



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

April 17, 2020

Weather Study

METEOROLOGY

ANC20LA015

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A. ACCIDENT

Location: Dutch Harbor, Alaska
Date: January 16, 2020
Time: 0806 Alaska standard time (1706 UTC¹)
Aircraft: Type – Beech 200; Registration – N547LM

B. METEOROLOGIST

Mike Richards
Senior Meteorologist
Operational Factors Division (AS-30)
National Transportation Safety Board
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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 Alaska standard time (AKST) for January 16, 2020 (based upon the 24-hour clock), directions are referenced to true north, distances are in nautical miles and heights are above mean sea level (msl) unless otherwise noted.

Coordinates used for the accident location: 53.903616° north latitude, 166.552705° west longitude, at sea level.

D. WEATHER INFORMATION

1.0 Surface Observations

An Automated Weather Observing System (AWOS) was located at Unalaska Airport (PADU) in Unalaska, Alaska, at an elevation of about 25 feet. The accident occurred as the aircraft was departing PADU and impacted the Bering Sea adjacent to the airport. Longline-disseminated² human-augmented reports from PADU during the times surrounding the accident time are presented here.

¹ UTC – abbreviation for Coordinated Universal Time

² “Longline” refers to the dissemination of weather observations with the intent that they are available in near-real time to national databases (effectively, the whole world) and accessible to the general global public from a large number of vendors. This does not include public accessibility to observations from a reporting station’s Very High Frequency (VHF; line-of-site) or telephone broadcast, where applicable. Longline dissemination of weather observations is the primary vehicle through which the general global public has access to surface weather observations, particularly outside of the aviation community.

[0656 AKST] METAR PADU 161556Z 10011G18KT 4SM -RA BR OVC018 04/02 A2948 RMK AO2 PK WND 13030/1541 SLP988 P0002 T00390017=

[0736 AKST] SPECI PADU 161636Z 11011G21KT 5SM -RA BR OVC014 04/02 A2949 RMK AO2 P0001=

[0756 AKST] METAR PADU 161656Z 11016G22KT 6SM -RA BR OVC014 04/02 A2948 RMK AO2 PK WND 15026/1640 SLP988 OBS PK WND 11030/1640 P0001 T00440022=

[0832 AKST] SPECI PADU 161732Z 10016G26KT 2SM BR BKN014 OVC036 04/02 A2949 RMK AO2 PK WND 12033/1706 RAE27 OBS PK WND 11034/1711 P0000=

[0849 AKST] SPECI PADU 161749Z 12016KT 9SM BKN014 BKN024 OVC036 04/02 A2950 RMK AO2 PK WND 12033/1706 RAE49 OBS PK WND 11034/1711 P0000=

At 0756 AKST, the PADU AWOS reported a wind from 110° at 16 knots with gusts to 22 knots, visibility of 6 statute miles, light rain, mist, ceiling overcast 1,400 feet above ground level (agl), temperature of 4° Celsius (C) and a dew point temperature 2°C, altimeter setting of 29.49 inches of mercury; remarks: station with a precipitation discriminator, peak wind of 26 knots from 150° at 0740 AKST, sea-level pressure of 998.8 hectopascals, weather observer-observed peak wind of 30 knots from 110° magnetic at 0740 AKST, 0.01 inches of liquid-equivalent precipitation since 0656 AKST, temperature of 4.4°C and dew point temperature of 2.2°C.

At 0832 AKST, the PADU AWOS reported a wind from 100° at 16 knots with gusts to 26 knots, visibility of 2 statute miles, mist, ceiling broken 1,400 feet agl, overcast clouds at 3,600 feet agl, temperature of 4°C and a dew point temperature 2°C, altimeter setting of 29.49 inches of mercury; remarks: station with a precipitation discriminator, peak wind of 33 knots from 120° at 0816 AKST, rain ended at 0827 AKST, weather observer-observed peak wind of 34 knots from 110° magnetic at 0811 AKST, trace amount of liquid-equivalent precipitation since 0756 AKST.

