Aviation Investigation Final Report

Location:	San Juan, Puerto Rico	**Accident Number:**	ERA20LA221
Date & Time:	January 24, 2020, 20:54 Local	**Registration:**	N373ML
Aircraft:	Gulfstream 150	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control on ground	**Injuries:**	4 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane approached the destination airport at night, with rain showers in the area and the runway reported as wet. The pilot-in-command (PIC) stated that the airplane touched down "close to" the computed reference speed of 122 knots and "in the vicinity" of the 1,000 ft marker of the runway. At touchdown, the thrust reversers were deployed, and as the airplane decelerated through 70 knots, the PIC noticed standing water on the runway ahead. As the airplane encountered the standing water, with about 1,000 ft of runway remaining, it yawed to the left, then to the right, and departed the runway and struck a fence, sustaining substantial damage to the right wing.

According to a Federal Aviation Administration inspector, the airport had a history of standing water forming on the runway due to poor drainage over the previous 2 years, which resulted in reports of poor braking performance.

Data from the airplane manufacturer indicated that, for the reported landing weight and weather conditions, the airplane required a landing distance of 3,620 ft on a wet runway and 4,100 ft on a contaminated runway (standing water). The landing distance available was 5,126 ft. Although the precise touchdown location and landing speed could not be determined, the manufacturer's data suggest that the airplane could have stopped prior to reaching the 1,000 ft remaining location on the landing runway.

Probable Cause and Findings

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

The pilot’s loss of control during landing on a wet runway after encountering standing water.

Findings

Aircraft	Directional control - Not attained/maintained
Environmental issues	Wet surface - Effect on operation
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Landing-landing roll	Loss of control on ground (Defining event)
Landing-landing roll	Runway excursion
Landing-landing roll	Collision with terr/obj (non-CFIT)

On January 24, 2020, about 2054 Atlantic standard time, a Gulfstream G150, N373ML, was substantially damaged when it was involved in an accident at the Fernando Luis Ribas Dominicci Airport (TJIG), San Juan, Puerto Rico. The two pilots and two passengers were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The flight crew reported that as they approached the airport, they were aware of rain in the area and that the runway was wet. According to the pilot in command, the instrument approach to runway 09 was "stabilized, on glide path, and on speed." The reference speed (Vref) was 122 knots, and touchdown occurred "in the vicinity" of the 1,000 ft markers, at a speed "close to" Vref. The thrust reversers were deployed from touchdown until the speed reduced to 70 knots. The pilot then noticed standing water on the runway, and as the airplane encountered the standing water, it yawed initially to the left, then to the right, and departed the runway. The pilot further reported that there were no mechanical malfunctions or failures with the airplane that would have precluded normal operation.

Examination of the accident site by Federal Aviation Administration (FAA) and Puerto Rico Ports Authority (PRPA) personnel revealed that the airplane departed the runway near the last 1,000 ft of runway 09, impacted a chain-link fence and sustained substantial damage to the right wing spar. A review of photographs provided by the PRPA revealed that the ground air brakes were deployed and the flaps were at or near the fully extended position of 40°.

Weather observations at TJIG were reported only when the air traffic control tower was open (0700 to 1900). The last available observation occurred at 1745, which indicated that rain showers were in the vicinity of the airport to the southwest and northwest. According to the PRPA, there were heavy rain showers over TJIG at the time of the accident. A review of records from a surface weather system at TJIG revealed that at the time of the accident, the wind was from 336° at 1 knot. Automated weather observations reported at the San Juan Luis Marin International Airport (TJSJ), located about 5 miles to the east of TJIG, included rain showers to the west and southwest in the 3 hours preceding the accident. At 2056, the conditions reported at TJSJ included light rain which began at 2015.

According to an FAA Inspector, there were "numerous events" between 2019 and 2020 during which aircraft experienced braking performance issues when the runway was contaminated with standing water due to poor drainage. On January 23, 2021 at 1808, a field condition

report was issued in a notice to airman (NOTAM) that advised of wet runway conditions. At that time the runway was observed to be 100% wet with a water depth of 1/8 inch or less. The NOTAM was effective until January 24,2020 at 1808.

The pilot reported a landing weight of 18,400 lbs. A review of the airplane manufacturer's landing distance data revealed that at a landing weight of 18,400 lbs, the unfactored landing distance for a wet runway was 3,620 ft. The unfactored landing distance for a contaminated runway (standing water) was 4,100 ft. The landing distance available for runway 09 (ungrooved) at TJIG was 5,126 ft. According to the airplane flight manual, landing performance is obtained by:

1) Descend at steady sink rate, corresponding to 3° glide path, at Vref airspeed, down to 50 ft height, then retard power levers to idle.
2) At touch-down, initiate maximum continuous wheel braking. Continue brake application to full stop.

Pilot Information

Certificate:	Airline transport; Commercial	**Age:**	28,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	5-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	January 17, 2019
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	November 22, 2019
Flight Time:	4150 hours (Total, all aircraft), 35 hours (Total, this make and model), 2484 hours (Pilot In Command, all aircraft), 65 hours (Last 90 days, all aircraft), 28 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Airline transport; Commercial; Flight instructor; Private	**Age:**	47,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	5-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	November 8, 2019
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	December 21, 2019
Flight Time:	5981 hours (Total, all aircraft), 15 hours (Total, this make and model), 5561 hours (Pilot In Command, all aircraft), 58 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Gulfstream	**Registration:**	N373ML
Model/Series:	150 NO SERIES	**Aircraft Category:**	Airplane
Year of Manufacture:	2006	**Amateur Built:**	
Airworthiness Certificate:	Transport	**Serial Number:**	204
Landing Gear Type:	Retractable - Tricycle	**Seats:**	10
Date/Type of Last Inspection:	October 16, 2019 Continuous airworthiness	**Certified Max Gross Wt.:**	26250 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo fan
Airframe Total Time:	3519 Hrs at time of accident	**Engine Manufacturer:**	Honeywell
ELT:	C126 installed, not activated	**Engine Model/Series:**	TFE731-40AR-200G
Registered Owner:	Compass Aviation LLC	**Rated Power:**	4250 Lbs thrust
Operator:	Eagle Air	**Operating Certificate(s) Held:**	On-demand air taxi (135)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	TJSJ,8 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	20:56 Local	**Direction from Accident Site:**	106°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Broken / 1400 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.99 inches Hg	**Temperature/Dew Point:**	26°C / 23°C
Precipitation and Obscuration:	Light - None - Rain		
Departure Point:	Houston, TX (HOU)	**Type of Flight Plan Filed:**	IFR
Destination:	San Juan, PR (TJIG)	**Type of Clearance:**	IFR
Departure Time:	15:12 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	FERNANDO LUIS RIBAS DOMINICCI TJIG	**Runway Surface Type:**	Asphalt
Airport Elevation:	9 ft msl	**Runway Surface Condition:**	Wet
Runway Used:	09	**IFR Approach:**	RNAV
Runway Length/Width:	5542 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	4 None	**Latitude, Longitude:**	18.45699,-66.092463(est)

Administrative Information

Investigator In Charge (IIC):	Brazy, Douglass
Additional Participating Persons:	Rafael C Gonzalez; FAA/FSDO; San Juan, PR
Original Publish Date:	April 1, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=101463