

## Lead Project Scientist

Storm or Project T.S. Danny Experiment name Genesis/TDR

Flight ID 090826I2 Mission ID WXWXA Danny I

### 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 T.S. Denny Experiment name Oceania/TDR  
 Flight ID 090826I2 Mission ID WXWA Denny 1

**A. Participants:**

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>Rogers</u>	Flight Director	<u>Parrish/Hanning</u>
Radar/Workstation		Pilots	<u>Nelson/Earhardt</u>
	<u>Lorsolo</u>	Navigator	<u>Bishop</u>
Cloud Physics		Systems Engineer	<u>Nacker</u>
Photographer/Observer /Guests		Data Technician	<u>Riles</u>
Dropwindsonde	<u>Murillo</u>	Electronics Technician	<u>Lynch</u>
AXBT/AXCP	<u>Rogers</u>	Other	

**B. Take-off and Landing Times and Locations:**

Take-Off: 2014 UTC Location: MacDill  
 Landing: 0411 UTC Location: MacDill  
 Number of Eye Penetrations: —

**C. Past and Forecast Storm Locations:**

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
<u>26/15Z</u>	<u>24.9</u>	<u>70.3</u>		
<u>27/00Z</u>	<u>25.8</u>	<u>72.0</u>		
<u>27/12Z</u>	<u>26.8</u>	<u>73.6</u>		

**D. Mission Briefing:**

Perform TDR/early lifecycle mission into T.S. Denny, which was just declared a T.C. at 11 AM today. Fly butterfly pattern, at 1P 120 nm W of ELC. Extend legs to 150 nm on E and NE side of storm to better sample convection on that side. Storm is highly asymmetric, with upper-low still impacting system. Some SW shear also likely impacting system. NHC forecasts storm to slowly intensify to a hurricane. Shorten legs on S side.

Storm or Project TS Danny Experiment name TOR/GentEx

Flight ID 090826 I2 Mission ID USNA Danny I

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	g			
AXBT/AXCP	↑			
Ozone instrument	○			
Workstation	↑			
Cameras	↑			

REMARKS:

### Lead Project Scientist Event Log

Date 9/26/09 Flight ID 090826I2 LPS Rogers

Time	Event	Position	Comments
2014	TLO	MacDill	flto from MacDill
2146	BT 1	25.55 76.0	no readings
2200	BT 2	25.4 75.0	SST 28.3, MLD 30
RL 1 start 221400	drop 1	120 nm W of LLC, at IP	SF 10 kt, FL 10 kt, SST 28.3, MLD 50
2211	BT 3	25.25 74.0	SST 28.3, MLD 50
221450	BT 4	25.24 73.7	combo w/ GPS.
2225	obs	25.24 72.62	winds northerly at 15 kft
2226	drop 2	60 nm W of LLC	SF 5 kt, FL 10 kt
2227	pattern	55 nm W of ctr.	descend to 12 kft
2233	obs	~ 30 nm W of ctr	low-level scattered Ca, SCu, broken Cirrus aloft clear in b/w, winds ar NE as descending to 12 kft
2236	obs	~ 25 nm W of ctr on IR	good convective flare-up at 20 w
2240	drop 3	"center" drop, 25.1 71.6	drop based on visual inspection of sea state
2247	obs	25° 71°	FL switched from northerly to southerly at this point, still weak wind
2254	obs	~ 50 nm E of ctr	broader convective shield on IR imagery
225420	drop 4	60 nm E of ctr, 25.1 70.47	FL 10 kt; SF ~ 0 kt; RH 60% down to 9 kft, 95% below; winds 20 kt from 225.

