

NOVA

30 YEARS OF

AIRTIME



THE 30 TOP TIPS
for cross-country flying

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XC

EXTEND YOUR RANGE!

The 30 top tips for successful cross-country flying

Some of the world's best cross-country pilots are in the NOVA PILOTS TEAM. Here we have collated the 30 most important tips for successful cross-country flying.

Photo: Tobias Ehrmann



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KRONPLATZ

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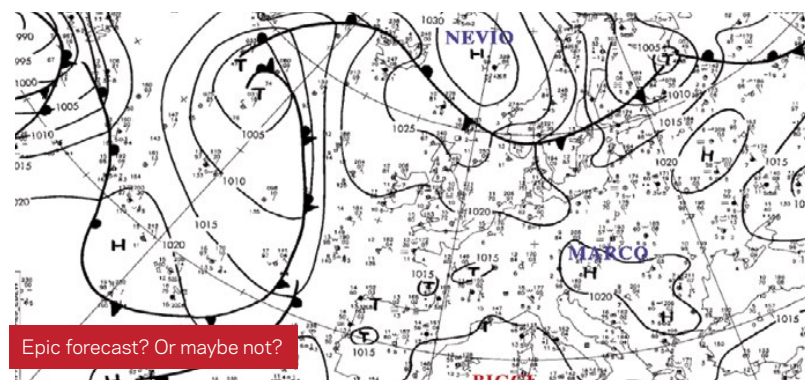
1 Don't make excuses - go fly!

It might sound strange, but the most important prerequisite for successful XC flying is to actually go out and fly. I know the predicament - many pilots don't have the time to go out to fly on every half-decent day. Work, family, everything needs to be accommodated. So you need to choose the good days carefully and make the most of them.

But instead of "epic day" you often read "late start", "windy" or "possible thunderstorms in the afternoon" into the forecast. What a shame, it doesn't look like such a good flying day after all. Or maybe it is?

The fact is that it is often easy to come up with arguments NOT to go flying and to wait for a better day. But then it could be that you look at the online contest in the evening, and loads of your friends have flown 150+km triangles and are happy about this wonderful flying day.

And you are annoyed about the missed chance and wait for the next perfect day. And it comes, but it's your son's birthday, your boss wants a presentation urgently or the car has broken down. **So don't let yourself be put off by a weather forecast that's a little on the pessimistic side or listen to your inner couch potato. By keeping your eye on the forecast, you can make the most even of a supposedly non-perfect day.**



3 Be patient

Everyone is climbing in the same thermal. The first pilots reach cloudbase and fly off. We're going for it! So best to chase after them as fast as possible! Even when you still need a few turns to top out of the thermal? If you are very lucky you will catch their next thermal. If not, you will arrive much lower and then might have to search for the lift - and in doing so the gap gets even bigger. You are unlucky, don't find the thermal and go down. So, don't get upset when others pull ahead of you. It is perfectly possible you will meet again during the flight.

You also need patience, when for example, there is some temporary cirrus. It is amazing how quickly thermals can weaken or switch off entirely. Conversely, what doesn't stop so quickly is a valley wind. The pilot who plans ahead positions themselves in a prime position on a soarable ridge just waiting for the sun to start the thermals again. This little trick can make the difference between a great day and being prematurely on the ground.

So, patience and plan ahead. Don't be rushed.

2 Bombard other pilots with questions

In 2006 I was a complete zero at cross-country flying in comparison to the sky gods. But those very sky gods would say to me "Tomorrow is an epic day, you'll fly 150 km." And, of course, I had a few questions ... So we discussed the route options, the crunch points, wind and weather development, a Plan B, a Plan C and then I did indeed fly a flat triangle of more than 160 km.

Talking to other pilots, including some of the world's best cross-country pilots, literally switched my desire for improvement to over-drive. Even today, I am never embarrassed to ask for advice. Whether it is about cross-country flying, some trivial question like where the local house thermal is or if there are any hazards. Bombard other pilots with questions! Asking questions is not a sign of weakness, but it shows you are interested and willing to learn. **By the way ... this principle also applies when people ask you questions. Some friendly advice can make all the difference.**



Photo: Chris Feichtl

4 Have more than a Plan B

To have a Plan B you have to have a plan in the first place - which is always a good idea. These days there are pilots who spend bad weather days or long nights with planning tools like XC-Planner or Thermix. But it is not just critical how meticulous the planning is - it needs to be flexible as well.

For example this Hochfellen triangle: The plan is for an ambitious 250 km FAI triangle from Hochfellen to the Kreuzjoch, Gastein and back. For some reason the pilot decides to turn east at the Thurn pass. It would be useful to have an instrument with you that can display your triangle sectors. What it will not show you is any other possible crunch points on the new route. So you need a Plan B! And when suddenly the north-west wind blows very strongly - too strong for the headwind battle on the last leg to be worthwhile, then Plan C is needed. In this case, head east and go for open distance into the Enns valley.

This shows that a well-thought out plan is great, but don't become a slave to it. Stay flexible and have alternatives worked out.



Photo: Heidi Insam

think positive!

5 These days mental training is an integral part of top level sports. So why not use some of these techniques for cross-country flying? Anyone who has had a low save during a long XC flight will know from personal experience how euphoric this makes you feel. If you look at this objectively, you actually lost time which has cost you valuable kilometres. But subjectively, you avoided going down, you're still in the game and you are as excited as a little kid. A great feeling!

