

Lead Project Scientist

Date 9/5/2019

Flight ID 20190905H2

Storm or Project Dorian

Experiment name Dorian TDR

Mission ID 4905A Dorian

AL052019

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 *Dorian*

Experiment name *TDR*

Flight ID *20190905H2*

Mission ID *4905A Dorian*

A. Participants:

ALOS 2019

| Function | Participant | Function | Participant |
|------------------------|---------------------------|-------------------------|-------------------------------------|
| Lead Project Scientist | <i>Marks</i> | Flight Director | <i>Parrish</i> |
| Radar | <i>X. Zhang / Gamache</i> | Pilot | <i>Kahn (Nate)</i> |
| Workstation | <i>-</i> | Pilot | <i>Rossi / Abitad (John / Adam)</i> |
| Cloud Physics | <i>-</i> | Navigator | <i>Richards (HANK)</i> |
| Dropsonde | <i>Sellwood</i> | Systems Engineer | <i>Richards (Tadd)</i> |
| Dropsonde | <i>Hansen (UM/RSMAS)</i> | Data Technician | <i>Jeff Smith</i> |
| AXBT/AXCP | <i>-</i> | Electronics Technicians | <i>McAlister (MAC)</i> |
| Observer/Guest | <i>1 guest</i> | Flight Engineer | <i>Darby / Lalonde</i> |
| Observer/Guest | <i>3 media Telemundo</i> | | |

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B. Take-off and Landing Times and Locations:

Take-Off: *1950* UTC Location: *Lakeburg 28 82*

Landing: *0258* UTC Location: *Lakeland*

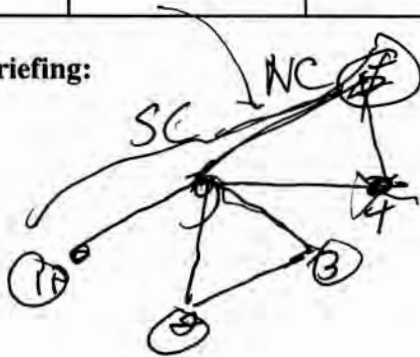
7 h 10 min

Number of Eye Penetrations: *8*

C. Past and Forecast Storm Locations:

| Date/Time | Latitude | Longitude | MSLP | Maximum Wind |
|-----------|----------|-----------|------|--------------|
| / | | | | |
| / | | | | |
| / | | | | |
| / | | | | |
| / | | | | |

D. Mission Briefing:



- TDR coverage off shore for EMC
- drops 60° wedges end pt, mid pt, 6j
- Ocean winds
- maybe landfall convection module

Storm or Project Dorian Experiment name TDR

Flight ID 20190905H2 Mission ID 4905A

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 | ✓ | ✓ | | 8 analyses 3 for EMC |
| Cloud Physics | X | X | | 5 for NESDIS |
| Data System | ✓ | ✓ | | |
| GPS sondes | ✓ | ✓ | | 34 total 8 in NESDIS |
| AXBT/AXCP | — | — | | 0 |
| Ozone instrument | — | — | | 11 EMC not transmit |
| Workstation | ✓ | — | | |
| Cameras | ✓ | ✓ | | |

REMARKS:

Completed ^{TDR} coverage of half of Dorian wind field (see ^{vertical} ^{center} [✓] _{3 Doppler analyses} _{OUT} to 165 nm for EMC. Drops at endpt. Midst _{center}

Completed 5 ocean winds legs in W-SW eye wall _{5 Doppler analyses}

Dropped 34 drops: 8 mini, 15 NESDIS (1 transmitted in W), 11 EMC (1 bad, 10 transmitted)

8 minis were combus at mid and end pts (1 in eye)

Documented extremely interesting eyewall evolution during Ocean wind legs where convection erupted in NE of eyewall and the reflectivity plume advected down wind to N, W → SW where is eventually merged with largestiform area.

