Rogers
0509 21I

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 form 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 Rita **Experiment name** RAINEX
Date 9/21/05 **Aircraft** N43RF **Flight ID** 050921I

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Rogers	Flight Director	Damiano
Radar	M. Black	Pilots	Kennedy, Choy
Workstation	M. Black, Murillo	Navigator	Siegel
Cloud Physics	—	Systems Engineer	Lynch
Photographer/Observer /Guests	Tripoli, Cavigiolosi, Fozich	Data Technician	Sam Sovei, Tong
Dropwindsonde	Murillo, M. Black	Electronics Technician	Tong
AXBT/AXCP	Murillo, Tripoli	Other	

B. Take-off and Landing Times and Locations:

Take-Off: 1400 UTC Location: MacDill

Landing: 2105 UTC Location: MacDill

Number of Eye Penetrations: 4

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing:

2-plane RAINEX mission into Hurricane Rita, which has been upgraded to a category-4 hurricane. Fly figure-4, IP 50 nm E of storm. End up on N side of storm, then begin work w/ NRL on rainbands. Fly RB's in NE, NW, SW, and SE sides, then finish with another figure-4 with same orientation. Fly at 12,000ft for 43, 14,000ft for NRL; if icing becomes a problem, fly at 12,000 for NRL, 8000 for 43.

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	↑	↑	↑	
Data System	↑	↑	↑	
GPS sondes	↑	↑	↑	
AXBT/AXCP	↑	↑	↑	
Ozone instrument	O	O	O	
Workstation	↑	↑	↑	
Videography	↑	↑	↑	

REMARKS:

Lead Project Scientist Event Log

Date 9/21/05 **Flight** 0509211 **LPS** Rogers

	Time	Event	Position	Comments
	1400	takeoff	MacDill AFB	takeoff from MacDill
	1429	radar	140 nm N of IP,	outerbands visible on LF,
			160 nm NE of eye	SF wind 40 kt
	1438	radar	150 nm NE of eye	eye clearly visible on LF,
				150 nm at 225 deg
	1439	pattern	140 nm NE of ctr	track 180 to IP E of center
	1442	radar	140 nm NE of ctr	eye about 30 nm diameter,
				possible concentric eyewall starting,
				primarily strat. in outer band on
				NE side
	1449	radar	100 nm ENE of eye	approaching inner band, pretty
				strat. mostly 30-35 dBZ, possible
				outer eyewall, but no secondary
				tangential wind max
	1455	radar	75 nm ENE of eye	LF doesn't show concentric eyewall
				yet, bit more bumpy on this
				band, broad updraft of 5 m/s max
	1459	obs	70 nm ENE of eye	70 kt FL winds
	1507			
H	1507	drop 1	50 nm E of eye	FL 60 kt, SF 55 kt.
	1511	obs	30 nm E of eye	FL 85 kt, SF 70 kt
	1514	BT drop	outside eyewall	ch. 12, SST 26 C
R	1515	drop 2		GPS 120 kt at sfc
R	151655	drop 3		GPS 105 kt at sfc
	1518	winds		peak FL 140, peak SF 125 E
R	1519	drop 4	24° 11' 85° 42'	extrap 925 mb
	1520	BT drop		ch. 16, SST

Lead Project Scientist Event Log

Date 9/21/05 **Flight** 050921I1 **LPS** Rogers

	Time	Event	Position	Comments
	1523	radar	eye	pentagonal eyewall
R	1525	drop 5	inner edge of eyewall	
R	1526	drop 6, BT	middle of eyewall	SST
	1527	winds	outside of eyewall	peak FL 120 kt, SF 110 kt on W
	1531	radar	40 nm W of eye	bands on W weak, enhanced stratiform
	1534	turn	50 nm W of eye	turn to track 135
H	1537	drop 7	50 nm WSW of eye	FL 70 kt, SF 50 kt
	1549	turn	50 nm S of eye	turn to track 0, begin inbound leg
H	1550	drop 8	50 nm S of eye	FL 60 kt, SF 55 kt
	1557	BT drop	outside S eyewall	Ch 16, SST 29°C
R	1558	drop 9	outer S eyewall	
R	1559	drop 10		
A	1602	drop 11	fix	GPS 928 mb
	1604	obs	eye	good stadium effect
R	16	drop 12		
R	1606	drop 13		
	1608	BT drop	N of eyewall	Ch 16, 28.5°C
	1613	winds	30 nm N of eye	peak FL 160 kt, SF 130 kt on N,
				peak FL 130 kt, SF 120 kt on S
H	1617	drop 14	50 nm N of eye	
	1627	pattern		
	1640	turn		
R	1646	drop 15		FL 60 kt, SF 60 kt
R	1652	drop 16		FL 60 kt, SF 60 kt
	1657	turn	N of storm	turning to set up leg coord.
	1714	turn	NW of storm	reverse track, head upwind
				to a point N of storm

