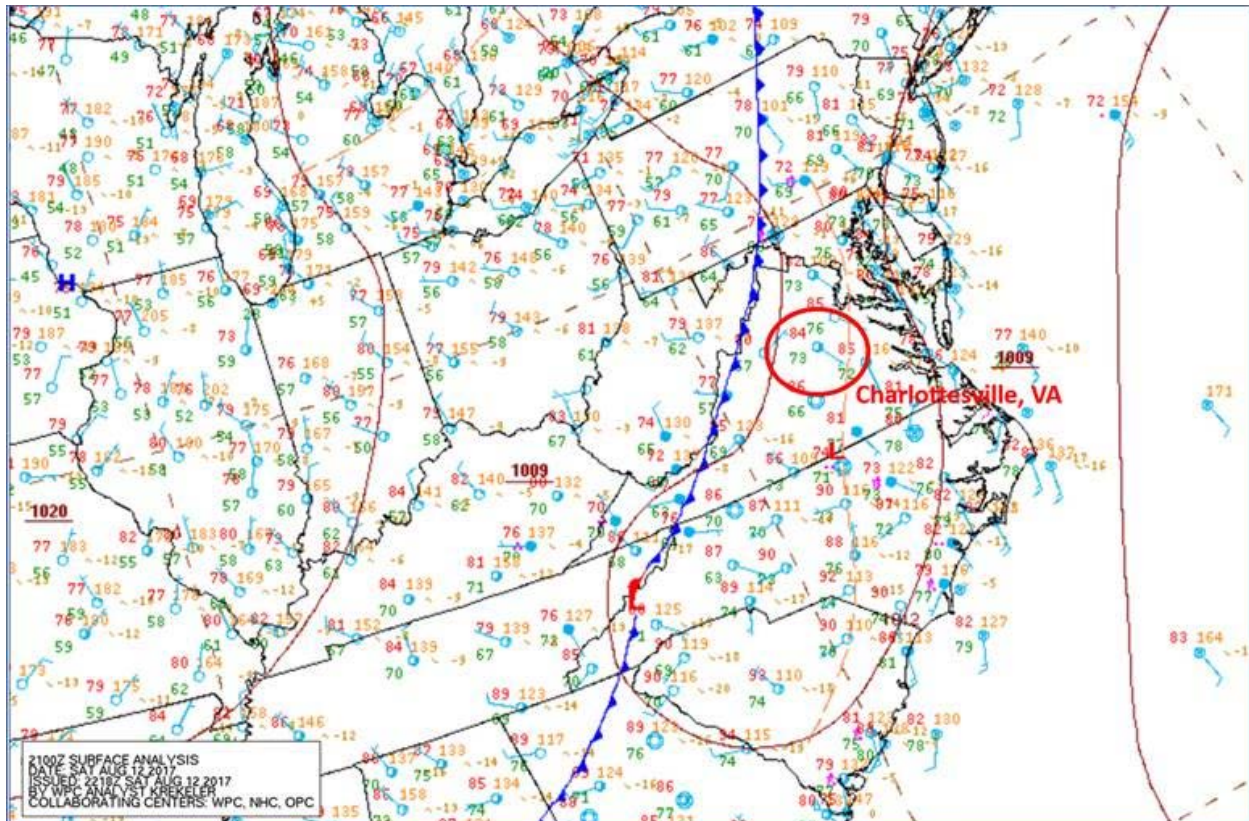
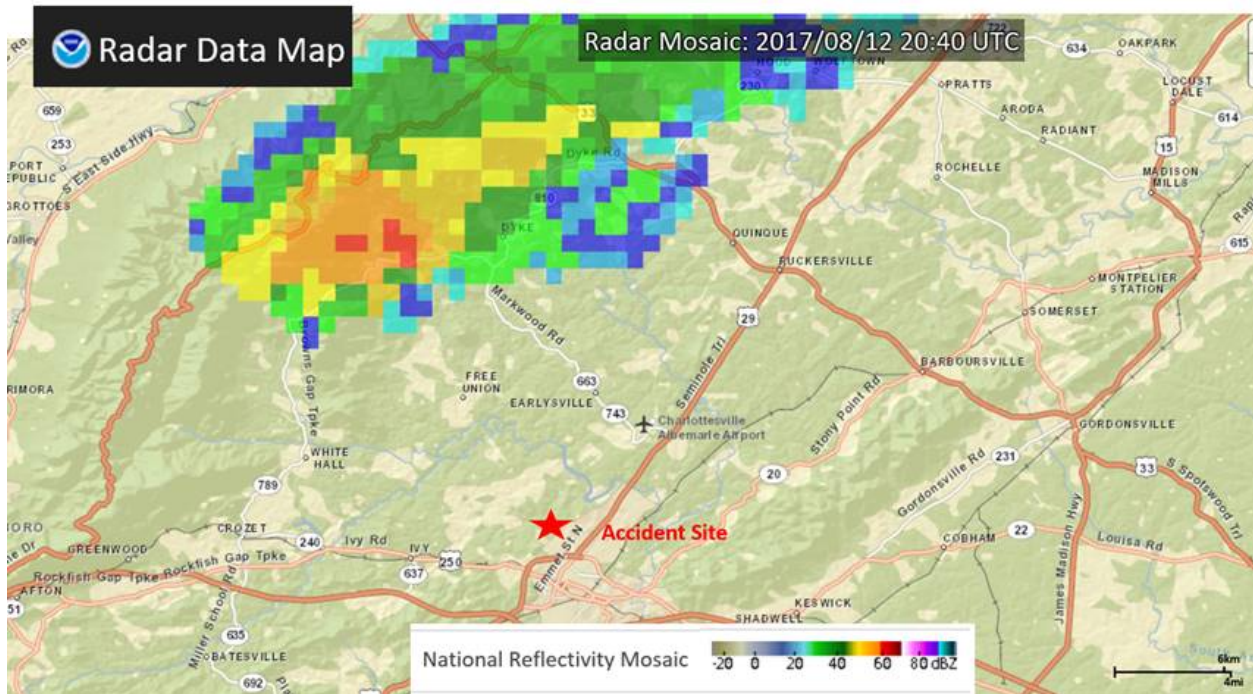