Mental training can have a similar effect on athletes. The aim is to visualise (partial) successes, movement sequences, breathing techniques, constructive approaches and increase motivation as well as to reduce any fears and stumbling-blocks. Especially when it gets stressful, this really pays off! Mental training can also help you to work through negative experiences like a parachute deployment or a crash. **It's worth a try - imagine yourself landing after successfully closing a 200 km FAI triangle. Before the next take off, think back to a particularly nice flight and praise yourself for small partial successes while you are in the air.**



6 Use the winter – physical fitness helps

In autumn and winter many pilots don't go out because "it's not worth it". And if you don't get on a plane to fly south to get some airtime, you can quickly find your glider has been packed away for a few months. But as soon as spring comes, the thermals return and with them the first ambitious cross-country pilots.

I have experienced this a lot. The thermals can be small and punchy. It is demanding flying, but normally you can already centre in the thermals. The first 200 km FAI triangles of 2019 were flown in March!

It used to happen to me regularly that on my first flights of the year I got tense or had aching muscles the next day. Since I started doing a lot of cross-country skiing in the winter, I don't experience that.

It doesn't have to be a full gym workout every day, but to stay active in winter and maybe do a bit of ground-handling definitely helps. Then you are ready for spring.

7 Keep a log book – analyse your flights

There is a big difference between someone telling you about something or you experiencing it for yourself. Anything you experience is more easily accepted and the resulting learning will be more profound. A detailed log-book is therefore a very good method to make the most from your own experiences. BEFORE a flying day, write down what your expectations for the day are. Collate screenshots and weather maps from your favourite forecast sites so that you can analyse your predictions AFTER your flight.

Was your plan a good one? What could you have improved? Should you have changed your plan completely? What did others do better? Did the weather develop as expected? How were you feeling? You can also use the Air Buddy feature to compare your flight with other pilots.

If you regularly analyse your own flights, you will be able to see for yourself what you have learned and will be able to incorporate it into your future development. Yes, it's a lot of work – but it is worth it.

8 Always enjoy yourself

Why do you fly? Most will answer: "because it's great fun". Secondary reasons will be experiencing the outdoors or concentrating on the here and now. What hardly anyone immediately admits is that recognition also plays a role.

Of course it is nice when you look at the XC league and you are ahead. But is this more important than the actual flying? I know a few pilots who are so ambitious that they often forget to have fun. If you sit down for a beer with them in the evening, they are in a bad mood – just because they didn't make the planned 250 km or somebody flew further than they did. It becomes even more extreme when one's own desperation for success is at the expense of safety.

In the NOVA Pilots Team there is a clear instruction that we always want to put sanity and safety before success. I share this belief. If it weren't for that, the fun would literally fall by the wayside. So, when a friend has a long face at the end of the day because they didn't break the world-record, maybe it would be helpful to remind that person why they started flying in the first place. And anyway, you can always fly again. There's always tomorrow!



9 Let it go

"You guys just sit around and occasionally pull some strings. That's not a proper sport." My neighbour, a passionate cyclist, has very fixed ideas about what "sport" actually is. And no idea about flying. Even if I don't have an average pulse rate of 175 bpm for six hours, as he likes to, I'm pretty exhausted after a long cross-country flight – physically and mentally.

But as for my neighbour, drinking is also of primary importance for me. I never used to think much about it. I just flew. And at some point I had a really dry mouth. I did notice that. What I didn't notice was how my concentration suffered and so I repeatedly made tactical mistakes – and bombed. It reminds me of a really busy day at the office. I get so engrossed in a project, I forget to eat and drink. At some point I get a headache (I notice that) and my concentration suffers (I don't notice that until I consciously think about it). So I have something to drink.



But if there's a lot going in, there's got to be a lot going out. And that begs the question ... how? In "Thermik" magazine there was once an article about this and I think it was the Italian XC ace Kurt Eder who said very meaningfully: "I would never buy a second-hand harness." OK, but there are options:

■ **Freestyle:** I once encountered a pilot in the air who was hanging like Jesus on the cross. When I got closer I realised he was trying to pee. But he didn't twist 180 degrees, like I would try to on a glide, but flew straight at me. After witnessing his performance, I am not convinced of this technique. Maybe it was Kurt Eder?

■ **You're never too old for nappies!** Incontinence nappies are suitable for men and women, but they do not make for a sexy bottom, and you have to find a discreet place to get dressed and undressed. And I was told it is better to practise before the real event. So hang up the harness in a kid's swing and try to go. Because it's quite possible you won't be able to go.

■ **Pee condom kit:** I think we cross-country pilots are the horror of every mountain railway toilet on a promising XC day because we occupy the toilet for ages. But a pipeline needs to be routed properly. If it is not, you get a warm and humid present in the genital area whilst in the air. If it has slipped off or there is a bend in

the tube – both is annoying. Here too a dry run at home is recommended (which by the way is by no means a dry matter). My boys thought it was hilarious to watch their dad in his harness clipped into the garden swing and fertilising the lawn ...

■ **Pee bottle:** I have heard again and again that there are pilots who have a pee bottle on a string in their harness. I can imagine that it would work on long glides in calm air. But it must require a lot of fumbling around: taking your gloves off, zips down, "docking", etc.

It's much easier to eat in the air. I know pilots who never eat. They don't seem to need to. One of our local French pilots likes a nice baguette sandwich. For me a crunchy bar is enough when my blood sugar levels fall.

In summary: dehydration will affect your concentration and you need to practise peeing in the air.



10 Listen to your intuition

I have been flying since the end of the 1980s and just like when driving a car, I have developed a kind of “sixth sense” when flying. I’m sure you know the feeling. You’re driving towards a junction and something seems strange to you – and suddenly someone cuts you up. But you are aware and can compensate for other’s mistakes.

