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INVESTIGATION REPORT

Accident to the Piper PA-28 Arrow registered F-GHKI

on 24 November 2002
at Brando (Haute-Corse) close to the summit of Monte Stello

Time	Approximately 16:45[1]
Operator	Union Aéronautique de la Côte d'Azur (UACA)
Type of flight	Cross-country
Persons on board	Pilot and three passengers
Consequences and damage	Pilot and passengers fatally injured, aircraft destroyed

This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in August 2020. As accurate as the translation may be, the original text in French is the work of reference.

[1] Unless otherwise stated, all times in this report are expressed in local time in mainland France and Italy.

Cruise flight in mountainous region in weather conditions incompatible with a VFR flight, collision with terrain, fire

1 - HISTORY OF THE FLIGHT

Note: the following information is based mainly on statements, onboard documents collected at the accident site, radio communications recordings and radar data.

The pilot, who was accompanied by his wife and two friends, took off at about 15:20 under VFR from Florence airport (Italy) bound for Cannes Mandelieu[2] airport (Alpes-Maritimes), flying over Corsica.

After initial contact at 16:33 with the controller of the Bastia-Poretta (Haute-Corse) Flight Information Sector (FIS), the pilot announced that he was en route to the "*Moule*" reporting point (see illustration) to the east of the CTR and requested clearance[3] to fly through the airspace to the north of Bastia at 3,000 ft.

At 16:42, as he was heading towards the NW point (see illustration), which is the Bastia CTR reporting point, the pilot requested clearance to climb to 4,500 ft. Immediately after receiving the controller's clearance, the pilot requested information on the meteorological conditions at his destination in Cannes.

At 16:43, while trying to transmit the meteorological information requested by the pilot, the controller lost all radio contact with F-GHKI and initiated the alert phase, followed by the search and rescue operation.

[2] This was the return flight to Cannes-Mandelieu airport, where the aircraft was usually based.

[3] He subsequently requested a direct to the NW reporting point, for which he received clearance.

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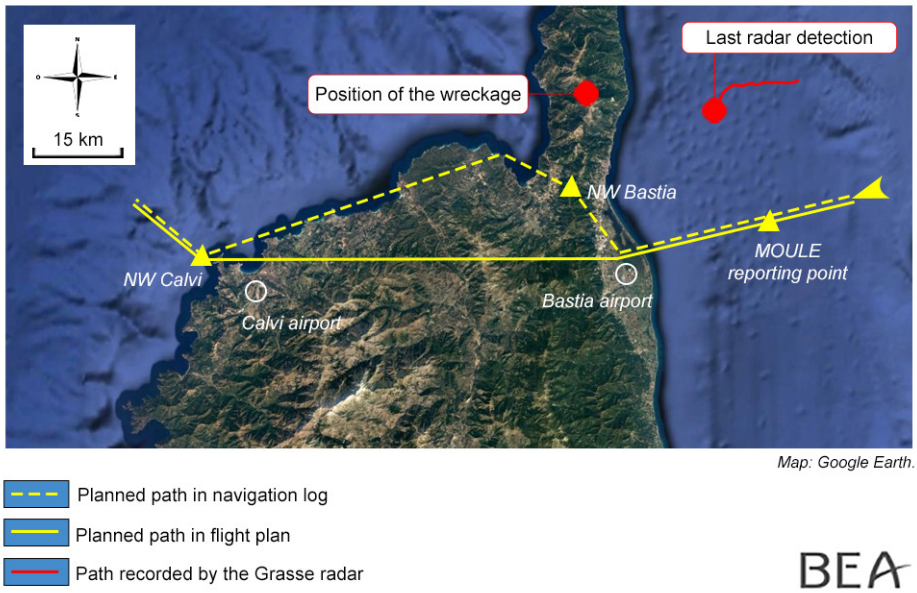
[4] The Puma helicopter was equipped with an infrared detection system..

At approximately 19:51, the wreckage of the aircraft was located below the summit of Monte Stello at an altitude of 4,288 ft (1,307 m) by one of the helicopters[4] in the search operations.



Summary of path information

2 - ADDITIONAL INFORMATION

2.1 Pilot information

The 38-year-old pilot, who was a Danish national residing in France, held an ATPL(A) licence obtained in February 2001. He had logged 4,266 flight hours, including 68 hours in the previous three months.

The pilot had successfully completed a flight proficiency check with the UACA on a PA28 on 5 September 2002 in preparation for the trip to Florence.

