Wings anyone?

The allure of the sport of gliding (né soaring), or how a balance of opposites comprises a most magnificent sport

by Piet Koornhof

Soaring like an eagle, with the gift of wings on the breath of an angel.

Long, slender and glistening white carbon fiber wings stretch outward at shoulder height to catch pockets of rising warm air for carrying you aloft.

Enclosed in a feat of modern technology, you are engaging with nature in the most intimate way, attuned to a myriad sensory cues that indicate the dynamics of the surrounding air.

On this stairway to heaven you might be joined by an eagle likewise circling in a thermal, gaining energy in the form of height that will allow you to embark on a cross country course of perhaps hundreds of kilometers at average speeds of more than 100 km per hour.

You reach an altitude of 12 000 feet or more on a cumulus-studded summer day, almost touching cloud base, with a view that takes your breath away, feeling free as a bird.

You have left the flatness of horizontal perspective to enter a realm where the sky is literally the limit. You are sailing the sky, using sophisticated technology to gain the most from nature's bounty.

A priceless sense of freedom is gained through the strict discipline of understanding and skillfully utilizing the aerodynamics of your craft as affected by meteorological conditions.

You might think of it as playing chess on a grand three-dimensional scale, noticing, anticipating and evaluating many options, and continuously making tactical decisions based on your best evaluations of a dynamic, ever-changing situation. It can be most liberating and extremely taxing, all at the same time.

You might be flying a racing task in a gliding championship, trying to traverse a series of turn points faster than the competition, all of whom are flying sailplanes of a similar type or "class"; or you might be on a solitary cross country flight, striving to better your own best long distance achievements; or you might simply be surfing the sky from cloud to cloud with no particular destination or time limit, enjoying a magical escape from terrestrial mundanity or the stresses of the rat race.

Whatever your motivation and goals for soaring, it is an engrossing combination of challenge and relaxation, nature and technology, solitude and fellowship, and freedom and discipline, the mix of which you can determine to suit your character and your budget.

CHALLENGE and RELAXATION

At one extreme you can dash from championship to championship - regional, national, and international – fiercely competing in state-of-the-art racing ships that come at hefty prices; at the other end of the spectrum you can for a pittance hire an older club glider and laze within comfortable gliding range of the airfield for a couple of hours as a wonderfully unique and engrossing way of getting away from it all. Or,

more in the middle, you can challenge yourself every once in a while to a cross-country flight that takes you out of gliding range of your home airfield - and out of your comfort zone – to explore new horizons and extend the range of your skills. This you can do in a middle-aged fiber-glass sailplane that will cost you about the same as a second-hand family car.

Flying a sailplane, whether for competition or for leisure, is a challenge. It demands acute awareness, focused concentration, continuous decision-making, quick reaction, and disciplined application of techniques, procedures and protocols. You have to understand and respect the limits of your aircraft and yourself, taking care to avoid crossing the boundaries of safety. You have to stay alert to other aircraft and to meteorological conditions that can change very quickly. The list can go on.

But at the same time it is wonderfully relaxing. The view, the silence, the engrossing tasks at hand – the very contrast to the everyday world below – have a renewing effect. Being in the air at the controls for a few hours is so absorbing, so different, so special, that it feels like a lengthy and exotic holiday.

SOLITUDE and FELLOWSHIP

Any of this you can either do alone, in a single seat sailplane, or with a friend or loved one in a two-seater , allowing for either solitary or shared pleasures of flight. For some, it is precisely the challenge to go it alone that is the main attraction. They relish the idea of the lone adventurer. Others prefer the camaraderie in shared adventure. The choice is yours.

Even though you might be alone in the cockpit while “exploring the invisible geography of the sky” (a phrase coined by American soaring legend and several times world champion, George Moffatt) , to get up there you need lots of help and support: fellow pilots who drive the winch, fly the tow plane, run your wing, celebrate your soaring triumphs and commiserate with your failures, and not least of all, fetch you and your sailplane with a trailer when you have landed out far from home.

