

Transitions

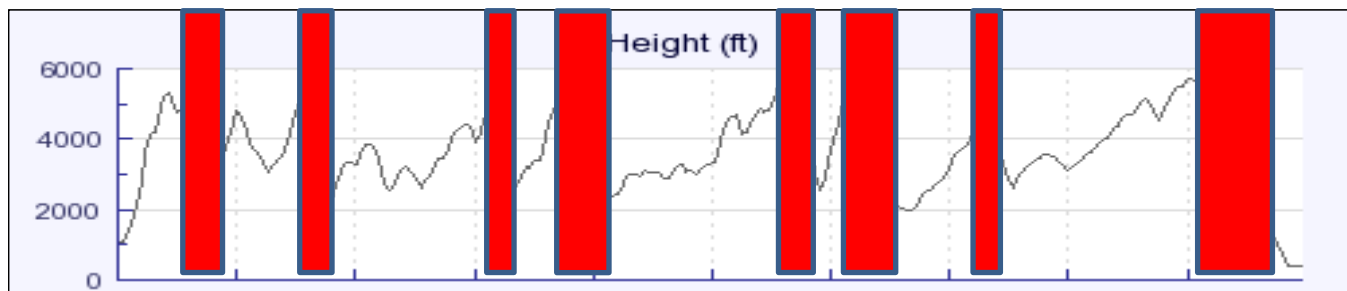
In paragliding terms 'transition' is the name we give to any passage of flight that takes us from one place to another and is especially relevant when we fly cross country. It could be (but not exclusively):

- Valley crossings
- Passing from the mountains or high ground into the flats.
- Inter-thermal (thermal to thermal)

I've tried several times in the past to write a short article about the subject, as it especially fascinates me, but each time I concluded it was far more complex than I initially realised and warranted more a full book chapter than a simplistic magazine piece. So, on each attempt I've backed off and left it unfinished. This is another stab, but be aware I've gone for the simplistic model.

Paragliders and even hang gliders don't have a great glide performance, roughly around a quarter that of a decent sailplane. Once we have gone through the excitement of climbing to cloudbase and that euphoric moment of thinking we are so high we could on for ever – then we quickly need to think about how we best conserve our altitude until the next reliable lift. The decisions one makes and how you deal with the stretches of sinking air is equally if not more important than your ability to thermal up in lift. My reasoning behind that, is climbing engenders a positive state of mind, whilst flying through sinking air, as the altitude unwinds and the ground comes ever closer, can easily lead to doubt, pressure, negative thinking and poor decisions.

Take a look at the altitude chart below. It could be from any of hundreds of long xc flights. EVERY flight is a saw-tooth of altitude changes and corresponding emotions, no flights are an easy, straight line jaunt high across the countryside.



Most, but not all of the transitions, are marked as transparent red. The one thing missing is an overlay of the flight onto GE which, with the introduction of terrain, provides more information about the where and why of the sinking air.

Taking the three common examples of transition stated at the beginning of the article.

Valley crossings. In the mountains (big hills) there is a stronger diurnal cycle at work than on the flats, so the time of day has quite a pronounced effect on the conditions – or put simply crossing a valley during the early and mid-part of the day will likely be accompanied by stronger sink and the need for greater speed. An example of this would be that whilst ridge soaring you meet regular thermals on the hill, but when you push out front they are often difficult to find and weak. Any hill in front can make this worse – or if you are lucky and the lee side has been taking sun, then later lee side thermals may be possible. Later again, in the afternoon the centre of the valley can actually be better than the ridge an indication of the diurnal cycle moving into its latter stages. Understanding what to expect on a valley crossing helps you to:

- Choose an altitude and time for your crossing or ...
- Choose a particularly good, developing thermal to help your passage
- Studying the terrain for the best place (line) to cross – not always the shortest
- Where to aim for to best connect with the next climb
- The speed to fly to minimise the height loss
- A gaggle can help, but it often needs a confident pilot to take a lead.