When flying this kind of stuff happens to me too. For example, when it comes to right of way when everyone is piling into a thermal – everyone has experience of that. **I don’t know how it works, but I always listen to my intuition. This can even result in me not even taking off, even if it doesn’t look so bad and others are flying quite happily. But at that moment it has to be right for me and if my gut says “no”, then I trust that instinct.**



11 All birds fly high – high – high

In his book Cross-Country (www.thermikwolke.de), Burkhard Martens recommends always flying as high as possible. Even if the guys ahead are already chasing to the next thermal or if you have the feeling that everyone is flying much faster than you ... The higher you get, the higher you will arrive after the next glide, and maybe even over the next ridge, where the next thermal is waiting for you. Of course, flying far means flying fast. But the first rule is: don't land.

Especially at the beginning of your cross-country career (or at the beginning of the season) you should concentrate on flying as long as possible. If you're in the air for ten hours or more, you'll go a long way. Speed only becomes relevant much later. By then you will already know the crunch points and know which thermals are strong and consistent – or which ones are just weak bits of lift.

12 Concentrate on the crunch points

There are particular cross-country routes that are particularly suitable for flying really long distances. Long-standing XC pilots will think of places like Fiesch, Mornera, Fanas, Scuol, Stoderzinken, Stubnerkogel, Grenteam or Hochfelln. All these classic triangle places have long stretches where you can “boot it”. Where bits of the route run along mountain ranges that are very favourably oriented towards the sun. Mostly there are house thermals and it is unusual to sink out there. And then there are transitions where you can be on the ground fast and involuntarily. Observe the sky gods when they make these transitions, because they know where to get up again.

For example at the Grente: select the longest flights from this site in the XCcontest. In the list you will see the same names coming up again and again. These guys know how to fly this area. What line do they take over the Staller saddle and into the Defreggen valley? How do they cross the Tauferer valley? How do they get over Sterzing? And in particular, how do they cross the Lüsener Alm? In which wind do they fly to which point during the transitions?

When you are doing your planning, concentrate on the crunch points that connect the easy bits. This will give you the best chance of getting around the course and you're not standing on the ground prematurely.



A 300 km triangle in the Valais, shown on Thermix

13 Tools with addiction potential

There have been cases of relationship breakups because one partner was addicted to XC Planner. At least that's the rumour in my club.

No question that the two planning tools xcplanner.appspot.com/ from Tom Payne and Thermix from Bernd Gassner berndgassner.de/thermix/ are potentially very addictive for cross-country pilots. A mouse-click on your turn points and the tool will tell you how many league points this flight will earn you. In addition there is airspace information, skyways, the graphical representation of the turn point radius and above all, useful thermal information to help you achieve your dream 100/200/300 km flight. Last but not least, you can download the planned routes in various data formats (e.g. .gpx) and transfer them to your own flight instrument.

XC Planner is easier to use as it focuses on the essentials: the skyways show where most people fly as a graphical overlay over the selected map. Thermal info is presented as a heat map based on KK7 data (thermal.kk7.ch/) for January, April, July and October from sunrise +4, +7 or +10 hours. This helps a lot! But what you should also know is that this thermal info is based on past data, from real flights other pilots have submitted to a league. So it is by no means the case that in the immediate surroundings of Annecy, Andelsbuch or Kössen the thermals are “best”. It is just that that is where most people fly.

Thermix offers everything XC Planner has – and a lot more. For planning purposes, you can limit the data to April to September. Official take-off and landing areas can be displayed. You can also filter the KK7 data and display the “best” thermals as individual points. Thermix also displays the thermal info from the DHV-XC (Leonardo) – even with filter options according to wind direction and thermal quality.

The Thermap data is great for pilots who want to “break new ground” – this is a theoretical model for the thermal probability as a function of slope inclination and solar radiation (i.e. according to selected time of day and season). Since Thermix also allows the import of GPX or IGC files to your instrument, you will be amazed how good the thermal predictions are when comparing theory and practice.

A real source of inspiration for new routes and a great tool to do a lot with! But please don't neglect your partner ...

14 Become your own weather guru

Many pilots in the German-speaking world miss Stefan Hörmann's subscription gliding forecast called "Gleitsegelwetter". It was the perfect forecast for meteorology philistines like me, because no prior knowledge or experience was necessary. Green = good, amber = so-so and red = rubbish. An epic day in the Valais? Get yourself out there!

But if you are involved in the cross-country scene for long enough, you will discover that the top guys and girls are not only excellent pilots, but also know a lot about the weather. That's the reason they go to the right site on the right day and make the right decisions during the flight.

How come? They have read the books on meteorology. They go to weather talks organised by their local clubs. They have spent years comparing the forecast and actual weather. They not only save their tracks, but also supplement these with screenshots of the actual weather and forecasts and subsequently analyse flight and weather. The pinnacle is becoming your own weather guru and being able to do your own forecast using charts and other weather info.

To fly far, it isn't essential to have experience and theoretical knowledge of the weather. You can just get lucky. But they're a great help to that luck. So back to those meteorology books!

15 The sun is your best friend

"Tomorrow we will fly the Stoderzinken triangle. At the weekend we will go to the Grente. Someone will fly 250 km." Or, "We'll do the Pinzgau amble from the Schmittenhöhe!". Which ambitious XC pilot has not heard those, or similar, statements before?

All promising triangle flights have one thing in common: exposure to the sun. In the morning head to the east or southeast, around noon to the south, in the afternoon to the southwest or west. You should consider this especially if you don't just want to follow the common routes, but are ready for something new.

And en route it can also be smarter to wait patiently until your friend, the sun, shines on the next stretch again.

