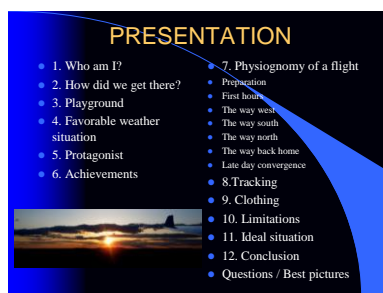




Good morning ladies and gentlemen. When I joined the Belgian Air Force as a young Officer I was told to never apologize at the beginning of a briefing: it is a sign of weakness, they told me. Well, I'm not a young Officer anymore and I'm following such experimented pilots that I do not see how I would do otherwise. So, let me apologize for my French accent, my low tone voice, the seriousness of my text, the shades that are not strong enough and for some repeats of what has already been briefed by my predecessors. This briefing is an updated version of what I presented last year at the National Soaring Museum. Therefore it is not as technical as the other topics presented before, but it is aim to be an eye opener and a colorful enjoyment. If at any time you think it is important to interrupt me with a question or a remark, please do; otherwise, there will be a question and answer session at the end.

Winter Soaring in the Mid-Atlantic Region

Let's start with a short presentation of what I plan to cover.



Introduction

1. Who am I?
2. How did we get there?
3. Playground
4. Favorable weather situation
5. Protagoniststypic
6. Achievements
7. Physiognomy of a flight
 - Preparation
 - First hours
 - The way west
 - The way south
 - The way north
 - The way back home
 - Late day convergence
 - Sunsets
8. Tracking
9. Clothing
10. Limitations
11. Ideal situation
12. Conclusion

Questions - Best pictures



1. Who am I?

Let me start by presenting myself:

- Baudouin Litt 55 year's old, Belgian citizen leaving in Washington DC since 1997.
- Started soaring at age 15 in Belgium, both parents Belgian Soaring Champions.

- Power license at age 17 on Piper Cub.
- First soaring competition at age 19.



4

- Joined the Belgian Air Force at age 22.
- Flew the SF-260, the Fouga Magister and the Alpha Jet for training.



5

- Spent 17 years in the # 1 SQN flying Mirage V and then the F-16.



6

- Participated to 80 gliding competitions winning 19 of them of which 13 were US Regionals. Never got a national title but became second twice in the Belgian Nationals and twice here in the US.
- Hold or held 28 Belgian Soaring records.



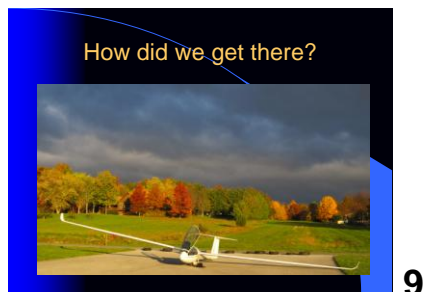
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- Before I left for the US, I restored a few old wood and fabric gliders and won the Belgian best restoration price for an SZD-22C Mucha Std.



8

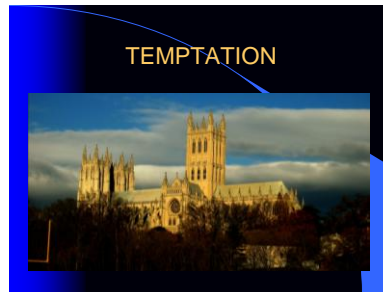
- I'm also a little artist during my few leftover spare times. My taste is for Belgian cartoon style or caricatures. I enjoy exaggerating the characteristics of the models I draw. But let's go to our topic:



9

2. How did we get there?

At the beginning, like many pilots, we simply wanted to extend the summer season by flying late in October and November and of course when the weather was looking good, we were eager to fly as early as possible during the springtime. But there was nothing really organized for winter flying. Around 2002, I started providing weather forecast e-mails to some of my fellow club members. The word spread out that my forecasts were often reliable and my e-mail list started growing.



10

During the next winters, I was often tempted to release some forecast e-mails when the weather looked good to me and in a few occasions I did.



11

Then to prove that what I had written was correct, I went to check it in flight.



