

AIR-SEA INTERACTION CHECK LIST

FLIGHT 19790911 IL-AXBT

Pre-deployment (following 48 hour alert)

- 1) Check radiometer calibration; if points deviate by more than .15°C, recalibrate

42RF.....

43RF..... No 48 hr alert

- 2) Arrange for deployment of needed AXBT units to staging base

..... Not needed

- 3) Participate in flight crew, flight director briefing on proposed flight plan and AXBT drop sequence.

..... ✓

Pre-flight (following 24 hour alert)

- 1) Inventory AXBT stocks, log quantities on AXBT check sheet summary

..... ✓

- 2) Check that 3 antennas are in place and secured

..... ✓

- 3) Turn on receiver and run through calibration sequence - check for proper operation

..... ✓

- 4) Check operation of strip chart recorder; set chart drive on .1"/sec; set scale on 0-5V; set pens on zero; set receivers on calibrate position 3 and adjust pen to voltmeter reading

..... NA

- 5) Check that required number of AXBT's are loaded externally and internally (remove tape from these) and that externally loaded tubes are labelled according to channel and year of manufacture number on the launch control panel

..... ✓

- 6) Clean radiometer lens

..... NA

- 7) Check proper operation of radiometer - compare meter reading and output of digital system while performing field calibration check at 3 temperatures

..... ✓

- 7) Encode AXBT traces between AXBT legs, deliver logs to flight director for transmission, log time of transmission on the log

..... ✓

During AXBT Legs

- 1) Before and after each leg, switch receivers to calibrate mode and step through the calibration points, pausing 10 sec at each position
- 2) Drop AXBT's in sequence according to channel no. (12-14-16-12, etc). Make sure channel selector switch on each receiver matches the AXBT channel number to be dropped.
- 3) In the case of 2 AXBT's in the water at the same time, switch receivers 1 and 2 to the proper channel for the new AXBT, leaving receiver 3 set to the channel for the AXBT in the water
- 4) Key AXBT drops to time. Memorize interval (in nm) between each drop along the leg 1 from Table E.1); compute time to next drop from Table E.2. Predicted time should thus always equal drop time. As time permits, check AXBT positions with HP-25 program
- 5) Fill in as much of AXBT check sheet as possible before the drop. i.e., log latitude and longitude degrees before drop, then fill in tenths and hundredths (or minutes) of degrees just after dropping
- 6) If available, punch right hand event button at drop time and again just after modulation begins.
- 7) Estimate mixed layer depth (MLD) by estimating elapsed time from strip chart recorder, or by again hitting event button, when the temperature just begins dropping at bottom of isothermal layer (change of $> .2^{\circ}\text{C}$ in 1 sec). Convert elapsed time to depth using Table E.3.
- 8) Estimate time to first AXBT drop following a known turn point, using the average ground speed achieved after the turn

..... ✓

..... ✓

Ch # 1 set
to nearest BT
since it is set
to line printer

..... ✓

..... ✓

..... ✓

..... NA

..... ✓

8) Obtain best estimate of radius of max wind, R_m , maximum wind, V_m , and minimum pressure, P_m

..... ?

9) Set up receives 1 and 3 (left hand and right hand) on strip chart

..... NA

Post takeoff

1) Log takeoff time

..... 195100

2) Turn on radiometer

..... 195230

3) Turn on AXBT receiver, check for proper operation

..... ✓

4) Turn on strip chart recorder, setting chart rate at .1"/sec and voltage scale at 0-5 V, adjust 0 and 5 volt readings to edges of paper

..... NA

5) Have line printer turned on and set at one sample per second rate, run through three calibration frequencies on all AXBT receivers

..... ✓

6) Set up graphics via terminal

..... ✓

7) Enter necessary programs via terminal

..... NA

In flight

1) Run through AXBT calibration at the beginning and end of each flight leg

calib
1,2,3

004415 - 205010
..... 205230 - printer

2) Make sure flight pattern is oriented according to direction of prior tasks

235530
033700 - 034240
..... ✓

3) Update estimate of R_{max} and storm intensity at least 1/2 hour prior to first AXBT drop

