U.S. DEPT. COMM./NOAA/OAO - DATA SECTION WORK FORM NO.1 OAOWF1 FILE

FLT ID: 960809I	FM: MCF	TO: OPF/OPF/MCF
FLT NO: 96-04	BLK IN: 1631	ATA: 1628/2142/2241
ETD: 1530	BLK OUT: 1531/1741/1815	ATD: 1540/1748/2156
ETE: 5+00	BLK TIME: 6.0	FLT TIME:
SPONSOR ORG: NOAA	PROGRAM: HRD	PURPOSE: CLOUDJ...

OAO PERSONNEL

AC PHILIPPSBORN, R	SYS ENG LYNCH, T
CP TAGGART, B	DATA SYS ROLES, J #5
NAV RATHBUN, B	RADAR OFFUTT, D
FE BAST, G / ~~WADE, S~~	DT/ODW GONZALEZ, G
RADIO SANS SOUCIE, D	CLD PHYS
FD WHITE, S	DOPPLER

PARTICIPATING SCIENTIST/VISITORS/OAO

LAST, FIRST NAME	ACTIVITY ON A/C	AFFILIATION
MCFADDEN, J	AOC	CREW
CLOSSER, G	11	
MARKS, F	NOAA/HRD	SCIENCE
DODGE, P		
BLACK, R		
LANDSEA, C		
MURILLO, S		
GILBERTIU, D		

PROPOSED/ACTUAL MISSION/REMARKS (RECCO, FIXES, STORM, PENET, NHOP #)

30.04 270/3

BW3 ø
++3 ø

280/8 30.05

160/5 30.07
260/10

phone #
798-5340 pvi
332-2608 sec
941-591-7626

265
208
~~225~~
17
343

59

U.S. DEPT. COMM./NOAA/OAO - DATA SECTION WORK FORM NO.2 OAOWF2 FIL

FLT ID: 960809I TIME OFF: 1748 TIME ON: 2142

	A/C T/O	WX STN	A/C LAND	WX STN
PRESSURE	1017.1	~~1016.5~~ 1017.0	1013.0	1015.5

	NO	DATA DISPOSITION/DATE/QUALITY
1/SEC FLT LVL TAPES	1	
FAST FLT LVL TAPES	1	
RADAR TAPES	2	
DOPPLER TAPES	1	
ODW CASSETTES	Ø	
HARD COPIES		
AXBT		
AXCP		
ODW		

