

19900831 H1 - LPS

E.2 Lead Project Scientist (On-Board)

900831 H
Gustav

E.2.1 Preflight

- JM 1. Participate in general mission briefing.
- JM 2. Determine specific mission and flight requirements for assigned aircraft.
- JM 3. Determine from CARCAH or field program director whether aircraft has operational fix responsibility and discuss with AOC flight director/meteorologist and CARCAH unless briefed otherwise by field program director.
- JM 4. Contact HRD members of crew to:
 - a. Assure availability for mission.
 - b. Arrange ground transportation schedule when deployed.
 - c. Determine equipment status.
- JM 5. Meet with AOC flight crew at least 90 minutes before takeoff, provide copies of flight requirements and provide a formal briefing for the flight director, navigator, and pilots.
- JM 6. Report status of aircraft, systems, necessary on-board supplies and crews to appropriate HRD operations center (MGOC in Miami or FGOC at remote recovery location).

E.2.2 In-Flight

- JM 1. Confirm from AOC flight director that satellite data link is operative (information).
- JM 2. Confirm camera mode of operation.
- JM 3. Confirm data recording rate.
- JM 4. Complete Form E-2.

E.2.3 Postflight

- JM 1. Debrief scientific crew.
- _____ 2. Report landing time, aircraft, crew, and mission status along with supplies (tapes, etc.) remaining aboard the aircraft to the appropriate HRD operations center (MGOC or FGOC).
- _____ 3. Gather completed forms for mission and turn in at the appropriate operations center. [Note: all data removed from the aircraft by HRD personnel should be cleared with the AOC flight director.]
- _____ 4. Obtain a copy of the 10-s flight listing from the AOC flight director. Turn in with completed forms.
- _____ 5. Determine next mission status, if any, and brief crews as necessary.
- _____ 6. Notify the appropriate operations center (FGOC or MGOC) as to where you can be contacted and arrange for any further coordination required.

On-Board Lead Project Scientist Check List

Date 900831H Aircraft 42RF Flight ID 900831H

A. Participants

HRD		OAO	
Function	Participant	Function	Participant
Lead Proj. Sci.	<u>MARKS</u>	Flight Director	<u>Bogert</u>
Cloud Physics	<u>R. Black</u>	Pilots	<u>Mckinn/Ticknor</u>
Radar	<u>M. Black</u>	Navigator	<u>Shana White</u>
Workstation	<u>—</u>	Sys. Engr.	<u>Moore/Wade</u>
Photographer	<u>—</u>	Data Tech.	<u>Raines</u>
Omegasonde	<u>—</u>	El. Tech.	<u>Roles</u>
AXBT/AXCP	<u>—</u>	Other	<u>Gonzalez</u>

Take-Off 1534g Location Bermuda Landing 0005Z Location Bermuda
32°21.6' 64°40.4' 32°18.3' 64°40'
on end of 30 runway

B. Past and Forecast Storm Locations

Date/Time	Latitude	Longitude	MSLP	Max. Wind
<u>31/18Z</u>	<u>33°N</u>	<u>56°36'W</u>	<u>—</u>	<u>—</u>
<u>31/1140Z</u>	<u>31°46'</u>	<u>57°10'W</u>	<u>—</u>	<u>—</u>
<u>31/1341Z</u>	<u>32°06'</u>	<u>57°06'W</u>	<u>962</u>	<u>95 kts</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

movement
secondary wind max at 80km.
20 mi eye

C. Mission Briefing

energetics experiment

D. Equipment Status

Equipment	Pre-Flight	In-Flight	Post-Flight
Aircraft	Jm	Jm	✓
Radar/LF	Jm	DMTR #1 (down in flight)	✓
Radar/TA (Doppler)	Jm	Jm/RCC problem	✓
Cloud physics	Jm	Jm	✓
Data system	Jm	Jm	✓
Omegasondes	Jm	Jm	✓
AXBT/AXCP	Jm	Jm	✓
Workstation	—	—	—
Photography	Jm	Jm	✓

Tapes

8/2400 6/1200

25

1

6/all good

18/3 bad

~~WE DID IT!!!~~
REMARKS: Good flight

- lots of minor irritations and problems.

Radar

1846 radar ^{system} thought it was in FAST when it was n't
1910 took system down in flight, restarted.

BASF tapes were shitty - caused real tape drive problems
DMTR #1 eventually failed at 2043. Mike used DMTR #2
only from 2043 on (keeping up as best as possible) using
1200 ^{3M} tapes to avoid crapping out DMTR #2. Recommend
AOC get rid of those old tapes (Phil thinks they have been
around a while. Next lets just bring our own.
data looked blocky only once

Cld Phys.

end diodes voltages are low on both probes → Clear air
Image monitor failed - was intermittent. / Formatter reset 3 times
Last pass through eye got good ice at highest we've been since
Irene.

Well Alright!

E. I. Proposed Flight Pattern (sketch or designate by number)

see attached sheets

E. II. Actual Flight Pattern

executed as planned 7 penetrations

last penetration

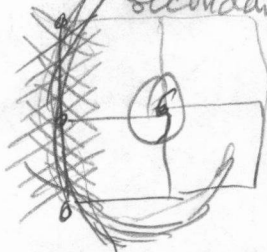
from SE → G → W ← 

No EVAD's although we had outside turns at all points at 10000'

WE DID IT!!
FINALLY!!

146 FAST on West ^{N→S} leg

large rainband with secondary wind max



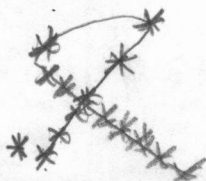
and in Fig. 4. at 5000'



FAST was taken along inside edge of low level wind max surrounding eye.