Weather conditions pertaining to ERA17FA274 on August 12, 2017

Synoptic conditions – The northeast section of the NWS Surface Analysis Chart for 1700 EDT (2100Z) on August 12, 2017 is included below with the Charlottesville area enclosed within the red circle. The chart depicted a cold front stretching from New York southward into western Virginia and the Carolinas where a low pressure system was located at 1009-hectopascals (hPa) associated with a frontal wave. The accident site was located ahead or east of the cold front in the warm airmass.



A review of the NWS Composite radar imagery for the period is included below and depicted a large convective cell associated with thunderstorms immediately east of the accident site. As a result, the closest WSR-88D was documented below.



Observations – The observations from Charlottesville-Albemarle Airport, Charlottesville, VA (KCHO) had an Automated Surface Observation System (ASOS) and listed an elevation of 640 ft and a magnetic variation of 8° W. The following observations were reported surrounding the period:

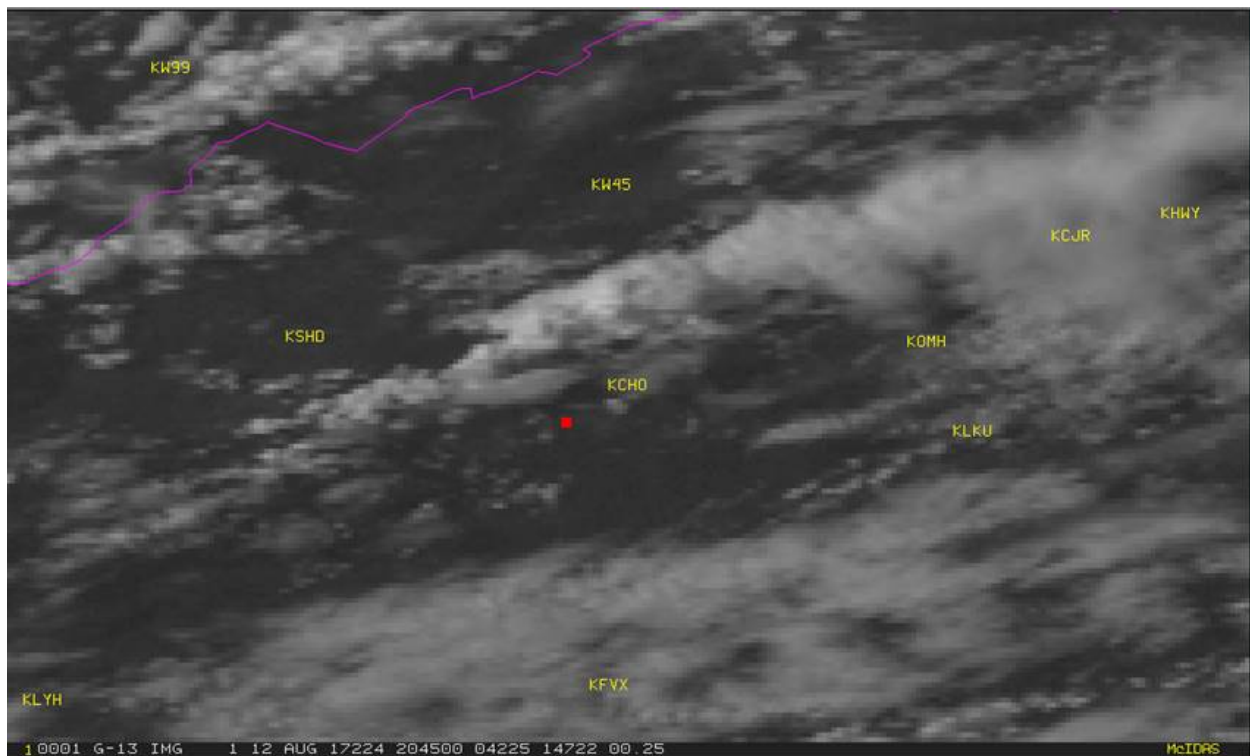
METAR KCHO 121753Z 18003KT 10SM CLR 30/21 A2991 RMK AO2 SLP120 60000 T03000211 10306 20217 56016=
 METAR KCHO 121853Z 00000KT 10SM FEW035 BKN120 31/21 A2990 RMK AO2 SLP117 T03060211=
 METAR KCHO 121953Z 16007KT 10SM SCT035 BKN110 30/22 A2988 RMK AO2 LTG DSNT NW SLP110 T03000217=
 Accident 2040Z
 METAR KCHO 122053Z 19006KT 10SM VCTS CLR 30/22 A2987 RMK AO2 SLP105 T03000217 58015=
 SPECI KCHO 122110Z 14007KT 10SM SCT080 30/22 A2987 RMK AO2 T03000222=
 SPECI KCHO 122117Z 16005KT 10SM TS SCT080 30/22 A2987 RMK AO2 TSB11 TS NW MOV E T03000217=

The observation immediately after the accident reported the following: Charlottesville weather at 1653 EDT, wind from 190 at 6 knots, visibility 10 miles, thunderstorms in the vicinity, sky clear below 12,000 ft, temperature 30 Celsius (C), dew point 22 C, altimeter 29.87 inches of mercury.

Pilot Reports – A search of pilot reports or PIREPs over the region provided the following reports:

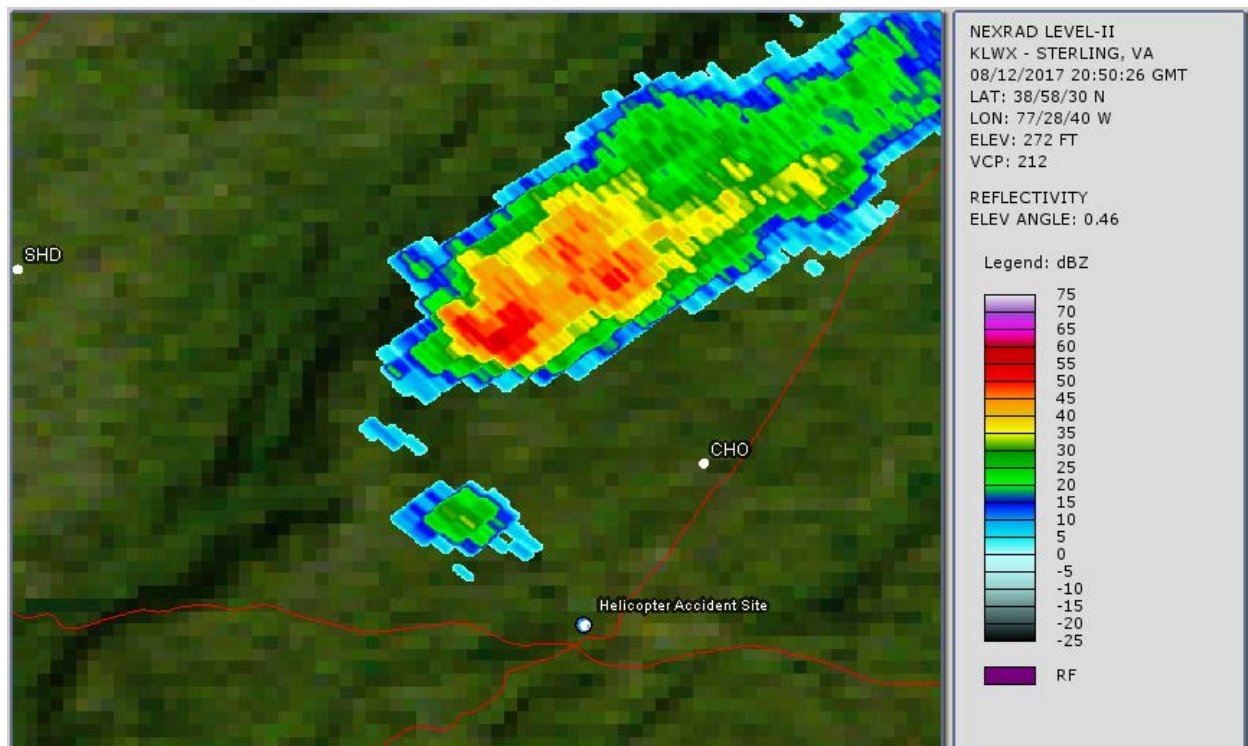
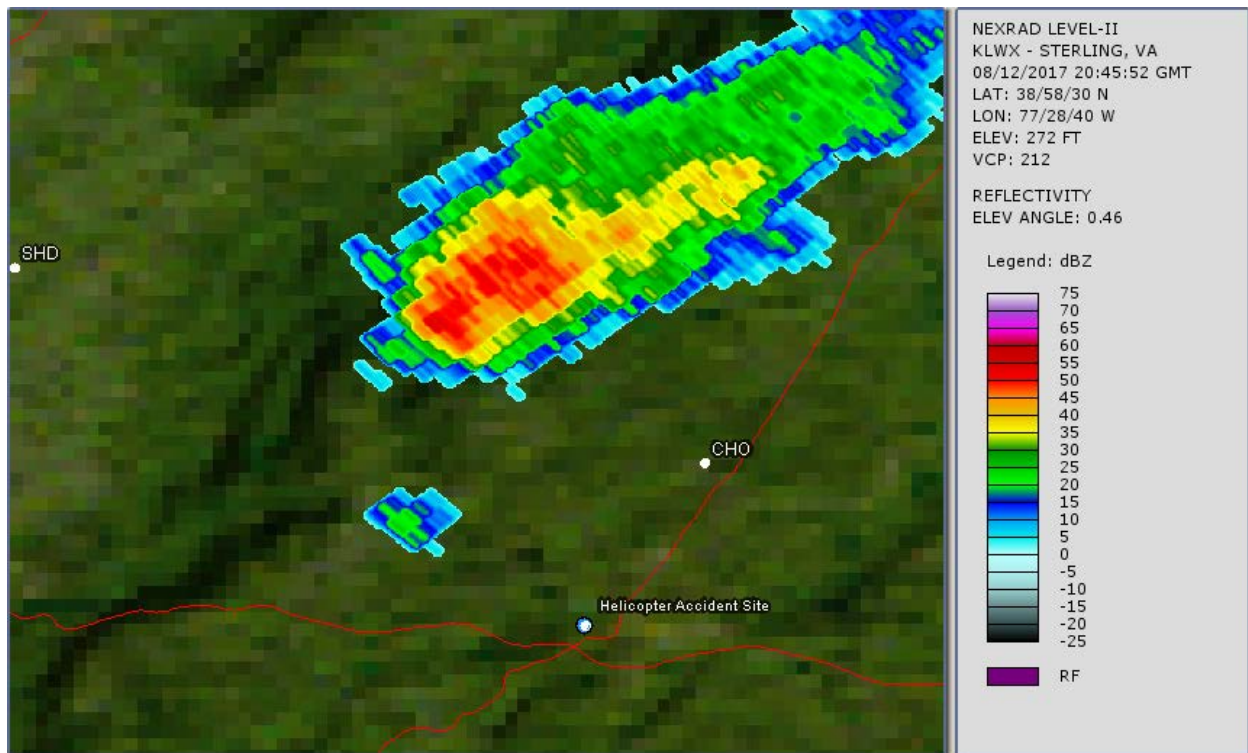
DCA UA /OV CHO210007/TM 1451/FL010/TP HELO/SK BASES 010 BKN
 DCA UA /OV SHD230007/TM 1459/FL035/TP SR20/SK BASES 035 BKN
 RIC UA /OV 20 NE RIC /TM 1834/FL040/TP E145/SK TOPS RAGGED 075
 RIC UA /OV 12 N RIC/TM 1836/FL025/TP E145/SK BASES BKN025

