

Many of us have lost gliding friends in the past few years. What is dreadful is that we have lost people to what quite possibly have been preventable accidents. The fact that several of these fatal accidents have involved experienced pilots with many hours of successful flying behind them is very worrying. The Civil Aviation Authority, the coroners who have dealt with the investigations, Gliding New Zealand and ourselves, the gliding pilot friends and acquaintances of those who have died, are very concerned. As a consequence of this concern, this issue of SoaringNZ has a strong focus on safety issues ...

We have an 'official' story by Arthur Gatland. George Rogers, President of GNZ says this about the article.

"GNZ is working with contributors to develop advisory articles aimed at improving understandings of some of the untoward factors which have come to light in recent accidents. The articles will be published in SoaringNZ, and the first is in this issue.

Arthur Gatland, well known in gliding and aviation circles, has developed a series of articles on Threat and Error Management (TEM). These provide models and practical guidance glider pilots can adopt to enhance TEM in gliding and consequently safety. The techniques, if employed, will minimise the risks of repeating some of the unfortunate factors

outlined in the safety recommendations noted in the Safety Corner of this issue. It is fantastic that Arthur has developed these articles, and I express a great vote of thanks to Arthur.

The articles are essential reading for all pilots."

In this issue we also have a wonderful international article on the dangers of Complacency by Stanford University's Professor Martin Hellman, one on Landout Safety by Northern Operations Officer Steve Care, and an interesting piece on the dangers of high altitude flight experienced safely in a hypobaric chamber by Roger Read.

We hope that these articles will help people think, assess and work harder at keeping themselves safe.

GLIDING – THREAT AND ERROR MANAGEMENT

– OR HOW TO REDUCE MISTAKES AND FLY SAFELY

Arthur Gatland



Arthur Gatland started flying in 1963 at age 13 and has accumulated 17,000 flying hours including 2,500 hours in RAF fighters such as Harriers, Hunters, Hawks. He is currently a Boeing 777 Captain and instructor, and for ten years was Manager of Training and Flight Standards for Air New Zealand. He is an A Cat glider instructor, with a Gold C and 3 Diamonds, and was a previous CFI of the Auckland Gliding Club.



In Soaring NZ issue 15, George Rogers asked why our gliding accident rate has been so bad over recent years. The fact is that on average we have one fatality a year with all the tragedy that this brings to families and friends, not to mention the huge cost in damaged and destroyed gliders and associated increase in insurance costs etc. Yet gliding is inherently a relatively safe sport, and historically has been second only to airline flying as one of the safest types of aviation. To my knowledge, none of our spate of accidents has been the result of structural or mechanical defects – all have resulted from pilots unnecessarily putting themselves in a situation that for various reasons have resulted in a crash. Ridges, rocks and trees do not suddenly leap out and hit gliders – yet we manage to collide with them on a regular basis. And despite the fact that gliders are safer, have better handling and performance, better airbrakes, more comfort, and better visibility than those of 30-odd years ago, our accident rate is worse.

Why is this – and more importantly, what can we do about it?

And despite the fact that gliders are safer, have better handling and performance, better airbrakes, more comfort, and better visibility than those of 30-odd years ago, our accident rate is worse.

Already, I can see a number of pilots losing interest in this discussion – because “This doesn’t apply to me – I’m experienced / skilled / smarter / an above average pilot (delete where applicable) and I don’t make those mistakes.” If you really believe this of

yourself, then you can replace those descriptions with “arrogant / overconfident / unrealistic / unaware” (delete where applicable).

This series of articles applies to every glider pilot in New Zealand, regardless of experience.

I believe that, like many accidents where contributing causes are often small but multiple, there has been a lowering of our flight standards for a number of reasons. These include:

- lower average flying hours due to less leisure time and financial constraints.
- higher performance gliders that create an unrealistic expectation that we always get home from cross-country flights.
- changes to national culture where people think they have the right to be more independent which leads to less discipline, reluctance to ask for on-going training, less time to talk to and listen to more experienced pilots, and unfortunately a lowering of instructing discipline and standards.

