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See Jan 88 ION  
(Santa Barbara)  
note (



Have Reservations 10/19/87  
9/14/87

WILD GOOSE ASSOCIATION

QUARTERLY NEWSBULLETIN

Summer  
Spring 1987

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FOREWORD

(Editor)

There is a minor rush to field this issue through the printer by 1 September. For 20 years your current Editor treks to the old Loran-A installation in Yakutat, Alaska to study the phenomenology of Coho salmon returns without the benefit of a 100 KHz navigation system. This study is far from complete, and it appears more and more dubious that any fruitful results will be achieved - other than acquiring some fine dining stock and assets for the smoker. See you all in Rockville this October!!!!!!!

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PRESIDENT'S COLUMN (Wait Dean)

This is the last of these I'll be writing. It's been a short two years.

First a Convention note. The trip to Harper's Ferry scheduled for the first day of the Convention should be a highlight for the spouses. In order to arrange for transportation, Marty Shuey needs a count of those planning to make the trip. Be sure to return the Spouses Registration form you received from our genial host, Jimmie Toms.

Again this year, we will have a membership meeting at the Convention. It's scheduled for one hour, the first thing Wednesday morning, so members not interested can get an extra hour's sack time. There will be no formal agenda. The Board of Directors will all be there, prepared to dodge any questions from the membership. I guarantee there will be no long-winded speeches.

The 78th Meeting of the Board of Directors will be held Monday evening, October 19, at the Holiday Inn. Any members (and guests) interested in attending are welcome. With any luck, there will be a notice posted at the hotel as to the exact time and place.

On a more serious note, I observe that the campaign for a 24 satellite GPS constellation to provide the integrity required by the FAA seems to be gathering more momentum. The DOD is preparing an analysis of the cost of the extra six satellites, to be ready in September. In the meantime, Bill Polhemus and others have put together studies of the synergism between Loran and GPS which show that a combined Loran/GPS receiver can provide integrity for both systems.

Ed McGarr reports that Megapulse is now back in the hands of the original founders, and the contract with the Coast Guard for transmitters to equip the Mid-Continent Chains has been signed.

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**MESSAGE FROM JOHN ILLGEN - PRESIDENT ELECT** (John Illgen)

My predecessors have a remarkable record of success and this must continue with vigor by all WGA members. I am committed to continue to aggressive and successful use of LORAN-C for instrument approaches and the unrestricted use of LORAN nonprecision approaches in the National Airspace. This past success includes: (1) First LORAN instrument approach at Hanscom Field in Bedford, MA, (2) Four more LORAN procedures will be approved at other airports and another at a heliport, (3) LORAN signal monitors are now in procurement, (4) Flight inspection methods were created, (5) Notices-to-Airmen system for LORAN has been established, (6) WGA members in DOT TSC and in FAA have suggested efforts in industry to improve LORAN-C receivers and, at the same time steer prices downward. These represent only a partial list of the many WGA member contributions.

I do plan to assist the WGA to integrate the capabilities of LORAN to both Civilian and DOD requirements. What we have learned from success in the Civilian Sector must be used to secure DOD support. The WGA DOD Working Group is making progress in the DOD Sector and I plan to review this with you at the WGA Convention in October. I will represent the WGA at NASA, ION, and other pertinent meetings during my term of office.

In the last NewsBulletin I promised if elected I would install a special WGA hotline at my home. The phone has been installed and the number is 805-968-5674. Please call me at anytime to share your thoughts on various issues (direction WGA is taking on any other LORAN-C/navigation related concerns). If necessary you may call me collect. I am presently establishing the continuation and staffing of various WGA committees that will become effective after the Banquet at this year's WGA Convention. Letters to committee chairmen are being sent to those of you who have accepted these positions. Responsibilities for each committee chairman are outlined in the letter. Committee chairmen who accept positions will sign the duplicate copy of letter and mail it back to me for dissemination to the WGA Board Members. Volunteers to assist at the committee level are most welcome.

To accomplish our goals I will need assistance from each of you. Thank you for your confidence and I will do my best to assure a high level of activity and success for the WGA. In the meantime let's all stay behind WGA President, Walt Dean in his remaining time in office. Walt - we all greatly appreciate your dedication to the WGA and LORAN.