Satellite Imagery - The GOES-13 visible satellite image at 1645 EDT is attached and depicts the accident site in a cloud free area immediately southeast of a short line of cumulonimbus type clouds. No significant clouds were identified over the accident site, with the exception of some low clouds.



Radar Imagery – The closest NWS WSR-88D was located at Sterling, VA immediately west of Dulles International Airport, about 74 miles southwest of the radar site. The KLSX WSR-88D 0.5° base reflectivity image for 1637 EDT is included below.

A large convective echo was identified northwest of the Charlottesville and the accident site. No adverse winds or gust front were detected in the vicinity of the accident site. An isolated rain shower was developing south of the main cell and cross close to the accident site immediately after the accident.



An animation of the radar is attached.

A review of lightning strike data indicated no lightning in the immediate vicinity of the accident site

NO HAIL
Freezing Level (mb)

CAPE
Storm Character
Multicells
Supercells
Ordinary

Dry Microburst Potential
Guys > 40 kts
Guys > 30 kts
Too moist for strong convective guys
Upper Level Instability Index

Storm Category
SWE = 27%

Weak **Mod** **Strong**

STLP Chart Data:
TROP Lvl: 47016 ft AGL
PMB Lvl: 14809 ft AGL
mSL Lvl: 37701 ft AGL
LCL Hgt: 38000 ft AGL
LMT Hgt: 5554 ft AGL
CCL Hgt: 5758 ft AGL
LCL Hgt: 3044 ft AGL
Water: 1.84 in
Rain: 0.25 in
TDP: 52 mph
Winds: 40 mph
SWEAT: 228.5
CAP: 0.3
L: -4.0
T: 47.6
K: 36.2
T: 32.5 °C
Storm: 256/15 0-6km
w: 52 0-3km
w: 34 0-2km
w: 20 0-1km
CAPE* only: 1215 J/kg
CIN total: -1 J/kg
DCAPE: 0km: 753 J/kg
YSP 0-6km: 0.126
ERI 0-2km: .3
MIX: 48 m/s
BRD: 24
LFT Lvl: / LFT Hgt: mb

Vertical Profile:
Lifted Condensation Level (LCL)
Cloud Base (CCL)
Lifted Condensation Level (LCL)
Lifted Condensation Level (LCL)

Cloud Depth Rate:
Cloud depth rate (mm)

Storm Character:
Shear (kts) vs. Cloud Depth Rate (mm)

Dry Microburst Potential:
Guys > 40 kts
Guys > 30 kts
Too moist for strong convective guys
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Vertical Profile:</

