

Rogers

Lead Project Scientist

Preflight

- ☒ 1. Participate in general mission briefing.
- ☒ 2. Determine specific mission and flight requirements for assigned aircraft.
- ☒ 3. Determine from field program director whether aircraft has operational fix responsibility and discuss with AOC flight director/meteorologist unless briefed otherwise by field program director.
- ☒ 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.
- ☒ 5. 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.
- ☒ 6. Report status of aircraft, systems, necessary on-board supplies and crews to appropriate HRD operations center (MGOC in Miami).
- ☒ 7. Before take-off, brief the on-board GPS dropsonde operator on times and positions of drop times.
- ☒ 7. Make sure each HRD flight crew members have life vests
- ☒ 7. Perform a headset operation check with all HRD flight crew members. Make sure everyone can hear and speak using the headset.
- ☒ 8. Collect "mess" fee (\$2.00) from all on-board HRD flight crew members.

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. Report landing time, aircraft, crew, and mission status along with supplies (tapes, etc.) remaining aboard the aircraft to MGOC.
- ☒ 3. Gather completed forms for mission and turn in at the appropriate operations center. [Note: all data removed from the aircraft by HRD personnel should be cleared with the AOC flight director.]
- ☒ 4. Obtain a copy of the 10-s flight listing from the AOC flight director. Turn in with completed forms.
- ☒ 5. Obtain a copy of the radar DAT tapes. Turn in with completed forms.
- ☒ 6. Obtain a copy of the all VHS videos from aircraft cameras (3-4 approx.). Turn in with completed forms.
- ☒ 7. Obtain a copy of CD with all flight data. Turn in with completed forms.
- ☒ 8. Determine next mission status, if any, and brief crews as necessary.
- ☒ 9. Notify MGOC as to where you can be contacted and arrange for any further coordination required.
- ☒ 10. Prepare written mission summary using Mission Summary form (due to Field Program Director a week after the flight).

Lead Project Scientist Check List

Storm or Project Gert Experiment name IPeX Genesis
 Date 7/24/05 Aircraft N43RF Flight ID 050724J

A. Participants:

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>Rogers</u>	Flight Director	<u>Flaherty</u>
Radar	<u>Dodge</u>	Pilots	<u>Tobias, Silah</u>
Workstation	<u>Dodge/Stern</u>	Navigator	<u>Gallagher</u>
Cloud Physics	<u>—</u>	Systems Engineer	<u>MacMillan</u>
Photographer/Observer	<u>—</u>	Data Technician	<u>Hill</u>
/Guests	<u>—</u>	Electronics Technician	<u>M. Rogers</u>
Dropwindsonde	<u>Stern</u>	Other	
AXBT/AXCP	<u>Dodge</u>		

B. Take-off and Landing Times and Locations:

Take-Off: 170620 UTC Location: MacDill

Landing: 0113 UTC Location: MacDill

Number of Eye Penetrations: 0

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing: Follow-on mission into T.S. Gert in SW Bay of Campeche. Fly butterfly pattern, legs will be shortened on west side due to proximity to Mexican coast. This mission will complete the genesis survey of Gert, which consisted on 4 12-h back-to-back missions into system. Today's flight will ~~report~~ investigate response of vortex to previous night's strong convective heating.

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

Equipment	Pre-Flight	In-Flight	Post-Flight	# DATs / Cds /Expendables/ Printouts
Radar/LF	✓	✓	✓	
Doppler Radar/TA	✓	✓	✓	
Cloud Physics	O	O	O	
Data System	✓	✓	✓	
GPS sondes	✓	✓	✓	
AXBT/AXCP	✓	X	X	
Ozone instrument	O	O	O	
Workstation	✓	✓	✓	
Videography	✓	✓	✓	

REMARKS:

BTs and SFMRs did not work.

