

E.2 Lead Project Scientist (On-Board)

E.2.1 Preflight

1. Participate in general mission briefing.
2. Determine specific mission and flight requirements for assigned aircraft.
3. Determine from CARCAH or field program director whether aircraft has operational fix responsibility and discuss with OAO flight director/meteorologist and CARCAH unless briefed otherwise by field program director.
4. Contact HRD members of crew to:
 - a. Assure availability for mission.
 - b. Arrange ground transportation schedule when deployed.
 - c. Determine equipment status.
5. Meet with OAO 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.
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

1. Confirm from OAO flight director/meteorologist that satellite data link is operative (information).
2. Confirm camera mode of operation. NOT OPERATE ID
3. Confirm data recording rate.
4. Complete Form E-2.

E.2.3 Postflight

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 OAO flight director.]
4. Determine next mission status, if any, and brief crews as necessary.
5. 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 20SEP90 Aircraft N422F Flight ID 900920H

A. Participants

HRD		OAO	
Function	Participant	Function	Participant
Lead Proj. Sci.	<u>WILLOUGHBY</u>	Flight Director	<u>BOGERT</u>
Cloud Physics	<u>R. BLACIC</u>	Pilots	<u>TURNER LAYDON</u>
Radar	<u>DOBEST</u>	Navigator	<u>WHITE</u>
Doppler	<u>M. BLACK</u>	Sys. Engr.	<u>ROLLS</u>
Photographer	<u>BURPEE</u>	Data Tech.	
Omegasonde		El. Tech.	
AXBT/AXCP		Other	

Take-Off 20/1407 Location BDO5 Landing Location

B. Past and Forecast Storm Locations

Date/Time	Latitude	Longitude	MSLP	Max. Wind
<u>20/18</u>	<u>16</u>	<u>50.5</u>		<u>40kt</u>

C. Mission Briefing

FLY 2 FIG 4s, LEGS NW-SE-NE-SW

D. Equipment Status

<u>Equipment</u>	<u>Pre-Flight</u>	<u>In-Flight</u>	<u>Post-Flight</u>
Aircraft	↑	↑	↑
Radar	↑	↑	↑
Cloud physics	↑ ①	↑	↑
Data system	↑	↑	↑
Omegasondes	—	—	—
AXBT/AXCP	—	—	—
Doppler	↑	↑	↑
Photography	—	—	—

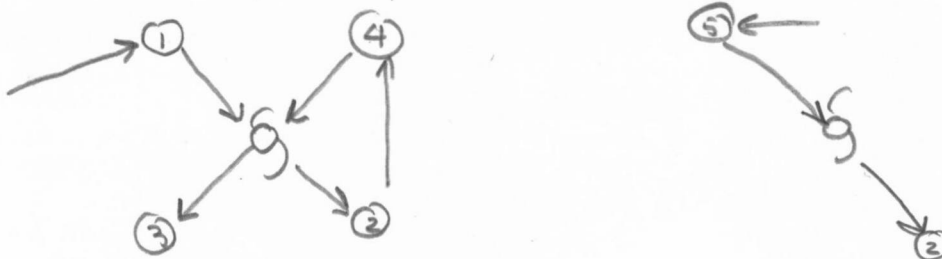
REMARKS:

① ONLY PRECIP PROBE GOOD

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



E. II. Actual Flight Pattern

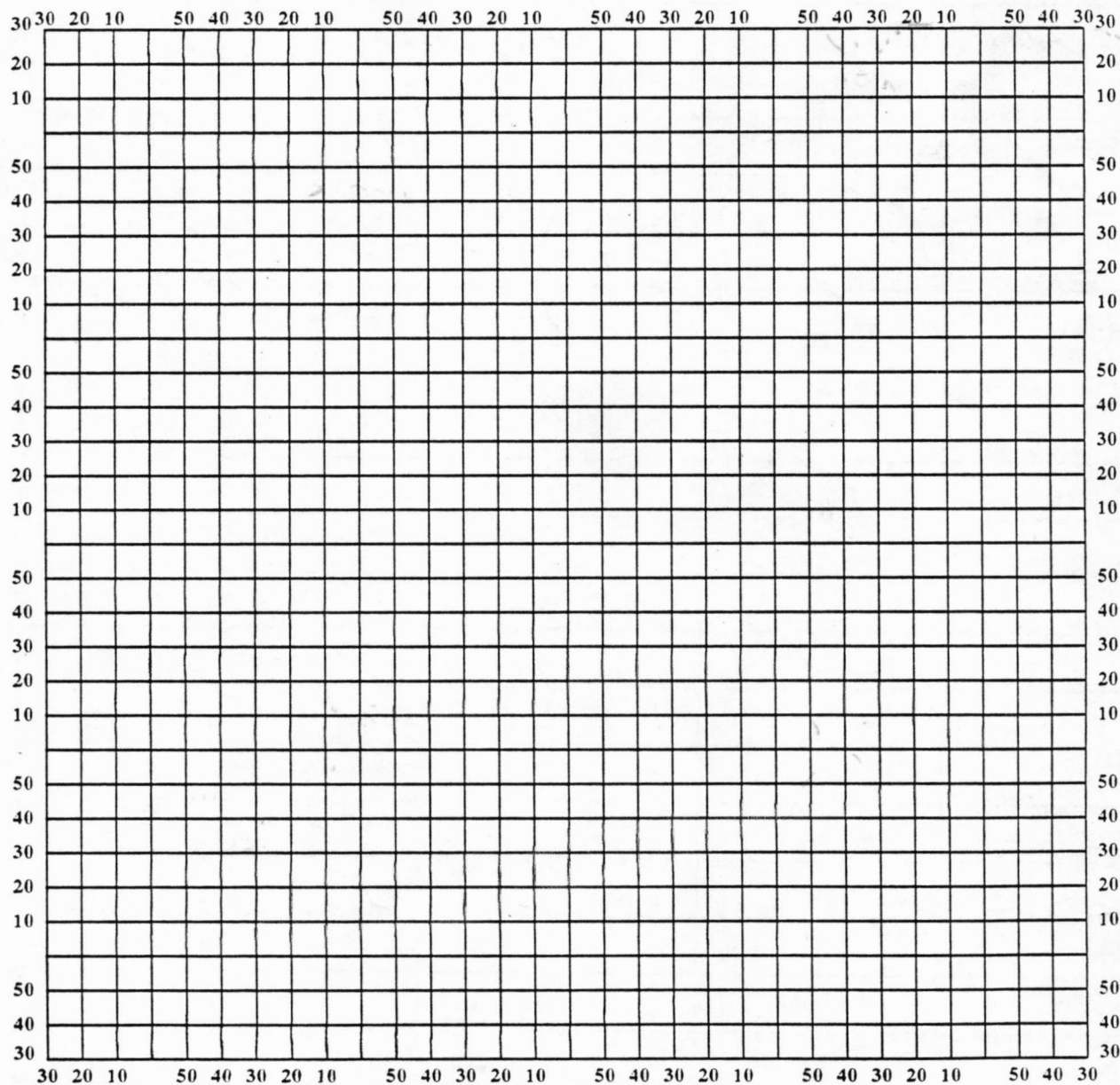


CHANGES: LEG ⑤ ← ④ SHORTENED

Hurricane Recco Plotting Chart

True at 25° Latitude, in Degrees and Minutes of ϕ and λ .

Date _____ Longitude _____ Observer _____



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

TD 11

100

Lead Project Scientist Event Log

Date 20 SEP 90

Flight 900920H

LPS WILLOUGHBY

Time	Event	Position	Comments
20/1407	T/O	BARBADOS	
20/1541	RADAR RECORDING ON		
1550	LEAVE 17KFT	16° 49' 52° 30'	
1602	IP #1	17° 11' 51° 45'	TRAK 135 → 6 FLYING PA
1643	6	16° 44' 49° 26'	SLP 1004 TRAK SE → #2
1710	#2	15° 36' 48° 17'	TRAK W → #3
1748	#3	15° 33' 50° 38'	TRAK NE TO 6
1815	6	16° 53' 49° 33'	TRAK NE TO #4 SLP 1003
1842	#4	18° 08' 48° 15'	TRAK W TO #5
1914	#5	18° 07' 50° 36'	TRAK SSE TO 6
1937	6	16° 59' 49° 42'	TRAK SE TO #6 SLP 1003
2000	#6	15° 59' 48° 38'	TRAK N TO #7
2030	#7	17° 59' 48° 43'	TRAK SW TO 6
2048	6	17° 12' 49° 42'	TRAK SW TO #8 1003
2114	#8	15° 58' 50° 57'	CLIMB, HEAD FOR BARBADOS
2312	RECOVER	BARBADOS	

