GLORIA LEG 4
TAPE CONTENTS

85039TAP

FRNL 85 LEG 4
DIGITAL TAPE RECORD

85039TAP

I.O.S. — U.S.G.S. EEZ SCAN 1985

********** GLORIA TAPE RECORD ********** TAPE # 20

LEG 4 START TIME = 1317/309 FINISH TIME = 1100/313 DUPLICATE B

File	Pass	Start Time	Finish Time	Line Nos.	Records	Repeat Lines
1	1	1317/309	1741/309	26->422	397	NONE 40SEC.
********** DATA LOSS **********						
2	2	1746/309	2300/309	93->720	628	NONE
3	3	2300/309	0500/310	1->720	720	NONE
4	4	0500/310	1100/310	1->720	720	NONE
5	5	1100/310	1700/310	1->720	720	NONE
6	6	1700/310	2300/310	1->720	720	NONE
7	7	2300/310	0500/311	1->720	720	NONE
8	8	0500/311	1100/311	1->720	720	NONE
9	9	1100/311	1700/311	1->720	720	NONE
10	10	1700/311	2300/311	1->720	720	NONE
11	11	2300/311	0500/312	1->720	720	NONE
12	12	0500/312	1100/312	1->720	720	NONE
13	13	1100/312	1700/312	1->720	720	NONE
14	14	1700/312	2300/312	1->720	720	NONE
15	15	2300/312	0500/313	1->720	720	NONE
16	16	0500/313	1100/313	1->720	720	NONE

Total number of records including filemarks.... 11122

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********** GLORIA TAPE RECORD ********** TAPE # 21

LEG 4 START TIME = 1100/313 FINISH TIME = 1100/317 DUPLICATE B

File	Pass	Start Time	Finish Time	Line Nos.	Records	Repeat Lines
1	17	1100/313	1700/313	1->720	720	NONE
2	18	1700/313	2300/313	1->720	720	NONE
3	19	2300/313	0500/314	1->720	720	NONE
4	20	0500/314	1100/314	1->720	720	NONE
5	21	1100/314	1700/314	1->720	720	NONE
6	22	1700/314	2300/314	1->720	720	NONE
7	23	2300/314	0500/315	1->720	720	NONE
8	24	0500/315	1100/315	1->720	720	NONE
9	25	1100/315	1700/315	1->720	720	NONE
10	26	1700/315	2300/315	1->720	720	NONE
11	27	2300/315	0500/316	1->720	720	NONE
12	28	0500/316	1100/316	1->720	720	NONE
13	29	1100/316	1700/316	1->720	720	NONE
14	30	1700/316	2300/316	1->720	720	NONE
15	31	2300/316	0500/317	1->720	720	NONE
16	32	0500/317	1100/317	1->720	720	NONE

Total number of records including filemarks.... 11537

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********** GLORIA TAPE RECORD ********** TAPE # 22

LEG 4 START TIME = 1100/317 FINISH TIME = 1100/321 DUPLICATE B

File	Pass	Start Time	Finish Time	Line Nos.	Records	Repeat Lines
1	33	1100/317	1700/317	1->720	720	NONE
2	34	1700/317	2300/317	1->720	720	NONE
3	35	2300/317	0500/318	1->720	720	NONE
4	36	0500/318	1100/318	1->720	720	NONE
5	37	1100/318	1700/318	1->720	720	NONE
6	38	1700/318	2300/318	1->720	720	NONE
7	39	2300/318	0500/319	1->720	720	NONE
8	40	0500/319	1100/319	1->720	720	NONE
9	41	1100/319	1206/319	1->133	133	NONE
********** DATA LOSS **********						
10	42	1749/319	2300/319	99->720	622	NONE
11	43	2300/319	0500/320	1->720	720	NONE
12	44	0500/320	1100/320	1->720	720	NONE
13	45	1100/320	1700/320	1->720	720	NONE
14	46	1700/320	2300/320	1->720	720	NONE
15	47	2300/320	0500/321	1->720	720	NONE
16	48	0500/321	1100/321	1->720	720	NONE

Total number of records including filemarks.... 10852

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********** GLORIA TAPE RECORD ********** TAPE # 23