ODW - 4 at cardinal points and in G at 10000'
1 in G at 22000'

AXBT's -



15 good ones 3 bad ones

Lead Project Scientist Event Log

Date _____ Flight _____ LPS _____

[illegible]

Lead Project Scientist Event Log

#1

Date 8/31/90

Flight 900831 H

LPS Marlin

Time	Event	Position	Comments
151349	T.O.	32°21.6" 64°40.0"	runway
			43 first drop failed
1629	descent	32°33" 58°14"	start descent to IP
	TH working good		Storm has smaller eye
163450	IP	32°30" 58°06"	TK 090
			outer wind max 50nm out ODW 1635 2 (today good)
164940	6	32°45" 56°46"	outside turn in eye
			~80 kts TK 180 no bumps
1708	2	31°50" 56°30"	outside turn TK 090
			2nd wind max ~57nm 170850 ODW (good)
172117	3	31°50" 55°30.4"	outside turn TK 360
			(CHOTENSE?) boxing monster stratiform region 40dBZ
173448	4	32°52" 55°31"	outside turn TK 270
			N side of storm not as wet as SE side
1753	6	32°54" 56°43"	outside turn to TK 360
			storm motion 020/10 ODW (good) 175650 splash 1962
181025	5	33°54" 56°39"	outside turn TK 270
			north side real weak 60kt peak
182345	6	33°51" 57°48.4"	inside turn TK 180
			FAST started in turn for S leg.
1835	IP2	32°57" 57°48"	storm TK 180

15nm east of what we thought tracking more NE

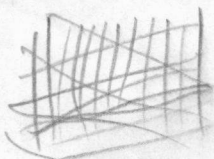
S wall

winds much stronger S of center sustained 180 kts

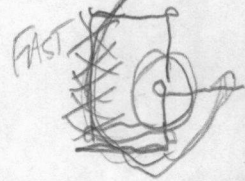


40-50 kts most of 1702-95

2h



looks upside down



25 total penetrations 42. in
#4 in GUSTAV

#4

Date 8/31/90

Flight 900831H

LPS Mauls

[illegible]

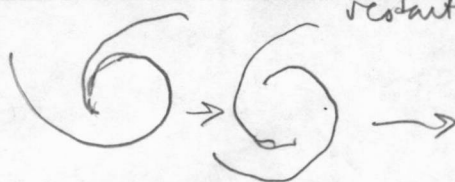
TK 270 out of storm at 500m	
ODW 223019 good	972mb splash

Lead Project Scientist Event Log

#2

Date 8/31/90 Flight 900831 H LPS Manly

Time	Event	Position	Comments
184530	7	32°5" 57°49"	outsideturn TK 090
		1852 TA acting up	intermittent FAST
		1854 interesting Doppler	on outwards max
		looks like mini eye wall	
1900	Neal and Jim checking radar		Neal says the RCU thinks it is still in FAST made even though it isn't.
190143	2	32°3.2" 56°18.5"	outside turn TK 360°
		will wake on radar in the 6	191756
1919	6	33°13" 56°25"	orbiting in 6 radar system
	1930 Radar up		030/16+ kts
		1930	TK 090 eye open NE
194520	4	33°15" 55°10"	outside turn TK 860
		1947	ODW (looks good)
195840	8	34°22" 55°13"	outside turn TK 270
2011	5	34°22" 56°16"	outside turn TK 180
	Mike says tapes from 43 getting switching to 1200 tapes		ODW 201430 (Looks good)
2028	6	33°27" 56°12"	040/17 kts motion
2044	1	33°29" 57°21"	turn TK 152 to ID#3
	2043 TA radar down restarting.		start descent to 500'



