

A matter of Safety (air speed /ground speed)

Last year, I decide to realise an old dream, to get a private pilot license. One of the cheaper and quicker place to learn in the world must be Florida, so I found myself in a flying centre near Orlando for new year 2003.

After 3 weeks , I got my license – I still don't really understand how, when I remember some of the exams !

While I was in Florida, I said to myself , well you have also around some of the best skydiving zone in the world, let's have a look at that.

How I didn't give up after the first jump is an other story, but eventually I got a A and a B license after my 50 jumps.

The point of this article is few funny things that happen to me

For the first one, I was around 10 hours flying time, learning with my instructor to fly the Cessna.. We had something like 30 km/h headwind at the airfield and after take off, my instructor turn to me and said "Climbing rate is much better with this wind"

Before I could stop them, the word where already out my mouth "I don't think so" I said.

The instructor looked at me puzzled and asks "What do you mean" I explain that it doesn't matter, of course he didn't agreed.)

The climbing rate (in thousand/ft per minute or metres /second) stay the same , the climbing rate relative to the ground (distance cover) is better, you will be much higher at the end of the runway than with nil wind, which will give you the illusion of a better climbing rate)

After that I had a discussion with some others instructor (most with few thousand flying hours) they all totally disagree with me using sometime very funny explanation relative to earth inertia ...

Few month latter I am at Ampuriabrava is Spain one of the bigger European's drop zone, doing some jump.

I am still a beginners with my 60 jumps but they don't really know how to deal with me, because I fly a very small parachute for my number of jump and I make quiet good landing, without shoes! (I were only a swimming suit) of course this is because of 18 years flying all kind of paragliders

Anyway one day in the plane, this Spanish instructor in charge of the exit order at the door, tell me "Wait, today it's really windy, we need more time between each jumper to keep the same safety distance between every one in free fall"

Well I told him "I don't think so" and back at the packing area, the same story start again.

He is a good guy but he is an instructor with few thousand jumps and I am a beginners...So he just refuse all my explanation and don't even really listen me, so sure he is to be right.

Well, what matter is only the speed of the airplane threw the air, if the all masse of air (imagine a cube of 10 km per side) is moving one way or an other, it doesn't affect what is moving into it, as it doesn't affect the swimming of the fish when you move steadily his tank.

At Flying-Paradise our paragliding centre in Greece, during lecture to qualified pilots, from time to time, I make the following test to check their knowledge. Imagine an hang glider over this huge valley flying at 10 000 ft with a 50 km/h wind from the north. This guy want to do a looping witch just mean to take a lot of speed and then push the bar to round the loop.

The question is: Which direction will be the safer/ easier, North (head wind) or South (down wind) ?

Usually, even among flyers, depend of there experience, between 3 and 7 on 10 will tell me that is north or south, and will explain me why.

*It doesn't matter of course, but the looping however perfect in the air, will not look the same **from the ground**, depend on which way he do it.*

-There is this air balloon 5000 ft up, there is 30 km/h wind. There is also 2 hang-glider flying toward the balloon, both at 100 metres from the balloon, one is flying down wind, the other is flying head wind. Which one hit the balloon first?

Same things, it doesn't matter, because the 3 of them, Air balloon and hang gliders are moving in the same masse of air.

All of these example where based on air speed. Most people grow up on the ground which explain why it's quiet difficult for us to consider ground reference as irrelevant.

The theorie of it

- Anything flying, falling or hanging into the air without been attach to the ground won't be affected by the wind whatever it is, only airspeed reference will be involve, except in 3 cases where the ground reference will be ALSO important.
- Take off/launching and landing. (You want usually take off and land into wind)
- If flying in an area where the moving masse of air is deteriorated by the terrain (flying in the lie of a hill, wind gradient, wave)
- Concerning land position that will be reach or avoid. (A wind will change the time and energies necessary to reach or avoid a location, making this task sometime impossible)

If you consider the physique aspect of it, it's extremely simple. Just use the element of reference. In all of the previous problems it's the air.

Our problem in flying, is that we MUST use 2 different element of reference, the ground, and the air. But, when to use witch?

-The FIRST priority of a pilot (of any aircraft) in the air is to make sure that is aircraft is flying.

If at any moment he worry about that, he will give a quick look at the wind-metre (Badin) installed on the aircraft (measure the speed of the air, away of the profile and of the turbulence) to see that his AIRSPEED is higher than his stall speed and he will know that he is safe.

The Badin will simply measure the speed of the aircraft threw the air.

The ground speed of his aircraft, that be can know from a GPS (or by looking at the speed of his shadow on the ground), can be completely different, but is irrelevant for this matter.

In the same time if he is flying over a lake with a head wind, it become essential to know his GROUND SPEED (Gps) as well, he maybe don't have enough height, fuel or time to do this traverse that he done many time in the past with a tail wind...

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