27
30
27

1002
515
2117
435
32
120210
130220
140230
150240
160250

335/8 10

38500

#3 19 37 10

17 00

49 41

#4 20 48

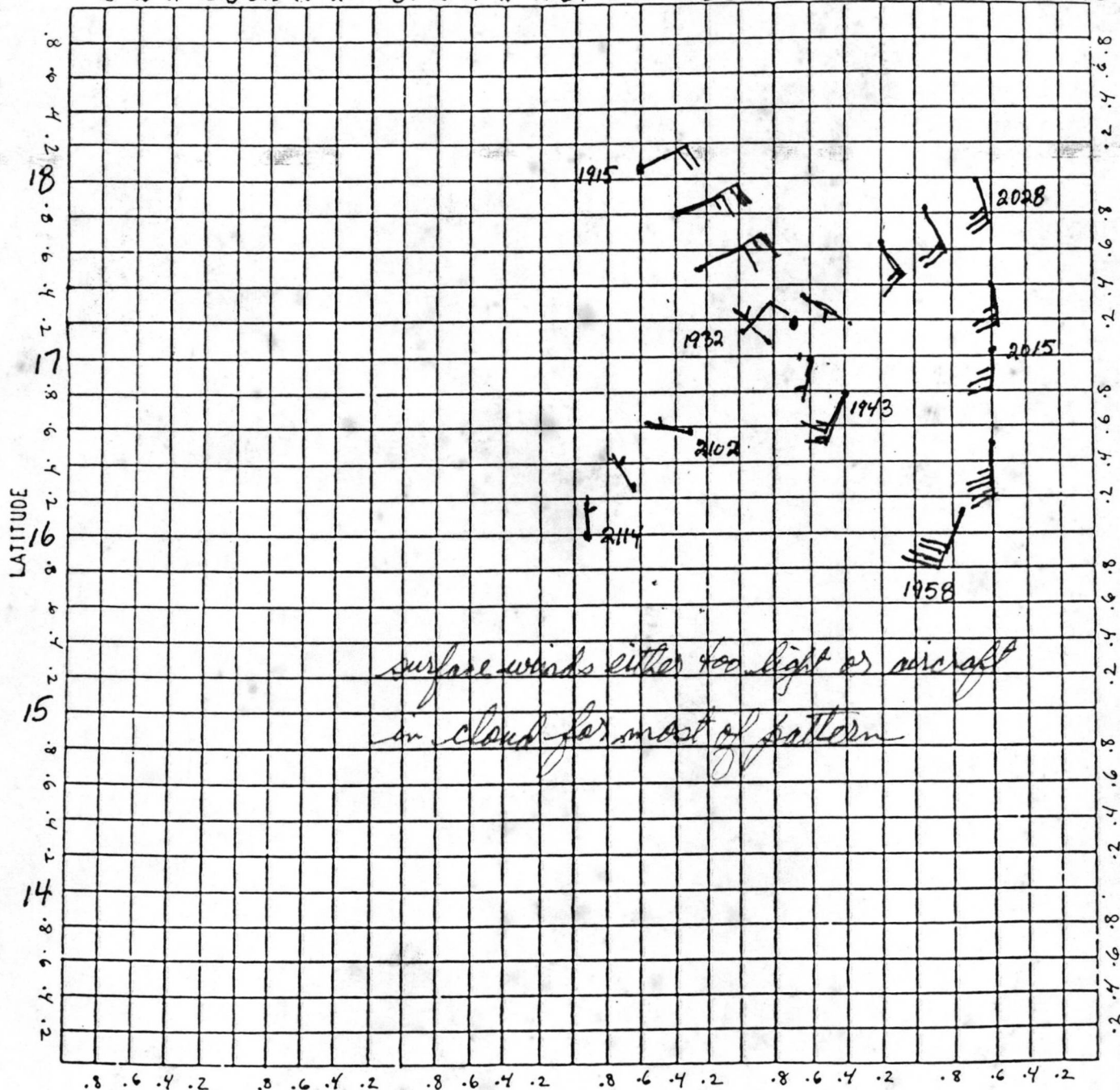
17 48

49 45

HURRICANE RECCO PLOTTING CHART

TRUE AT 25° LATITUDE, IN DEGREES AND MINUTES OF ϕ AND λ

.8 .6 .4 .2 53.8 .6 .4 .2 52.8 .6 .4 .2 51.8 .6 .4 .2 50.8 .6 .4 .2 49.8 .6 .4 .2 48



