

LORAN LOG

Cruise I.D. IG 23 Year 1977
 Leg No. 3 (BEGN) TZ +6

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MONTH	DAY	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	FIX NO.	ST. #1	ST. #2	COMMENTS	WATCH I.D.
JAN	22	1900	27°	21.8	-83	00.8	439			LORAN A	
		2002	27°	12.0	-83	06.0	440	11653	70404		
		2100	27°	03.1	-83	12.3	441	11622.4	70382.7		
		2200	26°	53.5	-83	19.2	442	11592	70362.2		
JAN	22	2300	26°	45.2	-83°	22.2	443	11558.2	70346.5		
JAN	23	0000	26°	34.2	-83°	29.1	444	11527.0	70335.0		
JAN	23	0100	26°	22.9	-83°	33.5	445	11497.4	70323.9		
JAN	23	0200	26°	13.6	-83°	38.7	446	11474.8	70309.6		TRH
JAN	23	0300	26°	10.5	-83°	43.3	447	11473.0	70293.3		TRH
JAN	23	0400	26°	05.8	-83°	43.8	448	11456.8	70296.5		TRH
JAN	23	0500	26°	03.0	-83°	43.4	449	11444.6	70299.1		TRH
JAN	23	0600	26°	00.2	-83°	43.6	450	11432.9	70300.6		TRH
JAN	23	0700	25°	56.0	-83°	43.8	451	11422.8	70301.8		TRH
JAN	23	0800	25°	53.0	-83°	44.4	452	11413	70302.7		TRH
JAN	23	0900	25°	49.8	-83°	44.4	453	11404.1	70303.5		TRH
JAN	23	1000	25°	46.4	-83°	45.0	454	11395.6	70303.7		TRH
JAN	23	1100	25°	34.0	-83°	46.0	455	11392.2	70300.4		TRH
JAN	23	1200	25°	43.5	-83°	44.1	456	11389.0	70295.3		TRH
JAN	23	1300	25°	40.0	-83°	46.2	457	11385.1	70292.5		
JAN	23	1500	25°	30.1	-83	53.3	458	11381.1	70280.0		PG
JAN	23	1600	25°	36.3	83	53.0	459	11386.7	70218.7		PG

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Leg No. 3TZ +6

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MONTH	DAY	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	FIX NO.	ST. #1	ST. #2	COMMENTS	WATCH I.D.
JAN	23	1700	25	38.2	-83	50.2	466	11385.9	70287.6		P6.
JAN	23	1800	25	29.0	-83	47.2	461	11385.1	70296.9		
JAN	23	1900					462	11464.	3355	LORAN "A"	
JAN	23	2000					463	11385.2	70315.1		
JAN	23	2022	25	116.1	-83	28	464	11385.1	70319.5		
JAN	23	2101	25	50.5	-83	35	465	11385.4	70325.7		
"	"	2200	25	48.9	-83	40.0	466	11393.5	70323.5		
"	"	2300	25	47.8	-83	44.0	467	11395.3	70307.3		MLH
JAN	24	0000	25	43.4	-83	48.5	468	11396.2	70290.8		MLH
"	"	0104	25	39.1	-83	53.5	469	11394.6	70275.9		MLH
JAN	24	0200	25°	35.7	-83°	58.0	470	11395.3	70261.6		TRH
JAN	24	0300	25°	32.9	-84°	02.2	471	11396.0	70246.7		TRH
JAN	24	0400	25°	29.3	-84°	07.6	472	11398.2	70228.2		TRH
JAN	24	0500	25°	25.5	-84°	13.5	473	11400.9	70208.7		TRH
JAN	24	0600	25°	21.3	-84°	19.6	474	11404.3	70188.5		TRH
"	"	0630					475	11406.7	70177.5		
"	"	0700	25°	18.0	-84°	26.0	476	11409.1	70167.0		ML
"	"	0730					477	11410.7	70157.2		
"	"	0800	25°	15.1	-84°	28.0	478	11405.0	70161.0		ML
"	"	0830					479	11398.8	70168.2		
"	"	0900	25°	12.7	-84	24.4	480	11392.2	70176.2		ML

