

## Lead Project Scientist

801-455-3202

Storm or Project TS Karl Experiment name TDR ISRA  
Flight ID 100916 H1 Mission ID WX13A Karl

### 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 PI/TOR

Flight ID 100916H1 Mission ID wy13d Karl T

**A. Participants:**

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>Rogers</u>	Flight Director	<u>Sears / Flaherty / Williams</u>
Radar/Workstation		Pilots	<u>Newman / Kibby</u>
	<u>Corsolo</u>	Navigator	<u>Brakob</u>
Cloud Physics	<u>_____</u>	Systems Engineer	<u>Bosko</u>
Photographer/Observer /Guests	<u>_____</u>	Data Technician	
Dropwindsonde	<u>Murillo</u>	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 PI/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, 1P on NE side end up on E side. Drops on turn points, mid points, eyewall, and 1<sup>st</sup> and 3<sup>rd</sup> center passes. System is rapidly getting better organized, possibility for R1 over next 24 h. Mission will be coordinated with DC-8, Global Hawk, and WB-57. G-1V is also flying a star pattern.

### Lead Project Scientist Event Log

Date 9/16/10 Flight ID 100916M LPS Rogers

Time	Event	Position	Comments
1537	takeoff	Mac DiU	+10
1710	obs	central Gulf, 24.63, 88.41	passing near several isolated cores of deep convection, associated with outer spiral band of Cor 1
1817	pattern	AP, 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 1842 <sup>2</sup> <sub>2</sub>
1845	drop 5	SW eyewall	peak FL 60kt, SF 55 kt
1850	drop 6	mid pt of outboard leg	
1857	pattern	outboard leg at 65 nm from ctr	outboard leg cut to 70 nm, next inboard on SE side is 61 nm
1904	drop 7	SW turn pt, ~ 70 nm SW eye	
1917	drop 8	at SE turn point	
1922	obs	inboard SE leg	motion from AF 474 + Motd 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	SW eyewall	peak FL 85, SF 68 kt
1940	obs	40 nm NW ctr	Stratiform shield on NW side of storm

1845  
1948'  
93 27

19°40'  
93°19'  
18422

19°42'  
93°28'  
19302

# Mission Summary

## Storm name

YYMMDDA# Aircraft 4ZRF

### Scientific Crew (4ZRF)

Lead Project Scientist Lopez  
Radar Scientist Lorsolo  
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 band. Plan butterfly pattern. Storm was intensifying while we were out there, pressure 978 on first pass, 975 on last. Peak FC winds were 85 kt on NW side, peak SF winds of 70 kt on W and E sides. Not too much in

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 kts winds at 0.5 km. Sondes generally worked well, though 2 were not transmitted.

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.

Problems: (list all problems)

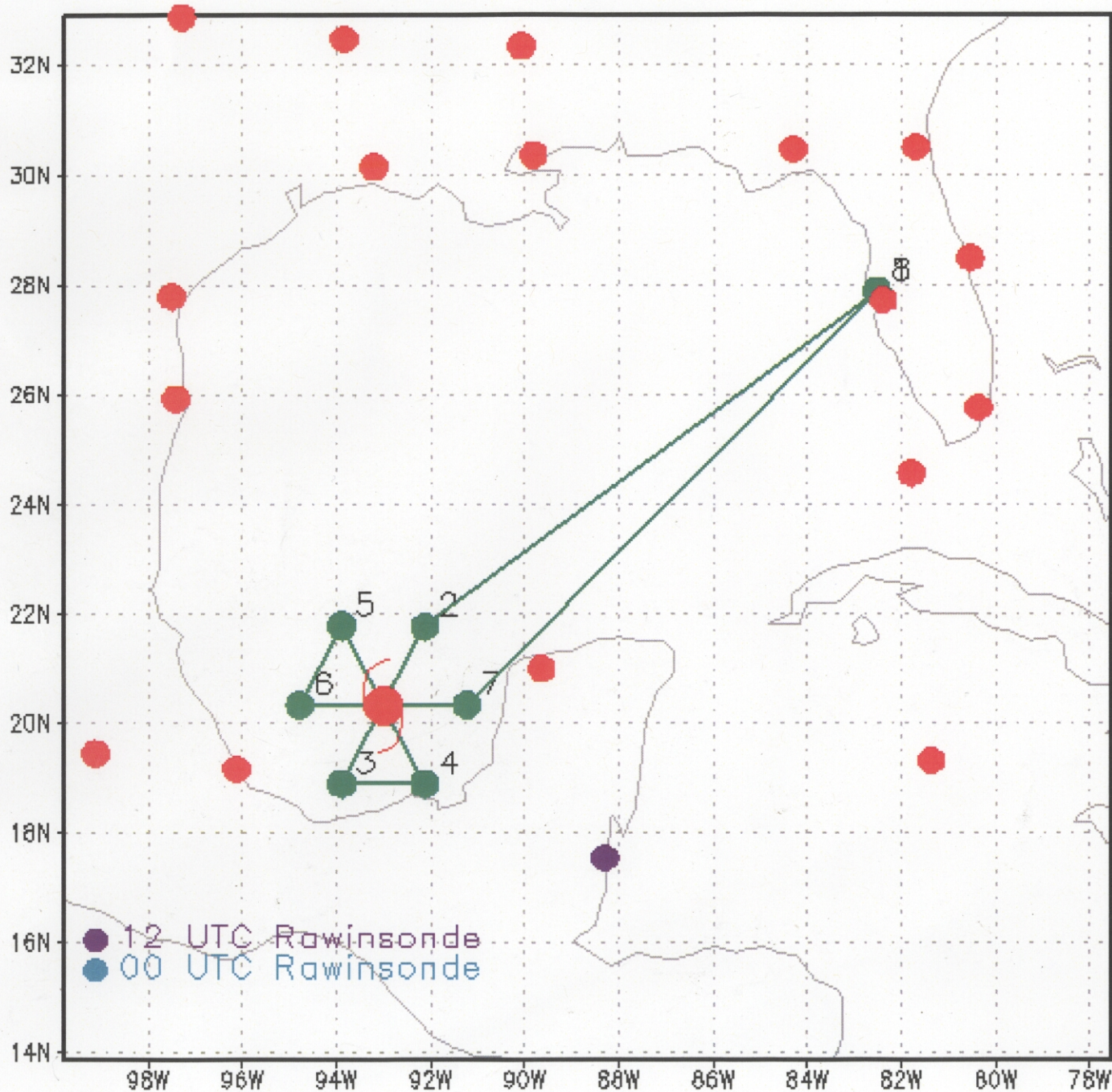
NO major problems, except with LF at beginning of mission which appeared to be reading high (50-60 dBZ at times). System was reset after 1st pass which seemed to correct the problem.