2.2 Passenger information

None of the passengers had any knowledge of aircraft. The couple on board, who were friends of the pilot, had work commitments the next day, Monday, 25 November.

2.3 Aircraft information

The Piper PA28 Arrow is a four-seater, fixed-landing gear, piston-engine tourist plane. F-GHKI was suitable for night flights under VFR, but was not certified for IFR flights. It was equipped with a radio compass, a VOR DME, an NDB[5] and an electric altitude indicator.

[5] Non Directional Beacon.

The two-axis KAP 100 autopilot it was normally equipped with had been taken to Cannes for repair.

The aircraft's range before take-off was estimated by the pilot to be three hours for an estimated flight time of 2 hours and 10 minutes.

2.4 Meteorological information

2.4.1 General and regional situations

The Mediterranean and the south-east of France were in a strong, very humid southerly regime. The meteorological conditions justified Météo France issuing an "*orange*" severe weather warning for this region[(6)].

Heavy rainfall and thunderstorms over six départements in south-eastern France, including Alpes-Maritimes and Var, were forecast for 24 November.

On Corsica, the humidity in the low layers was close to or even above 90%. Stratus cloud banks with bases below 200 m reduced visibility to 7,000 or 8,000 m. Close to the terrain, the south/south-easterly winds on the east coast and in northern Corsica caused an orographic uplift, thickening the stratus and fog, which completely shrouded the terrain above 200 m in height and greatly reduced visibility.

Bastia-Poretta airport station report at 17:00:

- wind: 160°, 7 kt, gusts 11 kt;
- visibility: 7 km;
- clouds: 2/8 cumulus at 560 ft, 2/8 cumulus at 2,000 ft, 5/8 altocumulus at 8,200 ft, 7/8 cirrus at 23,000 ft;
- temperature: 17 °C, dew point: 15 °C, humidity: 92%, QNH: 1008 hPa

The Sacro weather station (Météo-France) on the eastern coast of Cap Corse, at the foot of Monte Stello, gave the following readings at 16:00: total cloud cover between 1,000 and 2,000 ft, with horizontal visibility at sea not exceeding 8 km.

2.4.2 Pilot's weather file

Based on the documents found at the site, the meteorological offices at the departure aerodrome had forecast:

- severe turbulence in the south of Corsica between FL 10 and 100;
- in Cannes, for the second part of the day, overcast conditions (low and medium altitude clouds), showers and thunderstorms with visibilities falling to around 3,000 m, or even less in areas of rainfall;
- sunset at 16:55 (17:25 for the aeronautical night) in Cannes.

The investigation found that the pilot had not asked the weather station at the departure airport to provide him with the weather forecast for the alternate airport (Nice-Côte-d'Azur) and for the route.

2.5 Site and wreckage information

2.5.1 Site

The accident site was located in a mountainous area, 27 km north-north-east of Bastia-Poretta airport, at an altitude of 4,288 ft close to the summit of Monte Stello, which is one of the highest points on Cap Corse. The wreckage was strewn on either side of the main ridge line running north/south.

The first impact marks were located on the eastern flank, about 50 m below the ridge line, on a steep rocky slope.

[(6)] A "*severe weather warning*" is not an aeronautical classification. It is an indication of expected meteorological conditions that may present particular hazards, which is issued to professionals in certain sectors that are dependent on these conditions and to the general public. The severe weather warning map is available on the Météo-France website www.meteofrance.com.

The last impact was located after the ridge line on the western flank of the ridge line. The wreckage was lying flat on the ground.

2.5.2 Wreckage

The fractures as a whole showed that this was a high-energy collision. A fire broke out on impact which meant that the onboard instrumentation could not be examined.

The inspections of the engine and propeller indicated that the engine was delivering power.

The overall damage observed indicated that the aircraft was climbing, with a nose-up attitude.

The examinations of the wreckage and a review of the latest maintenance work did not reveal any malfunction or anomaly, or any pre-accident damage.

2.6 Other information

2.6.1 Navigation

A copy of the VFR flight plan and a navigation log were found at the accident site.