PHOTOGRAPHY

	FWD	LS	RS	VERT	
ON	1	1	1	1	
OFF					
RATE					

REMARKS

NOAA • AOC• SED Flight Performance Log

Aircraft : N43RF Project: Hurricane '96 Mission : Clouds + Climate

SED Crew: Lynch, Rdes, Gonzales, Offutt Flight ID : 960809I

Pre-Flight: 13:30 Take-Off: 15:40 / 17:48 / 21:46 Landing: 16:28 / 21:41 / 22:40

	System			Pre-Flight	In-Flight	Post-Flight		
NAV	INE #1	Aligned to : 0		✓ DEO		-6.4	+3.9	3
NAV	INE #2	Aligned to : 0		✓ DEO		-2.6	+2.9	1
NAV	GPS			✓ DEO		Lat	Long	GS
RADAR	Nose			✓ TL				
RADAR	L/F	R/T SN : 103		✓ DEO	(1)	Mod Switch Off ? ✓		
RADAR	Tail	R&T SN : 202 / 204		✓ DEO		Mod Switch Off ? ✓		
RADAR	ASAU's & RCU			✓ DEO				
RADAR	MARS Data System			✓ DEO	(2)	# DATs : 2		
PMS	2DG-C	Ch 1/64: /		✓ DEO				
PMS	2DG-P	Ch 1/64: /		✓ DEO				
PMS	FSSP	Ref VDC: 8.6		✓ DEO	(3) (4) (5)			
PMS	SEA Data System					# DATs : 1		
		Cal High	Cal Low			Cal High	Cal Low	
TEMP	Temp #1	+30.7	-30.2	✓ DEO		+30.7	-30.2	
TEMP	Temp #2			✓ DEO				
TEMP	Temp #3 (Starboard)			NI				
TEMP	Dewpoint #1			✓ DEO				
TEMP	Dewpoint #2 (AOC)			✓ DEO				
PRESS	Attack Angle (AP/DAP)			✓ DEO				
PRESS	Slip Angle (BP/DBP)			✓ DEO				
PRESS	Differential (PQ1/PQ2/PQ3)			✓ DEO				
PRESS	Absolute (PS1/PS2)			✓ DEO				
PRESS	Radome Transducers			Plugs ? ✓ TL				
PRESS	Cabin Transducer (Station 5)			✓ DEO				
FLT LVL	Apn-159	SN: SWU 71-01		✓ TL		Off ? : ✓		
FLT LVL	Apn-232	SN: 1761		✓ TL		Off ? : ✓		
FLT LVL	King Liquid Water			✓ DEO				
FLT LVL	J&W Liquid Water			✓ DEO				
FLT LVL	Down PRT-5 (SST)			✓ DEO				
FLT LVL	Side PRT-5 (CO^2)			✓ DEO				
FLT LVL	RAMS Data System			✓ DEO		# DATs : 1		
MISC	ASDL			✓ DEO		Off ? : ✓		
MISC	Epply Radiometers (PSP / PIR)			NI				
MISC	Exterior Walk Around			✓ DEO				
MISC	Video	(N) (L) (R) (D)		✓ TL				
MISC	AXBT Receivers			NI				
MISC	AXBT Sonobouys			#On Board : 0	# Dropped : 0	# Good : —		
MISC	ODW System					# Tapes : —		
MISC	ODW Dropsondes			#On Board : 0 / 8	# Dropped : (3)	# Good : —		
MISC	FCU	A B C				UPS Off : ? ✓		
USER	Charge Probe			NU		Accelerometers		
USER	HRD Workstation			NU		#1 (2 G) : 8153		
USER	Field Mills	(L) (R) (U) (D)		✓ DEO		#2 (2.5 G) : 6684		
USER	Lawrence Water Collector			NU		#3 (3 G) : 5967		
USER	Formvar			~~NU~~		#4 (3.5 G) : 2892		

Port Error when SH

Ch7

Please Note any Discrepencies

Item #	Zulu Time	Problem Description	Initials	A-23A #
1	1737	ODW System Lots of Bite Loop B Failures		OK
2	1737	N43RF user on MCRS CPU1 not configured properly		OK
(3)		FCU D tripped input Breaker at takeoff from Opa-Locka	TL	OK
(4)		Spar display does not show tape states- (function of V 2.5?)	TL	OK
(5)		Both 2D probes need to be cleaned + aligned	TL	OK
(6)		Dutbd monitor at Stg 7 → bad pot (color)	TL	OK
(7)		Upon take off from Opa-Locka for mission- L/F ET (103) - no main bang - flew w/ IZI - OK	TL	OK
—		On ferry flight home - 103 back into slot - was fine.	—	←
(8)		MARS A-Scope trig adj pot - very sensetive - will not lock on	TL	OK
	*	Put camera covers on FLOG		OK

NOAA • AOC • SED

N43RF DATA STATION LOG

Project : Hurricanes '96 Mission : Clouds & Climate Flight ID : 960809I

Operators : OFFUTT, Lynch

Take Off : 15:40 / 17:48 / 21:56 Landing : 16:28 / 21:41 / 22:40

RAMS DAT 1 On [(8) 9] :	15:30:04	RAMS DAT 1 Off :	22:47	CPU Selected :	(A) B
RAMS DAT 2 On [8 9] :		RAMS DAT 2 Off :		VCR's Used :	(N) (L) (R) (D)
RAMS DAT 3 On [8 9] :		RAMS DAT 3 Off :			
Printer On :	15:30:11	Printer Off :	21:45		
VCR's On :	15:28	VCR's Off :	21:43	VCR Count :	—
MARS DAT On :		MARS DAT Off :			
PMS DAT On :		PMS DAT Off :			