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**U.S. NAVAL OBSERVATORY DATA BASE** (Editor)

Considerable information of interest is accessible to PC users who might wish to dial into this system. The particulars for establishing data communications are as follows:

FULL DUPLEX EVEN PARITY 7 DATA BITS 1 STOP BIT Telephone: (202) 653-1079

Your initial response from USNO will be:

NAVOBSY WASH  
FOR HELP USE ?  
PLS IDENTIFY, SUGGEST NAME/ORG/LOC

After identifying yourself, USNO will come back, for example, with:

HELLO,  
R. MILLER, KAMAN, ALBUQUERQUE  
GO AHEAD PLS  
\*

System commands to the USNO facility consist of a codeword containing the "@" character in the first position of a command line. A Table of Codes is returned with the command @TCO; that table is given below for your reference.

TABLE OF CODES @TCO FOR THE DIGITAL DATA ACCESS SYSTEM:

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FOR ANY OF THE FOLLOWING SERVICES USE THE COMMAND AS GIVEN BUT LEFT JUSTIFIED, I.E., THE COMMAND SYMBOL @ MUST BE THE FIRST CHARACTER IN THE LINE. THIS IS THE FIRST LEVEL MENU: MORE CODES CAN BE FOUND UNDER THE RESPECTIVE EXPLANATIONS.

EXPLANATIONS, GENERAL. . . @EXP  
SPECIAL DAILY MESSAGE. . . @DME            TIME SERVICE DIRECTORY @DIR  
GENERAL PTTI MESSAGE. . . @MES            PTTI CONFERENCE NEWS . @TTI

OTHER SOURCES FOR INFORMATION ON THE OPERATIONAL STATUS OF ELECTRONIC NAVIGATION SYSTEMS ARE LISTED IN FILE . . . @NAU  
ANNOUNCEMENT SERIES 4,5 & 7 CODES, INFO & EXPLANATIONS . . . @SERXP  
INCLUDES EXPL. FOR UT & POLAR MOTION DATA.

NBS INFO CODES & EXPL. . . @NBSXP  
OMEGA CODES & EXPL. . . @ONSXP  
VLF CODES & EXPL. . . @VLFXP  
GPS CODES & EXPL. . . @GPSXP  
TRANSIT CODES & EXPL. . . @TRAXP  
LORAN CODES & EXPL. . . @LORXP  
TV CODES & EXPL. . . @TVKXP  
PORTABLE CLOCK INFO. . . @MPCXP  
TIME OF COINC. (LORAN, TV) @TOC  
REAL TIME MEAS. EXPL. . . @RTMXP  
STANDARD TIMES FOR ALL COUNTRIES, EXPLANATIONS @STTXP            LIST OF USNO PRESS RE-LEASES, GENERAL INFO . @STAXP  
DISCONTINUED . . . . . @TIM            TIME SIGNAL EXPL. . . . @TSF  
EXPLANATION FOR MJD . . . @MJDXP  
CONVERSION OF MJD TO DOY @MJJD            CONVERSION: DOY TO MJD @DOY  
SIDEREAL TIME . . . . . @STI            DATE, MJD, WEEKDAY . . @DAT  
SUNRISE, SUNSET, TWILIGHT FOR ANY POINT . @SRI            PROGRAM EXPLANATIONS . @SRIXP  
TO ORDER FLOPPY ALMANAC @FLXP

OPERATIONS CONTROL: FOR EXPLANATIONS, DETAILS AND CODES SEE @OPSPX  
NOTE PLS THAT INT TELEX USERS MUST USE THE DOUBLE Q AS COMMAND CHARACTER, I.E., FIRST CHARACTER.

CONNECTION SHOULD BE TERMINATED WITH CONTROL D, @END OR @BYE

Here's what is available under @LDRXP (reformatted):

LORAN CODES:

LORAN STATUS.....	@LDR	(MESSAGES CONCERNING LORAN)
INFO OF A TRANSIENT INTEREST	@LORTD	(KEPT FOR SEVERAL MONTHS)
PERMANENT DOCUMENTATION	@LORPD	(OLD MESSAGES BUT POSSIBLY USEFUL AS REFERENCE)

DISTANCE, AZIMUTH.....	@LDX	
LORAN CHAIN INFORMATION...	@L....	WHERE THE DOTS STAND FOR THE CHAIN RATE.

MEASUREMENT, REAL TIME....	@MLO	
THE FOLLOWING FILES ARE AVAILABLE WITH CODE @L....		
	9990	9980 9970 9960 9940
	8970	
	7990	7980 7970 7960 7930
	5990	5930
	4990	

This introduction to system access on the USNO Digital Data Access System should be enough to get you started. Don't hesitate with your command entries as the time limit isn't very great; so try to be prepared in advance. Also each access is limited to a maximum of 15 commands. I have found it quite useful. For example, the Loran WGS-84 coordinates were furnished in hard copy from the National Ocean Service. Rather than type in all that information, downloaded all the @L.... files to my PC then used a wordprocessor to edit the file as necessary. It's easy to use; it's an outstanding service; and the information content is extensive. Try it ..... you'll like it!

