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WILD GOOSE ASSOCIATION

Recd 3/1/79

NEWSLETTER

- ITEM - The Eighth Annual Technical Symposium will be held in Williamsburg, VA during October 17 to 19. Captain William Roland will be co-chairman and Ron Warren of The Analytic Sciences Corporation will be technical chairman. Call for papers and other information will be sent out to all members in the next few weeks.
- ITEM - WGA has contracted Computer Data Systems Inc. (CDSI) of Maryland to handle all mailings such as newsletters, journals and proceedings. We are in the process of setting up the data with CDSI and hopefully this will ease the burden placed on individual members of the WGA. The delay in the mailing to date has been due to the long drawn out process of transferring the information to CDSI.
- ITEM - Members who have not received a copy of the 1978 Radionavigation Journal and Proceedings of the Seventh Annual Convention will be receiving copies in the next few weeks once the mailing list is verified to be correct. All paid up WGA members will be receiving copies of both these publications at no cost.
- ITEM - Paul Abramson, Chief Systems Technology Division, Transportation Systems Center, Department of Transportation, has accepted a nomination from the WGA Board of Directors to serve as a member of the WGA Board. TSC is involved with a number of Loran-C projects under the direction of Paul Abramson, and as a result Paul's inputs and insights will be very valuable to the Association.
- ITEM - Fellow honker Leo Fehlner has received wide press coverage (TV and newspaper) on the LONARS System. The following is a press release. Congratulations Leo!

- ITEM - President Uttam informs that he has left The Analytic Sciences Corporation to take up a position with JAYCOR as Corporate Vice President and Director of the Boston operations. His new telephone number is 617-275-7104. The address is 54 Middlesex Turnpike, Bedford, Massachusetts.
- ITEM - Honker William O'Halloran has also departed from The Analytic Sciences Corporation to take up a position with JAYCOR as Technical Director of the Boston operations. His telephone number and address are the same as listed above.
- ITEM - Honker C.A. Pullen, President of Microcomputer Concepts, Inc. states that his organization specializes in providing equipment manufacturers with professional development services encompassing all aspects of microprocessor applications.
- ITEM - Gil Nelson of SIMRAD has sent us a list of NOS charts covering the two new Loran-C chains:

9960 (SS4) Northeast United States

7980 (SL2) Southeast United States

(see following sheets)

ITEM - The following is a listing of information provided by the Defense Mapping Agency Hydrographic/Topographic Center, Washington, DC 20315. The information is current as of December 1978.

ELECTRONIC NAVIGATION INFORMATION

LORAN-A INFORMATION


The following LORAN-A stations are currently on-air:

Rate	Location	Scheduled Termination Date
1L2	Frederiksdal, Greenland	Undetermined
1L2/1L3	Battle Harbour, Labrador	Undetermined
1L3	Bonavista, Newfoundland	Undetermined
1H1	Port-Aux-Basques, Newfoundland	Undetermined
1H1/1H2	Deming, Nova Scotia	Undetermined
1H2/1H3	Baccaro, Nova Scotia	Undetermined
1H3/1H7/3H5/3H4	Siasconset, Nantucket	1 Dec. 1980
1H7	Marshall Point, Maine	1 Dec. 1980
3H5	Sandy Hook, New Jersey	1 Dec. 1980
3H4/3H6	Cape Hatteras, North Carolina	1 Dec. 1980
3H6/3L1	Folly Island, South Carolina	1 Dec. 1980
3L1/3L5	Jupiter, Florida	1 Dec. 1980
3L5/3L3	San Salvador, B.W.I.	1 Dec. 1980
3L3/3L2	South Caicos, B.W.I.	1 Dec. 1980
3L2	Cape San Juan, Puerto Rico	1 Dec. 1980
3H0	Venice, Florida	1 Dec. 1980
3H0/3H1	Cape San Blas, Florida	1 Dec. 1980
3H1/3H2	Grand Isle, Louisiana	1 Dec. 1980
3H2/3H3	Galveston, Texas	1 Dec. 1980
3H3	Port Isabel, Texas	1 Dec. 1980
1H4	San Mateo Point, California	1 Dec. 1979
1H4/1H5	Point Arguello, California	1 Dec. 1979
1H5/1H6	Point Arena, California	1 Dec. 1979
1H6/1L0	Cape Blanco, Oregon	1 Dec. 1979
1L0/1L1	Point Grenville, Washington	1 Dec. 1979
1L1/1L4	Sprint Island, Vancouver	Undetermined
1L4/1L5	Gray Point, Moresby Is., B.C.	Undetermined
1L5/1L6	Biorka Island, Alaska	1 Dec. 1979
1L6/1L7	Ocean Cape, Yakutat, Alaska	1 Dec. 1979
1L7	Spruce Cape, Kodiak I., Alaska	1 Dec. 1979
1L3	Cape Sarichef, Alaska	1 July 1979
1L3/1L2	Adak Island, Alaska	1 July 1979
1L2	Attu Island, Alaska	1 July 1979

