

19890915H1 - FDIR

HUGO Energenics

FLIGHT #1 890915H

N42RF

TYPE OF DATA

SENSOR OR OPTION

INE	2
Accelerometer	2
Temperature probe	1
Altitude change option (for vertical winds)	RA
Static pressure	Rosemount fuselage
Dynamic pressure	Rosemount fuselage (wingtip on
Time source	Micro 29 BIPAC tape)
Constants file	C02894.CON

Selection of pressures

On the BIPAC tape only, static pressure was taken from the fuselage, and dynamic pressure was taken from the wingtip and corrected using the following formula:

$$PQw(\text{corrected}) = PQw(\text{raw}) + (PSw - PSf)$$

In other words, we are assuming that the total pressure ($PSw + PSf$) on the wingtip is good, and the static pressure (PSf) on the fuselage is good. This compromise appears to give the best pressures in areas of heavy turbulence. The tape done using the standard software was run using fuselage sensors only; the software was not configured to allow the mixing of fuselage and wingtip sensors.

Time gaps

There was one time gap: 18:49:21 - 18:49:40

Dewpoint

A severe oscillation occurred in the dewpoint data. This oscillation had an amplitude of +/- one degree C and a variable frequency. At times the frequency was about .06 Hz (see enclosed plots), but at other times the oscillation changed its frequency to about .12 Hz. The frequency of oscillation may depend upon the altitude or ambient temperature. None of the oscillation frequencies observed on this flight have been seen in previous seasons--the old familiar dewpoint oscillation of past years occurred at .17 Hz. In my opinion, NO DEWPOINT INFORMATION EXISTS ON TIME SCALES LESS THAN 20 SECONDS (.05 Hz) on this flight. In other words, you cannot resolve humidity fluctuations on spatial scales less than 2 km. This instrument is in a state of steady deterioration; don't be surprised if you have no usable dewpoint information at all. Unfortunately, there are no plans to replace this instrument--you'll have to live with it next season, too.

Five spikes were removed from the dewpoint data during the heaviest pounding: 17:27:30 - 17:28:20.