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HONORED FOR NAVIGATION CONTRIBUTIONS (Editor)

Mike Moroney, Chief of the Department of Transportation's Center for Navigation at the Transportation Systems Center, was presented with the NORMAN P. HAYS Award at the annual meeting of the Institute of Navigation in Dayton Ohio on June 14, 1987. This award for "Providing Outstanding Encouragement, Inspiration, and Support Contributing to the Advancement of Navigation" specifically recognizes Mr. Moroney's outstanding management efforts which resulted in the first FAA approved LORAN-C Nonprecision Approach at L.G. Hanscom Field, Bedford, Massachusetts, on November 4, 1985. The commissioning of the nonprecision approach at Hanscom Field was achieved in large measure through the intense dedication and technical leadership of Mike Moroney. Since LORAN-C was certified as an enroute navigaid, Mike has been involved in every aspect of a complex program which he helped to formulate and manage. He is also a principal member of the Working/Planning Group jointly sponsored by the National Association of State Aviation Officials and the Federal Aviation Administration and was recently designated a key member of the FAA LORAN-C project team. Mike's direction of the LORAN-C Pilot Monitor Program, the cornerstone project for full development of procedures, operations, and standards for LORAN-C and future advanced satellite based nonprecision approach aids, has been exemplary. Eight pilot monitors were designed, built, and installed to interface with Air Traffic Controllers and to support initial nonprecision approaches in less than one year.

Congratulations, Mr. Mike Moroney!

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LORAN/GPS COMMON TIME BASE (Walt Dean)

This spring the idea of improving Loran timing and integrating the system with GPS received some serious consideration. At a workshop in March the benefits of interchain Loran timing and Time of Emission (TOE) control were discussed. One of the major subjects has been a synergistic Loran/GPS system

in which the two systems would supplement each other and provide better integrity for both. Congressman Denny Smith (Oregon) has been a strong backer of these proposals, and has appended an amendment to HR 2310, the Re-authorization of the Airport and Airways Improvement Act. It will fund four asks for the DOT, defined as follows:

1. The Secretary of Transportation, acting through the USCG shall undertake to complete and maintain synchronization of all Master transmitters, to UTC within a range of error less than or equal to 100 nanoseconds.

2. The Secretary of Transportation acting through the USCG shall study the effect (on the maritime and cartographic communities) of controlling the Time of Emission of Secondary transmitters to UTC.

3. The Secretary of Transportation acting through the RSPA/TSC, the Action Agency, shall undertake a study to determine the feasibility and means to achieve interoperability of Loran-C and GPS. One goal shall be the use of GPS "common view" UTC time to achieve and maintain synchronization to within 20-30 nanoseconds.

4. The Secretary of Transportation acting through the FAA, the Action Agency, shall establish criteria to be met to achieve certification as a "sole means" system .... Loran-C, GPS, Loran-C/GPS, Omega/GPS, DME/DME/GPS.

The last item is the most interesting. Loran-C, in its present form, does not qualify, nor does GPS in the 18 satellite configuration. Increasing the number of satellites to 24 would improve GPS acceptability, at a cost approaching a billion dollars. Tying Loran and GPS to a common time base would provide a system which could cover the U.S. and provide more than adequate integrity. There are many who hold that no single system can meet the integrity requirements for air navigation under instrument conditions, and that a combined system is the only acceptable solution.

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WGS-84 LORAN-C COORDINATES (Mr. Stuart,  
 National Ocean Service)

This data is organized by increasing GRI values. It includes Loran chains other than those maintained by the U.S. Coast Guard. We thank Mr. Stuart for providing this information.

