
# From Keiheuvel over Viersen to the Spanish border

Tijl Schmelzer – aboutgliding.com

## History: From Lübeck to Biarritz, 25 April 1972

40 years ago, on 25 April 1972, Hans-Werner Grosse wrote gliding history by flying his ASW12 from the airfield at Lübeck, north-east of Hamburg, to Bayonne/Biarritz in the south-west of France. Although he was flying the best plane of that time, this flight of 1460km straight distance was and still is one of the best performances in a glider ever, and it is a European record to this day.


*Hans-Werner Grosse and the ASW12, a pilot and glider ahead of their time.*

What made this flight possible (apart from splendid endeavor and exceptional skillfulness), is a rather rare weather pattern that can occur during April till early May over Western Europe.

This weather unfolds something like this:

- A High pressure area builds up over the Atlantic, with Low pressure over Eastern Germany and Switzerland.
- A cold front sweeps from north-west to south-east over the area, bringing fresh, clear and ice cold polar air over the task area (the optimal breeding ground for strong cold air advection, or in plain terms: dream thermals)
- The isobars are close together, which means that a strong northerly to north-easterly wind blows along the track.

Strong thermals over this very large area are already kind of exceptional in Europe, but it is the strong wind that is the key to this type of straight distance flights. As swimming downstream of a river requires much less effort than swimming against the stream, tailwind makes makes a glider flight much easier as well. The wind component is thus the welcome and necessary bonus that makes this flight possible.

Hans-Werner Grosse's flight did not stand in a vacuum. In the 1960 until 1980s, many of this kind of flights were attempted, using the same exceptional weather pattern. In that era German (Hans-Werner Grosse - 1460km with ASW12, and others), Belgian (Nico Bertels - 658km with a Ka8; Michel

Bluekens – 642,5km with an ASW15) and Dutch (Daan Paré, 762km with Std. Cirrus) national straight distance records were flown this way. Many of these records are still in place.

On 23 April 1976, my father, Bert Sen. Schmelzer, as a young pilot flew his first 500km using this weather (560km to Issoudun in a Phöbus), while his brother, Oliver Schmelzer, flew 460km along the same track. A local newspaper in Viersen (the German hometown of our family and aeroclub) published an article called: “Die 1000km-Brüder”.

However, in the 80’s the tradition of straight long-distance flights to the south-west got lost. Expanding controlled airspace (and most likely also time, effort and logistical considerations), made it very difficult to fly the distance to the far south. Willem Elsschot comes here to mind: “Between dream and reality, are laws in the way, and practical objections.”

The reminiscence of the golden era, especially of the flight of Lübeck to Biarritz, was lingering in many minds. I know for a fact that many cross country glider pilots in our regions kept dreaming to, one day, fly to the Spanish border (or beyond, more on that later). I am one of them, and a flight like this has been lying on a mental and SeeYou shelve for quite a few years now, waiting for the right opportunity.

Four developments have improved this situation, and make these flights possible again:

- The new Mode-S Transponder- technology became available for gliders, which opened up the possibility to fly through controlled airspace. An increasing amount of gliders in our region are now becoming equipped with this.
- GPS with moving maps made navigation a non-issue.
- Weather forecasts and software tailored to glider pilots make it very easy to plan the flight track up to high precision, with little effort.
- Cellphones and mobile internet help tremendously in flight planning, and, extremely important, the retrieve.

*For all interested, I suggest reading the flight report of Hans-Werner Grosse from his legendary flight. I’ve re-read it this morning in the book of Erik Berg, “Segelflieger, Erlebnisse aus aller Welt”.*

## Weather: Friday 13.04.2012

Friday evening, I logged into Wetter-Jetzt (meteorological website for glider pilots), and wanted to check the weather for the weekend. Nothing too exciting, apart from a potential, but unlikely flight to Groningen in the north of the Netherlands. A bit disappointed I clicked on the long-term forecast for Monday.

“Hey, Germany looks good.”

*blink*

“Hey, France looks good as well.”

*blink*

“Wind blowing strongly from the north-east...”

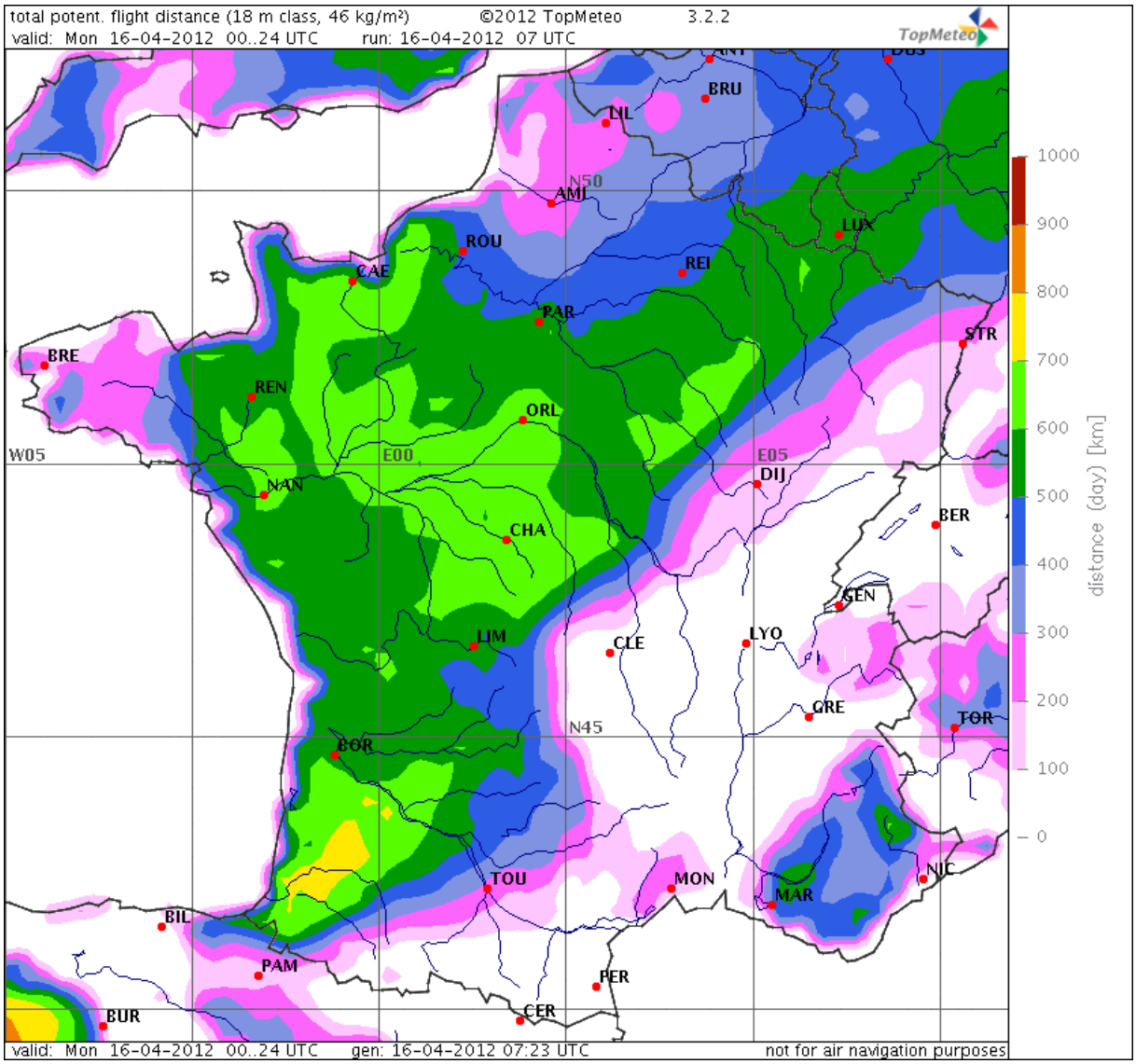
*blink*

“Hmm, I am pretty sure Hans-Werner Grosse had similar weather on his way to Biarritz.”