One-minute PADU AWOS data (OMO) were provided by the Federal Aviation Administration (FAA) and the OMO for times surrounding the accident time are presented here. These observations were available in real-time from the AWOS' very high frequency broadcast. At 0806 AKST, PADU observed a wind from 120° at 21 knots with gusts to 33 knots, visibility of 9 statute miles, light rain, ceiling overcast at 1,400 feet agl, temperature of 4°C and dew point temperature of 2°C, altimeter setting of 29.48 inches of mercury, pressure altitude of 420 feet, relative humidity of 85 percent, density altitude of -700 feet, magnetic wind from 110° at 21 knots with gusts to 33 knots; remarks: station with a precipitation discriminator, peak wind of 33 knots from 120° observed at 0806 AKST, trace amount of liquid-equivalent precipitation since 0756 AKST.

[0800 AKST] 1-MIN PADU 161700Z 11015G28KT 080V140 8SM -RA OVC014 04/02 A2948 420 85 -700 100/15G28 070V130 RMK AO2 PK WND 12028/1658

[0801 AKST] 1-MIN PADU 161701Z 12017G28KT 9SM -RA OVC014 04/02 A2948 420 85
-700 110/17G28 RMK AO2 PK WND 13028/1701 P0000

[0802 AKST] 1-MIN PADU 161702Z 12016G28KT 9SM -RA OVC014 04/02 A2948 420 85
-700 110/16G28 RMK AO2 PK WND 13028/1701 P0000

[0803 AKST] 1-MIN PADU 161703Z 12020G28KT 9SM -RA OVC014 04/02 A2948 420 85
-700 110/20G28 RMK AO2 PK WND 12028/1703 P0000

[0804 AKST] 1-MIN PADU 161704Z 12022G28KT 9SM -RA OVC014 04/02 A2948 420 85
-700 110/22G28 RMK AO2 PK WND 12028/1703 P0000

[0805 AKST] 1-MIN PADU 161705Z 11019G28KT 9SM -RA OVC014 04/02 A2949 420 85
-700 100/19G28 RMK AO2 PK WND 12028/1703 P0000

**[0806 AKST] 1-MIN PADU 161706Z 12021G33KT 9SM -RA OVC014 04/02 A2948 420 85
-700 110/21G33 RMK AO2 PK WND 12033/1706 P0000**

[0807 AKST] 1-MIN PADU 161707Z 11023G33KT 9SM -RA OVC014 04/02 A2948 420 85
-700 100/23G33 RMK AO2 PK WND 12033/1706 P0000

[0808 AKST] 1-MIN PADU 161708Z 12021G33KT 9SM -RA OVC014 04/02 A2948 420 85
-700 110/21G33 RMK AO2 PK WND 12033/1706 P0000

[0809 AKST] 1-MIN PADU 161709Z 13023G33KT 9SM -RA OVC014 04/02 A2948 430 85
-700 120/23G33 RMK AO2 PK WND 12033/1706 P0000

A summary of an interview conducted with the PADU weather observer on duty at the time of the accident can be found in Attachment 1.

2.0 Terminal Aerodrome Forecasts

Terminal Aerodrome Forecasts (TAF) were issued for PADU by the National Weather Service Weather Forecast Office in Anchorage, Alaska. Presented here is the most recent PADU TAF issued prior to the accident time.

At 0240 AKST a TAF was issued for PADU that forecasted for the accident time: wind from 140° at 15 knots with gusts to 25 knots, visibility 2 statute miles, light rain, mist, ceiling overcast at 1,500 feet agl.