Height (ft-MSL)	Pres (mb)	T (C)	Td (C)	RH (%)	DD / FF (deg / kts)	CAT (FAA)	LLWS
531	992	31.4	19.3	49	156 / 3		
561	991	30.9	18.9	49	156 / 3		
650	988	30.3	18.7	50	159 / 3		
829	982	29.8	18.6	51	162 / 3		
1099	973	28.9	18.4	53	171 / 3		
1522	959	27.6	18.2	57	182 / 3		
2073	941	26.0	17.8	61	198 / 3		
2694	921	24.0	17.4	67	216 / 4		
3420	898	22.0	16.7	72	229 / 6		
4257	872	19.7	16.0	79	238 / 7		
5146	845	17.6	14.5	82	248 / 9		
6194	814	15.6	11.9	79	263 / 10	LGT	
7381	780	13.5	9.2	75	270 / 14	LGT	
8684	744	11.1	6.6	74	272 / 19		
10194	704	8.7	4.6	75	274 / 23		

NWS Forecasts & Advisories – The NWS TAF for Charlottesville issued at 1326 EDT expected southerly winds at 6 knots, visibility better than 6 miles with light rain showers, scattered clouds at 2,500 ft agl, ceiling broken at 8,000 ft. After 1700 EDT light rain showers with thunderstorms in the vicinity were expected with ceiling broken at 5,000 feet in cumulonimbus clouds. The raw forecast was as follows:

TAF KCHO 121726Z 1218/1318 18006KT P6SM -SHRA SCT025 BKN080

FM122100 20005KT P6SM -SHRA VCTS BKN050CB

FM130000 VRB03KT P6SM BKN040

FM130500 00000KT 3SM BR BKN080

FM131200 VRB03KT P6SM BKN060

The **Area Forecast (FA)** current for the area was as follows:

FAUS41 KPCI 121745

FA1W

BOSC FA 121745

SYNOPSIS AND VFR CLDS/WX

SYNOPSIS VALID UNTIL 131200

CLDS/WX VALID UNTIL 130600...OTLK VALID 130600-131200

ME NH VT MA RI CT NY LO NJ PA OH LE WV MD DC DE VA AND CSTL WTRS

.

SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.

TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.

NON MSL HGTS DENOTED BY AGL OR CIG.

.

SYNOPSIS...LOW PRES N OF Y WITH WM FNT OVR NRN ME. CDFNT OVR
CNTRL NY-WV EXTENDING SWWD TO NW GA-NRN TX. HIGH PRES OVR GULF
WTRS. BY 12Z LOW PRES N OF ME WITH CDFNT OVR ME CSTL WTRS
EXTENDING SWWD TO DELMARVA-CENTRAL GA. HIGH PRES OVR MI WITH
RIDGING INTO WV.

.

VA

**MTNS...BKN060 TOP FL250. WDLY SCT -SHRA/-TSRA. CB TOP FL400. AFT 00Z SCT070 SCT CI. OTLK...IFR
CIG FG.**

PIEDMONT...BKN050 TOP FL250. WDLY SCT -SHRA/-TSRA. CB TOP FL400. AFT 01Z BKN120. OTLK...VFR.

CSTL PLAIN...BKN030 TOP FL250. VIS 3-5SM -SHRA. AFT 02Z BKN050. OTLK...VFR.

A review of in-flight weather advisories indicated that there were no Convective SIGMETs (WST), SIGMETs (WS), Center Weather Advisories (CWA), or AIRMETs (WA) applicable for the area surrounding the period.

Winds and Temperatures Aloft Forecast –

WINDS ALOFT FORECASTS

DATA BASED ON 121800Z

VALID 130000Z FOR USE 2000-0300Z. TEMPS NEG ABV 24000

FT	3000	6000	9000	12000	18000	24000	30000	34000	39000
RIC	2020	2510+16	2612+11	2615+06	2636-06	2646-17	265233	286542	286452
EKN		3113+13	2819+09	2623+04	2639-08	2755-20	267436	289043	289552
ROA	3209	3108+15	2711+10	2615+06	2733-06	2751-17	276133	298141	287353