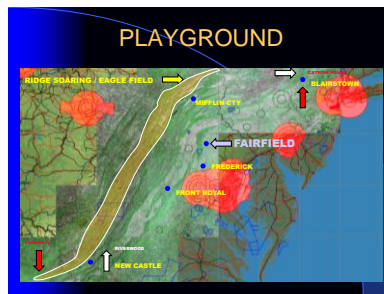
12

This happened in February and March 2003. I kept doing that through the next winters, but nobody really hooked up at my fish line. Then one day, Mike Higgins replied and said: yeah let's go flying!



13

That was in February 2006. From that moment on, **(CLICK 2)** Mike and I have been looking at the weather much more attentively and we have tried to fly as often as we could. From time to time, we are joined by other M-ASA pilots.



14

3. Playground:

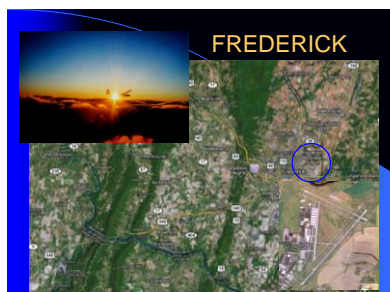
(CLICK 2) The Main Ridge has been thoroughly explored and exploited by many pilots since the middle of the 60's after the pioneering work of pilots like Karl, Tom, all the Johns, Roy and many others. **(CLICK 3)** The red arrows represent the furthest points we went to the south and north from Fairfield during the normal soaring season, **(CLICK 4)** while the white are the furthest we went during winter time.

Pilots from more easterly situated airfields have also explored their own area in wave; but essentially during the good season.



15

In Front Royal, Dave Weaver and a few of his fellow pilots have explored wave north and south of the Massanutten Ridge.



16



17

From FDK and FFD, many pilots, lead by Jonathan Gere, have occasionally played in the wave, but without really using it for Cross-Country flying.

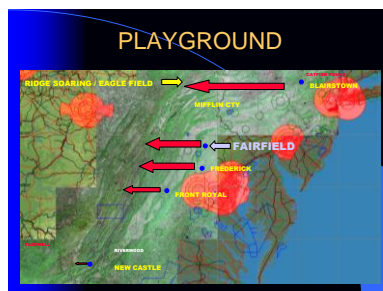


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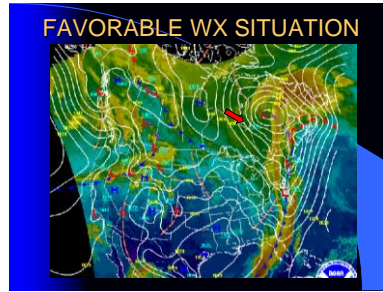
To a lesser degree, the same can probably be said for New Castle and Blairstown. They also get more snow than we do.



20

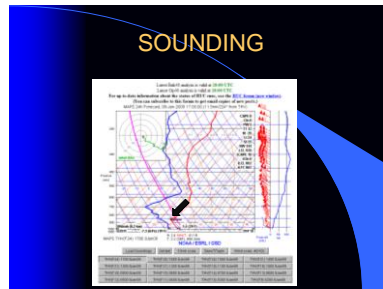
While the aim from these 5 airports has always been to reach the long and nice ridges west of their position, these transitions to the ridges had almost always occurred under cloud streets, which are very rarely available in winter times. What has changed is that we found other ways to achieve this quest and by doing so, we also discovered many interesting phenomena.

4. Favorable weather situation:



21

In winter time, any west to north westerly flow will put our region in a favorable situation.



22

What we are looking for is a stable air-mass with a minimum of 10 mph surface wind and a direction from 250° to 350°. This happens much more often than you might think.



23

The forecast being what it is (unpredictable); we often found ourselves outside of these parameters and we were still able to exploit the day to a certain extent.



24

Basically, the passage of a winter cold front will put us in such a position. From the front passage and up to 48 hours after is the best period of time to launch a big winter flight. **(CLICK 2)** Again circumstances have put us in situations where we were airborne before the actual passage of the front or well after 48 hours and we were still able to achieve extraordinary flights.



25

Those cold fronts generally completely block the Main Ridge with high humidity, snow and very low ceilings.



26

But, as it happens throughout the year the air-masses generally dry out rapidly across the Appalachian ridges; and what is disadvantageous to us in summertime becomes a big advantage in the winter months for Fairfield and front Royal.

