the lights' latitude and longitude is truly hard to determine.

Even if it were, using latitude and longitude data for Loran-C could lead to large errors. Most marine Loran-C receivers do not include ASF corrections for inland rivers. ASF corrections are necessary to calculate latitude and longitude from TD readings. Most Loran-C receivers "jump" a half-mile to more than a mile when going inland past the area for which ASFs are known.

The easiest and the most accurate way, as always, for any navigation system, is to measure positions abeam of the mile markers with a Loran-C receiver. You can use those waypoints for navigation with high accuracy. Any other Loran-C receiver can use the measured TDs for navigation with very little loss in accuracy.

Another suggestion: save a waypoint at the starting point or near a landmark (other than a steel bridge) and set the receiver to show it as the destination. Then the receiver shows the straight line distance back to that waypoint. That distance is an excellent line of position. The river, so to speak, is another LOP. The boat is where the distance arc crosses the river. This is particularly valuable in rivers without aids to navigation.

-Editor

Dear Bill:

First, I would like to express my appreciation for the thoughtful mention in the Gazette of my sculpture exhibit at the Gilcrease Museum in Tulsa. It is the premier event of my artistic career, a retrospective spanning 25 years of work, so it is nice to be remembered.

In April, TERRASTARR signed a contract with the FAA to produce a Runway Incursion demonstration test using our Surveillance for Collision Avoidance Navigation (SCAN) system. Recent troubles over TCAS, creation of a new forum to study the Airborne Surface Traffic Automation System (ASTA), and resistance to the added expense of MLS has made TERRASTARR's technology and timing perfect for helping move the current ATC system towards one which will soon include high speed data communications.

As many WGA members know, TERRASTARR's SCAN requires a three-dimensional positioning platform once removed from the outmoded Mode-S scheme. We are proud of the fact that we have engineered our system around Loran-C, GPS, Chayka, and GLONASS.

For TERRASTARR, The Goose Story sent in by Jim Culbertson is particularly apropos. The concepts illustrate exactly TERRASTARR's condition and need of support. Thanks in no small measure for the thoughtful advice and encouragement from our WGA friends, I think we're on our way to making a miracle.

Best regards to all,
Edward J. Fraughton

Complementary Systems

GPS reduces Loran-C ASF bias
Loran-C reduces GPS S/A noise
Simultaneous outage probability low
Loran-C plus GPS is far better than either system alone.

Meetings

ECDIS '94

The third annual conference dedicated to the subject of Electronic Chart Display and Information Systems has been scheduled for 1 & 2 March 1994 at the Omni Inner Harbor Hotel in Baltimore, MD. For more information contact:

ECDIS '94

P. O. Box 265

Buckeystown, MD 21717

(301) 874-2668 Telephone and FAX

IEEE PLANS '94

IEEE has announced the call for papers for the Position Location and Navigation Symposium (PLANS '94) to be held 11-15 April 94 at Bally's Hotel, Las Vegas, Nevada. The technical program has been expanded by 33% to offer a wider variety of topics than in the past. There are 24 technical paper sessions and two half-days of tutorials. For further information contact:

Ms. Julie Mevers - MS 104-M
PLANS '94

11601 Roosevelt Blvd.

St. Petersburg, FL 33176-2202

(813) 579-6128 FAX (813) 579-6027

ICSHDL

The International Conference on Simulation and Hardware Description Languages is holding a conference sponsored by the Society for Computer Simulation, and will be held in Tempe, Arizona 24-26 Jan. 1994. For details, contact the program chair:

Dr. David Rhodes

U. S. Army Research Labs.

Electronics and Power Sources Directorate (AMSRL-EP-MA)

Fort Monmouth, NJ 07703-5601

Ph: (908) 532-0593

More Meetings

IALA

The International Association of Lighthouse Authorities is holding the XIIIth IALA Conference from 19 February through 1 March 1994 at the Hilton Hawaiian Villiage in Honolulu, Hawaii. The theme of the conference is Moving into the 21st Century, signifying the program's focus on the technical aspects of navigation aids and issues as IALA charts its course toward the future. The conference will include sessions on Organization and Management of an AtoN service, Visual Aids and Engineering, Radio Aids, Reliability/Availability, Traffic Management/VTS, and Energy sources. It is necessary to register prior to 30 October 1993 with:

TASCON, Inc.
7101 Wisconsin Ave., Suite 1125
Bethesda, MD 20814
(301) 907-3884 FAX (301) 907-9655