..... ✓

4) Check radiometer every 1/2 hour between AXBT legs

..... ✓

5) Log times of all ascents and descents

1950 Ascent
..... 0421 Ascent 1500-1900

6) Label head and tail of strip chart with flight number, number each AXBT trace. Turn chart on before each leg, off at end of leg

..... NA

9) If AXBT drop is a manual one using internal sondes released from free-fall chute:

1) Check with flight engineer to be sure that the aircraft is depressurized

2) Be sure the sleeve is inserted in the free-fall chute

..... ✓

10) For external launching (legs through the hurricane center) be sure pilot has armed the system, you arm the system with key, select AXBT chute to be fired (row and column switches), arm the system with toggle switch and then fire at predetermined time. Copy info., label strip chart, set switches for next AXBT chute and compute time of next drop

..... ✓

11) From a flight altitude of 300 m, about 90 sec elapse between AXBT launch and the beginning of carrier transmission. For the rotor chute sondes, modulation begins about 60 seconds later. For the parachute sondes, modulation begins about 80 seconds after the carrier begins. The sonde is to be considered a failure if modulation does not begin 90 seconds after the carrier begins or, depending upon altitude, about 3 minutes after launch. If the planned AXBT spacing is 15 nm, or greater, a second sonde should be launched immediately after the above time is exceeded

..... ✓

After Landing

1) Turn off all equipment

IRT

..... ✓

AXBT

..... ✓

Strip chart

..... NH

2) Turn in forms and check sheets to Lead Project Scientist

..... ✓

3) Sketch flight pattern and approximate locations of AXBT drops

..... ✓

4) Sketch surface temperature and mixed layer depth analysis

.....