RH 50%  
cloud  
13 kft  
winds N  
whole  
drop  
20-25

### Lead Project Scientist Event Log

Date 8/26/09 Flight ID 090826I2 LPS Rogers

Time	Event	Position	Comments
2307	obs	25.1 69.5	intense echoes on LF just off left side of track, will turn to track 330 just past line of strong convection; FL winds up to 25 kt; SF still around 10 though drops showing 25 kt
2318	drop 5	25 68.5, 150 nm E of ctr	FL 30, SF 20 kt 80+ % RH over most of drop, SF at 30 kt
2319	turn	155 nm E of ctr	turn to track 045, setting up for downwind leg, end radar leg 1
2322	turn		turn to track 325, begin downwind leg
2336	drop 6	26.2 69	drop some in high reflect & 44 kt for SF MR
2340		26.46 69.36	lightning, graupel here
2351	drop 7		SF 30, FL 10 kt
2350	turn	26.63 70.17	turn to track 230, turned early to stay close to convection
	drop 8	26 W 71 W, 60 nm NE of Danny	SF 0, FL 5 kt
0024	obs	25.2 72	FL winds are NE, suggesting "ctr" at FC has repositioned to our SE, possibly in response to convection

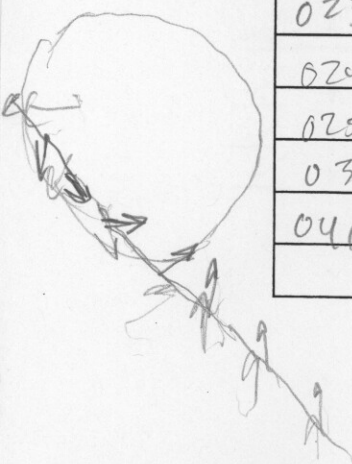
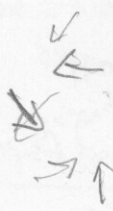
PLI end

27° 26'  
70° 36'

# Lead Project Scientist Event Log

Date 8/26/09 Flight ID 090826D2 LPS- Rogers

Time	Event	Position	Comments
0056	pattern	24.6 71.1	changing pattern - drastically shortened S.W leg, heading toward ENE to set up for final inbound leg
0038	drop 9	24.4 72.5	SW of "center"
0125	drop 10	at SE point of pattern	SPL winds 165 + 25 kt
0142	drop 11	at mid point of inbound leg	winds generally southerly + 30-35 kt for whole drop
0153	drop 12	26.65 70.7	wdir below about 240, then shifted to S, peak of 35 kt at 3 kft
0201	obs	26.8 71	wind shift from S to SW to NW to E along this leg to the NW, suggesting FL vortex was to our NE; perhaps circulation center of FL is off to NE of AT tk (which was to NW)
0218	drop 13		winds NE b/w 10 + 20 kft, shift to ENE below 10 kft
	BT5	72 W	
0228	BT6	27.1 73.3W	28.0
0235	BT7	27.2 74.1	SST 28.2
0245	BT8	27.4 75.1	28.2
0255	BT9		28.3 SST
0306	BT10		28.2 SST
0411	landing	KMCA	land at MacDill



# Mission Summary

## Storm name

YYMMDDA# Aircraft 43RF

### Scientific Crew (4 RF)

Lead Project Scientist Rogers  
Radar Scientist Lorsolo  
Cloud Physics Scientist \_\_\_\_\_  
Dropwindsonde Scientist Murillo  
Boundary-Layer Scientist Rogers  
Workstation Scientist Murillo  
Observers \_\_\_\_\_

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

see previous + attached

Mission Synopsis: (include plot of actual flight track) flew a modified version of

butterfly pattern to try to account for very asymmetric precip + rapidly changing structure. Sat img showed CC well displaced to SW of convection. Targeted CC w/ long legs on ENE side. Limited scatterers in pattern on W-E leg. Extended W on E to avoid convection. on inbound NE leg had trouble finding NW wind, suggesting center was reforming to east. Cut outbound SW leg short, extended downwind leg to SE port to get closer to convection +

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

This was a very complicated pattern in a complicated system. Very asymmetric, limited scatterers, and rapidly evolving structure. Nonetheless seem to have captured a system undergoing center formation associated w/ conv. bursts to NE of LCC. Prelim. radar analysis show flight-level center to NE of previous

Problems: (list all problems)

No real problems. All drops worked fine except last one which was late launch object. All BT's except 1st worked.

position and near dep convec- tion in rad. + satellite, could show a nice example of a weak system trying to organize in the presence of upper-level shear + dry air.

