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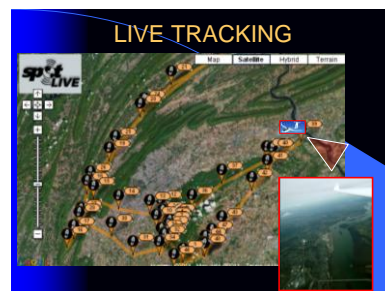
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Here you get an idea of the final glide from High Rock to the ski hill at Fairfield

1. Tracking:



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Thanks to SPOT, the SSA and Frank Paynter, pilots who are not able to join us can now follow our flights almost in real time on a goggle map. Apparently, M-ASA members enjoy that very much. This is the same flight I showed to you earlier, going to Harrisburg in wave. On this picture, you can see the Harrisburg International Airport taken from 10,000 feet on that gloomy day.

2. Equipment:



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Years and years of winter flying practice have led me to experience many solutions to counter the frigid temperatures of winter. The key is simple: layers and layers. I tried many sophisticated cloths with a lot of disillusion. Protecting the feet is a major problem, especially in the reduced space in the front of my LS-8.



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Covering the face is also critical, as most of the time, the flights are done with the vents opened to prevent frost on the inside of the canopy. The frost comes from the humidity you exhale while breathing, but it is also helped by the outside humidity of the surrounding air, especially when flying at cloud levels.



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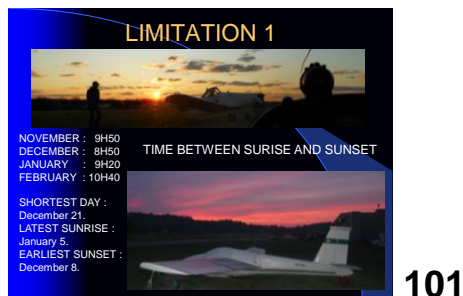
When I say layers, I mean it, as you can see on this picture. I wear 8 to 10 layers for the top and 3 to 4 for the legs plus one blanket turned around each leg. You notice on the picture that the last layer of clothes is black or dark blue. It helps capturing the heat from the sun and eliminates most of the canopy reflections allowing a better look out and better air to air pictures. **(CLICK 2)**

A ski jacket is too invading for the LS-8, so I replaced it by 2 fleece jackets. **(CLICK 3)** The 4-way Canadian fleece hood is an advantageous replacement to the old scarf that used to get stuck somewhere in the cockpit. You can wear it as a hood, a hat, a neckband or fold the underside up to protect your mouth and nose. **(CLICK 4)** For the feet, I recommend those Italian Moon Boots with 2 pairs of socks and a heating device inside. I have installed electrical sole heaters from Therm-IC inside the Moon-Boots. The whole set is pretty expensive, at \$200.00, but is worth the purchase. To be safe, I always carry a second set of fully charged batteries.



From those two pilots, one will be frozen to death after a 2 hours flight and while the other should be OK or easy to find in case of crash, but he will have a hard time taking nice picture.

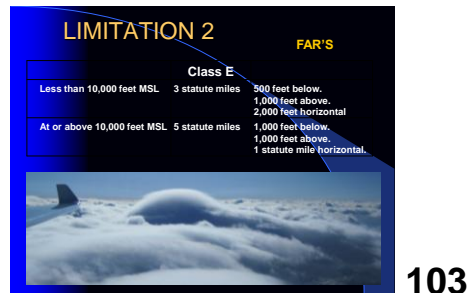
3. Limitations:



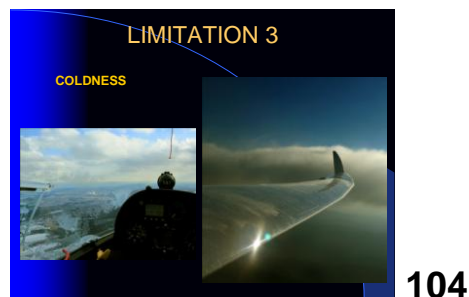
Time is our main constrain during our winter flights. As early as mid-November until mid-February the days are less than 10 hours and as Fairfield does not benefit from the presence of a ridge close by; it is almost impossible to achieve distances higher than 750 to 800 km during that period of the year. The only possibility to do more would be a flight performed totally in wave, but this is still a dream day we are hoping for.



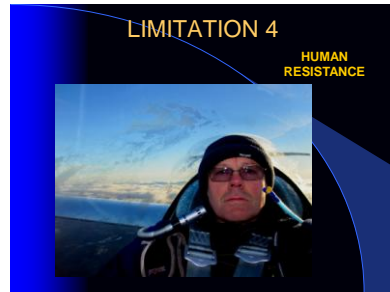
The other time limitations are imposed by OLC which request the flight to be performed strictly between the local official sunrise and official sunset at the place(s) you took off and landed. I landed out purposely at the foot of High Rock in 2 occasions to save my score.