ASDL Messages

Message	Time	Message	Time	Message	Time	Message	Time
R V S B		R V S B		R V S B		R V S B	
R V S B		R V S B		R V S B		R V S B	
R V S B		R V S B		R V S B		R V S B	
R V S B		R V S B		R V S B		R V S B	
R V S B		R V S B		R V S B		R V S B	
R V S B		R V S B		R V S B		R V S B	
R V S B		R V S B		R V S B		R V S B	
R V S B		R V S B		R V S B		R V S B	
R V S B		R V S B		R V S B		R V S B	
R V S B		R V S B		R V S B		R V S B	
R V S B		R V S B		R V S B		R V S B	
R V S B		R V S B		R V S B		R V S B	

R = Recco V = Vortex S = Sonde B = AXBT

Data Station Operator Notes

Data Station Operator Notes

Multiple

21:29:26

AFSRV ADC ~~Fast Data burst errors~~

previous data not recd by dest

21:29 30 Ran Setup JM

21:31 System Okay JM

CLOUDS AND CLIMATE 1996

FLIGHT #1 I960809

TYPE OF DATA	SENSOR OR OPTION
INE	1
Accelerometer	2
Temperature probe	1
Altitude change option (for vertical winds)	PA
Static pressure	Rosemount fuselage
Dynamic pressure	Rosemount fuselage
Time source	Micro 99
Constants file	CO3964.CON

Notes:

There were four time/data gaps: 2013:40 2013:50 2014:01 2015:20

The aircraft INE positions were renavigated with respect to GPS.

SPECIAL NOTE!!! Locations 80, 81 and 82 of record five on the standard tape contain vertical ground, vertical air and vertical speeds, respectively, computed using Dave Jorgensen's vertical wind algorithm. It is recommended that these values be used for vertical wind analysis.

Surface pressures (mb)

Takeoff	N43RF - 1017.1	OPF - 1017.0
Landing	N43RF - 1013.0	OPF - 1015.5

Flight Meteorologist: Sean White: (813) 828-3310 ext. 3072

960809I

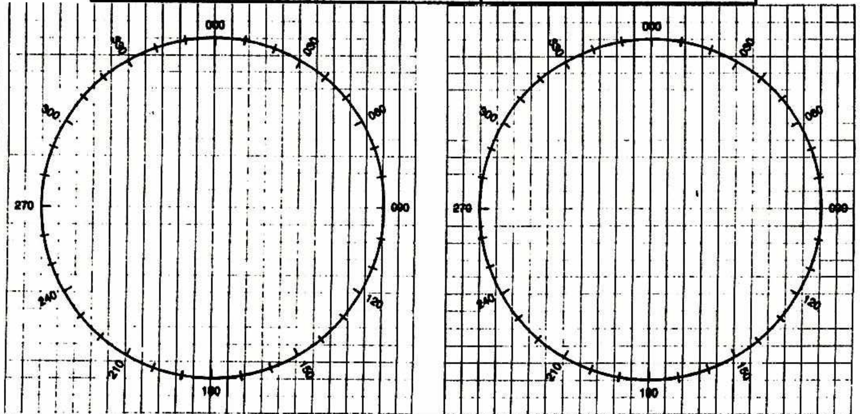
Time	WD	WS	TA	TD	PS	Remarks
540	240	4.6	29.0	22.8	1016.8	T/O from MCF
628						LND at OPF
1748	165	4.7	32.1	22.1	1017.0	T/O from OPF
1819:30	307	8.3	8.5	5.0		TAS Calibration
2110	313	7.9	9.0	3.9		W of Eviestad Co
2210	298	8.2	8.7	4.5		
~~1854:06~~	1824					
8346	356	13.2	6.9	2.2		Finish TAS Cal
						begin radar legs @ 11k
						descend 1500' vain shaft legs
						multiple radar legs
						@ 1500 + 3000 ft
941	337	8.1	8.8	3.9		cruise 10K NE-SW over water
						radar targets of opportunit
						approach to FL
						vain gauge; @ 10K + 15000 ft
2034	298	9.8	10.1	6.4		less thorough vain shafts
2116:00	275	5.6	8.4	4.6		TAS Calibration
17:50	292	7.8	9.0	3.7		270 MH/045 MH/
18:50	293	9.5	8.7	4.4		
2121:50	297	6.6	8.5	4.6		Finish TAS Cal
2156	261	10	27.4	21.3	1014.0	T/O from OPF
2241						LND at MCF

