free.aero

WORLDWIDE PARAGLIDING AND PARAMOTORING MAGAZINE. FOR FREE.



Photo: Felix Woelk

COMPETITION



Photo: Jerôme Maupoint

15° FAI Paragliding Word Championship



Come and experience beauty!

15th FAI PARAGLIDING WORLD CHAMPIONSHIP 2017 MONTE AVENA-ITALY

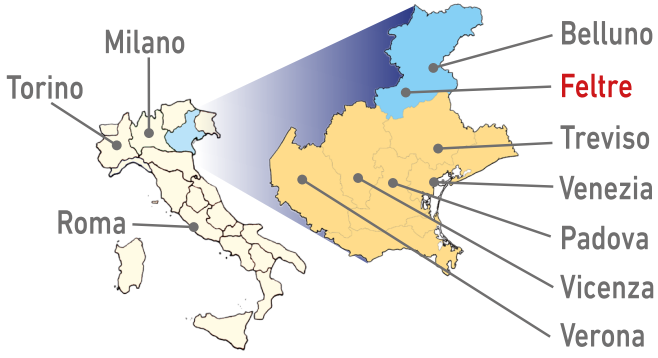
July 1-15

Feltre - Belluno - Italy

01/02 July: free flight and outdoor sports exhibition
02 July: opening ceremony & parade
03 July: start of contest flying days
15 July: prize-giving & closing ceremony

13 days of competition, 150 pilots,
5.000 sq km of flying area in a very unique location

#monteavena2017
www.monteavena2017.org



Enjoy sport and much more

- excursions in the National Park Dolomiti Bellunesi
- guided tours of castles, museums and historic centres
- music nights
- tasting menus of traditional food
- shuttles, bike rental
- tourist card

More info: www.dolomitiprealpi.it

FAI
AERO CLUB D'ITALIA
alpenplus by KIWI sports
Superfly360
dolomiti prealpi



The X-Alps will once again have pilots the world over sitting on the edge of their seats. On our cover, a glimpse from the last race, photographed by Felix Wölk in the Dolomites.



Two Gin Carves in a slalom, photographed by Jérôme Maupoint. The details of this wing haven't been revealed yet.

Competitions, in their current format, still don't generate much interest from leisure pilots, except for the X-Alps. However, as you can see from this edition, numerous interesting technology such as the reduction in lines on all modern wings, or the efficient live tracking available to everyone, have mainly been developed thanks to competitions...

CONTENTS

Translation by Ruth Jessop

Ultra light glider championships	p 5
Ozone Ozium 2	p 6
Niviuk Dobermann 2	p 7
Back to Grand-bo	p 9
Pioupiou everywhere	p 10
Mike Küng : Challenge	p 11
X-Alps : Chrigel x 5 ?	p 13
Skywalk : X-Alps3	p 16
Information: X-Alps 2017	p 19
XC-Tracer @ X-Alps	p 22
Flymaster Tracker	p 23
World Championship at Monte Avena	p 27
The PWC in Serbia	p 33
The new racing machines	p 34
Three liners versus two liners	p 37
Four liners	p 41
BGD Diva	p 44
AirDesign : Hero	p 46
Test : Skywalk Poison X-Alps	p 48
Test Niviuk Klimber P	p 54
Adventure: new racing wing	p 61
Ozone Viper 4	p 62
Paramotor competition: Popular pylons	p 64
Home-made competitions	p 69
Icarus Trophy 2017	p 70

ZENO by OZONE

WORLD CUP PERFORMANCE, SERIAL CLASS WING



OZONE's Instagram feed is full of great stories from team pilots and stunning images from their adventures. Follow along and get a daily dose of flying inspiration!
instagram.com/ozoneparagliders

WWW.FLYOZONE.COM

photo: **Loren Cox** pilot: **Ric Leblanc**

free.aero MAGAZINE
www.free.aero

CHAMPIONSHIPS
ULTRALIGHT GLIDERS

An interesting look at another flying discipline, which isn't that far from our own favourite sport: from the 24th of July to the 6th of August at the aerodrome at Chevalet at Aspres-sur-Buëch in France, the 20th FAI Ultralight glider, class 2, World Championships will take place. They are real little foot launchable gliders. An example, the Archaeopteryx, can be seen in these two pictures: wingspan 13.6 m, surface 13 m2, stall speed about 32 km/h, maximum speed 130 km/h, weight unloaded 61 kg, all up weight 115-191 kg.

With a glide ratio of around 27, you can easily imagine the XC potential.

www.mondialdepul2017.com/fr/



Archaeopterix



Photo: Ruppert Composite

Archaeopterix

Swift



Photo: Didier Givois

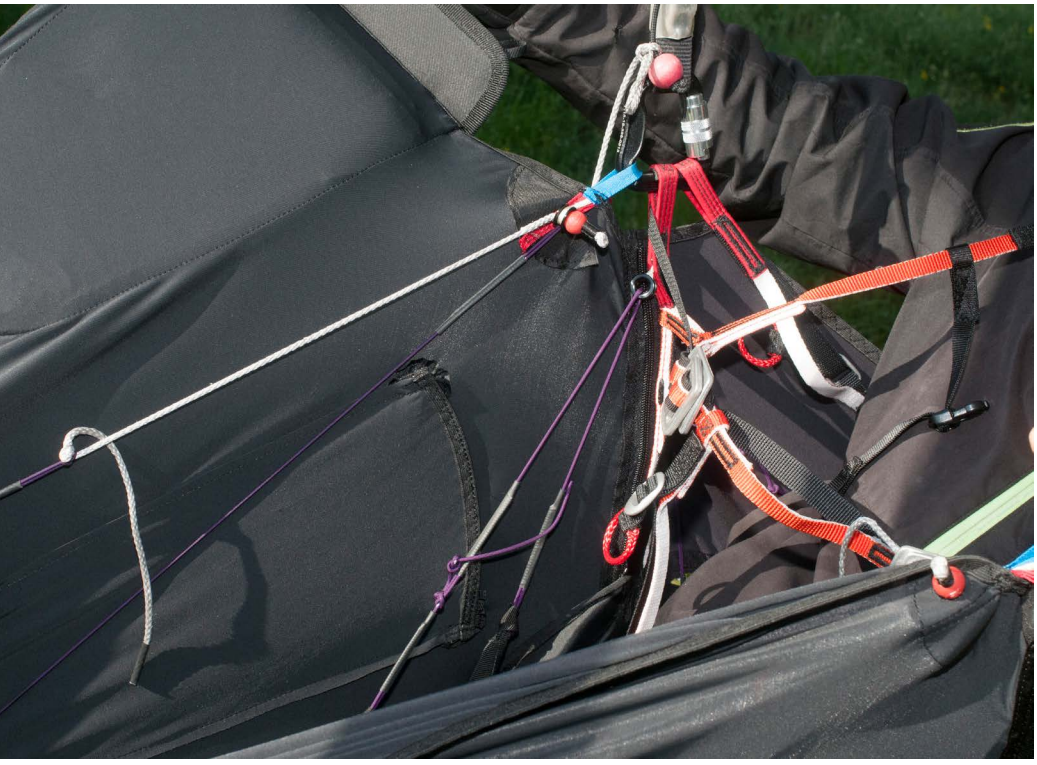
OZONE
OZIUM 2

Ozone have brought out the second version of their lightweight racing harness, still without a seat, the prototypes of which were used in the last X-Alps. The geometry has been revised, the adjustment system improved and the weight has, nonetheless, been reduced by 140g to 2.49 kg for the M. Ozone offer three different types of cocoon, from the lightest in lycra to the warmest in 570/720 fabric. The weight goes from barely 2.49 kg to 2.74 kg in size M.

www.flyozone.com



Free.aero magazine tried one of the last prototypes just before serial production started. We can confirm, amongst other things, that it was very comfortable and easy to adjust.





free.aero MAGAZINE
www.free.aero

NIVIUK
DOBERMANN 2

The Doberman 2, which came out in 2016, is, according to Niviuk, faster, more stable and even more efficient in turns than its predecessor: Niviuk promise a speed turning around pylons which goes up to 60 km/h and 81 km/h maximum speed accessible in only 1.5 seconds. It will be very good for freestyle as well as leisure pilots.

www.niviuk.com

DOBERMANN 2 TECHNICAL DATA

Manufacturer: NIVIUK
Web : http://www.niviuk.com/product.asp?i=eng&id=&prod=JNMQPQF0&news=

DATE	2016					
SIZE	15	16	17	18	19	20
CELLS	60					
FLAT SURFACE AREA [m²]	14,5	16	17	18	19	20
FLAT WINGSPAN [m]	9,25	9,72	10,02	10,31	10,59	10,86
FLAT ASPECT RATIO	5,9	5,9	5,9	5,9	5,9	5,9
ALL UP WEIGHT [kg]	60-95	65-105	70-115	75-125	80-135	85-145
WEIGHT OF THE WING [kg]	3.8	4.1	4.3	4.5	4.65	4.8
CERTIFICATION	EN 926-1 DGAC					

Photo: Juho Puonti/Niviuk





Photo Brooke Whatnall/ Niviuk

free.aero MAGAZINE
www.free.aero

BACK TO GRAND-BO

From the 24th of June to the 1st of July there will be another round of this unique competition. The competitors are free to choose any date within this window and can take off several times. The only rule: take off from Grand Bornand, fly as far as you can and then come back and land in the landing field at Grand Bornand...

http://backtograndbo.com/index.php/fr/





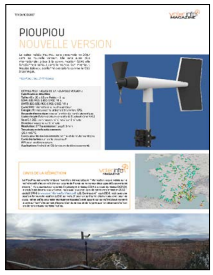
free.aero MAGAZINE
www.free.aero

PIOUPIOU EVERYWHERE

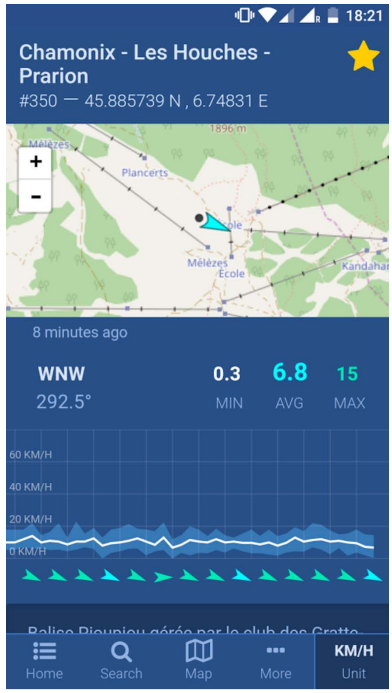
The information from the PiouPiou weather station network is now also available via specialised Android and iOS applications (Apple iPhone, iPad...).

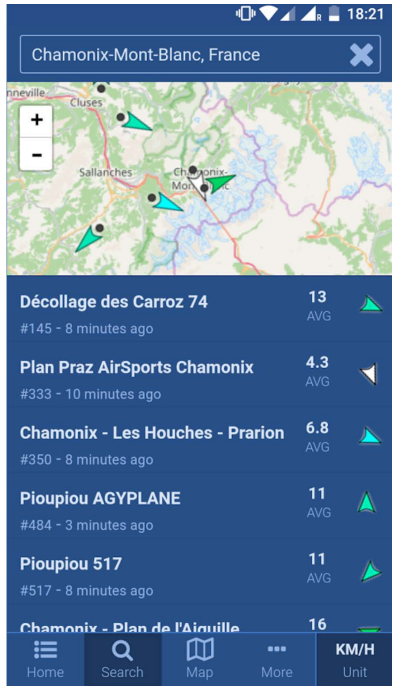
Link to the Android application:
https://play.google.com/store/apps/details?id=tech.altostratus.pioupiou

Link to the IOS application:
https://itunes.apple.com/fr/app/pioupiou-vent-en-direct/id1235894756?mt=8



For more information about the PiouPiou weather stations:
http://www.free.aero/en/contentsHTML/trends2017E/?page=51







CHALLENGE...



OK, so Mike is equipped with a parachute, but it's still a pretty vertiginous stunt...

This too is a challenge that professional pilots like Mike Küng need to overcome: conquer their fears.

Mike Küng is known for exploits such as jumping (with a paraglider) from a hot air balloon from more than 10,000 m, crossing The Channel by paraglider after jumping out of a helicopter and countless amazing acro sequences. However, he did confess that whilst this vertiginous photo was being taken, for example, he still felt a bit apprehensive, despite his wealth of experience and the presence of a parachute.

Yet the manoeuvre, such as it was, flying a paraglider at high altitude, whilst standing in the harness, wasn't rocket science for a pro like him...



Despite all his experience and numerous jumps out of a helicopter and hot air balloon with a paraglider (Record in 2004 : 10,100 m), Mike was quite apprehensive about standing up in his harness.

Now Mike is part of the new company Phi (with Hannes Papesh and Peter Mack). http://www.madmikekueng.com/

free.aero MAGAZINE
www.free.aero

X-ALPS: CHRIGEL X 5?

Chrigel has won the X-Alps four times in a row. Is he on the way to his fifth victory, or will this be the end of his run of wins?



Chrigel in his modified Advance Lightness M harness (1402 g). In the cockpit, his emergency vario, a Stodeus GPSBip, which is solar powered and very light (35 g).

Obviously Chrigel is considered the favourite for the 2017 X-Alps: the speed he covers the ground has always amazed everyone. One of his secrets: 'we noticed straightaway this alien's perfectionism, especially in his preparation. He always knows where to go and where to be, thanks to pertinent analysis', as we wrote in 2013 in our portrait of Chrigel Maurer.

It's very unlikely that he will have lost this faculty, even if during the Born to Fly in June 2017 he only finished 6th, having involuntarily broken a rule following an error in communication.

In any case, for this edition of the X-Alps, Chrigel won't be setting off under the same start conditions: his former supporter, Thomas Theurillat, has left for new horizons; he is now coach for the Swiss ski team. 'There he'll be able to earn money, contrary to working in paragliding', Chrigel said smiling.

As far as that's concerned, you would think that the paragliding manufacturers would be waving their cheque books to equip Chrigel with a wing. But apparently that's not the case: both Chrigel and Skywalk confirmed to free.aero that his move from Advance to Skywalk wasn't accompanied by any financial recompense.

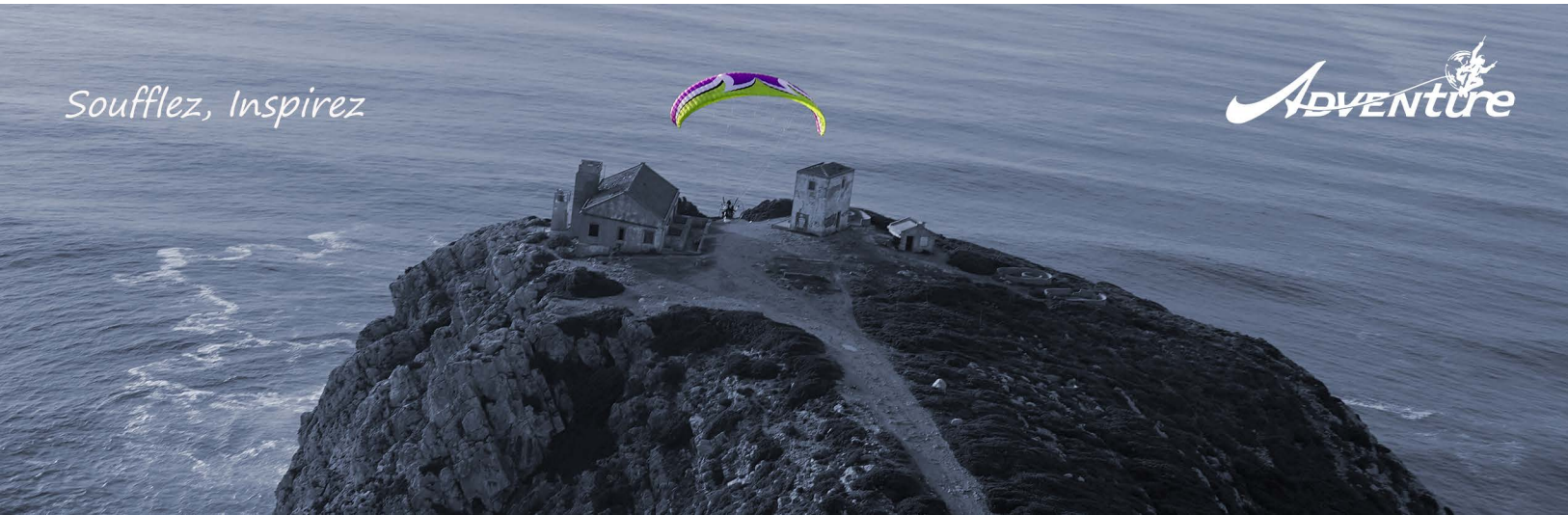
Chrigel: 'The Omega X-Alps 2 arrived too late for my planning. Therefore I decided to go with a Skywalk X-Alps 3'.



