

Photos: David Berger

Breaking THE ICE

David Berger was fascinated by the idea of landing on glaciers, so he joined renowned expert Hans Fuchs to discover how it's done.

"The difference between a regular pilot and a mountain flyer is like the one between a sheep and a chamois"- Henri Giraud, legendary French mountain flyer with 40,000 hours, 100,000 mountain landings and the only man to land a Super Cub on the summit of Mt Blanc

Some aspects of aviation can be classified according to degree of insanity. On this scale, strapping a pair of skis to an aircraft and landing on glaciers at elevations up to and above 12,000ft seems as if it should rate fairly highly. Madness, however, commands its own unique fascination which is how I came to be sitting in the back of Hans Fuchs' immaculate 160hp Super Cub one fine March day, climbing at full tilt for the glaciers of the Bernese Oberland.

Hans has a Swiss glacier rating and is a nut about glacier flying. He also has the most extraordinary collection of glacier flying pictures on his Website at www.gletscherflug.ch, and it was through the Website that I got to know him.

He lives near Luzern in central Switzerland and his aircraft is usually based at the small grass strip of Beromünster. During the ideal flying months of the winter, however, Hans keeps it in the mountains at Saanen airport in the Western Bernese Oberland to avoid the low-lying fog which can leave Beromünster in the clag for days while the mountains bask in beautiful sunshine.

There may not be much clag in Saanen, but the more than 50° temperature change between winter and summer means that the ageing hangar doors, which slide easily in warm weather, need a winch to open in the winter. So our first 45 minutes was spent in an increasingly frantic search to find the cursed thing. It's reassuring to know that even in paradise, flying is preceded by the customary curses and foot-stamping at inconveniences.

Anyway, with the door open, a beautiful Super Cub outside in the still, -10° air, loads of heavy kit heaved into the baggage compartment (whoa, remember we're going to be taking off later at 12,000ft!) we were soon gone, using the wheels on Saanen's icy asphalt runway to take off to the east towards the high mountains.

Climbing hard over the ridges, the air was reasonably still with little turbulence, but all the time Hans was assessing its strength and direction. Of all the critical factors in mountain flying, wind and its interaction with terrain is the most important. Get this wrong and your career as a mountain pilot will be short.

After 15 minutes we were at about 11,000ft QNH, heading past the imposing bulk of the Balmhorn and Altels, the two sentinels guarding the Gemmi pass, an ancient thoroughfare from the Rhone Valley to the Bernese Oberland. Coming up on the nose was the deep slash of the Gasterental, still in shadow at this time of the morning and one of the wildest, most spectacular Valleys in the Alps. The north side is dominated by the precipitous cliffs of the 12,000ft Doldenhorn and Bluemlisalphorn; to the east the valley is fed by the Kanderfirn glacier, of which more later, and to the south and



Top: David with Hans (right) on the Petersgrat Süd glacier - the helicopter had ferried up a film crew
Above left: Hans' winter base of Saanen; right, the Aletsch glacier makes the area feel like Greenland

'FLYING IS ONLY PART OF IT. YOU HAVE TO DEVELOP A HIGH LEVEL OF KNOWLEDGE. THAT TAKES TIME'

south-west lie the gentle, glaciated slopes of the Petersgrat, in which direction we were heading for my initiation into the black arts of glacier flying.

The place we were after was the south side of the Petersgrat, sitting high above the Loetschental, a parallel valley to the Gasterental, but in olden times as isolated from it by the jagged peaks as Britain is from France, with distinct culture, houses, language and customs.

Petersgrat Süd, as it is known, is a training ground for glacier pilots, but its gradual slopes were empty, except for us. Hans flew over at 2000ft to assess the snow and wind. No tracks and what looked like a slight tailwind for the approach - ideal. Next came a pass at 1000ft and then a low pass, flaps down, at 100ft.

