

Lead Project Scientist

Date 9/22/19

Flight ID 20190922H1

Storm or Project AL10/JERRY Experiment name TC IN SHEAR / OCEAN WINDS
Mission ID

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 ALIO / JERRY

Experiment name TC IN SHEAR / OCEAN WINDS

Flight ID 20190922H1

Mission ID WF10A JERRY

A. Participants:

| Function | Participant | Function | Participant |
|------------------------|-------------|-------------------------|-------------------|
| Lead Project Scientist | ZAWISLAK | Flight Director | LUNDY / HUNTER |
| Radar | ROGERS | Pilot | ODIER (AC) |
| Workstation | | Pilot | KAHN / LEGIOAKES |
| Cloud Physics | | Navigator | FREEMAN |
| Drosonde | RYAN | Systems Engineer | |
| Drosonde | | Data Technician | MASCARO |
| AXBT/AXCP | NEJOIS OWI | Electronics Technicians | PEEK |
| Observer/Guest | CHANG | | AVAPS: GREENE |
| Observer/Guest | JELONAK | Flight Engineer | SANCHEZ / LALANDE |

24
8/20

B. Take-off and Landing Times and Locations:

Take-Off: 1420 UTC Location: ST. CROIX

Landing: 2229 UTC Location: LAKELAND

Number of Eye Penetrations: _____

C. Past and Forecast Storm Locations:

| Date/Time | Latitude | Longitude | MSLP | Maximum Wind |
|---------------|----------|-----------|------|--------------|
| 22 / 0900Z | 25.0N | 66.9W | 1002 | 55 kt |
| 22 / 15Z FCST | 26.0N | 66.8W | ? | ? |
| / | | | | |
| / | | | | |
| / | | | | |

340/9

D. Mission Briefing:

PLAN IS FOR A BUTTERFLY PATTERN SE → NW, W → E, NE → SW
 90 NM LEGS. FOCUS MORE ON CENTERING THE PATTERN ON A MO LEVEL
 MAXIMUM IN THE CONVECTION RATHER THAN THE LEC WHICH
 APPEARS TO BE NW OF CONVECTION STILL. THOUGH A CHANGE IN
 SHEAR DIRECTION COULD CHANGE THAT ORIENTATION
 LOWER FOR ALTITUDE, EYE, MIDS, OR ON 1ST PASS, DRIP
 FOR ALOT OVERLAP FOR OCEAN WINDS. TRYING TO TIME
 BRING IN THE EAST QUADRANT AROUND 1725Z

Lead Project Scientist Event

Date 9/22/19

Flight ID 20190922H) LPS ZAWISUK

| Time | Event | Position | Comments |
|--------|------------------------|--|--|
| 1420 Z | TAKEOFF | | HEADING OUT TO TS JERRY |
| | | | THE MOST RECENT AF FIX FROM 999 m AND A LOT OF THE WAKE AROUND THE CONVECTIVE BURST NEAR THE CTR. CONVECTION CONTINUES TO DEVELOP NEAR THE AUSTIN PROPOSAL LLC, W/ MOST OF IT BEING SHOWN DOWN NEAR TO THE SR. IF SURVEY |
| | | | REALLY SOME, WE MAY SEE CONVECTION OVER MORE OF THE CTR. - QUANTITATIVE WHETHER IS THE MIDDLE CTR |
| 1521 Z | ABOUT 30 MIN FROM IP | 22°29' / 66°1' | NEW CONVECTIVE BURST ON THE E-SIDE - BUT ALREADY SIDE OF THE LOW-LEVEL CIRCULATION. |
| | | | DEFINITELY FULL PHASE OF CONVECTION DEVELOPING BUT MAYBE THE DEEP LOW SHEAR VECTOR IS CHANGING. |
| | | | THE CONVECTION MAY BE TRYING TO GET ALL THE WAY AROUND THE LLC DEFINITELY PUSHING AGAINST IT. |
| 1539 Z | APPROACHING IP | 23°57' / 65°51' | APPROACHING IP HAVE A DECENT CONVECTIVE BOW OFF TO OUR WEST. BRINGING A LOT OF PRECIP THAT IS SOME OF THE STORM. |
| 1545 Z | SONDE #1 IP | 24°25' / 65°46' | NEAR IP - IN A LOT OF STRATIFORM, W/ STRONG RAINFALL TO THE SW THAT IS PREVENTING US FROM GETTING IN FROM THE IP. |
| 1558 Z | SONDE #2 MR 10 315 WDG | | LOTS OF STRATIFORM BOW BEING MORE CONVECTIVE SO FAR MUCH OF THAT NEAR MIDPOINT WAS A CONVECTIVE BOW W/ MOSTLY |
| | | | ↓ NOT THIS EARLY TIME |
| 1608 Z | | 25°39' / 66°29' | DOES LOOK LIKE THAT LLC IS UNDER ANvil OF STRATIFORM W/ SOME MORE SHOWS SOME BOW |
| 1617 Z | NO CENTRAL SONDE | SO CPA OF CTR W/ ESTIMATE FROM KAMA AN. -66.6/26.0 | WE POINT TO THE WEST OF THE LLC AND DID GET A SINK OF FL THAT ALSO LOOKS LIKE IT COULD BE DUGGES WITH THE LLC - S OF 300 |
| | | CTR ~ 66°39' W 26°N | VISUAL ON THE SWELL |