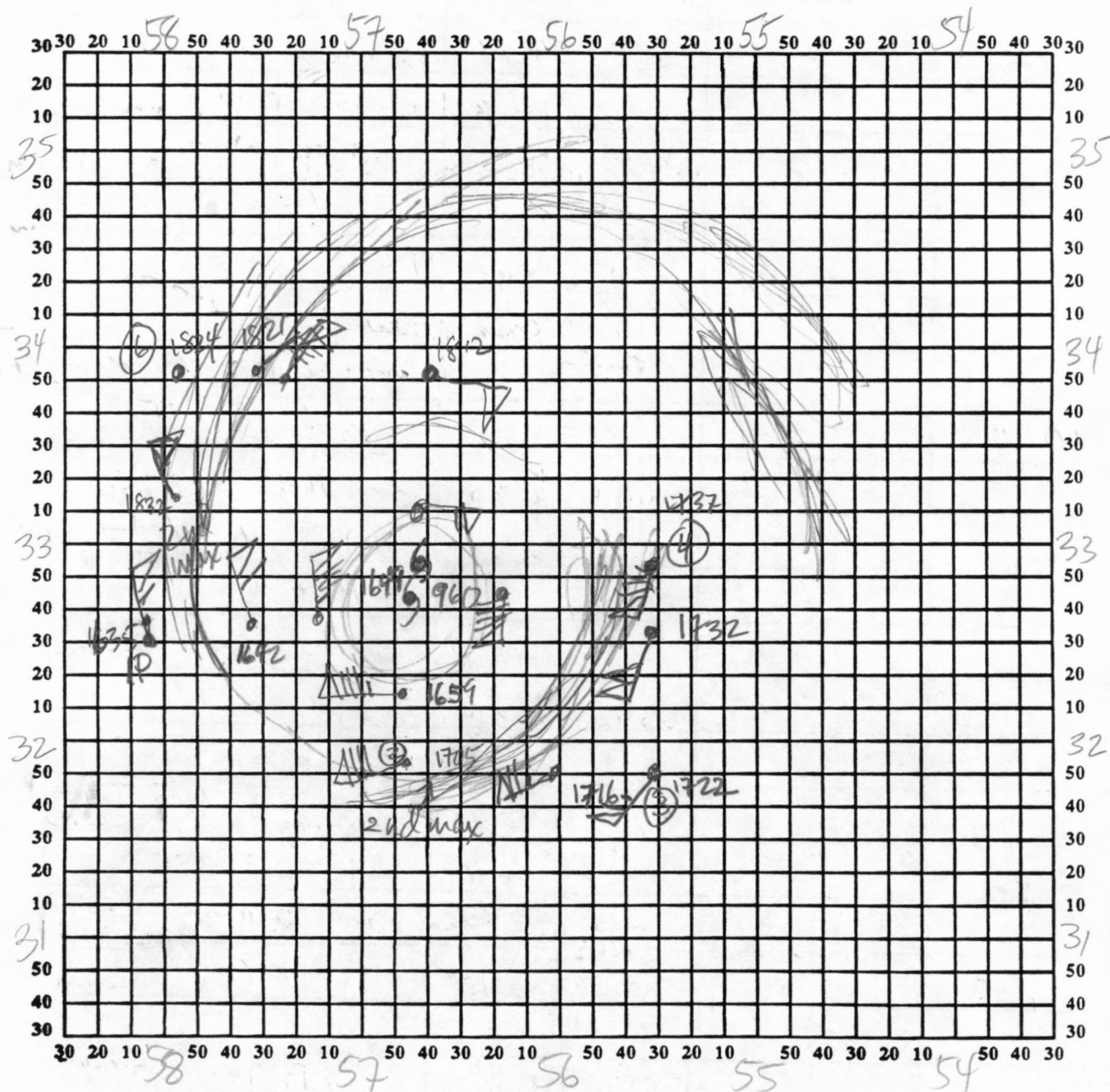
eye looks like interlocking spirals that replace each other like David's Miami except upside down

Hurricane Recco Plotting Chart

True at 25° Latitude, in Degrees and Minutes

#1

Date 8/31/90 Aircraft 42RF Observer Markus



Note: Label full degrees according to location of flight area.

Lead Project Scientist Event Log

#3

Date 8/31/90 Flight 9008314 LPS Marlin

Time	Event	Position	Comments
2101	1P#3	32°50' 56°50"	5000' TK 045 SST
			BT#1 205120 bad
			BT#2 205540 good 25.2
			BT#3 210650 good 25.6
			BT#4 211320 good 25.6
211955	G	33°40' 56°00"	964mb
			BT#5 211955 26.2
			BT#6 212913 26.2
2136	2'	34°25' 55°18' 4"	
		132/91	BT#7 214309 26.8
215055	3'	34°6' 56°26"	flying along the side of the sec.
			BT#8 215055 26.6 max
			BT#9 215320 26.7 FAST
2159	G	33°51' 56°01"	BT#10 215930 24.7 part of the time
			BT#11 220440 25.0 only have one TD
			BT#12 220630 bad
			BT#13 220910 25.6 Mike
			BT#14 221111 25.3 changing when we can
2214	4'	33°11' 55°8' 1"	BT#15 221315 25.2 using 1200' reels
			BT#16 221440 24.7
			BT#17 221540 24.7
			BT#18 221557 bad