We turned downwind and then left base around a large rocky outcrop. Ahead of us there was an enormous rock face, disconcerting in one way, but also useful because it allowed us to assess drift, which was still a slight tailwind. Good. Left round onto final and ahead was the glacier, reaching far ahead and above us. With the airspeed pegged at 70mph, too fast for a normal Super Cub approach, and half flap, we had a good fistful of power; at some time around this point a go-around becomes impossible, but exactly when that moment comes you only find out when you try!

The light conditions were excellent and it was easy to judge distance from the snow. As we

gently rounded out, more power went on allowing us to fly up the slope, touch ever so gently and sink into the snow ever so lightly. Then the power came off a tiny bit before a big burst of sustained power carried us up the hill to the turning point where we made a crazy, skidding left turn to face downhill, and we were off again. Tail up slightly, let her accelerate in the thin air, ease back very gently, imperceptibly off the snow and then accelerate downhill in ground effect before climbing away for another circuit.

After three or four of these, Hans let me try. With a reasonable amount of time already in a Super Cub and on a simple slope on a good day, I could see how you could get the hang of it fairly quickly, but that's deceptive. The flying is only a part of it and you have to develop a high level of mountain airmanship, plus snow and glacier knowledge, to stay alive. That takes time.

After a quick wander about on the Petersgrat and a photocall with the crew of a helicopter on a filming mission, we were off to the next destination: a left turn after takeoff and a climb to cross the impressive Lötschenlücke pass. As you cross the Lötschenlücke there's a terrific view of the Hollandiahütte, perched above a sheer rockface, and then you are among the high level mountains and glacier fields of the Bernese Oberland. With the picturesque Aletschom towering above you to the right, the Jungfrau off to the left and the Aletsch glacier snaking into the distance to the



Meeting up with friends on the Ebnefluh glacier



Approaching the Mönchsloch means flying very close to the rock, but you soon get used to it

south, you feel as if you're in Greenland, not at the heart of Europe. Another left turn and the valley of the Ebnefluh comes into view with its various landing places at around 11,000ft. The same pattern of overflights, careful terrain, wind and snow assessment followed and, after some touch and goes, we were off east to the Mönchsloch on the other side of the Aletsch glacier, passing the famous observatory at the Jungfrauoch on the way.

Approaches to the landing site at the Mönchsloch involve flying very close to the rock face on your right, which is disconcerting at first, but you soon get used to it and we did another few touch and goes before stepping out briefly to admire the Mönchslochhütte.

Lunch was at a very Special destination. The Rosenegg glacier sits above the town of Grindelwald on the north wall of the high Bernese Oberland, with a view down to the plains of western Switzerland and across to the Jura mountains. From the Mönchsloch you pass

behind the looming bulks of the Eiger and Wetterhorn, before coming to the stupendous Rosenegg and its landing site at 12,000ft. Below the landing site, ever-steepening precipices drop thousands of feet to the valley below. Above is a sheer face of granite and snow. The mere sight of it fills you with butterflies and then you realise you're going to land there.

I'm here and I'm writing this so Hans did his Job perfectly as ever, and we were soon basking in brilliant, warm sunshine, looking down on the world from our mountain eerie, with the fondue pot bubbling happily on its burner (1001 uses for Avgas). The fondue was a good one and I felt I'd earned it, even though I'd done nothing but sit in the back and gawp and exclaim like a country boy in the city for the day.

Our departure was preceded by a certain amount of cautious walking down the slope and peering over the edge to ascertain the best takeoff direction, but all went swimmingly and before long we were sitting in more than 1500fpm

of lift just behind the Eiger on our way back west. It was completely smooth, which produced a strange sensation as we watched the mountains drift away below with no apparent effort. The pay-off came a couple of minutes later, of course, when we entered the same amount of sink on the far side of the pass. What goes up must come down: a salutary lesson.

All the time, Hans had been listening out and making position calls on the Swiss glacier frequency of 130.35 (the French use 130.0) and, as we cruised past the Ebnefluh, he heard some acquaintances who had just landed, so we turned and did the same. It transpired that they were all experienced glacier pilots on the training course to become glacier instructors. Today was survival day and they were practising securing the aircraft on a glacier after a forced landing or simply after getting stuck when the weather changes, which happens not infrequently.

