BHPA Incident Analysis 2011 – 2015

I was about to type “welcome to…” but then I’m not sure that’s really the best introduction to a report containing information about injuries and incidents in our sport. Nevertheless, some form of introduction is required. First of all I should explain a few things, not least the reason it’s been five years since the last report, although key findings from each of these years have already been reported in FSC Chairman Angus Pinkerton's annual FSC reports to the BHPA AGM. As you may be aware, we’ve moved to a new European database where all the incidents from the participating nations are stored. This went live on Jan 1st 2012. It was not without teething problems, which have taken some time to sort out (and some still to be fixed as we find them). I’ll not go in to detail but let’s just say a multilingual database with multiple Federations trying to have their input into the data format etc. proved to be a tricky one! Added to all that, I had two years of BHPA data to add to the new system, which all had to be input by hand. But enough of my moaning – the upshot is we now have an online system, linked to the rest of Europe, which baring a few ‘search’ niggles, should make life easier for everyone.

So on to the report. To save space and avoid unnecessary duplication the report does not contain any information about school incidents. The school data was presented at the BHPA Trainers’ Conference earlier this year and for those who are interested it can be found on the BHPA web site in the Instructor and Coach Newsletter no18. All I will say is that incidents in schools are continuing a downward trend in terms of the number of incidents in schools, so “well done” to them all.

As in previous reports, a few things to bear in mind whilst reading this one: Not all reports relate to injuries. Of the ones that do not involve injury, a proportion will be lucky escapes, equipment issues, damage to 3rd party property and things of that nature. The report focuses on Club Pilot and above but will also include some non-member data. Where possible (it isn’t always) this will be highlighted.

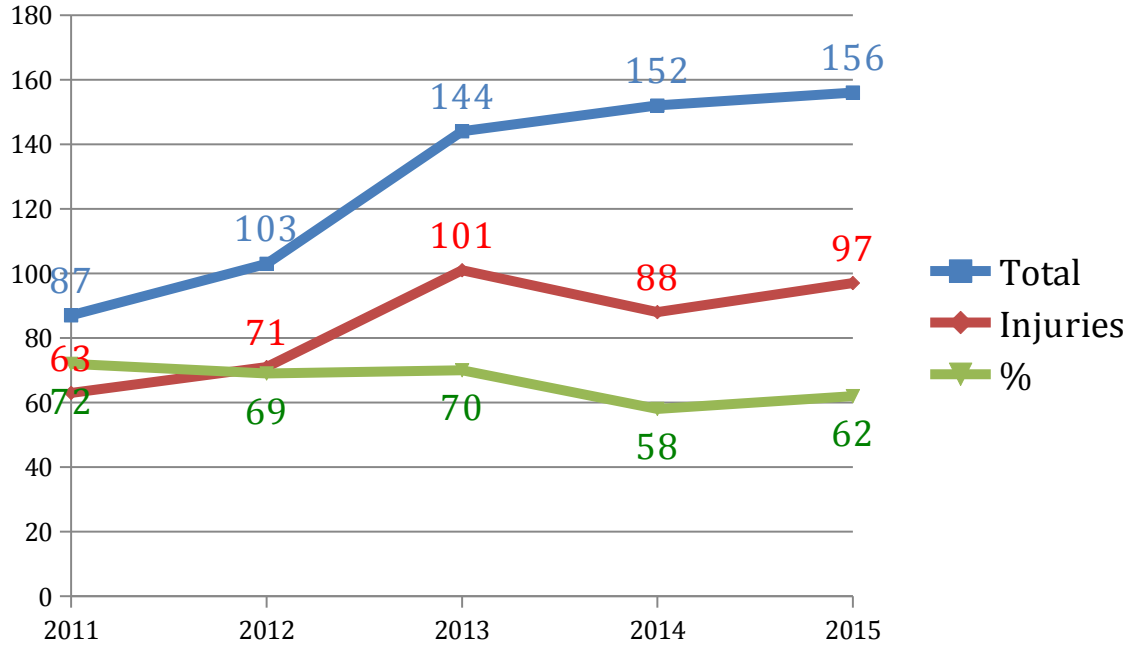
The graphs focus mainly on hang gliding and paragliding. This is simply because they are the disciplines where most of the incidents occur and there is enough data to display on a graph. This is the first year we will not be displaying any parascending data, as there was little or none to mention. Next year (the 2016 analysis) will see the introduction of the speed flyers into the mix.