U.S. Hydrographic Conference '94

The NOAA National Ocean Survey, the USCG, the Oceanographer of the Navy, DMA, the Hydrographic Society of America, and the International Federation of Surveyors (FIG) are sponsoring the Sixth Biennial International Hydrographic Conference 19-23 April 1994 at the Omni International Hotel, 777 Waterside Drive, Norfolk, Virginia. The theme of the conference is "Marine Information Partnerships." Abstracts of papers are due by 15 Oct. 93 to:

U.S. Hydrographic Conference '94
P. O. Box 732
Rockville, MD 20848-0732

For further information call CDR George Leigh (301) 713-2783 or FAX (301) 713-4019

Kargabarun Turned Over to Turkey

On 13 September 1993 the U.S. Coast Guard turned over the Kargabarun Loran-C Station to the Government of Turkey. The tower fell early this year, and negotiations continue for replacing it to restore Loran-C coverage to the eastern Mediterranean Sea. The turnover is an encouraging sign of serious negotiations. Turkey, several mediterranean nations and the C.I.S. have indicated interest in extending the Loran-C system.

Cape Race Status

Cape Race Loran-C Transmitting Station came back on air on August 6, using the new 850 foot tower. Cape Race has solid state transmitters with 32 half-cycle generators and a temporary 325' tower. Cape Race is the Y secondary for 5930 and the W secondary for 7930.

Bering Sea Chain

The new Bering Sea Chain (5980) will be operating with the Master at Petropavlosk and secondaries at Aleksandrovsk and Loran-C Station Attu. The U.S. Coast Guard expects to dedicate the Aleksandrovsk-Attu baseline by the end of the year. Coast Guard personnel have made several trips to Russia in the recent past to work out some remaining details of control and operation.

Bits & Pieces

A WGA committee consisting of Walt Dean and Jim van Etten and NODECA's Per Erik Kvam provided comments and suggestions on the new draft of the CG Loran-C Signal Specification COMDTINST M16562.4 (1981). We expect to see an updated version of the specification soon. WGA has offered to assist in distributing the document.

United Parcel Service plans to install Morrow Dual flight management systems in all of its 44 Boeing 727 Quiet Freighters. The FMS uses Loran-C and GPS, and will interface with the Collins electronic instrument system.

WGA members Walt Dean and Bob Lilley helped review the USCG Loran-C Facts and Figures folder. Several members have made suggestions for revising the FAA booklet on Loran-C.

France has expressed an interest in extending the Loran-C system with a new station located on the Iberian Peninsula. This may well lead to an extension of Loran-C to yet another important maritime area.

Two WGA members have designed high-gain antenna couplers for low-cost marine Loran-C receivers. A new receiver from Micrologic (Cal Culver) and another using Jesse Pipkin's designs showed significantly improved performance under marginal conditions in our at-sea tests.

**Wild Goose Association
Technical Symposium
Santa Barbara, California
October 18-21, 1993**

Wild Goose Association

Statement of Radionavigation Policy

The Wild Goose Association (WGA) consists of organizations and individuals who advocate the continued implementation and use of the Long Range radio Navigation system Loran-C throughout the world.

Since its inception in 1972 the WGA has followed its charter which states:

“The Wild Goose Association is formed to provide an organization for individuals who have a common interest in Loran and who wish to foster and preserve the art of Loran, to promote the exchange of ideas and information in the field of Loran, to recognize the advances and contributions to Loran, to document the history of Loran, and to commemorate fittingly the memory of fellow Wild Geese.”

While the Association's interest is Loran and Loran's development over the past 50 years, its current priority is the responsible implementation and use of Loran-C. In this context the WGA provides a technical forum for national and international Loran related radionavigation issues.

In pursuing its advocacy role, the WGA acknowledges the presence of other long range or global radionavigation systems and recognizes that benefits accrue when these systems are used in concert.

The WGA supports the use of satellite systems, Omega or special purpose systems when employed within their technical limits. The Association is, however, opposed to, and will respond to pronouncements of “sole means” for a single system when these are detrimental to the orderly implementation of a mix of radionavigation systems.

The WGA is both technically and user oriented. In support of the User the Association advocates that all radionavigation systems for use by the civil sector have transmitted signal specifications and signal availability published in the Federal Register. Further the WGA advocates that dynamic notice of signal condition and availability are broadcast to users in a timely manner.

The WGA supports the position of the prudent navigator who requires the availability of more than one navigation system for navigating with integrity.

The WGA actively participates in the formulation of government radionavigation policy by providing comments and suggestions to the biennial U.S. government Federal Radionavigation Plan (FRP).