Chrigel training in the spring.



Portfolio X-Alps 2015
http://www.free.aero/en/contents/portfolioxalps_E.pdf



free.aero MAGAZINE
www.free.aero

He will, nevertheless, be equipped with a modified Lightness M harness as well as a SQR Companion reserve (Partnership Advance/Mack/Papesh). Another major change (for everyone): the new X-Alps route, with its multiple crossing from one side of the Alps to another, is a lot more difficult. Chrigel had hoped for more turn points in Switzerland where he lives.

Will the changes affect the Chrigel 'winning machine'? We'll have the answer in a few weeks...

WEIGHT OF THE MATERIAL	
Paragliding: Skywalk X-Alps3 S	3 498
Harness: ADVANCE Lightness M (modified)	1 402
Reserve: SQR Light 100 de Companion	970
Bag: ADVANCE Lightbag 60 L	400
Helmet: ICARO X-Alps	410
Instrument: Flymaster LIVE SD	230
Emergency instruments GPSBip	35
Phone: Samsung J5 (Dual-SIM)	155
Total (g)	7 100

The new team with two supporters: Tobias Dimmler (Communications, organisation, photos, social media) and Bruno Petroni (Vehicle, photos, media). They also have a weather consultant and two strategic consultants.



**Chrigel and the new Skywalk X-Alps3.
Photo : Bruno Petroni**



SKYWALK
X-ALPS 3

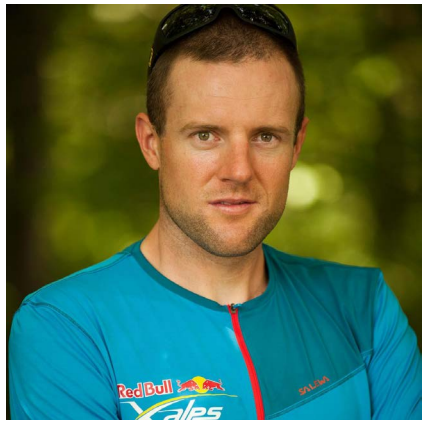
Not to be confused, the different "X-Alps" from Skywalk: There is the Skywalk Poison X-Alps 2 (CCC), which raced in 2015. It was toned down into an EN D serial wing, the Poison X-Alps which we tested in this edition.

In the 2017 X-Alps, we'll see the X-Alps 3 for the first time: eight pilots, including Chrigel Maurer, will be using it. It has kept certain aspects of the X-Alps 2, but Skywalk, have released very few details for the moment.

SKYWALK X-ALPS 3 - TECHNICAL DATA			
Manufacturer: SKYWALK WEB : http://xalps.skywalk.info/equipment-en/			
DATE	2017		
SIZE	XXS	XS	S
FLAT SURFACE AREA [m²]	20,5	21,5	22,4
ALL UP WEIGHT [kg]	65-85	65-90	80-95
WEIGHT OF THE WING [kg]	3,3	3,4	3,5



Skywalk have announced the list of pilots flying the X-Alps 3:



Chrigel Maurer



Simon Oberrauner



Jesse Williams



Paul Guschlbauer



Ferdinand Van Schelven



Stephan Gruber



Manuel Nuebel



Cross Country EN/LTF B+

IKUMA

Back Country

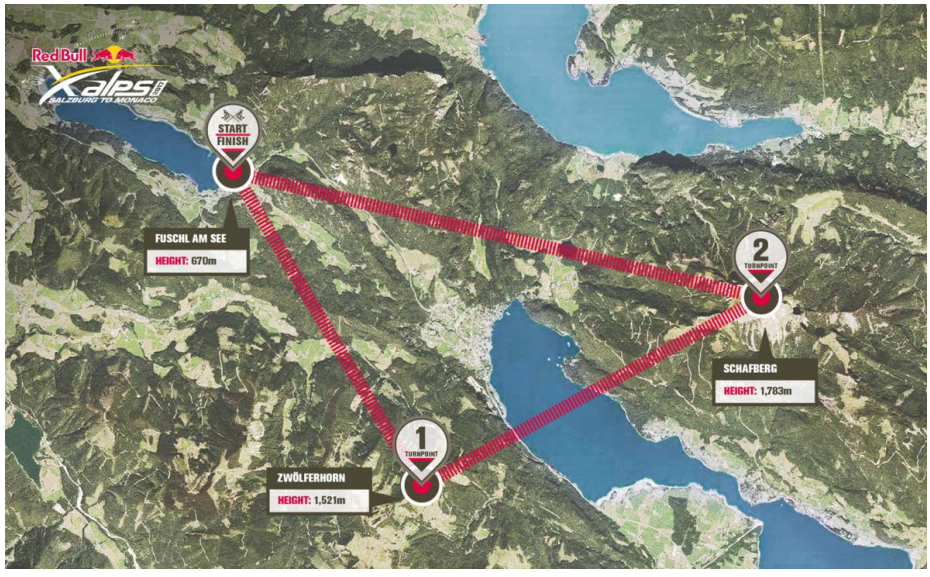
Venture into new territories. Make your own and alternative paths. Get off the road and discover Cross Country flying from a new perspective with the best safety-performance ratio.

niviuk.com

On the 2nd of July 2015: Gaspard Petiot above Schafberg in Austria.
Photo : Felix Wölk.

X-ALPS
PROLOGUE 29TH JUNE 2017

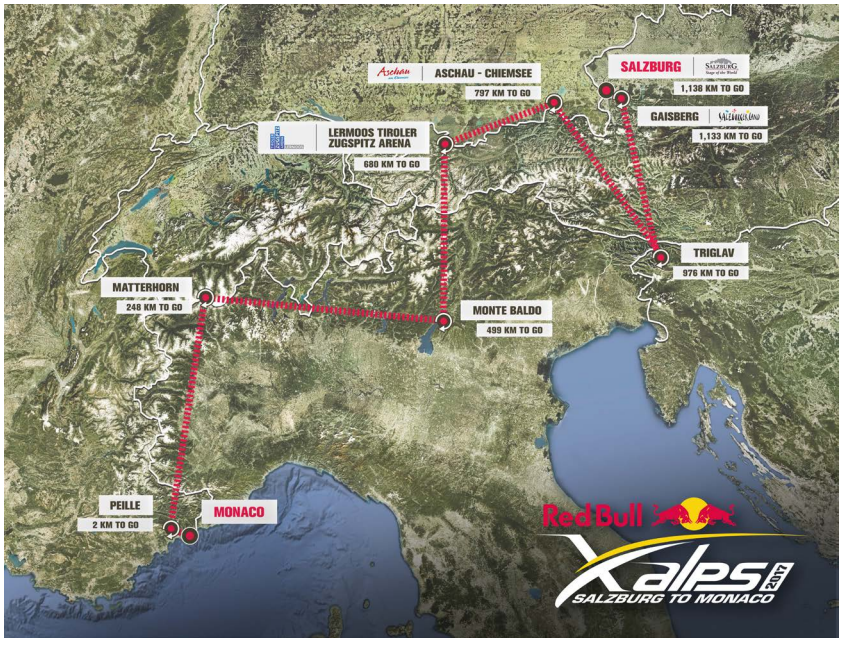
The 2017 X-Alps will start with the Prologue near Salzburg. The winner of this little 'warm up race' will win an extra Night Pass, in other words, the right to walk through the night during the main race.



The 7th of July 2015: Michael Witschi in the Ötztal in Austria. Photo: Sebastian Marko.

X-ALPS
STARTING ON THE 2ND OF JULY 2017

The 2nd of July: the departure from Salzburg, the start of 1138 km across seven different countries. The difficult parts: reaching the turn points in Slovenia and Italy! A completely new zigzag!





14th of July 2015: the arrival of Antoine Girard in Monaco.

THE X-ALPS: THE FINISH IN MID-JULY

On average, taking into account all the past X-Alps, Chrigel Maurer clocked up an average of 110km per day. If the favourite repeats this exploit, he will arrive in Monaco around the 12th or 13th of July. At least he, or someone else, will create a surprise if they arrive even faster... The whole adventure can, as always, be followed on the X-Alps live tracking from the 29th of July:
www.redbullxalps.com

xcontest
World of XC paragliding

XC-TRACER II @ X-ALPS



The XC-Tracer II vario combines the functions of the first XC-Tracer (integrated GPS, Bluetooth communication with a tablet or a smartphone, IGC track recording) with solar power found on the XC-Tracer Mini.

It has a new box, about the size of the XC Tracer 1 (57.5 x 57.5 x 17.5 mm, therefore 2 mm shorter), it still only weighs 60 g, but powers itself. Even without sunlight, it would be autonomous for twenty hours, therefore six hours more than the first version. Price: 295 €.

During the X-Alps 2017, four pilots will be using the XC Tracer II: Tobias Grossrubatscher, Jesse Williams, Claudio Heidel Schemberger and Gavin McGlurg. Gavin has already tested the XC Tracer 1 a lot during his crossing of Alaska (see photo in the test of the Niviuk Klimber in this edition).

In all our tests of the XCTracer 1, we got very good results. We are currently testing the second version, we'll let you know our verdict soon.

We can confirm that its reactions are identical to that of the XC Tracer 1: just as impressive and efficient as far as speed is concerned! The algorithms are the same but, according to the designer Koni Schafroth, as the processing power of the new version is a lot greater, he may further improve the integration of the data from different sensors in a software upgrade to come this summer...

The new version should avoid the false positives that we have sometimes noticed when turning.
https://www.xctracer.com

As a reminder, the XCTracer was the first vario for paragliding to integrate an AHRS system, explained here: http://www.free.aero/en/contentsHTML/instruments-e/?page=53

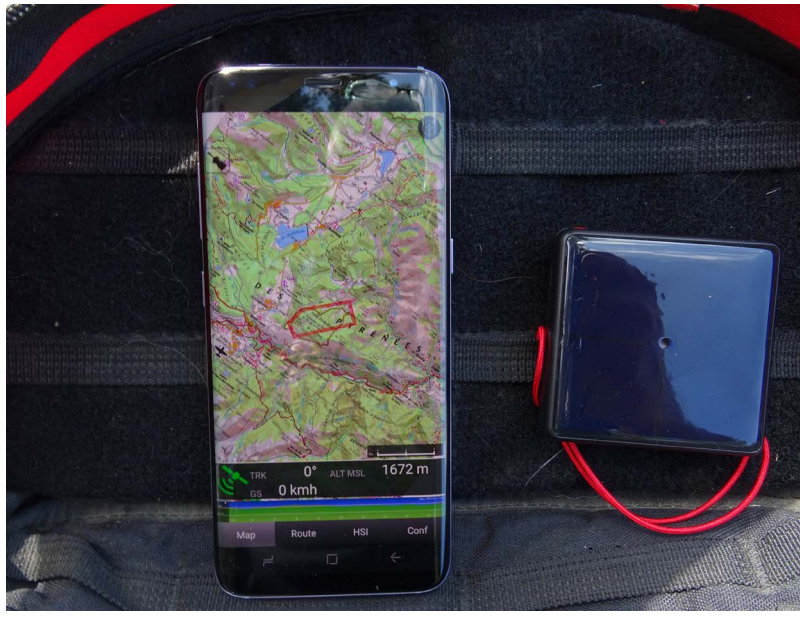


The XC-Tracer II: very similar to the XC-Tracer 1, but with solar in addition. Four pilots in the 2017 X-Alps will be thus equipped.



Photos: Burkhardt/voler.info magazine

A HiTech combination we are testing at free.aero: the Samsung Galaxy S8 with 5.8" lumineux SuperAmoled screen with maximum resolution 2960 x 1440, which uses the whole width of the instrument, including the edges. It is nonetheless narrower than numerous other smartphones. But its legibility in full sunshine is very good. More details coming soon...

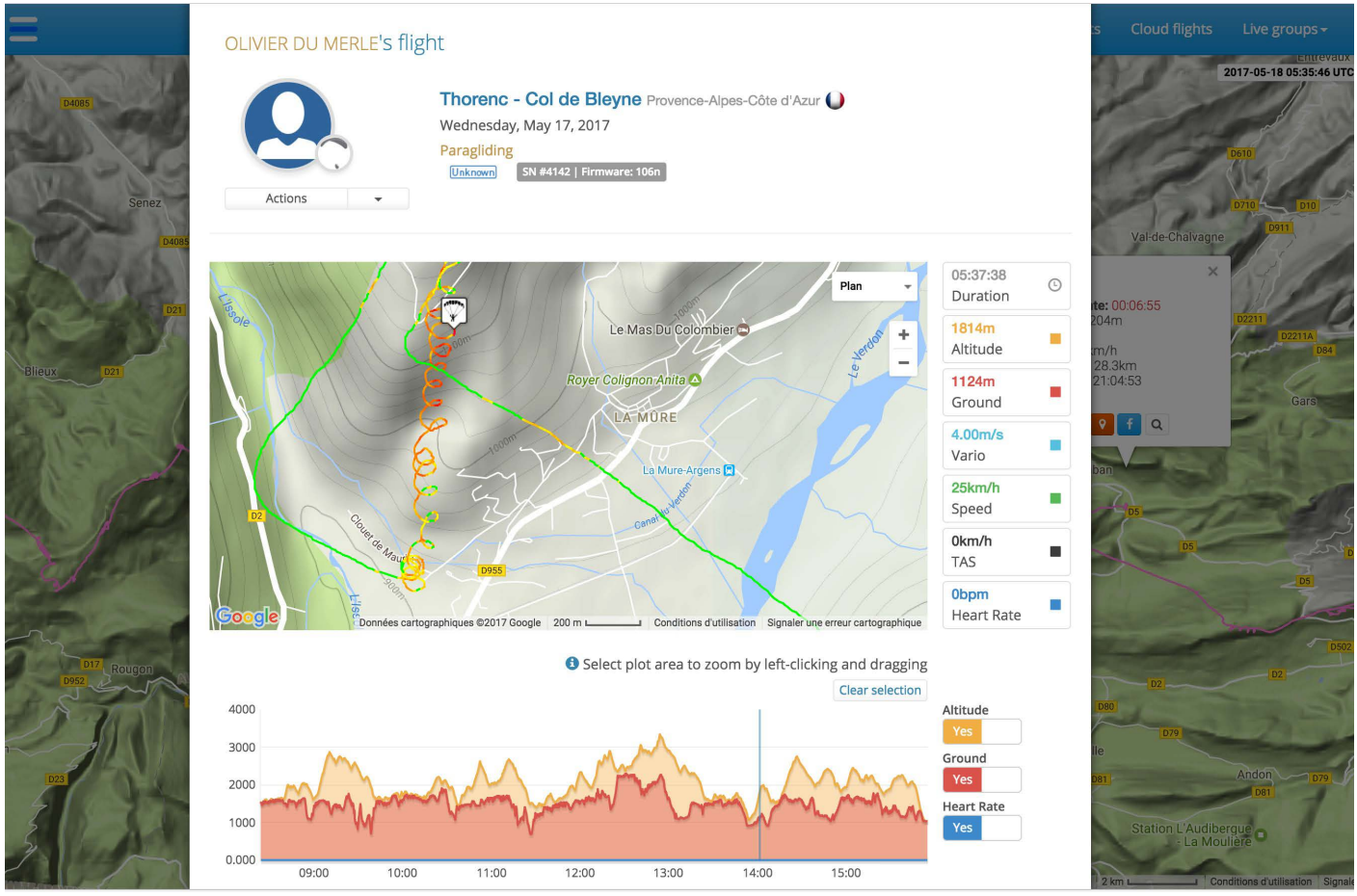


TRACKED LIKE A PRO...
FLYMASTER TRACKER

Most of the big international competitions use Flymaster tracking systems: The World Cup and the X-Alps for example. The instruments are, as a general rule, identical to those available for all pilots like this 'Tracker'...



