
BHPA Incident Report: GBR-2020-15628

INCIDENT

Aircraft Type:	Paraglider: Ozone Delta 3 ML (serial number D3ML-S-12B-080); Advance Impress 3 pod harness fitted with Independence EVO 22 emergency parachute (serial number 35323); Flytec Element electronic flight instrument.
Certification:	EN 926-2 Class C for a total weight in flight range of 85-105kg.
Location:	Windy Knoll landing field, High Peak.
Date and Time:	14 th August 2020, approximately 17:52 UTC.
Type of Flight:	Local flight.
Persons Involved:	Pilot A.
Injuries:	Listed as death as a result of chest injuries.
Nature of Damage:	Damage to the suspension lines of the paraglider. Damage to the harness.
Pilot's Rating/Licence:	BHPA Paragliding "Pilot" rating for Hill Environment.
Pilot's Age:	53
Pilot's Experience:	No logbook available.
Information Sources:	Statements from Pilots B, C and D. Statements from Witnesses E and F. Data from Pilot A's electronic flight instrument. Data from Pilot C's electronic flight instrument. "Aftercast" information from the Met Office. Wing inspection report from an independent expert.

1.0 Synopsis.

Pilot A was making a flight above Treak Cliff and Mam Tor in soarable conditions. After approximately 40 minutes flight time, Pilot A decided to land in a field to the west of Treak Cliff, known as Windy Knoll. The wind direction at the time was northeasterly. He flew over the landing field and turned into wind. Pilot A's paraglider was seen to experience asymmetric collapses. He deployed his emergency parachute but impacted the ground before it opened, sustaining fatal injuries.

2.0 History of the flight.

Pilot A arrived at the flying site known as Treak Cliff with two other paraglider pilots (Pilot B and Pilot C). A hang glider (flown by Pilot D) and a paraglider were already airborne. The conditions observed on the hill at the time were east-northeasterly / easterly winds of strength enabling soaring flight. The sky was overcast with scattered light cumulus clouds. Pilot C launched, followed by Pilot A (at 17:08 UTC), and then Pilot B.

For the first twenty minutes of his flight, Pilot A ridge soared Treak Cliff and the area of northeasterly-facing hill known as Long Cliff. He reached 500ft above take-off, an altitude of approximately 1700ft above mean sea level (amsl). He then flew in a north-northwesterly direction over to Mam Tor, making a significant altitude gain, topping out at just under 3000ft amsl.

At approximately 17:50 UTC, 90 seconds before the incident occurred, Pilot A was upwind of Mam Tor, about 500ft above the summit. He turned downwind to towards Windy Knoll landing field.

Pilot A turned into wind on final approach to land in Windy Knoll. Pilot B (from their position having landed in Windy Knoll) saw Pilot A experience an asymmetric collapse to the left-hand side of his paraglider that he attempted to correct. Pilot A then experienced an asymmetric collapse to the right-hand side of his paraglider. The wing was seen to rotate, and Pilot A descended vertically. Pilot B shouted to Pilot A to deploy his emergency parachute, which Pilot A was seen to do. He impacted the ground in a supine position. The emergency parachute had unfurled but had not yet inflated at the time of the impact.

Witness F summoned the emergency services and first aid was performed; however, Pilot A was pronounced dead at the scene.

3.0 Focus.

Based on the information available, the Investigation considered the flying area and local flying conditions; Pilot A's experience and currency; his equipment; and the portion of Pilot A's flight leading to his impact with the ground.

3.1 The flying area and local conditions.

Treak Cliff and Mam Tor flying sites are Peak District ridges flown predominantly by members of the Derbyshire Soaring Club. At its crest, Treak Cliff is approximately 1100 feet above sea level and faces east-northeast. Mam Tor's summit is approximately 400 feet higher than Treak Cliff. A feature of Mam Tor is its "landslip", a steep easterly facing bowl of shale and bare earth, where the top layer of earth has slipped away. Between Mam Tor and Treak Cliff is an area of grass, shale and bare earth undulations formed from the main landslip. A sharp edge rises from this area up the landslip face to its peak. On the windward side of this edge (in an east wind) the landslip is precipitously steep. Behind the edge the land on the southern side of Mam Tor falls away gently.