CLEARANCES

FREQ	ALT	HDG	OTHER
			CL OFF R080 1.6
			F 11K
			290.3 119.9
			4724
			WINCO

MISSION LOG

PAGE ___ OF ___



POSITION REPORT

1. POSITION
2. TIME
3. ALTITUDE
4. NEXT POSITION
5. ETA
6. NEXT POSITION

TRA
FREQ
ANY

UHF
243.

MAY
THIS

- PO

- HE
- AT
- FL
- WE
- NA
- AS
- PIL
- WE

TIME	FIX TYPE	POSITION	INS 1 POSITION	K ERR	INS 2 POSITION	K ERR	MH	VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	NEXT PT
~~1527~~ ~~1530~~ 1539																	
1627																	
~~1739~~ ~~1742~~ 1747																	
1803	GPS FMT	2617.2 8053.6	2618.4 8053.0	-1.2 +1.6	2618.2 8053.7	-1.0 +1.4			265	3L	262	[illegible]	[illegible]	6	10K	[illegible]8	
1941		2522.2 8134.1	2525.4 8132.7	-3.2 +1.4	2523.8 8132.5	-1.6 +1.6			217	3L	214	249	323	13	10K	243	
2109		2513.5 8033.9	2518.3 8031.3	-4.8 +2.6	2515.6 8031.5	-2.1 +2.4				CIRCLING			UP				
2142																	
2156																	
2206		2615.3 8049.4	2619.7 8045.3	-4.4 +4.1	2619.1 8047.3	-3.8 +2.1			332	1L	331	273	082	3	12K	274	
2246		2751.3 8230.9	2757.7 8227.0	-6.4 +3.9	2753.9 8228.0	-2.6 +2.9											
			7		4												

IGHT LOG 96-046 STCLIMATE	NAVIGATOR RATHBUN	AIRCRAFT COMMANDER PHILIPPSBORN	FLIGHT DIRECTOR WHITE	SCHEDULED / ACTUAL TAKEOFF Z 1530Z / 1539Z	DATE OF TAKEOFF 9AUG96

VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	LEG / TOT DIST	LEG / TOT TIME	PROP ETA	ETA	ATA	REMARKS

INS PERFORMANCE

	INS 1	INS 2
BEGIN ALIGN TIME	1330Z	→
ALIGN STATUS (0-5)	Ø	Ø
END NAV TIME	2240Z	→
START NAV TIME	1525Z	1525Z
DELTA T	7+15	7+15

TERMINAL ERRORS

	INS 1	INS 2
DELTA LAT	-6.4	-2.6
DELTA LON	+3.9	+2.9
RGS	3	1
RADIAL ERROR	7	4

REMARKS

960809 I

START 174501
END: 214500

BAD POSIT
16.330 25.554
-51.362 -80.742
BAb BLOCkS
20 B:40
:50
14:01
15:20

INE 1
AU 2
PA

180000	-1.1	+0.7
190000	-2.7	+1.6
200000	-4.0	+1.5
210000	-4.2	+2.7
214500	-5.3	+3.5

Aircraft Operations Center
PO Box 6829
MacDill AFB, FL 33608-0829

March 16, 1996 AOC1:sw

MEMORANDUM FOR: DR H. WILLOUGHBY
DIR, HRD

FROM: Captain George C. Player, III, NOAA
Director, Aircraft Operations Center

SUBJECT: Hazard Duty Flight

The mission flown on AOC aircraft # N43RF on 9 August 96 has been declared hazardous. The following personnel from your laboratory participated in this mission.