We all – individually and collectively – need to look at ourselves and see where we can attack these issues and reverse the slide in our flying standards and safety.

One technique we can all use to improve our flying safety is the



If someone talks to you when you are halfway through your pre-takeoff checklist, recognise that this threat is likely to result in your forgetting something, and start again from the beginning.

use of Threat and Error Management, which I will describe in this and following articles. This is a simple technique of understanding the type of situation where we are more likely to make a mistake and to prevent making errors which might lead to disaster.

“To err is human.” (Cicero, 50 BC)

In other words, we ALL make mistakes. Accepting this is an important step to understanding when and where errors occur, and therefore how to prevent errors. Pilots who think they don't make mistakes are (a) seriously mistaken (b) dangerously over-confident (c) have a limited life expectancy!

Errors are most likely to occur when we are faced with a THREAT, that is, something that presents a change to what we are used to, or what we are comfortable with. To understand what constitutes a Threat, I will introduce the concept of a Pristine Flight (courtesy of Continental Airlines). In this first article, I will concentrate on a local soaring flight and discuss possible threats, and in part 2 and 3 we will expand this to cross-country flights, and competition and other specialised flights.

Pristine Flight

This is a simple gliding flight where everything goes exactly to plan. You arrive at the airfield and the club glider you want to fly is available, already DI'd and at the launch point. Helpers are readily available to pull it out for you, and a towplane is waiting. You are current on type and an instructor is happy to authorise your local flight. There is no wind and no lift or associated sink. There are no other gliders flying and no delay to your takeoff. The weather is

pleasant; not too hot. You aerotow to 2000 feet and glide gracefully back to the circuit, practising a few turns and speed control. Your well-planned circuit is uninterrupted by other gliders or crosswinds and landing is uneventful. This is a Pristine Flight – arguably a bit boring, but with no real interruptions to your simple plan.

Now let's talk about likely variations – many of them very common – that can upset your plan. You planned to be at the airfield by 11.00am but you are annoyed that you are late because your partner was late getting back from shopping. No-one has bothered to get the glider out of the hangar and it hasn't been DI'd. You are short of time so you must hurry these processes. The only instructor is flying, and you haven't flown for two months so although you think you might need authorisation, you decide it'll be OK to go without. There is only one other person to help push the glider on to the start line, an inexperienced student who you need to brief. After the exertion of pushing you are hot before you even get into the glider. You strap in and as you are doing your pre-takeoff checks, someone interrupts you to ask for your tow tickets. It's a bit windy and you haven't briefed the towpilot, so after takeoff he annoyingly takes you downwind to what he probably thinks is a good looking cloud. You don't find lift, but you practice a few turns, then head back to the airfield, encountering unexpected sink on the way. Your circuit is lower than you would have liked and you are concerned about another glider on circuit at the same time. Your circuit is a bit rushed, and with a short finals, you don't quite sort out the crosswind so the landing is a bit untidy. After landing the next pilot points out that the DI hasn't been signed today.

All of these variations to the Pristine Flight constitute Threats that will increase the likelihood of you making a small slip, or an



A race to the finish and other traffic has created a change from pristine flight. The lead glider is about to land with his wheel up.

error in judgement, or forgetting something – regardless of your experience. Let's review what these Threats might include:

Time pressure	Frustration
Impatience	Procedural uncertainty
Heat discomfort	Interruptions
Weather changes	Poor preparation
Unexpected sink	Outside interference
Inexperience	Lack of currency
Fatigue	Other traffic
Poor training	Poor health
Inexperienced crew	Launch delay
Turbulence	Unfamiliar airfield
ATC / airspace	Technical issue
Dehydration	Hunger

Cross-country introduces an additional list of threats which we will discuss in the next article.