5. Protagonists:



27

If I can be described as the instigator or the initiator of these flights, nothing would probably have happened without the presence and the competitor I found in Mike Higgins. Mike is the owner of a Discus 2b, he is 10 years younger than I and is always ready to come along.



28

We have been pushing each other for the past few years, exploring more and more terrain. Being younger than I and although our achievements are generally similar, I'm convinced he will soon take the lead.



29

Other M-ASA pilots who join us from time to time and happened to get close enough to my objective are: Stefan Schroth, Dave Weaver, Milan Petkovic,



30

Dave Pixton, Paul Rhem, Erik Nelson



31

Danny Brotto and Ed Brau.



32

None of these flights would have been possible without a bunch of crazy tow pilots who accept to launch us at sunrise in sometimes hectic but always cold temperatures. **(CLICK 2)** Thankfully, most of them leave within a few miles from the airport: I name Bob Jackson, George Green, Rich Horigan, John Machamer, Jim Chick, Ed Brau and Mike Grinder.



33

I must not forget my wife Christiane who not only endures those long flights alone at home, but who also agrees to go early to bed and wake up at 3 or 4 AM. Big thanks to her.

6. Achievements:

ACHIEVEMENTS

TIME PERIOD	HOURS	DISTANCE	# OF FLIGHTS
Winter 02-03	16h36	1154 Km	4 flights
Winter 03-04	11h39	564 Km	3 flights
Winter 04-05	7h13	527 Km	2 flights
Winter 05-06	12h18	1275 Km	2 flights
Winter 06-07	18h21	1500 Km	4 flights
Winter 07-08	16h49	771 Km	4 flights
Winter 08-09	67h00	4383 Km	12 flights
Winter 09-10	40h29	3042 Km	5 flights
Winter 10-11	62h00	4150 Km	8 flights
Winter 11-12	50h38	2005 Km	10 flights

WINTER COVERS NOVEMBER DECEMBER, JANUARY AND FEBRUARY

34

This chart represents only the flights I have made during the last 10 winters. For the purpose of this study, I have only considered 4 months: November, December, January and February. As you can see, I have accumulated hundreds of hours and thousands of kilometers during those winters. Winter 08-09 is a little bit special because I had a JS1 at my disposal for the month of November and I enjoyed a lot of flights with it. If you look at the last 4 winters, many pilots would be pretty happy to get those totals for a full year.

ACHIEVEMENTS

- LONGEST FLIGHT NOVEMBER : 9H17 918 Km 573 miles
- LONGEST FLIGHT DECEMBER : 9H12 839 Km 524 miles
- LONGEST FLIGHT JANUARY : 9H01 788 Km 493 miles
- LONGEST FLIGHT FEBRUARY : 7H11 739 Km 462 miles



35

On this chart, I gathered the longest flights in duration and distance that we have been able to achieve for each month.

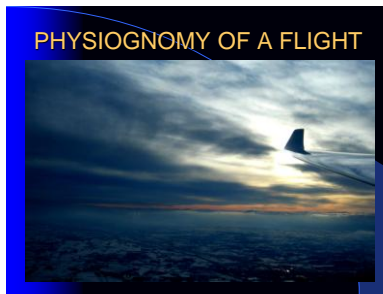
Why are February record so low compared to the other months? Well one answer could be that it is very difficult to get other pilots flying in the frigid temperatures of the coldest month of the year, and I don't like to be the only one airborne.



36

One little remark, Mike Higgins and I fly Std Class ship, generally without water. Who would have thought that such flights would ever be possible from Fairfield just a few years ago?

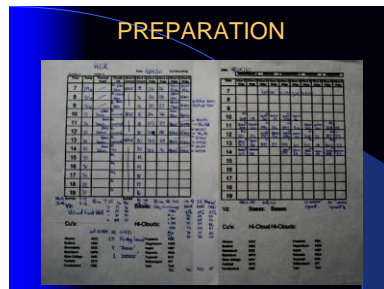
7. Physiognomy of a flight:



37

Preparation

The preparation of those big winter flights often start the week before, when one of us thinks the synoptic situation becomes favorable. Then 2 to 3 days before the flight, I start sending more and more accurate forecasts.



38

The day before, I spent at least 2 to 3 hours analyzing the whole region weather available tools and especially the soundings. Then it takes me another hour or so to prepare my forecast and send it by e-mail.