Amazed? There’s more. Traditionally, soaring instruction has been provided free of charge. Instructors freely give of their time and expertise. It’s their way of expressing their gratitude for the joy their sport has given them, and of ensuring it is passed on. Few sports, if any, can match such abundance of sharing and co-operation. Watch a bunch of pilots gather at their clubhouse after a busy day of soaring, and you’ll see more beaming faces that just about anywhere else. They are positively glowing with contentment, excitedly sharing adventures and exchanging advice.

Even at fiercely competitive championships the sharing of preparatory tasks and the free exchange of information and advice is truly impressive. While doing their utmost to outfly each other, the shared passion for a remarkable sport seems to outweigh everything else.

NATURE and TECHNOLOGY

Your craft is a wonder of modern technology, cutting edge to the finest detail. Its sole purpose is to make optimal use of nature’s offerings. Everything is meticulously designed to maximize performance: nothing superfluous or extraneous, not a single millimeter of anything that can disturb the airflow or add too much weight. Perfect smoothness of wings and fuselage; the thinnest possible airfoil shape of

the wings; only one retractable main wheel to balance on while on the ground - all based on the most advanced calculations and simulations to minimize drag. Occam's razor in action.

Like dolphins in the water, sailplanes are designed to slice through the air with the absolute minimum of resistance. They represent the leading edge of aircraft design, and the use of modern composite materials, years and even decades ahead of powered aircraft. For example, both winglets and carbon fiber were first used in sailplanes, and only much later adopted in other aircraft.

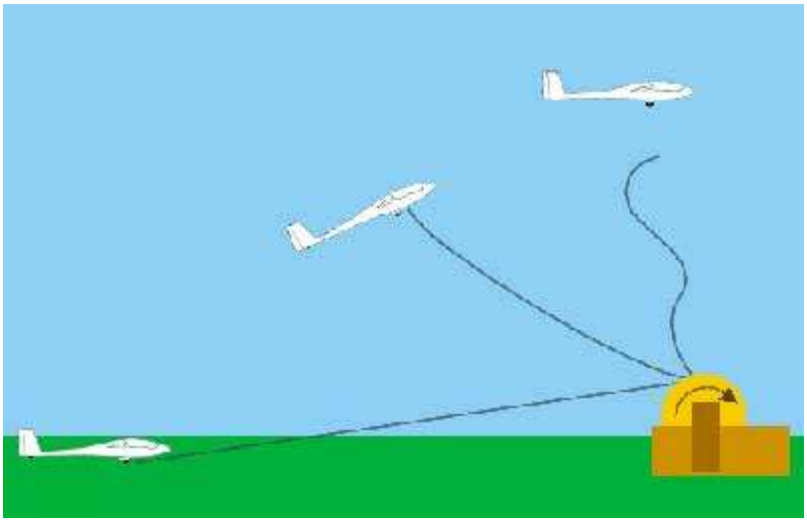
Painstakingly and lovingly built by highly skilled craftsmen, sailplanes are an almost perfect match of function and form. Gazing at the gracefulness and elegance of a sailplane is like being entranced by the perfect female form. If you are smitten by their beauty on the ground, wait till you see them in their element. Few sights are as astonishingly gorgeous as other sailplanes in the air as seen from your cockpit.

Modern sailplanes can achieve incredible height-to-distance ratios. Depending on wingspan it ranges from 1:40 to 1:70. That means that for one unit of height you can travel 40 to 70 units in distance! More concretely, it takes a distance of 40 to 70 kilometers to lose a height of 1000 meters (1 kilometer) in still air. That means that from a mere 1000 meters of height above, let's say Pretoria, you can glide all the way to Johannesburg before reaching the ground. Impressive, right?

That realization makes it slightly easier to comprehend how a highly skilled pilot in a sailplane can travel more than 1000km in a single day using only rising air currents as fuel. But only slightly. How astonishing that a craft of several hundred kilograms in weight can be flown such a distance without any form of mechanical propulsion! No engine noise, no emissions, no carbon footprint. A remarkably "green" sport!

