

Lead Project Scientist

Storm or Project GORDON

Experiment type EMC TDR

Flight ID 20180904 H1

Mission ID 0407A GORDON

Preflight

- ☐ 1. Participate in general mission briefing.
- ☐ 2. Determine specific mission and flight requirements for assigned aircraft from the Field Program Director.
- ☐ 3. 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.
- ☐ 4. Meet with AOC flight director and navigator at least 3 hours before take-off for initial briefing.
- ☐ 5. Determine from AOC flight director the mission designation and whether aircraft has operational fix responsibility.
- ☐ 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 Field Program Director.
- ☐ 8. Before take-off, brief the on-board GPS dropsonde operator on times and positions of drops.
- ☐ 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. Request AOC flight director to leave radar in non-sector mode for initial Figure 4.
- ☐ 5. Once at IP, request AOC flight director adjust radar tilt to minimize sea clutter.
- ☐ 6. Complete Lead Project Scientist Form.
- ☐ 7. Check in occasionally 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 Dropsonde raw and processed files from the AVAPS operator on thumb drive.
- ☐ 4. Obtain a copy of the radar LF files from the radar technician on thumb drive.
- ☐ 5. Obtain a copy of the tar'ed radar TA files from the radar scientist on thumb drive.
- ☐ 6. Obtain a copy of serial flight data and raw NetCDF file on thumb drive from the data technician.
- ☐ 7. Obtain a copy of SFMR data on thumb drive from the data technician.
- ☐ 8. Obtain a copy of DMT data on thumb drive from the data technician.
- ☐ 9. Report landing time, aircraft, crew, and mission status to the Field Program Director.
- ☐ 10. Determine next mission status, if any, and brief crews as necessary.
- ☐ 11. Prepare written mission summary using **Mission Summary** form.

Lead Project Scientist Check List

Storm or Project GORDON Experiment name EMC TDR

Flight ID 20180904H1 Mission ID 0407A GORDON

A. Participants:

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>ALAKA</u>	Flight Director	<u>HOLMES</u>
Radar/Workstation	<u>MURILLO</u>	Pilots	<u>KIBBEY</u>
			<u>ROSSI/DIDIER</u>
		Navigator	<u>URATA</u>
Cloud Physics		Systems Engineer	<u>DARBY/LALENDE</u>
		Data Technician	<u>RICHARDS</u>
Dropwindsonde	<u>SELLWOOD</u>	Electronics Technician	<u>PEEK</u>
AXBT/AXCP		Other	
Photographer/Observer		<u>AVAPS</u>	<u>WARNELKE</u>
s/Guests	<u>ALLAND</u>		

B. Take-off and Landing Times and Locations:

Take-Off: 8:33 UTC Location: LAL

Landing: 15:22 UTC Location: LAL

Number of Eye Penetrations: 5

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
<u>04/0300Z</u>	<u>26.9 N</u>	<u>84.3 W</u>		<u>50 kt</u>
<u>04/1030Z</u>	<u>28.1 N</u>	<u>86.0 W</u>		<u>55 kt</u>
<u>04/1200Z</u>	<u>28.3 N</u>	<u>86.3 W</u>		<u>55 kt</u>
<u>05/0000Z</u>	<u>30.0 N</u>	<u>88.6 W</u>		<u>65 kt</u>

D. Mission Briefing:

Flight pattern rotated 90° clockwise → IP on east side
 Altitude of 10kft pressure for rot. butterfly
 TEAL @ 5kft
 1st pass → NHC fix

Storm or Project GORDON Experiment name EMCTOR

Flight ID 20180904H1 Mission ID 0407A GORDON

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				19 (17)
AXBT/AXCP				8 (5)
Ozone instrument				
Workstation				
Cameras				

REMARKS:

Lead Project Scientist Event Log

Date 2018-09-04 Flight ID 20180904H1 LPS ALAKA

Time	Event	Position	Comments
8:33	Takeoff	LAL	
8:55	Reached 1P	27.9°N, 83.7°W	
	DROP 01: good release		hit water
9:02	Moderate turbulence on inbound leg		
	Weaving through isolated cells in stratiform		
9:09	DROP 02	27.9°N, 84.9°W	good release
	BUOY 01		working 28°C
9:21	Center Fix	27.7°N, 85.7°W	broken eyewall to E, 1001 mb
	DROP 03		good release, hit water
	RH < 70% above 4kft → dry air from west side?		
9:34	DROP 04	27.7°N, 86.8°W	good release
	Mod. turbulence on outbound leg → rainband developing on W side?		
	Profile has RH > 80% below 10kft → column is moistening		
9:45	DROP 05	27.8°N, 87.7°W	good release, hit water
	BUOY 02		
	Much smoother after midpoint		
	Potentially no scatterers on downwind SW leg		
	New rainband trying to form on W and S sides		
	→ radar returns are low and weak		
10:21	DROP 06	26.1°N, 86.0°W	good release, transmission stopped ~4500ft
	Start of 2nd leg		
	Lots of convection in E semicircle → this would make a		
	circumnar very difficult; leaning toward convective burst mode		
	Overnight CDO has been persistent over center for several		
	hours now.		

Lead Project Scientist Event Log

Date 2018-09-04 Flight ID 20180904H1 LPS ALAKA

Time	Event	Position	Comments
10:34	DROP 07	27.1°N	good release, in water
	BUOY 03	86.0°W	
	center moving quickly NW		
10:46	Center Fix	27.9°N, 86.1°W	1004 mb, 18 kt, 12 m
	DROP 08		good release, in water
	extrap SLP = 999 mb → deepening? (This was too low)		
	perhaps a few SLP minima?		
	cellular convection, but otherwise smooth due N of center		
10:58	DROP 09	28.9°N, 86.1°W	good release, in water
	Next downwind leg → ride in "moat" between 2 developing rainbands.		
	MMR reliable for near-distance echos		
11:09	DROP 10	29.5°N, 86.0°W	good release, in water
11:10	BUOY 04		
	Added a drop for 3 rd center pass - storm could be evolving quickly		
11:27	DROP 11	29.5°N, 87.6°W	good release, in water
	BUOY 05		
	Dry 1000-4000 ft in NW → dry air from land?		
11:41	DROP 12	28.8°N, 87.0°W	good release, in water
	LLC appears to be decoupling from circulations above		
11:56	CENTER FIX	28.1°N, 86.3°W	hard to find, losing organization
	DROP 13		
	adjusted next downwind → cut short by 10-15 mi to avoid convection		
12:11	DROP 14	27.3°N, 85.4°W	
	BUOY 06		
12:17	DROP 15	27.1°N, 85.1°W	

