PDMC Swing Arcus RS L

1963 **PG fatality** 60-year-old German from Meckenbeuren

July 12, 2020 Ostloch, Austrian Alps, Andelsbuch, Vorarlberg, **AUSTRIA**

Turbulence → Collapse. After three top landings, the soaring parachutist from Germany began his fourth flight of the day. Others in the air nearby reported moderate to significant thermal turbulence with increasing winds. which led the local club to curtail tandem flights. The German flew along the ridge at an altitude of 30 to 40 meters until he inadvisedly reached the Ostloch Gap, known for its turbulence and funneling effect. A hiker on the ridge line saw the paraglider approaching at a relatively high speed. He turned away for a moment, then a loud banging noise brought his attention back to the paraglider. Both wingtips were folded inwards but soon opened back out again. The sail regained its shape but within two seconds, without any noticeable change in pitch or speed, it suddenly and completely deformed into a knot. The man fell from 30 meters straight down against a rock face and tumbled for 100 meters more. His helmet was torn from his head. He died at the scene. A Rega helicopter responded. DHV investigator Karl Slezak did not seem surprised at the outcome.

"A significant accumulation of collapse events in such weather conditions has been known for years," he wrote in the subsequent report. "Massive collapses in turbulent flight conditions always generate a large loss of altitude. Even comparatively good-natured paragliders usually need at least 30-40 meters of altitude to return to normal flight. Therefore, paragliders flying in turbulent conditions in which collapses can occur should always maintain at least 50 meters above the slope. If you are interested in manageable conditions, you should avoid such turbulence."

Mr. Slezak, no doubt with much greater experience flying paragliders than me (I will not fly one), seems to be overly generous in affording only 50 meters above the terrain as a safety margin. We are now far below the Paraglider Dead Mans Curve effective reserve deployment minimum altitude of 100 meters that I have recognized for level flight, and have moved into a much less substantial realm of gambling that the collapsed canopy will pop open and save the life of the helpless falling human grasping limp strings. Will it? You bet your life.

This is aviation? Note also that if the canopy does reinflate, you are now only ten meters above the ground, heading any which way, possibly with a suspension line wrapped around a wingtip, presenting the threat of a spiral or surge. Perhaps faced with the necessity of attempting a violent, potentially stall-inducing turn to avoid crashing into the mountainside, you are riding something with pathetic pitch response in the strong thermal conditions that just collapsed your canopy. That can't be good.

Compare this to flying a hang glider or sailplane in the same conditions. With higher speed, both have substantial kinetic energy in reserve for maneuvering or escape. And they will not collapse. The paraglider, on the other hand, has no kinetic energy in its essentially massless sail. It does have oodles of potential energy, though, all held within the body of the operator, ready to transform into kinetic energy at the acceleration of gravity when the canopy goes awry. Unfortunately, this kinetic energy will tend to vector straight down. That can't be good, either, and it illustrates the key difference between paragliders and real aircraft.

Real aircraft are full-time aircraft. They don't lose their airfoil in turbulence and the pilot is always directly connected to the control surfaces. Paragliders? Not so much. In fact, sometimes, not at all - as is thoroughly presented in these volumes.