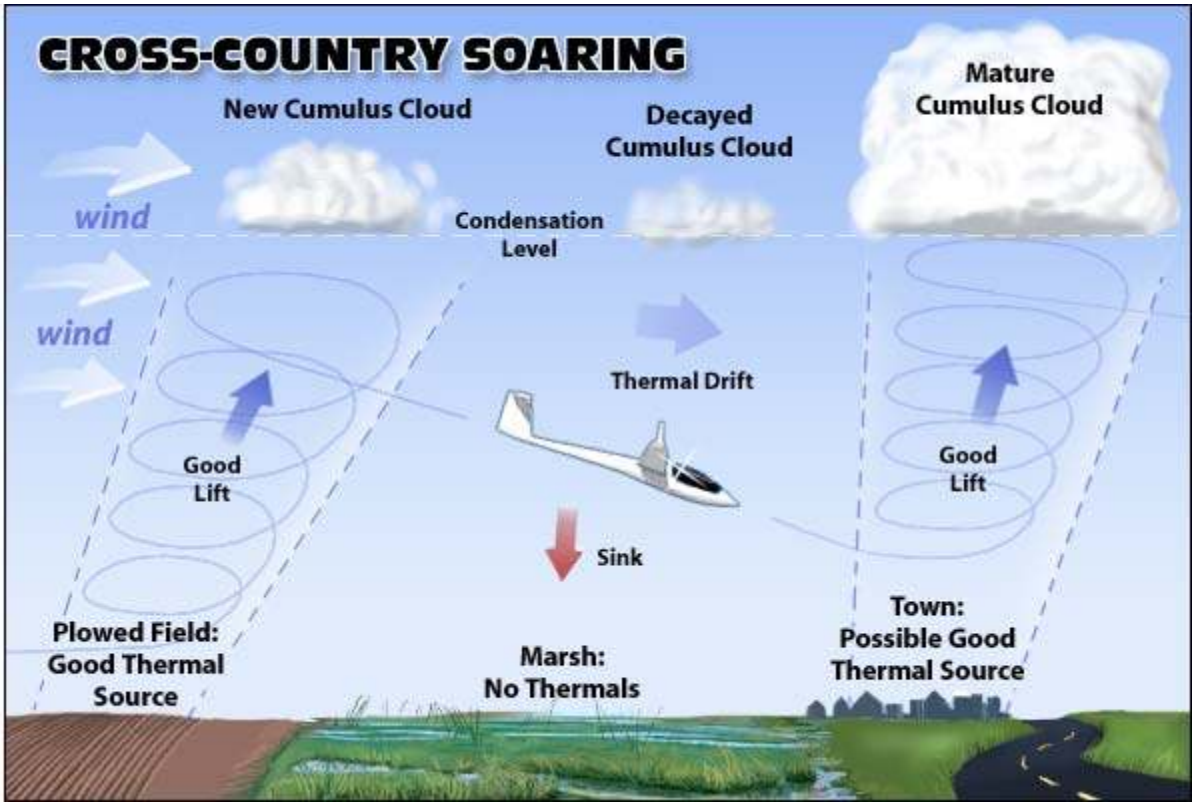
How does a sailplane get into the air in the first place, before it can start using nature's varied forms of "lift"? The cheap way is being pulled (actually it feels more like being "catapulted") to a height of 400 to

500 meters by a winch, which is an engine stationed at the end of the runway, that reels in a cable of more than a kilometer in length attached to your sailplane.