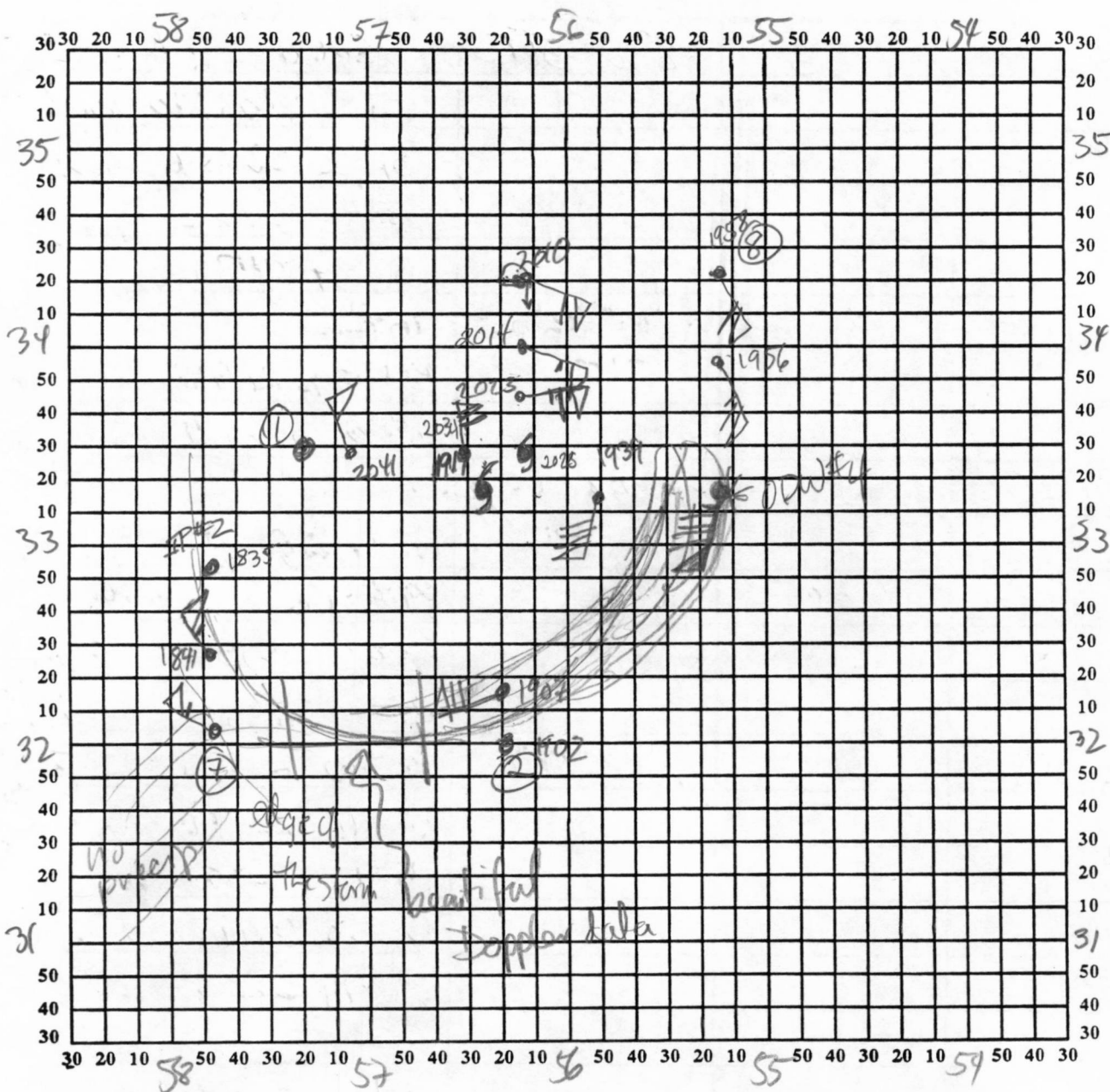
Climb as high as possible TK 315 to G

Hurricane Recco Plotting Chart

True at 25° Latitude, in Degrees and Minutes

#2

Date 8/31/90 Aircraft 42 RF Observer Marler



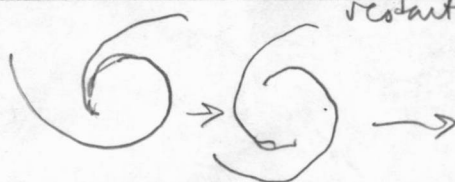
Note: Label full degrees according to location of flight area.

Lead Project Scientist Event Log

#2

Date 8/31/90 Flight 900831 H LPS Manly

Time	Event	Position	Comments
184530	7	32°5" 57°49"	outsideturn TK 090
		1852 TA acting up	intermittent FAST
		1854 interesting	Doppler on outwind max
		1858 looks like	mini eye wall
1900	Neal and Jim checking	radar	Neal says the RCU thinks it is still in FAST made even though it isn't.
190143	2	32°3.2" 56°18.5"	outside turn TK 360°
		will wake on radar in the 6	191756
1919	6	33°13" 56°25"	orbiting in 6 radar system down in 6
	1930 Radar up		030/16+ kts
		1930	TK 090 eye open NE storm seems to be unwinding as it changes trk and picks up speed.
194520	4	33°15" 55°10"	outside turn TK 860
		1947	ODW (looks good.)
195840	8	34°22" 55°13"	outside turn TK 270
2011	5	34°22" 56°16"	outside turn TK 180
	Mike says tapes from 43 getting switching to 1200 tapes		ODW 201430 (Looks good)
2028	6	33°27" 56°12"	040/17 kts motion
2044	1	33°29" 57°21"	turn TK 152 to ID#3
	2043 TA radar down		start descent to 500'



