Conditions can influence a target approach. The pilot who can recognise the conditions and their effects will be at an advantage

Accuracy in moving air

Andy Webster describes accuracy approaches for different air conditions

There are many variables in accuracy which can affect target approaches, such as wind conditions, airflow patterns around hills and the general air conditions. Using a certain approach on one flight may produce a good result, but using the same approach on the very next flight may produce a different result due to a change in conditions. In this article I'll review a few situations where an understanding of the air conditions may assist with accuracy approaches. The examples are equally applicable to both classic and paragliding accuracy.

Thermals are one of an accuracy pilot's biggest enemies, causing increased glide and resulting in numerous S-turns to try and avoid overshooting the target. If you fly into a thermal at altitude it is very rare that you will be in rising air all the way to landing. Usually you will leave the thermal and enter less buoyant air, or even sinking air conditions below.

It is very easy to get tuned into performing S-turns in buoyant air and become slow to realise that you have left the lift and are falling short of a target! That is why you should always be expecting to fall out of a thermal at some point, and be ready to fly straight to the target in less buoyant air (Fig. 1). A vario is very useful in this situation as it will probably provide the earliest warning to changes in the lift.

To compound the above problem, at some valley sites the air tends to be buoyant at altitude. But below a certain height (say 400ft) the lift disappears and is replaced with a strong valley wind. I have

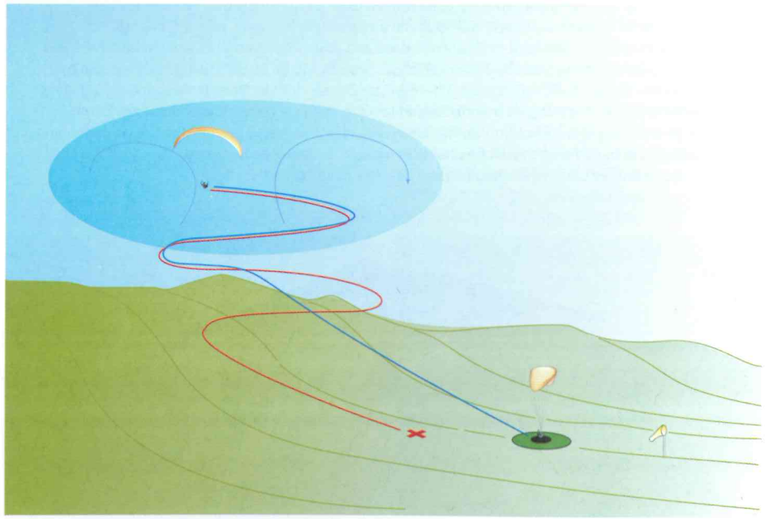

Fig.1 Red flight path shows a pilot who has not realised that he/she has fallen out of lift and continues to S-turn. The pilot then realises he/she is falling short and flies straight to the target, but is too late and undershoots. Blue flight path shows a pilot who has realised that he/she has fallen out of the lift and flies straight to the target in less buoyant air.

experienced this many times sites in Europe and landed well short of the target (see BHPA Pilot Handbook on valley winds).

Also on the thermal theme, where there is lift there will also be sink close behind. I remember a flight in Slovenia when small thermals over the landing area caused cycles of strong lift followed by strong sink. I had the advantage of watching pilots below me land short of the target in a sink cycle. When I hit sink close to the ground I turned onto finals, even though the glide angle seemed far too steep, to record a good score.

Close to the ground on finals you can sometimes be hit by a small thermal rolling over the ground that has not broken away from the surface. The automatic reaction is to apply brake to counter the sudden increased glide, which in turn reduces forward penetration. This brake movement can turn

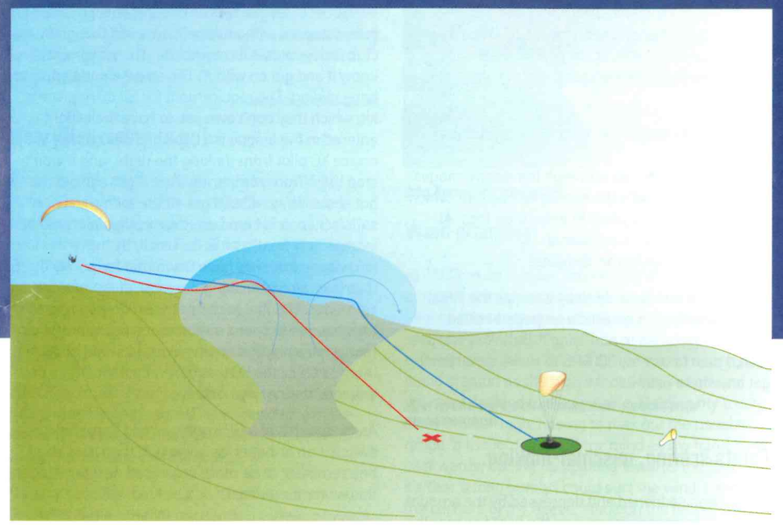

Fig. 2 Red flight path shows a pilot who has applied a lot of brake on entering a small thermal to counter the lift. This reduces forward penetration, causing the pilot to undershoot in the sinking air beyond the thermal. Blue flight path shows shows a pilot who has recognised that there could be sink after the lift, releasing brake to drive through the thermal for sufficient glide in the ensuing sink.

out to be a disaster, as you quickly fly out of the small thermal to hit sinking air, causing you to fall short of the target. Daft as it seems, it would have been better to go to full drive as you hit the initial lift so that you had a chance of reaching the target in the sink (Fig. 2). However predicting what to do in these situations is not easy.

Humid air can produce 'floaty' conditions all the way to landing. It is probably to do with the lower adiabatic lapse rate of humid air (see BHPA Pilot Handbook on thermal soaring). I have experienced this in Serbia when strong sunshine was heating up wet ground following a lot of rain; the air felt consistently buoyant. I also experienced this in Turkey one misty morning where the air felt unexpectedly buoyant all the way to landing.

Air density can influence how fast a paraglider glides through the air, and the affect on a target approach can be quite significant. In dense air a glider's airspeed is reduced and brakes seem to be keener, resulting in the ability to perform a steeper approach glide angle. Generally air is denser at the start or the end of a day, so the first target approach of the day could feel quite easy on a braked approach. However, performing the same glide angle approach later in the day may result in you overshooting the target. Air is also denser in cold conditions; some pilots may find it easier to hit a target in winter but struggle to adjust to increased glide on hot summer days.

One further condition that can catch pilots out is flying at the end of the day, where the wind drops and the air becomes denser. There are two situations to consider here, dependant on how much the wind drops off, which pilots need to recognise. If the wind does not drop off much the air density will have a bigger influence, requiring a steeper glide approach and possibly causing pilots to drop short of the target. On the other hand if the wind drops off significantly, this has more influence than the increased air density and a pilot would experience increased glide. Pilots must therefore be alert to any wind speed information that is available, e.g. wind sock indication or ground speed assessment.

In summary, there are numerous air conditions that can affect a target approach. A pilot who can recognise the conditions and their affects will be at an advantage.