Lead Project Scientist Event Log

Date 2018-09-04 Flight ID 20180904H1 LPS ALAKA

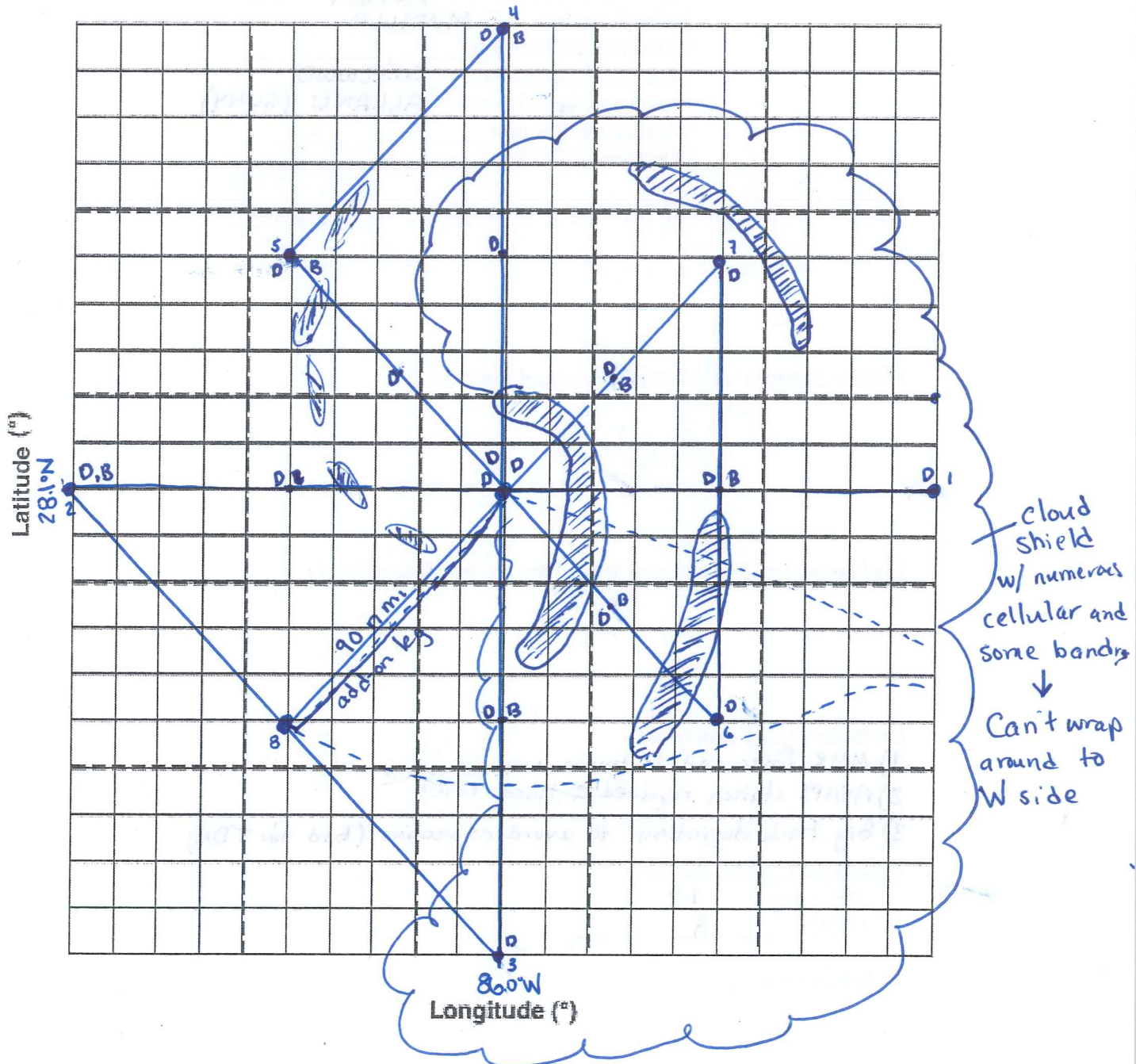
Time	Event	Position	Comments
	2-km to 5-km tilt is ~25 n mi to the east		
	5-7-km tilt is also large & to the east		
	echo tops to ~14 km in SE rainband		
	convection forming E of center, but can't wrap it around the center.		
12:27	MMR is having issues → software issue that was fixed		
	Big deviation around convection E of center (w/ no MMR)		
	End Plan: shorten last leg to 90 n mi		
	return 45°, exit NE, break off E or SE to ferry		
	no drops		
12:57	DROP 16	29.3°N, 85.0°W	
13:12	DROP 17	28.8°N, 86.0°W	dead
	BUOY 07		
	DROP 18 backup		dead
	AVAPS system required hard reboot		
	No midpoint drop on outbound leg		
13:22	CENTER FIX	28.4°N, 86.5°W	
13:44	DROP 19	27.3°N, 87.8°W	good release, hit water
	BUOY 08		
	Adjusted final leg → 105 n mi to NE for TDR, no drops		
	AXBT: 5/8 reported SST		
14:39	Science complete!		

Observer's Flight Track Worksheet

Date 2018-09-04

Flight 18090411

Observer _____



Mission Summary

Storm name GORDON

YYMMDDA# Aircraft 42RF

180904H1

Scientific Crew (4 RF)

Lead Project Scientist ALAKA

Radar Scientist MURILLO

Cloud Physics Scientist _____

Dropwindsonde Scientist SELLWOOD

Boundary-Layer Scientist ALLAND (SUNY)

Workstation Scientist _____

Observers (affiliation) _____

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

Mission Synopsis: (include plot of actual flight track)

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

Problems: (list all problems)

- 1) MMR froze and software was rebooted
- 2) AVAPS station required a hard reset
- 3) Big track deviations to avoid convection (bad for TDR)

Expendables used in mission:

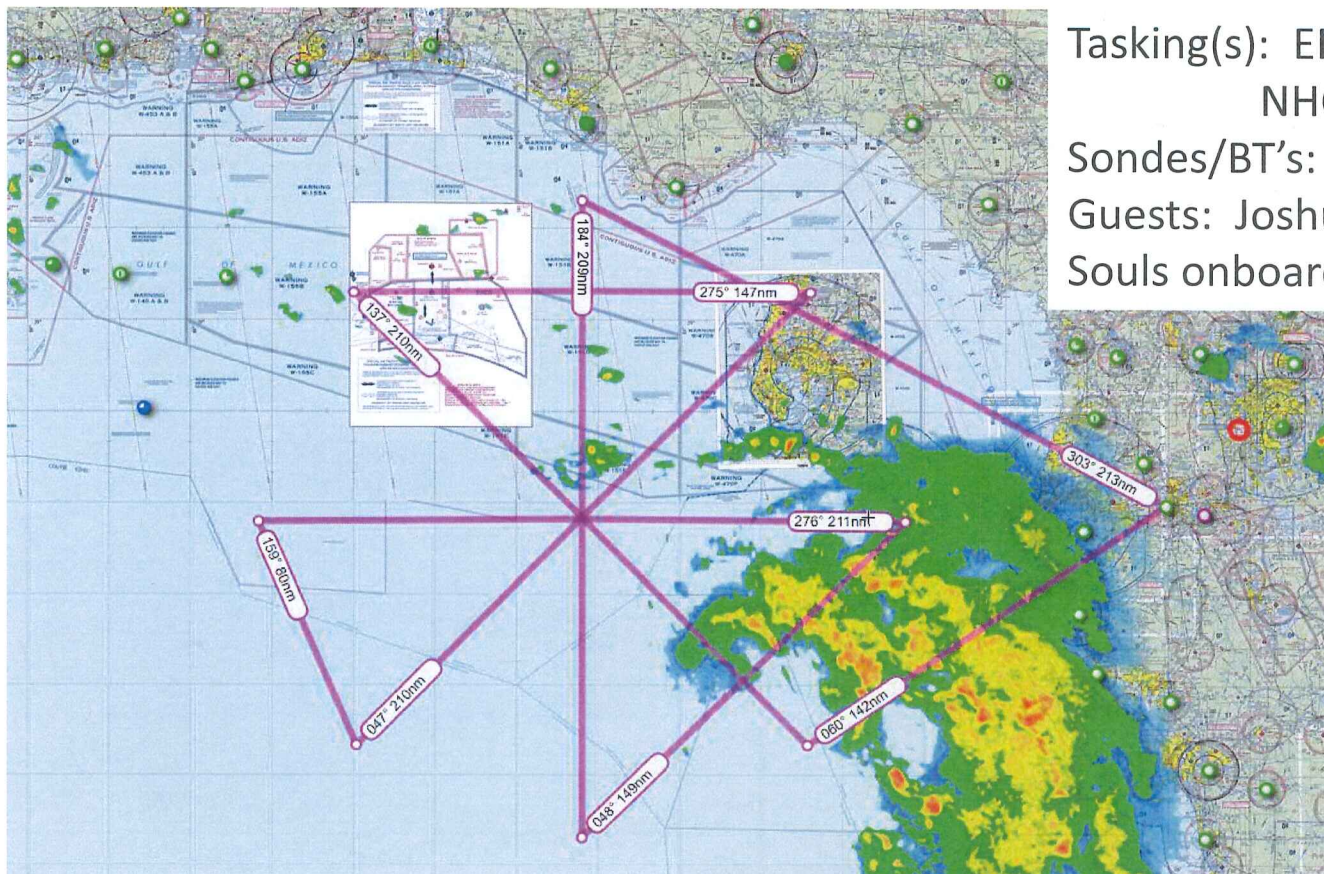
GPS sondes : 19

AXBTs : 8

Sonobuoys: _____



Mission Overview



Tasking(s): EMC/HRD: TDR (10K' Pressure)