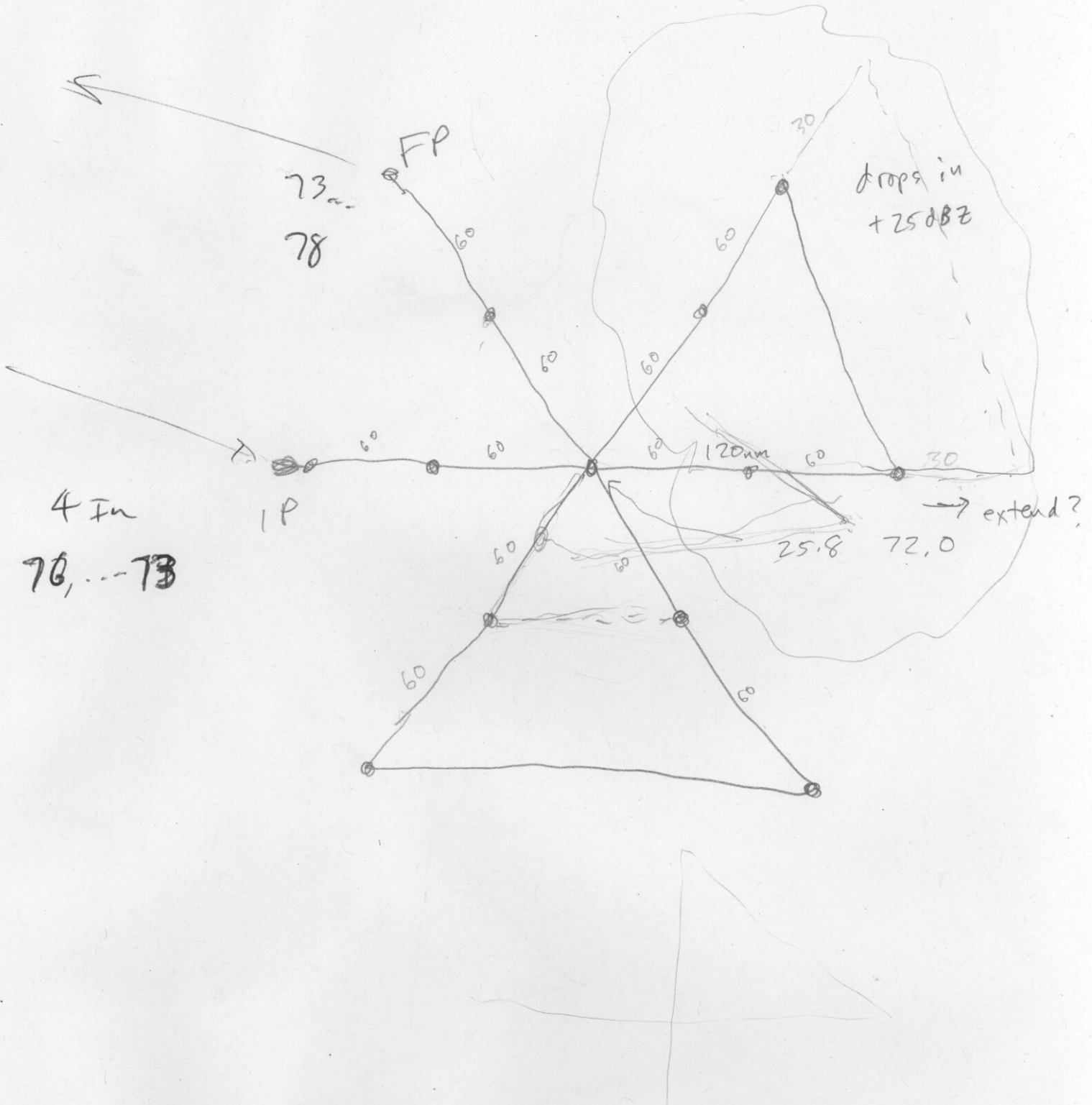
set up for final inbound leg on possible newly-forming center. Dropped sondes at endpts + midpts, found SF winds of 45 kt in NE convection. Some lightning in this convec- tion. Descended to 8kft and went south mode on S side for UHars. Dropped 10 BT's at 1-deg long. spacings on ferries. SSTs w 28°C ahead of syst