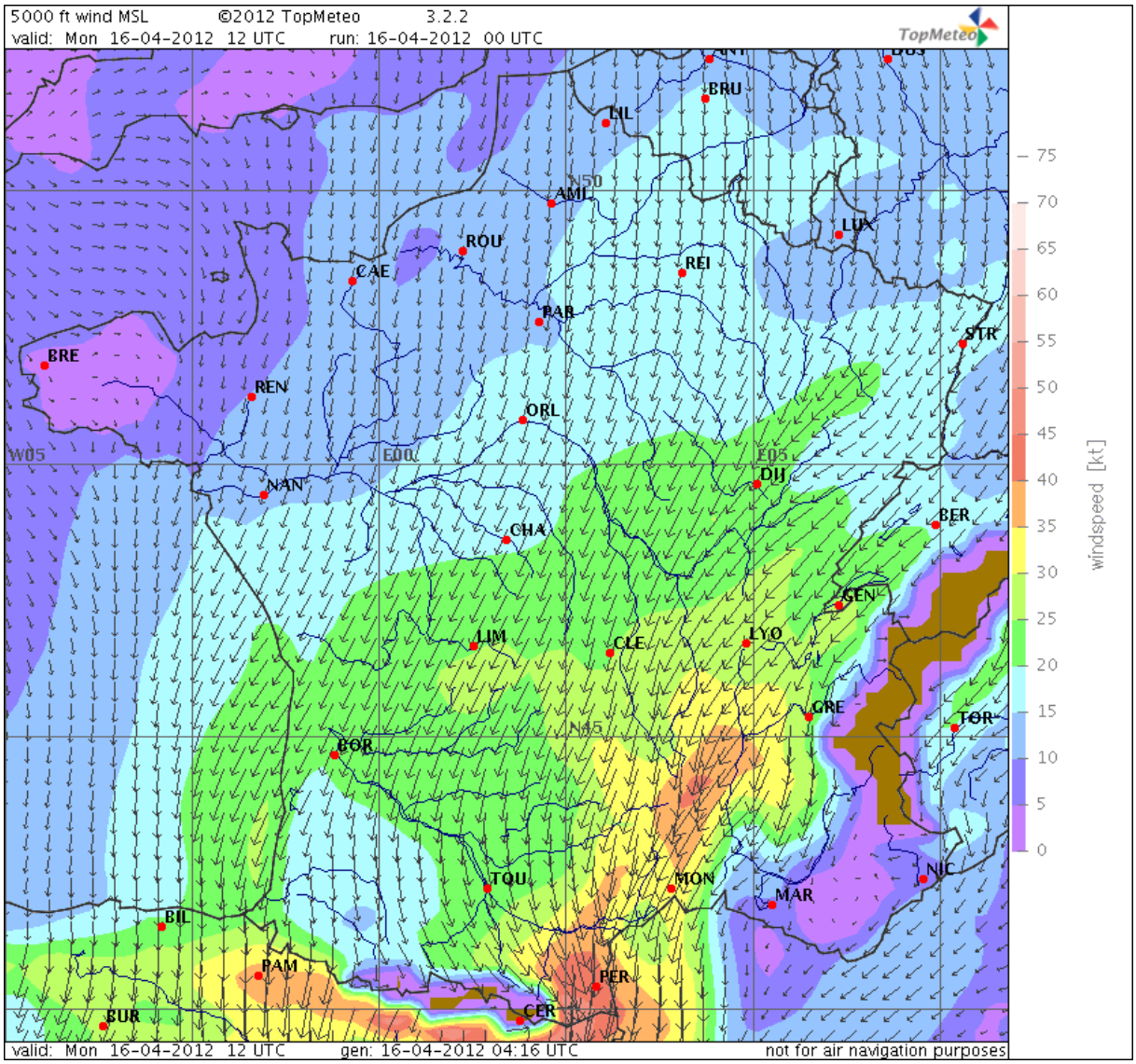
*blink*

“HEY, this is the SAME weather as during the flight of HWG!!!”

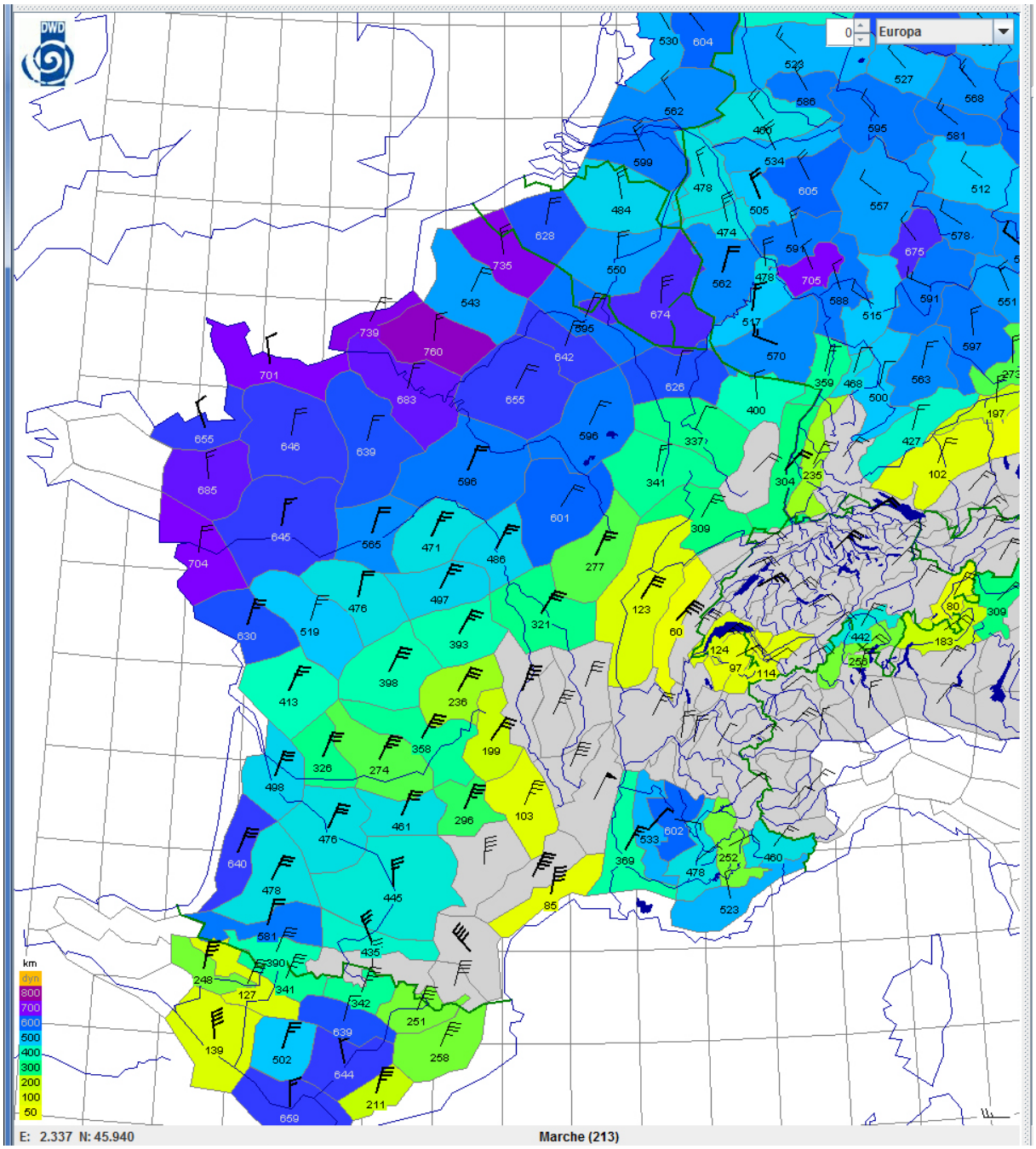
And so the machine was put into motion…



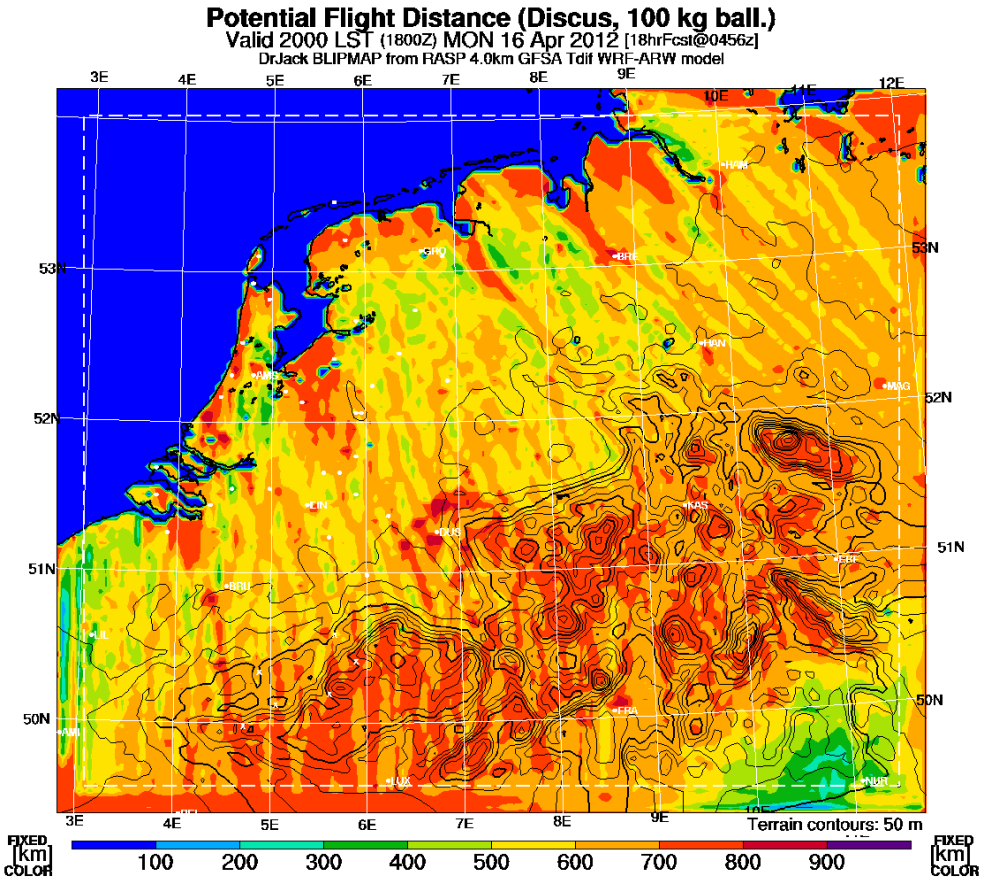

*Potential Flight Distance forecast from TopMeteo/Wetter-Jetzt for the task area.*