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MONTH	DAY	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	FIX NO.	ST. #1	ST. #2	COMMENTS	WATCH I.D.
JAN	24	0930	25°	11.3	84	22.75	481	11385.4	70184.3		
"	24	1000	25°	10	-84	21	482	11378.6	70192.4		
"	"	1030	25°	09.6	-84°	18.7	483	11371.8	70200.4		
"	"	1100	25°	08.4	-84°	16.5	484	11363.6	70210.0		
"	"	1130	25°	07.05	-84	14.7	485	11356.3	70218.6		
"	"	1200	25°	05.5	-84°	12.3	490	11348.4	70227.8		
"	"	1230	25°	03.8	-84°	09.5	491	11337.6	70239.8		
"	"	1304	25°	02.5	-84°	08.1	492	11331.9	70246.3		
"	"	1327	25°	01.6	-84°	06.5	493	11326.0	70253.0		
"	"	1344	25°	01.0	-84°	05.7	494	11322.7	70255.1		
"	"	1400	24°	59.5	-84°	06.5	495	11321.7	70256.0		
"	"	1430	24°	58.0	-84°	07.4	496	11319.6	70251.9		TRH
"	"	1500	24°	56.3	-84°	08.4	497	11317.6	70249.8		TRH
"	"	1530	24°	55.0	-84°	09.4	498	11316.3	70246.9		TRH
"	"	1600	24°	53.2	-84°	10.4	499	11315.1	70244.3		TRH
"	"	1634	24°	51.7	-84°	11.3	500	11314.2	70241.2		
"	"	1700	24°	50.7	-84°	12.8	501	11315.3	70237.2		
"	"	1730	24°	50.0	-84°	14.0	502	11316.2	70233.0		TRH
"	"	1800	24°	49.3	-84°	15.2	503	11316.7	70229.3		
"	"	1830	24°	48.2	-84°	16.2	504	11316.1	70226.0		
JAN	24	1900	24°	47.7	-84°	17.7	505	11319.1	70221.1		

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MONTH	DAY	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	FIX NO.	ST. #1	ST. #2	COMMENTS	WATCH I.D.
JAN	24	1930	24°	50.4	-84°	18.3	506	11325.5	70216.5		
"	"	2000	24°	51.7	-84°	19.25	507	11330.1	70212.6		
"	"	2030	24°	52.5	-84°	20.25	508	11334.5	70207.8		
"	"	2100	24°	53.1	-84°	22.1	509	11339.5	70201.2		
"	"	2130	24°	53.7	-84°	24.0	510	11344.9	70193.5		
JAN	24	2200	24°	54.8	-84°	25.7	511	11351.6	70186.2		
JAN	24	2230	24°	56.6	-84°	27.5	512	11358.8	70178.9		MMH
"	"	2300	24°	58.3	-84°	29.0	513	11366.2	70171.0		
JAN	24	2330	24°	59.6	-84°	31.0	514	11373.6	70162.2		
JAN	25	0000	25°	01.1	-84°	33.2	515	11381.2	70153.0		
"	"	0030	25°	02.4	-84°	35.4	516	11389.3	70143.3		
"	"	0100	25°	03.4	-84°	38.0	517	11398.0	70133.0	Begin slow turn to 220°	
"	"	0115	25°	03.4	-84°	39.4	518	11399.7	70128.7	Steady on 220°	
"	"	0130	25°	02.7	-84°	39.9	519	11398.9	70126.6		
"	"	0201	25°	01.3	-84°	41.1	520	11398.0	70121.4		
"	"	0230	24°	59.4	-84°	43.0	521	11397.3	70116.7		
"	"	0300	24°	57.8	-84°	44.5	522	11396.3	70113.0		
"	"	0330	24°	56.25	-84°	45.6	523	11395.1	70110.5		
"	"	0400	24°	54.8	-84°	45.2	524	11390.7	70113.6	steady on 130° for GT2-29	
"	"	0440	24°	53.4	-84°	41.3	525	11379.1	70129.8		
"	"	0500	24°	52.7	-84°	39.2	526	11373.4	70138.2		