DATE 20 SEPT 1990

LONGITUDE

OBSERVER Burpee

900920H

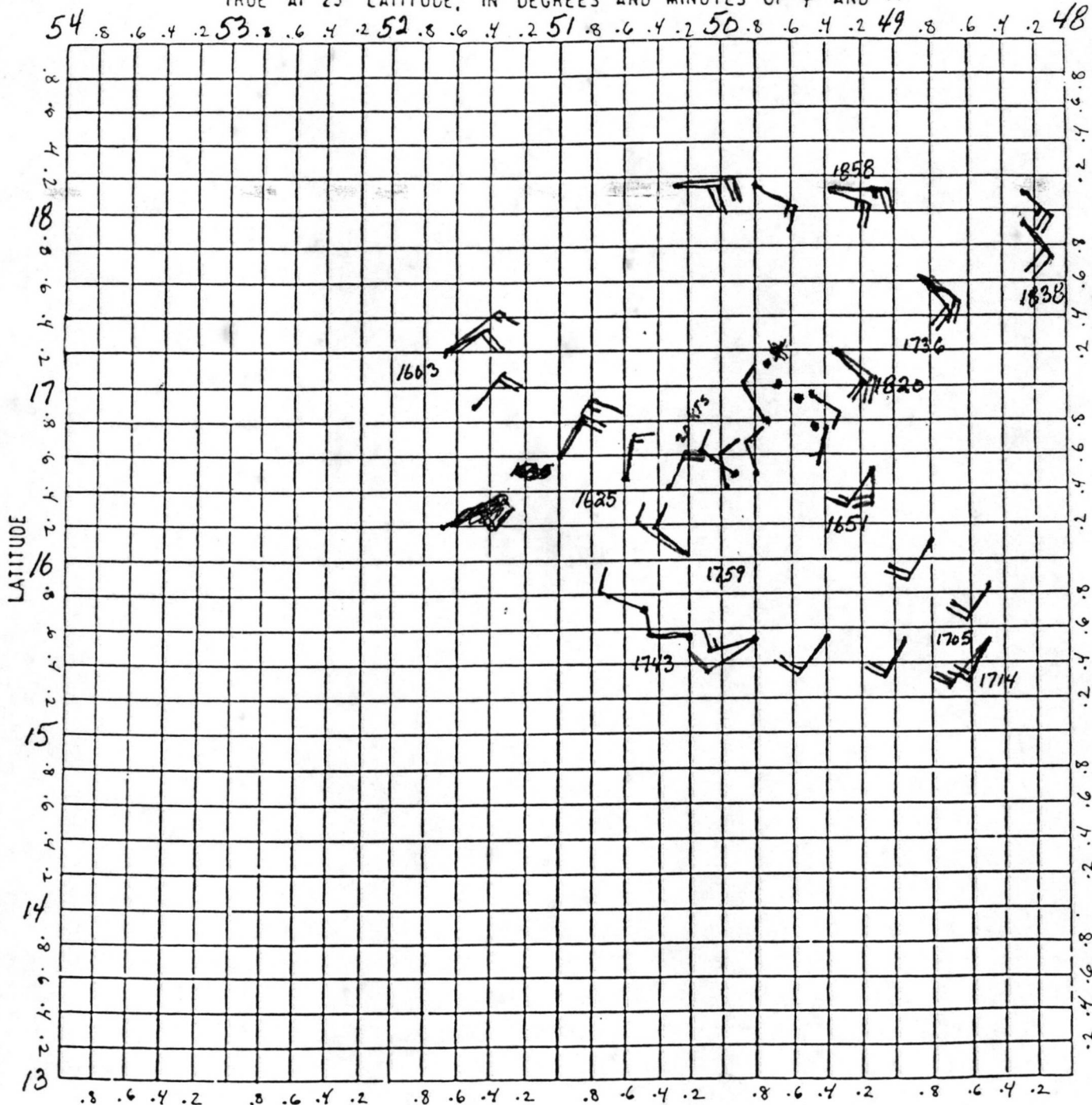
NOTE: Label full degrees according to location of flight area

