Lead Project Scientist

Date 20190929 **Flight ID** 20190929I1

Storm or Project **Experiment name** NESOIS OCEAN WINDS
Mission ID AL13/LORENZO

Pre-flight

- ☐ 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 Field Program Director.
- ☐ 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 Field Program Director
- ☐ 7 Determine next mission status, if any, and brief crews as necessary.
- ☐ 8. Notify Field Program Director 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 Lorenzo **Experiment name** NESDIS Ocean Winds

Flight ID 20190929I1 **Mission ID** WF13A

A. Participants:

Function	Participant	Function	Participant
Lead Project Scientist	Holbach	Flight Director	Lundry / Flaherty
Radar	Ryan / Hlywiak	Pilot	Didier, Rossi,
Workstation		Pilot	Legidakes
Cloud Physics		Navigator	Freeman
Dropsonde		Systems Engineer	Greene
Dropsonde		Data Technician	Nbeher
AXBT/AXCP		Electronics Technicians	T. Richards
Observer/Guest			Sans Souci
UMass ~~Observer/Guest~~	J. Sanchez	Flight Engineer	Sanchez, LaLonde

B. Take-off and Landing Times and Locations:

Take-Off: 1050 UTC Location: TBPB

Landing: 2357 UTC Location: TBPB

Number of Eye Penetrations: 3

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
29/1500Z	25.9N	44.4W	938 mb	125 kt
30/0000Z	27.2N	43.9W		115 kt
30/1200Z	28.9N	43.0W		105 kt
01/0000Z	31.0N	41.6W		100 kt
01/1200Z	33.7N	38.9W		95 kt

D. Mission Briefing: Lorenzo is currently a category 4 hurricane. It underwent RI to a cat 5 hurricane last night, w/ the RI possibly beginning during our flight yesterday. Since then Lorenzo has weakened + its appearance on satellite has degraded. It appears to have a dry slot on the N + W + the eye is not as distinct. MW imagery shows that the eyewall may be open on the SW + that there is a strong convective rainband on the N.

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E. —Equipment Status (Up **U**, Down **D**, 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	↑	↑		
AXBT/AXCP	—	—		
Ozone instrument	—	—		
Workstation	↑	↑		
Cameras	↑	↑		

REMARKS:

- Dana was troubleshooting the SFMR flow to the data systems upon takeoff & got the data flowing at 1612 Z

Lead Project Scientist Event

Date **Flight ID** **LPS**

Time	Event	Position	Comments
Ferry	lots of SAL		
1610 Z	wmm app restart		
1630Z	TDR on		
1630Z	slightly more cumulus clouds	19°46' 52°55'	
1655Z	cumulus clouds + some alto stratus	21° 9' 51°16'	
1714Z	some taller cumulus clouds off right wing	22°20' 49°49'	echos up to ~5-6 km
1752Z	under CDO	24°43' 46°44'	
1754Z	center estimate from 42 MMR	26 28.5N 44 27.0W	
1758Z	ip sonde from 42	2601.7N 4507.9W	
1803Z	new center estimate from 42	26 24.5 5N 44 21.6 N	
1810Z	center sonde from 42		
1810Z	CPA center mark from 42	26 24.7 N 44 24.3 W	
1817Z	IP leg 1		
1822Z	entering open eyewall on SE	26°15' 44°39'	
1827Z	Passing 42s CPA Center	26°26.4' 44°21.0'	
1828Z	in the clouds in the eye		
1827Z	CPA Center	26.5N 44.49W	7.52 nmi N of 42 marked
1842Z	EP leg 1	26°57.9'N 43°16.2'W	
1841Z	42 IP leg 2	27°09.7N 44°24.9'W	
1852Z	42 Center	26°27.95'N 44°22.6'W	
1858Z	IP leg 2	27°7.5'N 44°28.6'W	had to turn back a little to get on same track as 42
1902Z	track 177°	26°57.3' 44°24.3'	lined back up
1908Z	Center	26.52N 44.38W	
1909Z	42 EP leg 2	25°27.95'N 44°22.6'W	
1923Z	EP leg 2	25°27' 44°18'	
1922Z	42 IP leg 3	26°06.2'N 43°29.0'W	track 295
1935Z	turning inbound		IP leg 3

Lead Project Scientist Event

Date **Flight ID** **LPS**

Time	Event	Position	Comments
1949 z	Center	26.61° 44.32°	
1936 z	42 mark center	26°35.4' 44°22.7'	
1957 z	42 EP leg 3	27° 8.8' 45°43.3'	
2010 z	EP	27° 8.1' 45°47.3'	
2034 z	coming out from under the CDO		
2046 z	TDR shut down		

Mission Summary

Scientific Crew (4 RF)
Lead Project Scientist Holbach
Radar Scientist Ryan / Hlywiak
Cloud Physics Scientist
Dropwindsonde Scientist
Boundary-Layer Scientist
Workstation Scientist
Observers (affiliation) J. Sanchez (UMASS)

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

Plan is to follow ~15-20 min behind NOAA42. We will fly a butterfly pattern w/ 60nm legs. We will be at 10K ft while 42 is will be at 8K ft. 42 will be dropping all of the sondes. If we have to deviate we will choose the path that is closest to 42s path or if in the eyewall will deviate downwind

Mission Synopsis: (include plot of actual flight track)

We successfully flew a butterfly pattern coordinated w/ N42. first downwind leg was in strat form precip so we had to turn slowly & 42 was having a rough ride at 8kft, which made it tough to fly the same track on that leg. Last leg was extended to 80nm.

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

Overall, the experiment went very well. all 3 legs were coordinated extremely well. The first downwind leg was slightly off from 42's track but second downwind was very close. Maintained ~17 min separation from 42 through entire mission in storm.

Problems:(list all problems)

The WMM app wasn't receiving data every 7-10s although all data was being recorded on the aircraft. This only affected the data going into the averages for the HDOBs. There were never enough missing data points to cause errors w/ the HDOBs.

Expendables used in mission:

	Deployed	Good	Bad
GPS sondes :	0	0	0
AXBTs :	0	0	0
Sonobuoys:	0	0	0
UAVs	0	0	0