MARKS, F
DODGE, P
BLACK, R
LANDSEA, C
MURILLO, S
GUERTIN, D

total of 6 HRD

For purpose of computing allowable hazard duty time, the hazard period during this mission was from 1:41 pm local time on 9 Aug 96 until 5:45 pm on 9 Aug 96.

1 1

DATE : 9 August 96

TO : Chief, AOC Flight Operations

FROM : Pilot/Flight Director, Aircraft N43RF ON 2145 BLOCKTIME
OFF 1741 4.1

SUBJECT: Hazardous Duty

PURPOSE OF FLIGHT: CLOUDS & CLIMATE / HRD

Hazardous Duty Pay is required for flight made on 9 August 96
(DATE)

Request based on SEVERE WEATHER INCLUDING THUNDER STORM PENETRATIONS AT 10,000 FEET.

Personnel on board authorized Hazard Pay:

BAST, G	
MOORE, B	
SANS SOUCI, D	
LYNCH, T	
ROLES, J	
OFFUTT, D	
GONZALEZ, G	
CLOSSER, G	
MCFADDEN, J	

PILOT/(FLIGHT DIRECTOR): LCDR S.R. WHITE

APPROVED: _____ DISAPPROVED: _____

CHIEF, AOC FLIGHT OPERATIONS: _____

NOAA FORM 56-44(A)
(8-91)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

AOC DAILY FLIGHT LOG

AIRCRAFT TYPE:	AIRCRAFT I.D.:	MISSION(S):
WP-3D	N43RF	CLOUDS & CLIMATE

DATE:	FLIGHT No.:							
9 AUG 96	96-~~045~~ 46	X	OPERATIONAL		FERRY		SIMULATOR
			TRAINING		MAINTENANCE		OTHER:

FLIGHT INFORMATION

LEG	DEP. TIME (GMT)	LOCATION	ARR. TIME (GMT)	BLOCK TIME	MISSION	TASK No.	USE CODE
1	1530	MCF					
2	1741	OPF	1630	1.0		FPSA48HX	
3	2150	OPF	2115	4.1			
4		MCF	2216	0.9			
5							

TOTAL	6.0

WEATHER BRIEF FROM: MCF
NOTAMS CHECKED WITH:
FLIGHT PLAN ON FILE AT: 1

AIRCREW DATA

CREW POSITION	FLIGHT CREWS LAST NAME, INITIAL	FLIGHT HOURS TOTAL PIC	SIC	IP	FLIGHT HOURS NIGHT	LANDINGS DAY	NIGHT	INSTRUMENTS HOURS ACT	HOOD	SIM	APPR'S PREC	NP
AC	PHILIPPSBORN, R	6.0				2		1.0	0.3		1	1
P	TAGGART, B	4.1	1.9			1		2.0				
CP												

NAV	RATHBUN, D	6.0
NAV		
RADIO OR PHOTO		
FE	BAST, G	6.0
FE	MOORE, B	6.0
MECH	CLOSER, G	6.0

REMARKS: LEG 1 13 SOB
LEG 2 19 SOB
LEG 3 12 SOB

WEIGHT & BALANCE — X ATTACHED ON FILE

AC SIGNATURE

ADDITIONAL AIRCREW/PASSENGERS

LAST NAME, INITIAL	ORGANIZATION/PHONE	LEGS FLWN	LAST NAME, INITIAL	ORGANIZATION/PHONE	LEGS FLWN
SANS SOUCI, D	NOAA/AOC		MARKS, F	NOAA/HRD	
LYNCH, T			DODGE, P		
GONZALEZ, G			BLACK, R		
ROLES, T			LANDSEA, C		
OFFUTT, D			MURILLO, S		
MCFADDEN, J			GUERTIN, D		
WHITE, S					

