

# KEEPING SAFE IN THERMALS

Continuing a new series from the BGA safety team, this time with a focus on how to stay safe both in and around a busy thermal

IT'S hard to solve physics problems in the thick of a busy thermal. If you are catching up with another glider in a turn, should you:

- Open out your turn?
- Tighten up your turn?
- Increase your airspeed?
- Reduce your airspeed?

You might or might not be relieved that, when we asked a group of senior pilots in the comfort of a Midlands hotel, they gave conflicting answers.

This matters because, over the past 45 years, there have been 30 collisions between gliders in or around thermals, half of them in competitions. Ten pilots lost their lives, one was seriously injured and 17 parachuted to

STRAIGHTEN  
UP & FLY  
RIGHT

safety. About half of all glider-glider mid-air collisions and fatalities are in thermals.

## Situational awareness

Collisions generally happen because pilots are unaware, or have lost track, of other gliders. Unless you indulge in formation aerobatics, sharing a thermal is the closest you'll fly to another aircraft other than a tug. It's probably the most dynamic situation you'll encounter; and soaring can be hard work, especially if you're thinking about navigation and competition tactics too. So, just when you need it most, the conditions don't favour good situational awareness – let alone physics problem-solving.

Most gliders now carry loggers that let us retrace collision flightpaths graphically [1]. It's common for at least one of the gliders to have been hidden from the other's view, and pilot reports often mention losing track of the other glider, which is why the BGA Soaring Protocol [2] includes maintaining visual contact with other gliders and flying where they can see you.

## Joining and positioning

Collision risks begin before you get to the thermal: you might not be the only pilot heading for it, and others might be leaving or steering around it – we've accident reports in all these categories. Pulling up into a thermal risks being hit from behind by a faster, higher glider with neither pilot able to see the other [3,4]. Plan your entry and manoeuvre predictably. Weaving as you approach can make you more visible.

However well you judge your arrival position in a thermal, you'll find it hard to



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time your arrival relative to a circling glider. If you join on a larger circle outside the other glider, you can close up your turn once you're opposite each other, and then adapt your turn to match the other glider's turn rate and path [5,6]. Don't make the other glider manoeuvre to avoid you.

Once established in the thermal, you can adjust your turn to keep other gliders where you can see them and they can see you. As a Club Class pilot recently put it: in the cruise we're competitors, but when thermalling we're in it together. Always manoeuvre smoothly and predictably, but don't assume that other gliders will do likewise, so never turn inside, or point your glider at or ahead of, another glider unless you can ensure safe separation and maintain visual contact.

So, to return to the opening question, how should you adjust your relative position in a thermal? To drop back you must reduce your rate of turn, so you should reduce your bank angle or speed up. Slowing down will, counter-intuitively, make your turn tighter unless you compensate by rolling out [5,7].

#### When it gets busy

Such a busy, dynamic situation needs constant awareness of gliders on all sides: good lookout is crucial, so this is no time to be fiddling with instruments. Be aware of blind spots and watch out for other gliders joining. We know from accident reports that human vision isn't perfect, and pilots lose track of gliders they ought to be able to see. FLARM can help, but don't depend upon it – it's got a hard job to do in thermals, and it can have blind spots too.

If you lose sight of a nearby glider, you can't guarantee safe separation, or it just gets too busy, leave the thermal. The same rules apply: look outside the turn and beneath the upper wing before straightening up; don't manoeuvre sharply; and don't dive out.

In the unlikely event of a collision, prior preparation seems to make a difference. The BGA and IGC have produced valuable advice about assessing your options and baling out [8,9], and G Dale's talk [10] from first-hand experience is chilling, but inspiring.

Safe soaring is about consideration for the other pilots in your thermal: they're mates in nearby gliders, not gladiators in an arena. If you collaborate, you'll all climb better as you dance in synchronism around the core of the evolving thermal [5].

It takes two to tango – but that's a risky dance and, from what we see after the BGA's annual awards dinner, not one for which



glider pilots are naturally suited! So, rather than close, dramatic manoeuvring with your partner gliders, aim for a sedate, arms-length Regency dance, nicely spaced to keep other gliders in clear view. "Not too close," bumper stickers used to say, "I hardly know you."

**Tim Freegarde and the BGA safety team**

How many gliders can you spot in this 2013 Club Class Nationals thermal? (Sandy McCarthy)

■ Clubs can obtain printed copies of Safety Briefings from the BGA Office.

■ For more information about safe soaring, see Safety Briefing [2], BGA Instructor Manual [4] and Simon Adlard's articles [5]; Mike Fox's video [7] shows how to position within a thermal.

- [1] BGA Investigation G-IDER+G-CKOI (2015) <https://tinyurl.com/flyright1905>
- [2] BGA Safety Briefing Soaring Protocol <https://tinyurl.com/flyright1906>
- [3] Bruce Taylor, Joining thermals <https://tinyurl.com/flyright1907>
- [4] BGA Instructor Manual, section 24 <https://tinyurl.com/flyright1908>
- [5] Simon Adlard, *Sharing a thermal*, S&G

(June-July, Aug-Sept, Oct-Nov 2002) <https://tinyurl.com/flyright1909>

- [6] Tony Cronshaw, *How to share thermals safely*, S&G, p8 (Aug-Sept 2017) <https://tinyurl.com/flyright1910>
- [7] Mike Fox, How to position yourself when thermalling with another glider <https://tinyurl.com/flyright1911>
- [8] BGA, Parachuting after a mid-air collision <https://tinyurl.com/flyright1912>
- [9] IGC, Emergency glider evacuation <https://tinyurl.com/flyright1913>
- [10] G Dale, Baling out of a glider <https://tinyurl.com/flyright1914>