801-455-3202

Lead Project Scientist

Storm or Project TS Karl **Experiment name** TDR ISRA
Flight ID 100916H1 **Mission ID** WX13#Karl7

Preflight

✓ 1. Participate in general mission briefing.

✓ 2. Determine specific mission and flight requirements for assigned aircraft.

✓ 3. Determine from AOC flight director/meteorologist whether aircraft has operational fix responsibility and the mission designation.

✓ 4. Contact HRD members of crew to:
   a. Assure availability for mission.
   b. Review field program safety checklist
   c. Arrange ground transportation schedule when deployed.
   d. Determine equipment status.

✓ 5. Meet with AOC flight director and navigator at least 3 hours before take-off for initial briefing.

✓ 6. Meet with AOC flight crew at least 2 hours before take-off for crew briefing. Provide copies of flight requirements and provide a formal briefing for the flight director, navigator, and pilots.

✓ 7. Report status of aircraft, systems, necessary on-board supplies and crews to MGOC in Miami.

✓ 8. Before take-off, brief the on-board GPS dropsonde operator on times and positions of drop times.

✓ 9. Make sure each HRD flight crew member has a life vest.

✓ 10. Perform a headset operation check with all HRD flight crew members. Make sure everyone can hear and speak using the headset.

In-Flight

✓ 1. Confirm from AOC flight director that satellite data link is operative (information).

✓ 2. Confirm camera mode of operation.

✓ 3. Confirm data recording rate.

✓ 4. Complete Lead Project Scientist Form.

✓ 5. Check in with the flight director to make sure the mission is going as planned (i.e. turns are made when they are supposed to be made).

Post flight

✓ 1. Debrief scientific crew.

✓ 2. Gather completed forms for mission and turn in to data manager at HRD.

✓ 3. Obtain a copy of the 10-s flight listing from the AOC flight director. Turn in with completed forms.

✓ 4. Obtain a copy of the radar DAT tapes. Turn in with completed forms.

✓ 5. Obtain a copy of serial flight data on thumb drive. Turn in with completed forms.

[**Note**: all data removed from the aircraft by HRD personnel should be cleared with the AOC flight director.]

✓ 6. Report landing time, aircraft, crew, and mission status along with supplies (tapes, *etc*.) remaining aboard the aircraft to MGOC.

✓ 7. Determine next mission status, if any, and brief crews as necessary.

✓ 8. Notify MGOC as to where you can be contacted and arrange for any further coordination required.

✓ 9. Prepare written mission summary using **Mission Summary** form.

Lead Project Scientist Check List

Storm or Project Karl **Experiment name** RI/TOR

Flight ID 100916H1 **Mission ID** WX13 Karl 7

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Rogers	Flight Director	Sears/Flaherty/Williams
Radar/Workstation		Pilots	Newman/Kibby
	Corsolo	Navigator	Brakob
Cloud Physics	—	Systems Engineer	Bosko
Photographer/Observer /Guests	—	Data Technician	
Dropwindsonde	Murillo	Electronics Technician	
AXBT/AXCP		Other	

B. Take-off and Landing Times and Locations:

Take-Off: 1537 UTC Location: MacDill

Landing: 2342 UTC Location: MacDill

Number of Eye Penetrations: 3

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing: Fly a RI/TOR mission into Hurricane Karl, which has emerged from the Yucatan peninsula after having retained its inner core and in fact strengthening its core. Fly butterfly pattern, 100 nm legs, IP on NE side end up on E side. Drops on turn points, mid points, eyewall, and 1st and 3rd center passes. System is rapidly getting better organized, possibility for RI over next 24 h. Mission will be coordinated with DC-8, Global Hawk, and WB-57. G-IV is also flying a star pattern.

Storm or Project Karl **Experiment name** RI/TDR

Flight ID 100916H1 **Mission ID** WX13AKarl7

E. —Equipment Status (Up ↑, Down ↓, Not Available **N/A**, Not Used **O**)

Equipment	Pre-Flight	In-Flight	Post-Flight	# DATs / CDs /Expendables/ Printouts
Radar/LF				
Doppler Radar/TA				
Cloud Physics				
Data System				
GPS sondes				
AXBT/AXCP				
Ozone instrument				
Workstation				
Cameras				

REMARKS:

Lead Project Scientist Event Log

Date 9/16/10 **Flight ID** 100916H **LPS** Rogers

Time	Event	Position	Comments
1537	takeoff	MacDill	t/o
1710	obs	central Gulf, 24.63, 88.4W	passing near several isolated cores of deep convection, associated with outer spiral bound of Ivan
1817	pattern	PP, N	
1818	drop 1	100 nm NE storm	
1827	obs	55 nm NE ctr	high ref on LF, ~50+ dBZ
1829	drop 2	50 nm NE	
1840	drop 3	NE eyewall	peak FL ~80kt, SF 68 kt
1842	drop 4	center	fix at 19°40' 93°19' at 1842Z 979 mb
1845	drop 5	SW eyewall	peak FL 60kt, SF 55 kt
1850	drop 6	Mid pt of outbound leg	
1857	pattern	outbound leg at 65 nm from ctr	outbound leg cut to 70 nm, next inbound on SE side is 61 nm
1904	drop 7	SW turn pt, ~ 70 nm SW ave	
1917	drop 8	at SE turn point	
1922	obs	inbound SE leg	motion from AF 974 + NOAA 1842 fix 289/8
1924	drop 9	mid point of SE leg	
1929	drop 10	SE eyewall	peak FL 64, SF 65 kt
1934	drop 11	NW eyewall	peak FL 85, SF 68 kt
1940	obs	40 nm NW ctr	Stratiform shield on NW side of storm

1845
19 48'
93 27

19 40'
93° 19'
18422

19° 42'
93° 28'
19 30Z

Lead Project Scientist Event Log

Date 9/16/10 **Flight ID** 100916H **LPS** Rogers

Time	Event	Position	Comments
1942	drop 12	50 nm NW eye	in strat shield
1943	obs	NW of eye	FL 77 sf on NE + NW side, FL 82 sf on SW & SE side
1955	turn	100 nm NW eye	turn to downwind for last pass
1955	drop 13	turn point for NW	
2006	obs	near turn point for Final inbound leg	many isolated, intense convective cells, possible supercells
2018	pattern, drop 14	100 nm W of eye	turn to track 90
2031	drop 15	mid pt. of W leg	in some strat. here, FL 40, sf 40 kt
2040	drop 16	W eyewall	peak FL 70, sf 70 kt
2043	drop 17	center	975 mb
2046	drop 18	E eyewall	peak FL 75, sf 70 kt
2055	drop 19	mid pt of E leg	
2102	obs	85 nm E ctr	FL 74 sf on W side, FL 75 sf on E side
2107	drop 20	100 nm E	end of pattern, RTB
2342	landing	MacDill	

19°46'
93°39'
2041Z

29 3/9 last 2 fixes
28 9/9

Mission Summary

Storm name

YYMMDDA# Aircraft 43RF

Scientific Crew (43RF)

Lead Project Scientist Rogers
Radar Scientist Carsolio
Cloud Physics Scientist —
Dropwindsonde Scientist Murillo
Boundary-Layer Scientist —
Workstation Scientist Murillo
Observers

Mission Briefing: (include sketch of proposed flight track or page #)

See previous

Mission Synopsis: (include plot of actual flight track)

flew pattern as planned, except had to cut legs on SW and SE sides due to proximity to land. Flew butterfly pattern. Storm was intensifying while we were out there, Pressure 978 on first pass, 975 on last. Peak FL winds were 85 kt on NW side, peak SF winds of 70 kt on W and E sides. Not too much in way of turbulence, but there were some bumps around convective cells in outer band on NE side and on W side of storm. Storm was small, with eye diameter about 30 nm.

Evaluation: (did the experiment meet the proposed objectives?)

Experiment did meet objectives. There were 3 Doppler analyses performed, all of which performed well. As eye was small, analyses were able to capture all of eyewall in each swath, which showed 40-45 m/s winds at 0.5 km. Sondes generally worked well, though 2 were not transmitted.

Problems:(list all problems)

No major problems, except with LF at beginning of mission, which appeared to be reading high (50-60 dBZ at times). System was reset after 1st pass which seemed to correct the problem.

Expendables used in mission:

GPS sondes : 20
AXBTs : —
Sonobuoys: —

Tropical Storm KARL Forecast Discussion

NOAA/ National Weather Service
National Centers for Environmental Prediction
National Hurricane Center
11691 SW 17th Street
Miami, Florida 33165-2149 USA
nhcwebmaster@noaa.gov
Page last modified: Thursday, 16-Sep-2010 12:25:04 GMT

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WTNT43 KNHC 161224
TCDAT3
TROPICAL STORM KARL SPECIAL DISCUSSION NUMBER   8
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL   AL132010
730 AM CDT THU SEP 16 2010

AN AIR FORCE RESERVE HURRICANE HUNTER AIRCRAFT FOUND THAT KARL WAS
SOUTH OF THE PREVIOUS FORECAST TRACK BY ABOUT 30 N MI.  THE PLANE
MEASURED A CENTRAL PRESSURE OF 987 MB...WITH FLIGHT-LEVEL AND SFMR
WINDS SUPPORTING AN INITIAL INTENSITY OF 55 KT.  THIS SPECIAL
ADVISORY IS BEING ISSUED TO SHIFT THE FIRST 36-48 HR OF THE
FORECAST TRACK SOUTHWARD AND TO SIGNIFICANTLY INCREASE THE
INTENSITY FORECAST.


