

E.5 Doppler Radar Scientist (On-Board)

The on-board Doppler radar scientist (DRS) is responsible for data collection from all radar systems on his/her assigned aircraft. Detailed operational procedures and check lists are contained in the operator's manual supplied to each operator. General supplementary procedures follow. (Check off and initial.)

E.5.1 Preflight

- ☒ 1. Determine the status of equipment and report results to the on-board lead project scientist (LPS).
- ☒ 2. Confirm mission and pattern selection from the on-board LPS.
- ☒ 3. Select the operational mode for radar system(s) after consultation with the on-board LPS.
- ☒ 4. Complete the appropriate preflight calibrations and check lists as specified in the radar operator's manual.

E.5.2 In-Flight

- ☒ 1. Operate the system(s) as specified in the operator's manual and as directed by the on-board LPS or as required for aircraft safety as determined by the AOC flight director or aircraft commander.

E.5.3 Postflight

- ☒ 1. Complete the summary check lists and all other appropriate check lists and forms.
- ☐ 2. Brief the on-board LPS on equipment status and turn in completed forms to the LPS.
- ☐ 3. Hand-carry all radar tapes and arrange delivery as follows:
 - a. Outside of Miami - to the HRD operations center (FGOC).
 - b. In Miami - to MGOC or to AOML/HRD. [Note: all data removed from the aircraft by HRD personnel should be cleared with the AOC flight director.]
- ☐ 4. Debrief at the appropriate operations center (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.

Doppler Radar Scientist Check List

Flight ID 910712H1
Aircraft # 42RF
Operators Samsun
Radar Tech. Salim Beyva

Number of digital magnetic tapes on board 16

Number of tape labels on board 50

Component systems up and checked:

MARS	<u>✓</u>	Computer	<u>✓</u>
DMTR1	<u>✓</u>	DMTR2	<u>✓</u>
LF	<u>✓</u>	R/T#	<u>SN124</u>
TA	<u>✓</u>	R/T#	<u>42671 p#</u>

Time correction between radar time and digital time _____

Radar Postflight Summary

Number of digital tapes used:	DMTR1	<u>4</u>
	DMTR2	<u>4</u>

Significant down time:

DMTR 1	<u>3 min 0</u>	Radar LF	<u>0</u>
DMTR 2	<u>3 min 0316-0319</u> <u>2-3</u>	Radar TA	<u>0</u>

Other problems:

- tape 2-3 had no ring when loaded reloaded worked fine.
- LF calibration is off!! will check Calib. — recalibrate flight using TA
- Nav1 was bad (used on tape) will need RAMS data

Sheet 1 of 1

[illegible]

JUL 12 1991

HRD Radar Tape Log

Flight _____ Aircraft _____ Operator _____ Sheet ___ of ___

[illegible]

TEXMEX IOP 2 12 July 91
Ops: F Marks, C Samsury, P. Dodge

2001 Take Off

2032 Radars on, FM training
Chris on system. This IOP should
be more eventful. Main data system
was down 2009 to 2030 because of
suspected fire.

2121 Descent

~2100 played with F/AST mode with 0° tilt
- got strange result antenna would look
left 4° near 0° sweep angle and 2.5-3.0
forward near 180° sweep angle (SA)
when in cont. no problem - weird!!!

2127 level out ~ 700mb

214703 Main data syst. down

2150 → Backup on data syst.

Echo - 215440

Headed
to 8.5°N 97°W

Echo ~ 30km from plane

220417 EOT 1 - 1

Start 2-1.

IP @ 8°N, 97°W

Turn @ 2217 @ 8°N, 97°W

ODW 1 @ 221830

Turning TEXMEX pattern E-W

Near to rain → 2228

2229 ± 20° Fast

2234 intense echo

2239 headed toward squall line
near 50nm w/ plane.

2249 encountering squall line

225550 Turn

230208 Turn

230430 Eastward

230530 Back through squall line
looks great on tail
~ 13 km tops

230645 ODW2

EOT 2-1 231037

2319 Real bumpy, right through
echo

2321 Sun is out

2330 Another squall line oriented
NW → SE ~ 40 nm from plane

Squall line echo dead ahead as we
begin turn @ 234157

Turn 234805

2349 westward @ 8:54.8 lat

235130 Out of fast mode → continuous
tilt 0.0

Approaching N. Portion of squall line
2353 → in line

235440 Updraft above us

Downdraft below us

Cross track wind so weak got
mainly downward motion

Out of line @ 2356

Lower fus. R/T looks low.

Spoke to Salim - running within
original R/T (the one that crashed
out in TOP #1). He is using the
cal constants for this R/T but
either something happened to R/T
or it's not at the frequency it
was calibrated at. We will intercomp.
with TA to determine offsets for
flight

EDT3 001243 (1-2)

Squall line (wrt plane) 50nm - turn
probably will occur just before.

Switch to fast $\pm 21^\circ$ @ 002135

Extending pattern further to the west
to catch squall line feature.

In squall line. 002828

main echoes on our left + right
not actually at plane.

Tops @ 13km.

Through line @ 003300

Turn @ 0035

Turn to east @ 004147

Eastward @ 0043 @ $9:22.6^\circ N$, $10:19.4^\circ W$

0057: raised LF DBZ thresh to 2 to
rid of speckles. Apparently the calibration
curve is off, because we can see change
in STC correction with range

102Z ODW 3 $29^\circ 22' KTS$ $9^\circ 20' 99^\circ$

TA 9.4 Tp 6.2

Turn to west @ 013130

@ $9:48.0^\circ N$ ~~22~~

ODW 4 013200

013420 Squall-line like feature NW-SE
10nm to SEU of a/c.

0141 entering line.

trying to negotiate around
the intense convection.

014330 Big Turbulence
flying A/c along the squall
line rather than through it

014650 Very NW tip of convective
line - headed out of it.

INS-1 is bad; switch to
INS-2 015130
→ we continue to use INS-1
so ~~flights~~ from here to end
of flight are "trash".

Lots of deviation in due W movement
due to intense convective line

Mini convective line NW → SE
17 ^{nm} ~~km~~ to SW of ~~A/c~~
020000 →

020340 encountering "leading edge"
tops ~ 13km

Turn to N → 020530

EOT 020730 (1-3)

Turn to E → 021140
@ 10:2.9°N

Convective line @ 023100
~~Des~~
~~Ascending~~ ~ 023545

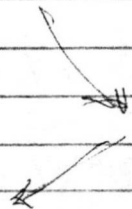
Playing w/ tilt to alleviate
sea clutter problem.

Lower level pattern -
Started(?) 025500

025800

Convective line 40nm to SW of
A/c; A/c tracking to SE

Pattern:



EOT → 031557 (2-3)

radar LF 031605 down!
031950 up

Bright band on TA → 032045

032815 Most echoes to NE of A/c
between 20-40nm

Climbing 033200
Heading home...

Bad image DSC 3 - Both screens
↳ quarter range.

EOT 040144 (1-4)

Stopping Fast @ 043340

04430 STOPPED RECORDING