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MONTH	DAY	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	FIX NO.	ST. #1	ST. #2	COMMENTS	WATCH I.D.
JAN	25	0531	24°	51.9	-84°	36.3	527	11365.3	70149.0		
"	"	0600	24°	50.6	-84°	34.0	528	11358.3	70157.9		
"	"	0630	24°	49.1	-84°	32.2	529	11351.3	70166.5		
"	"	0700	24°	47.5	-84°	30.5	530	11344.2	70174.2		
"	"	0730	24°	46.2	-84°	28.7	531	11337.7	70181.0		
"	"	0800	24°	44.5	-84°	27.6	532	11332.1	70186.4		
"	"	0830	24°	42.25	-84°	27.0	533	11326.5	70191.5		
"	"	0900	24°	41.2	-84°	24.9	534	11319.4	70198.9		
"	"	0930	24°	40.25	-84°	22.0	535	11311.7	70210.3		
JAN	25	1000	24°	42.1	-84°	20.0	536	11311.4	70216.5		
"	"	1033	24°	44.1	-84°	19.0	537	11313.3	70219.2		
"	"	1100	24°	45.5	-84°	18.2	538	11314.9	70220.7	- slow tide on	
"	"	1131	24°	47.4	-84°	17.1	539	11316.1	70223.2		
"	"	1200	24°	48.5	-84°	16.5	540	11317.3	70225.0	- slow tide on	
"	"	1230	24°	49.6	-84°	16.0	541	11319.3	70226.0		
"	"	1300	24°	51.8	-84°	15.2	542	11322.1	70227.2		
JAN	25	1333	24°	53.8	-84°	14.1	543	11324.5	70230.1		
"	"	1400	24°	55.5	-84°	12.5	546	11324.6	70234.8		
"	"	1430	24°	56.7	-84°	13.0	547	11328.4	70231.7		
"	"	1500	24°	57.2	-84°	14.4	548	11332.4	70226.7		
"	"	1530	24°	58.25	-84°	15.6	549	11337.4	70221.5		

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MONTH	DAY	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	FIX NO.	ST. #1	ST. #2	COMMENTS	WATCH I.D.
JAN	25	1600	24°	59.4	-84°	17.3	550	11343.4	70215.6	begin slow turn to 230° for GT2-32 at 1615	
"	"	1630	24°	59.6	-84°	18.9	551	11348.7	70208.6	1632 steady on 230°	
"	"	1700	24°	58.3	-84°	20.0	552	11349.2	70204.1		
"	"	1730	24°	56.2	-84°	21.4	553	11345.3	70200.4		
"	"	1800	24°	54.8	-84°	22.6	554	11343.2	70198.2		
JAN	25	1830	24°	52.7	-84°	23.6	555	11341.7	70195.5		
"	"	1900	24°	51.2	-84°	25.0	556	11341.2	70192.0		
"	"	1930	24°	50.1	-84°	26.5	557	11342.1	70187.6		
"	"	2000	24°	49.6	-84°	27.6	558	11343.1	70183.1		
"	"	2030	24°	48.6	-84°	29.4	559	11344.4	70177.2		
"	"	2100	24°	47.4	-84°	31.0	560	11345.1	70171.5		
"	"	2130	24°	45.7	-84°	32.7	561	11344.9	70166.7		
JAN	25	2200	24°	44.8	-84°	34.2	562	11345.9	70162.0	Steady on 310°	
"	"	2230	24°	46.2	-84°	35.2	563	11350.8	70157.0		
"	"	2300	24°	47.2	-84°	37.1	564	11356.2	70150.8		
JAN	25	2330	24°	48.6	-84°	38.4	565	11362.2	70144.2	- slow ltc on	
JAN	26	0000	24	49.5	-84	40.3	566	11368.9	70136.5		
JAN	26	0030	24	52.1	-84	39.5	567	11373.1	70136.0		
"	"	0100	24	54.1	-84	37.9	568	11374.8	70140.9		
"	"	0130	24	56.2	-84	36.3	569	11376.2	70145.5		
JAN	26	0200	24	58.4	-84	34.7	570	11378.0	70149.7		

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MONTH	DAY	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	FIX NO.	ST. #1	ST. #2	COMMENTS	WATCH I.D.
JAN	26	0230	25°	00.1	-84°	33.7	571	11380.0	70152.8		
"	"	0300	25°	02.5	-84°	32.0	572	11382.2	70156.2		
"	"	0330	25°	04.5	-84°	30.8	573	11384.1	70159.4		
"	"	0400	25°	05.8	-84°	29.3	574	11385.5	70162.5		
"	"	0430	25°	07.5	-84°	28.5	575	11387.1	70165.8		
"	"	0500	25°	09.2	-84°	27.5	576	11389.4	70168.1		
"	"	0544	25°	11.6	-84°	26.4	577	11393.1	70170.6		
"	"	0600	25°	12.5	-84	25.7	578	11394.4	70171.5		
JAN	26	0630	25	14.3	-84	25.0	579	11397.5	70173.0		
"	"	0700	25	15.6	-84	26.2	580	11403.3	70167.1		
"	"	0730	25	15.8	-84	27.8	581	11407.4	70160.9		
"	"	0800	25	14.6	-84	28.9	582	11406.7	70157.6		
"	"	0830	25	13.6	-84	30.1	583	11406.0	70154.3		
JAN	26	0900	25	12.0	-84	31.3	584	11404.6	70151.3		
"	"	0930	25	10.5	-84	32.3	585	11402.7	70149.3		
"	"	1000	25	09.3	-84	33.1	586	11401.4	70146.7		
"	"	1030	25°	07.5	-84	34.0	587	11400.9	70142.6		
"	"	1100	25°	06.5	-84	36.2	588	11400.9	70137.2		
"	"	1130	25°	05.1	-84	37.5	589	11399.8	70133.0		
"	"	1200	25°	03.0	-84	38.6	590	11397.0	70130.8		
JAN	26	1230	25°	01.0	-84	39.8	591	11394.5	70128.0		