There was lots of digging, sweating and laughter and it was all good Boys' Own stuff, but

HOW THE EXPERTS DO IT

Approach

Overfly the landing area at 2000ft agl, paying particular attention to the snow, wind, visibility and light, remaining aware of other traffic while reviewing the landing area and announcing intentions on the glacier flight

frequency 130.350. Then complete the pre-landing checklist. It's important to adjust the mixture for the appropriate landing elevation. From this point, hold a comfortable true airspeed, as customarily flown on a base leg, typically 70mph in a Super Cub.

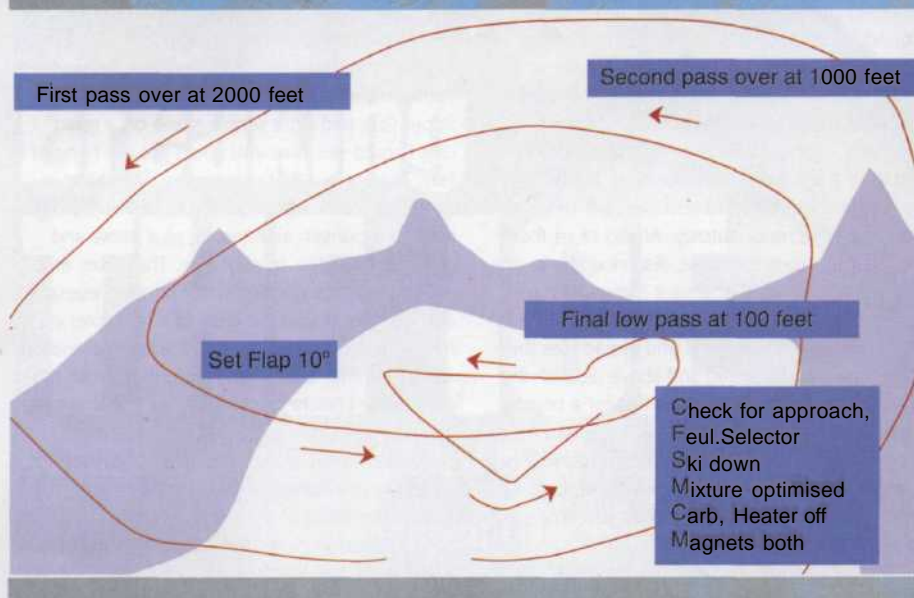
Next, determine the optimal landing

place, including its length and slope and considering wind strength, sun location and light quality. Is the light diffused, or is the snow surface clearly defined? Depending on terrain, select a right- or left-hand circuit.

If the landing area looks promising, execute a second over-flight at 1000ft agl. At this height the snow condition is much clearer; crevasses, snowdrifts, clear brown or icy areas - the depth and form of earlier ski tracks must be considered.

If the area appears suitable, start the last low over-flight, setting the necessary flaps (in a Super Cub 25°) and flying over the landing area at 100ft agl. After a meticulous surface check, just over the landing spot, check the altimeter. This altitude of 100ft is to be used as the circuit height. It is important on the last over-flight before landing to take bearings on the downwind leg and to look for a target point on the horizon or on an opposite mountain to be used during the takeoff.

After the over-flight, enter the downwind at a 45° angle. Allow a mile or so on the first landing. The strip should now be in a 45° angle of either side ahead. After eyeballing it and checking for correct circuit height, there is still time to make changes. On base,



Breathtaking vista from the Petersgrad 'training' glacier - even when calm the Alps demand respect Hans prepares the fondue at 12,000ft - high tea?

after a few minutes it was time to leave again, this time for the upper reaches of the Kanderfirn glacier. Here we met Kobi Seeholzer, a grizzled bear of a glacier pilot, who was on a tourist flight in his immaculate Cessna 185.

From the Kanderfirn we cruised west again along the spine of the Oberland, with the Rhone valley plunging thousands of feet to our left and soon came to the Wildhorn. At a little over 10,000ft the Wildhorn is not particularly high, but it makes up for that in the drama of its landing site, which was by far the steepest of all those we visited. We needed full power to after touchdown to get to the top and we teetered at the 'dead point', with Hans just about holding us before the aircraft turned and rushed downhill again - I felt we were exploring the outer limits of the glacier flying envelope.