STATION	FUNCTION	COORDINATES	CODING & EMISSION DELAYS, us	RADIATED PEAK POWER, KW
<u>CENTRAL PACIFIC LORAN-C CHAIN - GRI 4990</u>				
JOHNSTON IS	MASTER	16 44 44.093N 169 30 30.646W		275
UPOLU PT	XRAY	20 14 49.301N 155 53 09.146W	11000 15972.23	275
KURE IS	YANKEE	28 23 41.903N 178 17 29.646W	29000 34253.17	275
<u>EAST COAST CANADA LORAN-C CHAIN - GRI 5930</u>				
CARIBOU	MASTER	46 48 27.305N 67 55 37.159W		350
NANTUCKET	XRAY	41 15 12.046N 69 58 38.536W	11000 13131.88	275
CAPE RACE	YANKEE	46 46 32.206N 53 10 27.862W	25000 28755.02	1500
FOX HARBOUR	ZULU	52 22 35.252N 55 42 27.862W	38000 41594.59	800

COMMANDO LION LORAN-C CHAIN - GRI 5970

POHANG	MASTER	36 11 05.921N		35
		129 20 27.833E		
HOKKAIDO	WHISKEY	42 44 37.217N	11000	1000
		143 43 09.799E	15783.68	
KWANG JU	XRAY	35 02 23.996N	31000	35
		126 32 27.295E	31947.02	
GESASHI	ZULU	26 36 25.110N	42000	1000
		128 08 56.999E	45565.56	

WEST COAST CANADA LORAN-C CHAIN - GRI 5990

WILLIAMS LAKE	MASTER	51 57 58.876N		400
		122 22 01.686W		
SHOAL COVE	XRAY	55 26 20.940N	11000	540
		131 15 19.094W	13343.60	
GEORGE	YANKEE	47 03 48.096N	27000	1600
		119 44 38.976W	28927.36	
PORT HARDY	ZULU	50 36 29.830N	41000	400
		127 21 28.489W	42266.61	

SAUDI ARABIA SOUTH LORAN-C CHAIN - GRI 7172

AL KHAMASIN	MASTER	20 28 02.03 N		800
		44 34 52.89 E		
SALWA	WHISKEY	24 52 01.64 N	11000	800
		50 34 12.57 E	13612.55	
AFIF	XRAY	23 48 36.96 N	26000	800
		42 51 18.18 E	27371.23	
AL LITH	YANKEE	20 13 58.45 N	39000	200
		40 12 31.57 E	40526.50	
AL MUWASSAM	ZULU	16 25 56.03 N	52000	800
		42 48 04.88 E	53617.59	

LABRADOR SEA LORAN-C CHAIN - GRI 7930

FOX HARBOUR	MASTER	52 22 35.252N		800
		55 42 27.862W		
CAPE RACE	WHISKEY	46 46 32.286N	11000	1500
		53 10 27.606W	13167.31	
ANGISSOG	XRAY	59 59 17.348N	26000	760
		45 10 26.916W	29565.39	

NORTHWEST PACIFIC OCEAN LORAN-C CHAIN - GRI 7930

MARCUS	MASTER	24 17 08.026N		0100
		153 58 53.786E		
HOKKAIDO	XRAY	42 44 37.217N	11000	1000
		143 43 09.799E	18526.28	
GESASHI	YANKEE	26 36 25.110N	30000	1200
		128 08 56.999E	38702.77	
YAP	ZULU	09 32 45.935N	49000	1000
		138 09 55.524E	56814.79	

GULF OF ALASKA LORAN-C CHAIN - GRI 7960

TOK	MASTER	63 19 42.884N		540
		142 40 31.346W		
NARROW CAPE	XRAY	57 26 20.301N	11000	400
		152 22 12.708W	13804.45	
SHOAL COVE	YANKEE	55 26 20.940N	26000	540
		131 15 19.094W	29051.14	

NORWEGIAN SEA LORAN-C CHAIN - GRI 7970

EJDE	MASTER	62 17 59.713N		325
		07 04 25.984W		
SYLT	WHISKEY	54 48 29.962N	26000	325
		08 17 36.866E	30065.62	
BO	XRAY	68 38 06.207N	11000	165
		14 27 47.554E	15048.10	
SANDUR	YANKEE	64 54 26.647N	46000	1500
		23 55 21.190W	46944.54	
JAN MAYEN	ZULU	70 54 52.662N	60000	165
		08 43 58.130W	63216.31	

SOUTHEAST USA LORAN-C CHAIN - GRI 7980

MALONE	MASTER	30 59 38.870N		800
		85 10 08.751W		
GRANGEVILLE	WHISKEY	30 43 33.149N	11000	800
		90 49 43.016W	12809.54	
RAYMONDVILLE	XRAY	26 31 55.141N	23000	400
		97 49 59.539W	27443.38	
JUPITER	YANKEE	27 01 58.528N	43000	275
		80 06 52.875W	45201.89	
CAROLINA BEACH	ZULU	34 03 46.208N	59000	550
		77 54 46.100W	61542.73	