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Loran C Log

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Month	Day	Time (Z)	Latitude	Longitude	Fix No.	St #1	St #2	Comments
Jan	26	1300	24° 59.5' N	-84° 41.2' W	592	11393.5	70124.4	
"	"	1330	24° 58.0' N	-84° 42.6' W	593	11392.8	70119.9	
"	"	1400	24-56.1'	-84-44.3'	594	11391.9	70115.5	
"	"	1430			595			changed generators, lost signal, slew light.
"	"	1450	24-52.8'	-84-47.4'	Jan 1A			down for installing blower fan onto Loran C
"	"	1500	24-53.1'	-84-47.2'	"			"
"	"	1600	24-50.2'	-84-53.8'	"			"
"	"	1700	24°-49.3'	-84°-59.3'	"			"
"	"	1730	24° 48.6'	-85° 02.5'	"			"
Jan	26	1800	24° 46.9'	-85 04.3'	"			"
"	"	1900	24 43.6'	85 8.6'	596	11410.1	70036.4	C
"	"	1900	24 42.9'	85.09.7'	597			A
"	"	2000	24 40.6'	-85 13.9'	598	11414.1	70019.2	C
"	"	2100	24° 37.9'	-85° 20.4'	599	11420.0	69999.6	
"	"	2200	24° 34.8'	-85 25.9'	600	11423.6	69981.8	
Jan	26	2300	24° 31.0	-85 30.8'	601	11424.9	69965.9	
Jan	27	0000	24° 27.0	-85° 36.4'	602	11426.6	69950.3	
Jan	27	0100	24° 23.2	-85° 40.8'	603	11426.4	69938.7	
JAN	27	0200	24° 22.0	-85° 45.6'	604	11432.3	69922.3	
JAN	27	0300	24° 21.8'	-85° 52.0	605	11443.0	69899.9	RA

NAVIGATION LOG

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 Leg No. 3

 TZ h6
LORAN C

 ST#1 ST#2

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MONTH	DAY	FIX NO.	FIX QUAL.	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	°RISE L	TIME (Z)	COURSE	SPEED	COMMENTS	WATCH I.D.
JAN	27	606		0400	24°	20.4	-85°	58.5			11451.7	69877.2		
JAN	27	607		0500	24°	17.5	-86°	04.4			11456.6	69858.7		
JAN	27	608		0600	24°	14.4	-86°	11.2			11462.9	69838.4	start 330° turn to GT2-15 and'd	
"	"	609		0630							11470.2	69828.3		
"	"	610		0700	24°	19.0	-86°	14.8			11478.4	69819.7		
"	"	611		0730							11487.0	69810.8		
"	"	612	good!	0800	24°	23.5	-86°	18.6			11495.5	69802.1		
"	"	613		0900	24°	28.6	-86°	21.6			11512.0	69785.4		
"	"	614		1000	24°	33.4	-86°	24.4			11528.6	69768.4		
"	"	615		1104	24°	38.8	-86°	28.0			11548.7	69748.2		
"	"	616		1200	24°	44.0	-86°	31.9			11567.1	69729.7		
JAN	27	617		1300	24°	50.0	-86°	34.9			11588.5	69710.0		
JAN	27	618		1400	24°	56.0	-86°	38.6			11610.6	69690.2		
JAN	27	619		1500	25°	02.0	-86°	41.1			11631.0	69672.6		
JAN	27	620		1600	25°	06.1	-86°	44.5			11657.0	69654.2		
JAN	27	621		1700	25°	11.5	-86°	47.5			11670.7	69635.2		
JAN	27	622		1800	25°	16.8	-86°	50.5			11690.8	69617.0		
"	"	623		1900	25°	21.6	-86°	53.6			11711.4	69598.5		
"	"	624		2000	25°	27.5	-86°	56.4			11733.3	69579.6		
"	"	625		2100	25°	32.5	-86°	59.8			11754.7	69559.0		
"	"	626		2200	25°	37.3	-87°	03.3			11774.9	69538.6		

