



# Aviation Investigation Final Report

<b>Location:</b>	Arctic Ocean, Other Foreign	<b>Accident Number:</b>	ANC18LA027
<b>Date &amp; Time:</b>	March 21, 2018,	<b>Registration:</b>	N716JP
<b>Aircraft:</b>	DEHAVILLAND DHC 6 TWIN OTTER	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Collision during takeoff/land	<b>Injuries:</b>	1 Serious, 5 None
<b>Flight Conducted Under:</b>	Part 135: Air taxi & commuter - Non-scheduled		

## Analysis

The captain and first officer were conducting a flight to provide ongoing logistical support to a remote research camp located on frozen water. The captain reported that departing and arriving flights used an airstrip built on the ice that was lined with snow berms on both sides. He added that, just before the takeoff roll, he and the first officer saw a pedestrian standing near the left side of the departure end of the airstrip. As the takeoff roll continued, the airplane became airborne, so the captain lowered the nose to remain within ground effect and gain airspeed before initiating a climb. The captain added that, as the airspeed increased, he started to climb the airplane and then initiated a left turn. Both pilots reported that, during the turn, they heard a loud thump, which was immediately followed by an aileron control anomaly. The captain initiated a left turn back toward the airstrip and subsequently made an emergency landing. After landing, both pilots saw the pedestrian lying near a snow berm on the left side of the airstrip. The captain reported that he did not remember if it had been prearranged to have the pedestrian stand near the departure end of the airstrip during the departure.

The pedestrian reported that, just before the two pilots boarded the airplane, he told the captain that he would position himself alongside the airstrip so that he could photograph the airplane at departure. As the airplane back-taxed before takeoff, the pedestrian positioned himself clear of the airstrip and behind a 3- to 4-ft-tall snow berm. He said that, as the airplane's takeoff progressed, it did not climb as quickly as it had during previous departures and that the last thing he remembered before the collision was seeing the left wing getting lower to the ground as the airplane began a left turn and flew toward him while continuing to accelerate.

A security video camera recorded the accident sequence, and the recording supported the pedestrian's account of the sequence of events. Although the captain reported that he climbed the airplane before initiating a left turn, the review of the video revealed that the flight crew operated the airplane at a low altitude and along a flightpath that placed it in dangerous proximity to the pedestrian (which was inconsistent with federal regulations) and left no margin to avoid the collision with him.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The flight crew's improper decision to deliberately operate the airplane at low altitude and along a flightpath that resulted in a collision with a pedestrian after takeoff. Contributing to the accident was the pedestrian's proximity to the runway.

### Findings

<b>Personnel issues</b>	Decision making/judgment - Flight crew
<b>Personnel issues</b>	Monitoring environment - Flight crew
<b>Environmental issues</b>	Person - Effect on operation

## Factual Information

### History of Flight

Takeoff	Miscellaneous/other
Takeoff	Collision during takeoff/land (Defining event)

On March 20, 2018, about 1942 Alaska daylight time, a wheel-equipped, twin-engine, turbine-powered de Havilland DHC-6 (Twin Otter) airplane, N716JP, struck a pedestrian after takeoff from a remote, sea ice airstrip, about 140 miles north of Deadhorse, Alaska. The pedestrian sustained serious injuries, and the airplane sustained substantial damage. The captain, first officer, and the three passengers on board the airplane were not injured. The flight was operated by Bald Mountain Air Service, Inc., Homer, Alaska, as a 14 *Code of Federal Regulations* (CFR) Part 135 visual flight rules (VFR) on-demand commercial flight when the accident occurred. Visual meteorological conditions prevailed at the airplane's point of departure, and a VFR flight plan was on file. The flight was en route to Deadhorse at the time of the accident.

During a telephone interview with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) on March 23, the accident airplane's captain said that the purpose of the flight was to provide ongoing logistical support of ICEX 2018, which involved, in part, U.S. Navy and U.K. Royal Navy submarines operating beneath the frozen Arctic Ocean during a 5-week exercise. The captain stated that the flights used an airstrip on the sea ice that was lined on both sides with snow berms. The 2,500-foot-long by 75-foot-wide airstrip included one runway oriented north/south and an intersecting runway oriented east/west. He said that weather conditions at the time of the accident consisted of clear skies with ice pack haze. He noted that the sun was low on the horizon, resulting in shadows on the airstrip, and that flat light conditions made it difficult to discern topographical features.

The captain said that, after back-taxiing the airplane to the south end of the airstrip and just before beginning the takeoff roll to the north, both pilots saw the pedestrian standing near the departure end of the airstrip on the left side and near the intersection of the east/west runway. He said that, during the takeoff roll, the airplane veered slightly to the left of centerline, so he applied differential engine power to correct the veer, and the airplane returned to the centerline. As the takeoff roll continued, the airplane subsequently became airborne, so he lowered the nose to remain within ground effect and gain airspeed before initiating a climb. He said that, as the airspeed increased, he started to climb the airplane, then initiated a left turn. During the turn, both pilots said they heard a loud thump, which was immediately followed by an aileron control anomaly. The captain reported that he continued the left turn and subsequently entered a left downwind traffic pattern for an emergency landing to the north. The captain said that after landing, both pilots saw the pedestrian lying behind a snow berm on the left side of the airstrip. At the end of the telephone interview, when asked by the NTSB IIC if it had been prearranged to have the pedestrian near the departure end of the airstrip during the departure, the captain said, in part: "I don't recall." The captain also reported that there were no preaccident mechanical malfunctions or failures with the airplane that would have precluded normal operation.