*U.S. GPO: 1992-313-329/60916

OAD RAINGAUGE 25° 23' 24" 25.39

80° 40' 52" 80.6811

(HDP 61.99, 56.82)

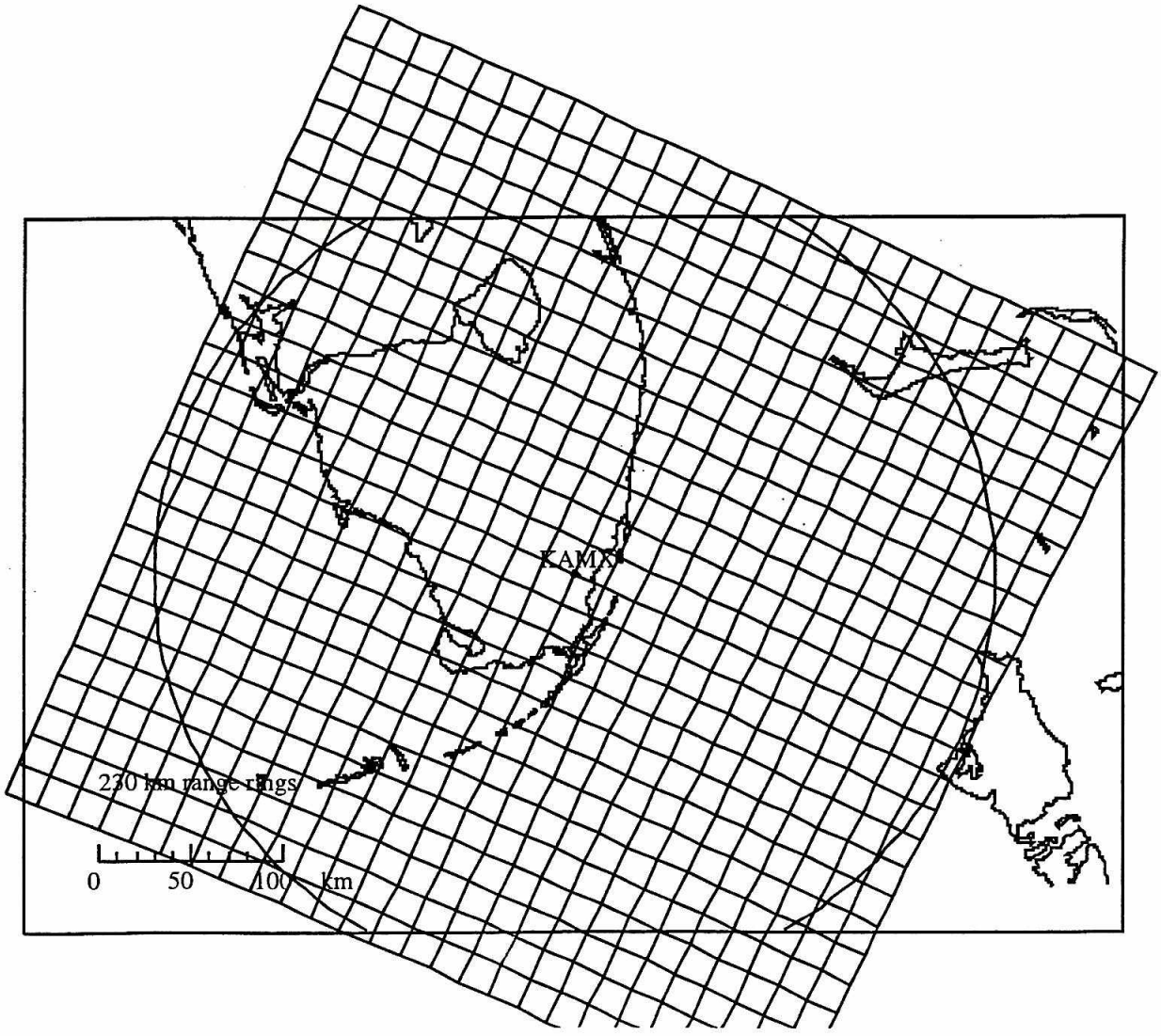
Miami HDP Grid

(Every 5th point plotted)