The WGA is sensitive to false and misleading claims of signal availability, performance and schedules for all long and medium range radionavigation systems and responds to such claims as appropriate.

The WGA recognizes that there is a substantial amount of development work to be completed with Loran-C as the system spreads to worldwide use and campaigns for the continued financial support of these activities.

**Wild Goose Association
Technical Symposium
Santa Barbara, CA. October 18-21, 1993**

User Corner: The Loran Hook

As you approach a Loran-C or GPS waypoint marking a submerged wreck or reef, it is common to notice that its bearing changes rapidly. You change course, the bearing has changed again, you change course again. By the time you reach the waypoint, your wake has a short curve like a fish hook. Why can't you go straight to the waypoint, instead of chasing it as you get close?

There are four causes of this phenomenon, and usually two or more of them are happening at one time. These factors affect GPS in the same way.

In the first place, there is usually a current at the waypoint, and you slow down as you approach. Suppose you are going east to a waypoint at 25 knots, and there is a 1/2 knot current to the south. When you are at a distance and going at cruising speed, the current's speed is small compared with the boat's speed; the set is just over a degree.

You would notice the error when the waypoint's bearing, given by Loran-C, changed by a degree or so. Usually you would steer just a hair more to the north. You might ignore it, since it is such a small change. However, as time goes on, the bearing changes by another degree, then another. Now you begin to follow a curving track.

As you get close, you slow down. You drop to idle speed a few hundredths of a mile from the waypoint. Say you're making six knots. Now the 1/2 knot current requires five degrees of course correction; at three knots, it's 10 deg. So you make a hook, as you approach the waypoint.

This will occur with everything working perfectly. But there's another, more subtle cause for the hook: a mis-adjusted compass. Suppose that there is no current. The Loran-C indicates that a waypoint bears 140 deg. magnetic at five miles. You steer 140, but your compass has four degrees easterly deviation. If you steer 140, you are actually headed 144 degrees magnetic.

As you head for the waypoint, its bearing keeps shifting to the left, since

you are steering to its right. You keep correcting your course, and eventually find the waypoint, making a hook. This cause for a hook is quite common, and gives rather sharp hooks near the waypoint. It is a good clue to compass errors.

The next cause of hooks is the error in any electronic navigation system. Suppose it varies by +/- 20 yards. At a mile, this "jitter" changes the bearing to a waypoint by less than a degree. At 200 yards, it's six degrees, and at 100 yards, twelve.

Another cause is the delay in calculating the distance and bearing to the waypoint. Some receivers do this very quickly after measuring each position, while others take longer. The longer they take, the older their information, and the more the tendency you have to follow a hook.

Of course you can eliminate one major cause of these hooks by adjusting your boat's compass as carefully as possible. That goes without saying, but it often goes without doing, too.

A practical way to compensate for current or compass error is by doubling the correction. Suppose you have gone about halfway to a waypoint, and its bearing has changed from 270 to 272. If you steer 272, you'll make good 270. I would steer 274, which should make good a course of 272, with the same two-degree set. This is a powerful tool for maintaining an accurate course.

It also helps to approach the waypoint up-current, if you know the current. Experienced Loran-C users approach underwater wrecks and rocks along the LOP with the tightest gradient. It is easier to keep on track by using TD readings rather than range and bearing near the waypoint; Get one TD correct, head along its LOP, and watch the other TD approach the correct value. It may sound archaic, but it works very well.

Capt. Bill Brogdon
reprinted from Boating Magazine

Rent This space!

WGA Offers Advertisement, Promotion and Communication Opportunities at bargain prices!

Three Goose Gazette formats are available:

1. Half-page advertisements may be placed in the Gazette for \$75 per insertion, or \$250 for four prepaid insertions. Your advertisement must be submitted as camera-ready copy.

2. Business cards may be submitted, and will be published for \$5.00 per insertion, or \$15.00 for four prepaid insertions.

The consultants and business people among us may appreciate this method of "getting the word out." Please provide at least two clean business cards with your order.

3. Classified ads, in the following categories, will be accepted for \$5.00 per insertion of 50 words or less. Please provide typed copy with your order. Standard or bold-face type may be specified, for all or part of the entry.

- a. For Sale
 - Equipment
 - Services
- b. Wanted to Buy
- c. Exchanges
- d. Situations Wanted
- e. Positions Available
- f. Miscellaneous

Please contact the Goose Gazette editor with your orders or your questions. All submissions must be accompanied by payment; copy will not be returned unless a request is made at the time of the order.