Expendables used in mission:

GPS sondes: 13  
AXBTs: 10  
Sonobuoys: —

26/15	24.9	70.3
27/00	25.8	72.0
27/12	26.8	73.6

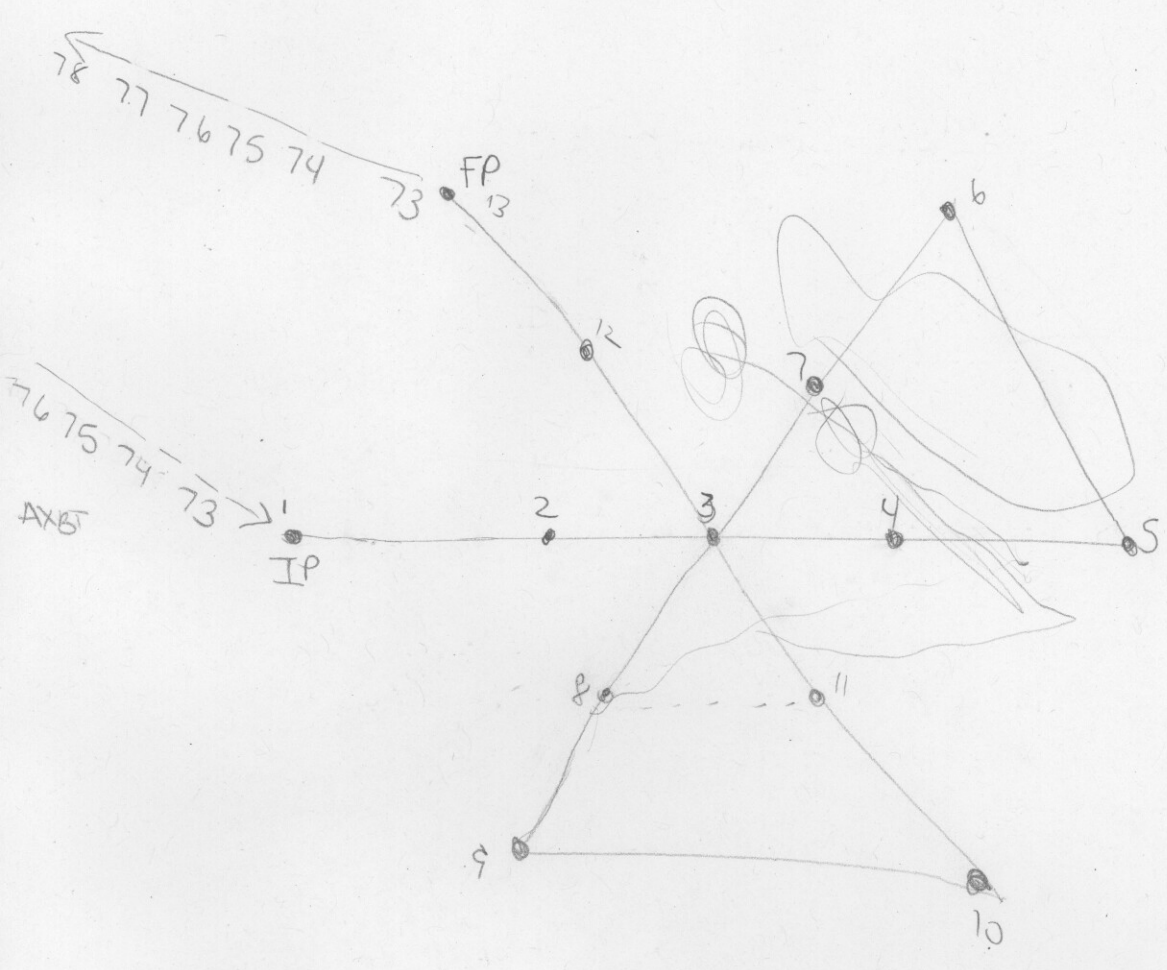
10 total ARBTs

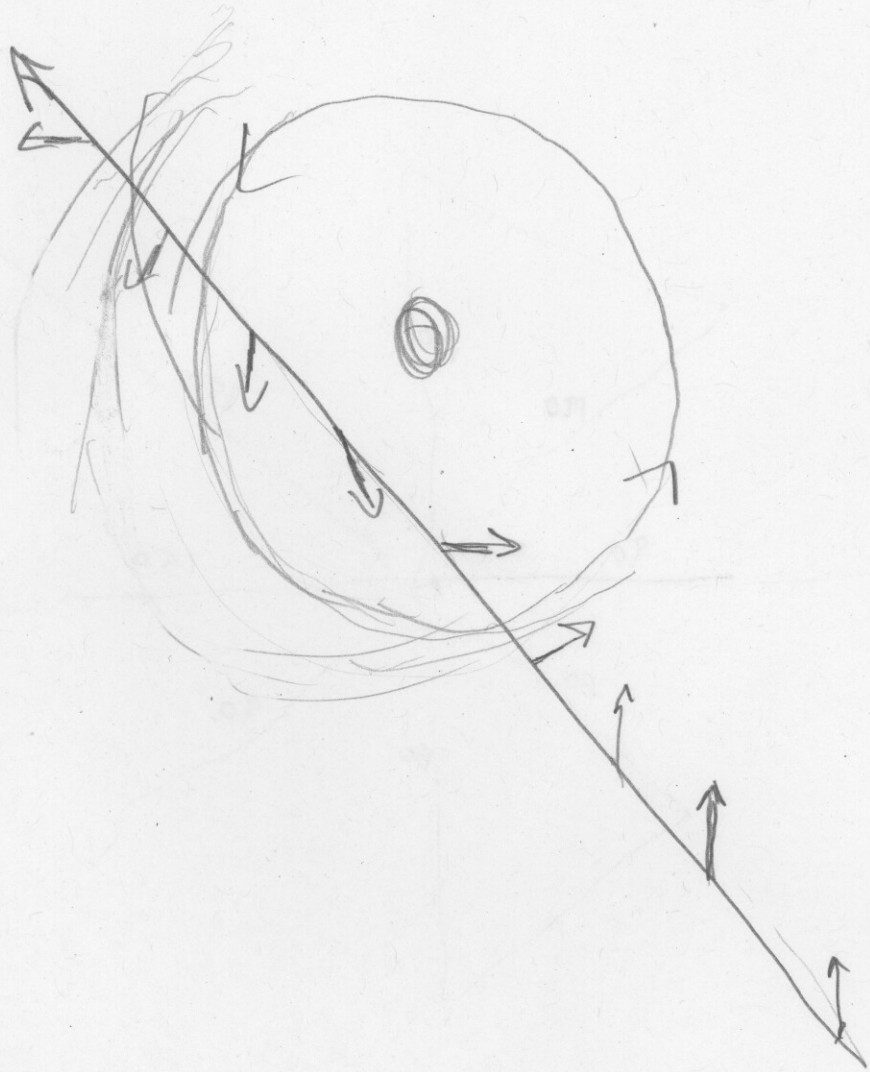


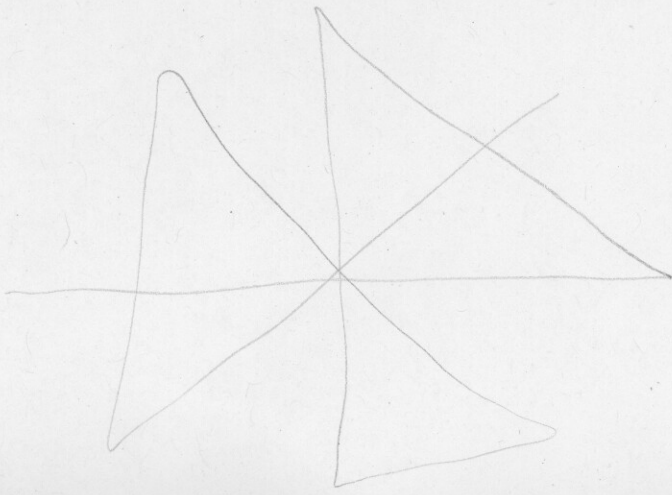
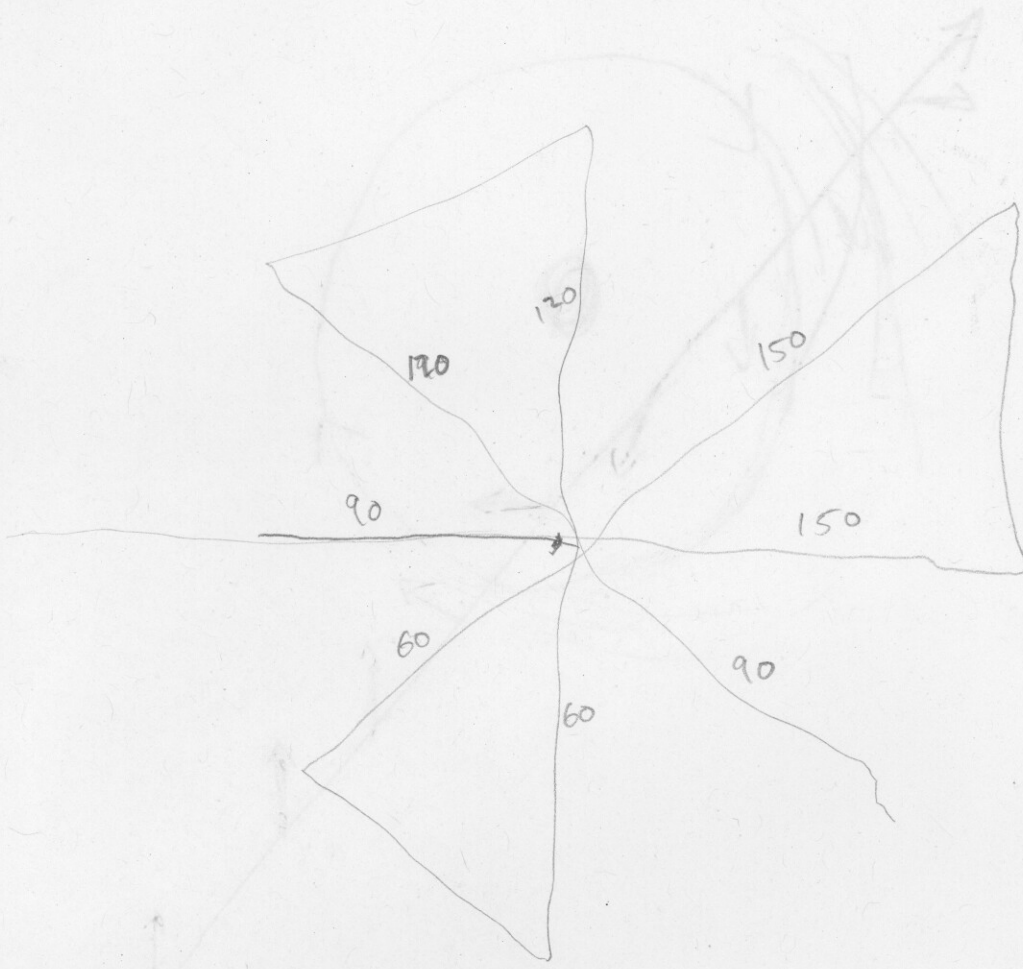


11 AM 295/16  
 26/1500 24.9 N 70.3 W  
 27/0000 25.8 72.0  
 12 26.8 73.6  
 28/0000 28.1 74.5

AXBT's 10  
 channel 12  
 GPS sondes ~ 13







Untitled

URNT12 KNHC 262015  
VORTEX DATA MESSAGE AL052009  
A. 26/20:01:20Z  
B. 25 deg 10 min N  
071 deg 03 min W  
C. NA  
D. 26 kt  
E. 310 deg 66 nm  
F. 065 deg 31 kt  
G. 310 deg 86 nm  
H. EXTRAP 1007 mb  
I. 23 C / 457 m  
J. 23 C / 459 m  
K. 22 C / NA  
L. NA  
M. NA  
N. 134 / 1  
O. 0.02 / 3 nm  
P. AF307 0205A DANNY OB 07  
MAX FL WIND 50 KT NE QUAD 18:59:10Z  
SLP EXTRAP FROM BELOW 1500 FT

