



## **NATIONAL TRANSPORTATION SAFETY BOARD**

Office of Aviation Safety  
Washington, D.C. 20594

February 21, 2018

### **Weather Study**

# **METEOROLOGY**

HWY18MH005

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## **A. ACCIDENT**

Location: Crozet, Virginia  
Date: January 31, 2018  
Time: about 1117 eastern standard time (1617 UTC)<sup>1</sup>  
Vehicles: Congressional Special Amtrak Train 923 & Refuse Truck

## **B. METEOROLOGIST**

Mike Richards  
Senior Meteorologist  
Operational Factors Division (AS-30)  
National Transportation Safety Board

## **C. DETAILS OF THE INVESTIGATION**

The National Transportation Safety Board's meteorological specialist did not travel in support of this accident investigation and gathered all weather data remotely. Unless otherwise noted, all times are in eastern standard time (EST) for January 31, 2018 (based upon the 24-hour clock), directions are referenced to true north, distances are in statute miles and heights are above mean sea level (msl).

Coordinates used for the accident location: 38.07733333° north latitude, 78.71673889° west longitude, at an elevation of about 815 feet.

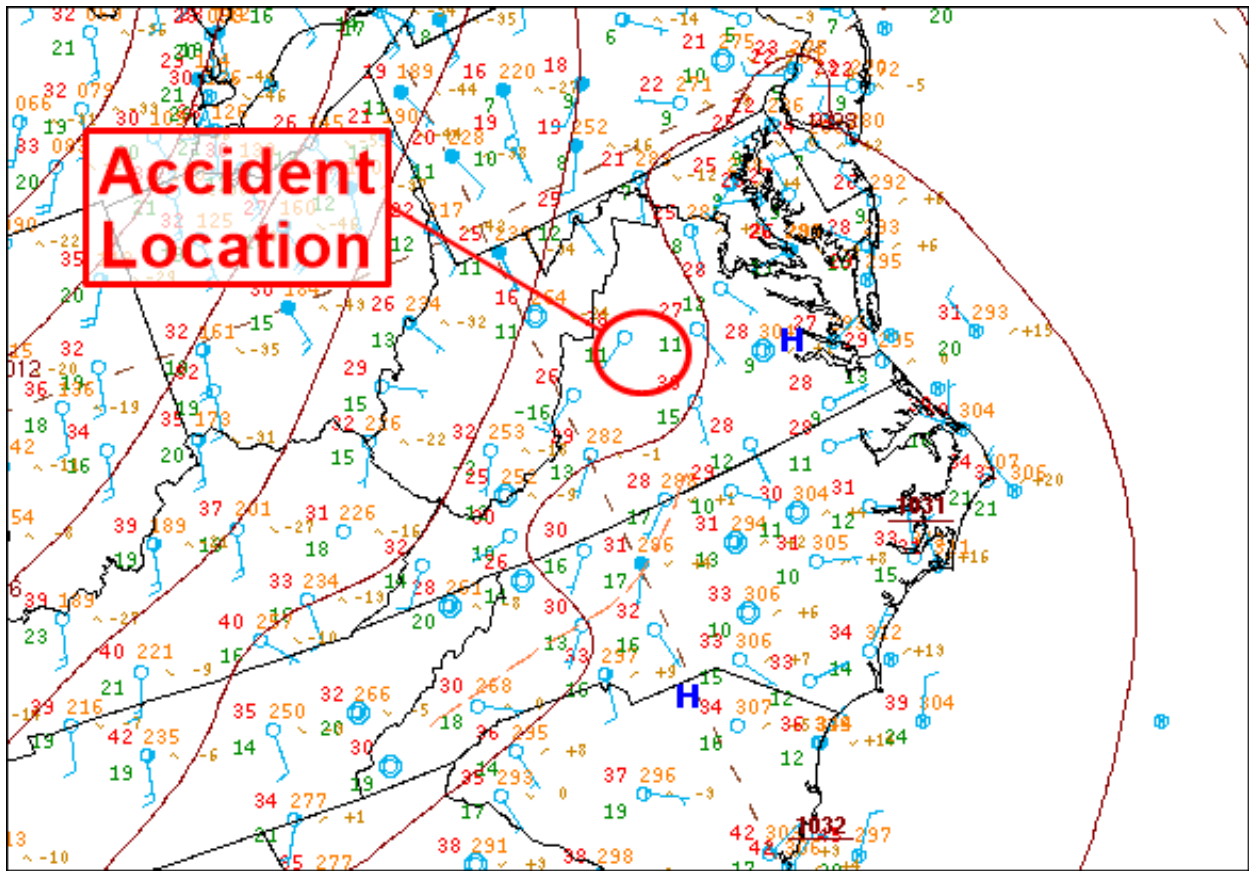
## **D. WEATHER INFORMATION**

### **1.0 Synoptic Conditions**

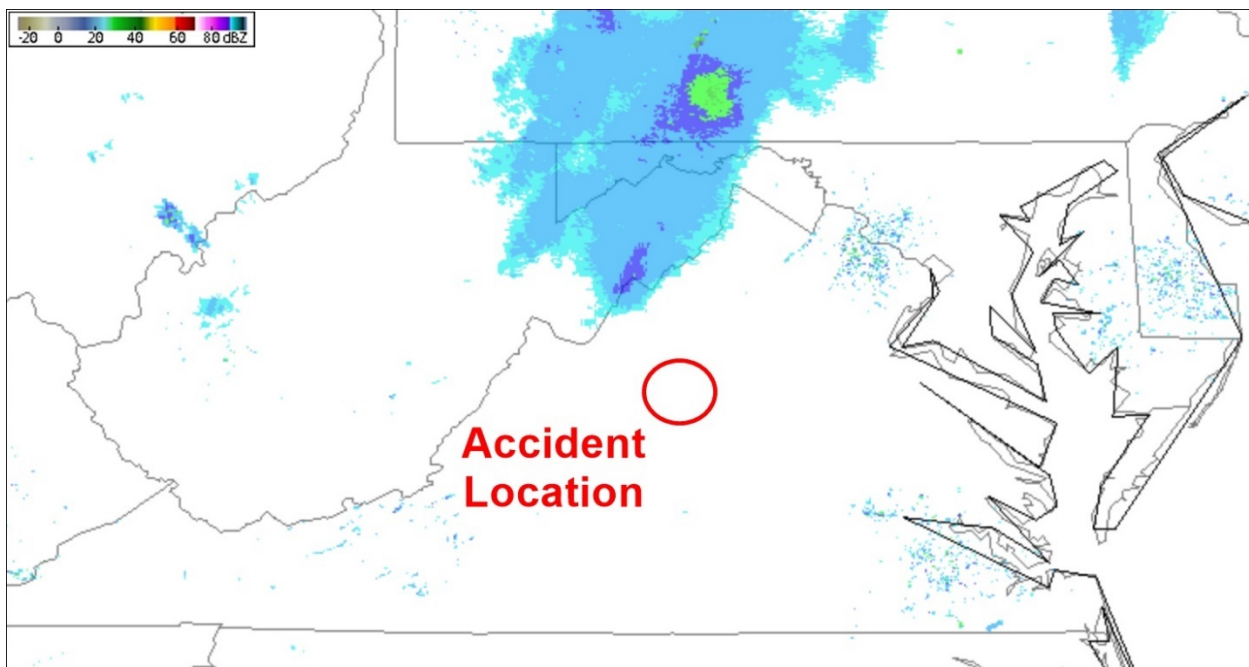