5000 FT ———
sfc ———

16 45 # 18 15 00
49 27 16 53
16 44 55 49 34

HURRICANE RECCO PLOTTING CHART

TRUE AT 25° LATITUDE, IN DEGREES AND MINUTES OF ϕ AND λ



DATE 20 SEPT 90

LONGITUDE

OBSERVER

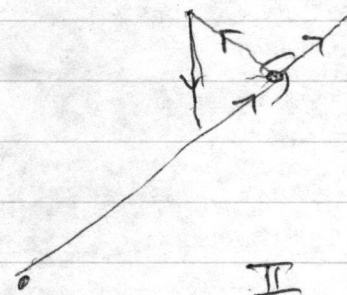
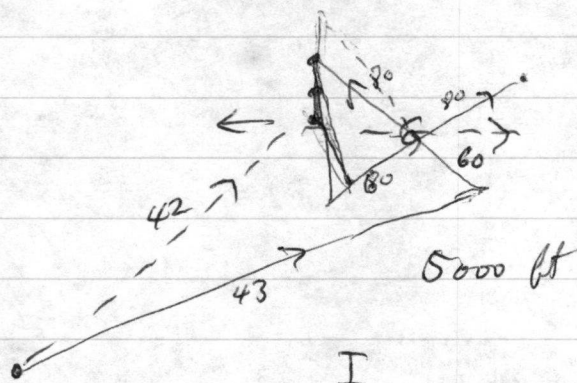
Burpee

900920H

NOTE: Label full degrees according to location of flight area

N/E	262	23:07:42	-80.66	-25.5	101.99
N/E	262	10:50:05	127.4	-25.3	101.2
N/H	261	22:31:11	-125.3	-25.5	102.06

9/20 Rainbow Exp



60
80
100
80
80
400 1 hr 40 min

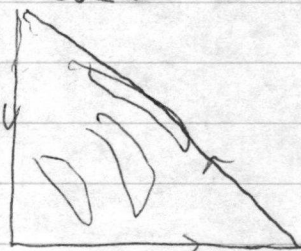


500' →
20 min up
12 min back down

III

2 hr 10 min

fallback:



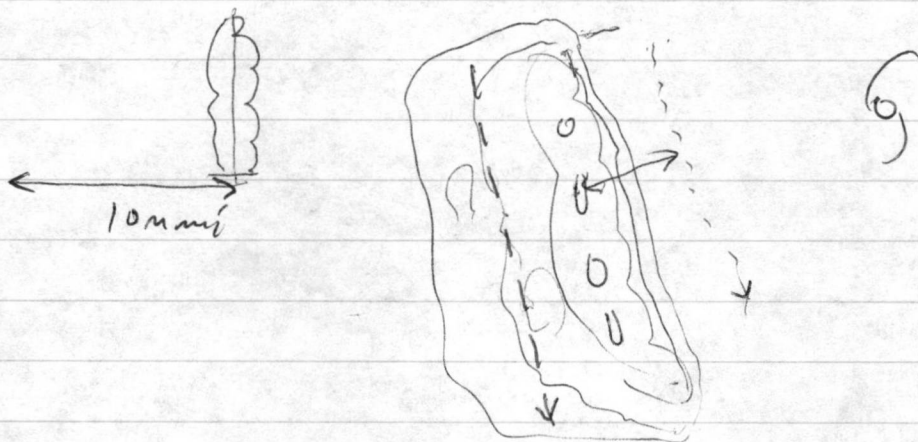
deal fast
1 deal fast, or 1 cont
deal fast, sector scan

$$256 \times 75_m \approx 18 \text{ km}$$

then 150 or 300m

long track read ≈ 1.5 km

downbound - upbound legs



coordinate ODW drops:

outer plane CH1 #1 = 43
inner plane CH3 #2 = 42

first out

ODW

CH1

CH3

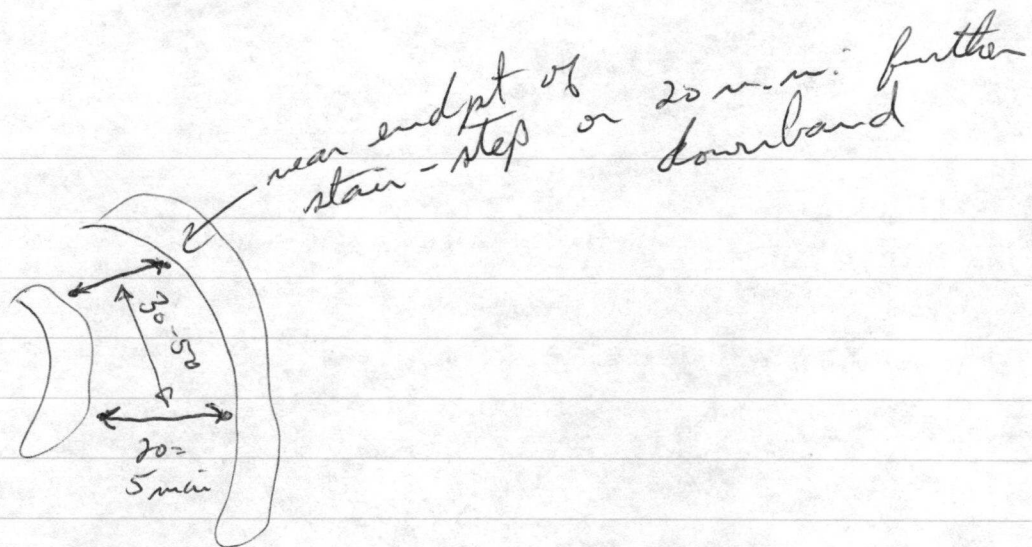
how to define feature

straight line climb 1000' fmin at end of stepped descent
(FEVAD)

continuous scan at end points of stepping
while waiting for other A/C - const alt circles 3mm in radius

- make CW1 + CW2 a race track with ~~spiral~~ turns into the wind, descend in turn; 'U' turn
- upwind turns

min spacing betw band + eyewall ~ 20 mm.
min spacing betw A/C, CW1 + CW2, ~ 30 mm



① 20 m.m. long legs, 5 min

if repeat pattern: ① slide downwind if possible;
 ② slide upwind
 ③ spread too tight, then
 upwind-downwind

stick with original part of band

42 does stepped descent upwind, then
 deep sounding

hopefully MEAT well done
 otherwise beat your MEAT

43 at end climb to 5k ft, then center, lead home
 42 at end deep sounding to 20k and head home
 then center

* letter to Mr D.F. BEST
DIRECTOR,
BARBADOS METEOROLOGICAL SERVICES
9-A - INT'L AIRPORT
CH CH
BARBADOS.

(Victor LARRIER)

(waiting for "better" system)

about modern sat recvr equipment

WTNT31 KMIA 181250
BULLETIN
TROPICAL DEPRESSION ELEVEN SPECIAL ADVISORY NUMBER 1
NATIONAL WEATHER SERVICE MIAMI FL
9 AM AST TUE SEP 18 1990

....TROPICAL DEPRESSION FORMS IN THE CENTRAL ATLANTIC...

SATELLITE IMAGES THIS MORNING INDICATE THAT A TROPICAL DEPRESSION HAS FORMED OVER THE OPEN ATLANTIC AND AT 9 AM AST...1300Z...THE CENTER OF THE DEPRESSION WAS LOCATED NEAR LATITUDE 15.7 NORTH ... LONGITUDE 47.2 WEST...OR ABOUT 1000 MILES...1600 KM...EAST OF THE WINDWARD ISLANDS.

THE DEPRESSION IS MOVING TOWARD THE WEST NEAR 14 MPH...22 KM/HR...AND THIS GENERAL MOTION IS EXPECTED TO CONTINUE FOR THE NEXT DAY OR TWO.

MAXIMUM SUSTAINED WINDS ARE NEAR 35 MPH...55 KM/HR...AND THE DEPRESSION MAY BECOME A TROPICAL STORM LATER TODAY.

REPEATING THE 9 AM AST POSITION...15.7 N... 47.2 W. MOVEMENT

... WEST NEAR 14 MPH. MAXIMUM SUSTAINED WINDS...35 MPH.

THE NEXT ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT NOON AST.