5) Itemize problems

..... ✓

AXBT CHECK SHEET SUMMARY

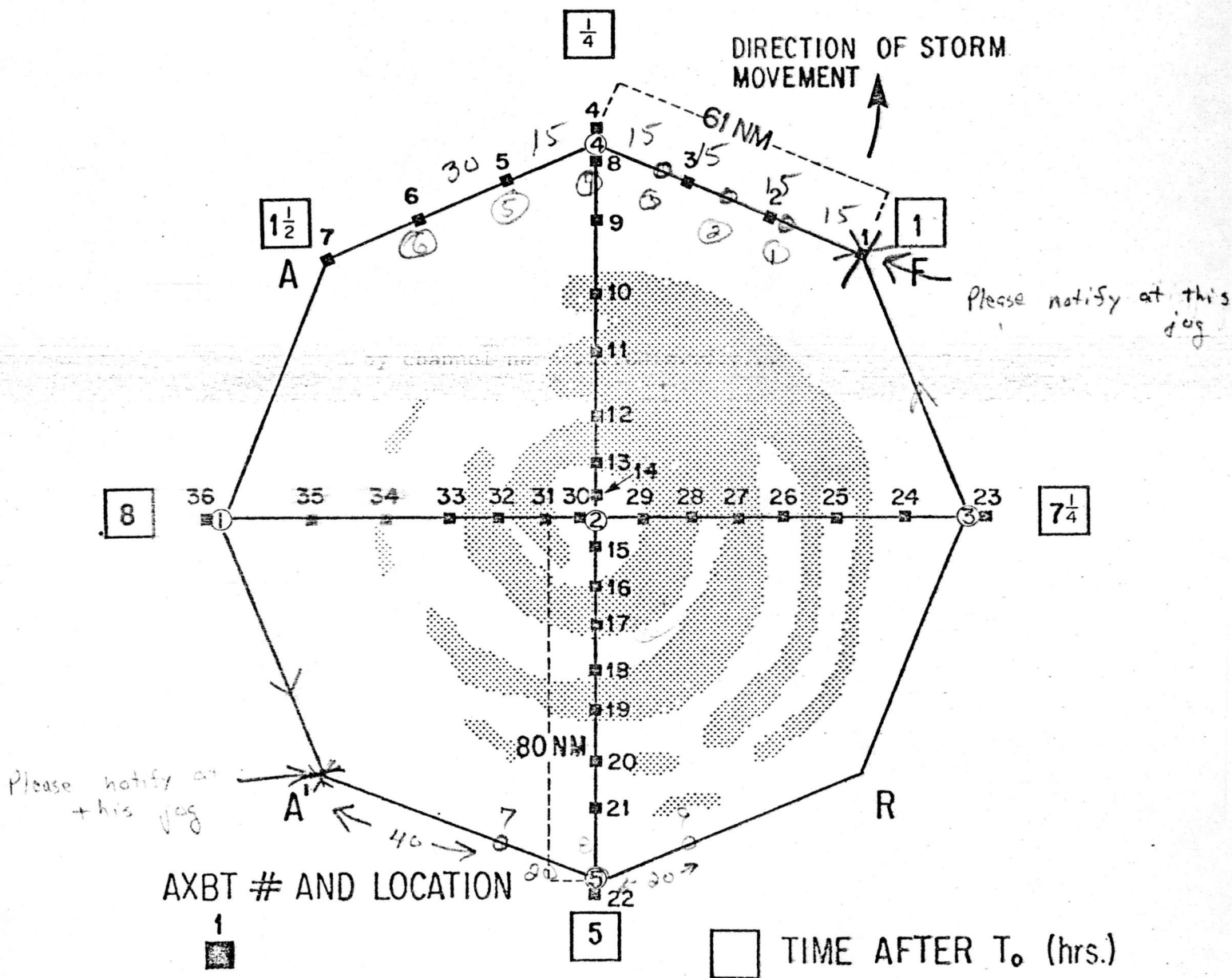
Flight 790911I

Contract No. _____

	<u>Number</u>
(1) Sondes on hand by channel no....CH12.....	<u>14</u>
....CH14.....	<u>3</u>
....CH16.....	<u>14</u>
Total.....	<u>31</u>
(2) Sondes used by channel noCH12.....	<u>14</u>
....CH14.....	<u>3</u>
....CH16.....	<u>13</u>
Total.....	<u>30</u>
(3) Failures with no signal.....	<u>4</u>
(4) Failures with carrier signal, but no modulation	<u>3</u>
(5) Failures with sea surface temperature but terminated above thermocline.....	<u>0</u>
(6) Probes which terminated above 250m but below thermocline.....	<u>0</u>
(7) Total Failures.....	<u>7</u>
(8) Failure rate.....	<u>23%</u>