NAVIGATION LOG

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LORAN C

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ST 1 ST 2

MONTH	DAY	FIX NO.	FIX QUAL.	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	°RISE L	TIME (Z)	COURSE	SPEED	COMMENTS	WATCH I.D.
JAN	27	627		2300	25°	41.9	-87°	06.6			11745.7	69518.6		
JAN	28	628		0000	25°	47.0	-87°	09.9			11817.5	69498.5		
"	"	629		0100	25°	51.9	-87°	12.9			11839.1	69479.0		
"	"	630		0200	25°	57.1	-87°	16.0			11861.0	69459.9		
"	"	631		0300	26°	02.7	-87°	19.0			11884.5	69439.5		
"	"	632		0400	26°	07.5	-87°	22.0			11907.0	69417.8		
"	"	633		0500	26°	12.5	-87°	25.6			11928.7	69396.7		TRH
"	"	634		0600	26°	17.8	-87°	28.8			11950.8	69375.0		
JAN	28	635		0700	26°	22.0	-87°	32.1			11973.2	69353.3		
"	"	636		0800	26°	27.2	-87°	35.1			11996.0	69331.5		
"	"	637		0900	26°		-87°				12020.5	69308.5		
"	"	638		1000	26°	38.0	-87°	41.9			12046.1	69285.0		
"	"	639		1100	26°	44.0	-87°	45.0			12073.6	69260.4		
"	"	640		1202	26°	50.5	-87°	49.0			12104.0	69231.7		
"	"	641		1300	26°	56.4	-87°	52.8			12132.4	69204.1		
"	"	642		1400	27°	02.8	-87°	56.4			12161.5	69177.4		
"	"	643		1500	27°	09.0	-87°	59.5			12189.6	69152.8		
"	"	644		1600	27°	14.7	-88°	02.2			12216.6	69128.2		
"	"	645		1700	27°	19.1	-88°	06.2			12242.0	69103.7		
"	"	646		1800	27°	23.7	-88°	9.2			12261.2	69081.3		
		647		1900	27°	24.3	-88°	14.1			12271.4	69059.9		

27 25.3 88 14.2

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NAVIGATION LOG

Cruise I.D. IG23-3

Year 1977

LORAN C

Leg No. 3

TZ +6

St-#1 #2

P. 11

MONTH	DAY	FIX NO.	FIX QUAL.	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	°RISE L	TIME (Z)	COURSE	SPEED	COMMENTS	WATCH I.D.
JAN	28	648	—	2000	27	29.4	-88	16.1	—		12293.0	69040.2		
		649		2100	27	34.7	-88	17.9			12316.4	69021.6		
		650		2200	27°	39.2	-88	21.2			12338.0	69997.2		
		651		2233	27°	41.0	-88°	24.3			12350.4	68981.8		
↓	↓	652		2300	27°	43.1	-88°	25.0			12359.3	68973.8		
Jan	28	653		2330	27°	45.4	-88°	25.6			12369.9	68965.3	Begin 24 CDP/stack 2327	
Jan	29	654		0000	27°	47.3	-88°	26.2			12378.7	68958.1		
"	"	655		0030	27	49.4	-88°	26.3			12387.3	68951.0		
"	"	656		0100	27°	51.2	-88°	28.1			12396.2	68941.1		
"	"	657		0130	27°	52.8	-88°	29.8			12404.6	68930.9		
"	"	658		0200	27°	54.5	-88	31.0			12413.3	68921.8		
"	"	659		0232	27°	56.4	-88°	31.9			12420.8	68914.2		
"	"	660		0300	27°	57.5	-88	32.5			12427.0	68908.1		
"	"	661		0330	27°	59.25	-88°	33.4			12435.7	68899.7		
"	"	662		0400	28°	01.2	-88°	34.8			12445.4	68890.0		
"	"	663		0430	28°	03.0	-88°	36.2			12454.7	68879.8		
"	"	664		0500	28°	05.1	-88°	37.2			12463.7	68869.7		
"	"	665		0530	28°	05.8	-88°	38.6			12472.1	68859.4	0549 change rep rate to 20 Sec speed to 4.5 kts	
"	"	666		0600	28°	08.2	-88°	40.0			12479.2	68850.8		
		667		0630	28	09.6	-88	40.7			12486.6	68843.6		
		668		0700	28	11.5	-88	41.6			12495.5	68836.1		