131 x 131 grid

AMX: 25.6111, -80.4128

BYX: 24.5975, -81.7031



230 km range rings

KAMX 25.6108 -80.4

CLOUDS AND CLIMATE EXPERIMENT

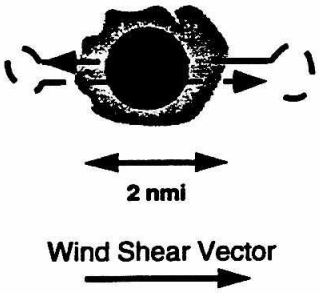


Fig. 28a Initial Cloud Stage

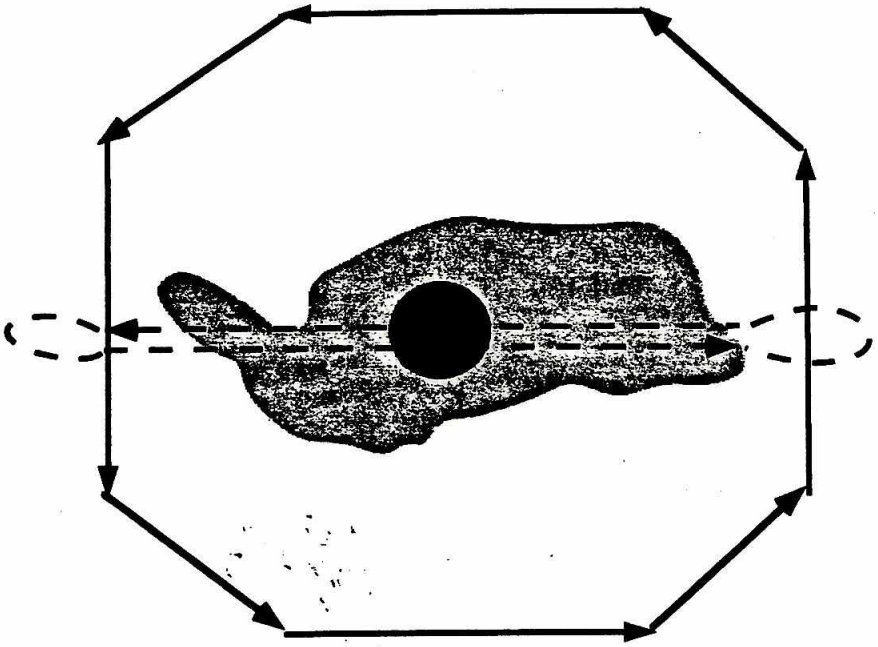


Fig. 28b Growing Stage

- Note 1. True airspeed calibration is required.
- Note 2. The pattern may be flown along any compass heading.
- Note 3. During initial cloud stage the aircraft conducts rapid penetrations climbing with cloud top from 12,000 ft (3.5 km), climbing with the cloud top on each successive pass. Passes are separated by 1,500 ft (500 m) altitude. Climbs occur away from the convection.
- Note 4. During the growing stage the aircraft conducts circumnavigation at 5,000 ft (1.5km) with 5-6 nmi (10-12 km) legs centered on cell to provide F/AST Doppler mapping. The circumnavigation is followed by penetration of the cell at 3,000 (1 km) or 5,000 ft (1.5 km).
- Note 5. Set the airborne Doppler radar to F/AST scan on all circumnavigation legs, and to scan perpendicular to the track on all penetration legs.