73
115
020
23 21
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90 nm
25.5
85.7
24.8 N
84.8 N

- 2 24.8 84.8
25.2 85.7

pt. 3
24.5 86.5

pt. 1
25.2 85.7

Lead Project Scientist Event Log

Date 9/21/05 **Flight** 050921I1 **LPS** Rogers

	Time	Event	Position	Comments
	1736	turn	N of eye	90/270 turn, turn downwind to begin leg on NW side, track 230
R	1738	drop 17	N of eye	FL 60 kt, SF 60 kt
	1743	pattern	downwind leg	orbit so NRL can catch up to us
R	1747	drop 18, BT	midpoint of downwind leg	FL 70 kt, SF 65 kt, SST 28.3
	1756	turn	end of downwind leg	turn, reverse track, begin upwind leg in same NW quad again
R	1758	drop 19	end of downwind leg	FL 60 kt, SF 60 kt
	1804	dbs	50 nm NW of ctr	band is still well-defined to north, less defined to W and SW
	1814	turn	end of upwind leg	
	1826	pattern	50 nm WNW of ctr	continuing downwind leg
R	1847	drop 20	50 nm S of ctr	FL 60 kt, SF 60 kt
R	1854	drop 21, BT		FL 50 kt, SF 50 kt, SST 29°C
R	1901	drop 22	40 nm SE of ctr	FL 70 kt, SF 65 kt
	1905	turn	40 nm E of ctr	end of downwind leg, turn inbound to ctr now
R	1906	drop 23	40 nm E of ctr	FL 75 kt, SF 65 kt, no LO
R	1907	drop 24	30 nm E of ctr	FL 90 kt, SF 70 kt
R	1912	drop 25		middle of E eyewall
R	1913	drop 26		inner edge of E eyewall
	1916	winds	eye	peak FL 160 kt, SF 135 kt on E side

5 23.9 86.8

6 23.7 86.2

Lead Project Scientist Event Log

Date 9/21/05 **Flight** _____ **LPS** _____

	Time	Event	Position	Comments
R	1918	fix, drop 27, BT	24°21' 86°12'	extrap, SLP 905 mb, GPS - drop failed
R	1920	drop 28		inner edge of W eyewall
R	1921	drop 29		middle of W eyewall
	1922	BT		SST 29°C, 90 m MLD
	1923	winds	outside W eyewall	peak FL 150 kt, SF 130 kt
	1932	turn	40 nm S of eye	turn to trailer 0, head into storm one last time
R	1936	drop 30	middle of S eyewall	
R	1937	drop 31	inner edge of S eyewall	
R	1938	fix, drop 32	24°18' 86°20'	900 mb extrap SLP; GPS 909 mb
R	1946	drop 33	inner edge of N eyewall	
R	1947	drop 34	middle of N eyewall	
	1948	winds	15 nm N of eye	peak FL 155 kt, SF 135 kt
	1952	obs	30 nm N of eye	very stratiform on N side
H	1956	drop 35	50 nm N of eye	FL 70 kt, SF 60 kt
	2105	landing	MacDill	land at MacDill AFB

29 R
5 H
1 AOC

Mission Summary

Storm name

YYMMDDA# Aircraft 43RF

Scientific Crew (43RF)

Lead Project Scientist Rogers
Radar Scientist M. Black
Cloud Physics Scientist —
Dropwindsonde Scientist Murillo, MBlack
Boundary-Layer Scientist Tripoli, Murillo
Workstation Scientist M. Black, Murillo
Observers Cangialosi, Kozich (UM)

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

See previous

Mission Synopsis: (include plot of actual flight track)

Flew RAINEX mission today, started fig-4 E of eye, completed figure-4 at 10 kft, then climbed to 12 kft to do RB work. Coordination was a bit clumsy at first to work the north side, partly bc there were multiple bands here. Did set up coord. eventually, though, and worked primarily the NW quad with good coord. Storm deepened explosively today, minSLP was 900 extrap, 904 from a sonde w/ 140 kt sfc. winds. Peak SFMR winds were 135 kt on the E and N side of eyewall, GPS pressure dropped 19 mb in 3½ hours.