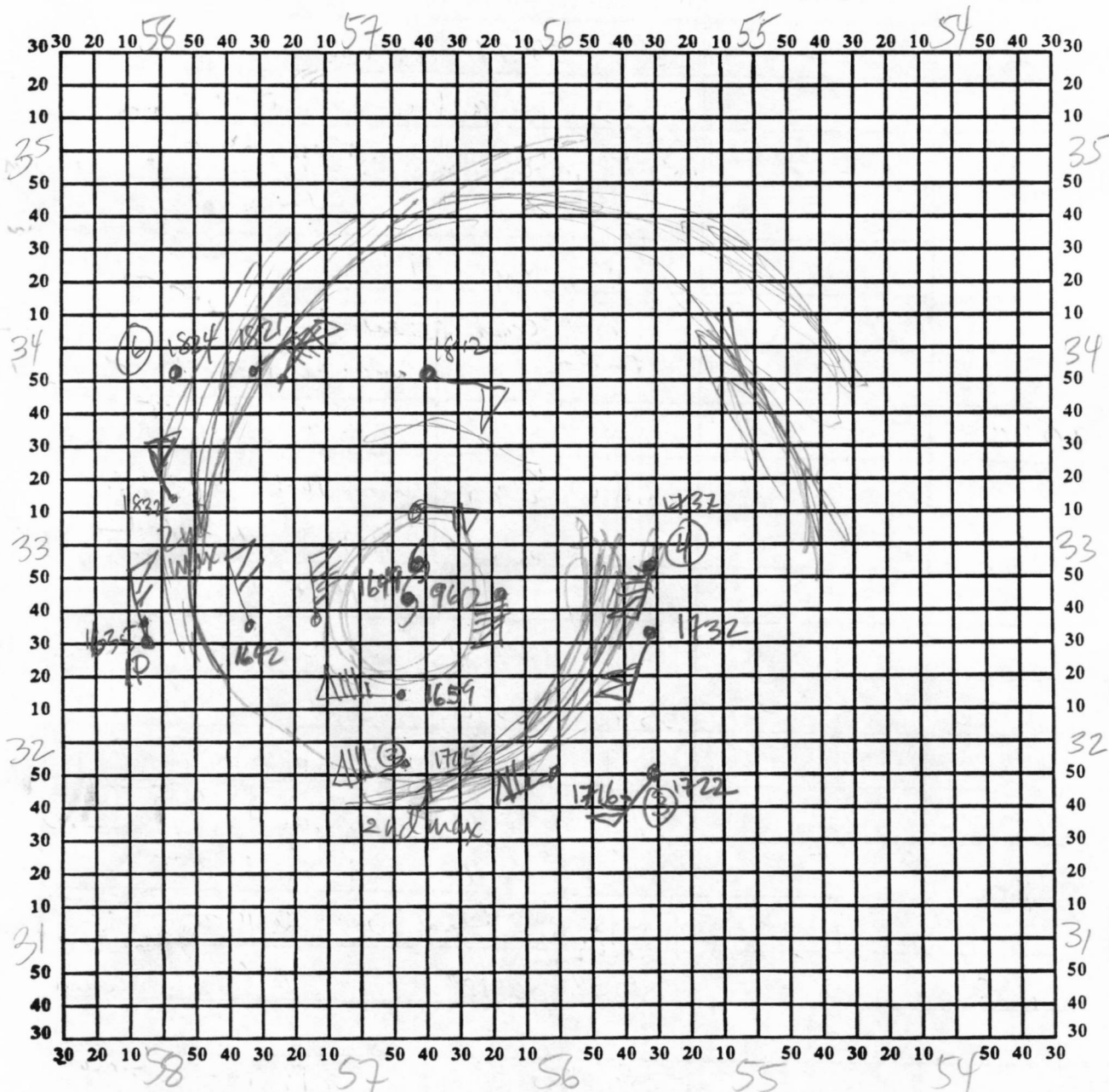
eye looks like interlocking spirals that replace each other like David's Miami except upside down

Hurricane Recco Plotting Chart

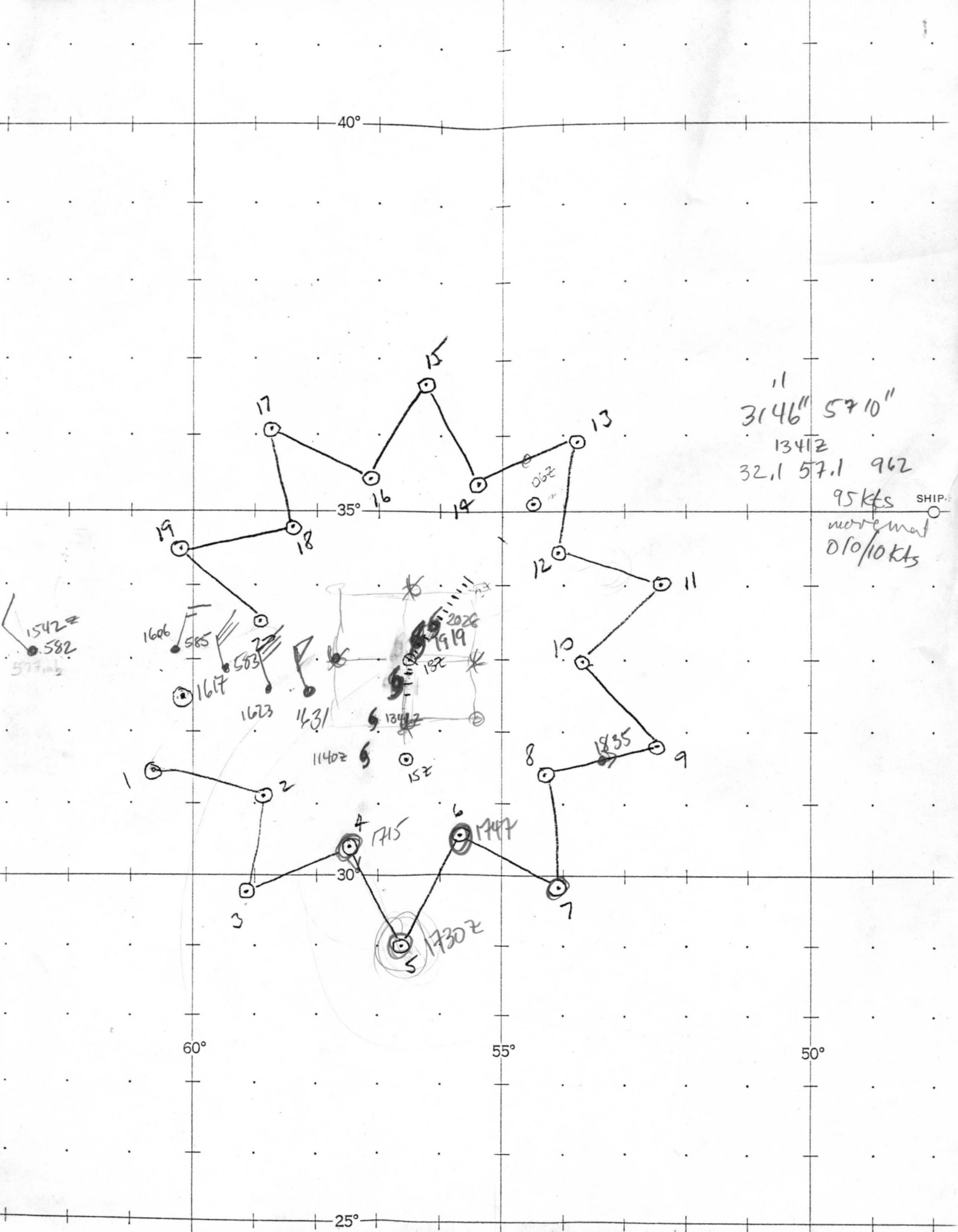
True at 25° Latitude, in Degrees and Minutes

#1

Date 8/31/90 Aircraft 42RF Observer Markus



Note: Label full degrees according to location of flight area.