The Flymaster Tracker offers the tracking functions of the Live SD (3G).



'The Flymaster Livetracking site (https://lt.flymaster.net/). Impressive accuracy on this Flymaster Live SD track, for example.'

Flymaster have a long tradition of tracking: they are the company behind the World Cup scoring for example, as well as the X-Alps live tracking. Since the beginning, Flymaster's instruments have communicated directly with their own servers. The data is available via a very nice modern interface. But the tracks can be sent from their servers to other servers as well, if the pilot configures it thus.

Lots of pilots are already aware of these services on their Flymaster Live. Now the tracking is also available for pilots who have another instrument, and who want to be live tracked, whether for safety or fun.

The full 'Tracker' package. The company provide numerous accessories.



The Flymaster team with suitcases full of trackers destined for a big competition. Flymaster have lots of experience in tracking individuals in such events.

As opposed to a Flymaster Live, the Flymaster Tracker doesn't (normally) allow you to insert just any SIM card, it comes already fitted with a card supplied by Flymaster.

The Advantage: this card is already installed and all the pilot needs to do is activate it on the Flymaster site, after which everything will work. Better still: this SIM card works everywhere in the world according to Flymaster. The pilot is therefore not affected by roaming tariffs.

The instrument switches on thanks to a combination of buttons and starts to communicate with Flymaster. The pilot knows that the instrument, GPS and GSM connection are functioning correctly from the LEDs.

But in any case, the pilot doesn't need to worry about the GSM coverage; if the instrument loses it, it continues to record the track second by second, and as soon as it finds the network again, it transmits everything. At the end of the flight you can therefore find your whole flight on the Flymaster server ready to be downloaded in a valid IGC format, or as a Google Earth file.





Numerous buttons unused. For future applications?



In a waterproof case, the SIM card is already fitted.

The charger's magnetic connector: it looks like a MagSafe from a Macbook...



Oddly enough, Flymaster don't allow you to download the track directly onto a computer (yet); you need to download it from the Internet. There you can see every turn; the track is very detailed and contains the GPS coordinates as well as very precise barometric altitudes. It's a shame that, for the moment, you still can't see the G forces: it's an anticipated upgrade.

It's the same for the heart rate which can be transmitted by the Flymaster belt as an option. This already works with the Flymaster Live, but not yet with the Tracker.

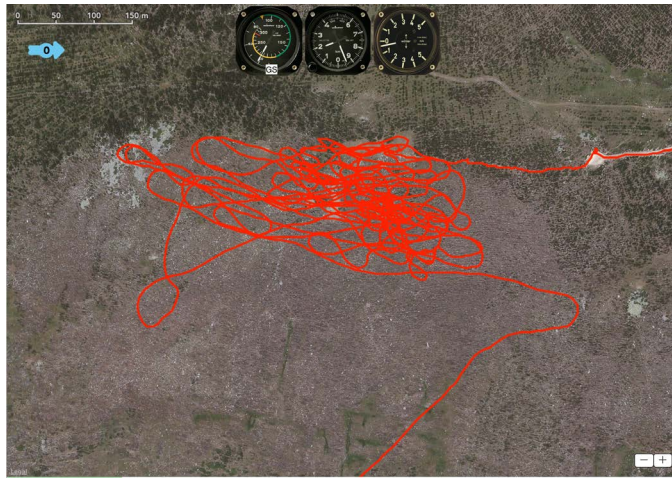
CONCLUSION

This little water and shock proof box only transmits our track; it doesn't even beep. But it works very well as a tracker. Your friends and relatives can watch you live (if you have a network) and, at the end of the flight, everything is in 'the cloud'.

The price: 199€ plus 3.99€ per month subscription (including GSM). You can also buy it for 149€, but you have to subscribe for two years at 4.99€ per month.

An attractive investment for quality tracking, which doesn't use your smartphone's batteries. Nonetheless, the tracker must be recharged every day.

TRACKER - DONNEES CONSTRUCTEUR	
Constructeur : FLYMASTER Web : https://www.flymaster.net/tracker	
BATTERIE (LITHIUM-ION)	1800 mAh
AUTONOMIE	> 20 HOURS (1 POSITON PER SECOND)
DIMENSIONS	87x 58 x 22.5 mm
POIDS	93 g
GPS	72 canaux GPS/GLONASS
CONNEXION USB	Pour mise à jour
INTERFACE SANS FIL	Pour ceinture cardiaque ou sonde pitot. Pas encore disponible lors de notre test.
CHARGEMENT	Prise USB (propriétaire côté instrument)
QUAD-BAND GSM	GPRS CLASS 10. QUAD-BAND SUPPORT: GSM 850 MHZ, EGSM 900 MHZ, DCS 1800 MHZ ,PCS 1900 MHZ
MEMOIRE	Accéléromètre 6 axes (pas encore visible lors du test), GPS, baromètre >300000 points. 1 point/s.



free.aero MAGAZINE
www.free.aero

15th FAI PARAGLIDING WORLD CHAMPIONSHIP 2017 MONTE AVENA-ITALY

COMPETITION

THE WORLD CHAMPIONSHIP AT MONTE AVENA IN ITALY

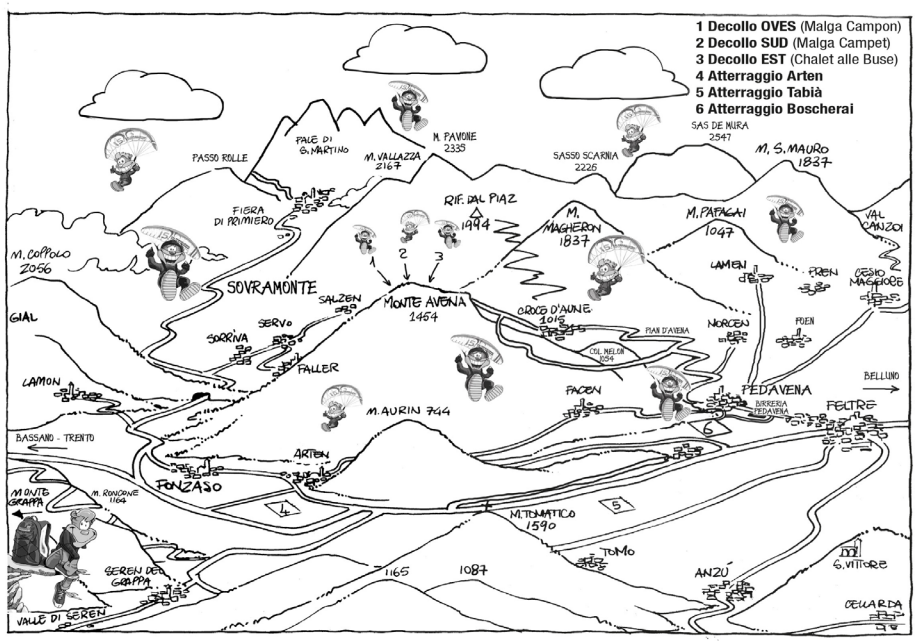
From the 1st to the 15th of July 2017, Monte Avena in Italy will be, for the first time, the theatre for the Paragliding World Championship. A region which isn't well known...



Monte Avena above Feltre is a good starting point for long distance flights, some of which are straight forward. The organisers will easily be able to set interesting tasks from Monte Avena or any of the other neighbouring sites. Some examples from Monte Avena that the locals told us about:

- 70 km, certain and easy:
Monte Avena – Belluno – Feltre
- A 135 km FAI triangle of average difficulty:
Monte Avena – Panarotta – Lago del Mis – Monte Grappa.
- A very beautiful, but difficult flight:
Monte Avena - San Martino di Castrozza – Feltre.

In the next edition, we'll be able to give more details.





If Monte Avena isn't very well known, it is no doubt because Bassano is only 50 km away and draws most of the pilots to the illustrious Monte Grappa site which, in addition, is a little bit more protected from the north wind. The take-offs on Monte Avena at 1450 m are oriented west, south and east.

As opposed to Bassano which faces the Vénissian plain, Feltre is nearer the heart of the Belluno Dolomites.

A beautiful region; when it wasn't flyable we put together some photos on the following pages...



Ricotta, traditional cheese from the region.

The Monte Avena Dome overlooks the Feltre valley.





More than 20,000 inhabitants live in Feltre, a small town in the province of Belluno.



In the park there are several farmers who cultivate pulses (like the famous Lamon bean).

The take-off at Monte Avena.



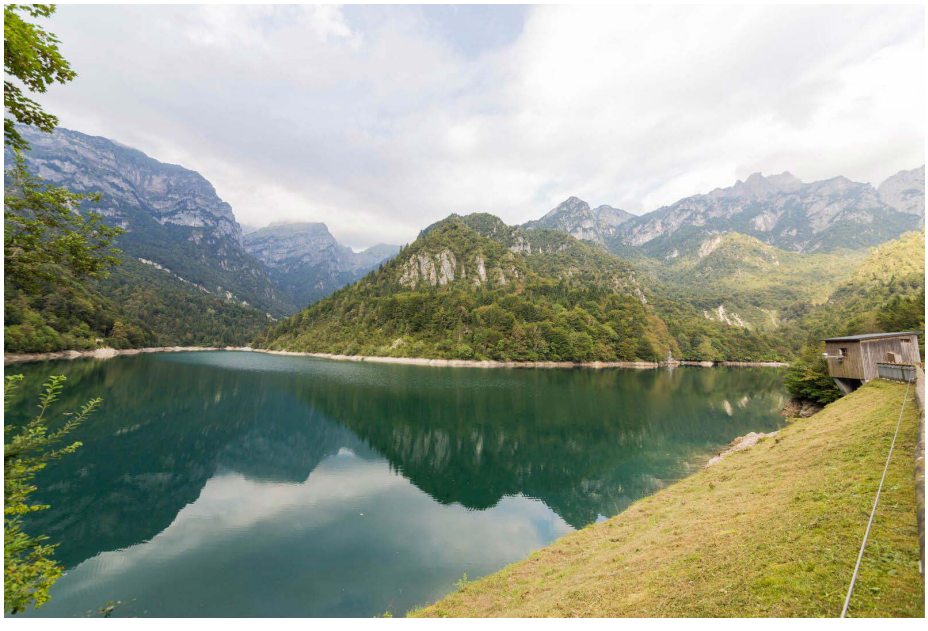
Thirty kilometres from Feltre, Cadini del Brenton. An easy walk takes you to a series of fifteen deep cavities cut by the water from the river Brenton, which form waterfalls, which drop into spectacular pools situated in the heart of the park.

PRACTICAL INFORMATION

Restaurants, campsites, hotels, things to do in the region... you can find all the information on this site:
http://www.dolomitiprealpi.it

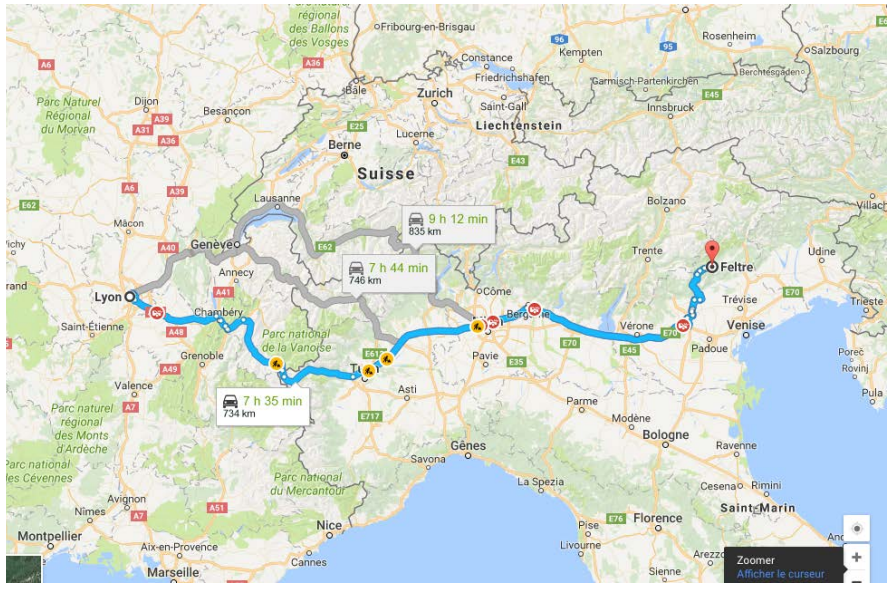
dolomiti prealpi

17 km from Feltre, Lake Stua.





Even the Italian post office are rising to the occasion: a stamp has been specially made to commemorate the championships.



The Google maps itinerary from Lyon (chosen randomly) to Feltre. goo.gl/hDg2a1.
You should allow about eight hours by road (from France).



The local club have put everything into organising the competition.



Whilst we wait for a more in-depth report in our next issue, here is the organiser's website: www.monteavena2017.org



The team organising the Championships.

We already talked about safety in our previous edition in an interview with Mattei di Brina http://www.free.aero/en/contentsHTML/security/?page=12



free.aero MAGAZINE
www.free.aero

THE PWC IN SERBIA

The PWC in Serbia had five taskable days, despite fairly windy conditions on launch. We saw lots of different leaders out in front. Australian Peter Slade had the whole field asking 'who's this newcomer' when he flew his first PWC task – and came second, almost winning the day, just behind Stéphane Poulain. Yury Mishanin won day 2 flying a staggering 18 km further than anyone else. Colourful Yassen Savov won the next two tasks and was leading by a mere 29 points at the start of the last day. Stefan Bernhard was first across end of speed, Yassen landed just short of goal, but the big threat came from one of his closest rivals, French team coach Stephane Drouin who made goal in 7th position. The tension over who would be the overall winner was immense and not even score master Ulric Jessop knew until the last two pilots came in with their trackers. The women's podium places were also highly contested by individual day winners Méryl Delferriere, Yuki Sato Colombe, Wooyoung Jang and Atsuko Yamashita.