Rate	Location	Scheduled Termination Date
2L5	Upolu, Hawaii I., Hawaii	1 July 1979
2L5/2L6	Makahuena Point, Kauai I., Hawaii	1 July 1979
2L6/2L7	Tern Island, French Frigate Shoal	1 July 1979
2L7	Johnston Island	1 July 1979
2S6/2S0	Hachijo-Jima	No scheduled termination date
2S0/2S2	Hasaki, Honshu	No scheduled termination date
2S2/2S1	Ohkama Saki, Honshu, Japan	No scheduled termination date
2S1	Ochiishi, Hokkaido, Japan	No scheduled termination date
2S3	Matsumae, Hokkaido, Japan	No scheduled termination date
2S3/2S4	Niigata, Honshu, Japan	No scheduled termination date
2S4/2S5	Miho Bay, Honshu, Japan	No scheduled termination date
2S5/2S6	Tsushima, Japan	No scheduled termination date
2S6/2S7	Nomaike, Kyushu, Japan	No scheduled termination date
2S7/2H6/2HS	Gesashi, Okinawa	No scheduled termination date
2H5/2H4	Miyako Jima, Ryukyu Is.	No scheduled termination date
2H4/2H3	Batan, Phillippine Is.	No scheduled termination date
2H3	Panay Island, Catanduanes Is.	No scheduled termination date
1L6	Naulo Point, Luzon, Philippine Is.	No scheduled termination date
1L6/1L7	Talampulon, Calamian Group	No scheduled termination date
1L7	Tarumpitao, Palawan Is.	No scheduled termination date

Operation of the LORAN-A station at Hatizyō Sima was transferred to the Japanese government 311500Z December 1977. A new LORAN-A rate (2H6) was established with the master station at Gesashi, Latitude 26°36.1'N and Longitude 128°09.2'E and the slave station at Hatizyō, Latitude 33°05.3'N and Longitude 139°49.1'E.

LORAN-C INFORMATION

Chain	Status
East Coast, USA, GRI 9930 (SS7)	Operational
North Atlantic, GRI 7980 (SL7)	Operational
Norwegian Sea, GRI 7970 (SL3)	Operational
Mediterranean Sea, GRI 7990 (SL1)	Karga Burnu, Turkey, station off-air since 0900Z 29 July 1975
Northwest Pacific, GRI 9970 (SS3)	Operational. 9970-X off-air 072200Z to 221000Z Aug. 78 9970-Y off-air 030900Z to 070900Z Aug. 78
Central Pacific, GRI 4990 (S1)	Operational
North Pacific, GRI 9990 (SS1)	Operational
West Coast, USA, GRI 9940 (S6)	Operational
Gulf of Alaska, GRI 7960 (SL4)	Operational
West Coast, Canada, GRI 5990 (SH1)	Operational
Northeast, USA, GRI 9960 (SS4)	Declared operational 9 September 1978
Southeast, USA, GRI 7980 (SL2)	Scheduled to be operational October 1978
	Master commenced testing 13 July 1978
Great Lakes, GRI 9930 (SS7)	Scheduled to be operational 1 February 1980 

OMEGA INFORMATION

The following stations are currently operating at full power of 10 kw:

Station A Omega Norway
 Station B Omega Liberia
 Station C Omega Hawaii
 Station D Omega North Dakota
 Station E Omega La Reunion
 Station F Omega Argentina
 Station H Omega Japan

Temporary Station G Omega Trinidad radiates approximately 1 kilowatt of power utilizing R & D equipment and is scheduled to operate until further notice.

