19910812I1-CLDPHY

AUG 12 1991

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).

internet

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.

AUG 12 1991

17762::ROUX_F (email) – Frank Roux

~~Kabat_A~~

800
230
6:30

2-D Knollenberg Data Tape Log

Date AUG 12 1991 Flight _____ Operator _____

Tape #	EOF #	Time On	Time Off	Comments

Cloud Physics Project Scientist Operational Check List

Date AUG 12 1991 Aircraft 43 Flight ID 91081215

A. Instrument Status and Performance:

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

B. Remarks:

FLIGHT NOTES IN N42RF CLOUD PHYSICS RECORD BOOK

R. A. BLACK

Formvar Log

Date AUG 12 1991 Flight 910812I Operator R. A. BLACK

Roll #	Time On	Time Off	Frame Count at Start	Comments

AUG 12 1991 AUG 12 1991 AUG 12 1991

CAPE-6 910812I R. A. BLACK

T.O. roll 183555 2D offset ~~2D TIME = DAS TIME +8.0 sec.~~
Frame count at start = 8.

2D on 191350
191510 on spd. 1 start cloud pass 1
161620 ants off spd 6 & spd 1 for ants off
1700 2 nbs frame count at next start = 1742

191900 on spd. 1 FC 1900 2 nbs
191927 spd 6, then ants off cloud pass 2

192208 lined up for another pass, but the cloud died.
frame count 3043 at next start.

192401 2D rate set to .1 new cloud
193250 2D rate set to map cloud(s) pass 3 (several calls)
193354 on spd 4 Pump 50
ants off 193425 spd. 1
frame count at start next. = 4930

193705 on spd 3&4 Pump at 3 = 45 pass 4
193728 off spd 1
frame count at start 6372

194033 on spd 4 cloud pass 5
194057 ants off
frame count at start 7876 (start of next pass)

194340 2D re-wound by itself, tape is short.

194448 FV on spd 2 2D #2 on
194506 spd 4 2 mks cloud pass 6
194540 auto off
frame count start next 10,080

new cloud

194900 on spd 2 cloud pass 7
194930 auto off
frame count on next = 11323

195200 on spd 1 195214 2 mks pass 8
195225 spd 4
195252 auto off

195520 on spd 1 13,700 2 mks spd 4 Pass 9
155554 auto off
frames at start of next run = 14918

195815 on sp. 1
15178 2 mks spd 4
195915 auto off pass 10
FC at start next 16795

200050 on sp. 1
200120 spd 6 pass 11
auto off 200150
FC 19,338 at start of next run

200530 on spd 1 0543
0600 spd 6 pass 12
20,900 spd 1 auto off
frame count 21698 at start of next run.

200925 on spd 1
200940 2 mks. pass 13
201010 spd 4
201020 spd 6
201045 spd 1 auto off
Fc at next pass 24963 climb.

201308 on spd 1
spd 6 201318 2 mks Fc ~25,900 pass 14
off @ 201350
Fc at next = 27,562

201600 on spd 1 2 mks - 1610 pass 15
1642 spd 6
201745 spd 1 auto off 1750 2D #2 off

@ 201759 2D #3 on
202010 on spd 1 - 2025 2 mks pass 16
- 2055 spd 6 2 towers
- 2138 auto off
Fc at next start = 34,944

new cloud

auto on 204015 spd 1 35,400 4025 2 mks pass 17
204125 spd 6 204147 auto off spd 1

204550 spd 1 on new cloud
4605 spd 6 4615 2 events pass 18
204630 auto off climb
Fc start refl num = 40,349

204930 spd 1 on
spd 6 4049 pass 19
205004 auto off spd 1
Fc at start 42,348

205315 on spd 1
5355 3 events 42,800 pass 20
5423 spd 6
5507 auto off spd 1
205700 on spd 1 pass 21
5117 spd 6
205811 auto off

205825 20#3 off

210000 on spd 6 pass 23 204 on
210047 off out of filter

start pass #24
210820 - 0835

211210 pass 25
214120 PMS #4 rewound by itself.