Note that many Threats are normal and some even desirable. For example a moderate wind might be appreciated for ridge soaring, but results in a crosswind takeoff and landing, and results in a headwind when returning to the airfield. Good thermals can also cause unwanted sink on the downwind leg in the circuit. You may be aiming for your 5-hour endurance, but this will raise threats of thirst, hunger, fatigue, etc.

Threats

All threats increase your likelihood of making an error. A proficient pilot can easily recognise all threats, and implement a strategy to prevent an error resulting. Some examples might include:

Interruptions

If someone talks to you when you are halfway through your pre-takeoff checklist, recognise that this threat is likely to result in your forgetting something, and start again from the beginning.

Procedural uncertainty

Any time you hear that nagging voice questioning something (are we clear for takeoff, did I do my checks, did I sign that DI, do I need instructor authorisation, did I remove the tail dolly) – then STOP and double-check. Observers always respect someone who acts professionally and questions some small detail, in stark contrast to someone who makes an assumption and is proven to be an idiot.

Time pressure

Any time you feel pressure to hurry – for whatever reason – you should be aware that this is a major cause of errors, through forgetting processes (tail dolly removed?), forgetting to take essential equipment (maps, drinks, hat etc.), ignoring procedures (takeoff checklist) etc.

Other traffic

A good pilot will always join the circuit assuming there will be other gliders rejoining, and have sufficient height to give way to a



Heavy landing.

lower performance glider. He/she will also know the rules regarding landing if there is a glider ahead on final approach – where to land etc.

Unexpected sink

Always anticipate sink in the circuit. However if a circuit is flown using correct techniques this should be self-correcting – don't rely on the altimeter, or ground features for turn-in points, but assess your angle to landing point. Any unexpected sink can easily be corrected by adjusting distance out and turn-in point – if a pilot is alert to the possibility of unexpected sink.

Inexperience and Instructor Responsibility

Early solo pilots cannot be expected to recognise all threats existing on any particular day. This is why an instructor must authorise and brief early solo pilots. It is the instructor's responsibility to assess all threats and brief an early solo pilot accordingly. The brief might be along the following lines (abbreviated):

I have checked your logbook and confirmed you are current on this glider type. Your aim of today's flight is to search for lift and practice thermalling. There are several other gliders airborne, so let's review how you join a thermal if another glider is there first. Remember when you are concentrating on thermalling and speed control that lookout is actually more important. There is a moderate northerly wind today, so stay upwind of the airfield. Always keep the airfield in sight and have a plan on how to rejoin circuit if you don't find lift. Be aware of the likelihood of sink in the circuit area. Where will you land if another glider has landed ahead of you? It's hot today – have you got a sunhat and sunglasses? Now make sure you take your time getting comfortable in the cockpit and doing your checks – don't let anyone rush you. Any questions – anything you have any doubts about?

The main ways that new pilots can gain experience and knowledge is by instructors or experienced pilots passing on these thoughts, OR learning by making mistakes! Which method is better??!!

Any time you hear that nagging voice questioning something (are we clear for takeoff, did I do my checks, did I sign that DI, do I need instructor authorisation, did I remove the tail dolly) – then STOP and double-check.



COMPLACENCY: WHAT

Martin Hellman

This is taken from the American Pacific Soaring Council (PASCO) Soaring Safety Seminar in November 2007. Martin Hellman is a Professor Emeritus of Electrical Engineering at Stanford University, was involved in the birth of internet security and has a deep interest in the ethics of technological development. He is a glider pilot in his spare time flying his Stemme out of Hayward California. Google his name for an interesting look at “Soaring, Cryptography and Nuclear Weapons” and the connections between these seemingly unrelated subjects. We also recommend that you take the time to go on line and check out the articles mentioned in the text.-Ed

We all know that complacency is our enemy. But probably none of us think of ourselves as complacent because once we recognize our complacency, we do something to change it. So, in a sense, the real enemy is complacency about complacency.