1 sonde not
eject

PLAN AS-1 LONG TERM MONITORING PATTERN



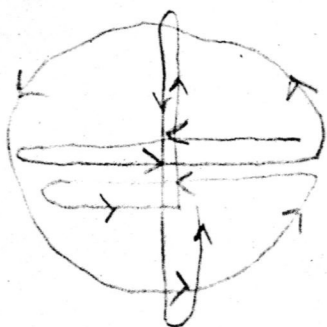
FLIGHT SEQUENCE

1-2-3-4-1-5-3-2-1-2-4-2-5-2-3-2-1-2-3-2-1

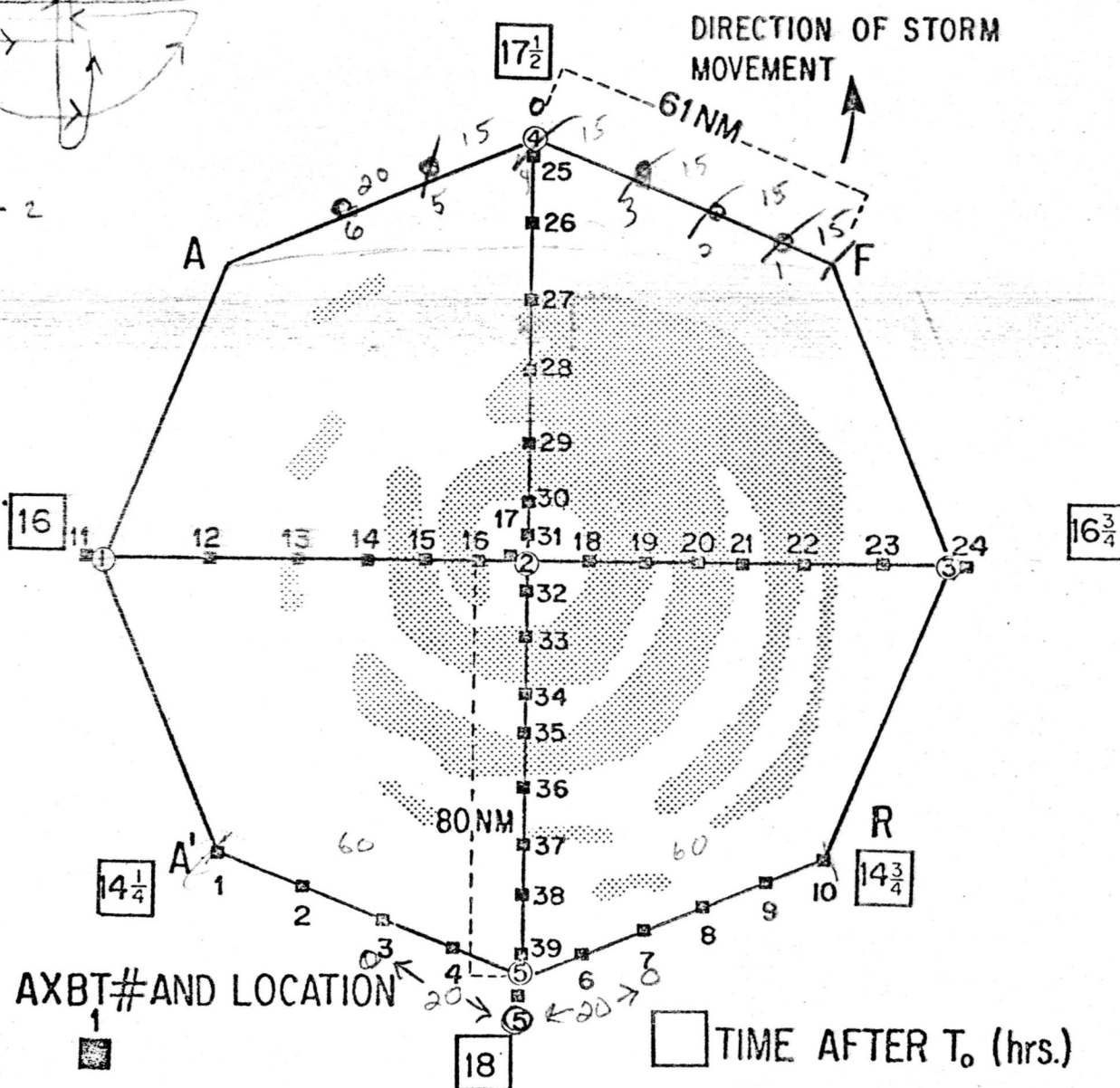
AXBT # 1-7 8-22 23-36

Figure E-1. Flight A1 and A3 (add 32 hours to times for A3).

Make Back All 15's if I want to save 1 BT on that leg for Researcher.



PLAN AS-1 LONG TERM MONITORING PATTERN



FLIGHT SEQUENCE:

1-5-3-4-1-2-3-2-4-2-5-2-3-2-1

AXBT #1-10 11-24 25-39

Figure E.2. Flight A2 and A4 (add 36 hrs to times for A4)

F-A
Back
Back
Across

45 - 15 - 15 - 15 - 15 - 20
40 - 20 - 20
15 - 15 - 15 - 12 - 12 - 12 - 12 - 12 - 12
30 - 20 - 15 - 15 - 15 - 15 - 15 - 15 - 20