Lead Project Scientist Event Log

Date 7/24/05 Flight 050724I LPS Rogers

Time	Event	Position	Comments
170620	Takeoff	MacDill AFB	takeoff from MacDill
1839	Storm update	450 miles from IP	est. position 21.4 96.6 @ 18 UTC; 100 nm SE of Tampico
1944	radar	140 nm NE of IP	NW-SE line of convection on LF radar 50 nm SW of a/c; FL winds 30 kts @ 145°
200637	radar	21°14' 95°11'; 43 nm NE of IP	broad stratiform shield ahead
201634	radar	20°55' 95°3'	at IP, turn to 300
① 201736	drop 1 (combo)	20°59' 96°0'	FL 165 @ 32 kts; SF ; no turning
② 202255	drop 2	21°13' 96°25'	SF
x ③ 202943	drop 3	21°25' 96°50'	No winds
2032	FL winds	21°33' 97°	Multiple centers, remains SSE winds
2034	turn		turn to 180 track
④ 2035	drop 4	21°27' 97°8'	SF
2039	turn	21°15' 97°8'	turn to 060 track
2039	FL wind	at turn	FL 207 @ 8 kts
2040	obs	21°10' 97°	stratiform shield
⑤ 2041	drop 5	21°12' 97°	FL 264 @ 8 kts
2047	FL winds	21°25' 96°38'	FL winds 190 @ 22 kts
2048	- obs	21°27' 96°33'	sfc. press 1003, bumps of about 6 m/s updrafts
2051	FL winds	21°34' 96°20'	FL 148 @ 42 kt FL up to 50 kt
2052	drop 6	21°37' 96°14'	FL 150 @ 50 kt
2056	obs	21°47' 96°6'	strato Cu curved; sfc winds appear to be about 25 kt from sea-state

21.4 96.6

Lead Project Scientist Event Log

Date 7/24/05 Flight 050729I LPS Rogers

Time	Event	Position	Comments
210111	radar	69 NM from center	band of convection 30 nm ahead, extending by 15 nm
⑦ 210317	drop 7	78 NM NE of center	FL 154 @ 30 kt; SF
210659	turn	92 NM NE of center	turn to 290; line of rain about 10-15 km off to right of plane
211259	FL winds	22°18' 95°47'	FL 149° @ 36 kt
⑧ 211721	drop 8	22°25' 96°7'	FL 138° @ 36 kt; SF
212600	turn	22°36' 96°47'	turn to track 180
⑨ 212622	drop 9 (Combo)	22°34' 96°47'	FL 121° @ 41 kt; SF ; 90 BT
213102	SF winds	22°17' 96°49'	SF winds about 30 kt from sea-state
⑩ 213526	drop 10	21°59' 96°50'	FL 129° @ 36 kt; SF
213935	SF winds	21°43' 96°52'	SF winds calm from sea-state
⑪ 214144	drop 11	21°34' 96°52'	FL 161° @ 15 kt; SF
214535	FL wind	21°18' 96°53'	FL 186° @ 6 kt
214847	FL wind	21°6' 96°52'	FL 215° @ 11 kt
⑫ 214912	drop 12	21°3' 96°51'	FL 200° @ 13 kt; SF
215312	FL wind	20°45' 96°49'	FL 225° @ 17 kt
215646	turn	20°33' 96°45'	turn to track 65
⑬ 215721	drop 13	20°34' 96°42'	FL 225° @ 15 kt; SF
⑭ 220448	drop 14	20°48' 96°10'	FL 184° @ 28 kt; SF
2210	obs	after FP	FL data and drops 5 km

a complex pattern. Multiple wind shifts and packets of weak winds suggest the possibility of multiple centers. In the drops, appears to have captured the primary vortex, but this vortex center seems displaced from centers at 700 + 850 mb. Appears that sea circ. center is further east than 700 + 850 mb center. Drops unable to capture multiple centers, but not surprising considering coarser resolution. FL data seems to show 2, possibly 3

centers; one at about 21 N 97.2 W, one at 21.7 97.5 W, and perhaps another inland at about 21.4 N. Pattern seems to indicate a broad circulation pattern that is fairly well-defined with an inner-core characterized by multiple centers. Pattern only captured E part of broad vortex, but was able to capture all of some of the smaller-scale centers w/in inner core. It will be interesting to compare these data w/ data from previous night's mission to try to establish continuity w/ small-scale vortices.

Mission Summary
Storm name
YYMMDDA# Aircraft 43 RF

Scientific Crew (43RF)

Lead Project Scientist Progers
Radar Scientist Dodge
Cloud Physics Scientist _____
Dropwindsonde Scientist Stern
Boundary-Layer Scientist Dodge
Workstation Scientist Dodge / Stern
Observers _____

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

see previous

Mission Synopsis: (include plot of actual flight track)

conducted butterfly pattern. Had to shorten legs to about 25-30 nm length on west side b/c of land. Should have extended westward extent of northern triangle to try to get western side of broad-scale vortex.