NAVIGATION LOG

Cruise I.D. IG 23-3

Year 1977

Leg No. 3

TZ +6

Foran

st#1 #2

p. 12

MONTH	DAY	FIX NO.	FIX QUAL.	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	°RISE L	TIME (Z)	COURSE	SPEED	COMMENTS	WATCH I.D.
JAN	29	669		0730	28°	28.7	-88°	42.4			12505.5	68827.2		
"	"	670		0800	28°	31.2	-88°	43.5			12517.3	68816.3		
"	"	671		0830	28°	18.0	-88°	41.7			12523.3	68817.5		
"	"	672		0900	28°	19.2	-88°	39.2			12526.5	68824.4		
"	"	673		0930	28°	20.25	-88°	37.0			12529.0	68831.3		
JAN	29	674		1000	28°	18.5	-88°	34.6			12512.9	68845.8		
"	"	675		1030	28°	16.3	-88°	33.1			12507.8	68858.2		
"	"	676		1100	28°	13.9	-88°	32.0			12497.0	68868.9		
"	"	677		1130	28°	11.5	-88°	31.1			12486.1	68878.2		
JAN	29	678		1200	28°	09.6	-88°	30.0			12476.1	68887.9		
"	"	679		1230	28°	07.5	-88°	28.9			12466.7	68897.2		
"	"	680		1300	28°	05.8	-88°	27.7			12457.2	68906.5		
"	"	681		1331	28°	03.8	-88°	26.3			12447.1	68917.4		
JAN	29	682		1400	28°	01.7	-88°	25.0			12437.9	68927.2		
JAN	29	683		1430	27°	59.7	-88°	24.1			12428.2	68937.8		
"	"	684		1500	27°	57.7	-88°	22.5			12418.0	68948.0		
"	"	685		1530	27°	55.8	-88°	20.9			12407.4	68958.8		
"	"	686		1600	27°	53.8	-88°	19.6			12397.9	68969.4		
"	"	687		1630	27°	54.0	-88°	18.3			12397.1	68974.4		
"	"	688		1700	27°	54.2	-88°	17.1			12397.1	68979.2		
"	"	689		1730	27°	55.5	-88°	15.8			12401.2	68981.3		

NAVIGATION LOG

Cruise I.D. 7823

Year 77

Leg No. 3

TZ +6

Loran C

Sta #1

Sta #2

p 13

MONTH	DAY	FIX NO.	FIX QUAL.	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	°RISE L	TIME (Z)	COURSE	SPEED	COMMENTS	WATCH I.D.
JAN	29	690		1800	27°	56.70	-88°	13.90			12405.1	68984.7		
JAN	29	691		1830	27	58.20	-88	12.50			12409.5	68987.7		
"	"	692		1900	28	00.70	-88	13.50			12420.4	68997.4		
"	"	693		1930	28	03.0	-88	15.3			12432.1	68963.7		
"	"	694		2000	28	04.7	-88	17.1			12442.5	68952.7		
"	"	695		2030	28	06.9	-88	18.0			12452.4	68943.1		
"	"	696		2100	28	08.9	-88	19.3			12462.7	68933.3		
"	"	697		2130	28	11.0	-88	20.4			12473.0	68923.7		
JAN	29	698		2200	28	13.0	-88	21.4			12482.6	68914.3		
"	"	699		2230	28°	15.0	-88°	22.5			12492.2	68904.8		
"	"	700		2300	28°	17.2	-88°	23.5			12502.4	68894.9		
JAN	29	701		2330	28°	19.2	-88°	24.8			12512.5	68884.7		
JAN	30	702		0000	28	21.4	-88°	26.0			12523.4	68873.8		
"	"	703		0030	28	23.6	-88°	27.1			12534.7	68863.1		
"	"	704		0045	28°	24.9	-88°	27.5			12540.4	68858.0		
"	"	705		0100	28°	25.6	-88°	26.8			12543.2	68858.5		
"	"	706		0130	28°	26.7	-88°	25.0			12546.5	68863.9		
JAN	30	707		0200	28°	27.9	-88°	22.5			12548.5	68871.2		
JAN	30	708		0230	28°	28.0	-88°	20.2			12547.6	68880.6		
JAN	30	709		0300	28°	25.5	-88°	18.6			12535.0	68894.1		
JAN	30	710		0330	28°	23.7	-88°	17.5			12524.5	68904.7		

