



## Accident Study Article

The figures fulfilling this article are taken from the accident declarations filled by the PGHGFF licensees from 2010 to 2013, for a total of 2354 accidents declarations including all activities. Even if a large sample is represented, which is certainly representative and allows a 4 year comparison, these figures should be analyzed with caution. Every accident is not declared, and we all know the reality differs from these statistics. The human mind prone to remember great things and forget worse ones. This denial can be seen in the accident declarations fulfilling, in terms of both form and content. Incomplete declarations or lack of description in the situations leading to an accident are too frequent. Therefore a simple quantitative analysis will not be sufficient to enlighten us about the root causes of the fatalities we are fighting. However it will lead us to the establishment of standard profiles which will sometimes be completed by representative examples.

First and foremost, the different activities will be quickly compared and then, paragliding accident research will be developed globally, as a first step, and then analyzed by the severity of injuries.

We are not able to link this data with the pilots flight volume but let us not lose sight that not less than 38 000 pilots from all activities are observed through this study. This depicts 25 000 pilots in paragliding/hangliding every year on a 4 year period, more than 150 000 licensees whose 100 000 are pilots in total.

**Therefore it is impossible to compare the accident declarations amount with the global flight volume of every pilot.** Furthermore, the declaration level has to be linked with the accident context. How many licensees go back home « forgetting » the little sprain, considering the light injury as domestic accident, which is an easier way to assume this « extreme activity » accident. Conversely, tandem or school context will lead to a more or less systematic declaration, even if the injury is only suspected.

### I. From 2010 to 2013

#### A. Comparative of all activities from 2010 to 2013 for a total of 2354 accident declarations

In this summary table, it is remarquable that 13.81% of declarations concern women whereas they represent 17.58% of the licensees, therefore they are potentially less injured. Flying activities are statistically the most present with more than 75% for paragliding, near 5% for hangliding and speed riding which constitutes 85% of declarations.

**COMPARATIVE 2010/20013 summary table**

	2010	2011	2012	2013		2014
<b>Gender</b>					% m/w since 2010	
<i>Men</i>	454	578	563	434	86,19%	504
<i>Women</i>	85	101	73	66	13,81%	70
	539	679	636	500		574
<b>Activities</b>					% by activity since 2010	
<i>Kiting</i>	1	3	1	0	0,21%	0
<i>Hangliding</i>	22	30	32	28	4,76%	22
<i>Kitesurfing</i>	76	113	87	52	13,93%	59
<i>Paragliding</i>	418	506	477	400	76,51%	473
<i>Speed-Riding</i>	22	27	39	20	4,59%	20
	539	679	636	500		574
<b>Damages (every activity included)</b>					% since 2010	
<b>Pilots</b>						
<i>Injury severity : none</i>	156	239	215	130	31,44%	163
<i>Injury severity : light</i>	165	217	206	176	32,46%	209
<i>Gravités blessures : serious</i>	205	212	204	184	34,20%	189
<i>Deaths</i>	13	11	11	10	1,91%	13
	539	679	636	500		574
<b>Passengers</b>						
<i>Injury severity : none</i>	37	22	18	26	30,12%	18
<i>Injury severity : light</i>	23	48	58	43	50,29%	51
<i>Injury severity : serious</i>	19	16	15	15	19,01%	16
<i>Deaths</i>	0	0	1	1	0,58%	0
<i>Tandem total</i>	79	86	92	85		85
<b>Deaths detail</b>					% by activity since 2010	
<i>Kiting</i>	0	0	0	0	0,00%	0
<i>Hangliding</i>	0	0	0	3	6.12%	2
<i>Kitesurfing</i>	0	1	0	1	4.8%	0
<i>Paragliding</i>	12	8	11	7	77.55%	10
<i>Speed-Riding</i>	1	2	2	1	12.24%	1
	13	11	13	12		13

## ➤ Severity index by sport

Severity index reminder : 0= not injured 1= lightly injured 2= heavily injured (48h+ hospitalization) 3=death (up to 30 days after the accident)

The same accident can result in various consequences, like for example a landing in the trees, that can end by a deadly fall as much as by a miraculous light descent to the ground. Nevertheless it seemed important to us to evaluate the severity evolution through the years in order to draw a time trend. To achieve this we defined the average severity index (A.S.I) as the the quotient of the severity indexes sum on the number of declarations.

Speed-riding and hangliding severity growth, even if this trend is to moderate regarding the low number of concerned licensees and the little numbers law. Paragliding inflect the severity graph and kiting drops it significantly.

Judging by the severity evolution of all activities, a decrease of 0 severity index is to be seen. This reduction is certainly due to the introduction of insurance deductible. Indexes 1 and 2 also show this drop, less pronounced, while unfortunately the number of deaths remains constant.

For 80% of the declarants, the age range goes from 30 to 60 years old with an average of 44 years old (licensees average age is 39 years old). Season plays an important role in the declarations annual repartition with the july-september period containing 65% of the declarations. Registrants are regular pilots in more than 50% of the cases. 30% of declarations indicate a school management context, but this data has to be tempered, knowing the schools imperative necessity to declare the slightest accident, which is confirmed by the much lower severity index average of this context.

## B. Paragliding since 2010 for a total of 1896 accident declarations

The average registrant profile is a male pilot for 85% of the cases, aged more than 40 years old with an average of 46 years old (paragliding licensees average age is 41 years old). He is flying quite regularly (26% daily and 32% on weekends) and is certificated (9% initial certificate, 13% pilot certificate, 38% confirmed pilot certificate). Accidents are taking place in the afternoon (50% between 1 pm and 6 pm) on a well known site at 85%, at the landing for 40%, in approach for 20% and in flight for another 20%.