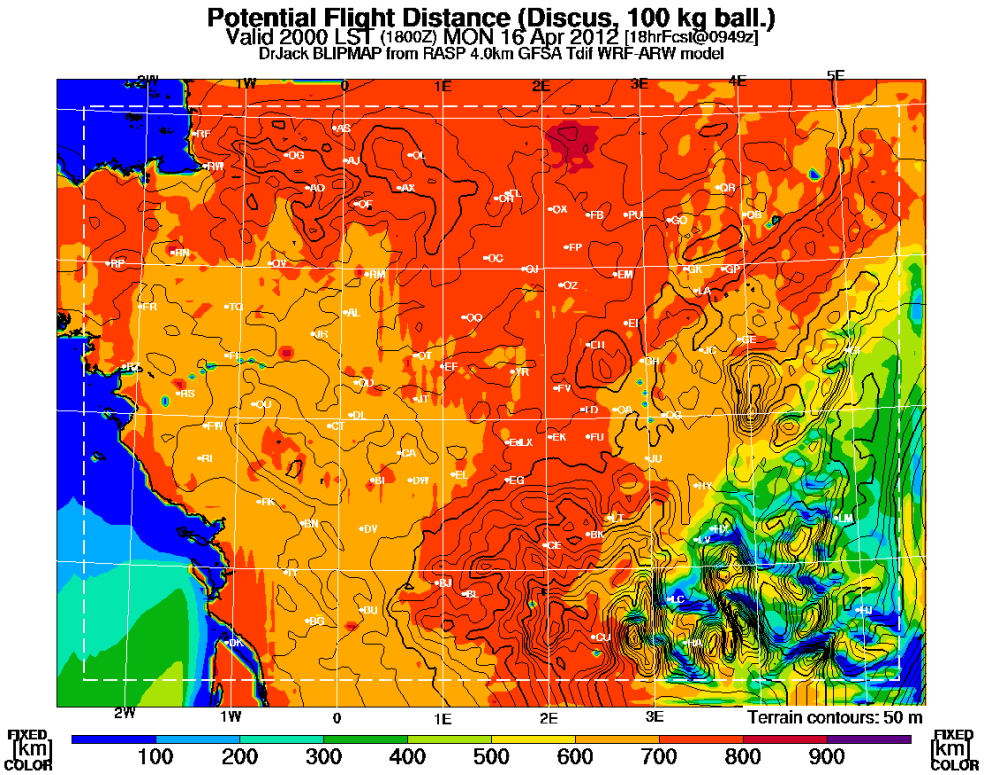



*Wind forecast of TopMeteo/Wetter-Jetzt*

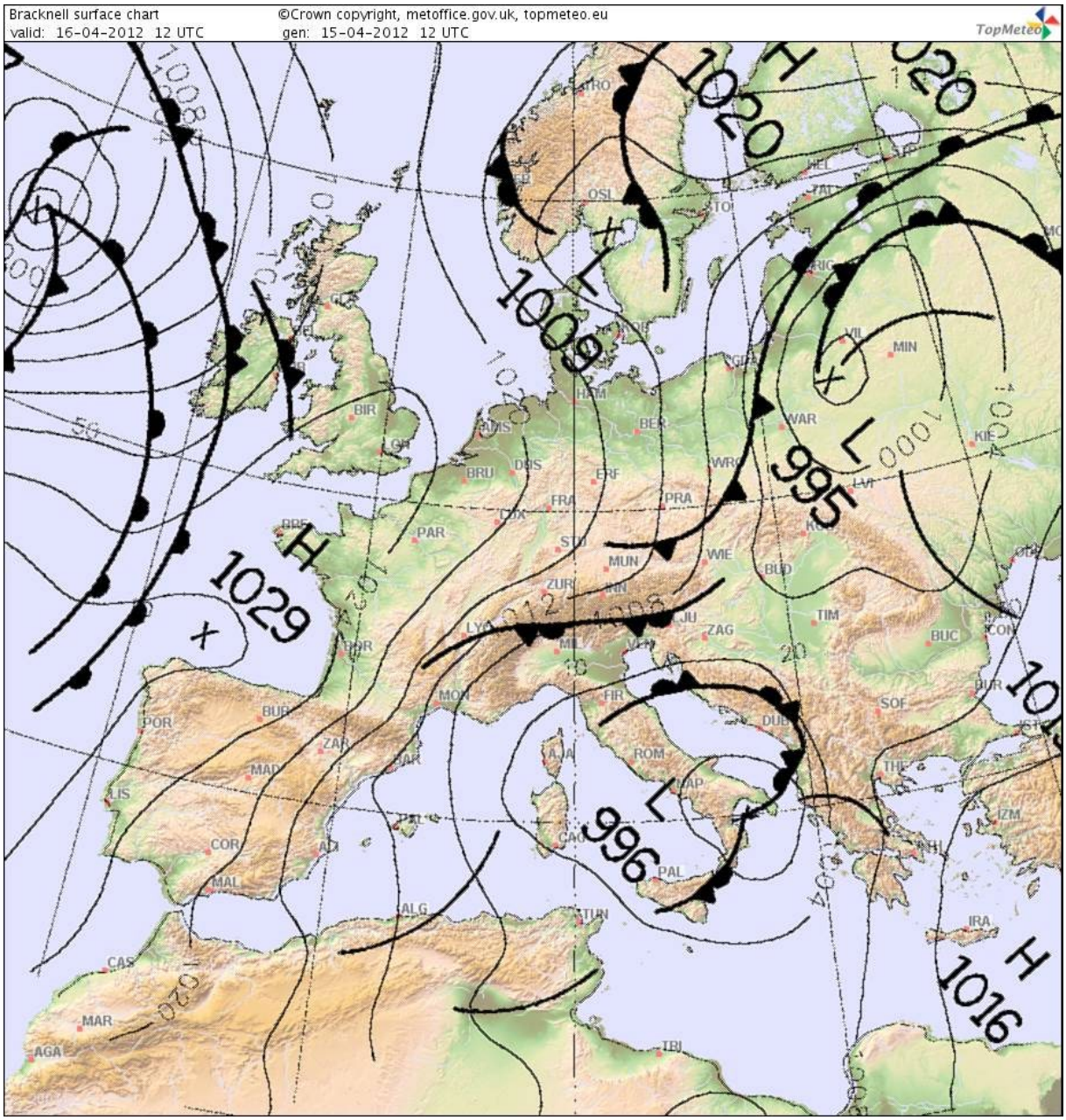



*Potential Flight Distance forecast from PC_Met for the task area. I suspect that the low PFD in the south west of France is due to the algorithm automatically reducing PFD with a factor linked to high wind speeds.*




*And RASP agrees as well…*




*Forecast of isobars (pressure) on ground and frontal systems. Almost too perfect.*

## Preparations: 14.04 and 15.04: A busy weekend

Completing this flight is not only about flying the task. It is like a chain with many links. One missing, and it all falls apart.

The most important ones of those links are:

- A team that supports this expedition.
- Excellent weather development.
- A glider with great performance.
- Equipment that performs flawless.
- A decent preparation of airspace and flight planning.

### Gathering the team

After recognizing the weather pattern, I talked to my mother and father, who I planned on joining to the airfield that weekend. As they were reminded of my dads' flight to Issoudun 36 years before, they immediately agreed in helping me out. More than that: they were even more enthusiastic than I was. I could fly my father's glider: a beautiful Ventus 2cxT, perfectly suited for the job. My mother cleared her schedule for Monday and Tuesday. She would help me in the air on Monday, get into the car with a trailer behind her, and pick me up in the South. An effort a lot bigger than mine.

My brother, who lives in Zürich, Switzerland, was called as well, and he started analyzing the weather, confirming my expectations, and hinting towards the right departure time. He also agreed in becoming HQ during the flight, following my every move via SPOT (a satellite based system for tracking), informing my nail-biting father in Antwerp, and coordinating with my mother who was on her way to the South with the trailer.

Last struggle was to get into the air. I called glider instructor and tow-pilot of our aeroclub, Jos Gielen, who said: "Sure", to my strange request for an unusual early aerotow.

With the team assembled, preparations could begin.

### Preparing the glider

As the glider is in mint condition, and was already prepared for the Belgian Nationals 2 weeks later, the glider, equipment and trailer didn't need that much work. Checking instruments and engine, rigging on Sunday, throwing on the Jaxida's , checking tire pressure on the trailer and ready. And because my father did most of that work, this was even easier for me.

I did obtain a license for Skydemon on the Ipad, so it could be used as an electronic navigation map. Folding, opening and closing the 5 ICAO maps during the flight would be very unpractical. A good choice, I learned during the flight, because our normal moving maps and flight computers are only suited if you know the details of the airspaces by hard. The only downside is that the Ipad is a bit too large for use in a cockpit.