STRONGEST WINDS COME FROM CTR LESS WITHIN 1000 FT

CTR #1 MIXED TO THE WEST COULD SEE SWIRL

CURVING OFF WINDS AT OUR ANTI-CYCLONE, SO NOT BEING AFFECTED BY WINDS AT THE SFC
↓ SURFACE BARRAGE 999 m SFC BUT IN RAIN.

↓
Radar INDICATED CENTER.

GOOD TBA COMING IN STRATIFORM ANvil W/ SOME SHOWING CLOUD BANDING AROUND SWELL

OUTBOUND, WERE IF SOME MORE SHALLOW CLOUDS FOR LITTLE CONVECTIVE

19 entry
 1730Z - 1740Z

Lead Project Scientist Event

Date 9/22/19

Flight ID 2019

LPS ZAWISUDK

| Time | Event | Position | Comments |
|-------|---|-------------------|--|
| 1620Z | SONDE #3 | | DECIDED TO KEEP THE 330° TRACK |
| | END POINT SONDE A FEW MINUTES AGO | | NOT THE SWIRLY FOR SPEC LOOKS SAME OR LARGER THAN FL |
| 1633Z | SONDE #4 | 27° 51' / 67° 30' | END POINT TURN DOWNWARD TO HEAR IF FROM THE WEST. |
| 1636Z | DOWNWIND → SO IT'S LOOKING GOOD FOR ASCOT ALIGNMENT AT 1725Z → WE SHOULD HIT TARGET ENDPOINT AROUND 1730-1740Z. | | |
| | | | AND THE WAY WE GO TO BE WITHIN 5 MIN OR SO, SO BY INBOUND AGAIN FROM PLY, THEN BACK OUT. |
| 1647Z | SONDE #5 ↳ "CTR" DRIFT TO CTR | 26° 20' / 68° 01' | STARTING TO GET THE BECAUSE THEY DON'T WANT TO GO THROUGH SWIRLY TO MODERATE OPEN CLOUD TO UNIFORM AND NEAR W POINT. LOTS OF SHALLOW CONVECTION UP THERE. |
| 1657Z | SONDE #6 INBOUND 270° | 26° 19' / 67° 22' | MISSING SONDE ON 270 |
| 1701Z | | | GETTING CLOSER TO THE CENTER, GETTING MUCH SWIRLY |
| 1709Z | SONDE #7 "CTR" | 26° 19' / 66° 59' | LOOKING FOR THE SONDE TO DRIFT IN. |
| | | | SO ON VISUAL AGAIN ON THE SWIRLY AND DON'T HIT IF STAYED NORTH, CLOUD BE STAYING TOGETHER AGAINST THE CONVECTION HAVING THE PHASE SPREAD RIGHT IF IT'S TURN UP AGAINST. |
| 1716Z | OUTBOUND NEARBY 110° | 26° | |
| 1719Z | SONDE #8 END POINT | 26° 19' / 65° 48' | |
| 1725Z | SONDE #9 END POINT | 26° 24' / 65° 13' | SO TURNING TO HEAR BACK INTO THE CENTER FOR PARTICULAR VALIDATION LIKE W/ ASCOT. THEN GO BACK OUT OVER THE SPREAD POINT. WHATEVER HOPING THAT MAY BE NEW END OF 090° TRACK IN. |
| 1733Z | | 26° 22' / 65° 30' | |
| 1744Z | SONDE #10 | 26° 25' / 66° 29' | RHW PRUN FOR VALIDATION |
| 1748Z | BACK IN CTR, RIGHT OVER THE SWIRLY | | |
| 1818Z | | | SO NOW TURNING DOWNWARD TO 030° → SO WE WENT OUTBOUND ON 045° EAST SPREAD POINT, THEN 070° ONCE WE GET BACK TO BAND. |

1825Z

NOW OUT TO THE N/E OF THE STORM!