16 Set goals

Cross-country flying is just like any other aspect of life – if you don't set any goals, you won't achieve them. Whereas in real life goals are often vague, in XC flying they are very well defined. The first 100 km flight. The first 150 km FAI triangle, etc. When the pilot is ready for these achievements depends on their individual learning journey. And if you don't immediately achieve that 100 km flight? Then you try again. And again and again.

Of course you need to balance thinking big with a healthy dose of realism. There are some really naturally gifted pilots, like NOVA Team Pilot Christoph Feichtl (www.xcontest.org/world/en/pilots/detail:Burgschmied). In the 2016/17 season he submitted his first cross-country flight. In the current 2018/19 season he is classed as one of the best XC pilots of the world! Others need a little longer to fulfill their goals. NOVA Pilots Team captain Till Gottbrath has been flying since 1986. After flying a 162 km flat triangle in 2008, he set himself the goal of flying 200 km. He achieved this in 2019. Both pilots are rightly pleased with their success, despite the different development tempos.

In short, it doesn't matter how distant the goal is, the important thing is to have a goal in the first place. Just flying around aimlessly will not get you any further in your pilot development. With patience and diligence it will work out sometime. And once you have achieved your goal, this will motivate you even more to achieve your next one!



Photo: NOVA archive

18 Split big goals into attainable targets

Success motivates, apparently. But you don't have to win a championship title to get some positive energy. As you prepare for your "personal best" goals, you can set small or more spontaneous daily goals. For example, to be one of the top 3 pilots who launched from the same place that day. To fly all the way round a nearby lake. To be the last person to land on a particular day. To try to be the highest pilot for two hours at your local site. Set yourself a mini out-and-return task of maybe five kilometres and try to fly it as many times as possible or as fast as possible. Also really motivating: to fly home and land in your own garden.

It could also mean setting and reaching intermediate goals on a long triangle flight: first turn point? Absolutely! Well flown and that turn point in the bag. Praise yourself for small successes – you have earned it!

If you divide a big goal, which at first glance seems almost unattainable, into smaller individual goals, these become more attainable in themselves. And in the end, you achieve the big goal!

17 Get to know your wing

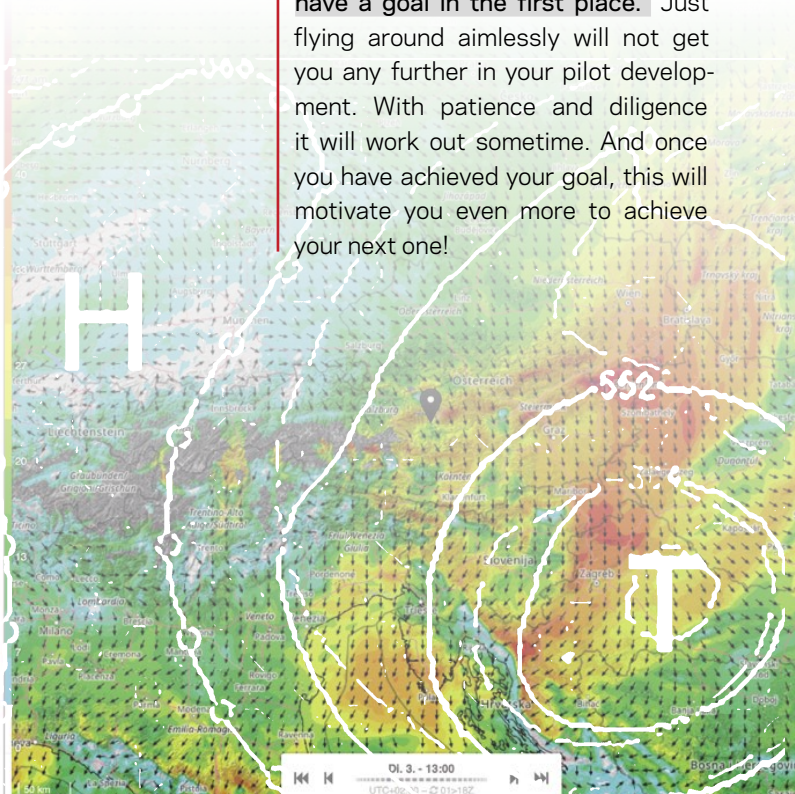
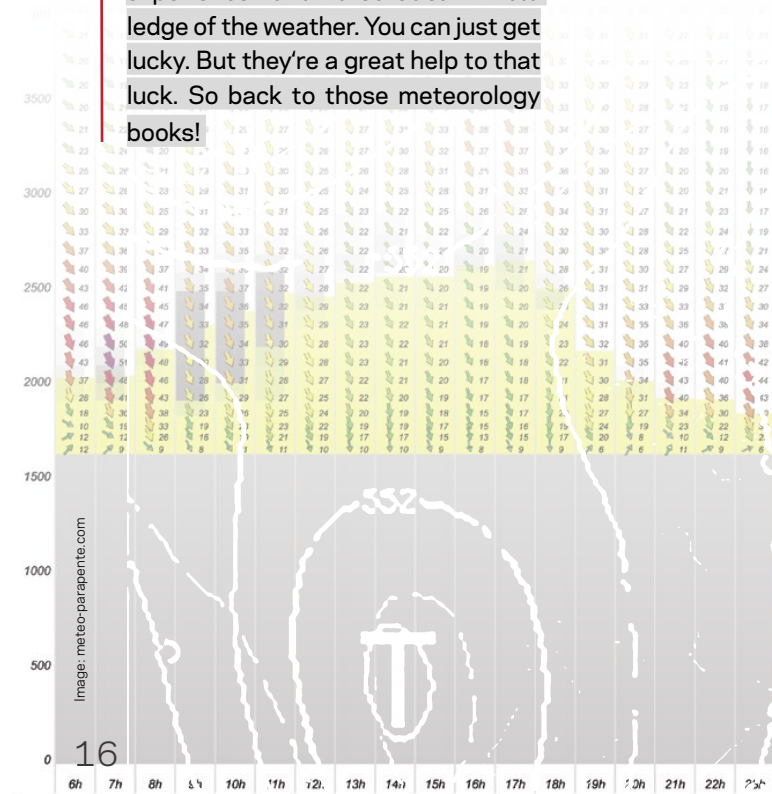
The early afternoon when the thermals are at their strongest, it is important to use even quite rough thermals as effectively as possible. Climbing faster is often a better strategy than gliding faster. In the late afternoon or early evening, the thermals become wider and weaker and now it is critical to take every bit of lift, no matter how small, to gain the last metres of altitude and get the last XC kilometres out of the day