The eastern portion of the continental United States National Weather Service (NWS) Surface Analysis Chart for 1000 EST is presented in figure 1. The surface analysis chart showed several surface high pressure centers in the region. Station models throughout Virginia depicted clear skies, with (generally) southerly to southwesterly winds of 5 knots. Temperatures in the accident region were in the 20's degrees Fahrenheit (°F), with dew point depressions generally 10°F or greater. A WSR-88D regional radar composite reflectivity mosaic obtained from the National Centers for Environmental Information (NCEI) for 1110 EST (figure 2) did not identify any precipitation in the region.

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<sup>1</sup> UTC – abbreviation for Coordinated Universal Time



**Figure 1** – Eastern portion of the continental United States NWS Surface Analysis Chart for 1000 EST.



**Figure 2** – NCEI WSR-88D mosaic from 1110 EST.

## 2.0 Surface Observations

An Automated Weather Observing System was located at Eagle's Nest Airport (W13)<sup>2</sup> in Waynesboro, Virginia, which was located about 13 miles west of the accident location at an elevation of about 1,435 feet. Automated reports from W13 during the times surrounding the accident time are presented here. Observations throughout the period identified calm or very light winds from various directions, 10 miles visibility or greater, clear skies below 12,000 feet, temperatures of 28 to 37°F and dew point depressions greater than about 20°F.