This data breaks down the idea of a higher vulnerability in beginners pilots. School management context associated with extreme caution due to inexperience is likely to be the explanation of that. Unfortunately, we are not able to relate this figures with the pilots flight volume. It seems evident that an experienced pilot flies more and is therefore more exposed.

### a) Data comparison and analysis according to the severity

The table upon prove that with severity incrementation also increase pilot's age, practicing level, accident hour of the day. In the activity accident moment, « in flight » context is getting more and more important and mostly concerns male pilots. Conversely, minor accidents, it appears that school management context tend to ease the declaration of the slightest accidents, touches mostly inexperienced pilots, and concerns particularly female pilots. Landing becomes the most frequent declaration context.

### b) Paragliding in 2013

Figures from 2013 are the lowest of these 4 years study despite the number of licensees stagnated or even grew (see severity evolution table). We have made the decision to deal with 2013 accidents relating examples matching with an average typology highlighted by the previous part. Descriptions have been made unidentifiable but let unaltered as much as possible.

## Severity

### Severity index 1

DESCRIPTION	INJURIES
While inflating on the takeoff, the wing got into « spi » effect. I lost my balance and fell facing the ground. My head hit the ground. The wing dragged me on 5 or 10 meters.	Head
Landed at the takeoff nia too sharp turn. Landing during the acceleration.	Lower limbs
Landing feet forwards with backwind	Trunk
No landing run without wind - forward somersault	Lower limbs
Right foot heel blocked into the speed bar, tripped at the landing. Right ankle sprained	Lower limbs
Strong wind. Trapped in the thermal lee. Forced to land on the road in the middle of the trees. Wing stalled when arriving at tree tops.	Lower limbs
Asymmetric collapse in the final approach phase followed with a backwind landing in the rocks.	Lower limbs

### Severity index 2

DESCRIPTION	INJURIES
Pilot touched the trees while achieving his approach to land on the takeoff, he fell to the ground from 8 to 10m. He fell head first, then rolled and hit the ground onto his back.	Lower spine Trunk
The wing collapsed strongly during the final phase of the approach before landing, at 15 meters high. The wing turned right and reopened in the shoot. Landing backwind at the end of the pendulum.	Lower and upper limbs
Knot in the C lines (twigs) Stalled the wing with the brakes. Fell in the trees.	Higher spine Trunk Internal injuries
Solo flight along the relief - dégueulante and landed sideway backwind in the rocks. Landed feet forwards.	Lower limbs
Pilote felt hypoglycemia and decided to land very quickly on the takeoff. Too confident, he pumped the brakes to force the landing. He kept his hands low too long and one side of the wing stalled. Landed strongly on the feet and then then fell on his back and side, breaking his wrist.	Upper limbs
Collapse of the wing followed by autorotation. Quite near the ground, didn't have the time to recover. Impacted the ground.	Lower spine Lower limbs
Soaring flight along a cliff (at the right). Released left break to take away a break knot in the left riser. Wrongly appreciated cliff proximity. Inattention mistake.	Trunk Internal injuries
Unintended takeoff in strong wind gust, return to the slope impact.	Upper limbs
In flight, flat spin.	Lower spine
Left break has 3 turns around the riser during takeoff. Couldn't control the glider, the breeze took him in the air too quickly (without running). Wing was uncontrollable, stalled until the ground, and hung a tree.	Lower spine

### Severity index 3

DESCRIPTION
Trying a new harness. Pilot detached himself to rearrange his wing and forgot to reattach himself. He did a deadly fall.
During a competition task, near the ground, frontal collapse followed by a slight side shoot, quite slow rotation, impact on a steep slope, rolled down and get stopped by a tree.
Flight in weak conditions, hard to get high. Pilot is thermalling really low, his wing touches and he hits the cliff.
Tandem flight. Takeoff with only one side of the harness attached to the passenger. Pilot tried to recover and strong autorotation followed, until the ground. Pilot and passenger died.
After an evening flight, pilot initiated spirals, certainly too quickly engaged, wing did a flat spin and pilot hit the ground onto his back.
During a XC flight in great conditions, pilot begins to turn into a thermal near the ground. Distance wrongly appreciated, he hits the relief head-on.

This 2013 declaration list illustrates well the diversity of situations. It has been chosen within the typology highlighted by the 2010/2013 analysis in order to be as representative as possible even if it can not be exhaustive. Slight accidents declared with severity index 1 are sometimes induced by the lack of experience which did not forgive. For some other and for all more severe cases, we easily see that the outcome could be even more dramatic. The whole list of deadly accidents among 2013 paragliding licensees is described.

### **c) Trend 2014**

As you can see in the « 2014 » column in the table 1, past year's figures are pretty much equivalent to the average of preceding years. Paragliding seems to suffer a significant increase – in less serious accidents, fortunately – but there is still 13 deaths to deplore within flying activities.. A more detailed analysis of 2014 accident declarations will be achieved in spring 2015 and released on the federal website.

### **d) And then ?**

In order to get a better data treatment, we are initiating a simplification work upon accident declarations which will be operational for 2015. This work provides input for reflection of all federal commissions, especially security and formation ones. For example, the emphasis that will be on placed on the communication of serious or deadly accidents to the leagues and (CDVL) is remarkable, as well as the possibility to save accident declarations and finally the online release of accidents and incidents facts and circumstances.

See the full article at:

[http://federation.ffvl.fr/sites/ffvl.fr/files/Articles\\_accidentologie\\_2010\\_2013\\_parapente\\_V7def\\_%2024\\_%20nov\\_2014.pdf](http://federation.ffvl.fr/sites/ffvl.fr/files/Articles_accidentologie_2010_2013_parapente_V7def_%2024_%20nov_2014.pdf)