Expendables used in mission:

GPS sondes: 20  
AXBTS: \_\_\_\_\_  
Sonobuoys: \_\_\_\_\_

100916H1

WX13A Karl7



12 mile stand off

weather.gov



# National Weather Service National Hurricane Center



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## Tropical Storm KARL Forecast Discussion

NOAA/National Weather Service Active Storms - Atlantic and Pacific Marine - Storm Archives  
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11691 SW 17th Street - Home - Public Adv - Fcst/Adv - Discussion - Wind Probs - Maps/Charts - Archive - UPDATE - Information Quality - About Us - Career Opportunities

Miami, Florida 33165-2149 USA

nhcwebmaster@noaa.gov

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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

- Most Extreme
- Climateology
- Forecast Accuracy
- Seasonal Archives
- Historical History
- Breakpoints
- Storm Names
- Global Warming
- Forecasting Models
- Sea-level Rise
- Historical Hurricanes
- Research
- Product Questions
- Storm Surfs
- Go Forecast | Learn
- Weather Awareness
- Help with Reports
- Ordered Reports
- Analysis Tools
- Atlantic and E-Pacific
- Machine Forecasts
- Help with Advisories
- GIS Data | RSS Feeds
- Analysis Products
- Mobile Products
- Experimental
- Advisory Archive
- Advanced Search
- Satellite | Radar
- Get Storm Info
- Text only | FOD | Cell
- Alternate Versions
- Local forecast by
- City, St, or Zip

FORECASTER REVIEW

12HR AT	21/0600Z ... DISPERSED	50 KT ... POST-THOR/REMIT LOW
24HR AT	20/0600Z 21.0N 109.2W	52 KT ... INLAND
36HR AT	19/0600Z 21.0N 101.0W	32 KT ... INLAND
48HR AT	18/0600Z 21.0N 98.2W	32 KT ... INLAND
36HR AT	17/1800Z 20.0N 86.0W	32 KT
54HR AT	17/0600Z 20.0N 84.2W	32 KT
72HR AT	16/1800Z 20.0N 83.2W	32 KT
INITIAL	16/1330Z 19.2N 85.2W	32 KT

FORECAST POSITIONS AND MAX WINDS

290/9 →

270/10 →

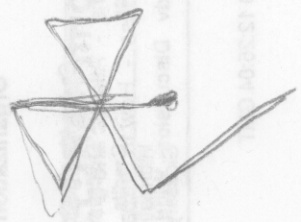
INTENSITY FORECAST:  
 FORECAST TRACK SOLUTIONS AND TO 310Z. CENTLY INCREASE THE  
 ADVISORY IS BEING ISSUED TO SHIFT AIRCRAFT 26-48 NM OF THE  
 WINDS SUPPORTING AN INITIAL INTENSITY OF 22 KT. THIS SPECIAL  
 MEASURED A GENERAL FORECAST TRACK BY ABOUT 20 N MI. THE PLANE  
 SOUTH OF THE PREVIOUS FORECAST TRACK BY ABOUT 20 N MI. THE PLANE  
 AN AIR FORCE RESERVE HURRICANE HUNTER AIRCRAFT FOUND THAT KARL WAS  
 330 AM CDT END SEP 16 2010

NATIONAL STORM KARL SPECIAL DISCUSSION NUMBER 8  
 NHC/NATIONAL HURRICANE CENTER MIAMI FL 3322010

1200Z  
 NWSNHC

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