A daunting task was to find enough anti-freeze for ballasting the glider. Anti-freeze is necessary in such cold weather, as plain water would freeze up inside the tanks. This would change the profile of the wings, and not in a good way ☺. So, we emptied the stocks of 3 gas stations close by our airfield. The staff was very puzzled.

## Flight planning

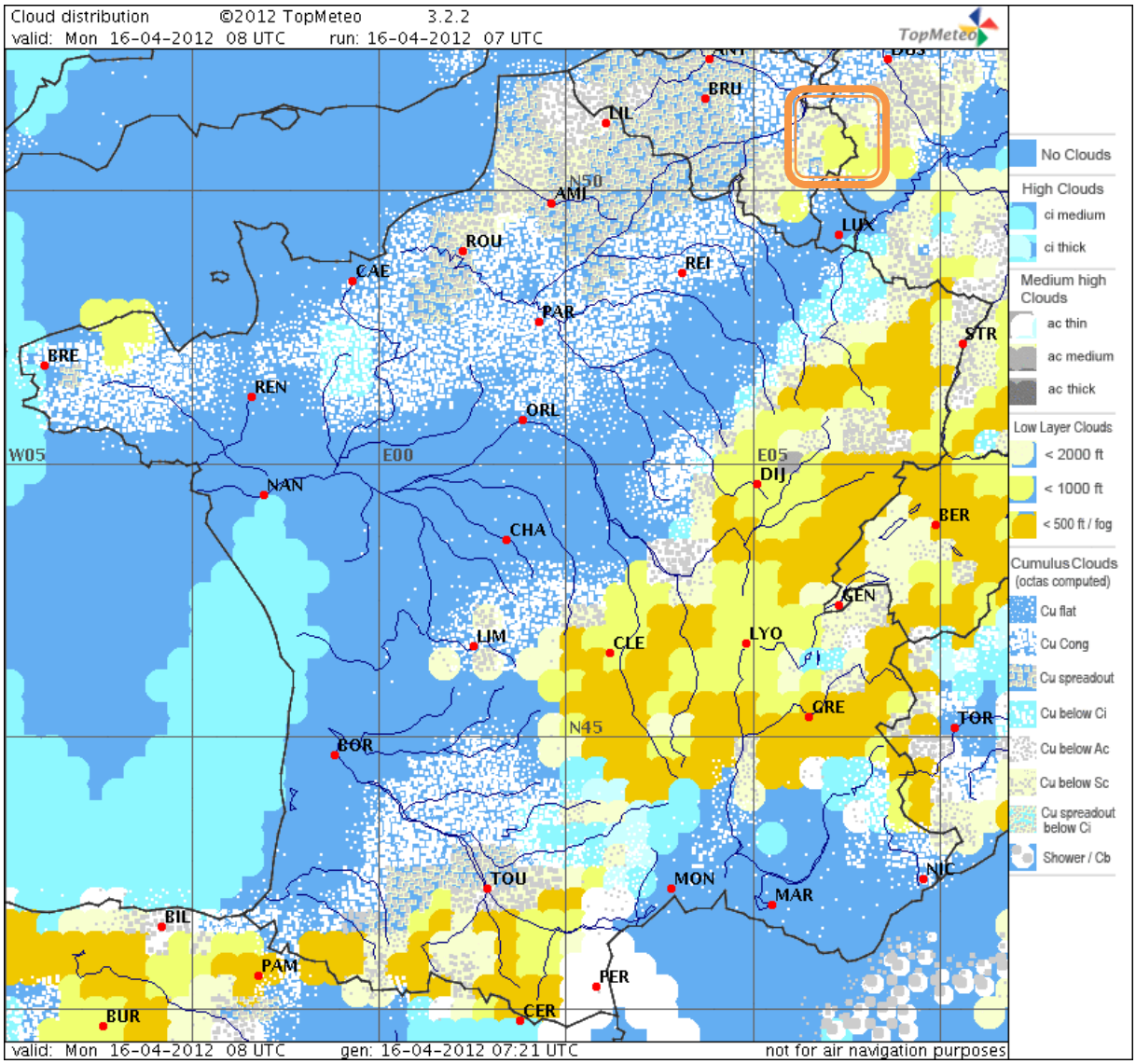
I was a bit afraid of the age-old truism: *Lies, damn lies, and long-term meteorological forecasts.* Luckily the original forecast of Friday remained almost unchanged over the course of the next days. Wetter-Jetzt, PC_Met, RASP and own analysis all were in agreement: this is happening. With each new model run, tension and excitement rose.

One potential and very worrying disturbance was unfortunately also forecasted: the first area around Aachen was going to be challenging in the early morning. Almost impossible. So it could become a very short flight. One of the main reasons not to start shouting from the rooftops that I was heading to Biarritz. However, on the positive side, south of the Pyrenees things where looking very good.

Airspace is a key issue on such a flight. Glider pilots in Belgium know our complicated airspaces by hard, and most will fly without a problem, even without the comfort of GPS and moving map. But, try to explain the LFA Golf system to a foreign pilot in 10 minutes. Surely he will have difficulties to understand how it works. So the issue is not so much in the airspace itself, as in the unfamiliarity with the local circumstances.

What I found out (after 10 hours of looking at maps, browsing the web, reading NOTAMS, and planning the flight) is that, in the weekend, you can fly to Biarritz without entering any controlled airspace. Main reason for that is the disappearance of Reims Aerodrome in Summer 2011 which blocked our way into France (I wasn't familiar with that yet, but it is great news for our Walloon friends and for the Belgian Nationals), and the inactivity of military areas in the weekend. Unfortunately, the flight was only possible on Monday, so it would be a tad more complicated. And unfortunately, the military activity of Reims moved to Mont-de-Marsan, an airforce base just north of the Pyrenees, of which the airspace blocks the way for the record flight. And additional activity means a lower chance for permission to cross the controlled area…

Setting the track was easier. As Keiheuvel is only 970km from the optimal finish point, I needed to put the starting point to the east. Viersen, the hometown of my family and aeroclub, seemed like the perfect place for practical and nostalgic reasons. The finish point was a point on the map between Biarritz and Pau, with the least hindrance of airspace.




*The only worrisome area. Cloud forecast of TopMeteo/Wetter-Jetzt.*

# Keiheuvel-Viersen-Spanish Border-Mimizan, 16.04.2012

### *06:00 Bzzzzzzzzzzzzzzzzzzzzzzzzzzzzzz*

The alarm wakes us up. A cold shower and a hot coffee later, I am checking the latest weather forecasts. No changes from the day-ahead forecast. Awesome, this is happening.

### 07:00 Crap, it is cold.

My mother and me started to take the "2Y" out of its pajamas. Morning dew condensed on the spars, and immediately froze up.

Anti-freeze in the tail and outer wing tanks, and a 2-to-1 mixture with a little water in the inner tanks, loggers and instrument checks. And off towards the runway.

*"Two-Yankee", a Ventus 2cxt eager for a big day*

*My mother and I could use some anti-freeze as well*

### *08:15 The tow pilot arrives*

We start preparing the tug.

"Where are you heading today?", Jos asks me.

"Ehm. South…"

"Oh, into the Eifel?"

" Ehm. A bit further South, hopefully…"

*Ready for take-off at 8:45 on runway 07 of Balen-Keiheuvel.*

### *09:00 Bye bye Keiheuvel*

My mother picks up the wing. Off we go. After a long tow towards the East, I say goodbye to the towplane. From now on, it is in my hands…

I cruise further towards the East, and tiny cumulus clouds start popping up.

I use the engine two times, and slalom through the airspaces towards the start point. I do a couple of circles to get a wind measurement. 20kph from the north. A bit disappointing, but within the expectations. Wind should increase from Reims on.

*With the engine to the startpoint.*

*Cumulus clouds popping up*

### *09:55 The game is on*

Waving goodbye to my grandmother in Viersen, I cross the start line in 1350m MSL. Cumulus clouds everywhere, but cloudbase is low.

Apparently my camera eats battery power in standby as well, and the camera dies. So sadly not many pictures nor movies to document the flight. I'll save the last bit of voltage for a pic after the landing.

The power plant of Weisweiler was planned as the first thermal. However, there is too much moisture in the air, and the whole thermal is condensated up till cloud base. So, it is unusable for this flight.

This is going to be difficult: very low cloudbase, overdevelopments, 0,3 to 0,5m/s climb rates, "zerrissene" thermals because of the strong wind, ascending terrain and a glider 30kg bellow max take-off weight make this some of the most challenging soaring I ever had to go through. I hear later that it started raining in the area about an hour later. In hindsight, I think that I only had a 50% chance of getting through. A coin toss could have ruined the whole effort.

Luckily, the coin landed heads up.

### *11.00 On a highway to France*

After losing too much time in the first hour, the cloudbase starts increasing from Verviers on. A couple of kilometers south-east from the city, I get access to my first cloudstreet of the day. Hah, the fun has begun.

Finally being able to hop upon the higher terrain of the Ardennes, I cruise along swiftly north of Saint Hubert and Bertrix, and get to the French border.