AVILA

WTNT21 KMIA 181251
TROPICAL DEPRESSION ELEVEN SPECIAL MARINE ADVISORY NUMBER 1
NATIONAL WEATHER SERVICE MIAMI FL
1300Z TUE SEP 18 1990

DEPRESSION CENTER LOCATED NEAR 15.7N 47.2W AT 18/1300Z.
POSITION ACCURATE WITHIN 60 MILES BASED ON SATELLITE.

PRESENT MOVEMENT TOWARDS THE WEST OR 275 DEGREES AT 12 KT.

MAX SUSTAINED WINDS 30 KT WITH GUSTS TO 40 KT.

REPEAT CENTER LOCATED AT 15.7N 47.2W AT 18/1300Z.

FORECAST VALID 18/1800Z 16.0N 47.5W.
MAX SUSTAINED WINDS 45 KT WITH GUSTS TO 55 KT.
RADIUS OF 34 KT WINDS 75NE 50SE 50SW 75NW.

FORECAST VALID 19/0600Z 16.5N 49.8W.
MAX SUSTAINED WINDS 55 KT WITH GUSTS TO 65 KT.
RADIUS OF 50 KT WINDS 30NE 30SE 30SW 30NW.
RADIUS OF 34 KT WINDS 100NE 75SE 75SW 100NW.

FORECAST VALID 19/1800Z 17.0N 52.0W.
MAX SUSTAINED WINDS 65 KT WITH GUSTS TO 80 KT.
RADIUS OF 50 KT WINDS 50NE 30SE 30SW 50NW.
RADIUS OF 34 KT WINDS 100NE 75SE 75SW 100NW.

REQUEST FOR 3 HOURLY SHIP REPORTS WITHIN 300 MILES OF 15.7N 47.2W.

EXTENDED OUTLOOK

THE FOLLOWING FORECASTS SHOULD BE USED ONLY FOR GUIDANCE PURPOSES BECAUSE ERRORS MAY EXCEED A FEW HUNDRED MILES

OUTLOOK VALID 20/0600Z 17.5N 54.3W.
MAX SUSTAINED WINDS 75 KT WITH GUSTS TO 90 KT.
RADIUS OF 50 KT WINDS 75NE 50SE 50SW 75NW.

OUTLOOK VALID 21/0600Z 19.0N 58.5W.
MAX SUSTAINED WINDS 80 KT WITH GUSTS TO 95 KT.
RADIUS OF 50 KT WINDS 75NE 50SE 50SW 75NW.

NEXT ADVISORY AT 18/1600Z.

WTNT41 KMIA 181251
...FOR INTERGOVERNMENTAL USE ONLY...
SPECIAL TROPICAL CYCLONE DISCUSSION TROPICAL DEPRESSION ELEVEN
NATIONAL WEATHER SERVICE MIAMI FL
830 AM AST TUE SEP 18 1990

ATTN WSFDS NMC F/D

SATELLITE IMAGES INDICATE THAT A TROPICAL DEPRESSION HAS FORMED ABOUT 1000 MILES EAST OF THE LESSER ANTILLES. SYSTEM IS WELL ORGANIZED AND MAY BE NEARING TROPICAL STORM STRENGTH. THE DEPRESSION IS LOCATED UNDER AN UPPER LEVEL ANTICYCLONE AND CONTINUED STRENGTHENING IS LIKELY FOR THE NEXT DAY OR TWO.