The 2016 analysis will also include a bit more detail than I’m able to produce in this report. This is because the current database does not yet have the level of search ability I’ve been spoiled with in the past. This is being addressed however, so hopefully normal service will be resumed soon.

The first graph shows the number of reported incidents over the last five years. To go back a little further, there were 73, 88 and 91 incidents reported in 2008, 2009 and 2010 respectively. Hopefully the increase in the number of reports represents both an increased awareness of the importance of reporting by the membership, but also a reflection of the ease of reporting under the new ‘online’ system.

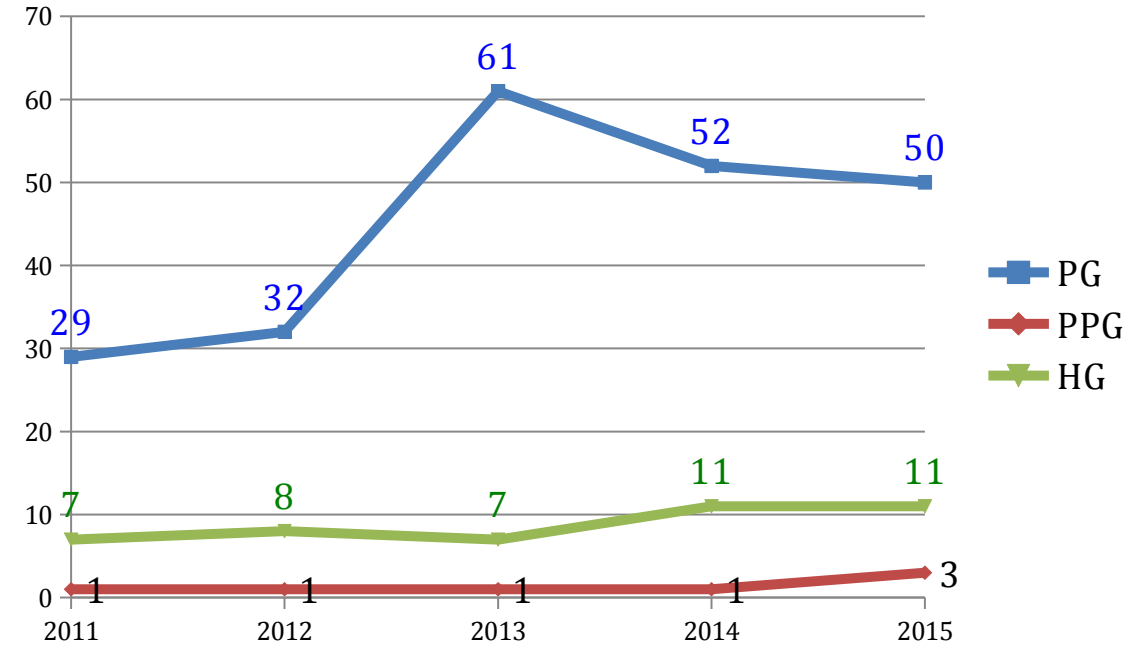
Immediately obvious from the graph, apart from the increase in report numbers, is the spike to the injuries line for 2013, but more of that later. It is also interesting that the proportion of incidents has changed slightly as pilots have taken heed of the message to report incidents even if they don’t involve an injury. Again, this could be a reflection of the ease of reporting.

Total reports and injuries



The next graph shows the number of reports that involved injury to pilots rated Club Pilot and above. Here, the 2013 spike is more pronounced and is as a result of a significant increase in the number of serious paragliding incidents. With the exception of 2013, the proportion of incidents appears to reflect the distribution of disciplines. In 2011 there were approximately four paragliders for every one hang glider. In 2015 there were approximately five paragliders for every one hang glider.