You are assured of reaching an audience of people who are highly interested in the art and science of navigation, like wild geese flying in formation to a distant waypoint, sometimes leading, always participating.

1993 Radionavigation User Conferences

The U.S. Department of Transportation is conducting open meetings for all users of Government-provided radionavigation systems, to obtain user perspectives on Federal Policies and future plans for these systems. Federal radionavigation policies and plans are described in the 1992 Federal Radionavigation Plan. Users are encouraged to attend the meetings to provide comments for the 1994 Plan. Please register for attendance by 15 October with the conference office.

Global Positioning System (GPS)
Differential GPS
ILS/MLS
Loran-C
Omega
Radiobeacons
Transit (NAVSAT)
VOR/DME

Sponsors:

US DOT Research and Special Programs Administration
Federal Aviation Administration
U. S. Coast Guard
John A. Volpe National Transportation Systems Center

Conference Coordinator:

John A. Volpe National Transportation Systems Center

Nov. 9-10, 1993
Federal Aviation Administration
800 Independence Ave., SW
Washington, DC 20591

Nov. 30, 1993
Ohio Department of Transportation
2829 Dublin-Granville Rd.
Columbus, OH 43235

Dec. 2, 1993
Seattle Hilton
Sixth and University Streets
Seattle, WA 98101

Federal Radionavigation Plan information:
Elisabeth J. Carpenter
Center for Navigation (DTS-52)
Volpe National Transportation Systems Center
55 Broadway
Cambridge, MA 02142-1093
(617) 494-2126

User Meeting information:
Carol M. Scanlon
Conference Office (DTS-930)
Volpe National Transportation Systems Center
55 Broadway
Cambridge, MA 02142-1093
(617) 494-2686 FAX (617) 494-2569

DOD-DOT Memorandum of Agreement on Civil Use of GPS

The U.S. Departments of Defense and Transportation completed a Memorandum of Agreement on 8 January 1993 concerning civil use of GPS. Under this agreement the Department of Transportation is, among other things, to conduct or participate in periodic civil user interface meetings, make the DOD-prepared SPS signal specification available to civil users, operate a civil information center (GPSIC), and respond to requests for information and concerns submitted by the civil community.

Joint DOD-DOT GPS Task Force

On 26 May 1993 the U.S. Departments of Defense and Transportation signed the Charter for a joint GPS task force. The task force is concerned with GPS services, civil user needs and objectives, and the continuation of GPS as a national resource.

Under the Terms of Reference: Increased Civil Participation is a note that "Discussions (will) be limited to DOD and DOT representatives with participation by other Federal agencies, if necessary."

Really shows how serious they are about civil GPS concerns, doesn't it.?

WGA Urges FAA on Loran-C Approach Overlays

WGA President Bob Lilley and President-elect Dale Johnson teamed up to produce the draft Loran-C Instrument Approach Overlay Program, which they submitted to the FAA in late September. Patterned after the recently-announced GPS Approach Overlay Program, the Loran-C plan will permit early public use of Loran-C as guidance for existing instrument approaches.