Windy Knoll is a field routinely used for landing by pilots when flying on Rushup Edge, a southerly-facing slope. It is sometimes used by pilots when flying on Mam Tor and Treak Cliff, in certain conditions. The landing area within the field is approximately 600m away (in a southwesterly direction) from Mam Tor's summit. It is approximately 350 feet lower than the summit of Mam Tor and has gentle undulations and flat areas making it suitable for landing a paraglider.

The Derbyshire Soaring Club online site guide¹ states for Windy Knoll:

"Using Windy Knoll as an option for landing from Treak Cliff in an Easterly – there is severe rotor behind Treak Cliff – you need plenty of height (site guide suggests the height of Mam Tor) to get over this rotor to reach Windy Knoll.

For all the above sites, the more Northerly component the wind has, the more the risk increases that the whole of Mam Tor and Rushup Edge will generate rotor directly on to Windy Knoll. These conditions are extremely dangerous, and you should not try to land at Windy Knoll – go to Rowter Farm (if height allows) or the bottom instead."

The conditions stated on the Met Office Aftercast for the incident day and local area were as follows:

¹ <https://derbyshiresoaringclub.org.uk/site-guide/windy-knoll-rowter-farm-landing-fields/> (Quote for this report accessed on 16th November 2020).

“Friday 14th August 2020 saw some showers affecting the South-west UK, with low cloud pushing onto Northeast coasts and moving inland. Neither of these affected the area of interest with generally fine conditions across the Peak District. The conditions experienced at Castleton would be very similar to those in Figure 6, with light to moderate north easterly winds good visibility and some patches of cloud at around 6000Ft. There is no direct evidence of mountain wave activity or turbulence either from the surface observation or satellite images.”

The reference to “Figure 6” in the Aftercast (“Actual observations - Meteorological Aerodrome Report (METARs) at Manchester”) gives a wind of 50 degrees at 8 Knots (at 17:50 UTC). The local conditions reported by Pilots B and C generally support the information provided by the Met Office. The wind direction on the hill was described by Pilot B as being from an east-northeasterly direction when they launched. The direction of cloud movement indicated a northeasterly wind at altitude. Pilot C assessed the wind speed on the launch area to be 13 to 17mph. The Investigation determined that the conditions in which Pilot A launched were suitable for flight for a pilot of Pilot A’s level of experience.

Pilot C initially judged the wind direction to be easterly before they launched, the wind backing northeasterly during their flight and evidently increasing in speed. Pilot B reported that at 2000ft above mean sea level, their electronic flight instrument indicated the wind speed was 30mph and had more of a northerly component.

In an east-northeasterly or northeasterly wind, the Windy Knoll landing field is directly downwind of Mam Tor. The lower area at the foot of the landslip creates a funnelling effect, resulting in an increased air velocity over the sharp landslip edge. In any moderate breeze, turbulent air would likely be present in the lee of these obstructions to the airflow. The Investigation determined that in the reported conditions, the choice of landing field was a significant factor in the incident.

3.2 Pilot A’s experience and currency.

Pilot A attained his Club Pilot (Novice) rating in 2014, and his Pilot rating in 2015. He was well known amongst the Derbyshire Soaring Club flying community as an experienced pilot and Club Coach. A logbook was made available to the Investigation that recorded his initial flights following his Club Pilot training. It is evident that he made several flights in the French Alps and at Lake Garda in Italy. His later flights were not recorded in a logbook, however he declared on his Derbyshire Soaring Club personal details page that he had accumulated 300 hours’ flight.

Pilot A’s electronic flight computer log recorded approximately 20 hours’ airtime since the beginning of 2020, including 13 hours following the authorisation to resume flying after the COVID 19 lockdown release (in England) on 14th May.

The Investigation determined from the available evidence that Pilot A was suitably experienced and suitably current to make the flight attempted on the incident day.

3.3 Pilot A’s equipment.

Based on a desktop calculation, Pilot A’s total weight in flight was calculated at 104.5kg (pilot, wing, harness, emergency parachute and an allowance of 5kg for ancillary equipment). This is within the maximum total weight in flight of 105kg for the Delta 3 ML to achieve an EN 926-2 (Paraglider Flight Safety Characteristics) “C” class. The paraglider manufacturer Ozone declares the Delta 3 to be “an XC orientated advanced intermediate wing for a wide range of pilots” ... “ideal for those stepping up from EN B and for more experienced pilots who want a safe and easy-to-use high performance XC wing”.