The second limitation are the FAR's. We must respect the Class E VFR rules. It is generally very easy above 10000' as most of the clouds in the region are between 3 and 8000'. Below 10000' maintaining 1 statute mile lateral separation from the clouds is our main concern and it has forced us to get back under the clouds numerous times.

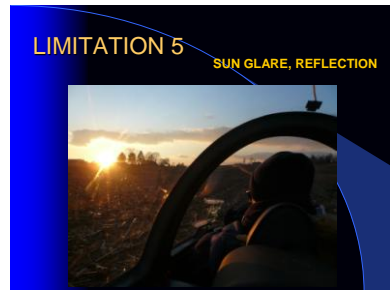


The third is the external temperature. The lowest we saw until now is -27° Celsius or -17 Deg Fahrenheit. This is very cold, with the air vent opened for hours! From time to time, we also get ice on the wings. This is not good!



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The fourth is our physical condition. While 5 hours is often a limit for pilots during summer time, what about 9 hours in winter conditions!



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The fifth is the sun glare or reflection that can blind you when flying to the south in the afternoon, as the sun is particularly low on the horizon at this time of the year. Greg Leslie once abandoned me and went back home while we were flying the Blairstown Ridge late in the afternoon. He could not see me anymore, flying just in front of him. I usually do not take pictures in these conditions, but here is one my brother took while we were landing out with M-ASA's Grob in the Chambersburg Valley.



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The sixth limitation is the weather. Conditions could be very good, but too much snow or too much wind can prevent a safe take off, and even if the runway is clear too much snow, water or ice could endanger a safe out-landing.

4. Ideal situation set up/date

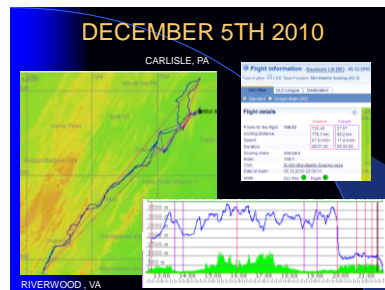


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The ideal situation would be to get a wave day with good cloud marking from Fairfield down to New Castle end of October or, even better sometime in May or June. But as our predecessors have experienced before, this combination will probably never happen. If it does we are ready! Nevertheless, we have been able to perform an OLC 1000 KM end of October; with good conditions in November or February, we might be able to push that record distance to 1250 and maybe to 1500 Km.

5. December 5, 2010

Let's just get a quick look to a flight that came close to this ideal situation



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My longest flight, almost totally in wave, was on December 5th 2010, when I was able to get down to Riverwood, Virginia to the south and then back to Carlisle PA to the north.

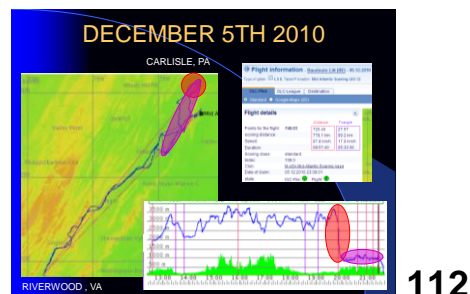


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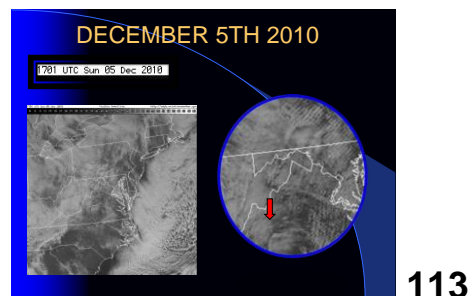
Again I was blessed with extraordinary sceneries;



but when I came back north, I was forced to get down into the hole which is under my right wingtip on the top right picture.



Unfortunately, I had to fly the last 2 hours on the Blue Ridge at very slow speed. Had I been able to stay above the clouds in wave, I would probably have achieved a distance very close to 1000Km. (625 miles)



If you remember the ideal situation picture, you can see that this one, taken at noon that day, shows very little wave harmonics and that most of them are out of my actual track. The future possibility of receiving those satellite pictures inside the cockpit will certainly allow us to improve our mileage by a subsequent margin.