Pressures

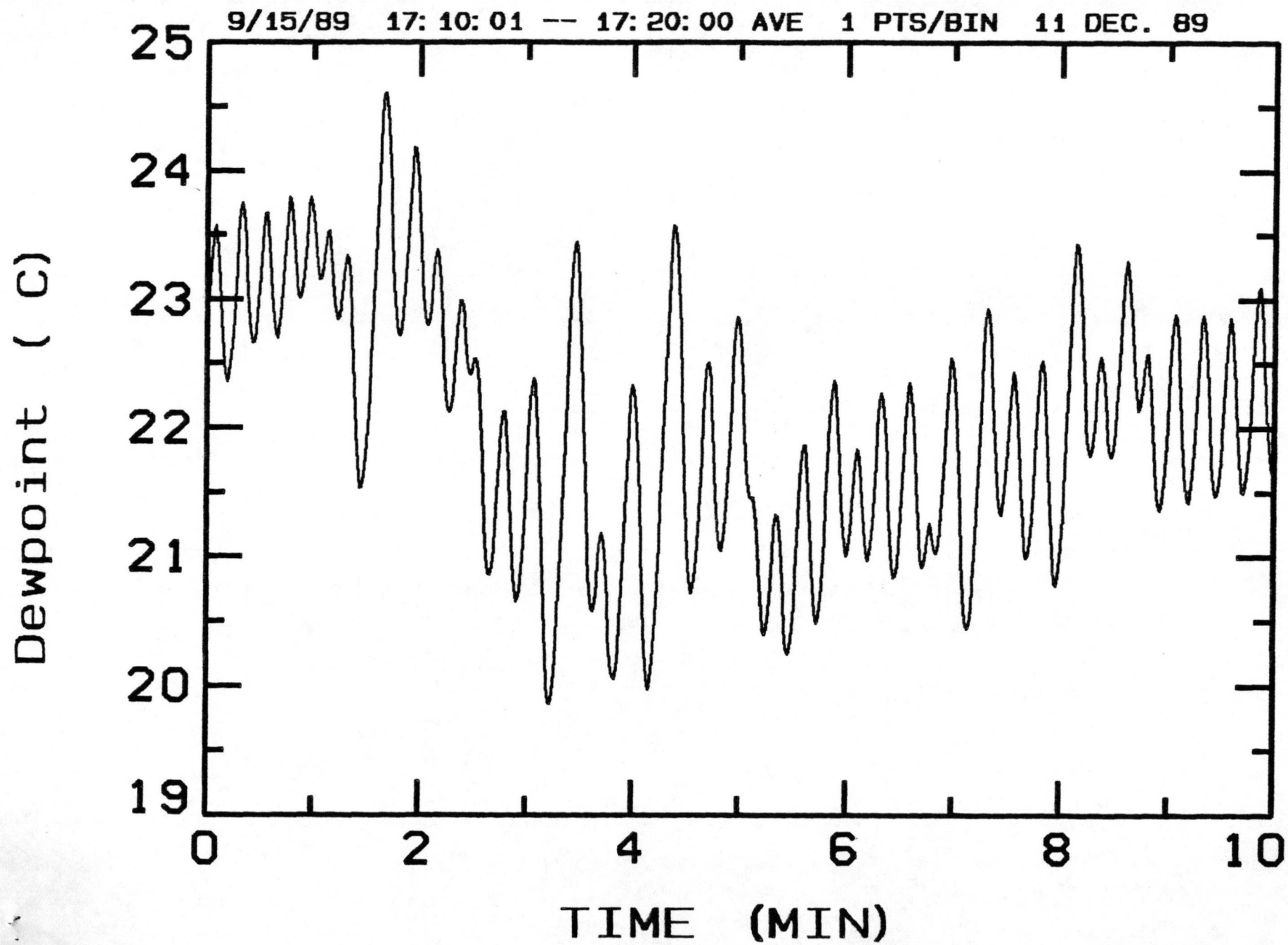
On the BIPAC tape only, dynamic attack and slip pressures were recomputed during the initial eyewall penetration, 17:27:01 - 17:28:20. The corrected calibrated wingtip dynamic pressure, offset by the appropriate constant, was substituted into the dynamic attack and slip pressures. This changed the attack and slip angles by 0 - .3 degrees. The attack was more affected than the slip, in general.