NAVIGATION LOG

 Cruise I.D. 1923-3

 Year 77

 Leg No. 3

 TZ +6

St. #1 St. #2

pg 14

MONTH	DAY	FIX NO.	FIX QUAL	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	°RISE L	TIME (Z)	COURSE	SPEED	COMMENTS	WATCH I.D.
JAN	30	711		0400	28°	21.7	-88°	16.2			12515.4	68913.4		
"	"	712		0430	28°	19.7	-88°	15.25			12506.0	68922.3		
"	"	713		0500	28°	17.7	-88°	14.2			12496.4	68931.6		
"	"	714		0530	28°	16.0	-88°	12.3			12487.2	68942.2		
JAN	30	715		0600	28°	14.1	-88°	11.2			12477.6	68952.9		
"	"	716		0630	28°	12.1	-88°	09.9			12467.7	68963.5		
"	"	717		0700	28°	10.4	-88°	08.75			12458.0	68973.9		
"	"	718		0730	28°	08.5	-88°	07.4			12448.1	68984.2		
JAN	30	719		0800	28°	06.3	-88°	06.1			12438.3	68994.0		
"	"	720		0830	28°	04.5	-88°	05.0			12428.4	69003.7		
"	"	721		0900	28°	02.7	-88°	03.9			12419.1	69012.2		
"	"	722		0930	28°	01.0	-88°	05.0			12412.6	69011.7		
JAN	30	723		1000	28°	00.60	-88°	08.0			12413.8	69000.5		
"	"	724		1030	27°	59.5	-88°	11.0			12412.8	68990.3		
"	"	725		1100	27°	58.4	-88°	13.9			12410.8	68981.6		
"	"	726		1130	27°	57.2	-88°	16.7			12409.0	68973.0		
"	"	727		1200	27°	56.0	-88°	19.7			12407.1	68964.5		
"	"	728		1230	27°	54.9	-88°	22.3			12405.3	68955.8		
JAN	30	729		1300	27°	53.8	-88°	25.0			12403.6	68947.4		
JAN	30	730		1330	27°	52.8	-88°	27.7			12402.0	68939.0		
JAN	30	731		1400	27°	51.8	-88°	30.8			12401.5	68929.4		

NAVIGATION LOG

Cruise I.D. IG-23

Year 77

Leg No. 3

TZ +6

Lower

Star *Star*

pg 15

MONTH	DAY	FIX NO.	FIX QUAL.	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	°RISE L	TIME (Z)	COURSE	SPEED	COMMENTS	WATCH I.D.
JAN	30	732		1430	27°	53.25	-88°	32.0			12409.0	68921.0		
"	"	733		1500	27°	55.0	-88°	32.8			12417.4	68913.6		
"	"	734		1530	27°	57.3	-88°	33.3			12427.4	68905.9		
"	"	735		1600	27°	59.7	-88	34.3			12438.5	68895.2		
"	"	736		1630	28°	02.1	-88°	36.0			12450.0	68883.0		
"	"	737		1700	28°	04.75	-88°	36.75			12461.7	68872.4		
"	"	738		1730	28°	06.0	-88°	34.8			12465.3	68877.8		
JAN	30	739		1800	28°	07.1	-88°	32.5			12467.5	68884.0		
"	"	740		1830	28°	8.1	-88°	30.4			12469.5	68890.8		
"	"	741		1900	28°	9.1	-88°	28.2			12472.1	68896.5		
"	"	742		1930	28°	10.0	-88°	26.3			12474.5	68902.3		
"	"	743		2000	28°	11.5	-88°	24.1			12478.7	68907.0		
"	"	744		2030	28°	12.8	-88°	22.0			12483.0	68912.0		
"	"	745		2100	28°	14.2	-88°	19.7			12486.4	68917.8		
"	"	746		2130	28°	15.4	-88°	17.8			12490.5	68922.2		
"	"	747		2200	28°	17.0	-88°	16.0			12494.9	68926.4		
"	"	748		2230	28°	18.3	-88°	13.9			12498.8	68931.9		
"	"	749		2240	28°	18.8	-88°	13.0			12499.8	68935.8		
"	"	750		2300	28°	20.3	-88°	13.0			12506.0	68930.4		
↓	↓	751		2330	28°	22.4	-88°	14.2			12512.0	68919.9		
Jan	30	752		2351	28°	23.6	-88°	14.8			12524.5	68912.4		