The final scores are here:
http://pwca.org/results/results/

The live commentary, which has developed a large following since it was introduced at the PWC in St Andre in September 2016, once again proved very popular. When it is taskable it receives about 14,000 different individual clicks per day. The commentary describes the pilots, the places we fly, the conditions and the competition rules. Explaining how the competition actually works has really increased the following amongst non-competitors. The commentary also gives an explanation about our partners and emphasises their products – for example, the TECH jackets by the PWC's favourite clothing company, partner Jack&Jones, given to all the Super Final pilots. The next PWC, with a star-studded cast, begins on the 5th of August in Disentis, Switzerland and can be followed via the live tracking, commentary and World Cup TV on:

http://pwca.org/

by Ruth Jessop



Photo: Ulric Jessop

Tout nouveau: Ozone Enzo 3

THE NEW RACING MACHINES

Since the first leg of the 2017 World Cup, the Enzo 3 and the Boomerang 11 have been battling it out. Here's a quick look at the racing machines for this season and for the World Championships in July…

Photo: Jerôme Maupoint

In circulation from the beginning of the year: the Gin Boomerang 11.



Photo: PWCA

Finally the two racing machines, the Boomerang 11 and the Enzo 3, are in the race. The version 11 from Gin came out a bit earlier than the 3 from Ozone. For the last few years all the major competitions were played out between the Enzos and the Boomerangs, this hegemony between the two makes seemed unavoidable. In the beginning in paragliding, almost all the makes participated with a racing wing then, little by little, even the big names like Swing and Nova pulled out of competitions. At the World Championships in 2013, there was still the Niviuk Icepeak 6, which swept up a lot of the podium places, including the top spots, but since 2015, from a manufacturers point of view, the World Championships, like the World Cup, have become Gin/Ozone duels.

One reason for this concentration: to engage in classic competitions isn't necessarily a good investment because very few pilots are interested in this discipline. Competitions like the X-Alps seem to attract the public more, thus potential customers.
Another reason: The development of a modern competition wing requires more and more money. For the Enzo 3, according to Ozone, 21 prototypes were necessary. The detail of the improvements, from model to model, remains a manufacturing secret.

Obviously, they try to improve at the same time both the sink rate (where it is virtually impossible to gain more) and increase the maximum speed. But to hook into thermals efficiently, working on the turn is essential. 'The pilot must have access to a large choice of types of turn and in all situations,' Fred Pieri from Ozone explained.

Indeed, Ulric Prinz confirmed to us that if the Enzo 1 strongly opposed going into a nice turn, the 2 already went in a lot better, and the Enzo 3 very willingly went into the radius the pilot demanded.

PWC VS THE WORLD CHAMPIONSHIPS

Sometimes confused, the World Cup and the World Championship are very different. The World Championship is organised every two years, in one single event by the FAI (Fédération Aéronautique Internationale). The World Cup is organised by an association of pilots and takes place every year across six events with a Super Final whose winner wins the cup independently of his results in the other events, which only serve as a qualification for the Super Final.

The PWC is open to all pilots, independently of their nationality, as a function of the results that they have gained in 'Open' competitions in their countries.

To compete in a World Championships, you have to be selected by a national team. This was one of the reasons for the birth of the PWCA, by enthusiasts like Xavier Murillo (lost to us in 2011): to create a more open competition, not as 'heavy' as the FAI Championships considered, at the time, too under the wing of federal politics...

The little 'war' between the two organisations is no more, they work better together, for example, to establish a world classification of pilots...

free.aero MAGAZINE
www.free.aero

The maximum speed is obtained above all with the accelerator: the trimmed speed must stay below 40 km/h so that it isn't necessary to brake too much in thermals. At the same time, the accelerator must give a maximum speed increase of 20-25 km/h, to finish between 65 and 70 km/h.

Apparently, the Enzo 3 has actually gained 2-3 km/h: a realistic classification of speed would be Enzo2 – Zeno- Enzo 3. The Boomerang 11 may still be a little bit faster. It is made with 109 cells (13 more than the Boomerang 10) and an aspect ratio of 7.9, compared to 101 cells and an aspect ratio of 7.55 for the Enzo 3.

To go from the Boomerang 10 to the 11, Gin worked on, amongst other things, reducing the lines.

The new CCC certification has allowed the manufacturers to work more easily on the speed (see box).

For classic competitions, the paragliders are practically all two liners: see the following article as to how that changes things...

CCC CERTIFICATION

The rules for this certification changed in October 2016. Now the manufacturers can more easily unleash a wing at high speed: the certification is done with 10.5 cm of accelerator, but when used, the accelerator can go up to 14cm. A 4 cm 'gift' which doesn't have to be tested.

The list of all the CCC certified wings can be found on the CIVL:
http://www.fai.org/civl-our-sport/competition-class-paragliders

A final interesting point to note: in paragliding, nobody gets rich, even less so the pilots. Most pilots, even those highly placed, pay thousands of euros for their wing. Even pilots who are part of official manufacturer's teams often have to pay a minimum for their 'work tools'...

GIN Boomerang 11: 109 cells, aspect ratio 7.9.





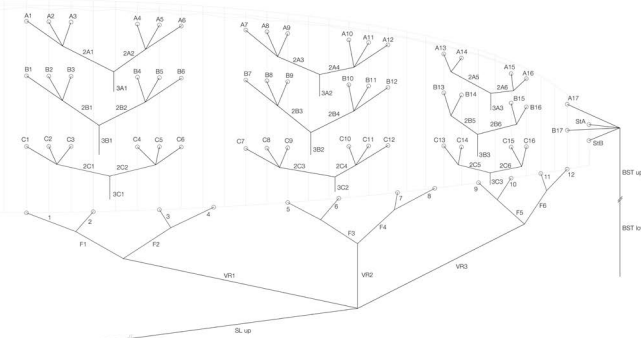
Photo: Sebastian Marko

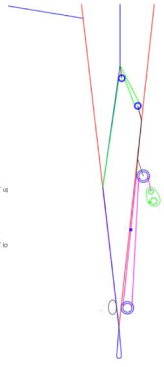
The Omega X-Alps 2015: a pure three liner.



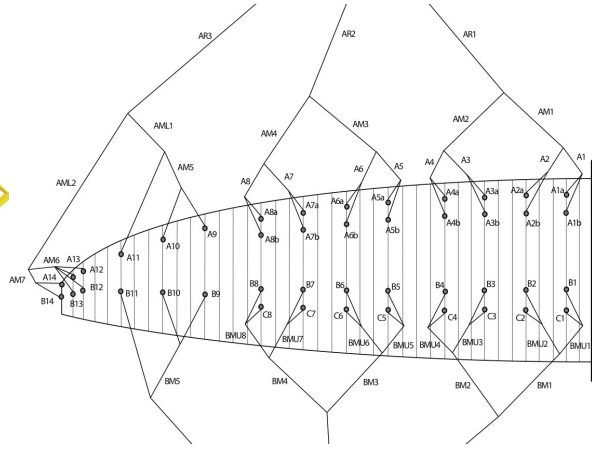
Photo: Sascha Burkhardt Pilote: Tom Chauvin

The two liner Ozone Zeno, whose version "Z-Light" will be taking part in the X-Alps 2017.









3 LINERS VERSUS 2 LINERS

In competitions like the PWC and the World Championships, the wings virtually all have the following line structure: two A and B risers which divide the lines into two rows at the lower surface. Part of these lines then separates again into two rows to give extra rows which are arranged A,B,C,D, but lower, there are only two risers, and it is flown using the two lines.
Most other paraglider wings are three liners now, even beginner wings. It's only on paramotor wings that you still find lots of four liners.



The Icepeak6 in 2012: you can clearly see the cleaner line layout thanks to having two lines.

THE ADVANTAGES OF THE TWO LINERS?

The fewer rows of lines that there are, the less drag there is. The lines with their drag are one of the main obstacles which still separates our performance from that of a hang glider or a sail plane. But there are other reasons. To fly efficiently keeping a maximum of performance, it is better to pilot using the rear risers than using the brakes. If the pilot pulls on the Cs on a three liner, he always deforms the profile. Less that if he pulls on the brakes, but a little all the same.

If the pilot pulls on the rear risers of a two liner on the other hand, he changes the angle of attack directly, whilst leaving the profile intact. It's a lot more comfortable and more efficient, leaving more speed and a better glide for the wing. For lots of pilots, including our test pilot Estéban Bourroufiès, who is a competition pilot with lots of experience on all the current two liner wings, the two liners really only have advantages when it comes to performance flying (mainly piloting on the rear risers and not on the brakes).

Some pilots claim that a two liner is 'hotter' to fly. Yet this isn't necessarily the case. Certainly, a two liner always has a very high aspect ratio.

On a wing with a large chord, like a school wing, you can't guarantee good shape in the centre, since the front and rear lines are too far apart. You would have to make it too rigid. Therefore, a wing which has sufficient aspect ratio to be a two liner is inevitably hotter.



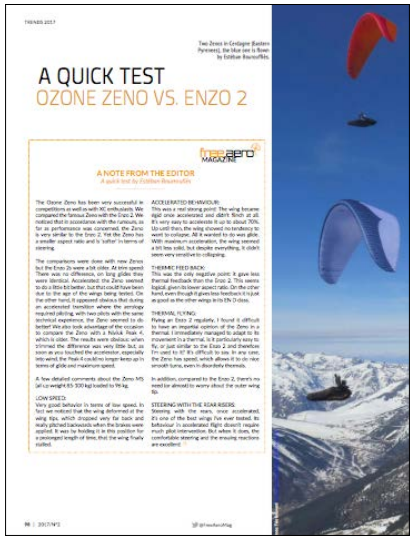
Bird
Innovative technology
Fast airspeed
Passive safety
Made in Occitanie - France
www.trekking-gliders.com

As far as collapses and other incidents are concerned, a two liner can even have advantages: Ulrich Prinz, who is a top level competition pilot who flies only two liners, told us that his last collapse with a cravat was three and a half years ago. His explanation: thanks to the sharing of the obviously greater wing loading over only two rows, the tendency to have a major collapse is less.

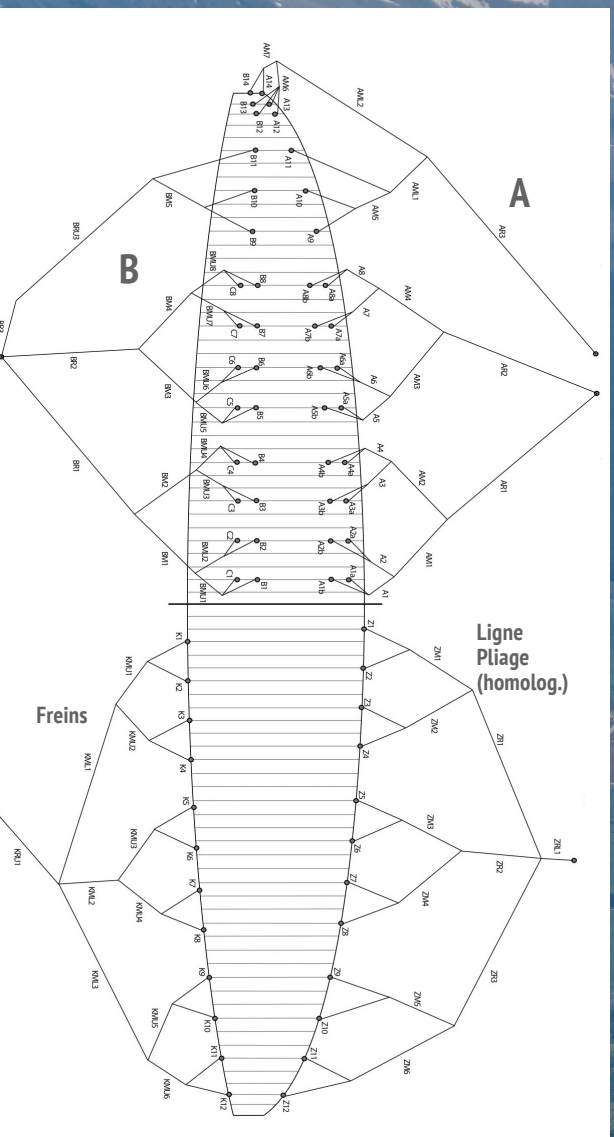
But there are also disadvantages. A two liner needs to be more rigid, which means there will be more elements which could lead to a cravat, and it is a bit heavier. This is one of the reasons why Chrigel Maurer, who hesitated for the X-Alps between a two liner Ozone Z-Alps (Zeno Light) and the three liner Skywalk X-Alps 3, finally chose the latter, because it was 0.5 kg lighter. There was also an argument which came from within. Without being able to explain it precisely, he said he felt that with a two liner, it was easier to be 'in the red' than with a three liner. The three liners are more flexible too, easier to take off, more 4x4 for an expedition like the X-Alps and also easier to manoeuvre at low speeds, when you need to land in a narrow space.

Nonetheless, in the X-Alps, numerous competitors will be setting off with the Ozone Z-Alps. If this lightweight Zeno is an incredible success against all the other wings, the last bastion of the three liners in competitions risks falling...

Enzo vs. Zeno, the difference between the 2 two-liners explained: http://www.free.aero/en/contentsHTML/trends2017E/?page=98

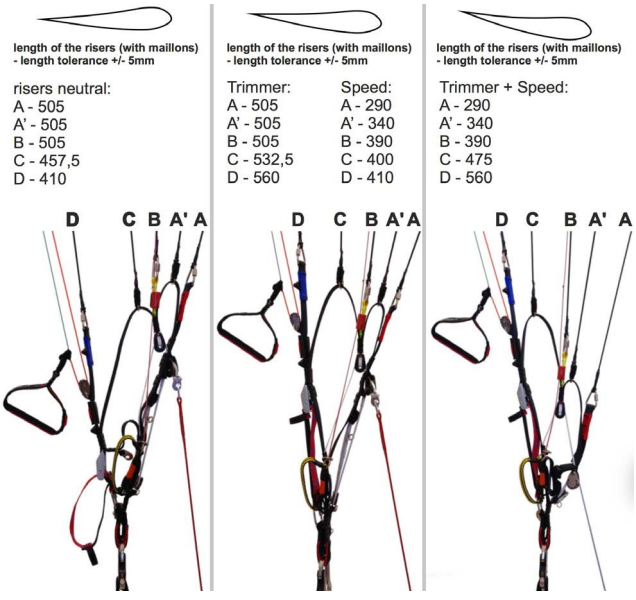


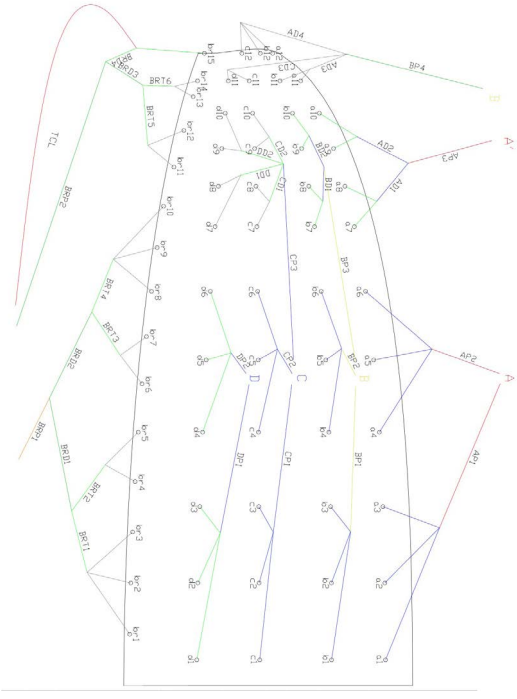
Despite the separation in two of the A and B lines at the inner surface, the Ozone Zeno is considered a pure two liner. Moreover, in this photo doing a wingover, you can see the fold between the As and the Bs which forms during a stall.
Photo: Sascha Burkhardt Pilot: Tom Chauvin



On a reflex profile paramotor wing like this Dudek Snake XX, it's necessary to keep four risers. This is, amongst other things, to control the desired deformations of the profile.
www.lojak.pl/

4 LINERS

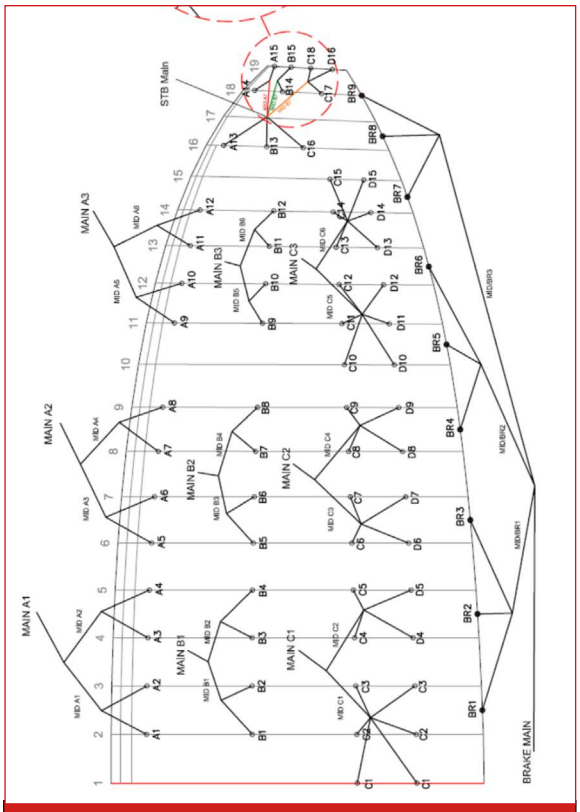




COMPARISON:
BEGINNER/INTERMEDIATE/COMPETITION WING FROM GIN

It's interesting to compare the lines and the technical data from the different categories: here are three examples from Gin. The recent Bolero 6 is a three liner with similar lines to the EN B top of the range Explorer.