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

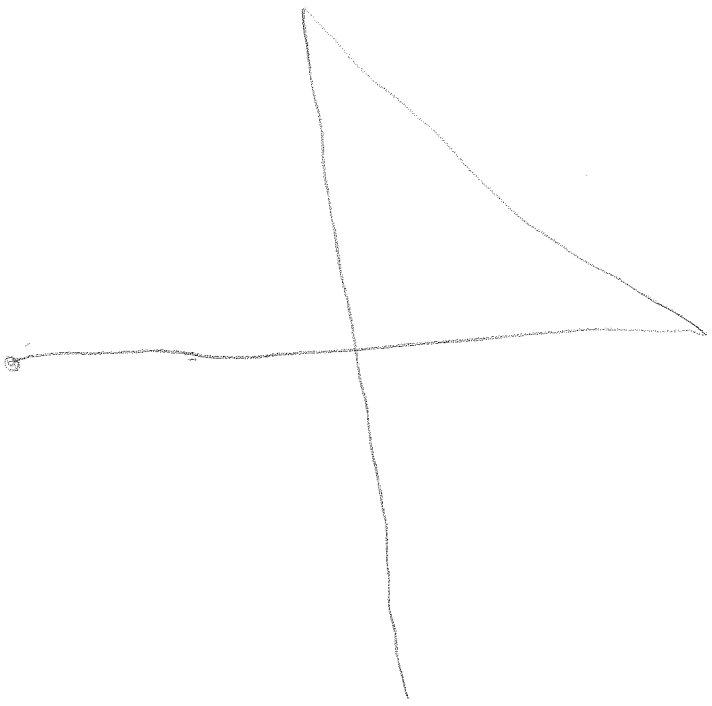
The mission did accomplish objectives. There was reasonably good coordination, especially in NW quad. around to SW quad. Sampled a storm that deepened explosively to Cat 5, dropping 35 sondes and 9 BT's. PPB wrapped from NE around to NW, then to W side. was fairly clear on S side. Was able to transmit Doppler analysis in real-time to NHC.

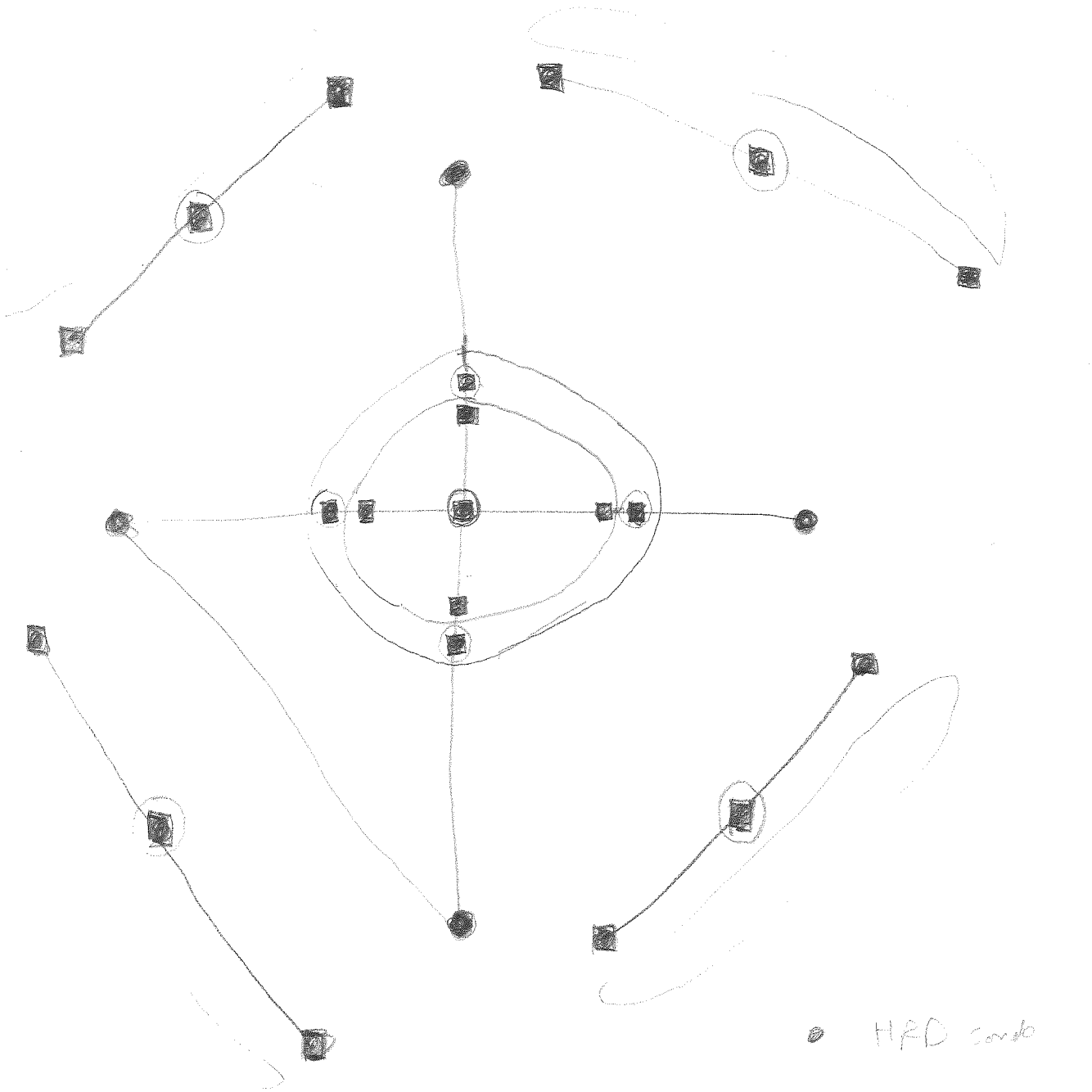
Problems:(list all problems)