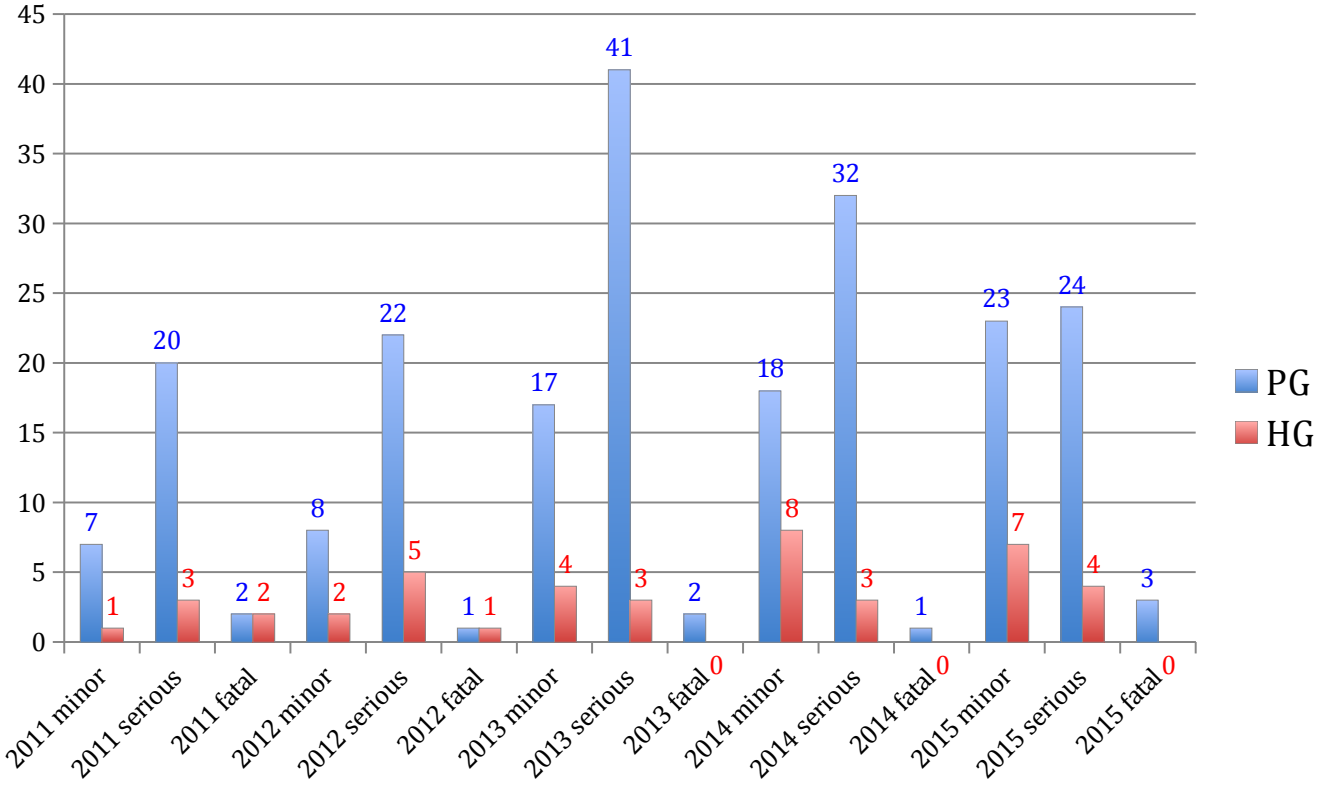
Number of CP+ injuries by discipline (and environment)



Here we look at the severity of the injuries and break them down into the most frequent categories. It is important to note that the descriptions Minor, Serious and Fatal are recognised EU terms for the purpose of air accident investigation. Not all 'Serious' incidents are actually that serious, e.g. a broken limb (including wrists and ankles but not fingers or toes) is classed as serious. Clearly there is quite a range within the term when comparing a fractured wrist to a badly crushed vertebra.

Again we can see the 2013 spike in evidence with a disproportionate amount of 'serious' paragliding incidents. Apart from that, the figures are relatively constant and in line with previous years.