BOLERO 6

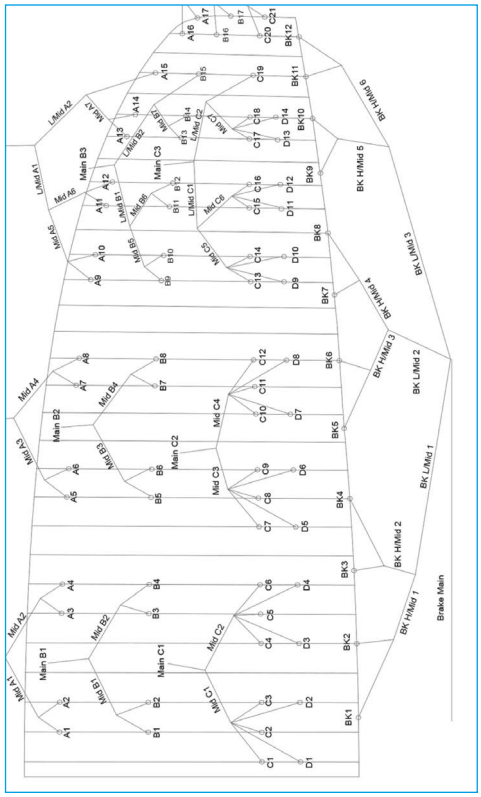


BOLERO 6 - TECHNICAL DATA

Manufacturer: GIN
Web: http://gingliders.com/paragliders/bolero-6/

SIZE	XXS	XS	S	M	L	XL
CELLS	36	36	36	36	36	36
FLAT SURFACE AREA [m²]	22.3	24.2	26.4	28.6	30.9	34.1
FLAT WINGSPAN [m]	10.35	10.78	11.25	11.72	12.19	12.79
FLAT ASPECT RATIO	4.8	4.8	4.8	4.8	4.8	4.8
ALL UP WEIGHT [kg]	55 80	65 90	75 100	85 110	95 120	105 135
WEIGHT OF THE WING [kg]	4.2	4.45	4.7	5	5.25	5.7
CERTIFICATION LTF/EN	A	A	A	A	A	A

EXPLORER

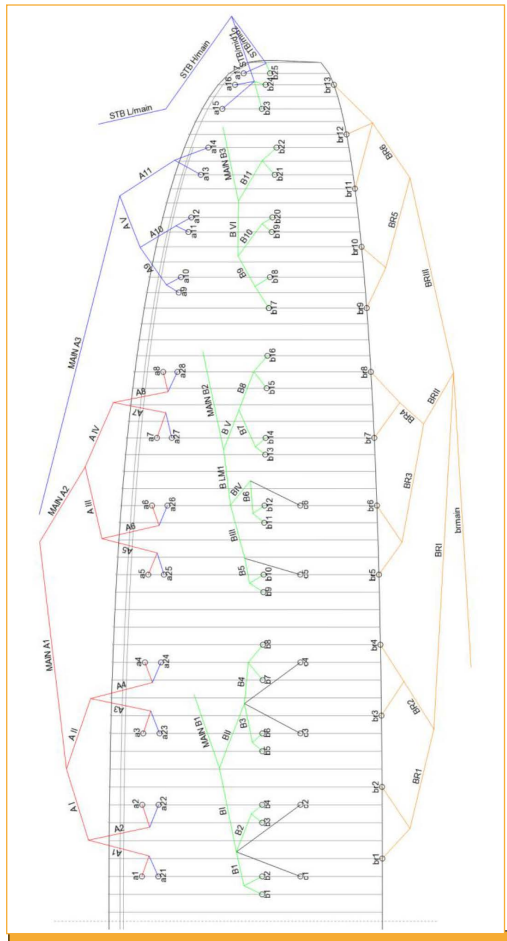


EXPLORER - TECHNICAL DATA

Manufacturer: GIN
Web : http://gingliders.com/paragliders/explorer/

SIZE	XXS	XS	S	M	L
CELLS	59	59	59	59	59
FLAT SURFACE AREA [m²]	20.1	21.6	23.6	25.5	27.6
FLAT WINGSPAN [m]	11.07	11.48	12.00	12.47	12.95
FLAT ASPECT RATIO	6.1	6.1	6.1	6.1	6.1
ALL UP WEIGHT [kg]	55 75	65 85	75 95	85 105	95 115
WEIGHT OF THE WING [kg]	3.2	3.4	3.7	3.9	4.1
CERTIFICATION	B	B	B	B	B

BOOMERANG 11



BOOMERANG 11 - TECHNICAL DATA

Manufacturer:: GIN
Web : http://gingliders.com/parapente/boomerang-11/

SIZE	XS	S	M	L
CELLS	109	109	109	109
FLAT SURFACE AREA [m²]	20	21.31	23.12	25.59
FLAT ASPECT RATIO	7.91	7.91	7.91	7.91
ALL UP WEIGHT [kg]	75-90	85-100	95-112	110-125
WEIGHT OF THE WING [kg]	5.55	5.85	6.15	6.7
CERTIFICATION	CCC	CCC	CCC	CCC





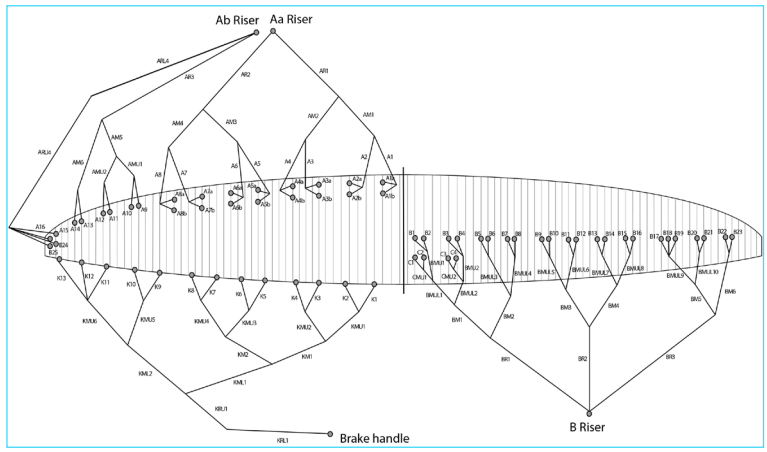


COMPARISON:
BEGINNER/ COMPETITION WINGS FROM OZONE



Also for comparison, two examples from Ozone. The Mojo is also a three liner, with a clear separation of the Cs into C and D.

ENZO 3



ENZO 3 - TECHNICAL DATA

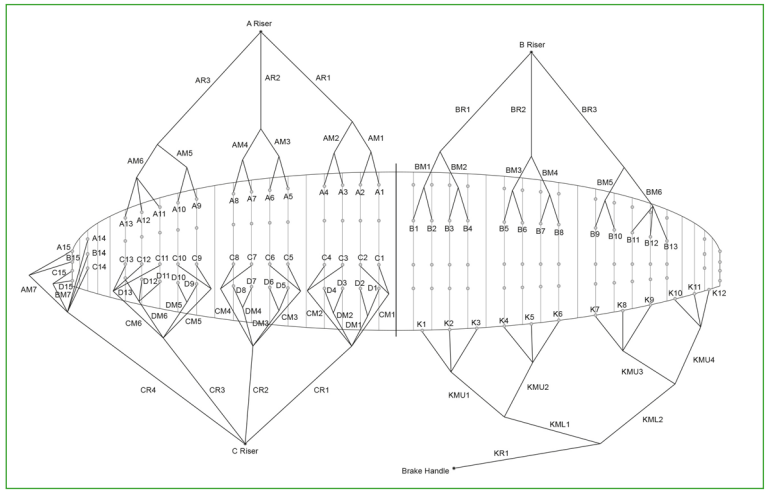
Manufacturer: OZONE
Web : http://flyozone.com/paragliders/en/products/gliders/enzo-3/specifications/

SIZE	XXS	XS	S	M	L	XL
CELLS	101	101	101	101	101	101
FLAT SURFACE AREA [m²]	19.1	20.3	22	23.7	25.7	26.7
FLAT WINGSPAN [m]	12	12.4	12.9	13.4	13.9	14.2
FLAT ASPECT RATIO	7.55	7.55	7.55	7.55	7.55	7.55
ALL UP WEIGHT [kg]	80-90	85-95	90-105	95-115	105-125	115-130
WEIGHT OF THE WING [kg]	5.25*	5.47*	5.58	5.92	6.22	*
CERTIFICATION	CCC	CCC	CCC	CCC	CCC	CCC

** Pending*



MOJO 5



MOJO 5 - TECHNICAL DATA

Manufacturer: OZONE
Web: flyozone.com/paragliders/fr/products/gliders/mojo-5/specifications/

SIZE	XS	S	M	L	XL
CELLS	40	40	40	40	40
FLAT SURFACE AREA [m²]	22	23.9	26	28.3	30.7
FLAT WINGSPAN [m]	10.39	10.83	11.29	11.77	12.27
FLAT ASPECT RATIO	4.9	4.9	4.9	4.9	4.9
ALL UP WEIGHT [kg]	55-70	65-85	80-100	95-115	110-130
WEIGHT OF THE WING [kg]	4.5	4.77	5.03	5.45	5.83
CERTIFICATION	EN A	EN A	EN A	EN A	EN A

BGD DIVA

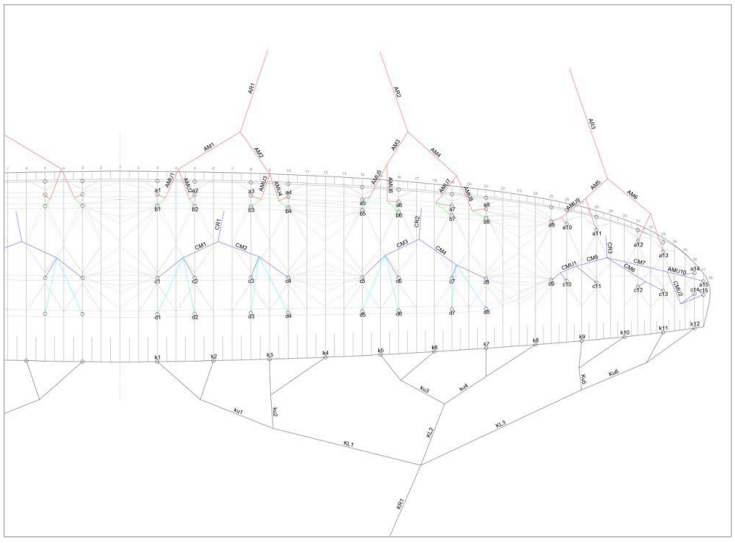
Bruce Goldsmith has been working on the Diva for four years. Initially this top of the range competition wing was going to be an EN D. In the end, it was recently CCC certified.

Safety was one of the priorities during development, despite its performance and anticipated maximum speed of 72 km/h. Bruce's son Tyr Goldsmith will be flying a Diva during the World Championships.

It will be interesting to judge the performance of this wing, designed by a single designer, who was himself, World Champion.



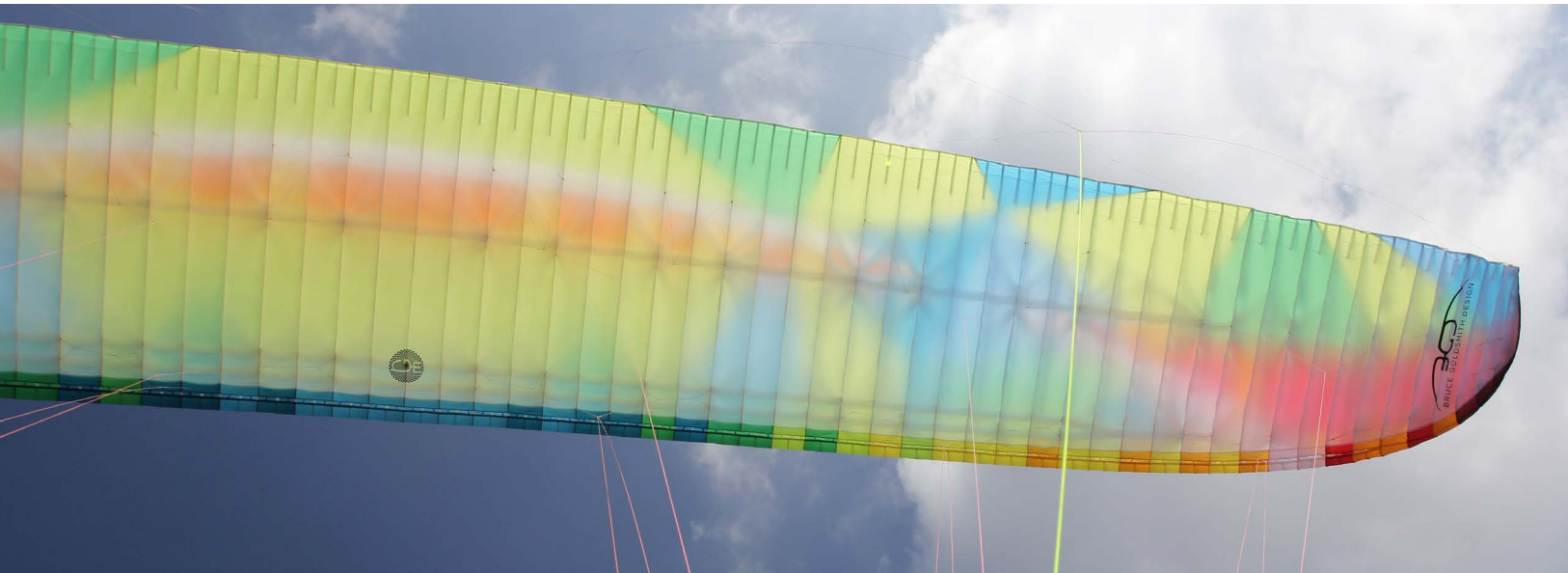
Obviously the Diva has "CCB", BGD's version of 3D-Shaping.