[0955 EST] METAR KW13 311455Z AUTO 20003KT 10SM CLR M02/M13 A3026  
RMK AO1 T10201131=  
[1015 EST] METAR KW13 311515Z AUTO 16003KT 10SM CLR M01/M13 A3025  
RMK AO1 T10071127=  
[1035 EST] METAR KW13 311535Z AUTO 28003KT 10SM CLR 00/M12 A3025 RMK  
AO1 T10021125=  
[1055 EST] METAR KW13 311555Z AUTO 00000KT 10SM CLR 00/M13 A3024 RMK  
AO1 T00011126=  
[1115 EST] METAR KW13 311615Z AUTO 00000KT 10SM CLR 01/M13 A3024 RMK  
AO1 T00081131=  
[1135 EST] METAR KW13 311635Z AUTO 00000KT 10SM CLR 02/M14 A3022 RMK  
AO1 T00181136=  
[1155 EST] METAR KW13 311655Z AUTO 13003KT 10SM CLR 02/M14 A3020 RMK  
AO1 T00201136=

An Automated Surface Observing System was located at Charlottesville-Albemarle Airport (CHO) in Charlottesville, Virginia, which was located about 15 miles east-northeast of the accident location at an elevation of about 640 feet. Reports from CHO during the times surrounding the accident time, which were augmented by a weather observer, are presented here. Observations throughout the period identified a calm wind and winds with magnitudes of 8 miles-per-hour or less from the southeast to south-southeast, 10 miles visibility or greater, clear skies below 12,000 feet, temperatures of 25 to 36°F and dew point depressions greater than about 15°F.

[0853 EST] METAR KCHO 311353Z 17007KT 10SM CLR M04/M12 A3034 RMK  
AO2 SLP280 T10391122=  
[0953 EST] METAR KCHO 311453Z 15006KT 10SM CLR M02/M13 A3034 RMK  
AO2 SLP279 T10171128 50001=  
[1053 EST] METAR KCHO 311553Z 00000KT 10SM CLR M01/M12 A3032 RMK  
AO2 SLP274 T10061122=

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<sup>2</sup> The National Weather Service uses the 4-digit International Civil Aviation Organization (ICAO) format for station identifiers (as seen in the body of some formatted weather observations). This report uses the 3-digit International Air Transport Association format for station identification, which does not use the geographic designating digit ("K" for stations in the continental U.S. and "P" for U.S. stations in Alaska and the Pacific region) as found in the ICAO format.

[1153 EST] METAR KCHO 311653Z 17006KT 10SM CLR 02/M12 A3027 RMK AO2  
PRESFR SLP256 T00171117=

### 3.0 Area Forecast Discussion

An Area Forecast Discussion (AFD) was issued at 1013 EST by the NWS Weather Forecast Office for the Baltimore/Washington D.C. region (which included the accident location). The “Synopsis” and “Near Term” sections of the AFD are presented here. No significant weather applicable to the accident time and location was noted.

FXUS61 KLWX 311513  
AFDLWX

Area Forecast Discussion  
National Weather Service Baltimore MD/Washington DC  
1013 AM EST Wed Jan 31 2018

.SYNOPSIS...

High pressure over the region will migrate off the Carolina coast this afternoon. A cold front will approach the region on Thursday, crossing the area by Friday morning. Canadian high pressure will build southeastward into our area through Saturday, with a low pressure area and associated cold front slated to impact the region Sunday into Monday.

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.NEAR TERM /THROUGH TONIGHT/...

The winter chill holds on this morning with current temperatures in the 20s widespread across our region. High pressure overhead will shift to the East Coast to allow for south to southwest winds to become established and increase some during the peak of the afternoon. Some high clouds are moving across our region this morning, soon to be joined by mid-level clouds this afternoon into this evening. High temperatures will top out only in the upper 30s to near 40 in most places.

With high pressure hanging on to the East Coast, a dry southwest flow will continue tonight. With additional mid-level clouds streaming in overnight, low temperatures will not be as cold as last night with lows dropping only into lower to middle 30s. It will be a few degrees colder in the west and northeast Maryland.

Submitted by:

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Mike Richards  
Senior Meteorologist

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