First hours



39

As I have to drive an hour and half to reach Fairfield, I go to bed around 8 PM and wake up at insane hours.



40

Part of the preparation includes ballasting the gliders and if we do it regularly in November, we generally fly without water comes December.



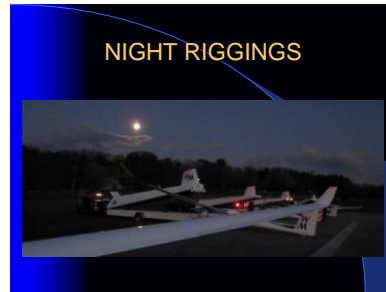
41

We chose taking off at sunrise for numerous reasons. Obviously, the earliest you take off, the longest you can stay up and the longest your distance will be; but we also do it for a safety reason.



42

The direction of our runway makes the take off's and landings sometime very turbulent with westerly winds. Generally, at sunrise the winds tend to be pretty low; to the point that some tow pilots used to question the need of taking off in those calm conditions and looking for wave.



43

Taking off at sunrise implies rigging in the dark which is not very pleasant but, as said before, the winds are generally calmer than they would be later in the day. So, although we do not see much, it is generally safer.



44

Of course taking off at sunrise, even with good forecasts, is often a walk to the unknown. This snow squall line surprised me just a few weeks ago.

The way West



45

Like for all of the other airports I mentioned before, the culture has always been to move West towards the main ridge; or at least for us to the Tuscarora ridge, on the west side of the Chambersburg Valley.

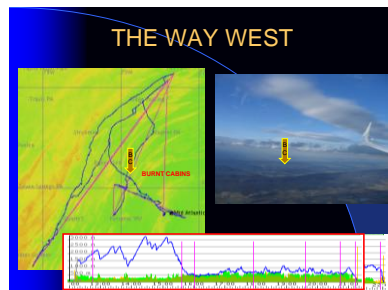
(CLICK 2) This Valley is about 20 miles wide and crossing it head wind is often a challenge. With 12,000 feet above Fairfield, like on the picture, it won't be a big deal to cross it, but is not always as simple

as that when facing winds above 50 Knots. **(CLICK 3)** Once the Chambersburg Valley is crossed, we generally go down to the Tuscarora Ridge, or if conditions are very good and the progression is not too slow, we can extend to the Tussey Ridge or Back Ridge, either to the north or to the south, jumping on the Main Ridge around Cumberland, if necessary. If we can get back into wave, the door is then opened towards Mountain Grove or even Tazewell, time and weather permitting.



46

The only way to achieve the crossing early in the day is by using wave. While it sounded logical to go West just a few years ago, it is not necessarily true anymore, as I will explain.



47

As you can see on this barograph from Mike Higgins, reaching the Tussey Ridge took him a little less than two hours and 10 harmonics; and that is pretty fast. **(CLICK 2)** On this other barograph, it took him almost 4 hours and 8 harmonics to do the same. That is almost half of the day gone for less than 100 miles. This is why flying West is not necessarily the best option. Time is what drives us, but other factors like the cloud coverage also come into play. Fighting against the wind is time-consuming and if the progression is not fast enough, we have the option to stop at the Tuscarora Ridge, **(CLICK 3)** where we generally aim for Burnt Cabins.



48

There is another way to achieve big distances using wave and this is by flying perpendicular to the wind like they do in Nevada and the Andes! We tried it in blue conditions, but it is extremely difficult keeping the correct path.



49

It is much more comfortable when cloud streets are present. We generally run these streets a few thousand feet above the leading edge and it is a lot of fun.



50

If you look attentively most of them run parallel to the ridges and, contrary to summer time, perpendicular to the wind.



51

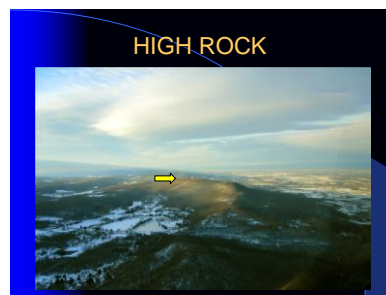
That is why, for the last few years, we have focused on rather humid forecasts that offer us markers and we generally opt to go south, first.

The way South



52

Although the progression on the Blue Ridge is generally pretty slow, it is often faster than progressing West against the wind. The goal is Front Royal, where we are often able to get into wave and proceed south to the Massanutten Peak.