The paraglider was inspected by an independent expert who produced a report. The wing was reported to be in good condition and well maintained. One main suspension line was broken. From measurements of the other suspension lines, the report indicated that the wing was in serviceable

trim. Pilot B stated that Pilot A had performed a pre-flight check before the incident flight. The Investigation determined that had the broken line been present at pre-flight check stage, it would have been evident to Pilot A and the flight would not have been made. The broken suspension line was therefore a result of the incident or subsequent recovery.

A visual inspection of the harness and emergency parachute was performed, and damage was found to the non-structural part of the harness pod. Evidence provided to the Investigation illustrates that Pilot A repacked his emergency parachute at a Derbyshire Soaring Club repacking event held on 16th February 2020.

The Investigation determined from the evidence available that the flying equipment was of suitable type and airworthy prior to the incident. The equipment was considered not to be a factor in the incident.

3.4 The incident.

The Investigation considered the portion of Pilot A's flight leading up to the impact with the ground. The flight data was provided by an analysis of the GPS tracklog from Pilot A's electronic flight instrument. The GPS track for the final 12 minutes of the of the flight is displayed in Fig. 1.

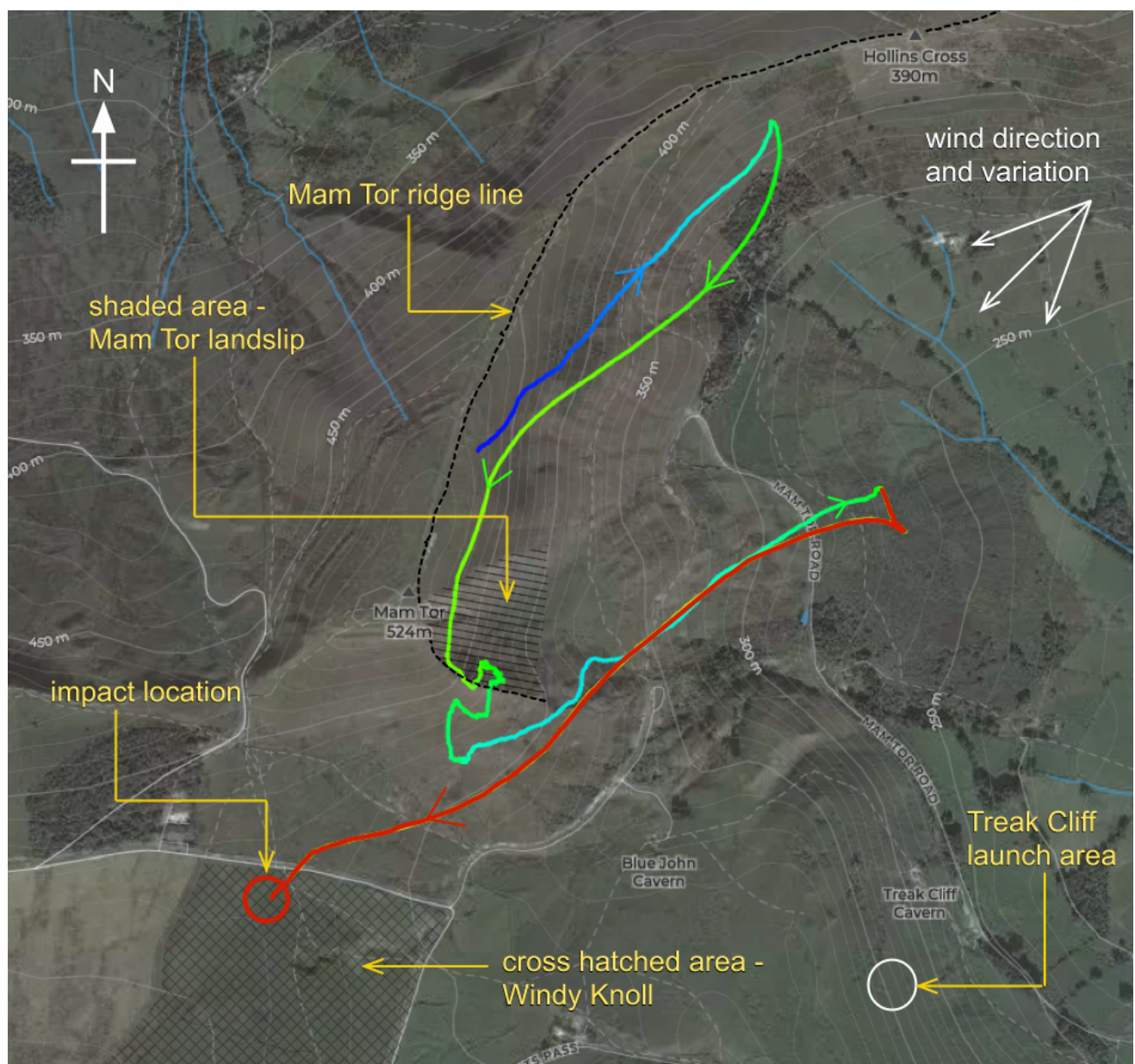


Fig.1 (above). The solid red line indicates Pilot A's downwind glide towards Windy Knoll. The blue / green line indicates the portion of flight immediately prior to this. (Image source: Naviter "SeeYou").

Pilot A flew in a northeasterly direction towards Hollins Cross (identified on Fig. 1 by the blue line). This leg of the flight was into wind, his speed over the ground averaging 11mph. He then turned to fly in a southwesterly direction (the green line on Fig. 1), his groundspeed increasing to around 40mph, this time flying downwind.

Pilot D, flying a hang glider, made a radio transmission on the frequency used by Club flyers that they were aware of turbulent air at Windy Knoll because of the northerly component of the wind, and they would use the alternative landing field at Rowter Farm. Pilot B stated that during their flight they noticed that the wind speed had increased and had more of a northerly component. They opted to land at the end of the Windy Knoll field furthest away from Mam Tor. On their landing approach they experienced two collapses of their paraglider from which they were able to recover. They transmitted a message to the airborne pilots to warn them of the turbulent air they had flown through. Their message was acknowledged by other pilots, but not by Pilot A. At this point in the flight, Pilot C was above Pilot A and they attempted to relay Pilot B's radio message by shouting. Pilot C stated they were not able to hear or see whether Pilot A had heard or had responded.