### *12.00 Into unknown territory*

By entering France, I contact ACC Paris and then Seine. I had decided to fly with transponder and radio contact. You never know if you missed a NOTAM or misread a map, especially in an unfamiliar area. The flight information services have me on the radar, and keep me informed of nearby areas.

There is only one other person in the air. A Robinson R44 helicopter with two people onboard is flying from Belgium to a vineyard in the Champagne area. A romantic getaway, I imagine. Judging from the pilot's accent, it weren't Filip and Mathilde.

### *13.00 Catching my breath in la douce France*

After keeping the CTR of Vatry to my left. I have absolute freedom for the next 200km. Only grain, wheat, grapes and canola fields, a couple of nuclear power plants, and some smaller cities like Troyes and Sense. The weather is good, climbs solid, wind speed increasing and my cross country speed as well. I can finally take some time to enjoy the landscape.

My mother is making good progress too, as she has already left the dreaded Boulevard Périferic behind.

### *14.30 Halfway*

500km into the flight, I contact Avord. The military traffic controller is a friendly French lady, who gives me permission to cross the area.

On the frequency I hear: “D-KBBA for Avord.”

I know that glider.

Hubert, a friend from my homefield Keiheuvel, is on vacation in Issoudun. He should have heard my callsign just before as well. We’re not really supposed to talk with each other on this frequency, except when it is necessary.

After a couple more contacts between both of us with the ATC, but not with each other, Hubert’s curiosity wins.

“Bert *(my fathers’ name)*, is that you?”, slips out.

“Nono, it’s Tijl”, I reply quickly.

I pass by Issoudun aerodrome, and think of my dad’s flight a couple of decades ago.

In other good news: The LX7000 switches from -0FL to -9987m. A real motivation boost.

### *15.30 One Belgian record down*

I pass by Limoges. After 683km, and after 17 years, the standing Belgian free-straight-distance record is broken. This former (if my paperwork works out) record was in name of Paul Bourgard, who flew his performance in Australia in a Nimbus 3. The same flight and distance also count for the straight-distance-to-a-goal record. But to break that one, I would need to reach my declared finish point.

The weather is a good, but a bit poorer than expected. No cloudstreets, a wind that is coming from north instead of north-east, and it is a bit weaker than forecasted. Time is on my side, though. And the cloudbase keeps on rising, while thermals are dependable.

### *17.15 The final hurdle*

After passing between Bergerac and Bordeaux, I reach the final obstruction of the day. The military areas of Mont de Marsan are blocking my way to the finish. As I am not certain that I would be allowed to cross all the necessary areas, I anxiously await permission.

I arrive at the border of TMA Marsan 120km out, -90m on the final glide. So close…

Marsan ATC: “D-BY, you are cleared to cross TMA Marsan…”

*YES*

Marsan ATC: "… stay below 5000 feet."

*DAMN*

In Flanders we are often limited to 4500feet or even lower, so 5000 feet sounds generous. However, if you are flying above the Landes, one of the largest forests of Europe, with a low amount of land-out opportunities, you want to remain as high as possible. And surely, being limited to about 900m below cloud base, with long glides between thermals, is not what one would prefer.

As traffic is flying in the skies above me, begging is ineffective. I open the airbrakes. The final glide drops to minus 500m again.

After 10minutes of gliding and getting lower, I enter a 2 meter climb.

"D-BY, traffic has cleared, you are cleared to climb above 5000feet at own discretion."

The final glide gets into the positive rapidly. A nice cloud lineup has formed straight towards the finish. However, it goes through the CTR Marsan, and I haven't received clearance for that airspace yet.

"D-BY, military activity has ceased for today and all Marsan airspace is closed. You can switch to Aic or Bordeaux. Enjoy the rest of your flight."

80km out, 500meter above final glide. It is in the pocket.

### *18:15 A long way from home*

I have more than 2,5 hours of daylight left, but I am 2 hours later than planned at my declared finish point, and the window to Spain has become difficult. It is dark ahead, and the final, ugly, cumulus cloud is positioned 5km before my finish line. I fly careful and try to remain high, but I don't see an opportunity to continue south much further after the finish.

### *18.34 A 1000km Badge, 2 Belgian records, and a flight to remember for a lifetime*

I cross the finish line in 1270m after 1007,7km and 8h39min on task, resulting in an average speed of 116,5kph.

### *18.35 Back to home*

I turn to the north for the first time today, and decide on which alternate airport to fly to. I should be able to reach Mimizan Aerodrome, close to the beach town that is known for surfers and beach parties. It is perfect: a 1000m long concrete runway, temperature is 12°C higher than further inland, presumably lots of hotels in town and next to the highway my mother is coming from.

I use the engine to get out of the dead area. Closer to the coast, there is still quite a bit of thermal activity. I enjoy the glide to Mimizan with a marvelous view over the Atlantic Ocean.

### *19:45 Touchdown*

I don't understand why anyone would build a runway parallel to the coastline. Especially one with a concrete runway of only 20m width, and very expensive landing lights on both sides. The 25kph crosswind necessitates a precision landing to get the 18m span Ventus safely on the ground.

Local skydivers (and a tow pilot from Saint Hubert) help me out of the runway. They are incredulous of my field of take-off. After a beer and chat in the evening sun, my mother arrives less than 1,5 hour after landing.

*2Y, safe and sound on Mimizan Aerodrome after its and my 1st 1000km.*

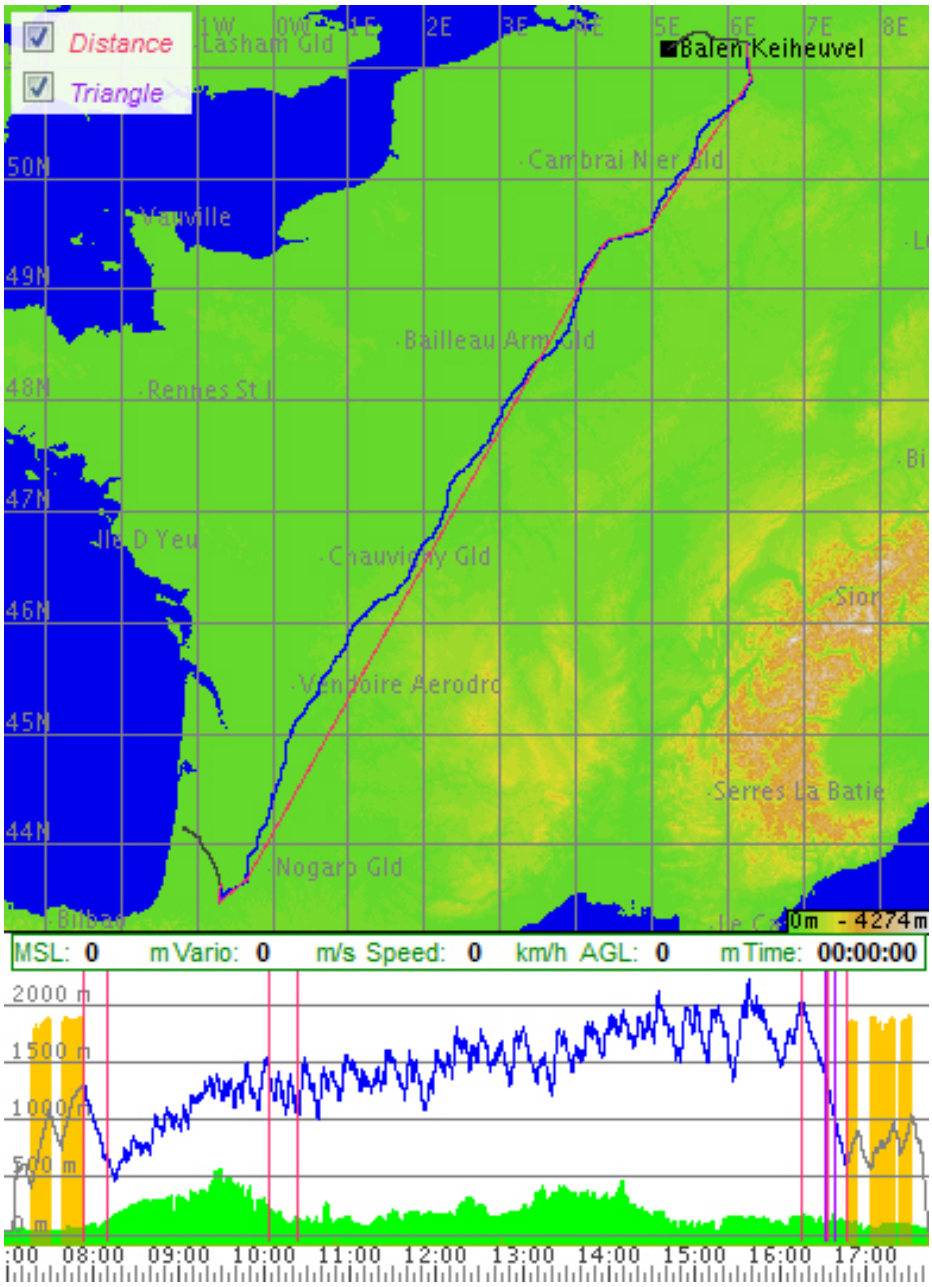
### *22.30 A small celebration and a good bed*

We check into a hotel, have one quick celebration drink in Mimizan Plages and rush back to put the flight on OLC. Yes, biggest flight of the day worldwide.