As a rough guide the lower you are the greater the sink if the lee side falls away a lot. This makes it best to get the maximum height you can and to hold onto that for as long as you can as you begin the crossing. Alternatively, try to ensure that the thermal you take is a good strong one that will tend to override terrain influences. As with all things flying there are a number of variables at work that need to be factored in. If you meet heavy sink it rarely pays to turn back, so expect it and push on until the ground, a patch of sun, a trigger point or good cloud start to play in your favour. It usually works in our percentages game – what doesn't is a few moments of dithering as it leads to height loss and equally important a lack of belief.

Passing from high ground into the flats. The Lakes has this transition stage, so does the Dales and the Peak district. In each case the high ground falls away into the flatlands and many xc flights end at the 25 – 35k mark. As the air descends the thermals tend to weaken and become more spaced out. As a result this becomes a crux section – perhaps extending for 10 to 20k or until the influence of the high ground is negated. On the plus side once it starts to work again you can enter a stronger section of lifting air. Embarking on this especially long (for a paraglider) transition requires some thought and cautious flying and you again need to stack the odds in your favour by:

- Trying to begin the transition by having maximum height and holding onto any lift for as long as possible even zero is worth it. Don't be in a rush.
- Searching out the best line based on other gliders, terrain (follow fingers of high ground), birds, clouds.

- Using a cautious approach to the use of speed bar – you may need to at times, but it's also a more measured use to maximise the glide.
- Try to have something to head for that may act as a good thermal source/trigger
- Expect to have to get lower than you'd like but also expect to find lift – think positively.
- Give yourself a pat on the back once established in a good climb over the flatlands.

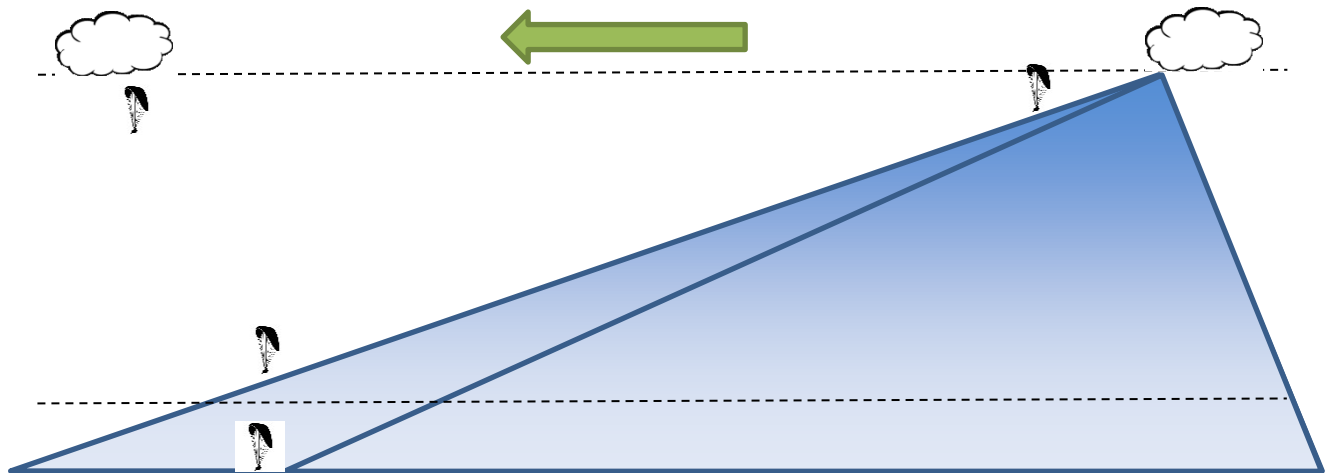
Many flights are made out of the Dales and Derbyshire, so it's easy to study a lot of tracklogs and see how the transition was made – or not! Look at things like the conditions on the day, the height that was required, how much sink they had to deal with, how long was the transition to good lift. A high cloudbase helps, but surprisingly perhaps, weaker conditions can often be easier than strong days when huge sink can lurk to catch the unwary. As an illustration – I got caught out on a BP Cup task last summer. I left the Peak at 6000' en route to what I thought would be an easy run into goal and first place. I left a small gaggle of four others and was away. They hung back (bar one) and kept milling. I sunk out to the ground and was 4k short – not long after after they drifted (milling) overhead and into goal. The next day much weaker and with less sun, I took my time and was into the flat without too many problems. That's what trying to race at the wrong time does.