None of us think of ourselves as resembling Alfred E. Newman, the “What me worry?” Mad Magazine character – until after an accident, when we rigorously review what we could have done differently and often see ourselves looking just like him: stupidly happy and oblivious to danger. But that only seems to occur in hindsight. The goal of this article is to try and help us see complacency before it causes an accident, when it can make a difference.

To do that, I will focus on three areas. The first I’ll call the

99.9% safe manoeuvre. This is one that you can execute safely 999 times out of a thousand. But one time in a thousand, there will be an accident, possibly fatal. If we execute such a manoeuvre only once in our flying careers, there’s a small risk. But, if we execute it a hundred times, there’s a good chance we’ll get bitten. Worse, the fear level that we felt the first few times evaporates as we become comfortable with the manoeuvre. But that’s just complacency masquerading as confidence in our skill level.

Of course, there’s nothing magic about 99.9% and the danger also applies to a 99% safe manoeuvre or a 95% safe manoeuvre. Each success still builds more false confidence – complacency – but we tend to get bitten earlier. This was the case in the loss of two of the world’s most expensive gliders, the Challenger space shuttle in 1986 and Columbia in 2003.

The original design for the shuttle booster rocket did not allow for any O-ring erosion, but a number of otherwise successful flights with some O-ring erosion produced a mentality that there was nothing to worry about in spite of this unpredicted behaviour. In such a “What, me worry?” environment those who expressed concern were ignored. The Thiokol engineers who tried to delay the launch due to the cold weather were seen as overly cautious ninnies – with catastrophic results. Escaping the grim reaper time after time led to complacency instead of a design review and modification. Those steps only occurred after the disaster.

Similarly, a number of shuttles had experienced loss of some heat shield tiles due to fuel tank foam and ice hitting the shuttle during liftoff, but the level of concern only reached appropriate levels after Columbia was lost to this failure mechanism.

Returning to our more normal gliders and altitudes, here’s a list of manoeuvres I’m proposing for examination in this session – and I emphasize the word proposed:



Photo courtesy of Bret Willat, Sky Sailing, Warner Springs, CA

High speed low passes

Crossing ridges at low altitude

Close-in ridge flight

Becoming enveloped in clouds

Landing out - especially in difficult circumstances

I am not saying that you shouldn't do these things. But we have experienced fatalities among experienced pilots in all five categories, so they warrant some examination.

Considering high speed low passes (technically a missed approach), as most of you know, you start this manoeuvre from altitude and dive to convert height into speed. You skim a few feet over the runway, near the glider's maximum speed and then pull up, reconverting most of that speed into altitude. This gets you to an altitude of about 500 feet, from which you can fly an abbreviated pattern. It's an entrancing manoeuvre to watch, as you can see from the picture above.

While beautiful to watch, low passes entail added risk. Kempton Izuno is known to most of us for his superb piloting on long distance soaring adventures. When I spoke with Kemp about this session and low passes, he told me he no longer skims the runway because of a scare he had:

"I got a good scare from attempting this in my Libelle at Minden a number of years ago. It was the end of a long triangle flight and I was well ahead of my crew. So I got relaxed and hadn't noticed that a waving action had set up. On the long dive, I didn't notice that the speed wasn't picking up as it should. I was diving in sink, and by the time I reached the runway I only had about 100 knots and then was pulling up into sinking air. I had at best, 300 ft on the downwind leg and barely made the runway. Only on final did I notice puffs of dust blowing off the side of the runway indicating the rotor touching down. I was lucky it didn't turn out worse."

Am I saying you shouldn't do low passes, or that the pilot in the picture is taking an unacceptable risk? Absolutely not!