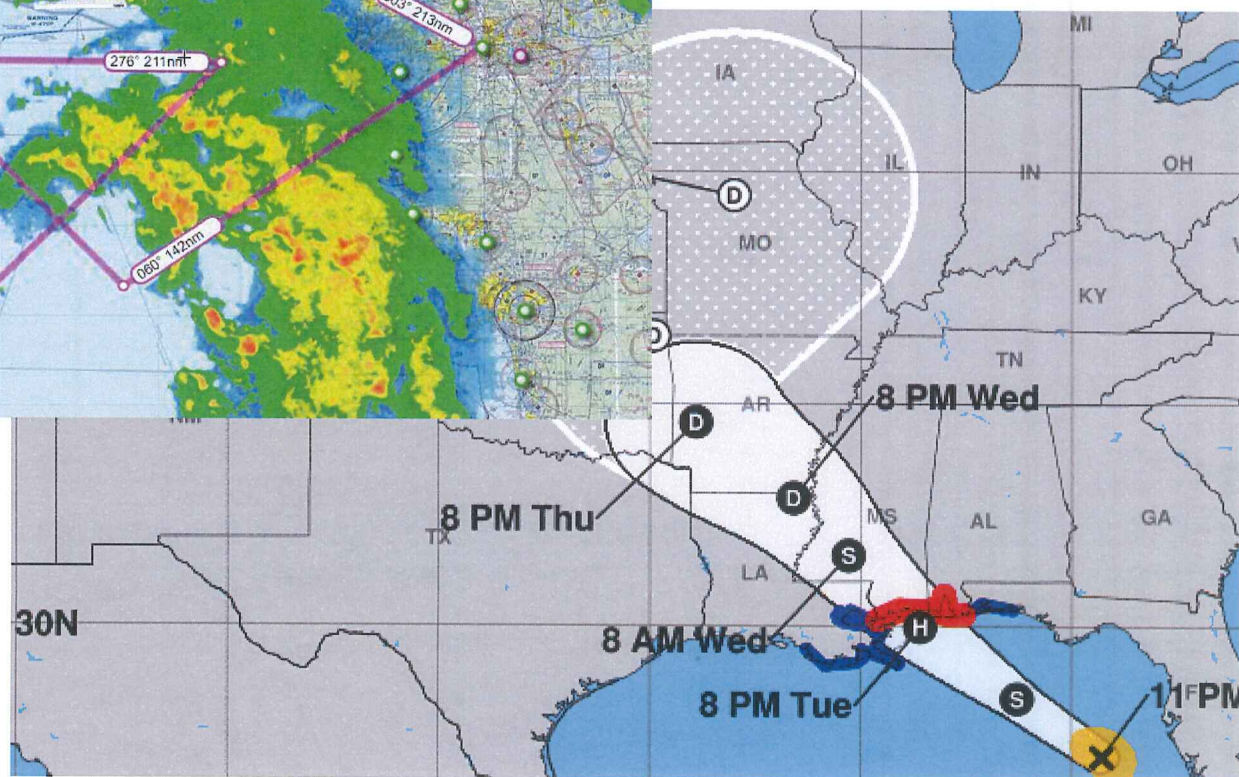
NHC: 1st pass fix/sonde

Sondes/BT's: 30 / 10

Guests: Joshua Alland (SUNY Albany)

Souls onboard: 14

rotate 90° clockwise
TEAL @ 5Kft
We fly 10Kft pressure
1st pass : 1130Z



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MISSION PLAN: GORDON

Prepared by the Hurricane Research Division File: current1.ftk

Aircraft: N42RF Proposed takeoff: 4/0830Z

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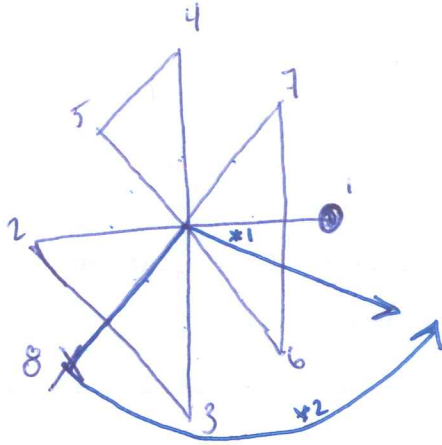
DROP LOCATIONS

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#	LAT (d m)	LON (d m)	RAD/AZM (nm/dg)	TIME (h:mm)
1S	29 39	85 36	105/360	0:41
2S	26 09	85 36	105/180	1:34
3S	27 54	83 37	105/090	2:12
4S	27 54	87 35	105/270	3:05
5S	26 40	86 59	105/225	3:26
6S	29 09	84 12	105/045	4:19
7S	29 09	87 00	105/315	4:57
8S	26 40	84 13	105/135	5:50

N
↑

(28.1°N, 86.0°W)



*1 : conv. burst option

*2 : 15kft circumnav

1st center pass - NHC fix

2nd ... - HRD research

3rd+ : TBD