MEDITERRANEAN SEA LORAN-C CHAIN - GRI 7990

SELLIA MARINA	MASTER	38 52 20.707N		165
		16 43 06.713E		
LAMPEDUSA	XRAY	35 31 20.912N	11000	325
		12 31 30.799E	12755.98	
KARBABARUN	YANKEE	40 58 20.066N	29000	165
		27 52 02.074E	32273.29	
ESTARTIT	ZULU	42 03 36.629N	47000	165
		03 12 16.066E	50999.74	

GREAT LAKES LORAN-C CHAIN - GRI 8970

DANA	MASTER	39 51 07.658N		400
		87 29 11.586W		
MALONE	WHISKEY	30 59 38.870N	11000	800
		85 10 08.751W	14355.11	
SENECA	XRAY	42 42 50.716N	28000	800
		76 49 33.308W	31162.06	
BAUDETTE	YANKEE	48 36 49.947N	44000	500
		94 33 17.945W	47753.74	

SAUDI ARABIA NORTH LORAN-C CHAIN - GRI 8990

AFIF	MASTER	23 48 36.96 N		800
		42 51 18.18 E		
SALWA	VICTOR	24 50 01.64 N	10000	800
		50 34 12.57 E	13641.09	
AR RUSI	WHISKEY	29 01 04.74 N	25000	200
		46 37 22.51 E	27258.50	
ASH SHAYKH HUYMAD	XRAY	29 09 16.00 N	40000	400
		34 45 40.54 E	43145.53	
AL LITH	YANKEE	20 13 58.45 N	55000	200
		40 12 31.57 E	57606.26	
AL MUWASSAM	ZULU	16 25 56.03 N	69000	800
		42 48 04.88 E	71726.94	

WEST COAST USA LORAN-C CHAIN - GRI 9940

FALLON	MASTER	39 33	06.740N		400
		118 49	55.816W		
GEORGE	WHISKEY	47 03	48.096N	11000	1600
		119 44	38.976W	13796.90	
MIDDLETOWN	XRAY	38 46	57.110N	27000	400
		122 29	43.975W	28094.50	
SEARCHLIGHT	YANKEE	35 19	18.305N	40000	540
		114 48	16.881W	41967.00	

NORTHEAST USA LORAN-C CHAIN - GRI 9960

SENECA	MASTER	42 42	50.716N		800
		76 49	33.308W		
CARIBOU	WHISKEY	46 48	27.305N	11000	350
		67 55	37.159W	13797.20	
NANTUCKET	XRAY	41 15	12.046N	25000	275
		69 58	38.536W	26969.53	
CAROLINA BEACH	YANKEE	34 03	46.208N	39000	550
		77 54	46.100W	42221.64	
DANA	ZULU	39 51	07.658N	54000	400
		87 29	11.586W	57162.06	

NORTHWEST PACIFIC LORAN-C CHAIN - GRI 9970

IWO JIMA	MASTER	24 48	03.734N		1800
		141 19	30.857E		
MARCUS ISLAND	WHISKEY	24 17	08.026N	11000	1800
		153 58	53.786E	15283.98	
HOKKAIDO	XRAY	42 44	37.217N	30000	1000
		143 43	09.799E	36685.17	
OSASHI	YANKEE	26 36	25.110N	55000	1000
		128 08	56.999E	59463.29	
GUAM	ZULU	13 27	50.024N	81000	550
		144 49	32.987E	85365.84	

ICELANDIC LORAN-C CHAIN - GRI 9980

SANDUR	MASTER	64 54	26.647N		1500
		23 55	21.196W		
ANGISSOQ	WHISKEY	59 59	17.348N	11000	760
		45 10	26.916W	15068.03	
EJDE	XRAY	62 17	59.713N	30000	325
		07 04	25.984W	32944.54	

NORTH PACIFIC LORAN-C CHAIN - GRI 9990

ST PAUL	MASTER	57 09	12.350N		275
		170 15	06.245W		
ATTU	XRAY	52 49	44.134N	11000	275
		173 10	49.528E	14875.25	
PORT CLARENCE	YANKEE	65 14	40.372N	29000	1000
		166 53	11.996W	32068.95	
NARROW CAPE	ZULU	57 26	20.301N	43000	400
		152 22	10.708W	46590.45	

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ION LORAN-C/GPS WORKSHOP (Walt Dean)

The ION meeting in Santa Barbara, CA on 26-28 January 1988 will be extended to accommodate a Workshop on Interoperability of Loran and GPS, as well as Loran/Omega and Omega/GPS. The goal is to establish a basis for a specification which stipulates a confidence of achieving 100% availability for air navigation. This should be a very interesting meeting.

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