

During a cross-country week one of the pilots, Richard McFarlane came up with an interesting theory as to thermal selection. Let us consider a hypothetical day for the sake of the maths. The climbs are going to 10,000ft and 10 Knots can be achieved, a *nice day to say the least*.

- A) You leave your thermal at 10,000ft and off you go on track. After losing 1000ft you bump into a thermal of 9 knots. Do you take it or carry on looking for the 10 knotter?
- B) If at 5000ft you run into a thermal 5 knots do you take it?
- C) If you pushed on till you were at 2000ft would you take it?

With these hypothetical questions we assume that there are no particular thermal sources, clouds etc that you may be particularly pushing for, just a very hypothetical day.

Most reasonably experienced pilots when asked said no to A and B and yes to C. Now Richard put together a program that he ran and found that if at 9000 he took the 9-knot, at 5 he took the 5-knot and 2000 he took the 2-knot he would beat the computer. Other pundit pilots who pitted their expertise against the computer, that was now programmed to respond as Richard had learnt lost. In other words the lower you get the weaker the thermal you should accept.

Why is this so? The answer is mathematically simple. We want to spend as little time thermalling as possible. Consider how much time you will waste if you get to 2000 and have to take the 2-knot thermal 5 minutes to gain 1000 ft, you will probably take it to 4000ft, that is 10 minutes before you push on. Let us consider being at 8000ft and stopping for the 8 knot thermal it will take 2 ½ minutes to gain 2000ft only half a minute longer than a 10 knot thermal. So now ask yourself was it better to stop for the top up in the 8-knot and wait half a minute or keep pushing to 2000ft and then waste 8 minutes. If you took the 5 knot at 5000ft for the 2000 top up it would take 4 minutes, only 2 minutes longer than the 10 knot climb still a lot better than that push to the 1 will take anything 2000ft climb that wasted 8 minutes twice as long.

Yes I know that this is all very hypothetical but the principle is. Top up in relatively strong to keep height for a longer search, rather than having to take anything and waste a lot of time.

An addition to these points. During the latter part of the day thermals get a greater spacing, it is therefore more important to conserve height. See article on how a day dies.

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