78

Drop

Drop

9

10

30

SEA SURFACE RADIOMETER CHECK SHEET

FLIGHT 791011 I

SERIAL NO

date of last lab calibration

Calibration constants

LAST lab check on calibration date

Temperatures checked
in field

IR Temp Bath Te

Field check on calibration-time

Log every 1/2 hour

Time	IR Temp	IR Temp	AXBT Sfc	Flight level	Comments
	Digital Temp	Dial Temp	Temp		
	Voltmeter	CRT			
0000	100.0	100.0	100.0	100.0	
0005	100.0	100.0	100.0	100.0	
0010	100.0	100.0	100.0	100.0	
0015	100.0	100.0	100.0	100.0	
0020	100.0	100.0	100.0	100.0	
0025	100.0	100.0	100.0	100.0	
0030	100.0	100.0	100.0	100.0	
0035	100.0	100.0	100.0	100.0	
0040	100.0	100.0	100.0	100.0	
0045	100.0	100.0	100.0	100.0	
0050	100.0	100.0	100.0	100.0	
0055	100.0	100.0	100.0	100.0	
0100	100.0	100.0	100.0	100.0	
0105	100.0	100.0	100.0	100.0	
0110	100.0	100.0	100.0	100.0	
0115	100.0	100.0	100.0	100.0	
0120	100.0	100.0	100.0	100.0	
0125	100.0	100.0	100.0	100.0	
0130	100.0	100.0	100.0	100.0	
0135	100.0	100.0	100.0	100.0	
0140	100.0	100.0	100.0	100.0	
0145	100.0	100.0	100.0	100.0	
0150	100.0	100.0	100.0	100.0	
0155	100.0	100.0	100.0	100.0	
0200	100.0	100.0	100.0	100.0	
0205	100.0	100.0	100.0	100.0	
0210	100.0	100.0	100.0	100.0	
0215	100.0	100.0	100.0	100.0	
0220	100.0	100.0	100.0	100.0	
0225	100.0	100.0	100.0	100.0	
0230	100.0	100.0	100.0	100.0	
0235	100.0	100.0	100.0	100.0	
0240	100.0	100.0	100.0	100.0	
0245	100.0	100.0	100.0	100.0	
0250	100.0	100.0	100.0	100.0	
0255	100.0	100.0	100.0	100.0	
0300	100.0	100.0	100.0	100.0	
0305	100.0	100.0	100.0	100.0	
0310	100.0	100.0	100.0	100.0	
0315	100.0	100.0	100.0	100.0	
0320	100.0	100.0	100.0	100.0	
0325	100.0	100.0	100.0	100.0	
0330	100.0	100.0	100.0	100.0	
0335	100.0	100.0	100.0	100.0	
0340	100.0	100.0	100.0	100.0	
0345	100.0	100.0	100.0	100.0	
0350	100.0	100.0	100.0	100.0	
0355	100.0	100.0	100.0	100.0	
0400	100.0	100.0	100.0	100.0	
0405	100.0	100.0	100.0	100.0	
0410	100.0	100.0	100.0	100.0	
0415	100.0	100.0	100.0	100.0	
0420	100.0	100.0	100.0	100.0	
0425	100.0	100.0	100.0	100.0	
0430	100.0	100.0	100.0	100.0	
0435	100.0	100.0	100.0	100.0	
0440	100.0	100.0	100.0	100.0	
0445	100.0	100.0	100.0	100.0	
0450	100.0	100.0	100.0	100.0	
0455	100.0	100.0	100.0		

[illegible]

26
26.16
193

32

Flight No 790911I Julian Day _____ AXBT Contract No. _____
 Takeoff time 1950 Landing time _____
 On station time _____ Depart station time _____
 Operator Hawkins
 Time _____
 Rm _____
 Vm _____
 Pm _____

AXBT CHECK SHEET

AXBT	Chan- nel#	Lot# yr	Predicted Drop Time (HHMMSS)	Actual Drop Time (HHMMSS)	Predicted Lat Deg Min	Predicted Long Deg Min	Actual Lat Deg Min	Actual Long Deg Min	Surface Temp AXBT IRT	MLD (m)	Comments
			Will try a drop along line				near 42's	drops			
#7	16	I8	232900	233200	—	—	24.47	84.96	28.8	27.2	OK
#8	12	I2	—	233608	—	—	24.79	84.90	28.2	26.4	OK
#9	16	I7	—	234050			25.12	84.76	26.1	26	OK
			Tried to drop along 42's line								
			Turned too sharply N to overlay								
			Did get cool SST in this SE quad								Upwelling?