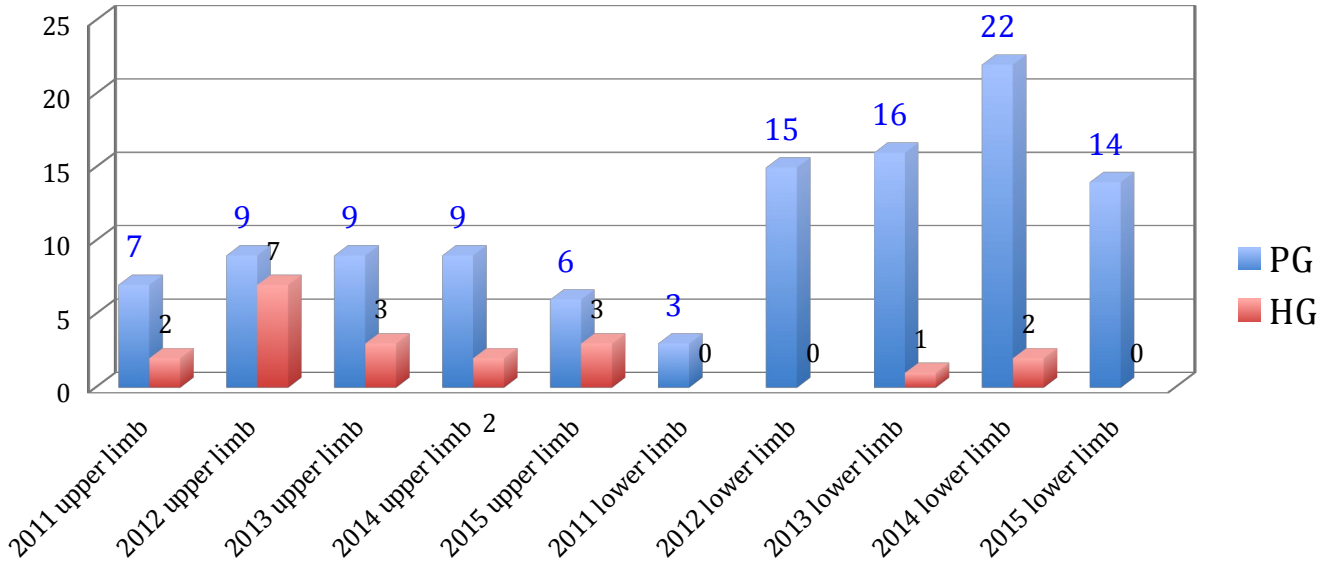
Severity of CP+ injuries



The following two tables show the breakdown of the serious injuries. In the past we've always mentioned head injuries. However, there are so few head injuries it is no longer necessary to include them. I'd like to think this is down to the sensible attitude of the pilots and the wide variety of properly tested lids available today.

The three main areas of concern are upper and lower limb injuries and spinal injuries. Fractures of the arms, legs and spine are still the most common in our sport. The first table shows the upper and lower limb injuries for 2011 – 2015. As expected, and in line with previous years, the hang glider pilots tend to damage arms (usually as a result of forgetting to release the control frame on impact) and paraglider pilots tend to damage legs. The majority of the paragliding injuries are as a result of stumbling/tripping/losing balance on launch or landing, causing some form of minor fracture.

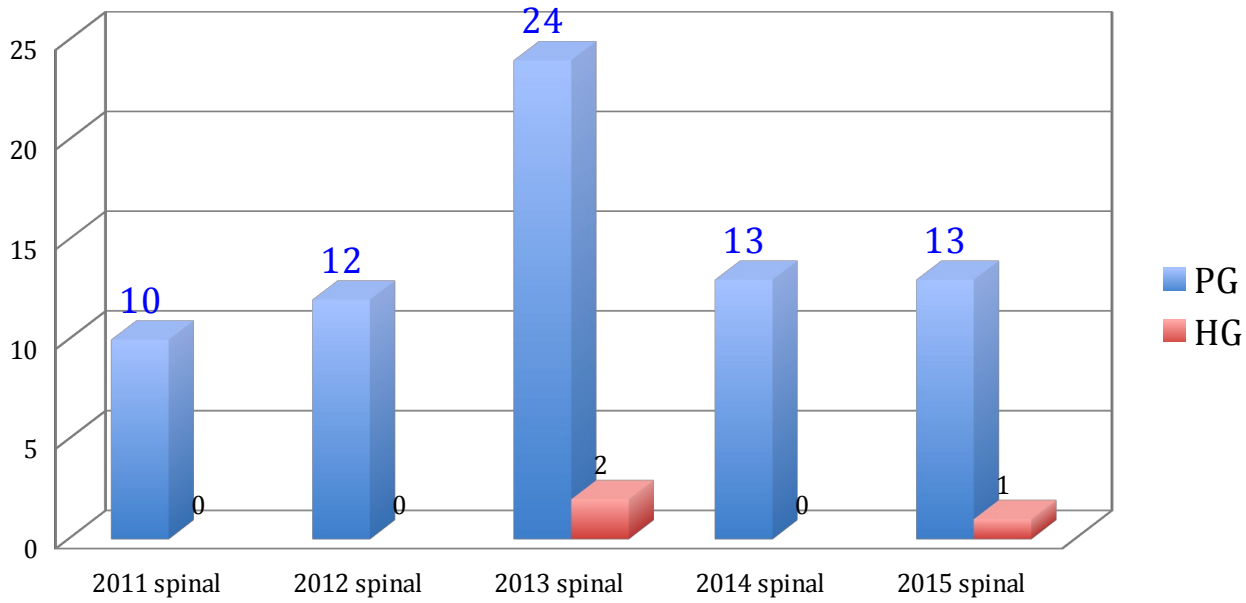
Breakdown of Serious injuries upper and lower limbs