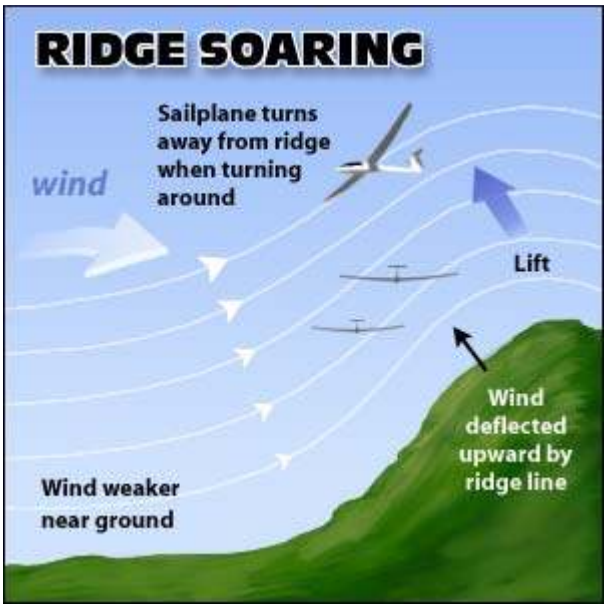


The more expensive and efficient way of ensuring that you reach your first thermal is called an aero tow, which involves a powered aircraft towing you aloft. As soon as you have found a suitable mass of rising air, known as a “thermal”, you release from the tow plane, and start the magical process of using nature as your fuel.

How does nature provide “lift” for a sailplane to gain altitude? In several forms, actually. The most common in our part of the world is “thermals”, which are pockets or columns of air that have a higher temperature than surrounding air, and therefore rise off the ground like hot air balloons and can reach altitudes of thousands of feet. Sailplane pilots search out these currents of rising air and then circle within them for a steady climb, like riding an escalator. Cumulus clouds – those cauliflower-like clouds that stud many partly cloudy days in the warmer parts of the year – are the result of, and often sit atop, active thermals.

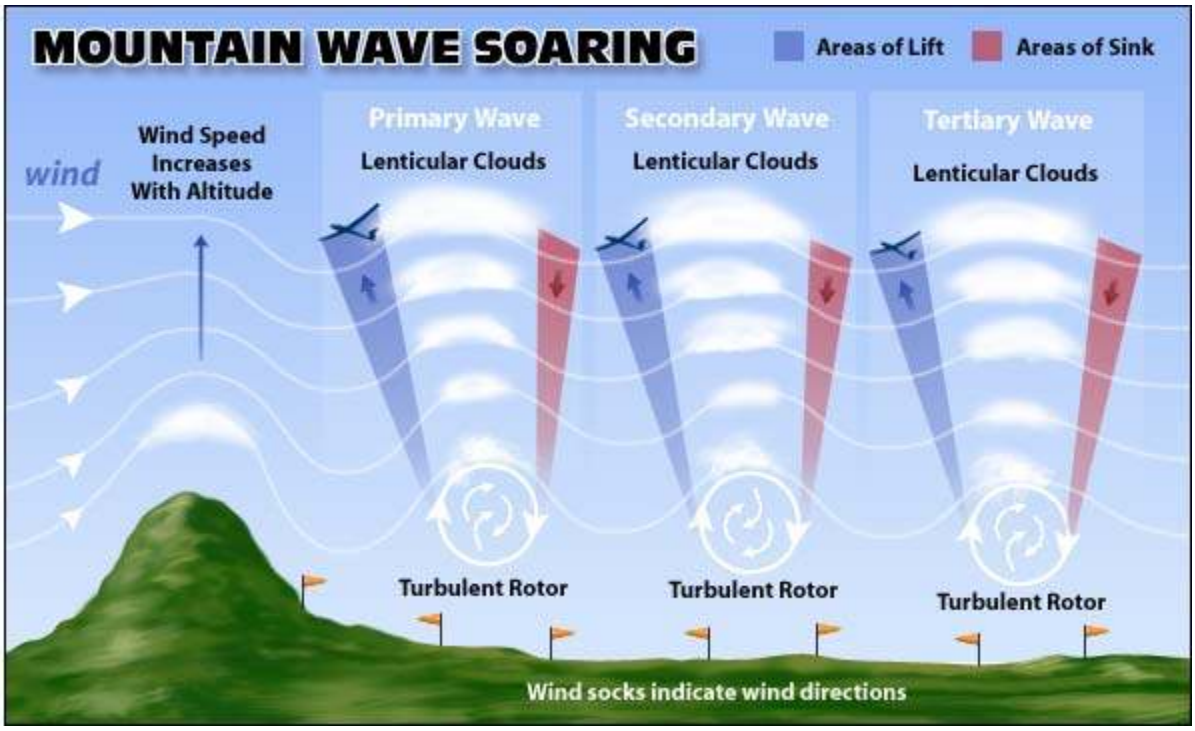


Another form of natural "lift" is provided by winds blowing up the slopes of hills and mountains. It is called "ridge lift". By flying in these rising winds and breezes along the edges of elevated terrain, sailplane pilots can stay up for lengthy periods over long distances.