3200

Flight No 790911T Julian Day _____ AXBT Contract No. _____
 Takeoff time 1450 Z Landing time _____
 On station time _____ Depart station time _____

Operator Hawkins
 Time _____
 Rm _____
 Vm 120 _____
 Pm 956 _____

#3

Along track

AXBT CHECK SHEET

	AXBT	Chan- nel#	Lot# yr	Predicted Drop Time (HHMMSS)	Actual Drop Time (HHMMSS)	Predicted Lat Deg Min	Predicted Long Deg Min	Actual Lat Deg Min	Actual Long Deg Min	Surface Temp AXBT IRT	MLD (m)	Comments
1	10	12	A1	—	003845	—	—	27.17	87.39	29.3	27	✓
2	11	16	A2		005010	—	—	26.81	86.77		—	None
3	12	12	A3	005400	005345	—	—	26.64	86.59	29.0		✓
4	13	16	A4	005750	005750	—	—	26.46	86.39	28.4	27.6	✓
5	14	12	B1	010140	010140	—	—	26.35	86.23	29.1	26	✓
6	15	16	B2	010530	010530	—	—	26.14	86.00			?
7	16	12	B3		010900	EYE		25.95	85.94	29.0		✓
8	17	16	B4		011400	100 kt		25.69	85.72	28.9	26	✓
9	18	12	C1	011745	011745	—		25.49	85.61	28.4	27	✓
10	19	16	C2	012235	012235	60 kt		25.24	85.44	27.6	28	✓
11	20	12	C3		013020	40 kt		24.84	85.14	28.0	26	✓

Began 120 miles in front of storm
 changed pattern to accommodate!

5000'

Flight No 790911 Julian Day _____ AXBT Contract No. _____
Takeoff time 1950 Landing time _____
On station time _____ Depart station time _____

