Aviation Investigation Final Report

Location:	PHOENIX, Arizona	**Accident Number:**	LAX00LA292
Date & Time:	August 11, 2000, 06:25 Local	**Registration:**	N7244X
Aircraft:	Balloon Works FIREFLY II	**Aircraft Damage:**	None
Defining Event:		**Injuries:**	1 Serious, 2 Minor, 8 None
Flight Conducted Under:	Part 91: General aviation		

Analysis

On a for-hire sightseeing flight, the balloon encountered unusual wind conditions and collided with the ground after the envelope partially collapsed. One passenger sustained a fractured ankle in the hard landing. The pilot said that a preflight weather briefing contained no flight precautions for the proposed flight area. The launch site is in a flood control basin near a dam and surrounded by hills. Following launch, the pilot contoured a hill and, as the balloon neared the top, it encountered a wind shear the pilot described as a direction change of 70 degrees with a speed of 10 to 12 knots. The pilot said that on the lee side of the hill, he encountered a downdraft followed immediately by an updraft. The pilot said he believed he encountered a wind rotor. The rapid changes in air mass movement distorted the balloon envelope and resulted in spilling some of the heated air. The balloon then entered a rapid descent the pilot was unable to arrest with three burners going and collided with the ground. The METAR for an airport 4 miles away at the time of the accident was reporting winds from 100 degrees at 8 knots. The pilot did not use pibals or other on sight wind quantification devices prior to launch.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to use pibals or other on site wind determination devices, and his subsequent failure to detect adverse wind conditions prior to launch of the balloon.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: CRUISE

Findings
1. TERRAIN CONDITION - MOUNTAINOUS/HILLY
2. WEATHER CONDITION - TURBULENCE,TERRAIN INDUCED
3. WEATHER CONDITION - WINDSHEAR
4. (C) WIND INFORMATION - NOT OBTAINED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
5. WEATHER CONDITION - DOWNDRAFT
6. AIRCRAFT PERFORMANCE,CLIMB CAPABILITY - EXCEEDED

Factual Information

On August 11, 2000, at 0625 hours mountain standard time, a Balloon Works Firefly II, N7244X, encountered unusual wind conditions and collided with the ground after the envelope partially collapsed about 4 miles northeast of the Deer Valley Municipal Airport, Phoenix, Arizona. The balloon, operated by Hot Air Expeditions under 14 CFR Part 91, was not damaged. The commercial balloon pilot and 7 passengers were not injured; 1 passenger received serious injuries; and 2 passengers received minor injuries. Visual meteorological conditions prevailed for the local for-hire sightseeing flight that departed from a remote launch site at 0617 and was scheduled for a 1-hour flight with a termination at the launch site.

The pilot stated in his written report that a preflight weather briefing contained no flight precautions for the proposed flight area. The launch site is in a flood control basin near a dam and surrounded by hills. Following launch, the pilot contoured a hill, and as the balloon neared the top, it encountered a wind shear the pilot described as a direction change of 70 degrees with a speed of 10 to 12 knots. The pilot said that on the lee side of the hill, he encountered a downdraft followed immediately by an updraft. The pilot said he believed he encountered a wind rotor. The rapid changes in air mass movement distorted the balloon envelope and resulted in spilling some of the heated air. The balloon then entered a rapid descent the pilot was unable to arrest with three burners going and collided with the ground.

The METAR for the Deer Valley Airport at the time of the accident was reporting winds from 100 degrees at 8 knots. The pilot did not report using pibals or other wind quantification devices prior to launch.

Pilot Information

Certificate:	Commercial	**Age:**	62,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Unknown
Other Aircraft Rating(s):	Balloon	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	None None	**Last FAA Medical Exam:**	
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	3415 hours (Total, all aircraft), 375 hours (Total, this make and model), 85 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Balloon Works	**Registration:**	N7244X
Model/Series:	FIREFLY II FIREFLY II	**Aircraft Category:**	Balloon
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	11008-3-S
Landing Gear Type:		**Seats:**	0
Date/Type of Last Inspection:	July 14, 2000 Annual	**Certified Max Gross Wt.:**	3940 lbs
Time Since Last Inspection:	27 Hrs	**Engines:**	Unknown
Airframe Total Time:	199 Hrs	**Engine Manufacturer:**	
ELT:	Not installed	**Engine Model/Series:**	
Registered Owner:	MARS LEASING CO, INC	**Rated Power:**	
Operator:	HOT AIR EXPEDITIONS	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	DVT ,1476 ft msl	**Distance from Accident Site:**	4 Nautical Miles
Observation Time:	06:53 Local	**Direction from Accident Site:**	150°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	100°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	93°C / 64°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:		**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	06:17 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	None
Passenger Injuries:	1 Serious, 2 Minor, 7 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 2 Minor, 8 None	**Latitude, Longitude:**	33.679622,-112.089698(est)

Administrative Information

Investigator In Charge (IIC):	Rich, Jeff
Additional Participating Persons:	CHRIS CLARK; SCOTTSDALE , AZ
Original Publish Date:	September 26, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49956