LEG 4 START TIME = 1100/321 FINISH TIME = 1100/325 DUPLICATE B

File	Pass	Start Time	Finish Time	Line Nos.	Records	Repeat Lines
1	49	1100/321	1700/321	1->720	720	NONE
2	50	1700/321	2300/321	1->720	720	NONE
3	51	2300/321	0500/322	1->720	720	NONE
4	52	0500/322	1100/322	1->720	720	NONE
5	53	1100/322	1700/322	1->720	720	NONE
6	54	1700/322	2300/322	1->720	720	NONE
7	55	2300/322	0500/323	1->720	720	NONE
8	56	0500/323	1100/323	1->720	720	NONE
9	57	1100/323	1700/323	1->720	720	NONE
10	58	1700/323	2300/323	1->720	720	NONE
11	59	2300/323	0500/324	1->720	720	NONE
12	60	0500/324	1100/324	1->720	720	NONE
13	61	1100/324	1700/324	1->720	720	NONE
14	62	1700/324	2300/324	1->720	720	NONE
15	63	2300/324	0500/325	1->720	720	NONE
16	64	0500/325	1100/325	1->720	720	NONE

Total number of records including filemarks.... 11537

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********** GLORIA TAPE RECORD ********** TAPE # 24

LEG 4 START TIME = 1100/325 FINISH TIME = 1200/329 DUPLICATE B

File	Pass	Start Time	Finish Time	Line Nos.	Records	Repeat Lines
1	65	1100/325	1700/325	1->720	720	NONE
2	66	1700/325	2300/325	1->720	720	NONE
3	67	2300/325	2358/325	1->116	116	NONE
********** DATA LOSS **********						
4	68	0002/326	0600/326	5->720	716	NONE
5	69	0600/326	1200/326	1->720	720	NONE
6	70	1200/326	1800/326	1->720	720	NONE
7	71	1800/326	0000/327	1->720	720	NONE
8	72	0000/327	0600/327	1->720	720	NONE
9	73	0600/327	1200/327	1->720	720	NONE
10	74	1200/327	1800/327	1->720	720	NONE
11	75	1800/327	0000/328	1->720	720	NONE
12	76	0000/328	0600/328	1->720	720	NONE
13	77	0600/328	1200/328	1->720	720	NONE
14	78	1200/328	1800/328	1->720	720	NONE
15	79	1800/328	0000/329	1->720	720	NONE
16	80	0000/329	0600/329	1->720	720	NONE
17	81	0600/329	1200/329	1->720	720	NONE

Total number of records including filemarks.... 11650

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********** GLORIA TAPE RECORD ********** TAPE # 25

LEG 4 START TIME = 1200/329 FINISH TIME = 1200/333 DUPLICATE B

File	Pass	Start Time	Finish Time	Line Nos.	Records	Repeat Lines
1	82	1200/329	1800/329	1->720	720	NONE
2	83	1800/329	0000/330	1->720	720	NONE
3	84	0000/330	0600/330	1->720	720	NONE
4	85	0600/330	1200/330	1->720	720	NONE
5	86	1200/330	1800/330	1->720	720	NONE
6	87	1800/330	0000/331	1->720	720	NONE
7	88	0000/331	0600/331	1->720	720	NONE
8	89	0600/331	1200/331	1->720	720	NONE
9	90	1200/331	1800/331	1->720	720	NONE
10	91	1800/331	0000/332	1->720	720	NONE
11	92	0000/332	0600/332	1->720	720	NONE
12	93	0600/332	1200/332	1->720	720	NONE
13	94	1200/332	1800/332	1->720	720	NONE
14	95	1800/332	0000/333	1->720	720	NONE
15	96	0000/333	0600/333	1->720	720	NONE
16	97	0600/333	1200/333	1->720	720	NONE

Total number of records including filemarks.... 11537

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********** GLORIA TAPE RECORD ********** TAPE # 26

LEG 4 START TIME = 1200/333 FINISH TIME = 1631/336 DUPLICATE B

File	Pass	Start Time	Finish Time	Line Nos.	Records	Repeat Lines
1	98	1200/333	1800/333	1->720	720	NONE
2	99	1800/333	0000/334	1->720	720	NONE
3	100	0000/334	0600/334	1->720	720	NONE
4	101	0600/334	1200/334	1->720	720	NONE
5	102	1200/334	1800/334	1->720	720	NONE
6	103	1800/334	0000/335	1->720	720	NONE
7	104	0000/335	0600/335	1->720	720	NONE
8	105	0600/335	1200/335	1->720	720	NONE
9	106	1200/335	1800/335	1->720	720	NONE
10	107	1800/335	0000/336	1->720	720	NONE
11	108	0000/336	0600/336	1->720	720	NONE
12	109	0600/336	1200/336	1->720	720	NONE
13	110	1200/336	1631/336	1->543	543	NONE