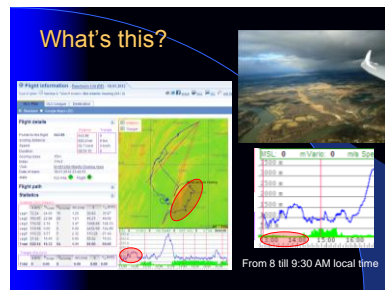
6. Conclusion



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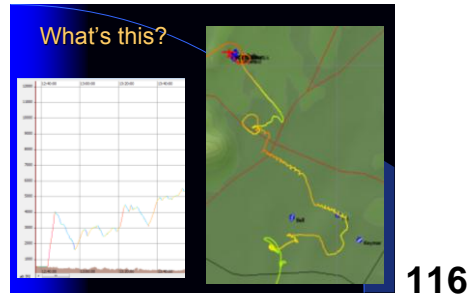
Compared to summer flying, windy winter days generally offer a much larger spectrum of possibilities. We get thermals, in the afternoon, rotors, wave and ridge all day and convection in the evening. That makes five different sources of lift available on a single windy winter day; while summer days rarely offer more than two. That is why, apart from the cold temperatures, I feel very comfortable flying in these conditions.

Then we have the unexplained...



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Pretty often we are confronted with phenomena that are difficult to understand based on our summer experiences. **(CLICK 2)** Times on this OLC file are in Zulu and it looks like a nice flight. Well, let me read you an extract of the report I made about this: the tow plane unexpectedly rocks its wings and I release. Here I am, 4000' MSL above Emmitsburg trying to go back to FFD. It soon becomes obvious this is not the good thing to do. Mike confirms on 123.3 that heavy snow is now reaching the airport. **(CLICK 3)** I turn away and cross the HW15, looking for fields. They are many, but they also look pretty damp, as a result of previous rain day. Suddenly at 1100' AGL, I find a little positive Vario and hang to it, slowly regaining altitude and drifting to the SE.



Let's put that in perspective: it is 8 o'clock in the morning, in January, freezing temperatures, no sun, over flat land, lots of winds and light snow all over the place. Furthermore, approaching is a snow squall line, which is pushing me against controlled airspace. What are my chances? Close to nil, but... I found some lift! From wherever it comes, it is there; so let's try to use it! This not a rotor as you can see by the spiral drift. This should not be a thermal that early. I have a hard time to find a specific explanation to this phenomenon, but I keep learning that these winter air masses are extraordinary powerful and amazingly resourceful.

On the same day, later on, I found this cloud street running parallel to the wind, just like they do in summertime.



Nothing special you would say, except that I found lift all the way above it. I was able to cross the 30 miles wide valley on to top of this street, only loosing 2000 feet with 60 Kts headwinds. Don't ask me to explain!

I have some ideas how this is possible, but I don't think we have time for this. So, let's finish.

1. In this case, I think it was a mix of wind gusts and small rotors in front of this big snow shower.
2. One day, we found wave while the winds were less than 10 mph at all levels. We ended up 3 gliders at 8000' with our computers indicating less than 5 mph winds. WM and I were able to reach Mifflin that day in those conditions.

3. Very often, when we take off, there is not a puff of wind and still we find very strong wave on top.
4. When flying above isolated clouds, there is very often some lift above able to increase our altitude by 2 to 3000', but not always. This is probably a kind of cloud ridge effect.
5. Dynamic climb on High Rock. Climbing lazy eights.



To conclude, do not think conditions are weak in winter times; this is the best vario average I ever had on the East coast. This was on February 26th 2006.



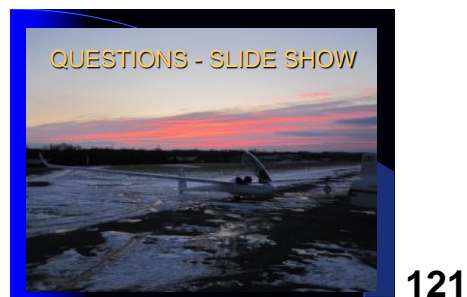
These flights are for me an extraordinary experience. Each one is a new discovery, a walk into the unknown that leaves me with an overwhelming feeling probably only comparable to what all pioneers have experienced during the last few centuries. But there is so little to discover, nowadays, that I feel privileged and somehow obligated to share these experiences. They are physically very demanding but so rewarding and beautiful. I hope I have been able to pass on a little bit of that passion to you.



Before closing my lecture, there are two pilots I was never able to drag into these winter flights: my mentors Jonathan Gere and Chris O'Calaghan...This presentation is dedicated to them.

I thank you for your attention and if you give one minute to launch my slide show, I'll be ready to answer your questions.

Questions / Best Pictures



Baude

Picture Credit	Pierre Grandjean	1
	Michael Jeanmotte	1
	Belgian Air Force	2
	André Emmanuel Litt	6
	Baudouin Litt	154

Note: Slides 122-131 are part of the slide show