- The flight plan was based on a direct route across Corsica (see illustration on page 2) from Elba Island (ELB) to Bastia-Poretta VOR (BTA), followed by the Calvi radio compass (CV) and the NW reporting point at Calvi airport. Nice-Côte-d'Azur airport had been selected as the alternate airport.
- In the navigation log, the pilot had planned a route that differed from the flight plan for crossing Corsica. The planned route, after passing overhead the BTA VOR, was to fly via the Bastia-Poretta NW reporting point and then follow the coast to the Calvi NW reporting point. The pilot had selected an altitude of 5,000 ft up to Calvi NW and then an altitude of between 1,000 and 2,000 ft for the coastal transit to Cannes.

The direct route on the flight plan between Bastia and Calvi required flying over several peaks, some of which were over 5,000 ft high.

The coastal route in the navigation log between the Bastia NW point (3,155 ft) and Calvi NW point made it possible, after passing Cap Corse, to fly over the sea at a lower altitude and to adapt to the meteorological conditions.

2.6.2 Aids to navigation and radar detection

The ground-based means of radio navigation available to the pilot for navigation, "*BTA*" VOR-DME, "*ELB*" VOR-TACAN, "*BP*" NDB-LOCATOR, "*CV*" NDB-LOCATOR, were in operation and functioning normally at the time of the occurrence.

Controllers provide air traffic services, including flight information and warnings, to pilots flying under VFR. The controller at Bastia-Poretta airport usually had a composite radar image available to him from the Genoa-Montesima (Italy) and Grasse (06) radars. On the day of the accident, the image from the Genoa-Montesima radar was unavailable. The peaks of Cap Corse masked detection for the Grasse radar to the east of Cap Corse.

The air traffic services provided to the pilot were therefore dependent on the information he transmitted.

When the pilot contacted the controller, the radar image showed that the pilot was about 10 NM north of the planned path and the MOULE reporting point before turning towards Bastia-Poretta airport. Based on the aircraft's altitude, as of 16:38:24, the controller no longer had any radar plot or altitude report.

At the time of the last radar contact, the aeroplane was still on a path roughly oriented towards Bastia-Poretta airport. The controller[7] could not have detected the fact that the pilot had then changed his heading (substantially due west) and that the aircraft was heading towards the Cap Corse mountains at too low an altitude.

[7] The controller did indeed provide the flight information and warning services normally provided to VFR flights and in particular to F-GHKI, based on the information transmitted to him by the pilot.

2.6.3 Reconstruction of the path

During the investigation, the data recorded by the Rome radar was used to determine that the pilot had begun his climb from 3,600 ft less than one minute before the collision with the terrain, with the average rate of climb being about 235 ft/min. This was insufficient to clear the main ridge line of Cap Corse.

3 - CONCLUSIONS

The conclusions are solely based on the information which came to the knowledge of the BEA during the investigation. They are not intended to apportion blame or liability.

Scenario

While flying over the sea between Italy and Corsica, the pilot shifted his route to the north of his planned flight path for an unknown reason. Subsequently, after contacting Bastia, the heading and altitude of his path changed, probably in order to avoid cloud and precipitation.

The pilot had been flying for more than one hour when his workload probably increased: with no autopilot at his disposal, the pilot passed from an overflight over the sea with no vertical obstacles to an overflight over a mountainous area, probably in turbulent air conditions with few or no external visual references.

At the same time, he was concerned about the meteorological conditions at destination, which was to be reached about an hour later, at the beginning of the aeronautical night. His thinking and decision-making took precedence over his piloting of the aircraft at an untimely moment of the flight.

One minute before the collision, he requested clearance to climb to 4,500 ft, which was an altitude that would enable him to reach the NW reporting point of the Bastia-Poretta CTR. However, given his position to the north of the planned route, the ridge line of Cap Corse and Monte Stello was ahead of him and shrouded in clouds. The requested altitude was therefore not sufficient to clear this obstacle with the required margin.

The return trip from Florence to Cannes-Mandelieu was undertaken with passengers on board who had work commitments the next day. A final diversion to Bastia-Poretta airport, with which he was in contact just before the accident, does not appear to have been considered by the pilot.

The accident resulted from a decision to undertake the flight in meteorological conditions that were incompatible with a VFR flight, and from the pilot's insistence on continuing the flight despite the option that was still available to him to divert to Bastia-Poretta airport a few minutes before the accident.

Contributing factors

The following factors may have contributed to the accident:

- insufficient consideration given to the meteorological conditions that day on the planned route;
- probable overconfidence on the part of the pilot in his proficiency with respect to the equipment available on the aircraft and the prevailing meteorological conditions;
- pressure due to his passengers' work commitments.