A country to country agreement has been signed with Australia for the permanent G station. The site has been acquired with approximate location at 38°29'S. 146°56'E. Station operation is planned for 1980.

NAVY NAVIGATION SATELLITE INFORMATION**Operational Satellites**

Satellite No.	Launched	Remarks
30120/36	April 1967	Normal Operation
30130/40	May 1967	Normal Operation
30140/56	September 1967	Normal Operation
30190/28	August 1970	Doppler beacons turned off 202322Z Sept. 78 to minimize injection/tracking conflicts since plane of Satellite 30190-28 and 30130-40 were less than 11 degrees apart. Normal operation resumed 232135Z Oct. 1978.
30200/16	October 1970	Normal Operation

Non-Operational Satellites

Satellite No.	Launched	Remarks
30100/24	August 1966	Interferes at times with operational satellites.
30180/52	March 1968	Removed from service 022128Z May 1975. This satellite has degraded beyond use and has been taken out of the operational satellite constellation.
40460/62	October 1975	Placed on maintenance frequency (-145.51PPM) 10 September 1977 and is no longer cross-alerted with the operational satellites.

(NVS3841/78)

ITEM - Tom Nolan, Maritime Institute of Technology and Graduate Studies, is in the process of establishing a radionavigation course. Details follow:

*Maritime Institute
of Technology
& Graduate Studies*



5700 HAMMONDS FERRY ROAD / LINTHICUM HEIGHTS / MARYLAND 21090 / 301) 636-5700

I am in the process of establishing a one-week Radio Navigation Course at the Maritime Institute of Technology and Graduate Studies (MITAGS) in Linthicum Heights, Maryland.

This course will initially be given on an experimental basis and cover systems such as Loran C, Omega, Decca, RDF, Raydist, Consol, etc. It will be given once every four weeks to a maximum of 16 students (merchant officers of the International Organization of Masters, Mates, and Pilots).

I would like to provide brochures of representative marine-type equipments to those who desire them. Therefore, if you, as a manufacturer, would like your equipment publicized in this manner, I would appreciate your sending to me at the above address an adequate supply of your radio navigation equipment brochures so that I may offer these to the attendees.

Many thanks for your cooperation.

Sincerely,

Tom Nolan
Tom Nolan

MAR 12 1979

Vol 79-2

C. J. O'Brien

(301) 953-7100, Ext. 2061

LORAN-C NAVIGATION IMPROVED BY FIVE TIMES
WITH ELIMINATION OF NOISE BY COMPUTER PROCESS

Johns Hopkins University Applied Physics Laboratory engineers have been able to improve by about five times the accuracy of Loran-C navigation by employing computer signal processing to eliminate interference in signals from transmitting stations.

Position fixes with a new Loran Navigation Receiving System called LONARS have been made to an accuracy of better than 30 meters (100 feet) in real time with the computer-controlled system on research vessels off the east coast of Florida. The LONARS development program at APL is supervised by William J. Peters III and is sponsored by the Strategic Systems Project Office of the U.S. Navy.

Leo F. Fehlner, APL Project Engineer for LONARS, described how noise is edited out of Loran-C signals by a statistical processing technique programmed into the computer used with the LONARS shipboard navigation set. Mr. Fehlner explains: "Serious noise in the loran band is intermittent. Therefore some loran signals are contaminated and others are not. If you only use the uncontaminated signals then you can base your position fix on signals of text-book quality. This is an advantage the LONARS system provides."

Noise superimposed upon Loran-C signals causes an inaccuracy in the determination of their times of arrival and therefore a corresponding inaccuracy in the computed distance to the station from the ship, he said. Conventional Loran-C receivers are not designed to cope with noise from natural sources (e.g. lightning). Therefore, the full potential for accuracy is not achievable by such receivers.

(MORE)

LORAN-C...2

In normal Loran-C operation, transmitting stations, whose positions are well known, periodically radiate short radio bursts or pulses at 100 kHz which are received for timing measurement. A ship navigation set computes its own geographic relationship to three of these stations. LONARS uses this principle but can track signals from up to eight stations simultaneously from as many Loran-C chains. Although LONARS uses only three stations for navigation, the capability to track additional stations in other chains permits the system to coast through periods of interference from other loran signals (referred to as cross-rate interference). Thus, in addition to being unaffected by atmospheric noise, the accuracy in determining ship position is not affected by cross-rate interference. The demonstrated accuracy is primarily attributable to these two improvements.