All the time I have to answer phone calls and texts non-stop. Facebook explodes. Thank you all, for your kind words.

After a long day we finally fall asleep, tired, but very content.


*2Y and me (a bit too smug)*




*Flight track and barograph of the flight. @onlinecontest.org*

**Pilot:**

Keiheuvel-Viersen-Biarritz-Mimisan

What a day. Inspired by the legendary flight of Hans Werner Grosse 40 years ago.

Many thanks to Jos Gielen for the early tow, all ATCs along the way, my brother for HQ in Switzerland, my father for the beautiful glider, and most off all my mother for the assistance and very long retrieve.

Transponder through all TMZs and in France until the end of the flight. ATC clearances: Paris, Seine, Avord, Limoges, Acquitaine, Aic, Mont de Mars, Bordeaux

## Flight evaluation

Looking back at the flight, it was good, but there is off course room for improvement. Several issues had a negative impact on the average speed:

- The first hour and a half was difficult, and went rather slow. I took me 30minutes more than planned.
- The wind was a bit weaker than expected. Most of the time it was between 25 and 35kph.
- The wind came more from the north than north-east during some parts. Therefore the tailwind-component was less than hoped for. I estimate that the average component was about 20-25kph over the whole flight.
- The clouds did line up, but didn't really develop into massive cloudstreets.
- I expected climbrates to be a bit better. I had only 1.6m/s on average. And 1.8m/s without the first hour and last two climbs.
- For the 1000km badge, and the Belgian records, time was on my side. Because these were my priorities, I thus flew with a very conservative risk profile, resulting in lower than possible XC speeds.
- Because of airspace, radio communication and track planning, flying and navigating were the priorities. Soaring and gliding came secondary. This resulted in thermaling on autopilot, non-optimal use of energy lines, and so on.

Flying a task like this in a doubleseater would alleviate some of these problems, as you can separate responsibilities, and both pilots can be more focused on their specific tasks.

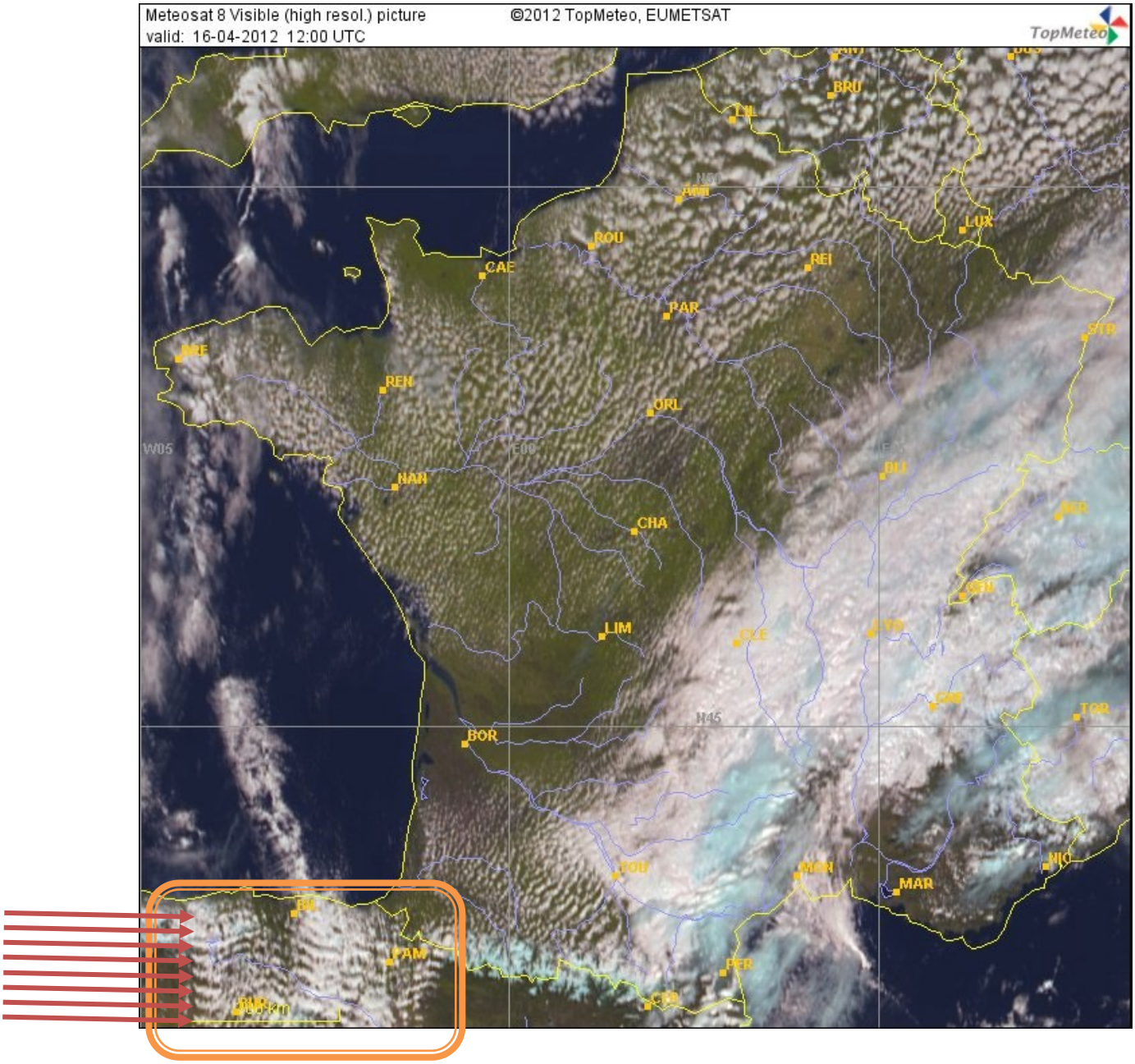
Other things went well:

- I did make it through the first area, the main concern of the flight.
- I didn't make any real big mistakes.
- The meteo forecast was good, and everything went to plan rather well.

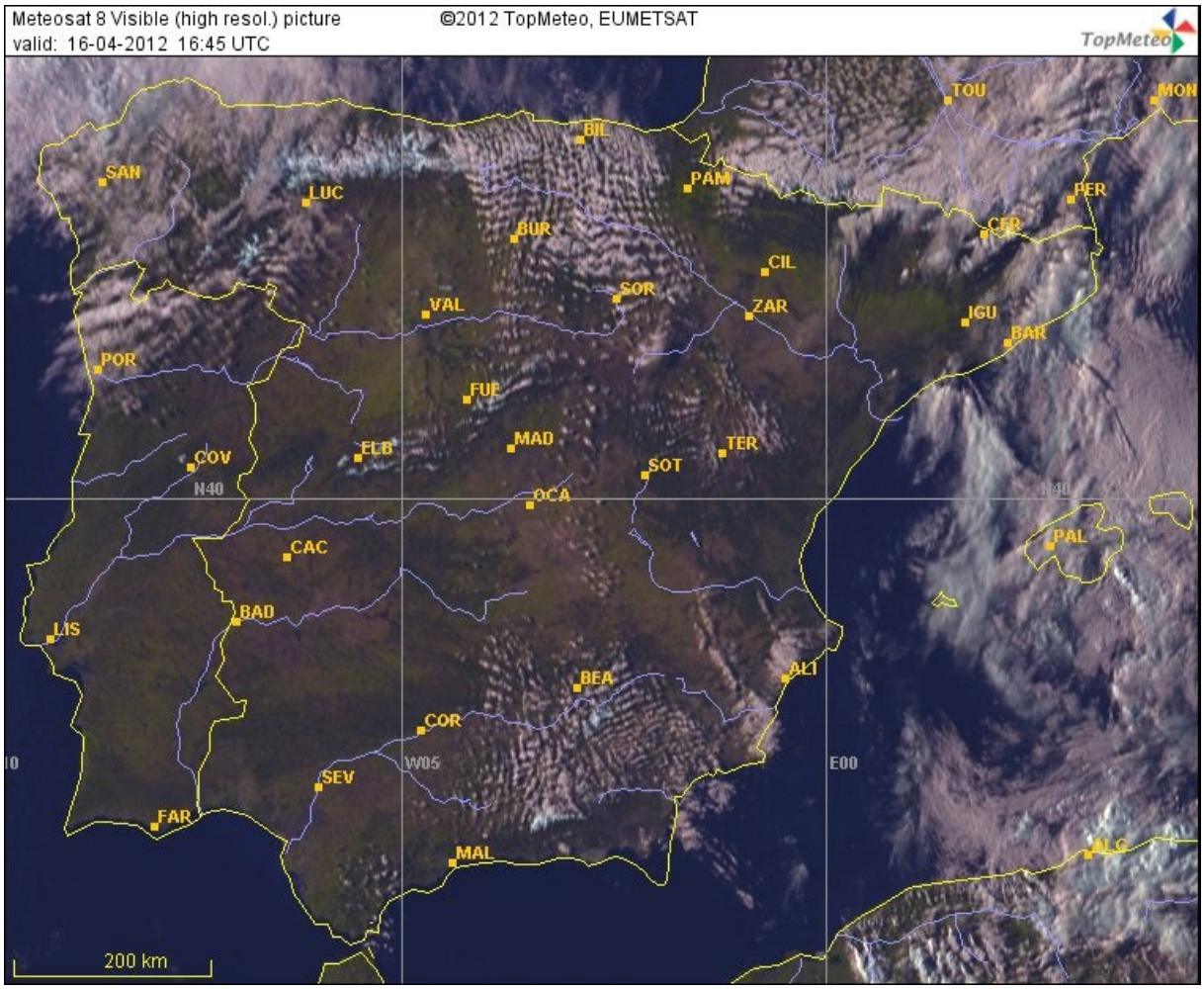
I expected to arrive in Biarritz at 16.30-16.45. This would have given me 4,5 hours extra of flight time. At that time, the window across the Pyrenees should still have been easier to fly through. At my finish time, I still had more than 2,5 hours before sunset+30min. But, as seen from my point of view, the window was difficult to impossible.