At 17:45 UTC, five minutes before the incident, Pilot A turned into wind, approximately 1000ft above the ground at this point. His ground speed on this leg averaged just below 10 mph and he flew away from the hill in an east-northeasterly direction, losing altitude, before turning downwind towards Windy Knoll (the red line on Fig. 1). Pilot A's groundspeed on this downwind glide averaged 42mph and he lost approximately 100ft of altitude, arriving approximately 350ft above Windy Knoll.

From their position on the ground in Windy Knoll, Pilot B observed Pilot A turn into wind for his final approach and immediately experience an asymmetric collapse on the left-hand side of his wing. Pilot B estimated that 60% of the leading edge collapsed. They witnessed Pilot A making control inputs in an attempt to recover the wing to normal flight. Pilot A's wing then experienced an asymmetric collapse on its right-hand side, which Pilot B estimated to be 40% of the leading edge. The wing was then seen to enter a spin and descend vertically. Witnesses variously report this to have occurred around 60ft or 150ft above ground level. It was not possible to ascertain from Pilot A's electronic flight instrument the exact height at which the collapses or the spin occurred.

Pilot B called out to Pilot A to deploy his emergency parachute. Pilot B stated that the emergency parachute deployed correctly, but there was no time for it to inflate before Pilot A "hit the ground at full speed in a supine position squarely on his back", approximately 20ft from Pilot B. Although the exact height above ground that Pilot A deployed his emergency parachute cannot be ascertained from witness statements or Pilot A's electronic flight instrument, the instrument recorded his vertical descent accelerating to over 10 metres per second before impact. It was evident from equipment recovered from the scene that Pilot A was not equipped with a radio on this flight and would therefore have been unaware of transmissions by Pilots B and D about the conditions.

The Investigation determined that the precipitating factor that led to the incident was Pilot A's decision to land at Windy Knoll, where his height above ground and selected track downwind put him directly in the lee of Mam Tor and the landslip edge. Given the wind speed and direction at the time, his chosen route in the lee of these features known to create significant disruptions to the airflow exposed him to a high risk of experiencing a departure from normal flight in turbulent air.

4.0 Findings

The Investigation concluded that the incident occurred because Pilot A lost control of his paraglider in turbulent air, whilst on approach to land in the lee of Mam Tor. His height above ground was insufficient for a successful deployment of his emergency parachute before he impacted the ground, sustaining fatal injuries. In the prevailing conditions, Pilot A's choice of landing area was the precipitating factor that led to the incident.

5.0 Recommendations.

None.