This means: to get the maximum from your wing, you need to know it as well as you can in all conditions.

Think about the following:

- How tight does it turn at how much brake line input and how strong is the sink?
- How does it react to weight-shift without or in combination with how much brake line input?
- What effect does the outer brake have when turning (also in relation to the inner brake)?
- How do you achieve a 360° turn with minimal sink?
- Have you ever tried weight-shifting to the outside of the turn?
- Have you tried turning with asymmetrical use of the speed-bar? (doesn't work with all speed-bars)
- How does the glider react to steering inputs with the rear risers (Speed Brake Riser)?
- How do you achieve best glide (with most modern gliders it is slightly accelerated) and least sink?
- Try out min/sink and max/glide when flying straight.

When trying all this out, use still morning or evening flights, or make the most of your time in autumn and winter. Just keep trying out things with your glider.





Berni Pessl feeling good on an XC flight from Quixadá on his ION

19 Fly a wing with a feel-good factor

One of the great success factors for flying far is the feel-good factor of the glider. Those who want to break the 100 kilometre mark will stay in the air for about five hours (presumably they will not yet achieve a high average speed), and those who are aiming for the 200 kilometres will do so much longer.

In parallel to their own development as pilots, many ambitious pilots switch to higher class gliders. This might sound like a logical progression, but it doesn't necessarily have to be like that. **In the NOVA Pilots Team (but not only there) there are a lot of pilots who have been very successful for many years and still "only" fly an EN/LTF B glider like the MENTOR or PHANTOM.**

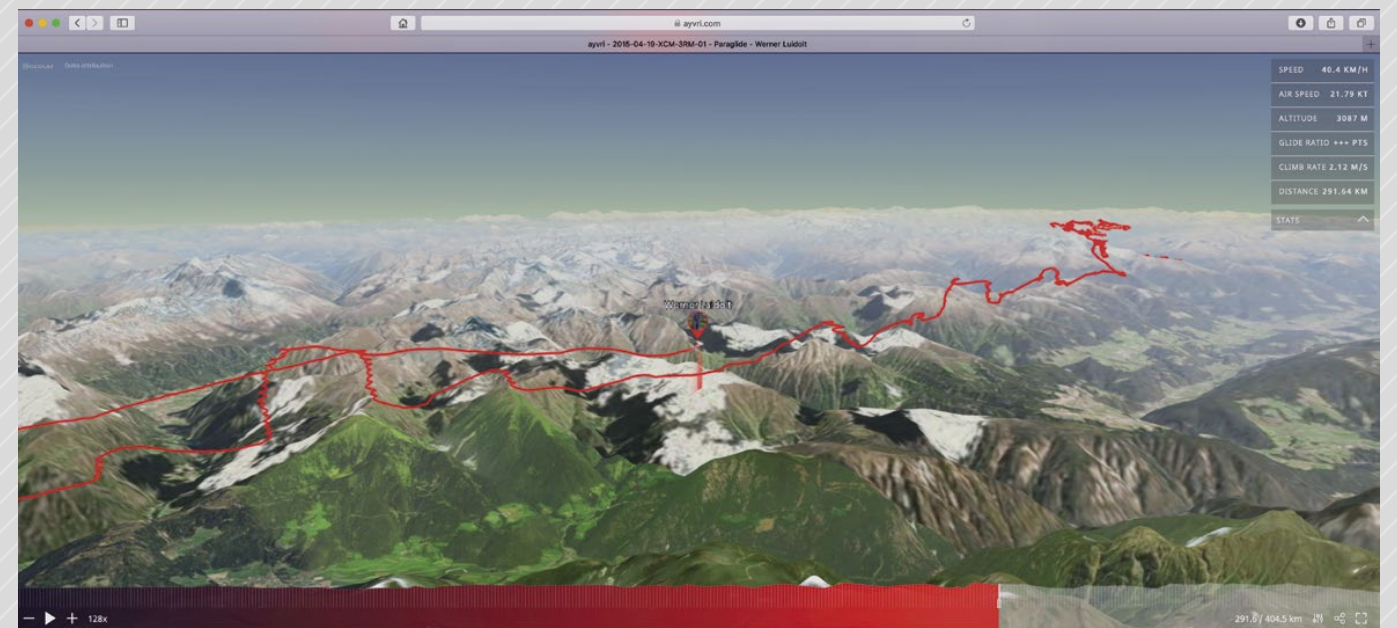
The reason is the higher passive safety of an EN B wing. The other often quoted reason is the ability to concentrate. If a significant part of your attention is drawn to keeping the glider open and above your head, you are more likely to reach the point during the flight where you lose concentration. You will make a tactical error and go down. To fly far, you need to fly for a long time. That means to delay your landing for as long as possible. If you can stay in the air for 10 hours, you will go a long way.