## Beyond Biarritz

A picture says more than a 1000 words:



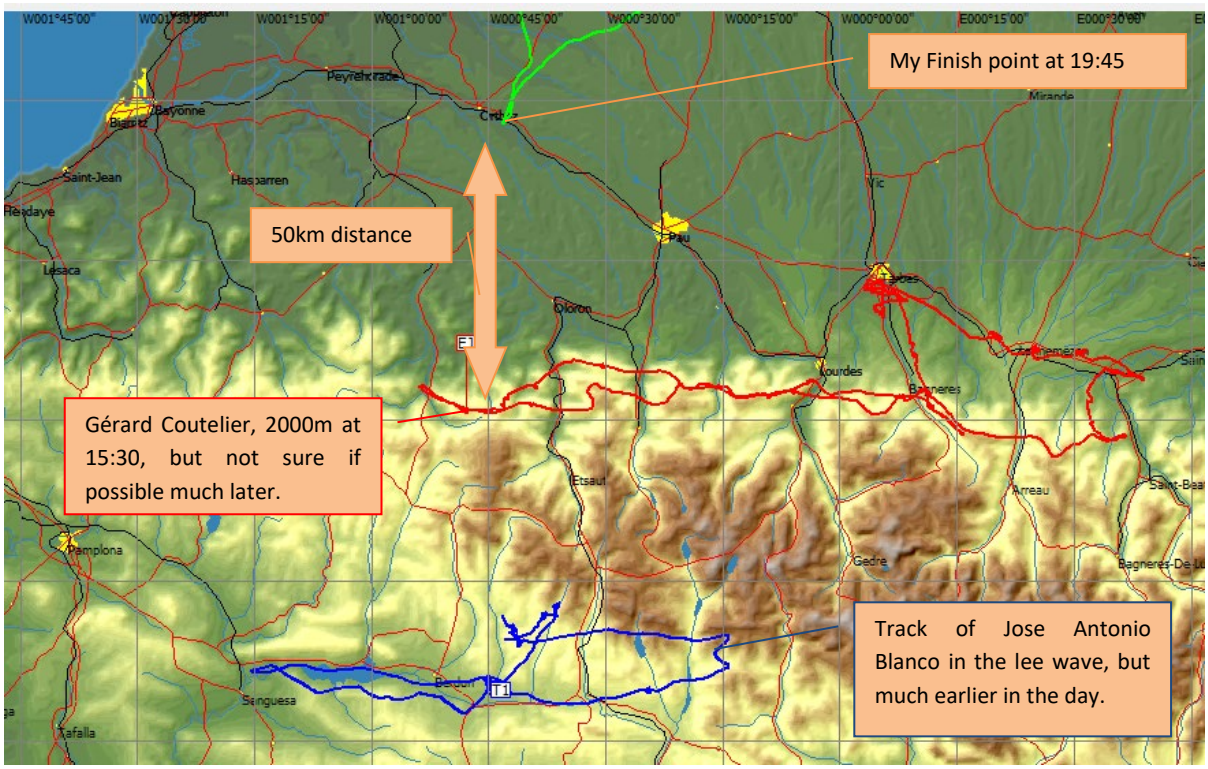

*8 lines of lee wave fit on the satellite picture. But this is just a teaser. Take a look at the picture on the next page. (pic@TopMeteo)*




*Wave, almost until Madrid at 18h45. My finish time. Just incredible. The movie of the whole day is even more impressive (picture@TopMeteo).*

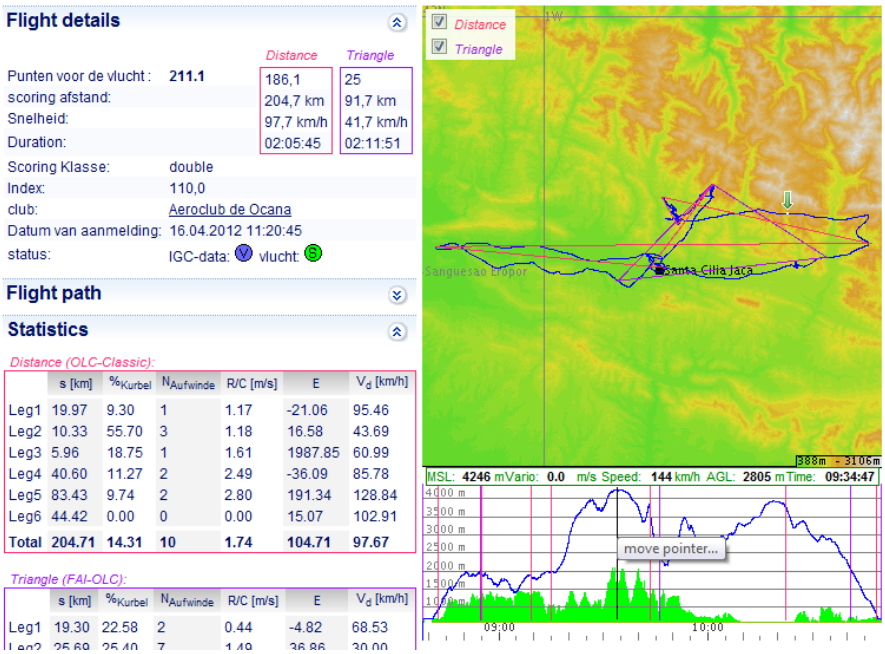
My flight planning didn't stop at the Spanish border. I had plans to cross the Pyrenees, either get into the wave, or go on in thermals afterwards. The weather was going to be good in almost all parts of Spain. So I set up two alternative tracks, one east, and one west of Madrid. East would be better for wind and airspace constrictions. West would be better for wave potential, mountain ranges and track continuation.

Making the hop over even the low part of the Pyrenees seemed to be difficult from my point of view at the finish line. Now, looking at the satellite pictures, perhaps it would have been possible. But me, being unfamiliar with the area and not a wave expert at all, would have had needed a tremendous amount of luck to make it through. The high wind speeds make it tricky, and collaboration with local glider pilots would have been very helpful in learning the tricks of the area.




*Flight tracks of Gérard Coutelier, Jose Antonio Blanco and me on 16.04.2012. @SeeYou, Onlinecontest.org and Netrcoupe.net*

If you could cross the mountain range, you could get into the Lee wave on the other side. Take a look at the flight Jose Antonio Blanco from Santa Cilia in the morning of the day of my flight (posted on onlinecontest.org). The vario goes up to 14.8m/s.



**Flight details**

| | | Distance | Triangle |
|---|---|---|---|
| Punten voor de vlucht: | 211.1 | 186,1 | 25 |
| scoring afstand: | | 204,7 km | 91,7 km |
| Snelheid: | | 97,7 km/h | 41,7 km/h |
| Duration: | | 02:05:45 | 02:11:51 |
| Scoring Klasse: | double | | |
| Index: | 110,0 | | |
| club: | Aeroclub de Ocana | | |
| Datum van aanmelding: | 16.04.2012 11:20:45 | | |
| status: | IGC-data: V vlucht: S | | |