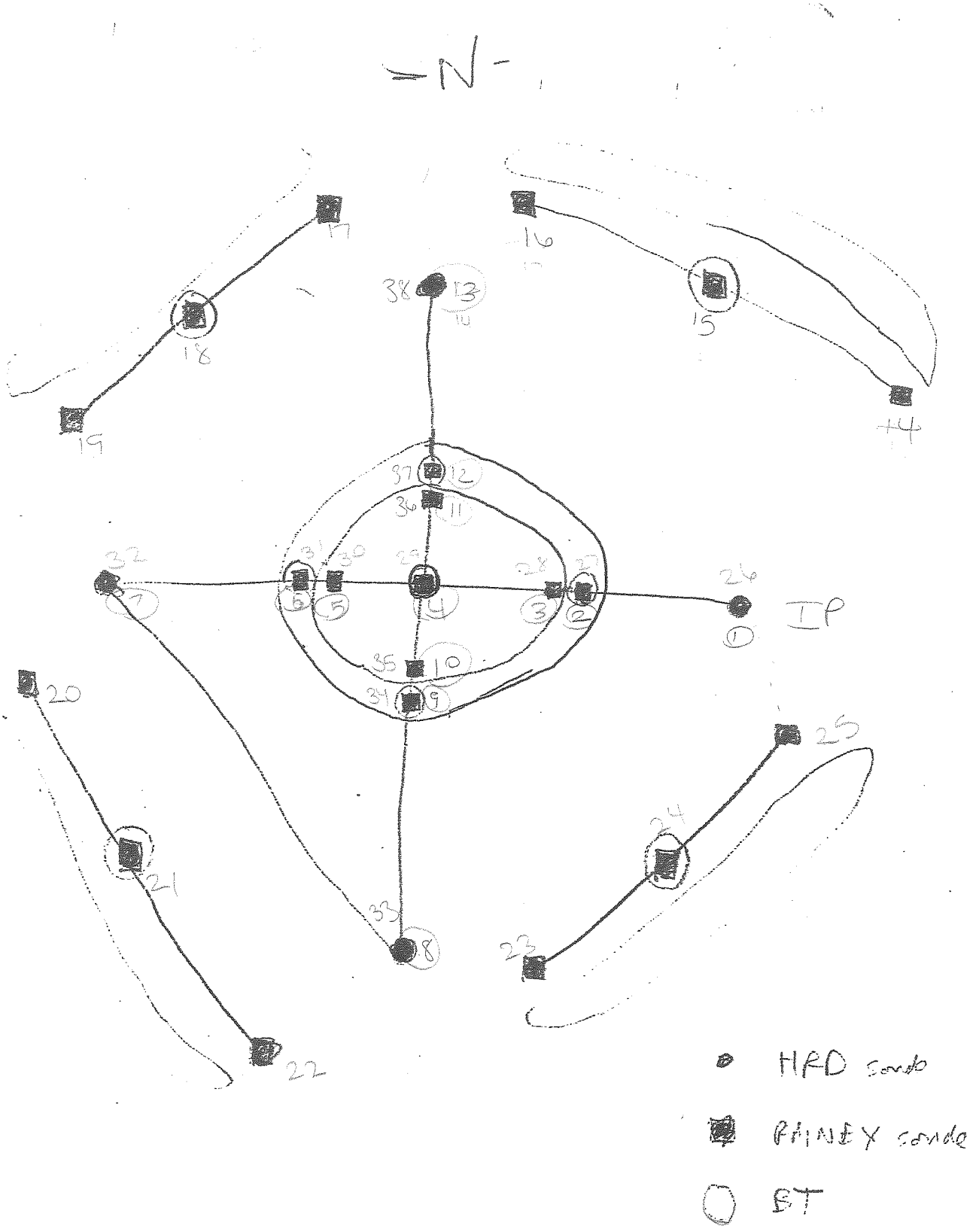
no problems. Two RAINEX sondes failed.