If you are flying a glider that is simply "there" without you having to actively pay attention to it, the prerequisites for a long flight are given. Which wing category is the one that makes you feel most comfortable is, of course, a matter for each individual pilot. **But it is perfectly possible that less (classification) is more (distance).**

20 No fear and no deadlines

From my own experience I know that two things really hamper a long XC flight.

1. The fear of bombing out... i.e. if I am already thinking of bombing out when I am still flying. People talk of a **self-fulfilling prophecy**. If you think about bombing out, you're already half-way there. Better to turn that around and persevere and think about all the low saves you achieved in the past! You've only landed when you are standing on the ground with both feet. Until that moment you always have the chance to get up again.
2. **Evening commitments are a killer for XC flights.** If you are already worrying about getting home on time, if there will be public transport, how long it might take you to hitch back to your car ... you are really increasing your chances of a short flight.



21 Try some virtual flying

Have you ever played with the ayvri.com (previously Doarama.com) or soaringlab.eu websites? These allow you to upload your or other pilot's IGC or GPS tracks and play them in 3D. Which route did they take? How effective was that route? Where were the best thermals? You can also compare the glides of different models using these websites.

The 3D display of flights is especially useful when going to a new, unknown flying area. From one of the online XC leagues, download several flights of a local skygod someone who often flies in the respective area. That pilot will know where the house thermals are located. This will give you a good idea of the local terrain. Once you are on the take-off, the area will not seem as unfamiliar to you.

And after your flight, you can compare it to the flights of others on the same day. This is a wonderful opportunity to see what others did better than you - or you did better than them.

23 Have an equipment checklist

What a horror scenario: it's an epic forecast, you are free and standing on the right hill, ready to take off and you notice you have forgotten your gloves! Or your battery is flat, you forgot your GPS, etc.

Pack your bag the night BEFORE, using a checklist. You can make your own list or download the NOVA XC checklist from here:

www.nova.eu/fileadmin/user_upload/service/download/en/xc-gear-list.pdf

22 Less haste, more miles

This tip might sound trivial, but experience has shown that it is pretty important. Take your time when aiming to fly cross-country.

- Get to the flying area the day before if it is a long way from home. Getting up at 3am to travel to the right hill is less than optimal.
- Take your time for a proper weather check and route plan.
- Sleep for as long as possible to be refreshed when you get to the take-off.
- Get there early.
- Get your equipment ready in a relaxed manner. All this will give you time to talk to other pilots about their plans for the day and maybe get a few good tips as well.
- Before launch, have some quiet time to go through your flight in your head and visualise yourself landing later that evening safe and sound, with a big smile on your face.

Taking your time will not only bring greater success, but it can avoid mistakes or in extreme cases, even accidents.





Urs Haari over the Aletsch Glacier

24 Learn to core effectively

Anyone can fly straight (at least to some extent), but it is much more difficult and therefore extremely important to center in thermals correctly. Master pilot Chrigel Maurer has stated: **“When you are in a thermal, you spend half the time flying in the wrong direction!”** Therefore you should try to minimise the number of turns in a thermal and the amount of time you are climbing in one.

The importance of effective turning can be seen in this mathematical example: if your wing has a glide angle of 1:10, we can calculate how much time you need for a glide and to thermal back up to the starting altitude and therefore how long it takes to fly 20 km.

Isn't it amazing how much time you gain if you can climb faster? If you gain altitude faster, you get a better average speed and fly further.

How can you improve your climb rate?

- Practise at your local site. Climb, spiral down, climb again.
- Always try to be the highest pilot at your local site. This increases your awareness of the best places to climb.
- Observe your surroundings. Are other pilots climbing faster in another thermal? Are birds climbing nearby? They generally have the best idea where to get high. When scratching on the ridge, observe the leaves. Are the trees moving? Can you see the lighter underside of the tree leaves?
- Observe and analyse the thermal you are currently in: is it tight or wide? Weak or strong? Smooth or rough? Straight up or drifting? And if it is drifting, how strongly and at which altitude?

SPEED	TIME TO GLIDE 20 KM	AVERAGE CLIMB RATE	TIME THERMALLING	TOTAL TIME NEEDED TO FLY 20 KM
30 km/h	40 min	1 m/s	33:20 min	1:13.20 h
		2 m/s	16:40 min	56:40 min
		3 m/s	10:06 min	51:06 min
40 km/h	30 min	1 m/s	33:20 min	1:03.20 h
		2 m/s	16:40 min	46:40 min
		3 m/s	10:06 min	41:06 min
50 km/h	24 min	1 m/s	33:20 min	55:20 min
		2 m/s	16:40 min	40:40 min
		3 m/s	10:06 min	35:06 min

25 Make friends with the (valley) wind

Above you read that it is important to fly high and stay high. Altitude means the least danger of bombing out – but this doesn't always guarantee the fastest possible flight, **because wind direction changes at altitude.** For example, if you want to return from the Goldeck to the Emberger Alm in the evening, there may be a very strong headwind, whereas down in the Drau valley a lovely valley wind is helping you along.