What happened to Kemp on this particular day? He hit unusually strong sink during the dive - one of those rare situations that made this a 99.9% unsafe manoeuvre for him. So he ended up close to the ground much earlier in the process than he should have, and he had no warning of the problem until it was too late - there was no easy way to monitor his total energy and note that it was dissipating more rapidly than normal, plus he was preoccupied with a number of other variables. While he pulled off the landing with no damage to himself or his ship, he decided it was a risk to which he didn't want to expose himself again. So now, if he does a low pass, it's two to three hundred feet above the runway, not right on the deck. That extra safety margin makes the pass a lot less risky.

Am I saying you shouldn't do low passes, or that the pilot in the picture is taking an unacceptable risk? Absolutely not! That's an individual decision, based on skill, the conditions (stable air would have removed the possibility of Kemp's particular problem), and more. What I am saying is that low passes entail extra risk that we need to take into account both in our decision making process and when we talk about them to others whose skill level we don't know. For example, the pilot shown above has over 16,000 flight hours, has been doing this manoeuvre at air shows for over 30 years. He will not do them in turbulent conditions, ensures that he has radio contact with a trusted spotter on the ground who is watching for traffic, and usually does them downwind so that he only has to turn around in a 'tear drop' to land. The fact that someone with that kind of experience exercises that much caution should say something to the rest of us.

Taking ridge crossings at low altitude as the next example, let's look at Bruno Gantenbrink's famous 1993 talk debunking the statement that the most dangerous part of soaring is the drive to the airport. It's available at DG's web site in the Safety section.

Gantenbrink exposes that foolish statement for what it is, calling it "the dumbest, most ignorant saying that has found a home in our sport." He also notes that in the 1985 world comps, when he was flying with Klaus Holighaus, they were about a mile from a pass with only a couple of hundred feet of extra altitude, and did not know the wind direction. Holighaus crossed the pass while Gantenbrink turned back into bad weather, and a loss. Gantenbrink states, "There was a 99% chance that I could have made it through the pass. Klaus was a little higher and made it. I would have made it if nothing unforeseen had happened. However, only the smallest thing needed to have gone wrong, such as flying a little to the right or left of Klaus' path. That can make a big difference in a pass."

In August 1994, a year after this talk was given, Holighaus was killed, apparently attempting to fly through a small pass. Was this



a case of a 99.9% safe manoeuvre gone bad? I can't say for sure, but it seems to have some of the earmarks.

Close-in ridge flying is a manoeuvre that kills experienced pilots at a too regular rate as noted by JJ Sinclair in his safety article, "Don't Smack the Mountain 101", also available on the DG website. There's also an excellent discussion in the September 1984 issue of Soaring magazine, by Henry Combs, entitled "That Beautiful Mountain and Her Sinister Trap: A Possible Explanation for Some Unexplained Ridge-Soaring Crashes". <http://ee.stanford.edu/~hellman/soaring/Combs.pdf>

Both of these articles note that it only takes about 500 fpm differential lift on the wings of a glider to totally overpower the aile-

period of time. And sometimes we don't realize that a good thing is going bad until it's too late. Kempton Izuno's "Into the Bowels of Darkness" (www.pacificsoaring.org/westwind/2005_12_WestWind.pdf) describes such an encounter that could easily have been fatal, but fortunately turned out fine for him and his ship. While reading his complete description is best, here's a short summary:

The day had been much weaker than predicted, and Kemp was ecstatic when he finally found a cloud with strong lift. But the lift became unusually strong as he got near cloudbase, accelerating so rapidly from about 10 kts to almost 30, that he didn't have time to retreat. Suddenly, he found himself in the cloud. Without the horizon to cue him as to what was up and what was down, Kemp

Witnesses with whom I talked soon afterward called it a fluke that the fence was in just the wrong place – again signs of a 99.9% safe manoeuvre.

rons. Most of us have experienced such 'bullet thermals' that hit one wing and bank the plane uncontrollably. At altitude, they're usually just a nuisance, but if you're close to the ridge and it's your outboard wing that has the extra lift, it's a recipe for disaster – you're banked into the ridge and can hit it within a second, leaving no time to recover. That combination of events doesn't happen often, which is what puts it in the 99.9% safe category. But it seems to happen often enough to kill some very good pilots on a regular basis.