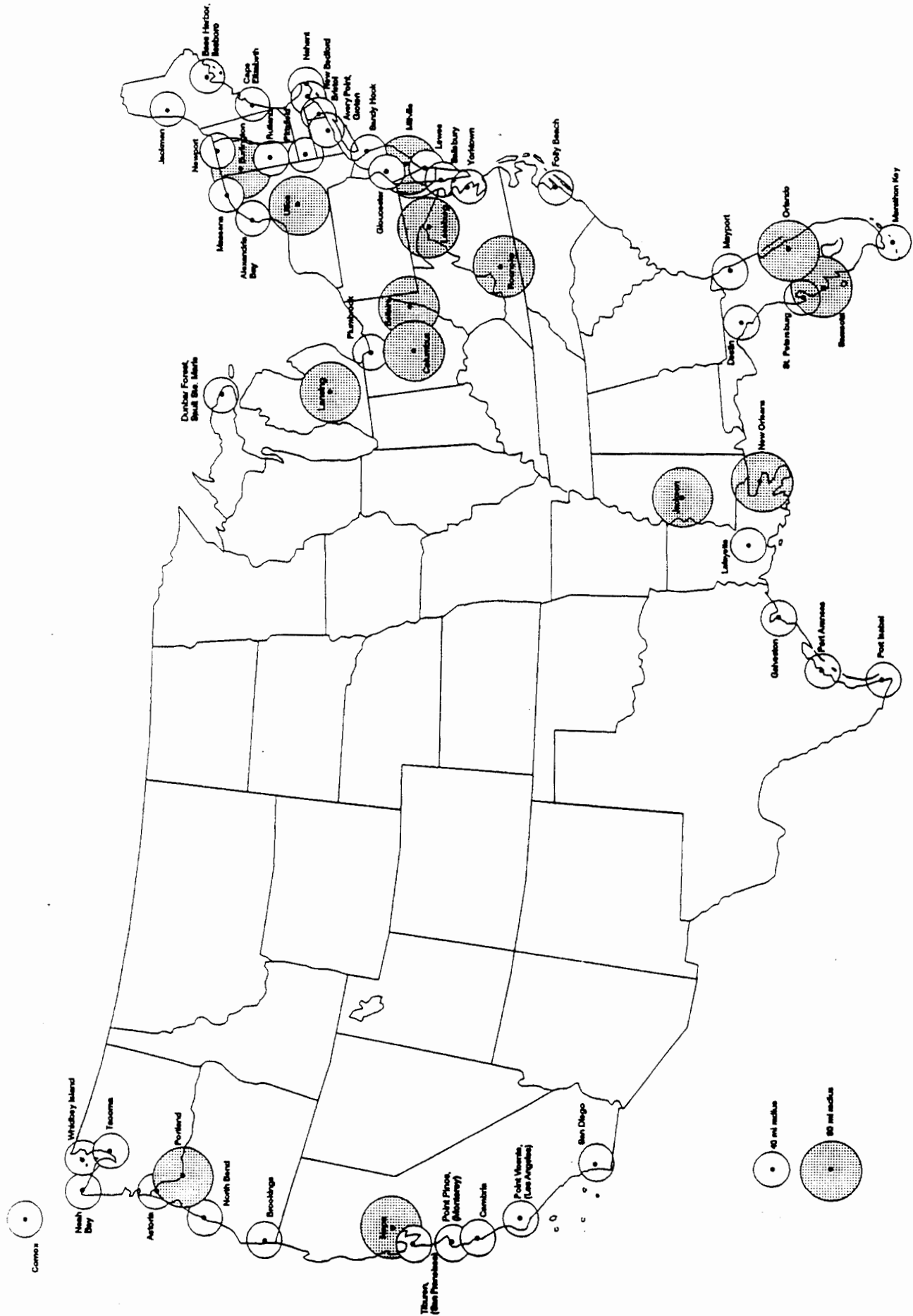
The FAA has been working on "Stand-alone" Loran-C approaches, which depend on automatic blink, a network of data-collection receivers (NFOLDS) and a nine-step preparation at each location. Manufacturers have been reluctant to move aggressively toward certification, as the FAA has not moved as fast as might be hoped, understandably since the certification program has lagged. The overlay program will accelerate Loran use considerably, by side-stepping most of the nine steps at locations where VOR or NDB or RNAV approaches are already in place. Also, the program allows widespread use of Loran without expensive design of brand new approach procedures at every site.

Initial authorization could be provided in the areas shown on the map on the facing page, because TD fine-tuning corrections are available now. As more FAA data-collection units come on line, these areas will expand.

Once automatic blink is in place and the local signal quality is determined using the nine-step process, stand-alone Loran-C approaches should be equivalent to GPS stand-alone approaches, and vice versa. Design one, get both!

The plan was produced with the help of many members of Dale's RTCA committee, SC-176, which is updating the Loran-C Minimum Operational Performance Standards (MOPS) for receiver certification in aircraft.

Note: Folly Beach has not wandered up into North Carolina; that's just a glitch in the map graphics program.



Attachment B: Locations with Loran-C corrections as of October 1, 1993

"LORAN-C AND GNSS: PARTNERS INTO THE 21ST CENTURY"

INTERNATIONAL SYMPOSIUM

"LORAN-C AND GNSS: PARTNERS INTO THE 21ST CENTURY"

The 22nd Annual Technical Symposium of the Wild Goose Association will be held October 18-21, 1993, at the Sheraton Hotel, Santa Barbara, California. Five technical sessions are planned, covering major topics of interest to loran and GNSS users as follows:

- Session 1 - System Management and Policy
- Session 2 - Loran/GNSS Interoperability
- Session 3 - Loran System and Receiver Technology
- Session 4 - Aviation Uses
- Session 5 - Land/Marine Uses

Workers and managers active in the fields described for the technical sessions are urged to submit abstracts for papers to be presented at these sessions.