31 46" 57 10"

134 1/2
32.1 57.1 962

95 kts
movement 0/0/10 kts

SHIP

1542
582
577

1606
585
583
1617
1623

1431

1342

152

1140

1715

1747

1730

1835

Lead Project Scientist Event Log

#3

Date 8/31/90 Flight 900831H LPS Marlin

Time	Event	Position	Comments
2101	1P#3	32°50' 56°50"	5000' TK 045 SST
			BT#1 205120 bad
			BT#2 205540 good 25.2
			BT#3 210650 good 25.6
			BT#4 211320 good 25.6
211955	6	33°40' 56°00"	964mb
			BT#5 6 211955 26.2
			BT#6 212913 26.2
2136	2'	34°25.5' 55°18.4"	
		132/91	BT#7 214309 26.8
215055	3'	34°6' 56°26"	flying along the side of the sec.
			BT#8 215055 26.6 max
			BT#9 215320 26.7 fast
2159	5	33°51' 56°01"	BT#10 215930 24.7 putty
			BT#11 220440 25.0 the
			BT#12 220630 bad only have
			BT#13 220910 25.6 one TD
			BT#14 221111 25.3 Re. Mike
2214	4'	33°11' 55°01"	BT#15 221315 25.2 changing
			BT#16 221440 24.7 when
			BT#17 221540 24.7 we
			BT#18 221557 bad can

Climb as high as possible TK 315 to 6

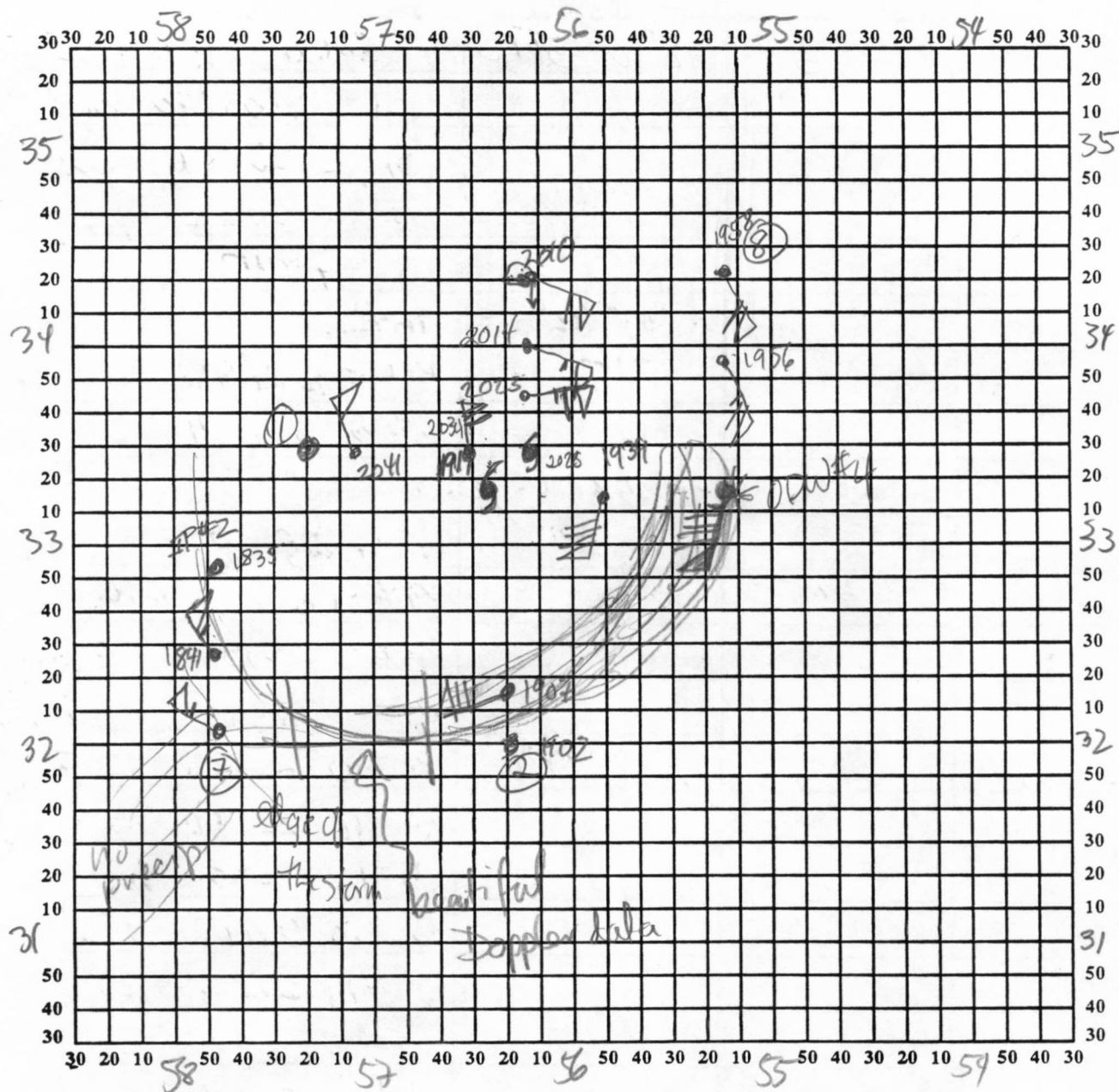
1200" reels

Hurricane Recco Plotting Chart

True at 25° Latitude, in Degrees and Minutes

#2

Date 8/31/90 Aircraft 42RF Observer Marler



Note: Label full degrees according to location of flight area.