Operator Hawkins

Time 0201 _____

Rm _____

Vm 95 KT 100 KT 100 KT _____

Pm 956 954 954 955 _____

#4 #5 #6 #7

Across Track

AXBT CHECK SHEET

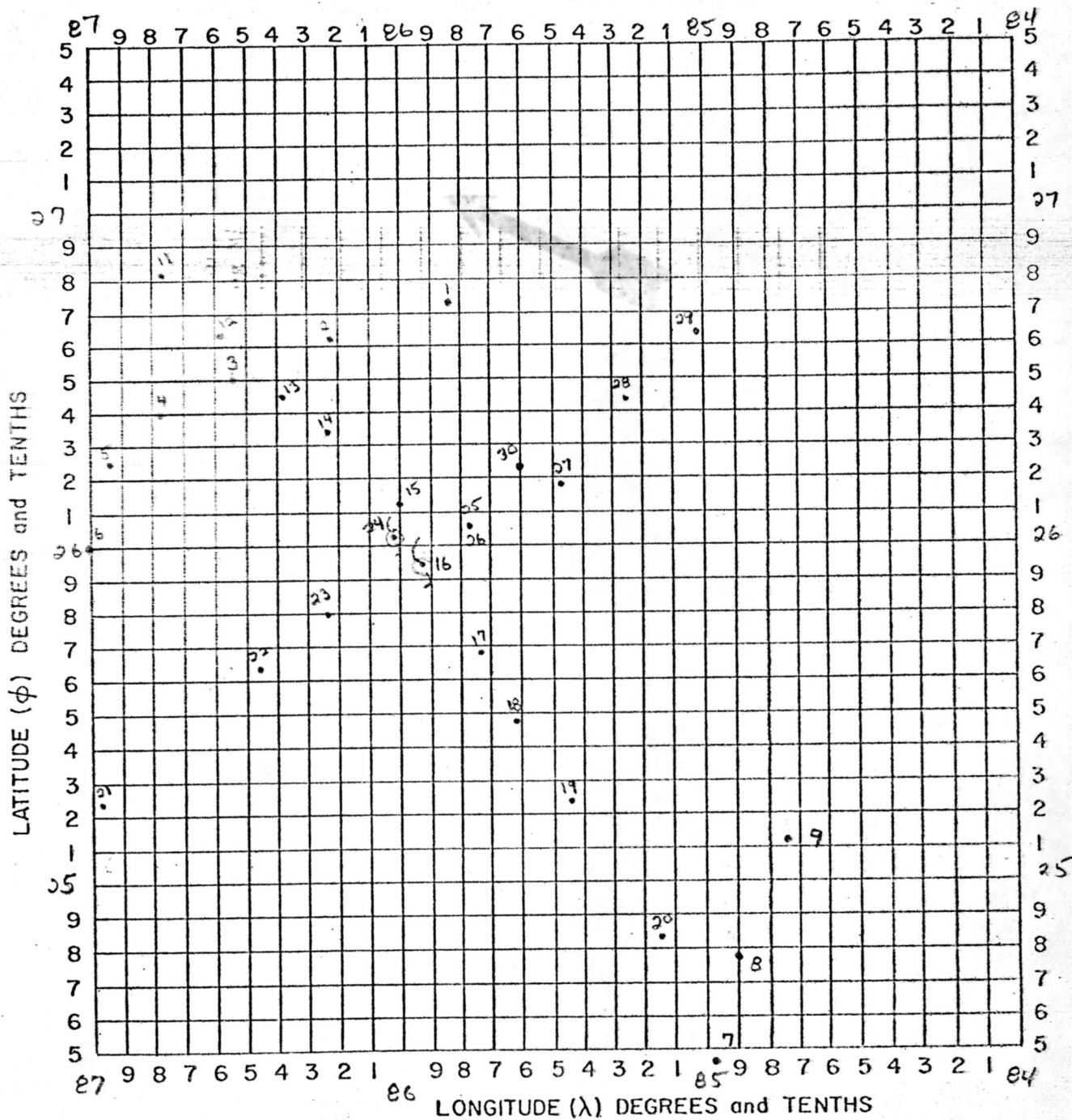
AXBT	Chan- nel#	Lot# yr	Predicted Drop Time (HHMMSS)	Actual Drop Time (HHMMSS)	Predicted Lat Deg Min	Predicted Long Deg Min	Actual Lat Deg Min	Actual Long Deg Min	Surface Temp AXBT IRT	MLD (m)	Comments
1 21	16	D1	—	021800	Tape change during		25.27	86.97	29.1	24	✓
2 22	12	D2	022524	022710	—	—	25.64	86.45	28.9	24	✓
3 23	16	E2	023040	023055	80 KT		25.80	86.23	27.3	24	✓
4 24	12	F1	—	023555	EYE		25.63	85.91	28.2	27	✓
5 25	16	F1	023940	023940	100 KT		26.05	85.67		—	Carrier —
6 26	12	F3	024322	024322	85 KT		26.19	85.47		23	Dud
7 27	16	F3	024700	024740			26.43	85.25	27.9	21	✓
8 28	12	G1	025130	025210			26.63	85.01	missed	23	✓
9 29	16	G4	025600		Delay	Go back	4	long	over	back	BT 4
10 30	16	G4		031000	100 KT		26.24	85.60	28.4	20	✓

F2 ? Didn't fire

D3 No buoy fired - no light in tube

Brad said G3 was a rotor, there was no G3 onboard!

HURRICANE RECCO PLOTTING CHART



DATE 790911I

OBSERVER Hawkins

NOTE: Label full degrees according to location of flight area