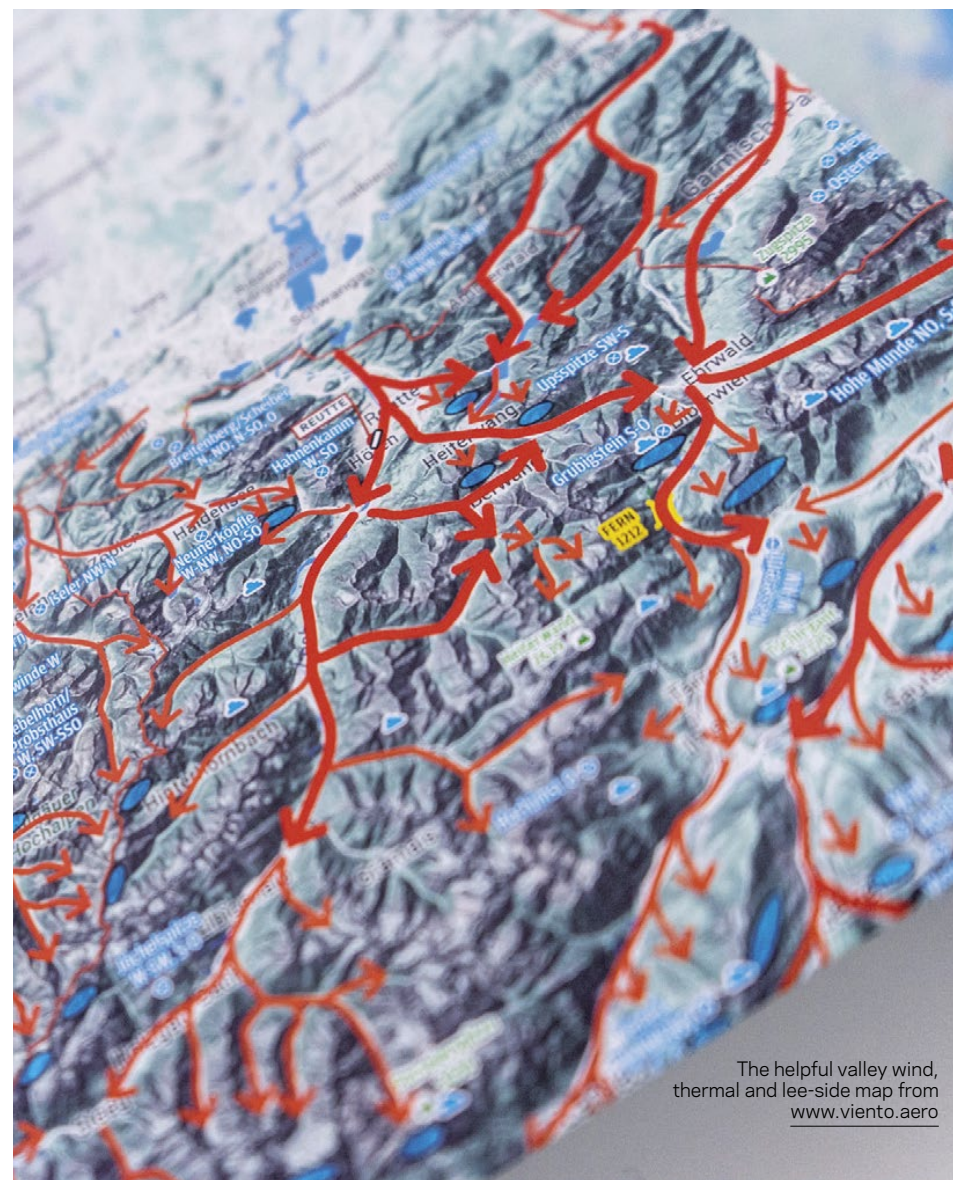
Modern flight instruments calculate the direction and strength of the wind while circling in a thermal. At cloudbase it may tell you for example, 272° / 12 km/h. But you should also check what the values were at 500 or 1000 metres lower. This will assist you with choosing the optimum glide altitude.

An excellent resource on valley winds in the Alps are the valley wind maps available from www.viento.aero. With a high reliability they indicate the mostly prevailing valley winds.

You should ask experienced pilots about soarable ridges and convergence lines. A gift to the XC pilot is for example, the famous wall over the Kufstein. You can arrive there at 50 metres above the valley floor and soar casually up to the pyramid peak at over 2000 metres. Convergences set up when two (valley) winds meet. Often you can spot them when there is a continuous cloud street over a valley. Weaker convergence may not be marked. You just have to know from experience where it is.

26 Be organised

Above we mentioned route planning with the assistance of online tools such as XC Planner and Thermix. **Get used to storing all information about your flight planning systematically right from the start.** This applies to screenshots of planned routes, the corresponding waypoint files and possibly also the thermal data. Well organised bookmarks in your web browser for all relevant weather pages, webcams, live weather data etc. also help. Why? Order in your filing and filenames makes you more effective at planning. You need to search less and save time. This is the case whether you are planning an XC flight or doing your tax return.



The helpful valley wind, thermal and lee-side map from www.viento.aero

27 Find and use the best lines

Within the NOVA Pilots Team there are a few pilots who have a very special gift: **people like Berni Pessl, Hans Tockner or Ferdi Vogel almost always find the best line to reach the highest possible point after a valley crossing.** If you ask them how they do it, you get the predictable answers – they pay attention to the clouds, where a little lift might be found to minimise the sink and they choose their lines so that the valley or prevailing wind will have least negative impact. The catch is that in principle, all other pilots do the same. Maybe it's just a feeling – but more probably training yourself to become more aware.

