

19920927II

### E.3 Cloud Physics Scientist (On-Board)

The on-board cloud physics scientist (CPS) is responsible for cloud physics data collection on his/her assigned aircraft. Detailed operational procedures are contained in the cloud physics kit supplied for each aircraft. General procedures follow. (Check off and initial).

#### E.3.1 Preflight

- ☒ 1. Determine status of cloud physics instrumentation systems and report to the on-board lead project scientist (LPS).
- ☒ 2. Confirm mission and pattern selection from the on-board LPS.
- ☒ 3. Select mode of instrument operation.
- ☒ 4. Complete appropriate instrumentation preflight check lists as supplied in the cloud physics operator's kit.

#### E.3.2 In-Flight

- ☒ 1. Operate instruments as specified in the cloud physics operator's kit and as directed by the on-board LPS.

#### E.3.3 Postflight

- ☒ 1. Complete summary check list forms and all other appropriate forms.
- ☒ 2. Brief the on-board LPS on equipment status and turn in completed check sheets to the LPS.
- ☒ 3. Take cloud physics data tapes and other data forms and turn these data sets in as follows:
  - a. Outside of Miami - to the HRD operations center (FGOC).
  - b. In Miami - to AOML/HRD. [Note: all data removed from the aircraft by HRD personnel should be cleared with the AOC flight director.]
- ☒ 4. Debrief as necessary at the appropriate operations center (i.e., FGOC or MGOC).
- ☒ 5. Determine the status of future missions and notify the appropriate operations center (FGOC or MGOC) as to where you can be contacted.

1

1

[illegible]

Cloud Physics Project Scientist Operational Check List

Date 9/29/92 Aircraft 43RF Flight ID 920929I

A. Instrument Status and Performance:

| System           | Pre-Flight | In-Flight | Downtime | # of Tapes |
|------------------|------------|-----------|----------|------------|
| Johnson-Williams | ✓          |           |          |            |
| PMS probes:      |            |           |          |            |
| 2D-P             | ✓          |           |          |            |
| 2D-C             | ✓          |           |          |            |
| FSSP             | ✓          |           |          |            |
| Data System      | UP         |           |          |            |
| Recorder         | UP         |           |          |            |
| Formvar          | UP         |           |          |            |
| DRI Charge Probe | UP         |           |          |            |
| DRI Field Mills  | UP         |           |          |            |
| King Probe       | N/A        |           |          |            |

B. Remarks: *H. TINA. FORMVAR DE-ICE STILL INOP*  
*1845:50 - FORMVAR DE-ICE WORKS AGAIN*

## Formvar Log

Date 9/27/92 Flight 920929I Operator R.A. BLACK

[illegible]

| Tape # | EOF # | Time On | Time Off | Comments                                             |
|--------|-------|---------|----------|------------------------------------------------------|
| 1      | 1     | 222000  | *225830  | I don't know if it is recording or not, EYE @ 223432 |
| SIDE A |       |         |          | ADJUSTED MICROPHONE LEVEL @ 2236                     |
|        |       |         |          | OUT OF EYE @ 224220                                  |
|        |       |         |          | MAY BE SATURATED 2248 (FOR 4                         |
|        |       |         |          | TURN @ 2256, HEADING TOWARD E                        |
|        |       |         |          | *TAPE TURNED OVER DURING                             |
| 1      | 1     | 225905  | 233800   | IN EYE @ 230818                                      |
| SIDE B |       |         |          | OUT OF EYE @ 231635                                  |
|        |       |         |          | NO DATA AT 2321-2326                                 |
|        |       |         |          | TURN @ 232700                                        |
|        |       |         |          | NO DATA @ 2330-2334                                  |
|        |       |         |          | <del>NO DATA @ 2335</del>                            |
|        |       |         |          | IN EYE @ 233730                                      |
| 2      |       | 233820  | 242425   | OUT OF EYE @ 234530                                  |
| SIDE A |       |         |          | NO DATA @ 2346 (15 sec.)                             |
|        |       |         |          | NO DATA @ 2349-2352                                  |
|        |       |         |          | TURN @ 235530                                        |
|        |       |         |          | NO DATA @ 2400-2401                                  |
|        |       |         |          | INTERMITTENT @ 2402-2405                             |
|        |       |         |          | EYE @ 240605                                         |
|        |       |         |          | OUT OF EYE @ 241147                                  |
|        |       |         |          | NO DATA @ 2417-2418                                  |
|        |       |         |          | INTERMITTENT DATA 2419-2421                          |
|        |       |         |          | TAPE ENDED @ 242425                                  |
| 2      |       |         |          |                                                      |
| SIDE B |       |         |          |                                                      |

## Formvar Log

Date \_\_\_\_\_ Flight \_\_\_\_\_ Operator \_\_\_\_\_

[illegible]

### Cloud Physics Project Scientist Operational Check List

Date \_\_\_\_\_ Aircraft \_\_\_\_\_ Flight ID \_\_\_\_\_

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| Johnson-Williams |            |           |          |            |
| PMS probes:      |            |           |          |            |
| 2D-P             |            |           |          |            |
| 2D-C             |            |           |          |            |
| FSSP             |            |           |          |            |
| Data System      |            |           |          |            |
| Recorder         |            |           |          |            |
| Formvar          |            |           |          |            |
| DRI Charge Probe |            |           |          |            |
| DRI Field Mills  |            |           |          |            |
| King Probe       |            |           |          |            |