Total 8 Doppler analyses

Worked most of the last half of pattern in range of KILX 88D

big opportunity

Lead Project Scientist Event

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Date 9/5/2019 Flight ID 20190905#2 LPS Marks

| Time | Event | Position | Comments |
|-------------|------------|----------------------|--|
| 1950 | TD | 28 82 | Lakeland |
| | | tail radars ↑ | MMR ↑ |
| 2055 | IP | 32.6 80.4 | in light precip |
| | | TK 060 drop #1 | S of Charleston, SC |
| 2102 | min. soude | 32.42 79.71 | bad winds start at bkft |
| | | | looking at offshore flow |
| 2108 | mid pt | 32.6 79.25 | drop #2 combo mini soude |
| | | | peak inbound SPMR 73 kt |
| #1 → 2123 | g | 33.15 78.35 | 961 mb extrap |
| | | TK 180 | 2 orbits in eye |
| 214740 | mid pt | 32.2 78.3 | peak outbound SPMR 79 kt |
| | | combo mini/reg 5 | |
| 214912 | backup | mini good. | regular soude bad backup |
| 220035 | (2) | 31.6 78.5 | combo mini/reg. |
| 222630 | (3) | 32.4 76.5 | in outer rainband very cellular |
| | | TK 300 | combo mini/reg. |
| 223940 | mid pt | 32.9 77.25 | combo mini/reg. |
| #2 → 225325 | g | 33.3 78.21 | eyewall weak to open B and SE |
| | | TK 060 | center tucked up |
| 2258 | RMW | combo drop mini/reg. | eye looks angular with multiple mesos |
| 2307 | mid pt | 33.75 77.28 | combo mini/reg |
| 2320 | (4) | 34.2 76.4 | SE of MHX inside rainband flying radial to TLX |
| 2337 | (5) | 34.15 77.7 | great legs for TLX comparison |
| | | TK 200 to g | |

fastest little pattern to walk with KILX 88D

Lead Project Scientist Event

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Date 9/5/2019

Flight ID 20190905#2 LPS Marks

| Time | Event | Position | Comments |
|--------|--------|-------------|--|
| 234915 | G | 33.43 77.95 | TK West Ocean winds start leg 1 |
| 235655 | leg#BP | leg#1 ER | 33.24 78.6 double leg wind may here |
| 0007 | G | 33.4 77.8 | 4 drops across R/W return leg#2 end leg#2 start leg#3 TK 243 |
| 0016 | G | 33.25 78.45 | end leg#3 3 drops start leg#4 TK 080 very interesting |
| 002448 | G | 33.48 77.95 | end leg#4 start leg#5 TK 243 |
| 003345 | G | 33.2 78.35 | end leg#5 begin leg#6 3 drops TK 070 to reposition |
| 004320 | G | 33.5 77.5 | end leg#6 start leg#7 TK 270 far leg#7 |
| 005850 | G | 33.45 78.5 | end leg#7 start leg#8 3 drops TK 095 |
| 0110 | G | 33.57 77.55 | end leg#8 start leg#9 TK 249 958 mb |
| 0116 | G | | end leg#9 TK upwind for last inbound TK 090 |
| 0122 | G | | start leg#10 TK 090 |
| 0130 | G | 33.6 77.7 | end leg#10 start leg#11 nice bumps fascinating convective evolution |
| 0143 | G | | leg#11 end 300/55KAR head for lake and cells popping up in NE and reflectivity streamers rotating down until washing out in broad strat rain WSW |

#3

#4

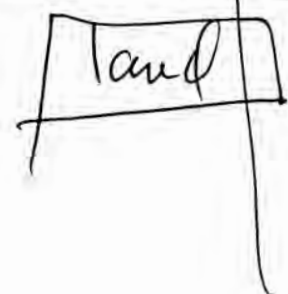
#5

#6

#7

#8

0258



cells popping up in NE and reflectivity streamers rotating down until washing out in broad strat rain WSW

Mission Summary

20190905 #2

Scientific Crew (42RF)

Lead Project Scientist *Marks*
Radar Scientist *X, Zhang / Gamache*
Cloud Physics Scientist
Dropwindsonde Scientist *Jellwood / Hansen*
Boundary-Layer Scientist *Jelencak / Sapp*
Workstation Scientist
Observers (affiliation)

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

Mission Synopsis: (include plot of actual flight track)

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

Problems: (list all problems)

Expendables used in mission:

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