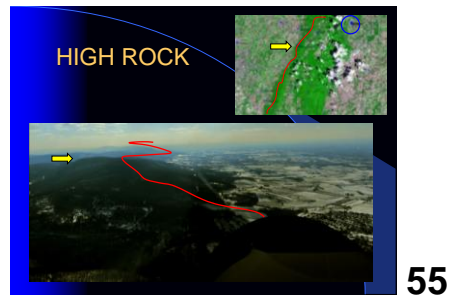


53

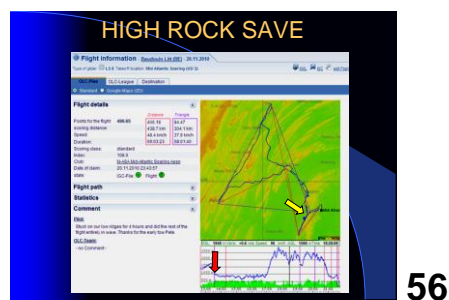
When we cannot find wave from tow, or when we are convinced there is no wave available and we know that the wind is good enough for ridge flying, we jump to High Rock.



High Rock is one of those little hills in the middle of the Blue Ridge chain. The main characteristic of the Blue Ridge, for us soaring pilots, is that it is not a ridge; just an addition of little hills with, from time to time, a little ridge line too low to be flown at tree top.

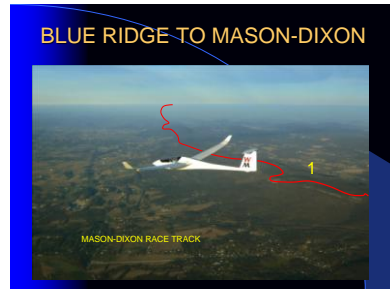


High Rock is the exception among those little hills. It is high enough to be ridge flown but it is not large, less than a mile long. Therefore it can save us, help us, and **(CLICK 2)** it is often the actual start of our cross-country flights to the south.



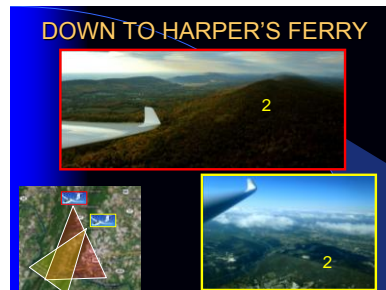
On this extract from OLC, you can see that I saved my day on High Rock, but also spent four hours at almost ridge level waiting for a late coming cold front to pass. I was then able to contact wave, allowing me to cross the Chambersburg Valley. The rest of the flight was totally in wave above the Appalachians.

In fact, before paying more attention to the wave structure, we learned out how to fly the Blue Ridge as it is. Earlier, I talked about those little ridge lines it offers.



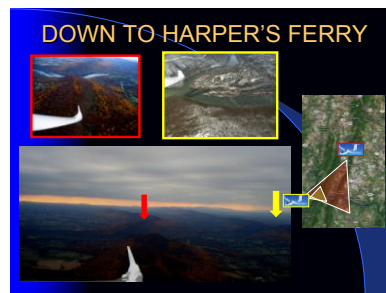
57

The first one is situated just north of the highway 70 close to our Mason-Dixon Race Track TP and



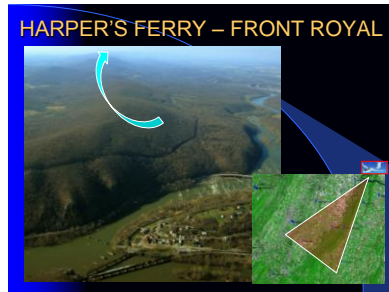
58

the second one just north of Harpers Ferry where the Potomac River crosses the Blue Ridge. From now on you will see the sectors depicted by the pictures with their related colors. The caricatured glider is situated where the picture was taken. North is always on top of the maps.



59

Going down to Harpers Ferry is generally not a bit deal, as the last few miles are flown above two small parallel ridges that are normally working, if High Rock was working earlier.



60

South of Harpers Ferry is just a succession of those little hills that none of us from M-ASA have ever flown at ridge level. Instead we stay just west of the top line bumping in dynamic and small thermals. This is a very slow progress, but if you are patient, you can reach Front Royal.