TAF PADU 161140Z 1612/1712 13025G40KT 2SM -RA BR OVC015
TEMPO 1612/1615 3SM
FM161500 14015G25KT 2SM -RA BR OVC015
FM161800 VRB06KT 2SM -RA BR OVC015
FM170100 13010G15KT 4SM -SHRA BR BKN015 OVC025=

3.0 Area Forecast

An Area Forecast was issued at 0410 AKST by the Alaska Aviation Weather Unit for an area that included the accident location. This product forecasted for the accident time the following conditions applicable to the surface: scattered clouds at 1,500 feet above msl, ceiling overcast at 2,500 feet above msl with cloud tops to 11,000 feet, visibility of 5 statute miles, light rain and light rain showers; occasional broken ceiling at 1,500 feet above msl, visibility of 3 to 5 statute miles, light rain and light rain showers, mist; conditions improving from the west; until 0900 AKST a surface wind from the southeast of 30 knots with gusts to 40 knots with the wind diminishing and shifting to being from the northwest. An AIRMET for mountain obscuration was active.

FAAK58 PAWU 161310

FA8W

ANCC FA 161315

AK SRN HLF EXCP SE AK...

AIRMETS VALID UNTIL 162115

CB IMPLY POSSIBLE SEV OR GREATER TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HEIGHTS NOTED BY AGL OR CIG.

UNIMAK PASS TO ADAK AJ...VALID UNTIL 170100

...CLOUDS/WX...

AIRMET STG SFC WNDTIL 16Z E PAAK SUSTAINED SFC WND 30KT OR
GTR. WKN...

AIRMET IFRAFT 18Z PADK W SPRDG E OCNL CIG BLW 010/VIS BLW 3SM
-SN/-RASN BR. DTRT...

AIRMET MT OBSCSEGUAM IS E MTS OCNL OBSC IN CLDS/PCPN. IMPR
FM W...

AIRMET MT OBSCAFT 18Z PADK W SPRDG E MTS OBSC CLDS/PCPN.
DTRT...

SEGUAM IS E SCT015 OVC025 TOP 110 VIS 5SM -RA/-RASN.

OCNL BKN015 VIS 3-5SM -RA/-RASN BR.

CONDS IMPR FM W.

ELSW SCT025 BKN045 TOP 060.

OCNL BKN025.

AFT 18Z PADK W SPRDG TO PAAK SW BY 01Z SCT005 OVC015 TOP 150 LYRS
ABV TO FL220 VIS 3-5SM -SN/-RASN.

OCNL CIG BLW 010/VIS BLW 3SM -SN/-RASN BR.

TIL 18Z E PAAK SFC WND SE 30G40KT DMNSHG AND SHIFTING TO NW.

AFT 21Z SW PAAK SPRDG NE SFC WND SE 30G40KT.

OTLK VALID 170100-170700...SEGUAM IS SW IFR CIG RASN. ELSW MVFR CIG
SHSN.

...TURB...

AIRMET TURBW PADU OCNL MOD TURB FL280-FL380. NC...

TIL 16Z PAKO E ISOL MOD TURB BLW 040.

...ICE AND FZLVL...

PAKO E ISOL MOD ICEIC 020-110.

AFT 18Z PACD W SPRDG E ISOL MOD ICEIC 040-130.
FZLVL BLW 010.

4.0 SIGMETs and CWSU Products

There were no Significant Meteorological Information (SIGMET) advisories, Center Weather Advisories or Meteorological Impact Statements active for the accident location at the accident time.

5.0 Pilot Reports

There were no pilot reports made within two hours and 200 miles of the accident location and publicly-disseminated to the FAA's public database.³

6.0 Astronomical

Astronomical data obtained from the National Oceanic and Atmospheric Administration for PADU indicated that sunset occurred at 1815 AKST the day prior to the accident day, and sunrise occurred at 1015 AKST on the day of the accident.

E. LIST OF ATTACHMENTS

Attachment 1 - A summary of an interview conducted with the PADU weather observer on duty at the time of the accident.

Submitted by:

Mike Richards
Senior Meteorologist

³ These do not include PIREPs only broadcast via radio.
MET WEATHER STUDY

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