Expendables used in mission:

GPS sondes : 35 (29 Rainex, 5 HRD, 1 AOC)
AXBTs : 9
Sonobuoys: 0




HFD condo
PHINEY condo
BT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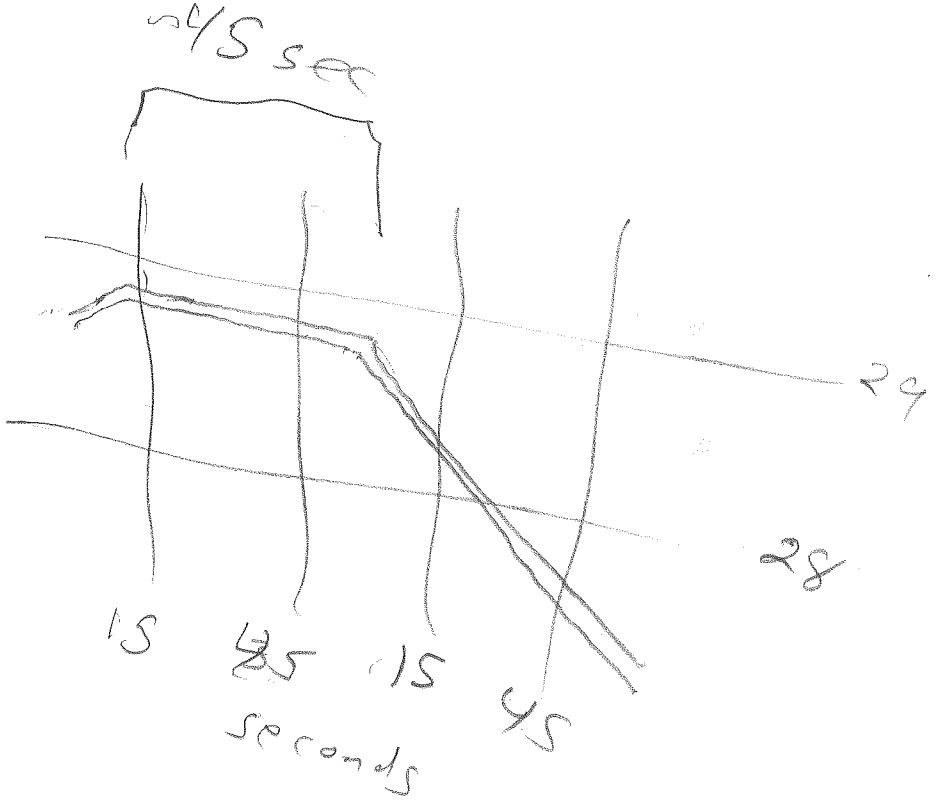
HRD sonde
PRINEX sonde
ST



SST = 28,7

MLD = 1,5 x 45 ≃ 68 m