FORECAST POSITIONS AND MAX WINDS

INITIAL      16/1230Z 19.7N  92.2W    55 KT
 12HR VT     16/1800Z 20.1N  93.7W    65 KT
 24HR VT     17/0600Z 20.5N  94.5W    75 KT
 36HR VT     17/1800Z 20.8N  96.8W    85 KT
 48HR VT     18/0600Z 21.0N  98.5W    75 KT...INLAND
 72HR VT     19/0600Z 21.0N 101.0W    25 KT...INLAND
 96HR VT     20/0600Z 21.0N 103.5W    20 KT...POST-TROP/REMNT LOW
120HR VT     21/0600Z...DISSIPATED

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FORECASTER BEVEN
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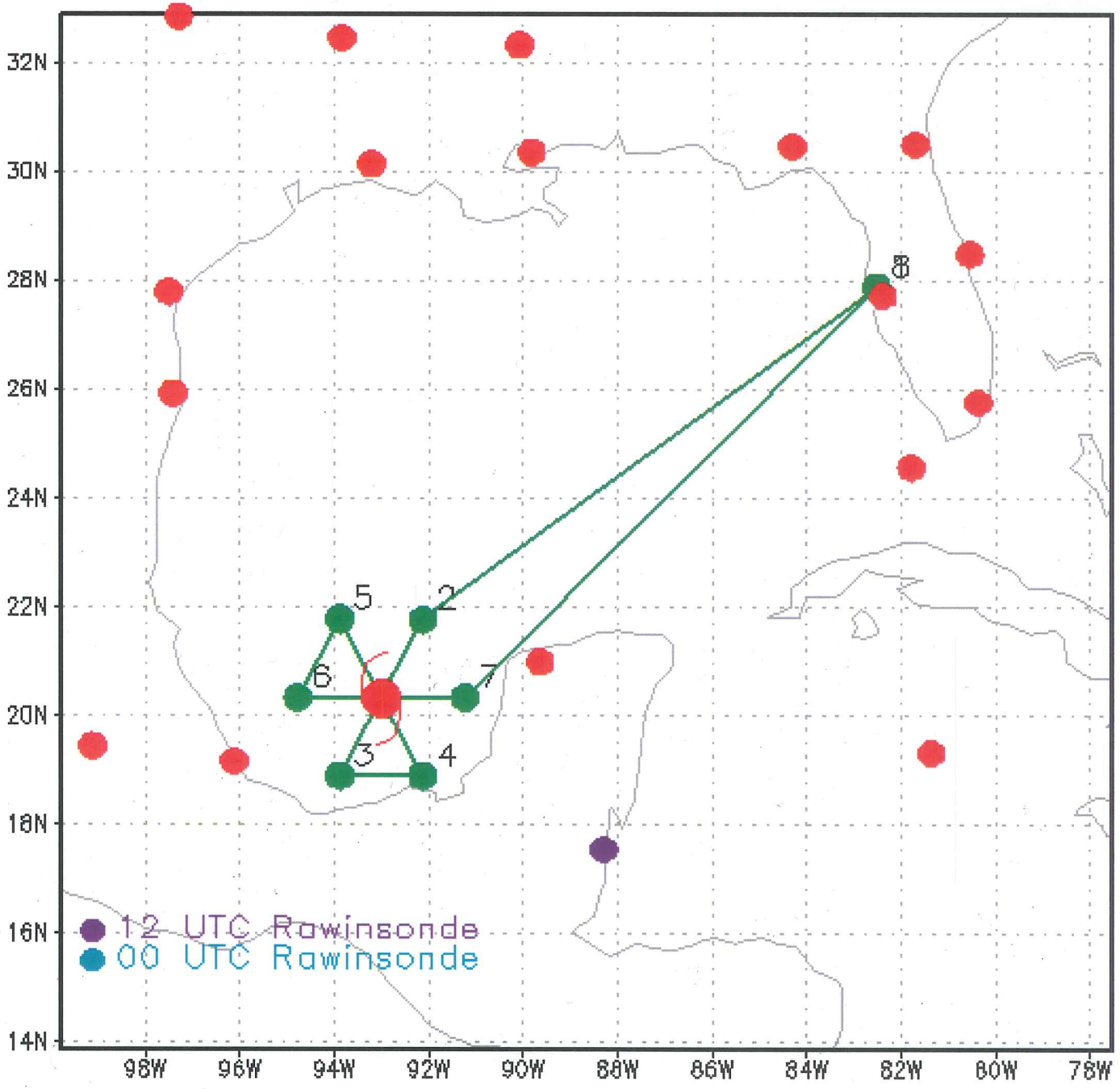
100916H1 WXIBA Karl 7



12 mile stand off