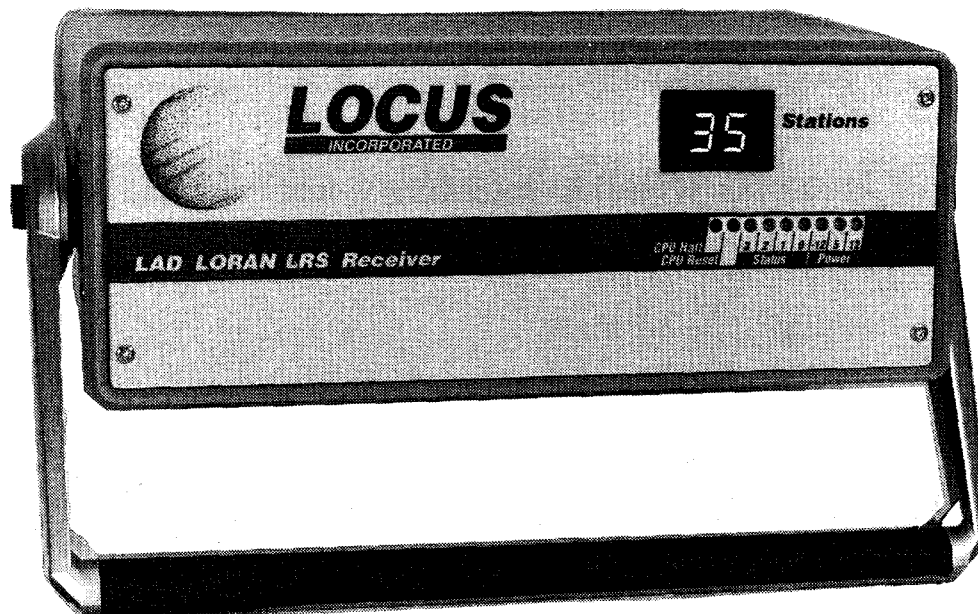
ABOUT THE SYMPOSIUM

The annual WGA Technical Symposium is the primary forum for presentation and discussion of subjects of interest to the radio-navigation community. With the transition of the Loran-C system from one operated primarily for the U.S. military to an internationally operated and commercially used system, worldwide interest in Loran-C has widened considerably. A major attractive feature is the ability to keep chains under local control, eliminating dependence on the generosity of others for navigation and guidance capabilities. Attenders at the 1992 Symposium, held in Birmingham, England, demonstrated the broadening interest and real growth in loran worldwide.

Recent developments in satellite navigation systems, broadly categorized as GNSS, have not so much decreased interest in Loran-C as changed the emphasis to the desirability of combining the features of both systems to increase the reliability and accuracy of the combination. This combination offers a significant increase in safety as compared to any singular operating system. The western European countries, as well as the Russians, have confirmed their intention to use and expand loran (and the Russian Chayka) as a primary radio-navigation source. Most notably, on 6, August 1992, six nations in the European Community signed a treaty to expand Loran-C coverage. Installations of loran chains by the government of India and the Peoples Republic of China further indicate the worldwide interest in Loran.

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Differential GPS and Search and Rescue

A Coast Guard spokesman said that Differential GPS would "take the SAR out of Search and Rescue." Get real, fellows. That happened over a decade ago, when a majority of boats offshore began to carry VHF-FM radios and Loran-C, and were able to give accurate, up to date information to the Coast

Guard. The reduction in cases requiring searches dropped dramatically in the 1970s and 80s.

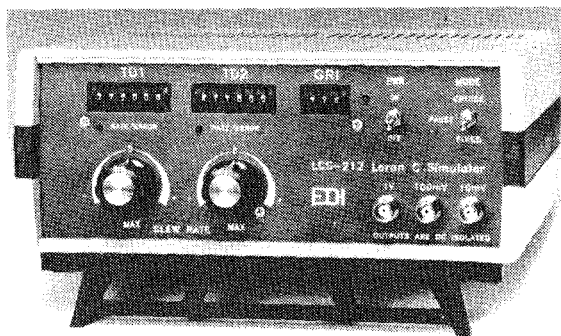
Has there been a case where a position within 10 yards would have allowed a rescue, while one within 50 yards would not? Has there been a case other than groundings when the boat

doesn't move? Must the half-million or so boats with Loran-C buy DGPS to be sure of rescue, at a cost of over half a billion dollars? If being able to match the SAR unit position to the boat position is so important, why don't the H60J helicopters have Loran-C, which is carried by most boats?

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