DIVA TECHNICAL DATA

Manufacturer: BGD
Web: www.flybgd.com/fr/parapente/parapente-diva-ccc-211-0-0.html

DATE				
SIZE	XS	S	M	L
CELLS	74	74	74	74
FLAT SURFACE AREA [m²]	21	22.71	24.49	26.34
FLAT WINGSPAN [m]	12.56	13.06	14.11	15.80
FLAT ASPECT RATIO	7.5	7.5	7.5	7.5
ALL UP WEIGHT [kg]	70-90	80-100	90-112	100-125
WEIGHT OF THE WING [kg]	5	5.4	5.8	6.2
CERTIFICATION	CCC	CCC	CCC	CCC





Bruce has been working on this machine for four years and now it has been CCC certified.

Karlis Jaunpetrovics, one of the BGD team, has just performed well on the Diva...
https://www.xcontest.org/world/en/flights/detail:seabirdlv/21.4.2017/09:50



pilot :	Karlis Jaunpetrovics [seabirdlv] LV
date :	21.04.2017 11:50 UTC+02:00
launch :	Chabre FR
route :	193.22 km 270.51 p.
glider :	Diva
airtime :	8:03 h ø 24.01 km/h
IGC file	Google Earth

Flight | Route | Start | Land

airtime :	8:03:04 h
max. altitude :	3374 m
max. alt. gain :	2033 m
max. climb :	8.3 m/s
max. sink :	6.0 m/s
tracklog length :	322.689 km
free distance :	71.14 km / 193.51 km

Paragliding Map

Paragliding sites mashed up with live weather & forecasts.

See where it's flyable right now. Worldwide!

GET IT ON Google Play

Download on the App Store

www.paraglidingmap.com
http://

AIRDESIGN HERO

The EN D Hero, as well as being an animal for 'hike&fly' races, is pretty accessible (nearly EN C according to the manufacturer). It's a very light wing: 3.16 kg, as right from the beginning it was designed as a lightweight wing and therefore isn't the lightweight version of an existing wing. The winglets on the stabilo are clearly visible, they should increase the stability in the roll according to Air Design. There are also holes in the stabilos (vortex holes) to reduce induced drag, thus increasing the performance.

HERO TECHNICAL DATA			
Manufacturer: AIRDESIGN Web : https://ad-gliders.com/en/products/lightweight/hero			
DATE			
SIZE	S	SM	M
CELLS	59	59	59
FLAT SURFACE AREA [m²]	20,29	21,91	23,42
FLAT WINGSPAN [m]	11,85	12,32	12,74
FLAT ASPECT RATIO	6,95	6,95	6,95
ALL UP WEIGHT [kg]	70-85	80-95	90-105
WEIGHT OF THE WING [kg]	2,93	3,16	3,38
CERTIFICATION	D	D	PENDING



DEALERS WANTED

SWIFT
RACE HARNESS

A true masterpiece of mechanics and aerodynamic design



- Fully certified EN up to 120kg
- 17 cm foam protector + Lexan plate
- Ball Bearing pulleys with adjustable position – unique APCO feature
- 2 reserve compartments
- Automatic Skirt closing after take-off



APCO AVIATION

WWW.APCOAVIATION.COM
At the leading edge of flying since 1974







AirPack 50/50

A good bag for transportation is an integral part of a hike&fly performance pack. With the Air Pack 50/50, Air Design say they have brought out one of the lightest folding bags on the market. It weighs 160 g and is particularly adapted to the Hero.

Price: €42.

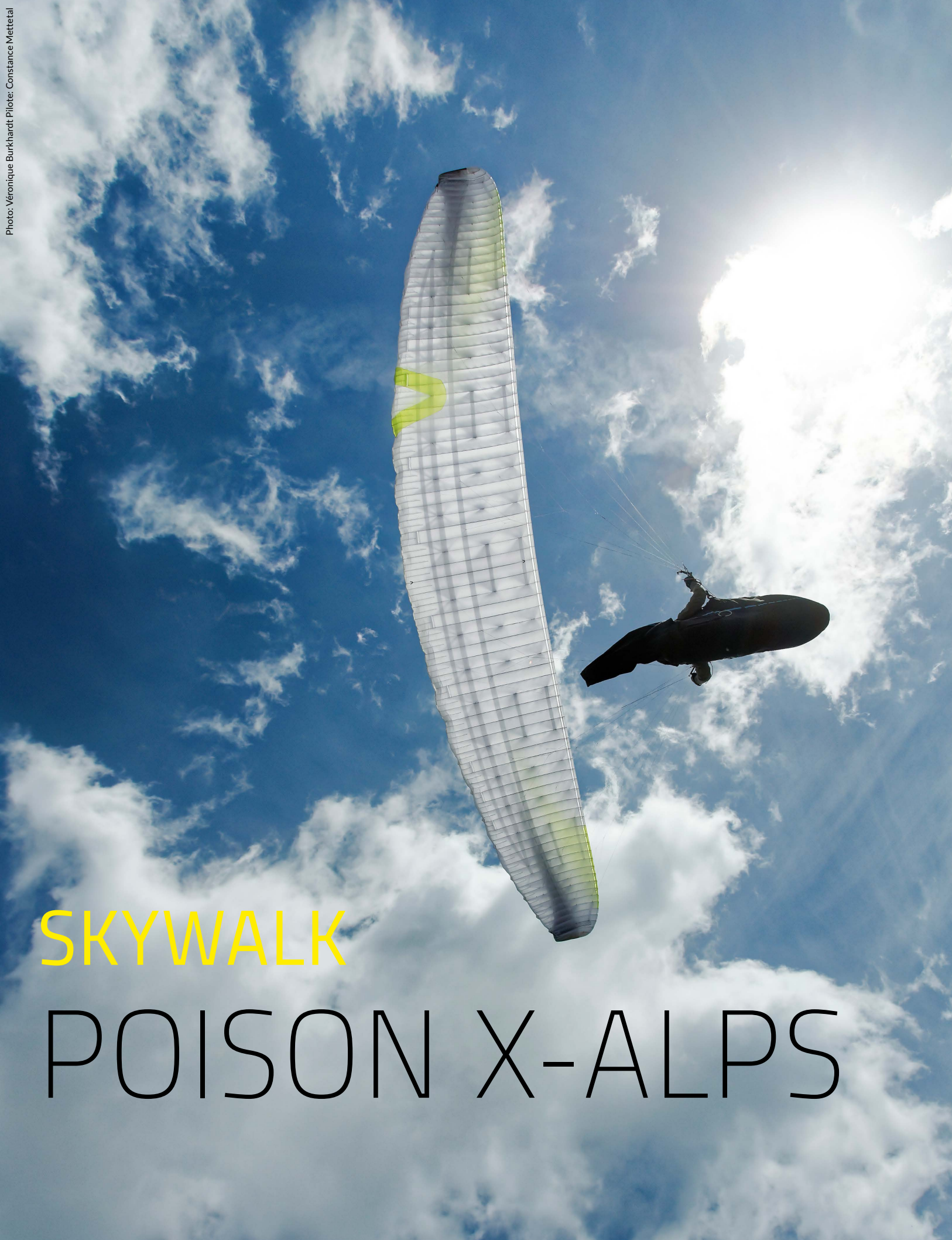


Photo: Véronique Burkhardt Pilote: Constance Mettetal

SKYWALK

POISON X-ALPS

The Poison X-Alps is the serial EN D version of the X-Alps 2/2015 (CCC). It came out in 2016 and will remain current, even if the X-Alps 3/2017, is sharper, and will also be on sale at the end of the summer.



Photo: Véronique Burkhardt Pilote: Constance Mettetal


Photo: Sascha Burkhardt Pilote: Constance Mettetal

The Poison X-Alps arrived in our office in a relatively bulky bag for a wing weighing nearly 4 kg. It was delivered with its airy compression bag and voluminous instructions. Whilst unpacking it, we immediately noticed the leading edge rods along nearly 70% of the chord, which were hardly compressed by folding and explained the volume it took up.

MAIN CHARACTERISTICS:
Aspect ratio 6.9, three line construction, with Porcher 32 fabric on the upper surface and 27 g on the lower surface. I fly slightly over the maximum weight of 92 kg, so 4.28 kg/m².

This wing is placed in the same niche as the Omega X-Alps, Ozone LM6, Niviuk Klimber, Gradient XC5, and Gin GTO 2. As far as certification is concerned, the Poison X-Alps is EN D certified with 3 Ds during testing:
• The travel of the controls (35-50 cm)
• The use of folding lines when inducing collapses.
• Accelerated frontal, with a return to normal in less than three seconds after pilot input.

As with all the Skywalks, the Poison X-Alps has Jet Flaps. There is also a system to tension the Bs when flying with the Cs. This lets you keep a homogenous wing profile when controlling with the Cs.

TAKE OFF
Taking off is a simple formality, even for a pilot used to a lower level of wing, both in nil, strong or cross wind. The wing comes up easily then accelerates during the last few degrees.

Once in the air, the pilot immediately feels direct feedback with every action on the brakes.

The brake travel isn't too short and you feel as if you could bring the handles right down as you can bring them back up quickly. When you go into a spring thermal, the wing moves a lot along the pitch axis without deforming.

Surprisingly the wing feels fairly damped in the roll despite being incredibly agile and lively on the brakes.



Photo: Véronique Burkhardt Pilote: Constance Mettetal

You can feel the edge of the thermal through the seat and also through the controls. It's easy to tighten up to get into the stronger central core.

THERMALS (+5 M/S, -4 M/S)
I tighten the turn to get into a spring thermal. Surprised by the reaction of the wing, I have to release some brake as it bites so much and is so manoeuvrable going in. The sink rate is good despite the steepness of the turn. My actions are once again too brusque and badly timed, it being the beginning of the season. The outer wing tips collapse making a very slight crinkling nose, I need to apply myself and manage the turn better.

There is a lot of feedback from the wing which lets me feel the way the invisible current of warm air is working. The edge of the thermal can be felt through the harness and also through the controls. It's easy to tighten up to get into the stronger central core.

Coming out, a little pull on the brake is needed to prevent the surge forward strengthening.

TRANSITION.

The little wooden handles on the Cs turn out to be pretty comfortable and let you steer and also calm the wing, both trimmed and accelerated. The wing works a lot more progressively when you pull strongly on the Cs than on a wing which doesn't have a system which applies tension on the Bs.



Our test pilot:

PASCAL KREYDER

Pilot since 1991, used to different sites, amongst others, the Southern Alps and the Vosges.

The wing communicates the air flow very well when trimmed, but a bit less when accelerated due to the increasing tension across the wingspan. Each bubble of air crossed is indicated by a brief pause by the wing, then you immediately feel the pilot and wing go up by fifty centimetres or so.

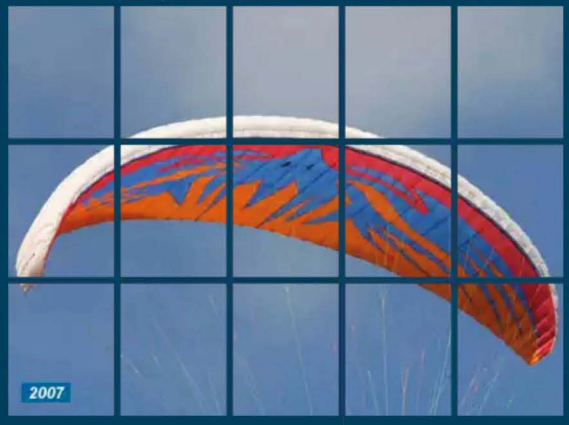
This sensation is reduced with the first bar and practically disappears after that. You quickly learn to leave the profile to it, which gives much better performance.

Accelerated on the first bar, there is no difference in performance (glide ratio) compared to an M6 flying in parallel.

Paraglider database.
The history of our sport.
All the gliders since paragliding time began.
Technical information.
Test archives.

www.para2000.org

P@r@2000



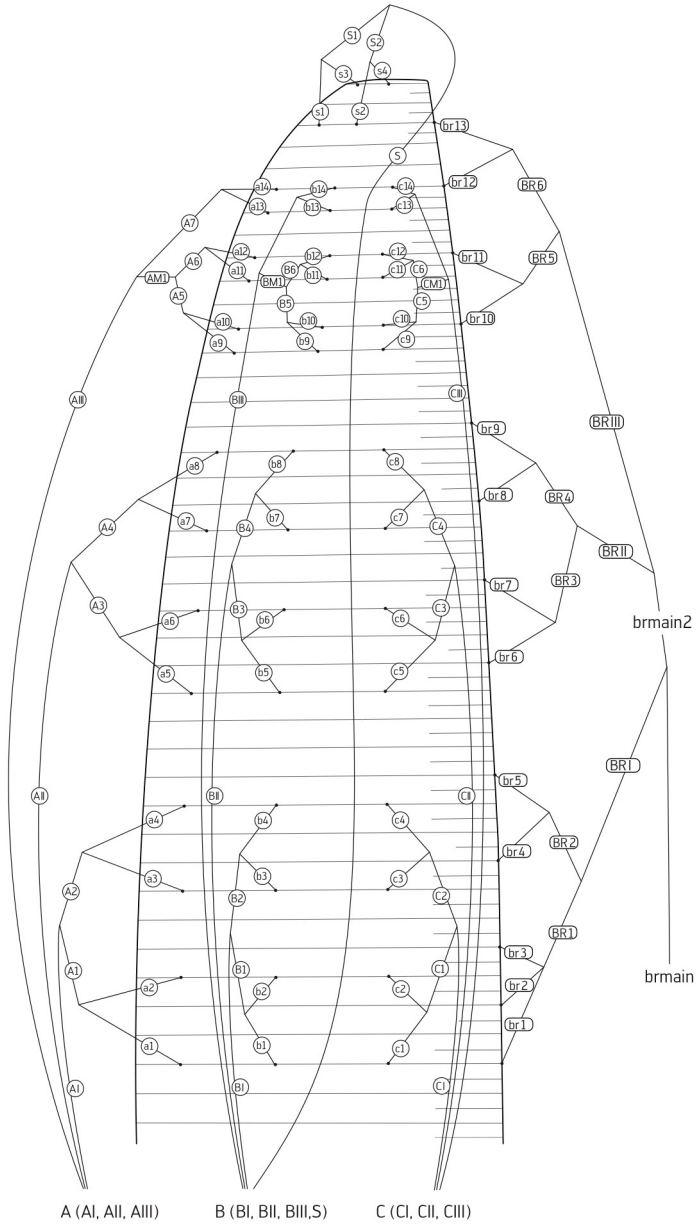
**** © Gérard Florit *****

Sponsors :
SKY DREAMS
RIPAIR
SOL
NOVA
Sun gliders
Trekking
free aero

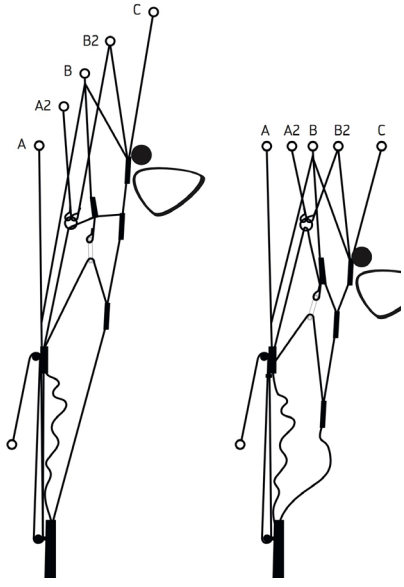


Photo: Véronique Burkhardt Pilote: Constance Mettetal

The Poison X-Alps is equipped with Jetflaps (slits between the upper and lower surfaces in the back part of the chord).