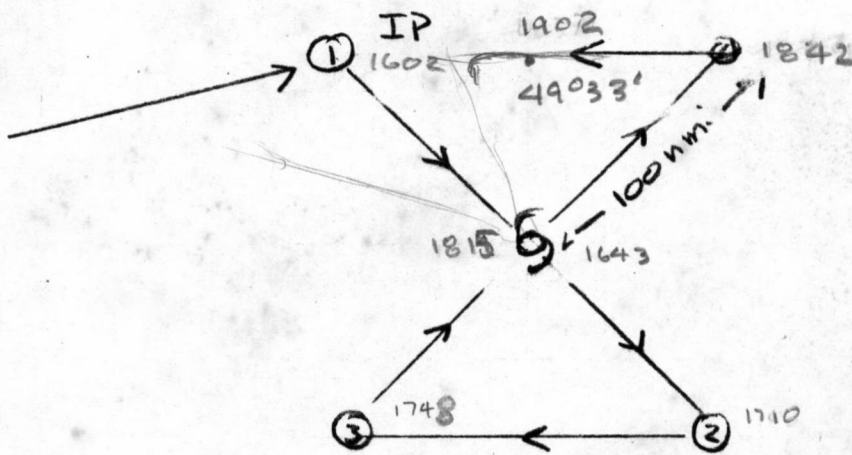
THE SYSTEM IS JUST GETTING ORGANIZED...SO THE EXACT CENTER IS STILL SOMEWHAT UNCERTAIN. HOWEVER...THE GENERAL MOTION IF THE SYSTEM HAS BEEN WESTERLY AT NEAR 12 KNOTS FOR THE PAST 24 HOURS. WATER VAPOR IMAGES SUGGEST THAT THE TROUGH TO THE NORTH WILL BYPASS THE SYSTEM AND A WEAK RIDGE WILL BUILD TO THE NORTHWEST OF THE DEPRESSION DURING THE NEXT 48 HOURS. THIS PROJECTION IS IN AGREEMENT WITH THE AVIATION MODEL AND NHC90 WHICH CALLS FOR A GENERAL WEST TO WEST NORTHWEST COURSE FOR THE NEXT TWO TO THREE DAYS.

SHEETS/AVILA

PRELIMINARY PROG POSITIONS

INITIAL 18/1300Z 15.7N 47.2W MAX WINDS 30 KT

900920H

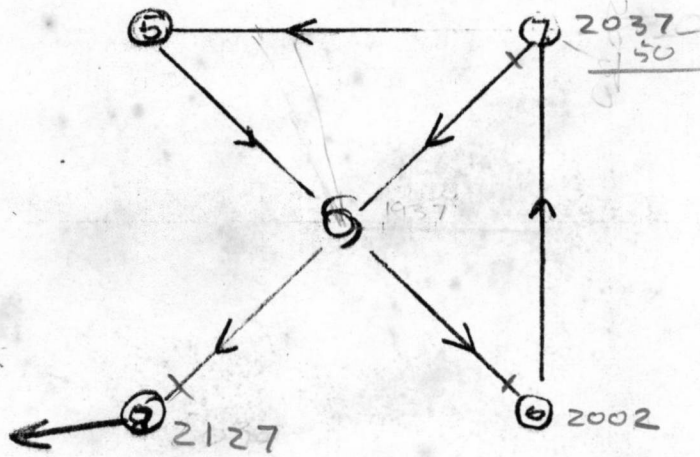


$$\begin{array}{r} 21 \frac{2}{3} \\ 16 \frac{1}{2} \\ \hline 5 \frac{1}{5} \end{array}$$

$$\begin{array}{r} 24 \ 00 \\ 18 \ 30 \\ \hline 6 \ 30 \end{array}$$

$$7 + \frac{1}{2}$$

$$\begin{array}{r} 3.5 \\ \hline 37 \ 500 \end{array}$$

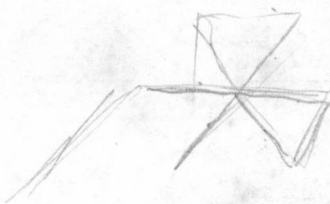


$$\begin{array}{r} 1.4 \\ 3 \\ \hline 4 \ 2 \\ 8 \\ \hline 12.2 \end{array}$$

$$\begin{array}{r} 19 \ 37 \\ 25 \\ \hline 20 \ 02 \end{array}$$

$$\begin{array}{r} 4 \\ 25 \\ 8 \\ \hline 200 \end{array}$$

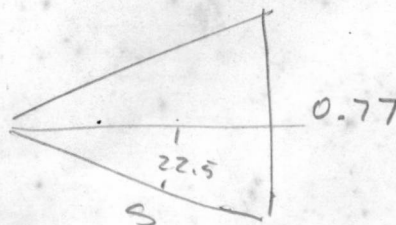
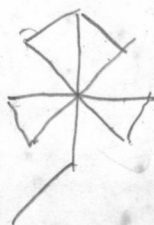
$$3 \frac{1}{2} \ 20^m$$



$$22.5$$

$$0.77$$

$$1100$$



$$0.77$$

$$\begin{array}{r} 8+ \\ 3.06 \\ \hline 11 \end{array}$$