I've separated off the spinal injuries, partly because there'd be too much info for one chart, and partly to draw attention to the numbers and to the 2013 spike. Clearly in 2013 there was a disproportionate amount of paragliding spinal injuries, with almost twice the usual number. Of the twenty-six 'serious' spinal injuries eleven involved paraglider low-level asymmetric collapses, resulting in an impact with the hill/mountain. Without exception, all involved turbulent flying conditions, be it windy, thermic or more usually, a combination of the two. Five involved the pilot either stalling (4) or spinning (1) their gliders while on final approach, again in turbulent conditions. Of the two hang gliding back injuries, one was due to the pilot failing to correctly rig his glider resulting in a fast turn back into the hill. The other was due to a poor approach resulting in an 'out of wind' landing.

Luckily the majority are lower back compression injuries with pilots going on to make a good recovery. But even those you'd be better off avoiding! Apart from 2013, the numbers are again similar to previous years. We will be looking to see if there is a correlation between the spinal injuries and the type of harness involved.

Breakdown of Serious injuries spinal



Causal Factors

The database has the facility to record the causes of the incidents and accidents. The table below shows a selection of the causal factors common to our incidents. The figures are, once again, very similar to those of previous years.

Human Factors	2011	2012	2013	2014	2015
Pre-flight Check (omission)	1	8	8	15	15
Controlling Glider (error)	31	47	43	47	34
Poor Lookout	6	7	10	14	12
Environmental Factors	**2011**	**2012**	**2013**	**2014**	**2015**
Unsuitable Site	0	2	1	8	3
Judgement Weather (error)	7	13	17	14	9
Judgement Orography (misjudging airflow around terrain)	16	18	29	11	15

The major causes of paragliding and hang gliding accidents are still glider-handling errors and misjudgement of the weather (often a combination of the two). The most frequent occurrence in paragliding being minor stumbles as already mentioned, but then it's low-level asymmetric collapses resulting in a hard 'landing'. When you look at the asymmetric collapses, they are almost invariable accompanied by strong winds, gusty winds, wind being off the hill, gusty thermals or a combination of the four. Which makes absolute sense in that something had to cause the collapse in the first place. Clearly there are still a lot of pilots who are either unaware of the dangers or are prepared to take the risk.

A couple of things stand out from the table above. In 2013 there were an unusually high number of incidents attributed to "Judgement Orography", or localised airflows to put it more simply. I don't yet know what it was about 2013 (and may never know) but failure to interpret localised winds and the associated turbulence are exactly the sort of issues likely to cause low level collapses and result in the pilot landing in such a way as to risk a back injury.

The number of recorded incidents involving ‘failure to carry out adequate ‘pre-flight’ checks’ has also increased dramatically. Fortunately so far, few of them have resulted in serious injury. However, it is just a matter of time before we have a very serious incident if this trend continues. Everyone should be using some form of pre-flight check mnemonic (Will Geordie…..) every time they attempt a launch. It will save your life!

Coincidentally we have engaged the services of a professional data analysis company (who just happen to be paraglider pilots) to do a professional analysis of our data to see if their fancy computer can make sense of it all. The results will be published in due course alongside the data analysis for 2016. As I’ve already said, the 2016 analysis will be in more detail as the search facility will have been improved – and I’ll have a bit more space on the tables and graphs!

	2011	2012	2013	2014	2015
Fatal Incidents	5 (3 HG 2 PG)	2 (1 HG 1 PG)	3 (3 PG)	1 (PG)	4 (3 PG 1 PPG)
Parachute deployments	2 (0 comps)	8 (1 comps)	2 (0 comps)	9 (3 comps)	10 (2 comps)
Mid-air collisions	2	2	10	14	12
Tandem incidents	1	3	3	5	6

The table above displays some of the stats not yet mentioned. The fatal incidents are approximately in line with our usual average of three per year. It is worth noting that nearly all of the fatal incidents above involve the pilot flying in turbulent and/or thermic air and sustaining a collapse of some description. The formal investigation reports for the majority of these incidents can be found on the BHPA web site under “Formal Investigations” in the Safety section.