220700 new cloud pass low alt. PMS tape 5
These data are not part of our other passes. We are flying radar radials.

222959 turn to miss a big cell.
240250 a little light precip. This time, we are going in low + returning high in the ice ~~...~~ under, + in an anvil.

240608 change probe record on.
242054 back on max rate.
242449 PMS tape #5 off Heading home

E field
mill
Replica
charge.

n
lator ?

~Hallett . 79

12 Aug
Mon 12 Aug 91
delay to ~18:30 TO not good
echoes in CAPE area.

T.O. 18 35 58
both FM OK.

Full Volts on aft dome –
not balancing off

ON – 19-15-30

2/1 19 – 16 on
± 1V 19 16-54 ~~stop~~ off
(2V P/P)

no E field – growing cloud.
on JFK.

1/2 0°C 19 19 21 on.
19 20 on stop

no E field
in Sandia

Go to new cloud 2/1 3/1

no flash 19 33 34 on
stop

new time 193600 in

+1.4

light Turbulence no Efield 81
12 Aug

(voice) 19 37 38 off

19 40 15.

2/3 | 2

small top

small rain.

19-41-10 STOP

on 19. 44 35

[small top] light rain no Efield

start 13KV
+2.0°C.

19 45 53 stop.

on 19 49 00
small cloud as before.

off 19 50.00.

good bubble. (2 minutes)

on 19 52 00. (no Efield)

small rain (splash)

19 53 30. off

(3 and 4
kg m^{-3})

00
12 Aug

on 19550
wood [illegible]. (no E field)

19600 stop.

on 19512 &
19514 of (time delay)

20100 on
2 clouds. out (nine pulses)
~~entire~~ 20150 ~~[illegible]~~ out

20200 off.

-2°.

on 20058.
good cloud NOE

2007 or stop.

on 20 10 02
(Two bits in this cloud)
-1.8. Bennett on dot 20 Aug
soap on off 20 11 11

again 20 12 58. E field
1 Aug
stop.

9,4

2 bubbles missing 85

20 16 20 on 12 hr.

20 17 30 off 2 bore (horizontal

Wait for traffic

on 202043
bumps prior to entry. E fault (crack side)

S LH 20 22 00.

Voice visible on any of above parcs.

-4.3

Q to Mike?

(11)

It looks offset joints are near horizontal

-5-6

-6.6

−1·8

clouds less dark!

+1·5

up wagt
−1·3

−5·2

−5·8

new cloud
 16

12 Aug

on 204039
204215
mod bursts. no E

new cloud.
on 204530
bursts on stay
no E noise

off 204647

on 204925
no E/I.
off 205015. ½ box scale E.

on 205329
205508 n E, some ice

on 205650

5'2.

climb
—12·2

20,000 ft.

Not good cl 2/ cl 3kt.

on 21000 12 Aug
off/ out Vbump.
out 21032.
out of favour.

on 21050 no V bath
off 21020 circuit obs
on exit
foundation

return perception -
holes better

on 21157
Weak & bad noise.
Florida.

<u>Summary</u> all instruments OK. 12 Aug

First series of passes in clouds which only just reached above 9 kft level, little ppt, no ice, no E. Temperature +1°C.

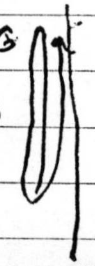
Second series of passes in following updrafts, gave modest E, which in the penultimate ~~pass~~ cloud was apparently to the side of the penetration. The final cloud had weak electrification and little ice

Very little shear in all of

these clouds: none above 14 kft until anvil at ? level.

23 00 – 23 45

Flag. 6 6 6



<u>Photos</u>
during above time

93
12 May

Going to the N. Underwood
Light Seals

Take on 0 07 00 on
close Mbr.

~~0013+17~~ (intercept time)

0017 16

On GOLO 47
Joins track about 2230
towards Anvil Suite S
-110C @ 163° Hdg

Land ~~1600~~ 1030

One side of Tape
Used Today

close Poles Lose-
some small ice on
P.M.S.