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

yes. Mapped out wind + thermo field of weak T.S. with drops, and found complex structure at multiple levels in the wind field (see final comment in log). There ~~was~~ was convective and stratiform rain, primarily N and E of center, so can get some useful measurements from radar as well.

Problems: (list all problems)

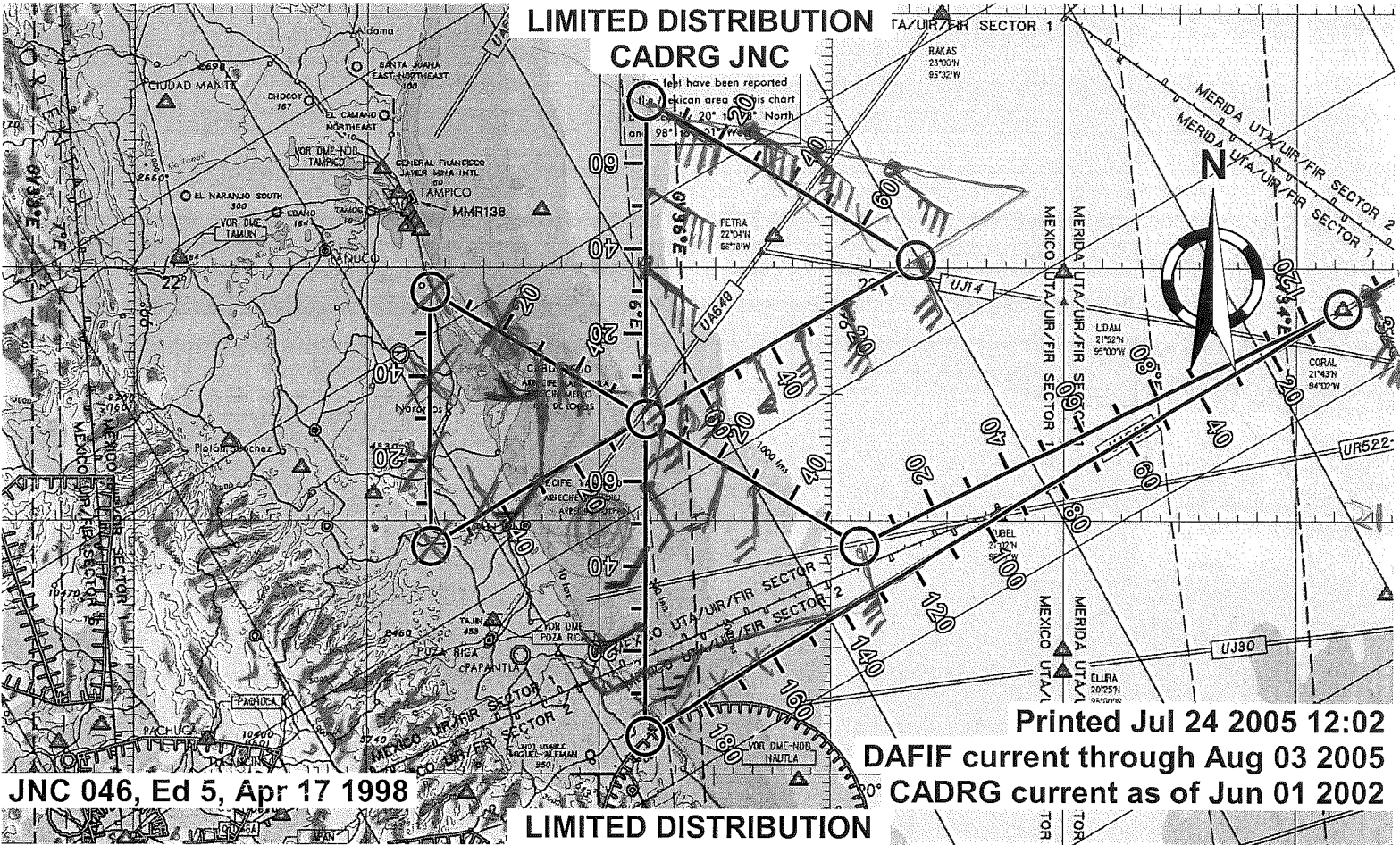
BTs and SFMR did not work.