Our last stop was a skip and a jump from the Wildhorn at one of the landing sites on the Glacier des Diablerets, right at the western end of the Bernese Alps. As landing sites go, it did not shine out, but it had the incomparable

benefit of being only 150 yards from the Refuge de l'Espace, one of the most atmospheric (literally) coffee stops to be found in the Alps. It sits on the edge of a cliff overlooking the Rhone valley, more or less 8000ft directly below. The terrace is built out on stilts over the drop and, even after a day of glacier flying, I could only bear to inch my way to the handrail, peering over the edge with a green tinge to my gills and a sick feeling in my stomach.

From the Diablerets it was downhill to an icy asphalt landing at Saanen, about 10 miles down the valley. As we wheeled HB-OPH back into its hangar, in the sharpening cold and fading light, I was reeling from a kaleidoscope of sights and experiences; I reflected on the incongruity of what we had been doing in our light, rag and tube aircraft in the forbidding high Alps. Is it really a mad occupation? No, if practised skilfully it isn't, but the pitfalls for the unwary are probably greater than in any other sphere of aviation.

An enormous thank you too Hans for such a splendid day out in his Swiss back yard. •

SWISS GLACIER PILOT'S RATING

To do this type of flying requires a mountain landings endorsement (MOU) on a Swiss National Private Pilot's Licence. You need 200 hours total; 250 landings on glaciers with a mountain instructor and a successful test flight on three glaciers. To get up to test Standard requires about eight to 10 flights and usually takes a year. Reckon on spending about 8000 Swiss Francs (£3500). The Situation with a JAA licence is unclear at present, but it is possible to get the rating. FRENCH 'QUALIFICATION MONTAGNE' This splits into wheel and ski qualifications. To use mountain airstrips in the summer you need to gain the wheel qualification which takes around seven hours of groundschool plus 15-20 hours of flight. The ski addition is the wheel syllabus plus information related to glacier and ski operations. Contacts: Hans Fuchs www.gletscherflug.ch French mountain pilot association www.afpm.org

conducting a wind check is very important: look straight ahead — is the aircraft being pushed toward or away from the Strip? This tells you whether there is a tail- or headwind to reckon with. Let's assume, for simplicity, that there is no wind.

Final

At about 1.25 miles, turn for final approach, eyeball a target point 330 to 360ft ahead of the intended landing point and fly straight at it. The GLIDEPATH SHOULD NOW BE SIX PERCENT, the final approach speed should be 20 to 30 percent more than a normal VREF, depending on the slope. Typically, a Super Cub should be flown at 70mph on final.

Check: are the target point, starting altitude and approach speed correct? Before reaching the target, pitch up. During this flight phase apply power, depending on steepness of terrain, up to full throttle. Keep pulling until you gently make a three-point landing. Taxi up the landing strip — most likely this will require full throttle.

Upon reaching the top of the strip execute a left turn to point the nose more or less downhill. If the terrain is too steep, stop at the so-called 'dead-point' with the wings

parallel to the slope. If this manoeuvre is not successful, take off again immediately.

Takeoff

Align the aircraft on the point selected during the last low pass and smoothly apply full power. Take the pressure off the tailwheel slightly, but not too much, in order to reach rotation speed quickly. As that speed is reached, rotate slightly and fly off in ground effect. As you accelerate, a transition into a

After Touchdown full back stick and full power to the turning point

Follow the contour, power 75-100%

Sink down to the snow

climb away from the terrain will soon be possible. All these approaches have a point of no return, where an approach cannot be aborted. You must be completely sure of the Situation. An experienced pilot should be psychologically ready to abort, but also prepared to execute the landing regardless of the Situation once the point of no return is passed. An extremely high level of training is required to be able to recognise this point beyond any doubt.

Approach 70mph, power 25%

Round out 60mph, power 50%