Photo: Passing out of the Peak at 6000' and ignoring the power of the gaggle

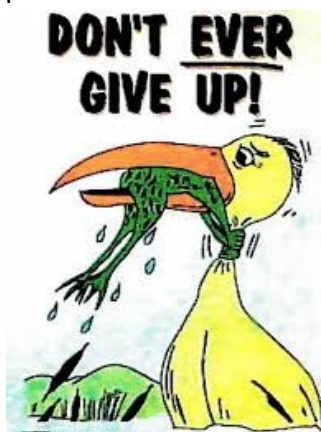
Inter-thermal transitions. This is a bit more straightforward. Cloudbase is a wonderful place to be and unless you are a competition hound or an xc league points chaser on a mission, there really is no great hurry to rush on. I tend to be quite slow, I enjoy being high and it also buys me thinking time if I mill around for a while. Whilst your cloud is still working it pays to stay with it and whilst it may not feel like it you are progressing (check your map screen zoomed in) in your downwind drift. So, unless you have something better and more reliable

to go for, then I would tend to stay with what's working. Leaving strong lift usually heads you into strong sink, so think twice as the lift starts to die and the cloud breaks up (watch its ground shadow) now is the time to move on. To some extent your heading will be based on sound thinking about the next cloud, a good ground track over possible thermal sources or anything that indicates a climb. Negotiating the transition between thermals will involve varying degrees of sink, so seeking the best line and the best speed are important to conserving height. It's very much about height management, because height is time and time equals lift opportunities think of it as a cone with a downwind slew.



In reality the glide slope is unlikely to be straight, as the glide angle will vary according to the sink encountered at any given time. But the principle of trying to arrive at a point with enough height intact to still work lift remains. This is essentially a function of correct speed and the chosen line. Useful in achieving this is an instrument field showing glide angle; using only your vario is misleading as it is reacting to vertical movement and speed, but not distance covered.

Finally, returning to the first altitude diagram through a long xc flight. Every xc flight is a very powerful emotional and mental experience. It involves by the laws of physics as much down as it does up. How you deal with the down parts is the real test and the lower you get the more it will test your resolve and your skills. Any long xc will probably put you to the test a number of times and when you are heading down and getting low then (in my opinion) that is where the best pilots excel and the longest xc flights are achieved. When the going gets tough etc



Before embarking on an xc try to look at where any of the three transition sections mentioned may crop up and try to be at least mentally prepared for them. Knowing what to expect can help you through them and fortune often favours the brave it really does.

(This topic will be covered again at the Joint Coaching Day on 31st Jan – any questions or you just wish to shoot me down then I'll get me blindfold)

Coaching Notes:

A new DHPC member, David May has joined the list of coaches and is very willing to help anyone in the Ilkley area. He is an experienced pilot and another person I feel can be left holding the fort as I drift over the back and neglect my duties.

Coaching registration: Anyone wishing to register for coaching can get a 2015 registration download from the coaching section and return to me please (after mid February when I will have amended the form for 2015).

Coaching days: We'll try and get these running for March – but if the weather doesn't play ball I'll see about an indoor – 'Intro to the Dales, the sites and weather' if enough interest.

Good Luck to all pilots for 2015, Spring is around the corner and a whole new season.