Lead Project Scientist Event Log

Date 90/08/31 Flight _____ LPS _____

GUSTAV

Time	Event	Position	Comments
1	31.4 60.65		
2	31.1 58.9		
3	29.8 59.1		
4	30.4 57.4		
5	29.0 56.65		
6	30.6 55.7		
7	29.85 54.1		
8	31.4 54.2		
9	31.8 52.45		
10	33.0 53.6		
11	34.0 52.45		
12	34.4 54.05		
13	35.9 53.8		
14	35.35 55.4		
15	36.7 56.0		
16	35.4 57.1		
17	36.1 58.8		
18	34.8 58.4		
19	34.5 60.2		
20	33.5 59.0		

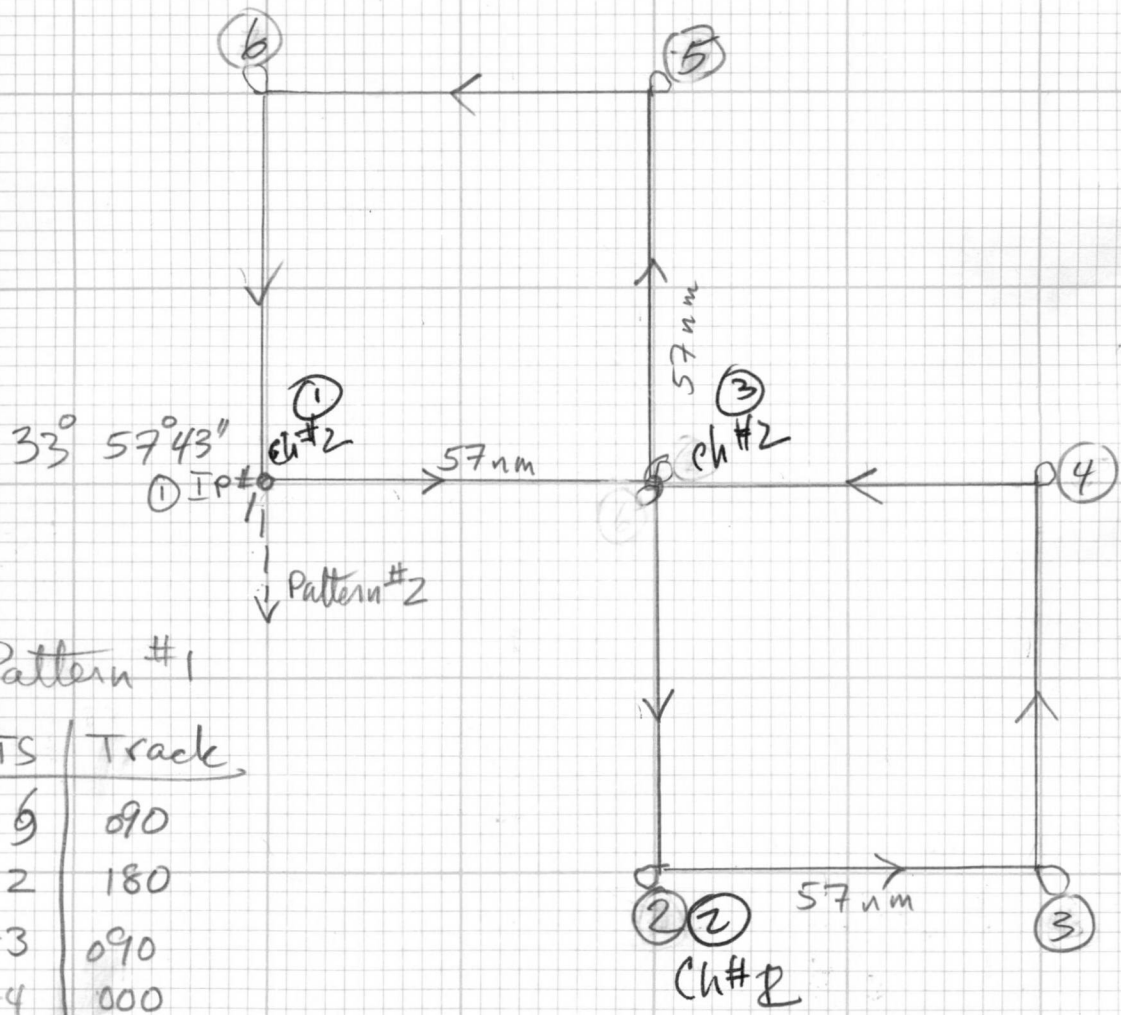
7 penetrations max

$$\frac{42 \text{ RF}}{10000'}$$