B. Remarks:

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920925 I

ELECTRIFICATION - III P. 1

1231 LOCAL WINDSCREEN BROKEN -  
RETURNING TO PUERTO VALLARTA  
NO MISSION TODAY!

920929 I ELECTRIFICATION REVISITED - <sup>1 1/2</sup> days in  
Miami, then back here to Puerto Vallarta. Forward DE-ICE  
not working. SEA TIME 1 sec. SLOW

175800 - T/O ROLL COMMENCES

#1  
CHARGE TEST

1824 - CHARGE ON FULL SCALE 5.8 km alt, T<sub>2</sub> - 4°C

182630 CHARGE off

182800 charge-on max. Charge off 182900

183030 on - reduce to ~~10~~ 15 kV.

183200 off 183330 on, reduce to 10 kV 183500 - off

183700 on - reduce to 5 kV

183900 - increase gradually to max.

184200 - off

184550 - Forward heater works again.

195330 - SEA system loses track + won't record after a long period  
of file-off running. FORMVAR films broke.

195810 No eye - strong band, broad on LF radar

20929I P.2

1959:10 turning in to eye from N side - heading  $180^\circ$  RA = 3 km T 11.4°C

201400 top speed 129 kt. in eyewall.

202045 S eyewall ODW near center. still at  $180^\circ$  TRK

2028:00 the S. band is slightly electrified

202930 2D-P has persistent lead diode in low-order byte.

203545 TRACKING 051° S. of eye

205450 turns to  $270^\circ$  back into eye from the east.

SEA-DAT WRITE LIGHT ON CONTINUOUSLY

210240 strong rainband reflectivity now on east side of eye

210910 in eye

2117:00 through W eyewall

2124:03 image display updates no more than 1/sec. Strange.

Do data doing the same?

213545 tracking 151 on SE side of eye. It looks like the eyewall is being supplanted by the 1st rainband.

2140:00 turned to track  $045^\circ$  from SE to NE.

We will work the NE rainband for the electrification experiment

214630 good bump in rainband, but  $\vec{E}$  is very weak

214940 SE eyewall. Outer wind max is stronger than eyewall trace

2156:25 NE eyewall

2200:30 NE rainband

222100 FV Out on, spd. 1 roll 1 +2°C

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Frame 1310 2 events 2223:20 speed 1  
 frame 1800 2 events spd 4 222400  
 " 3801 2 events spd 1 auto off 222508  
 " 4600 Auto on spd 1 2 mks 2229:00  
 " 5100 spd 4 2 mks 2229:40 strong band  
 " 7600 auto off spd 1 2231:00  
 8392 on spd 1 2232:50 2 mks eye wall  
 9500 Auto off spd 1 2234:-- clear eye  
 10,250 man. advance 224240  
 10,387 " 224500  
 10,447 on spd 1 224639 2 mks.  
 [2-D] 224750 melting ice on SEA display.  
 12,150 auto off 2 mks 2249:38  
 frame 12,935 - 13,032 man. advance

[SEA needles 225830]

frame 13,032 on spd 1 2300:05 2 marks  
 14,200 2 mks 2302:00  
 14,600 2 mks spd 4 2302:40 snow, columns  
 17,600 spd 5 230414 ss water, group  
 19,300 spd 6 230430  
 20,900 spd 1 auto off out of 1st rainband  
 21,722 spd 1 auto on 2308:00 eye wall?  
 22,000 auto off  
 22,800 on spd 1 2317:00 :15 2 marks eye wall  
 on ESE side  
 23,600 auto off. next: 1st rainband.

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24,400 on spd 1 2320:00 ::41 2 mks  
 25,000 2321:00 spd 4 2 mks  
 26,400 spd 6 2321:40 2 mks  
 29,900 spd 4 2322:15 2 mks  
 35,270 spd 1 2325:00 2 mks auto off

232704 Turn + Climb as high as possible  
 232800 Sonde dropped - E of first strong rainband.

36,100 spd 1 on 2 mks 2330:00  
 36,600 spd 4 2 mks 2331:00 SEA column, needles  
 40,900 2 mks 2332:45  
 43,600 2 mks spd 1 2334-- out of rainband  
 44,900 2 mks spd 1 2336:00  
 45,500 2 mks 2336:39 spd 4 small ice  
 48,260 2 mks spd 1 off 23:37:55

End FORMVAR roll 1

2346:00 TRACK 063 out of eye  
 2350:00 1st rainband  
 2353:45 - mer's pretty much out  
 2400:00 1st rainband TRK 241 toward eye.  
 2405:45 eyewall remnant on East side.  
 2411:55 NNE eyewall  
 2413:30 clear area. Approaching 1st rainband (LAST PASS)  
 2415:50 in rainband small ice. A/C charge, but no E  
 2417:30 columns, capped columns, some irregular  
 2422:03 bigger ice - irregular shaped. SEA file off 2523:15