LOTS OF SHAPATIUM EQUAL

SO TRYING TO KEEP THE GAP IF THE ORIGINAL DOWNWIND ~~WIND~~ WITH AS WITH US AS POSSIBLE

CTR #2

CTR #3 AFTER 1730Z

END OF 1st PASS

INBOUND ON 270°

OUTBOUND 090°

END POINT

INBOUND 070°

Lead Project Scientist Event

Date 9/22/19

Flight ID 2019092241 LPS Zawisza

| Time | Event | Position | Comments |
|-------|--|---|---|
| 1829Z | | | Now downwind to 050° 0850' 90m alt |
| 1842Z | | | So now going outwind 180° to 80-90 miles to get more coverage now heading towards 020° point |
| 1845Z | Decide to do a 180° outwind to fill gap, get more data in the top than former upwind | So new pt 5 is near 66/27.75 After downwind and waiting further upwind | |
| 1858Z | | | Another wx to north of next upwind, return to track |
| 1901Z | Sonde #11 | 27°45' / 66°5' | Turned inbound 030° Expecting more patch downwind near 1875 when we were outwind we got lots of fragments |
| 1909Z | | trying to get sonde in gap | 175' to get center |
| 1915Z | Sonde #12 midpt | 26°58' / 66°29' | midpoint sonde inbound 195 - 1875 |
| 1923Z | Sonde #13 CR | was near 66.77 W / 26.8N | Did fl CR sonde when we get down to a few kt. the swirl was off we right wing so IFC suit to our west (right) but sonde drift might put it in there |
| 1934Z | Sonde #14 ^{mid} Point 180° | 66°47' / 25°39' | midpoint sonde |
| 1944Z | Sonde #15 ^{end} P. | 24°58' / 66°47' | Ending just pattern intense bar to sonde near radar gap recent coverage of precip. |

INBOUND
PASS #3
#4 W
PAUL'S

CR 24

ENDPOINT
TO SOUT

STARTS
ABOUT 50-55
15 IT
STARTS
PEAK FL
WIND WAS
54 KTS
20'

INTERESTING
ON WEST SIDE
FL CIRCUMFERS
LOWER THAN
THE SE

END OF
BUTTERFLY
PATTERN

Mission Summary

Scientific Crew (42RF)

Lead Project Scientist ZAWISIAK
 Radar Scientist ROGERS
 Cloud Physics Scientist
 Dropwindsonde Scientist RYAN
 Boundary-Layer Scientist
 Workstation Scientist
 Observers (affiliation)

NEEDS:

CHANG, JELONAK

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

PLAN IS FOR A 90 AND BUTTERFLY W/ LEGS 150/330, 270/90, 30/210.
 MIGHT MIX IN A SATELLITE OVERFLIGHT OF AICAT FOR NEEDS OCEAN WINDS
 ON THE EAST SIDE, TIMES FOR 1725Z IN THE HIGH WINDS.
 PROGRAM TO CENTER ON THE MIDLEVEL CENTER, THROUGH THE UC WINDS
 BK TO FOR AWAY.

Mission Synopsis: (include plot of actual flight track)

ENTERED UP DOING A SLOWLY ROTATED INITIAL LEG DUE TO CONVECTIVE BANDING
 ON THE SOUTH SIDE. PASSED WEST OF UC SWIRL AND DIDN'T GET MUCH DATA AT FL
 WEST OUTBOUND, ON DOWNWARD, NEEDS TO INTERCEPT TRAIL FURTHER IN DUE TO UC
 MESS UP TIMING WITH OVERPASS. SO ON OUTBOUND TO EAST, ENTERED OUT EARLY BY
 5-10 MI, TO REVERSE TRACK. HIT PRAK SWIRL WINDS ABOUT 15-20 MIN AFTER OVERPASS.
 (DROPPED RAIN), OVER FLEW SOUTH POINT OF 045° THEN REORIENTED 070° TO FOLLOW SOME TAIL
 CONVECTIVE TO EAST, THAT LEG

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

INTERESTING STRUCTURE. ALL IS TIGHT FROM SFC
 SWIRL, BUT IT SEEMED AT TIMES TO BE AUGMENTED
 LOTS OF CONVECTIVE BANDING ON ALL SIDES (CLOSE TO E/W)
 W/ LOT OF DOWNSTREAM STAGNATION. OVERALL MORE PRECIP
 NEAR OR / OVER OR THAN

Problems: (list all problems)

CLEAN WINDS LEG ~~STARTED~~
 THE BUTTERFLY SOME DUE TO
 OVERFLIGHTING THE SPLASH POINT OF
 PRAK SWIRL W/ AVOIDANCE ALSO

MEASUREMENT, WHICH SUGGESTS
 SWIRL MAY HAVE REVERSED P
 BUT, RADAR SHOWS NO FINE TILT,
 AND POSSIBLY EVEN SOME PRECIPITATION
 SO GOOD DATA ON THE WINDS
 TILT AND PRECIP STRUCTURE

Expendables used in mission:

| | Deployed | Good | Bad |
|-------------|----------|------|-----|
| GPS sondes: | 15 | 15 | 0 |
| AXBTs: | | | |
| Sonobuoys: | | | |
| UAVs | | | |

OVERALL, SAW SOME REDUCTION
 IN PRECIPITATION, ALTHOUGH WE DIDN'T
 ALWAYS OVERFLY THE UC SWIRL.

SS AT FL WINDS, ABOUT THE SAME
 PRESS AT SFC.

* COULD BE
 A NORTHER CASE TO
 LOOK AT FOR THIS COMPARISON.

← DEFINITELY FLOW HIGHER SFC WINDS TO EAST
 THAN AT FL