#1

$$\frac{182 \text{ } 33 \text{ } 56^{\circ} 36''}{57.15}$$

Pattern #1 10000' RA

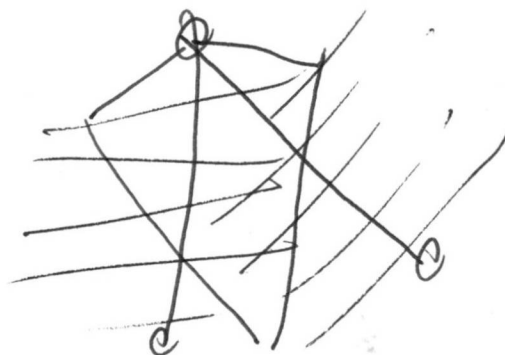
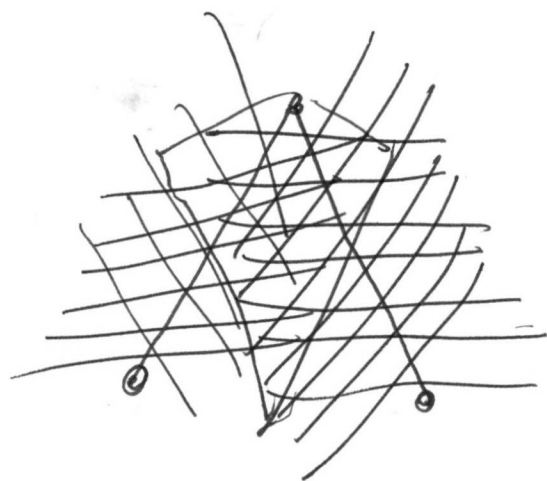


Pattern #1

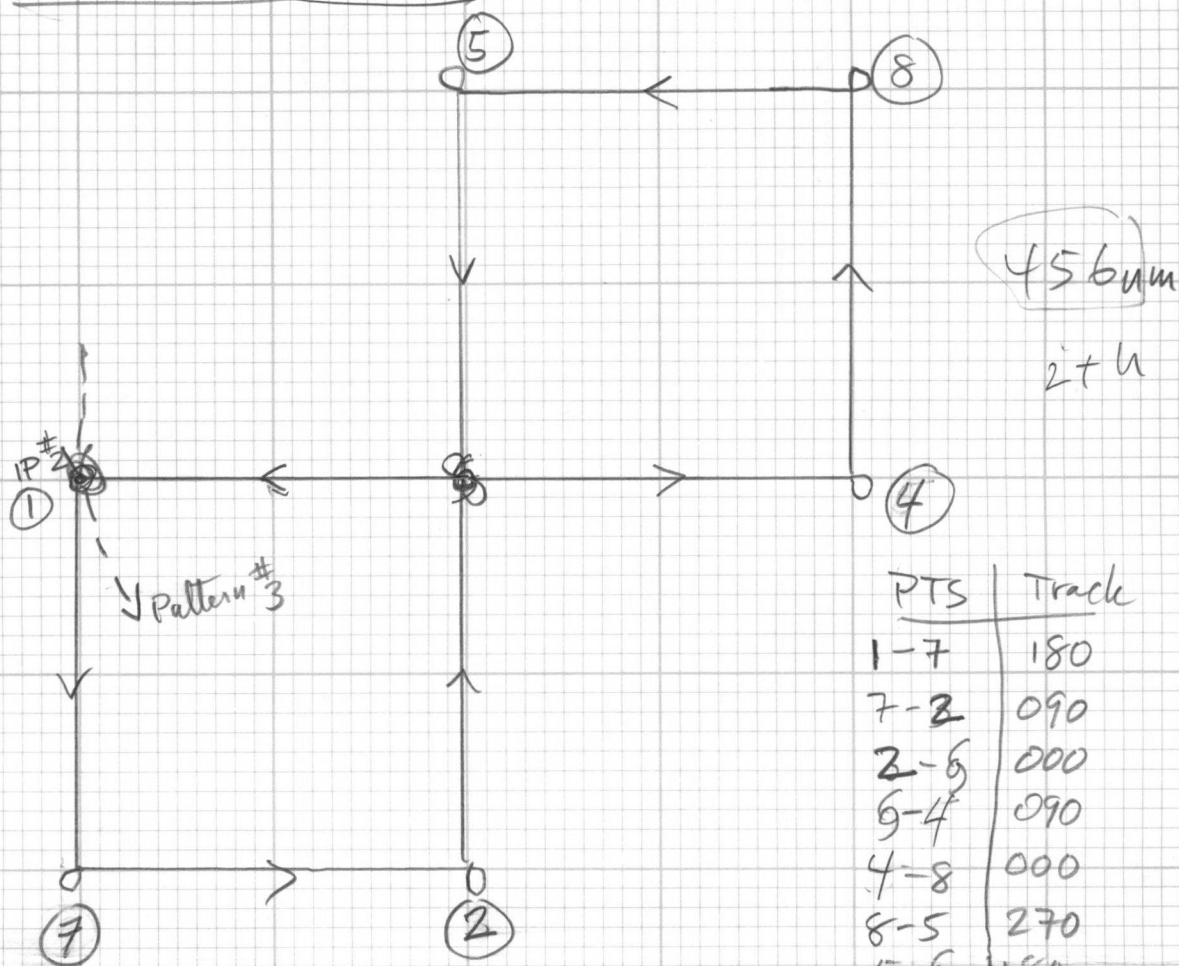
PIS	Track
1-6	090
6-2	180
2-3	090
3-4	000
4-5	270
5-6	000
5-6	270
6-1	180

57 mmi legs

$$\frac{57}{8} = 456 \text{ mmi}$$



Pattern #2 10000' RA



PTS	Track
1-7	180
7-2	090
2-6	000
6-4	090
4-8	000
8-5	270
5-6	180
6-1	270

Pattern #3 5000' RA

PT	Track
IP-2	045
2-3	270
3-4	135