A third form of "lift", and considered the Rolls-Royce of nature's gifts to soaring pilots, is called "wave lift", and is the result of gigantic wave-like movements in large masses of air caused by mountains over

which they pass, much like the down-stream waves resulting from rocks that disturb the flow of water in a stream. Such atmospheric waves can continue downwind of mountains for hundreds of kilometers and reach tremendous heights. It is by riding such waves that sailplane pilots can achieve tremendous altitudes, even on occasion enabling them to look down on passenger jets at cruise level!



How long can you stay up there? On a good day, many hours. Sailplane pilots routinely surf the sky for 3 to 5 hours at a time. Expert pilots have been known to fly distances of more than 1000km – that's right, ONE THOUSAND kilometers – in 7 to 8 hours in a single flight, without an engine, using only the propulsion provided by nature. Equally astonishing, altitudes of 20 000 to 30 000 feet (it is international aviation protocol to express altitude in feet) are not unheard of, with the sailplane world record being 50,671 feet. That's significantly higher than modern airliners on intercontinental flights! Again, without an engine, using only the "lift" of nature.

And the limits are continuously shifting. In fact, intrepid soaring explorers are now aiming to achieve altitudes of more than 90 000 feet, using a natural staircase of thermals, wave lift and the polar vortex. As our knowledge of nature and our technology improve, so soaring achievements keep pace.

As an illustration, consider that in the year of birth of the pilot who first flew 1000 kilometers in a sailplane in a single flight, Al Parker, the distance record was less than 1 kilometer!

FREEDOM and DISCIPLINE

While you experience a wonderful sense of freedom in the sky – that vast three-dimensional space for seemingly unfettered movement, with a view that extends forever -- you have to adhere to the

discipline imposed by aerodynamics, meteorology, airspace and air traffic regulations, aviation procedures and protocols, and airmanship.

Above all, you have to understand and respect the limits of both your aircraft and your skills. Transgress the boundaries and you gravely endanger yourself and possibly others. Only by diligently applying the discipline required to fly safely and effectively, can you truly have the sense of freedom that comes with being in control in such a unique and challenging environment.

Green but unknown

Ironically, the very "greenness" of the sport – sailplanes soaring above silently and therefore largely unnoticed - is one of the main reasons why it is relatively unknown. In fact, the sport is the orphan of sports represented on a national level. Even though South Africa had a world champion in 2001, and can boast several podium finishes at world championships before and since, the national team still isn't subsidized by the government. Neither is regional and national competitions. Corporate sponsorship is similarly conspicuous in its absence. Whether competing here or abroad, members of the national gliding team, despite their international standing, still have to pay from their own pockets to compete. It really is a shame.

Despite South Africa's illustrious history of soaring, excellent weather conditions, and relatively free airspace, the sport is surprisingly underdeveloped here. Very few people know anything about it. Where Germany has more than 30 000 glider pilots, and France has 17 000 – and even Britain with its lousy weather has 12 000 -- we have only 700.

The scope for development of soaring in South Africa is enormous. With wider media exposure and comprehensive sponsorship the sky is the limit. Now, if those in the business community who can spot a great opportunity will just step up to the launch point...

Are you getting an intriguing sense of the grandeur of this majestic sport? Would you like to learn more, and even get a taste of it? For information about a gliding club nearest you, visit the South Africa Soaring Association at www.sssa.org.za Visit a club on a weekend, book an introductory flight, and experience one of the most remarkable thrills available. Spread your wings and soar like an eagle.