Total number of records including filemarks.... 9197

GLORIA 9-TRACK TAPE DATA

~~The 2400' tapes are recorded on a SE8000 tape deck and are 9-track, 800bpi, NRZ, IBM compatible with strapped odd parity. Data is written on to the tape as 16 bit words with the low 8 bits being written first.~~

These are copies at 1600 bpi, PE

FILES

Each tape is divided into files (or 'passes') which are separated by file marks. There is an initial file mark before the first file, and the last file is followed by two file marks. If the data was recorded at a 10, 20 or 40 second pulse repetition period (P.R.P.) then each file contains 540 blocks, while if a 30 sec. P.R.P. was used each file contains 360 blocks. However, it will occasionally happen (either by accident or design) that a 'pass' is terminated early during the logging. In this case the corresponding file will contain less than the nominal 540 or 360 blocks.

BLOCKS

Each block contains 512 16-bit words but since the original data was recorded as 8-bit numbers, each 16-bit word contains 2 data values. The block also contains a header and 6 reference or marker bytes which mark the edges of the data field.

DATA

For each pulse transmitted both the port and starboard returns are sampled 496 times giving a total of 992 8-bit samples per pulse. Fig. 1 shows how these samples are arranged in each block and Fig. 2 gives details of the header information. The data was digitized using a 12-bit ADC and then compressed to 8-bits using the

Bell-255 law. The algorithm for expanding each 8-bit value to 12 bits again is:

$$12\text{-bit val.} = 2^{c}(s+32) - 31$$

, where c and s are derived from the 8-bit value such that c is given by the 3 most significant bits and s by the other 5. e.g. an 8-bit number of 93 which is $\underbrace{010}_{c}\underbrace{11101}_{s}$ in binary form, gives $c=2$, $s=29$

which yields a 12-bit value of 213.

The maximum error in this compression/expansion process is 3%.

FIG. 1 ARRANGEMENT OF DATA IN EACH BLOCK

WORD #			
1	Hi byte Lo byte	Header information (see Fig 2)	
2	Hi Lo		
⋮	⋮		
7	Hi Lo		
8	Hi Lo	Edge mark (=255)	
9	Hi Lo	PORT 496th (far range) SAMPLE " 495th SAMPLE " 494th "	PORT DATA SAMPLES
⋮	⋮		
255	Hi Lo	PORT 3rd SAMPLE " 2nd "	
256	Hi Lo	" 1st (near range) SAMPLE Center mark (=255)	
257	Hi Lo	STBD 1st (near range) SAMPLE	STARBOARD DATA SAMPLES
258	Hi Lo	" 2nd SAMPLE " 3rd "	
⋮	⋮		
504	Hi Lo	STBD 494th SAMPLE 495th	
505	Hi Lo	496th (far range) SAMPLE Edge mark (=255)	
506	Hi Lo	BLANK (= Ø)	
⋮	⋮		
512	Hi Lo		

FIG. 2 ARRANGEMENT OF HEADER INFORMATION

WORD #		
1	Hi byte Lo byte	PASS NUMBER (16 bit binary)
2	Hi Lo	LINE NUMBER (16 bit binary)
3	Hi Lo	HOUR MARK FLAG (Ø or 1) D/R CORRECTION BYTE
4	Hi Lo	blank = Ø P.R.P. (1, 2, 3 or 4 in ASCII)
5	Hi Lo	COURSE (3 ASCII CHARACTERS)
6	Hi Lo	REPEATED LINE FLAG (Ø or 1)
7	Hi Lo	blank = Ø Edge mark 255
8	Hi Lo	255 PORT 496H DATA SAMPLE
⋮	⋮	⋮

NOTES:

1. The LINE NUMBERS normally go from 1 to 540 (or 360) but if the PASS did not start on an exact hour then the first line number in that file will <u>not</u> be 1.

2. The COURSE and D/R (depth/range) CORRECTION BYTE are entered by the watchkeeper and are not always correct!

3. If the REPEATED LINE FLAG is set to a 1, this means that the line in question was not logged correctly and the next line has therefore been copied in it's place to maintain the correct number of lines. This second line of data therefore appears twice in succession.