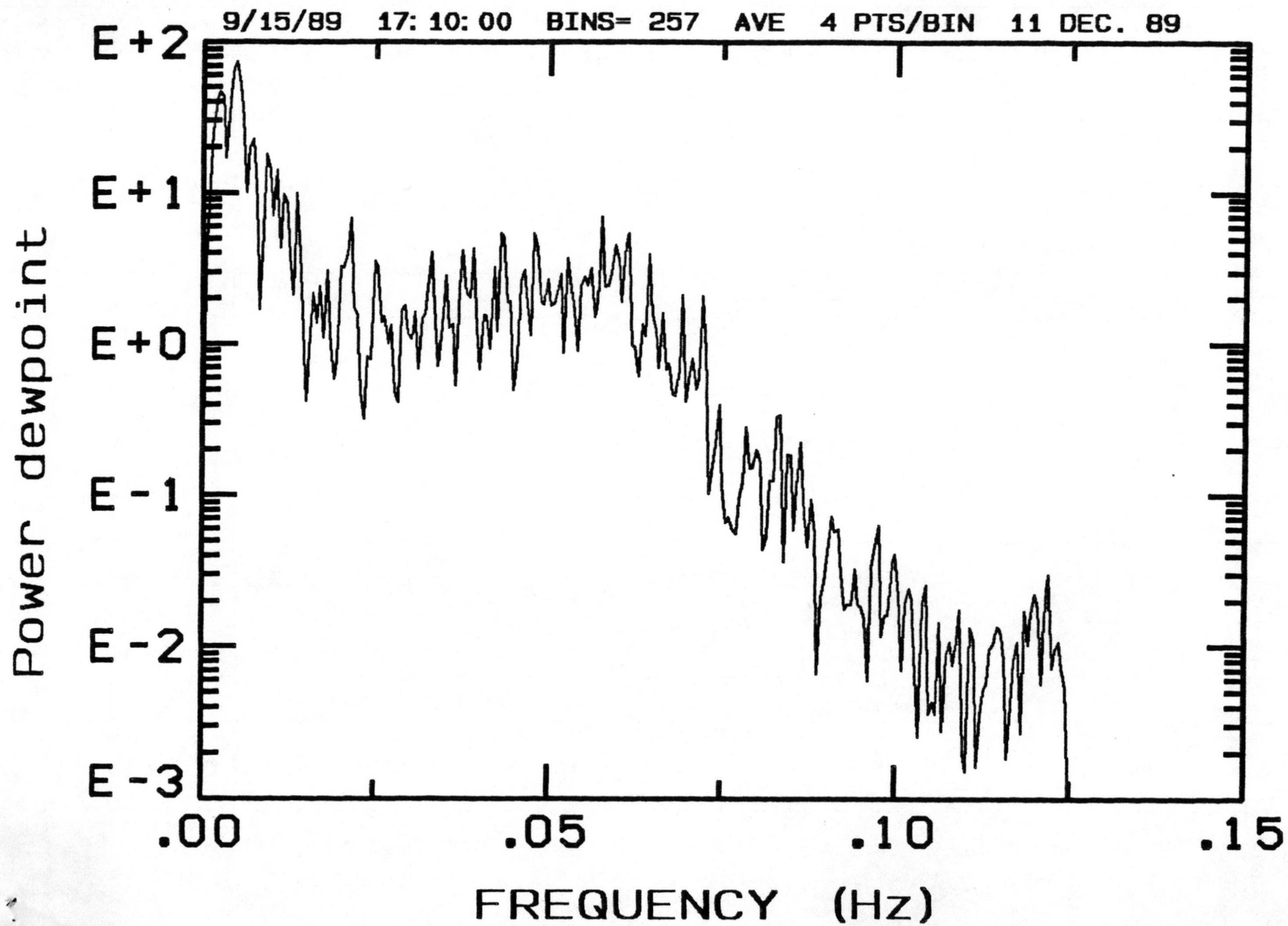
Liquid water

J&W liquid water failed from the beginning of the flight until 17:06.

	Take off	Landing
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Aircraft static pressure	1005.3mb	NOBS
Corrected tower pressure	1006.3mb	NOBS

Flight meteorologist: Jeff Masters





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

FLT ID: 890915H	FM: BARBADOS	TO: BARBADOS
FLT NO:	BLK IN: 20:24:40	ATA: 20:21
ETD: 16:00	BLK OUT: 16:00:51	RTD: 16:12
ETE: 9 HRS	BLK TIME: 4:24	FLT TIME: 4:11
SPONSOR ORG: HRD	PROGRAM: HURR '89	PURPOSE: HUGO

OAO PERSONNEL

AC GENZLINGER	SYS ENG GOLDSTEIN
CP McKIM	DATA SYS SCHRICKER
NAV WHITE	RADAR RAIN
FE WADE	BT/ODW
RADIO NUNN	CLD PHYS
FD MASTERS	DOPPLER

PARTICIPATING SCIENTIST/VISITORS/OAO

LAST, FIRST NAME	ACTIVITY ON A/C	AFFILIATION
BURPEE, B		HRD
WILLOUGHBY, H		
MARKS, F		
BLACK, P		
DODGE, P		
McFADDEN		AOC

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

NO APU on ground - start system while rolling

NO INS # 1 most of flight

+5.6 / -3.7 gravities in nose accelerometers

No navigator's log

U.S. DEPT. COMM./NOAA/OAO - DATA SECTION WORK FORM NO.2 OROWF2 FILE

FLT ID: 890915H

TIME OFF:

TIME ON:

	A/C T/O	WX STN	A/C LAND	WX STN
PRESSURE	TWR 1006.3 corrected to A/C		MISSING	

NO

DATA DISPOSITION/DATE/QUALITY

1/SEC FLT LVL TAPES

FAST FLT LVL TAPES

RADAR TAPES

DOPPLER TAPES

ODW CASSETTES

HARD COPIES

AXBT

AXCP

ODW

PHOTOGRAPHY

	FWD	LS	RS	VERT	
ON		✓	✓		
OFF					
RATE					

REMARKS