28 Should I stay or should I go? Using thermals

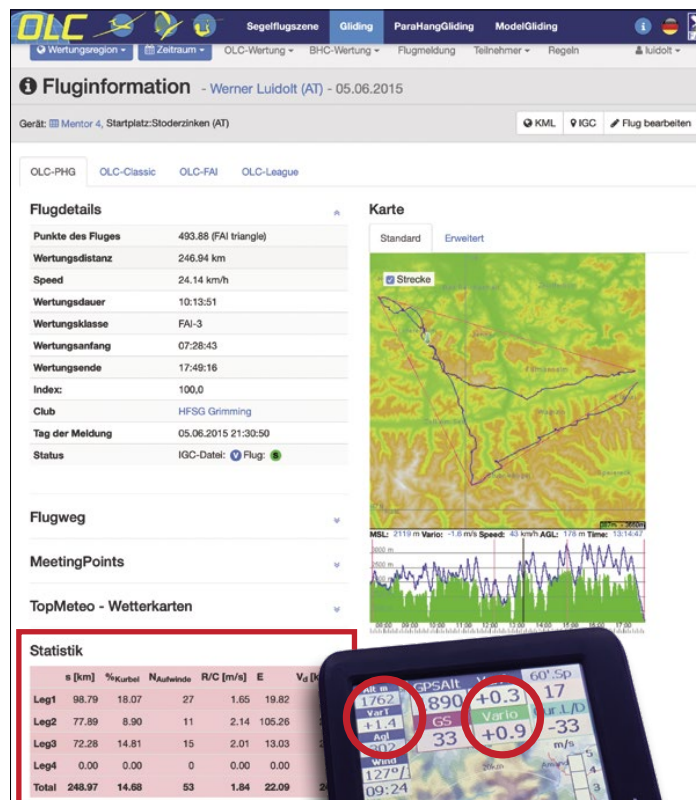
If you want to fly far, you need to fly fast. In addition to using the speed-bar, effective thermalling and line selection, leaving weak thermals for stronger ones is a good way of increasing your average speed.

To improve your skills in this area, you first have to analyse how much time do you actually glide and how much time are you turning? The www.onlinecontest.org calculates the percentages for you. This platform is primarily aimed at sailplane pilots and only a few paraglider pilots use it. This is a shame, because this resource offers options other platforms do not. It is particularly useful if you can compare your flight with one of your "Air Buddies" on the XContest.

When planning a cross-country flight in an unknown area, working with thermal data in Thermix (see above) is also very useful. So you know better where you have a good chance of climbing again after long valley crossings, even if there are no other pilots with you. And when you're struggling not to bomb out, it makes more sense to fly directly to a thermal trigger than to fly around aimlessly hoping to get lucky.

And during the flight? In your local area you presumably know where the local thermal triggers are. And in an unknown area? Modern flight instruments now indicate the average climb of the last (or several previous) thermals. If the climb rate in your current thermal is clearly above the previous one(s), it's good. If the climb rate is lower, then you should leave the thermal - at an appropriate height, obviously.

Also take note of the different climb rates at different altitudes during your flight. If the bottoms of thermals are always hard work, then avoid getting low at all costs. If the thermal peters out at the top, then it is a waste of valuable time trying to get the last 100 metres of altitude.



Display of the average climb rate on a Naviter Oudie

29 Survival mode and mile-eater mode

The time of day and altitude have a great bearing on flying style. If the thermals are weak in the morning or evening, it is better to fly defensively: take every bit of lift and get maximum height. The same generally applies when you are low. In this situation it is far more important just to stay in the air, never mind flying fast.

If, on the other hand, the thermals are booming and regular, and if you are high enough, you can switch to the mile-eater mode. Kick that speed-bar and go! Forget the weak thermals, just turn in the strong ones.

If you are high, let the clouds determine your route. Your focus is above - what line should you fly to lose as little height as possible? Which cloud is building, which one is decaying?

In survival mode, when you are low, the focus is more below. Where is the thermal trigger, or where might the thermal be? Which ridge can I soar to stop me from bombing out?



Photo: NOVA archive

In accelerated flight, many pilots correct pitch and roll movements via the C-area. But this causes a performance limiting crease in the profile. If the C-riser of the NOVA Speed Brake Riser (SBR) is pulled back and down, this results in the B-area also being pulled down up to 50% via a pulley - without the performance killer crease.

Video about the SBR: www.youtube.com/watch?v=dcILUJcA80

30 Effective active flying

A paraglider has the best performance when it is flying straight without any input. Any roll, pitch and yaw movement negatively affect performance. Also, the safest position of the wing is directly above the pilot. However, since the air moves in three dimensions and the airflow velocity varies all the time, the pilot must fly actively. This means: using the brakes, the speed-bar, the rear risers or systems such as the Speed Brake Riser in such a way that the glider remains over the pilot without much unnecessary movement.

From day one of instruction, a pilot is familiar with the brakes. They are the most important and most effective type of pilot input. But not always the best ... When the brakes are pulled, only the trailing edge is affected and the profile is created. Drag increases.

The situation is similar with three- and even more so four-liners, when corrections are made with the aid of the rear risers. This also causes a performance limiting crease in the profile. The specially added C-handles on some three-liners don't change this either.

Systems like the NOVA Speed Brake Riser (SBR) make more aerodynamic sense. It is designed to compensate for pitch or roll movements in accelerated flight by shortening not only the C-area, but using a pulley, also the B-area. This results in a change in the angle of attack over the whole profile.

Even more useful are angle of attack corrections via the speed-bar. It is an elegant and highly effective way to reduce pitch movements. This type of active flying doesn't work equally well on all gliders. There are wings that initially dive before accelerating when the speedbar is applied quickly. However, the with the current versions of the ION, PHANTOM, MENTOR and SECTOR this works really well.

What is certain is that the SBR or speed-bar are aerodynamically more favourable than inputs via the brakes. You have to learn and practise these techniques - and be happy with them. Within the NOVA Pilots Team there are some real Speed Brake Riser fans as well as speed-bar aficionados. My advice: work out what technique works best for you.

In conclusion

the great thing about cross-country flying is that you never stop learning. Even the most experienced mile-eaters will tell you that they learn something on every flight. So with these 30 "best" tips we hope to encourage you to continue to enjoy learning and paragliding in general.

We wish you a lot of success and enjoyment - happy landings!