Expendables used in mission:

GPS sondes: 14

AXBTs: 2

Sonobuoys: 0



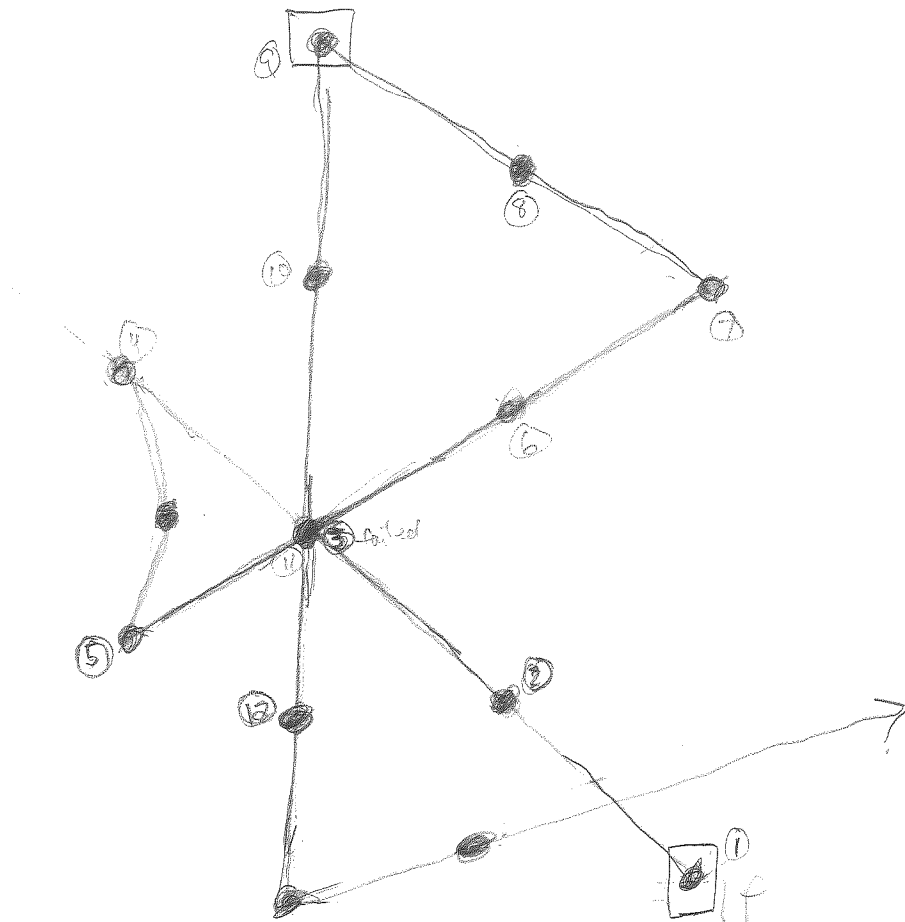
07

96

21 24

96 48

Drop pattern for 050724 I.



● - GPS

□ - BT

2 drops in center (1st, 3rd pass)

050724I ① Last Flight into TS GERT

① SWP/BT
201731 20° 57.9' 95° 58' 3629 m
good

② 202354 21° 13' 96° 26.9' 3616 m
GOOD WINDS

③ 202943 21° 25' 96° 49' 3634 m
drop near possible etc
NO WINDS

20348 radar ↓ 2034↑

④ 2035104 21° 30' 97° 08' 3639 m
GOOD WINDS

⑤ 204053 21° 11' 97° 02' 3639 m
good winds

⑥ 205241 21° 37' 95° 14' 3643 m
Good winds NE Wind MAX 50 KTS RT LEVEL

~~Drop~~ 210312 21° 58' 95° 34' 3660 m
good winds

⑦

② 050724I

2107 turning at

as we head west

211723 22°25' 96°07' 3640 m
good winds

SND/BT 212614

22°35' 96°47'

3637 m

GOOD
WINDS

BT no SST

SFMR (A)
not working
too great,
Navy and
drinking water
values

213520 21°59' 96°50'

3644 m

center maybe

GOOD WINDS

214138

21°34' 96°52'

3641 m good winds

214909 21°03' 96°51' 3650 m

215720 20°34' 96°42' 3658

good winds

#14



220439 20°48' 96°10.5' 3661 m

LAST SONDE GOOD WINDS