NAVIGATION LOG

Cruise I.D. IG 23

Year 1977

Leg No. 3

TZ +6

LORAN C

Sta #1 #2

p. 16

MONTH	DAY	FIX NO.	FIX QUAL.	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	°RISE L	TIME (Z)	COURSE	SPEED	COMMENTS	WATCH I.D.
JAN	31	753		0000	28°	24.2	-88°	15.6			12527.2	68908.8		
"	"	754		0030	28°	24.1	-88°	18.5			12528.3	68898.1		
"	"	755		0100	28°	23.0	-88°	21.1	1.4	276	12526.9	68888.9		
"	"	756		0131	28°	21.9	-88°	23.5	1.78	272	12524.1	68881.5		
"	"	757		0200	28°	20.7	-88°	26.0			12520.9	68876.2		
"	"	758		0230	28°	19.5	-88°	27.75			12516.5	68871.4		
"	"	759		0300	28°	18.0	-88°	29.75			12512.6	68866.8		
"	"	760		0330	28°	16.9	-88°	31.75			12509.4	68861.4		TRB
"	"	761		0400	28°	15.8	-88°	33.5			12505.9	68856.6		
"	"	762		0430	28°	14.7	-88°	35.6			12503.4	68850.9		
"	"	763		0500	28°	13.9	-88°	37.6			12501.8	68844.8		
"	"	764		0530	28°	13.1	-88°	40.0			12500.4	68838.1		
JAN	31	765		0600	28°	12.2	-88°	42.2			12499.5	68831.7		
"	"	766		0630	28°	13.5	-88°	43.25			12505.9	68821.1	0629 BEGIN GT2-15 cont'd + 12 COP	TRB
JAN	31	767		0700	28°	17.2	-88°	44.1			12521.5	68807.0		
"	"	768		0730	28°	19.7	-88°	45.9			12535.6	68792.4		
"	"	769		0800	28°	22.6	-88°	47.8			12548.7	68777.7		
"	"	770		0830	28°	24.5	-88°	49.9			12559.0	68764.1		
"	"	771		0900	28	26.7	-88°	51.7			12570.0	68751.2		
"	"	772		0931	28	29.0	-88°	53.4			12581.	68739.4		
JAN	31	773		1000	28	30.9	-88°	54.6			12591.0	68728.5		

NAVIGATION LOG

Cruise I.D. _____

 Year 1977

 Loran C

P 17

 Leg No. IG 23-3

 TZ +6

ST1 ST2

MONTH	DAY	FIX NO.	FIX QUAL.	TIME (Z)	LAT. DEGR.	LAT. MIN.	LONG. DEGR.	LONG. MIN.	°RISE L	TIME (Z)	COURSE	SPEED	COMMENTS	WATCH I.D.
Jan	31	774		1100	28°	35.3	-88°	57.5			12611.0	68706.0		
"	"	775		1200	28°	39.6	-89°	00.5			12632.1	68682.0		
"	"	776		1300	28°	44.2	-89°	03.2			12653.8	68657.1		
"	"	777		1400	28°	49.2	-89°	06.7			12698.8	68629.4		
"	"	778		1452	28°	53.7	-89°	09.8			12699.0	68604.0		
"	"	779		1500	28°	54.1	-89°	10.5			12702.0	68600.0		
"	"	780		1511	28°	55.0	-89°	10.2			12705.8	68597.8	end DRS recording for IG 23-3	
"	"	781		1600	28°	51.7	-89°	13.3			12694.6	68595.2		
"	"	782		1640	28°	47.8	-89°	16.6			12684.5	68592.2	12 kHz monitor recorders off	
"	"	783		1700	28°	48.7	-89°	17.1			12683.2	68591.5		
"	"	784		1800	28°	46.1	-89°	18.3			12674.0	68592.5		
JAN	31	785		1830	28°	44.8	-89°	22.0			12669.2	68582.4		
JAN	31	786		1900	28°	43.2	-89°	27.3			12666.0	68565.5		
"	"	787		2000	28°	40.0	-89°	38.7			12660.7	68531.0		
"	"	788		2100	28°	36.5	-89°	50.1			12655.1	68498.2		
"	"	789		2200	28°	33.6	-90°	1.2			12650.8	68465.2		
"	"	790		2300	28°	29.9	-90°	12.5			12644.0	68434.2		
Feb	1	791		0000	28°	26.8	-90°	23.8			12640.5	68402.0		
"	"	792		0100	28°	24.6	-90°	35.0			12639.2	68367.2		
"	"	793		0200	28°	21.5	-90°	47.5			12638.3	68330.0		
"	"	794		0300	28°	22.0	-90°	59.6			12648.5	68289.3		

Lozan C.

Year 22

TZ 46

St. 1 St. 2

19/5

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