LONARS, currently being developed for the Navy, includes three shipboard systems and a pattern monitor station. Many possible uses of LONARS for Navy and other military applications are being investigated. Precision navigation with LONARS could be important also in many civilian applications including off-shore oil and mineral exploration, for use by research vessels, and for piloting in harbors and narrow channels.

NATIONAL OCEAN SURVEY CHARTS WITH
LORAN-C OVERLAYS - AUGUST, 1978

<u>PROPOSED ISSUE DATE</u>	<u>NEW CHART#</u>	<u>OLD CHART#</u>	<u>TITLE</u>	<u>SCALE</u>
<u>JAN '79</u>	11361*	1272	Mississippi River Delta	1:80,000
	11539+	1235	New River Inlet to Cape Fear	1:80,000
	12225+	1223	Chesapeake Bay-Wolf Trap-Smith Point	1:80,000
	12318+	1217	Little Egg Inlet to Hereford Inlet	1:80,000
	12354+	1212	Long Island Sound-Eastern Part	1:80,000
	13267+	1207	Massachusetts Bay	1:80,000
	13288+	1204	Monhegan Island to Cape Elizabeth	1:80,000
<u>FEB '79</u>	11307*	1286	Aransas Pass to Baffin Bay	1:80,000
	11332*	1280	Sabine Bank to East Bay-Heald Bank	1:80,000
	11424*	1256	Lemon Bay to Passage Key Inlet	1:80,000
	11486*	1244	St. Augustine Lt. to Ponce de Leon I.	1:80,000
	11502*	1242	Doboy Sound to Fernandina	1:80,000
	11548+	1231	Pamlico Sound-Western Part	1:80,000
	12211+	1220	Fenwick I. Lt. to Chincoteague In.	1:80,000
	12221+	1222	Chesapeake Bay Entrance	1:80,000
	13286+	1205	Cape Elizabeth to Portsmouth	1:80,000
	<u>MAR '79</u>	11349*	1277	Vermilion Bay & Approaches
11357*		1274	Timbalier & Terrebonne Bays	1:80,000
11426*		1255	Estero B. to Lemon B. & Charlotte H.	1:80,000
11429*		1254	Chatham River to Clam Pass	1:80,000
11452*		1250	Alligator Reef to Sombrero Key	1:80,000
11476*		1246	Cape Canaveral to Bethel Shoal	1:80,000
12204+		1229	Currituck Beach Lt. to Wimple Shoal	1:80,000
<u>APR '79</u>		11363*	1270	Chandeleur & Breton Sounds
	11371*	1268	Lake Borgne & Approaches	1:80,000
	11388*	1264	Choctawhatchee Bay	1:80,000
	11389*	1263	St. Joseph & St. Andrew Bays	1:80,000
	11509*	1241	Tybee Island to Doboy Sound	1:80,000
	11531*	1238	Winyah B. Entrance to Isle of Palms	1:80,000
	11544+	1233	Portsmouth Island to Beaufort	1:80,000
	12214+	1219	Cape May to Fenwick Is. Light	1:80,000
	<u>MAY '79</u>	11401*	1262	Apalachicola Bay to Cape San Blas
11434*		1351	Fl. Keys-Sombreo Key to Dry Tortugas	1:180,000
12210+		1221	Chincoteague In.-Great Machipongo In.	1:80,000
<u>JUN '79</u>	11369*	1269	Lakes Pontchartrain & Maurepas	1:80,000
	11412*	1257	Tampa Bay & St. Joseph's Sound	1:80,000