A postaccident examination of the airplane revealed substantial damage to the left wing and left aileron. The pedestrian sustained a serious head and neck injuries because of the collision, and he was subsequently medevacked to Anchorage, Alaska, for treatment.

The accident co-pilot elected to submit a written statement in place of an interview with the NTSB IIC. Written statements from both pilots are included in the public docket for this accident.

During a hospital room interview with the NTSB IIC, on March 25, the injured pedestrian, who was an employee of the Arctic Submarine Laboratory, reported that just before the two pilots boarded the airplane, he discussed with the captain that he would position himself alongside the airstrip to get a photo of the airplane's departure for his children. The pedestrian added that the purpose of taking the photo was to have two figurines in the foreground, and the departing airplane in the background, so he placed the figurines on a 3- to 4-ft tall snow berm on the left side of the airstrip. He said that, as he watched the accident airplane approach, he positioned himself behind the snow berm and well clear of the airstrip. He said that, as the airplane's takeoff progressed, it did not climb as quickly as it had during previous departures. The pedestrian said that the last thing he remembered before the collision was seeing the airplane's left wing getting lower to the ground as it began a left turn and flew toward him, as it continued to accelerate. The next thing he remembered was waking up in the medevac helicopter.

The closest weather reporting facility was the Deadhorse Airport, 140 miles south of the accident site. The 1953 observation reported, in part: Wind, 270° at 12 knots; visibility, 9 statute miles with light snow; clouds and sky condition, 2,900 ft scattered, 4,600 ft overcast; temperature, minus 4° F; dew point, minus 9° F; altimeter, 30.47 inches of Mercury.

The airplane was equipped with a solid-state cockpit voice recorder (CVR), and it was sent it to the NTSB vehicle recorder laboratory in Washington, D.C., for audition and review. After review, it was determined that the CVR failed to capture the events of the accident. No CVR listening group was convened, and no CVR transcript was created.

The accident sequence was recorded by a security video camera mounted on one of the temporary camp structures positioned to the west of the north/south airstrip. A copy of the video was reviewed by the NTSB IIC, and it contained about 1 hour and 34 minutes of imagery. The video was recorded in low and flat light conditions making it difficult to discern topographical features on the ice. About the 14-minute time stamp, the pedestrian can be seen standing near some equipment and a snowmachine that was parked next to the airstrip. About 1 minute later, the low flying airplane enters the field of view, traveling from right-to-left, while flying in a straight and level attitude. As the low flying airplane nears the pedestrian, the airplane begins a steep left turn, and the left-wing lowers. The left wing of the airplane subsequently struck the pedestrian, and the airplane continued to the left, and out of the field of view. A clip of the accident video is included in the public docket for this accident.

## Pilot Information

<b>Certificate:</b>	Airline transport; Commercial	<b>Age:</b>	32, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Unknown
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	January 23, 2018
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	December 3, 2017
<b>Flight Time:</b>	5724 hours (Total, all aircraft), 1024 hours (Total, this make and model)		

## Co-pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	28, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>		<b>Restraint Used:</b>	4-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	August 16, 2017
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	733 hours (Total, all aircraft), 117 hours (Total, this make and model), 228 hours (Pilot In Command, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	DEHAVILLAND	<b>Registration:</b>	N716JP
<b>Model/Series:</b>	DHC 6 TWIN OTTER	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1977	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	527
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	March 19, 2018 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	12500 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Turbo prop
<b>Airframe Total Time:</b>	29299.8 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Pratt & Whitney
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	PT6A-27
<b>Registered Owner:</b>	BALD MOUNTAIN AIR SERVICE INC	<b>Rated Power:</b>	680 Horsepower
<b>Operator:</b>	BALD MOUNTAIN AIR SERVICE INC	<b>Operating Certificate(s) Held:</b>	On-demand air taxi (135)

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Dusk
<b>Observation Facility, Elevation:</b>	PASC	<b>Distance from Accident Site:</b>	140 Nautical Miles
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	180°
<b>Lowest Cloud Condition:</b>	Scattered / 2900 ft AGL	<b>Visibility</b>	9 miles
<b>Lowest Ceiling:</b>	Overcast / 4600 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	12 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	270°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.46 inches Hg	<b>Temperature/Dew Point:</b>	-20°C / -23°C
<b>Precipitation and Obscuration:</b>	Light - None - Snow		
<b>Departure Point:</b>	Deadhorse, AK	<b>Type of Flight Plan Filed:</b>	VFR
<b>Destination:</b>	Deadhorse, AK (PASC)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>		<b>Type of Airspace:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	3 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	1 Serious	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Serious, 5 None	<b>Latitude, Longitude:</b>	72.300834,-148.79472

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Johnson, Clinton
<b>Additional Participating Persons:</b>	Scot Brown; Federal Aviation Administration; Fairbanks, AK
<b>Original Publish Date:</b>	December 16, 2019
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=96914">https://data.nts.gov/Docket?ProjectID=96914</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).