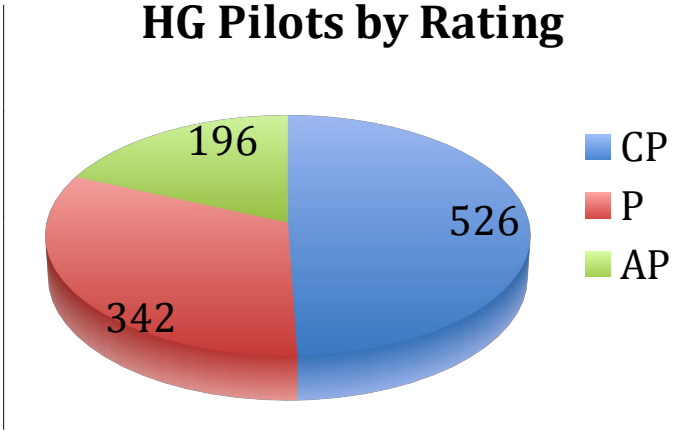
The number of reported mid-air collisions has risen over the last few years. Some of these are ‘pilot inflates glider while another flies overhead’ but most are actual mid-airs. Mid-air’s can and do kill. Should you find yourself having a near miss (or a collision) you should have a serious think about the way you fly, and how you ensure a good look-out and maintain awareness of the other aircraft with whom you are sharing airspace. We have not yet encountered any mid-air collision where it has been found to be the sole fault of only one pilot". The only other notable point is that in 2015, 7 of the 12 mid-airs occurred at either Devil’s Dyke or Mt Caburn on the South Downs.

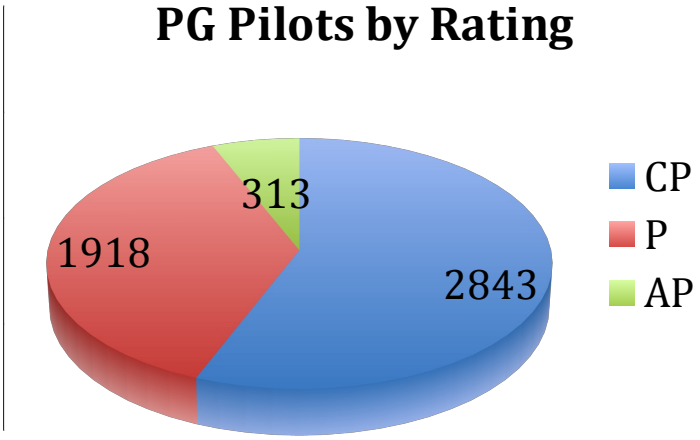
Regarding the parachute deployments, the figure in brackets shows the number of deployments reported from competitions.

With regard to the reported tandem incidents there were very few ‘serious’ incidents. With few that did occur, it was invariably the pilot who sustained the injury. There was no obvious pattern.

Ratings

The following charts and tables are to enable a quick visualisation of membership breakdown per rating. The actual number of incidents can be seen in brackets in the '% incidents' columns. A small change in the numbers can make a big difference in the percentages, especially for hang gliding due to the low numbers.





As in previous years for paragliding, the proportion of incidents involving injury is highest for Pilot rated pilots. The following table shows the relationship between Rating type, Glider class and the number of incidents for paragliders in 2015.

Glider Rating	No of Incidents	BHPA Rating		
EN/LTF A	13	CP 4	P 1	AP 0
EN/LTF B	35	CP 12	P 18	AP 1
EN/LTF C	5	CP 1	P 2	AP 2
EN/LTF D	5	CP 1	P 1	AP 1

The 'eagle eyed' among you may have noticed that the numbers in the columns don't all add up (or tally with the table above). This is simply down to the fact that some of the incidents did not involve pilots with BHPA ratings or involve gliders that have EN certification.

It's impossible to say how many of each type of glider there are among BHPA member pilots. That said, given the largest category of Rating is Club Pilot, and the majority of

those pilots would be expected to be on EN B gliders, it is hardly surprising that the EN B category has the most incidents. The two incidents involving CP pilots flying C and D class gliders were both cases of very experienced pilots who hadn't bothered to do their Pilot rating (one of them had over 2000 hours). So it's refreshing to see that none of the incidents involving the C or D class gliders involved low airtime pilots.

For 2016 we hope to be able to produce some comparative figures involving other participating European federations. Unfortunately it's not straight forward as, with the exception of the DHV, not all the Federations came on board at the same time and not all have embraced it fully as yet. To complicate matters, reporting rates differ hugely between the federations making direct comparisons difficult at present. But we are getting there.

And finally – a big thanks to all those who submitted their reports despite some of the initial teething problems with the new system. Most issues have now been sorted out and the fact that we are getting more reports filed each year means the system is working.