NATIONAL OCEAN SURVEY CHARTS WITH
LORAN-C OVERLAYS - AUGUST, 1978

*Southeast U. S. Loran-C Chain
+Northeast U. S. Loran-C Chain

PROPOSED ISSUE DATE	<i>NEW</i> CHART#	<i>OLD</i> CHART#	TITLE	SCALE
<u>SEPT '78</u>	411*	1007	Gulf of Mexico	1:2,160,000
<u>OCT '78</u>	11009+	1001	Cape Hatteras to Straits of Florida	1:1,200,000
	11013+	1002	Straits of Florida and approaches	1:1,200,000
	11341*	1279	Calcasieu Pass to Sabine Pass	1:80,000
	11376*	1266	Mobile Bay	1:80,000
	11407*	1260	Horseshoe Point to Rocks Island	1:80,000
	11408*	1259	Crystal River to Horseshoe Point	1:80,000
	11431*	1253	East Cape to Mormon Key	1:80,000
	11460+	1112	Cape Canaveral to Key West	1:446,940
	11466*	1248	Jupiter Inlet to Fowey Rocks	1:80,000
	13006+	70	West Quoddy Head to New York	1:675,000
	13218+	1210	Martha's Vineyard to Block Is.	1:80,000
<u>NOV '78</u>	11344*	1278	Rollover Bayou to Calcasieu Pass	1:80,000
	11488*	1243	Amelia Island to St. Augustine	1:80,000
	11521*	1239	Charleston Harbor & Approaches	1:80,000
	12304+	1218	Delaware Bay	1:80,000
	12353+	1214	Shinnecock Light to Fire Island Lt.	1:80,000
	13205+	1211	Block Island Sound & Approaches	1:80,000
	13246+	1208	Cape Cod Bay	1:80,000
	13278+	1206	Portsmouth to Cape Ann	1:80,000
	13302+	1203	Penobscot Bay & Approaches	1:80,000
<u>DEC '78</u>	11316*	1284	Matagorda Bay & Approaches	1:80,000
	11382*	1265	Pensacola Bay & Approaches	1:80,000
	11405*	1261	Apalachee Bay	1:80,000
	11535*	1237	Little R. In. to Winyah Bay Entr.	1:80,000
	11555+	1232	Cape Hatteras-Wimble Shoals-Oracoke	1:80,000
	12230+	1224	Smith Point to Cove Point	1:80,000
	12263+	1225	Cove Point to Sandy Point	1:80,000
	12273+	1226	Sandy Point to Head of Bay	1:80,000
	12323+	1216	Sea Girt to Little Egg Inlet	1:80,000
	12326+	1215	App. to NY Fire Is.Lt.-Sea Girt Lt.	1:80,000
	12363+	1213	Long Island Sound-Western Part	1:80,000
	13237+	1209	Nantucket Sound & Approaches	1:80,000
<u>JAN '79</u>	11321*	1283	San Luis Pass to E. Matagorda Bay	1:80,000
	11323*	1282	Approaches to Galveston Bay	1:80,000
	11351*	1276	Point au Fer to Marsh Island	1:80,000
	11356*	1275	Isles Dernieres to Point au Fer	1:80,000
	11358*	1273	Barataria Bay & Approaches	1:80,000

NATIONAL OCEAN SURVEY CHARTS WITH
LORAN-C OVERLAYS - AUGUST, 1978

<u>PROPOSED ISSUE DATE</u>	<u>NEW CHART#</u>	<u>OLD CHART#</u>	<u>TITLE</u>	<u>SCALE</u>
<u>JUN '79</u>	11439*	1252	Sand Key to Rebecca Shoal	1:80,000
	11462*	1249	Fowey Rocks to Alligator Reef	1:80,000
	11484*	1245	Ponce de Leon Inlet to Cape Kennedy	1:80,000
	11543+	1234	Cape Lookout to New River	1:80,000
<u>JULY '79</u>	11313*	1285	Matagorda Light to Aransas Pass	1:80,000
	11364*	1271	Mississippi River-Venice to N.Orleans	1:80,000
	11409*	1258	Anclote Keys to Crystal River	1:80,000
	11442*	1251	Sombrero Key to Sand Key	1:80,000
	12207+	1227	Cape Henry to Currituck Beach Lt.	1:80,000
	13312+	1202	Frenchman & Blue Hill Bays & Appro.	1:80,000
<u>AUG '79</u>	11373*	1267	Mississippi Sound & Approaches	1:80,000
	11513*	1240	St. Helena Sd. to Savannah River	1:80,000
<u>OCT '79</u>	11301*	1288	Southern Part of Laguna Madre	1:80,000
	11304*	1287	Northern Part of Laguna Madre	1:80,000
	11474*	1247	Bethel Shoal to Jupiter Inlet	1:80,000
	11536**	1236	Approaches to Cape Fear River	1:80,000
	13203+	612B	Georges Bank	1:220,000
	13204+	612A	Georges Bank	1:220,000
	13325+	1201	Quoddy Narrows to Petit Manan Is.	1:80,000