The risers and lines on this three line wing.



MEASUREMENT RELIABILITY.
The measurements carried out during this test only have a relative value. They allow the manufacturer's data to be checked, but must not in any way be compared to other measurements carried out in different conditions (altitude, humidity, wing loading).

Trimmed at 1300 m, I measured 39-40 km/h with 4.28 kg/m2 wing loading. Accelerated on the second bar, I measured a maximum speed of 57 km/h, without having optimised the length of my accelerator.

free.aero MAGAZINE
www.free.aero

With maximum accelerator, the Poison X-Alps clocks up a speed very slightly superior, probably helped by my wing loading, with the same glide angle.

WEAK THERMALS AT THE END OF THE DAY.
In a weak thermal, the wing goes nose up, and at the moment where it goes up and pitches slightly forward, I don't hold it. The angle of pitch remains low. A turn with weightshift, taking care to keep the wing at a low angle, is a real pleasure. The rhythm of yaw and roll is of surgical precision.

DESCENT, MANŒUVRES.
Wing-Overs build up rapidly and feel amazing. The spirals are impressively efficient. The wing quickly faces the ground. Coming out remains easy, even if the pitch backwards wasn't managed well by the pilot. The ears are easy to do with the dedicated riser and don't flap any more than on certain Cs.

LANDING.
With a long downwind leg and a short into wind leg, the flare is substantial.

POSITIVE POINTS
- **Glide sensation**
- **Agility**
- **Precision during the turn**
- **Climb rate in all conditions**
- **No roll**
- **Gives lots of feedback about the air flow**

NEGATIVE POINTS
- **Some will find it perhaps too communicative in strong conditions**

POISON X-ALPS TECHNICAL DATA

Manufacturer: skywalk
Web : https://skywalk.info/project/poison-x-alps/

DATE	2016		
SIZE	XS	S	M
CELLS	80	80	80
FLAT SURFACE AREA [m²]	21.50	23	24.40
FLAT WINGSPAN [m]	12.27	12.69	13.07
FLAT ASPECT RATIO	6.99	6.99	6.99
ALL UP WEIGHT [kg]	65-90	85-105	95-115
WEIGHT OF THE WING [kg]	4	4.2	4.4
CERTIFICATION	D	D	D
	Extrados : Porcher Skytex 32 Intrados : Porcher Skytex 27 Cloisons : Porcher Skytex 32/27 g hard		
PRICE [€]	4 700	4 700	4 700

CHANGING FROM A C OR A D TO THE POISON X-ALPS...

What the Poison X-Alps gives you...

...IF YOU COME FROM AN EN C
• Glide at all levels
• Performance from another category (glide at speed)
• Glide and correction of the direction, whilst keeping a good glide after the first bar

...IF YOU COME FROM AN EN D PREVIOUS GENERATION:
• Quality and simplicity of turn
Easy inflation, weight of the wing (4.0 kg!)
• Simple to use, doesn't require any tricks of the trade





Photo: Niviuk

NIVIUK
KLIMBER P

The Niviuk Klimber P: A competition 'hike and fly' wing like the X-Alps, but also very accessible to other pilots...

free.aero MAGAZINE
www.free.aero

A small, compact, light package, the size of a large sleeping bag which contains the latest little flying gem from Niviuk: the Klimber P, performance wing (aspect ratio 7) "back packer" version (easy to carry in a backpack, a little machine which is always ready for a flying adventure).

3.4 kg on the scales, for a 66 cell, 3 line paraglider, made mainly from 27 gr/m^2 Porcher fabric with 32 gr/m^2 on the leading edge. A wingspan of 12.5 m for this size 22, with an aggressive, modern look. Nitinol, a very light and super elastic metal alloy which is 50% titanium and 50% nickel and gives the SharkNose a solid profile, and remembers its shape. Advantage: there are no problems folding it.



NOTRE PILOTE TEST:
PHILIPPE LAMI

Philippe is one of the most experienced test pilots and paragliding journalists. Another string to his bow: with his company Windsriders, he produces down jackets specially designed for our sport.

Photo: Niviuk



free.aero MAGAZINE
www.free.aero

The Klimber P will take part in the 2017 X-Alps, as it is being used by 3 teams of pilots, one of whom is Gavin McClurg, the American pilot who crossed all of Alaska on a Klimber prototype. This Klimber P, needs to match up to the Skywalk Poison X-Alps, Advance Oméga X-Alps 2017, Ozone LM6 or indeed the Zeno Light (which still hasn't been tested). In this family oscillating around an aspect ratio of 7, the Klimber P is roughly the same weight as the Advance and lighter, by 600 grammes, than the Skywalk.

Here Niviuk chose a three liner for, amongst other things, ease of inflation. On the ground, the Klimber P behaves well and, despite its aspect ratio, the wing tips remain docile. Inflation is very simple, it comes up uniformly and the wing copes with any abruptness. It is tolerant and highly damped as it comes up. At this stage, there is very little build up of power, despite acting as a block. The inflation is easy and it's docile in all conditions. This is a real advantage for a wing which will often be used in difficult, narrow, rocky, steep take-offs…

The load take up is immediate, a sign of excellent performance.

The first few metres in the air confirm the well damped pitch, which is more obvious than on the Niviuk Peak 4, a real two liner with the same aspect ratio. As for the controls, the effort is moderate and the Klimber P can be flown with the tips of your fingers, with little travel. Turns happen fast, with little travel, in a very linear fashion. The turn is gentle, straightforward and the wing obeys as one, making you forget the aspect ratio. When playing with more amplitude, the Klimber P inclines fast and well, becoming instantly more playful on the roll axis and showing a really fiery temperament that is energetic, straightforward and precise. The wing's handling is one of its strong points. It hooks into thermals near the ground with precision, and above all, its ability to tighten its turn, without going negative, makes the Klimber P very efficient in light conditions.

LET IT DO THE TALKING…
You just need to accelerate a bit for the wing to load and get established in its pitch axis like a yacht on its keel. The speed thus goes from 40 km/h trimmed in this size 22, to 43 km/h at maximum glide. By using the 15 cm of accelerator, pulley to pulley, I measure more than 60 km/h, totally useable.

Photo: Niviuk



At this speed, with wrists through the brake loops, flying is done with the Cs, thanks to the rear riser control loops. It's very efficient and really allows you to fully use the speed without reducing the performance, whilst managing the pitch axis.

The maximum glide ratio passes eleven no problem at all, but the big advantage of this wing, is more, over and above the pure performance, its capacity to fly without flinching, accelerate as if on a rail, in a moving, even turbulent, air flow, whilst being amazingly comfortable for the pilot. The wing is certified EN D, but it feels like flying an easy C. Amazing. The compromise is excellent.

To get down more quickly, forget big ears. They can be done using the outer lines at the front, but turn out to be very uncomfortable, difficult to hold in and unstable. Niviuk correctly recommend you to use the B3s. The wing tip goes back and takes on a stable form. Releasing it lets the wing go back into shape immediately, without a jolt or pitch forwards. Therefore very efficient. In a tight spiral, it quickly turns to face the terrain, with a very high sink rate. Coming out is airy, but easy to manage.



Strap risers, but with softlinks. Photos: Philippe Lamy



Photo: Philippe Lami

Steering with the rear risers: a little loop like a handle.



free.aero MAGAZINE
www.free.aero

The precision of the turn, the handling and especially the damping in pitch make the Klimber an excellent toy for playing in all flying conditions. In weak thermals, its sink rate and its precision let it get out of difficult situations. In turbulence and strong wind, the Klimber P has a really docile temperament, with a capacity to advance and bite the thermal without budging. Its behaviour is typical of high performance wings.

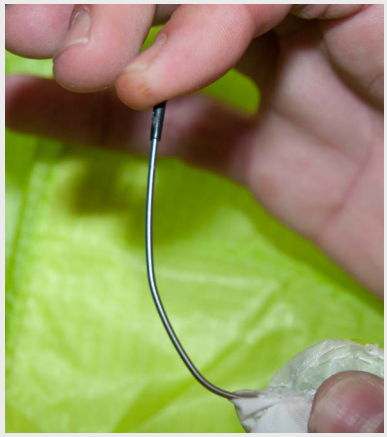
After more than four hours of flying this lovely Klimber P, I can honestly admit to having had a heavy heart when I had to send it back. I loved flying this lightweight wing, which had both high performance and was well behaved at the same time. It was comfortable in big air, easy to inflate, light and compact in its bag, making it a fantastic machine, a magic wand which will open new horizons to adventurers and globe trotters. For sure it's an EN D, but easy, brilliant!

PARA-SPEAK

THE MAGIC NITINOL ROD

Nitinol? Niviuk is currently the only manufacturer to integrate into most of its wings Nitinol leading edge rods, which reinforce the leading edges, especially the SharkNose. This Nickel/Titanium alloy is heavily used in medicine and offers obvious advantages: great elasticity, shape memory, very small diameter, very light and unbreakable. The rods tension the leading edge, and above all, allow it to be folded without any constraints, unlike nylon leading edge rods. The friction surface in contact with the ground has been minimised and the ageing of the wing is much better, compared to plastic rods. The only disadvantage is for the manufacturer. The price of Nitinol is four or five times higher than that of strimmer wire! But obviously there are only advantages for those using it.

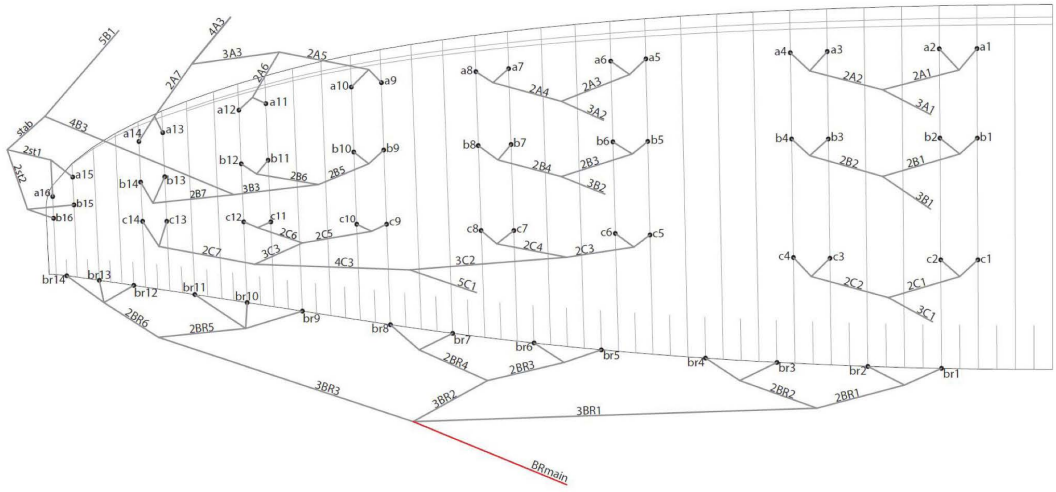
Phillipe Lami

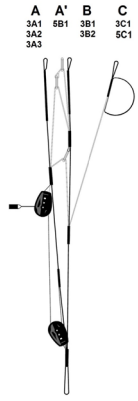












POSITIVE POINTS
- Light weight
- Compact
- Well behaved and efficient in all conditions

NEGATIVE POINTS
- Big ears

KLIMBER P - TECHNICAL DATA

Manufacturer: NIVIUK
Web : http://www.niviuk.com/product.asp?i=eng&id=&prod=JNN-MCPR0&news=

DATE	2017		
SIZE	20	22	24
CELLS	31	31	31
FLAT SURFACE AREA [m²]	21	22.5	24.5
FLAT WINGSPAN [m]	12.08	12.5	13.05
FLAT ASPECT RATIO	6.95	6.95	6.95
ALL UP WEIGHT [kg]	65-85	70-90	85-110
WEIGHT OF THE WING [kg]	3.25	3.36	3.56
CERTIFICATION	D	D	D

Photo: Jody MacDonald

Before it officially came out in November 2016, the Klimber P had already been put to the test whilst crossing Alaska, with Gavin McClurg at the controls... Gavin will also be flying the Klimber P during the 2017 X-Alps.





Photo: Adventure

ADVENTURE

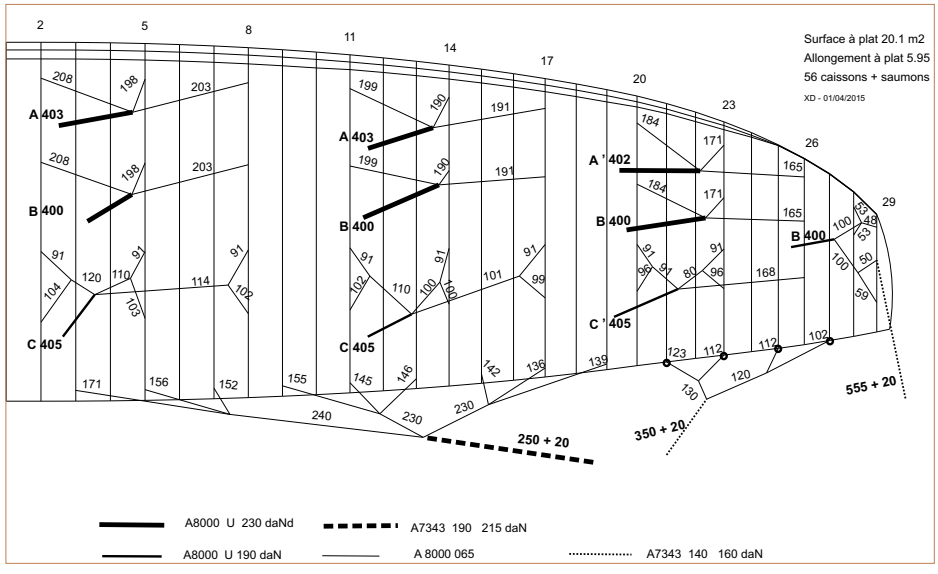
NEW RACING WING

This summer a new top of the range classic competition wing will be launched by Adventure, with fifty-six cells and an aspect ratio of 5.95. The sizes will probably be 16,18, 20 and 22.

The final name still hasn't been revealed. It has a SharkNose and as you can see in the photo, it also has double 3D-Shaping and Mini Ribs.

Next there will be a wing called the Cross-Over: an intermediate wing derived from the competition wing, with a reduced aspect ratio to make it more comfortable during inflation and in flight (limiting the yaw).