**Flight path**

**Statistics**

*Distance (OLC-Classic):*

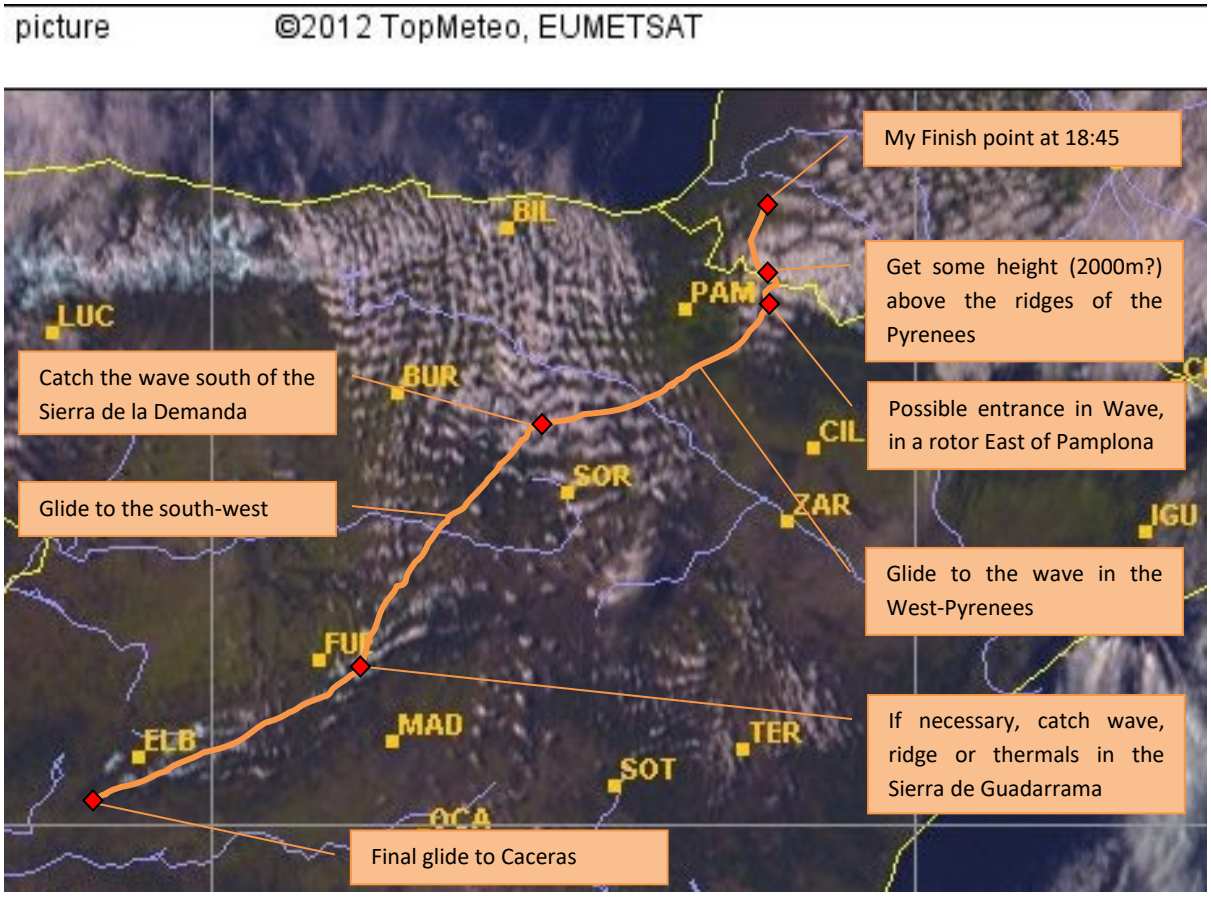
| | s [km] | %Kurbel | NAufwinde | R/C [m/s] | E | Vd [km/h] |
|---|---|---|---|---|---|---|
| Leg1 | 19.97 | 9.30 | 1 | 1.17 | -21.06 | 95.46 |
| Leg2 | 10.33 | 55.70 | 3 | 1.18 | 16.58 | 43.69 |
| Leg3 | 5.96 | 18.75 | 1 | 1.61 | 1987.85 | 60.99 |
| Leg4 | 40.60 | 11.27 | 2 | 2.49 | -36.09 | 85.78 |
| Leg5 | 83.43 | 9.74 | 2 | 2.80 | 191.34 | 128.84 |
| Leg6 | 44.42 | 0.00 | 0 | 0.00 | 15.07 | 102.91 |
| **Total** | **204.71** | **14.31** | **10** | **1.74** | **104.71** | **97.67** |

*Triangle (FAI-OLC):*

| | s [km] | %Kurbel | NAufwinde | R/C [m/s] | E | Vd [km/h] |
|---|---|---|---|---|---|---|
| Leg1 | 19.30 | 22.58 | 2 | 0.44 | -4.82 | 68.53 |



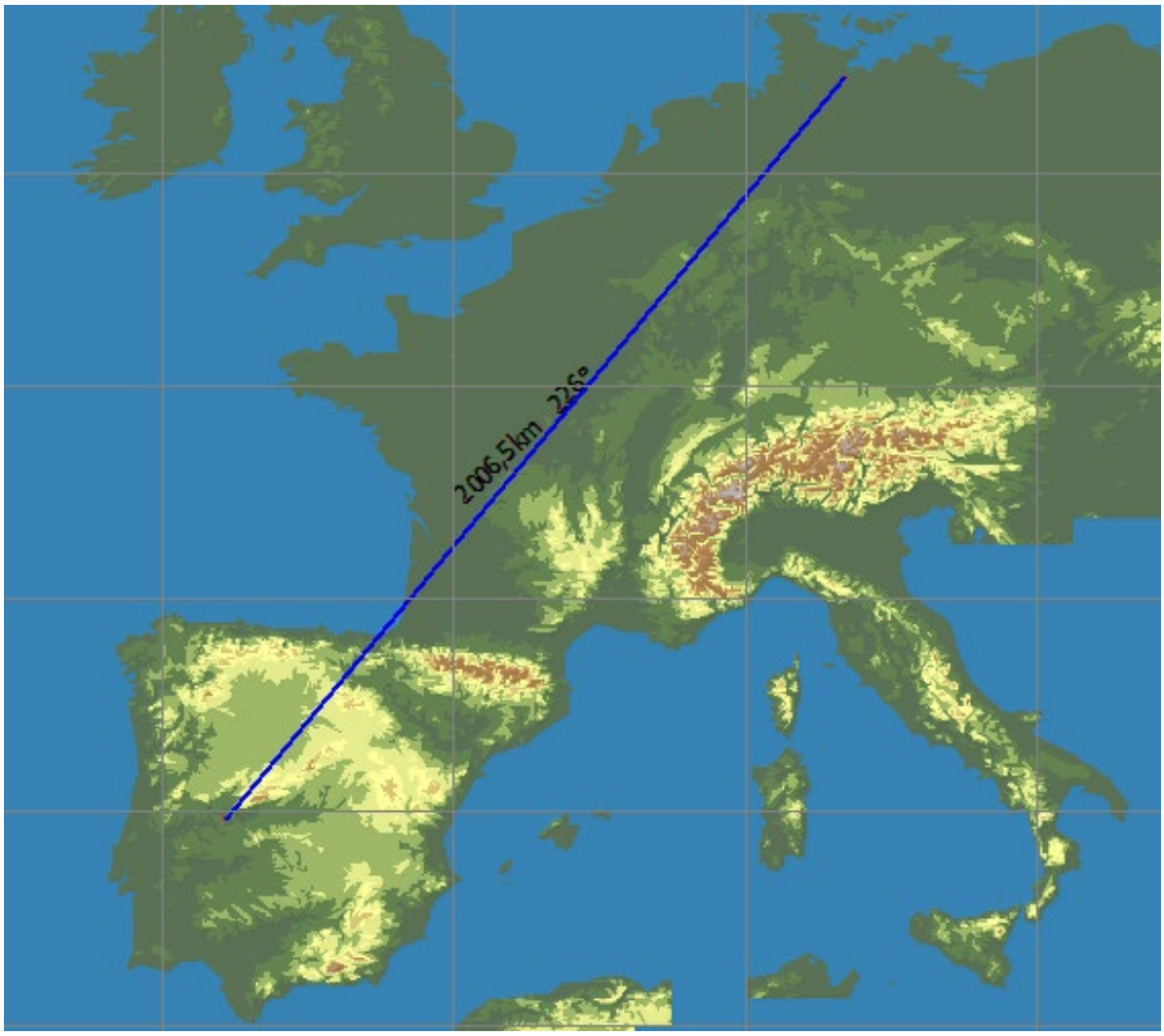
*Flight track of Jose Antonio Blanco on 16.04.2012, close to Pamplona. @Onlinecontest.org*




*Potentially possible route from the Pyrenees to the south-west, overlay on satellite picture of 18:45 @TopMeteo*

With this in mind, imagine the following flight:

- A Quintus or EB29 with maximum load is the workhorse.
- Start at Lübeck around 8:45.
- Average speed of 155kph until the Spanish border (the 1460km record flight was with 125kph in an ASW12, with a detour via Angers)
- Get into the wave east of Pamplona around 18:15
- Fly with an angle of 45degrees to the wave-lines to the south-west, hopping to the secondary wave, then to the tertiary wave, and so on.
- Leave the last wave line at max altitude (4000m?)
- Glide to the south of the Sierra de la Demanda. There should be some wave from the West-Pyrenees beforehand as well.
- If you could reach 5000m there, you can glide to El Pino or Caceres, and complete the flight. Otherwise, you need an additional climb above the Sierra de Guadarrama.



*Lübeck-Caceres @SeeYou*

Perhaps, someday, someone will complete Lübeck-Caceres. And the north-easterly wind in April could thus be the key to breaking through the 2000km straight distance in Europe. Perhaps it is impossible, but, consider, someone did already three quarters of that distance 40 years ago.

## Final thoughts

I would like to thank my mother, father and brother for their support and help. Without them, it would not nearly have been possible.

Thank you Jos for the early tow. Also thanks also to the air traffic controllers along the way.

Thank you all that sent me the many nice messages over the course of the past few days. I really appreciate it.