All these wings are made from Porcher fabric.
http://www.paramoteur.com/en/



free.aero MAGAZINE
www.free.aero

OZONE VIPER 4



Reminder:
http://www.free.aero/en/contentsHTML/Trends-E-150/index.html?page=102

During our test of the Viper 3 in free.aero we found that this flexible competition wing wasn't particularly adapted to slalom. The Viper 4 is supposed to resolve this deficit. According to Ozone, whilst the main objective of the Viper 3 is performance flying, the Viper 4 'is better adapted to serious flying and competitions, thanks to more speed and better stability across the whole speed range'.

http://flyozone.com/paragliders/en/

VIPER 4 TECHNICAL DATA

Manufacturer: OZONE
Web : http://flyozone.com/paramotor/en/products/gliders/viper4/info/

DATE	2016						
SIZE	14	15	16	18	20	22	24
CELLS	62	62	62	62	62	62	62
FLAT SURFACE AREA [m²]	14	15	16	18	20	22	24
FLAT WINGSPAN [m]	9.01	9.33	9.64	10.22	10.77	11.3	11.8
FLAT ASPECT RATIO	5.8	5.8	5.8	5.8	5.8	5.8	5.8
ALL UP WEIGHT [kg]	55-120	55-120	55-130	65-140	75-150	85-160	95-170
WEIGHT OF THE WING [kg]	3.3	3.5	3.6	4.1	4.25	4.55	4.77
CERTIFICATION	DGAC	DGAC	DGAC	DGAC	DGAC	DGAC	DGAC



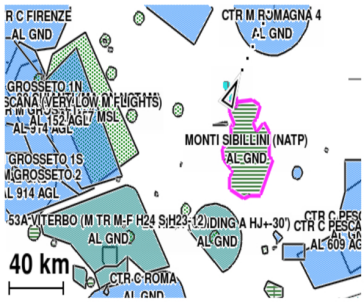
Photo: Loren Cox

COMPASS

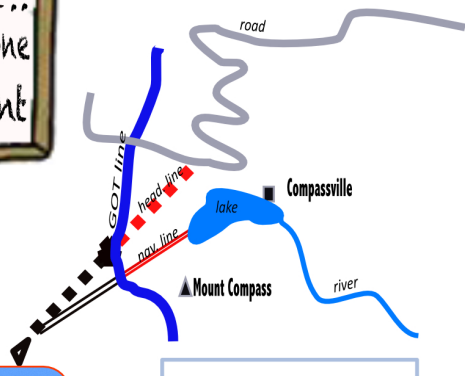
The more you know the less you take risks

IMPROVED SOFTWARE

IMPROVED MAPS







free download from the web; customization and management

AIRSPACES

NEW TOPOGRAPHIC VECTORIAL MAPS

Cities, rivers, lakes, names and altitude of mountains

LONG LIFE BATTERY

XC

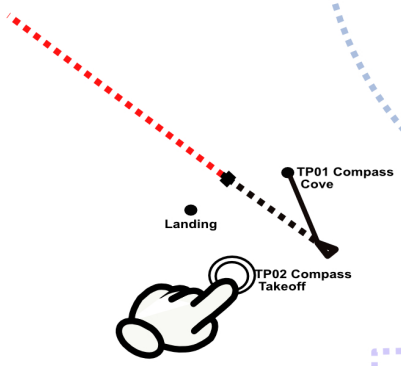
ALL-IN-ONE

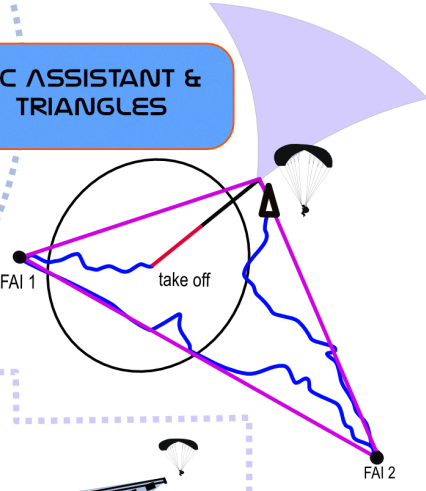
NEW HARD GLASS



NAVIGATION BY TOUCH

XC ASSISTANT & TRIANGLES

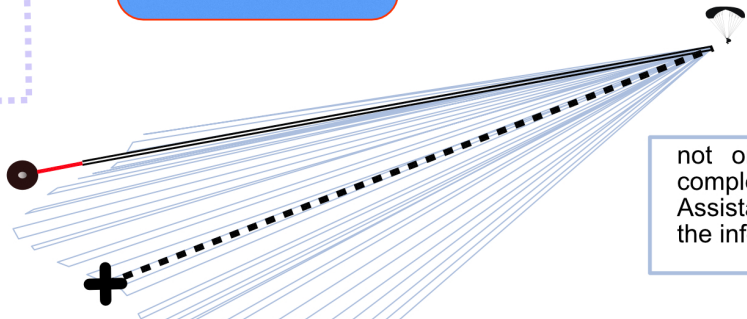




XC COMPASS

GLIDE OVER TERRAIN

choose a "goto" by a simple touch in the map. Move and zoom the maps



not only triangles ... a complete XC flight Assistant to give you all the informations needed

watch in real time where and at what altitude your transition will end considering the terrain: crossing is much more easy!

The XC - Instruments

Designed for the Cross Country Pilot

We give you all the data to let you take the best decisions



Photo: Louis Garnier / Parabatix

POPULAR PYLONS

THE PUBLIC GETTING NEARER TO PARAMOTORING.

With pylons and other Parabatix events, paramotor competitions have evolved and become more accessible to the general public. But pilot safety has forced the trend to slow down a bit...

Classic paramotoring competitions, with their navigation and fuel economy tasks, will always be an important part of judging the real performance of the pilots. At the same time, the advent of races around pylons and other games near the ground have given paramotoring incredible publicity in the eyes of the general public: it is so much more spectacular to watch a wing banked at 90° going around a pylon than watching another pilot saving a few minutes of fuel during an economy task.

Photo: Elina Sirparanta / Parbatix



The problem: races like Parabatix are more like calculated displays where even the risk can be calculated. There are even some who claim that the winner has already been decided before the show.

In 'serious' FAI competitions like the World Championship, the slalom tests have become too dangerous.

In the past, the pilots were content to follow the 'Clover Leaf' figure with normal sized wings, and therefore at reasonable speeds. Now, the slalom pilots use 15 m^2 wings with 250 cc motors to shave a few seconds.

As a consequence, the slalom competitions have become so risky that they now have to be done over water with boats and even divers, ready to intervene.

CLOVER LEAF /FEUILLE DE TRÈFLE

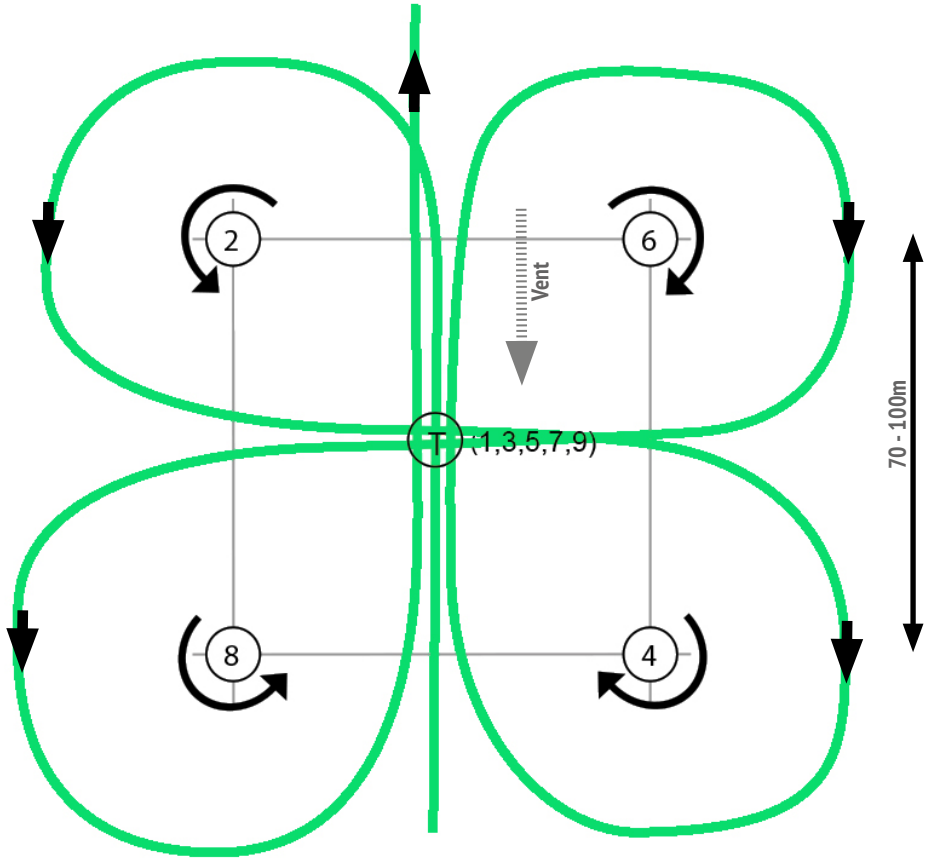




Photo : Red Bull Air Race

Red Bull Air Race: Pylones since the beginning...

The problem: during the next big international event, the World Air Games in Poland (http://www.fai.org/iwga/paramotors) for example, little is known about how it will be run, because there isn't an area of water. Pascal Vallée, former world champion and now French team leader, confirmed that it would be best to go back to slalom type tasks, but only rewarding precision and not speed. Collecting hoops at ground level, for example, that was great to watch during the first tasks in Parabatix, would be an interesting precision task both for the pilots and the spectators, without requiring accelerated turns near the ground.

Technique: read again how the turns in slalom competitions work: precise use of the brakes, accelerator and throttle... http://www.free.aero/en/contentsHTML/playing_with_wings/?page=47



TECHNIQUE AVANCÉE

UTILISER TOUTES LES COMMANDES POUR LES VIRAGES EN SLALOM



Photo : Jérôme Maupoint / GIN

The Carve is the new slalom wing from Gin; it hasn't officially been launched yet...

TURNS FOR EVERYONE
For 'novice' pilots, here are a few reminders about how to practice and improve turns and play 'soft slalom'.

- **For an efficient turn, don't just practice really winding into the turn, but also exiting cleanly by limiting any unintentional pendulum effect. To learn, pendulum left and right when flying straight, then try to stop the movement.**
- **Even when paramotoring with high attachments, don't forget to weightshift to help, however ineffective this may be.**
- **Take into account the effect of the propeller: release the throttle momentarily to initiate a turn in the disadvantageous direction.**
- **Practice alternating big roll turns with flatter turns.**
- **For turns close to the ground, in countries where it's allowed (Spain and Italy), choose a damp sandy surface or snow. It won't forgive everything but will limit the consequences of a crash.**
- **Don't try to touch the ground with the stabilo. It is relatively easy, but exhilarating nonetheless, to keep it 50 cm - 1 m off the ground. On the other hand, actually touching entails far greater risk.**



Photo : Véronique Burkhardt / Pilote Sascha Burkhardt

In paramotoring, a World Cup, organised by the pilots like the PWCA in free flying, doesn't exist. It's a shame, because perhaps that would stimulate putting in place new tasks, both safe and fun at the same time...



The first Acrobatix at the Coupe Icare in 2011: a revelation for the public and paraglider pilots. Suddenly, the discipline became 'fun'. But the reflex wings at the time weren't optimised for turns. The marriage between reflex, small surfaces and lots of manoeuvrability came a bit later.

Small wings, powerful motors: slaloms are becoming more professional.



Photo :Red Bull Air Race



HOME MADE COMPETITIONS

PARAMOTOR GAMES...

It isn't very easy to get hold of pylons to make a slalom course and, in any case, it isn't very safe. Here's an old 'game' which is easy to build: polyethylene foam hoops which you have to catch with your feet and throw into another defined space.

A game which needs technical skill, it's fun and a lot less dangerous than turns made around a pylon. And if you catch them with your propeller, they don't (normally) break.

To make a hoop, all you need to buy from a sports shop is a swimming pool noodle (between 2-3 euros each), a multi-connector to go with it (3 €), two 200 g bags of sand, two wooden plugs (10 cm long and about 12 mm in diameter). Cut 40 cm out of the noodle and put this piece across the connector.



N° 1
Put a 200g bag of sand into each 'open' side as ballast.



N° 2
Bend the rest of the noodle into a circle and insert the ends into the connector. Make a hole with a soldering iron, if this hasn't already been done.



N° 3
Block it all with the plugs and secure them with adhesive tape.



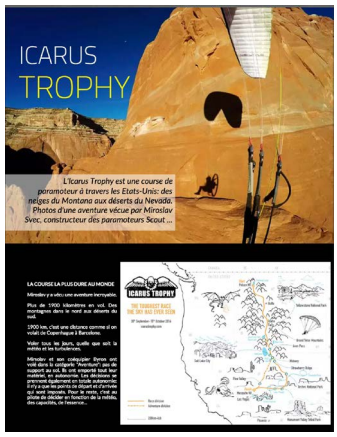
N° 4
Ready to play! Cost per hoop: about 6 € maximum.

Armin Appel



ICARUS TROPHY

The Icarus Cup is the paramotor race across America, comparable to the X-Alps on a paraglider. 1900 km, from snowy Montana to the Nevada desert. This year the Icarus Cup will take place once again in September, but in the meantime, smaller versions are being held under the title of "Icarus X", one of which will take place in England in July.
For more information:
https://www.icarustrophy.com/blog/2017/5/2/icarus-x-uk-course-de-tails-and-sign-up



Our article about the last Icarus Cup :
http://www.free.aero/en/contentsHTML/light_2016_e/?page=101

A little "Icarus X" this spring in Florida; the next will be in England at the beginning of July.



Pilote: Gregg Miroslavek



15th FAI PARAGLIDING WORLD CHAMPIONSHIP 2017 MONTE AVENA-ITALY

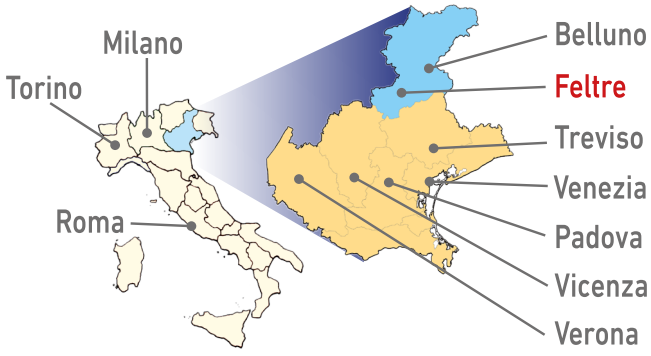
July 1-15

Feltre - Belluno - Italy

01/02 July: free flight and outdoor sports exhibition
02 July: opening ceremony & parade
03 July: start of contest flying days
15 July: prize-giving & closing ceremony

13 days of competition, 150 pilots,
5.000 sq km of flying area in a very unique location

#monteavena2017
www.monteavena2017.org



Enjoy sport and much more

- excursions in the National Park Dolomiti Bellunesi
- guided tours of castles, museums and historic centres
- music nights
- tasting menus of traditional food
- shuttles, bike rental
- tourist card

More info: www.dolomitiprealpi.it

FAI
AERO CLUB D'ITALIA
alpenplus by KIWI sports
Superfly360
dolomiti prealpi

free.aero

INTERNATIONALES MAGAZIN FÜR GLEITSCHIRM-UND MOTORSCHIRMPILOTEN. FOR FREE.

Concept, editor in chief, webmaster: Sascha Burkhardt
test pilots: Sylvain Dupuis, Pascal Kreyder, Cédric Nieddu
Layout: Véronique Burkhardt
Translations: Ruth Jessop
iOS development: Hartwig Wiesmann, Skywind
Android development: Stéphane Nicole www.ppgps.info
Logo designed by Indalo: All rights reserved by Michael Sucker indalo@web.de
Magazine free.aero
SIRET 807821319 00017

Editor and director of the publication:
Sascha Burkhardt, contact@free.aero
F-66210 Saint Pierre dels Forcats
Tel. +33 6 70 15 11 16

The contents of free.aero (photographs, articles, videos etc) are protected by copyright.

Anyone has the right to duplicate, redistribute or publish our online magazines, as long as they don't modify them. It is strictly forbidden to copy articles or photographs, to publish them, to use them in any other format or context, or to use them in another piece of work.