We glider pilots love clouds, or more accurately, the lift that is often associated with them. They're like big road signs in the sky saying, "Come here for a great ride." But, like anything else, too much of a good thing can become big trouble in an amazingly short

became spatially disoriented and, as is usual in that situation, found himself in a high-g dive. Kemp maintained his cool, remembered a recovery technique that he'd read about in Soaring (see his article for a description), and was able to utilize it to escape before the wings were torn off the glider – but not before he found himself flying backward! Kemp now maintains a larger safety margin when flying near clouds and is alert to the fact that the feeling of ecstasy when you find strong lift can turn sour almost instantly. Note that the 'unusually strong lift' he encountered was what turned a 99.9% safe manoeuvre into an almost fatal one.

Not all attempts to get out of clouds end so well. Several years ago, I lost a friend in an accident that probably involved becoming enveloped in clouds. Since he didn't survive and there were no

witnesses, we don't know for sure, but the evidence points that way. He was flying in wave and appears to have been caught on top of the clouds as either the gap between them closed or as he was blown over a cloud by the strong winds and then got sucked down into the cloud when he hit the sink portion of the wave.

As to the danger involved in landing out, most glider pilots who routinely land out are rightfully proud of their ability to put their glider down in a farmer's field, a dry lake, or similar. While almost all landouts are uneventful, or involve at most minor damage to the ship, to avoid complacency it is necessary to remember that occasionally they can go terribly wrong. I've heard a number of pilots talk about coming close to hitting barbed wire fences or other obstacles that could not be seen from the air, and which could have resulted in disaster. While a fatal landout accident at Minden in May 2000 had other causal factors, he would have survived if he hadn't hit a barbed wire fence. Witnesses with whom I talked soon afterward called it a fluke that the fence was in just the wrong place – again signs of a 99.9% safe manoeuvre.

The second theme of this article is that new pilots need to be careful in imitating what they see more experienced pilots do – and that experienced pilots need to add cautions when describing exciting exploits that should not be imitated by newer pilots. Next time you hear someone describe close-in ridge soaring, high speed low passes, and similar manoeuvres that should not be attempted by newbies (or by anyone without recognizing the risk involved), notice whether they talk about the risk or just the thrill. In my experience, the risk is rarely mentioned.

On June 11, 2005, a student pilot was killed in what was almost surely a ridge flying accident. The NTSB accident report states that the glider "impacted terrain ... The student pilot ... was fatally injured [and] ... had approximately 12 hours of flight experience over 18 training flights ... this was the student pilot's first flight in this make and model of aircraft. ... A search airplane found the glider on the back side of a mountain ridge ... The tow-pilot stated ... that the 'ridge lift' just northeast of the airport was 'very good.'" As in most accidents, there were a number of factors, but I think you can see why I suspect inadequate caution when describing the thrill of ridge soaring to new pilots may have been one of them.

There's one last theme that I hope will help us see problems before they evolve into accidents or fatalities. Many years ago, I heard an expert on industrial safety give a talk in which he noted that for every fatality, there were roughly ten injury accidents; for every injury accident, there were roughly ten property damage accidents; and for every property damage accident, there were about ten "scares" or near accidents.

He then argued, and I heartily agree, that to avoid fatalities, we should try to treat an injury accident with as much concern as if it did result in a fatality. To avoid injury accidents, we should try to treat a property damage accident as if an injury did occur. And to avoid property damage accidents (we do love our ships, right?), we should try to treat scares as if an accident had resulted – and certainly not as if cheating fate means we have the skills needed to try a stupid manoeuvre again! That's called complacency and that's when we end up looking like Mad Magazine's Alfred E. Neuman.

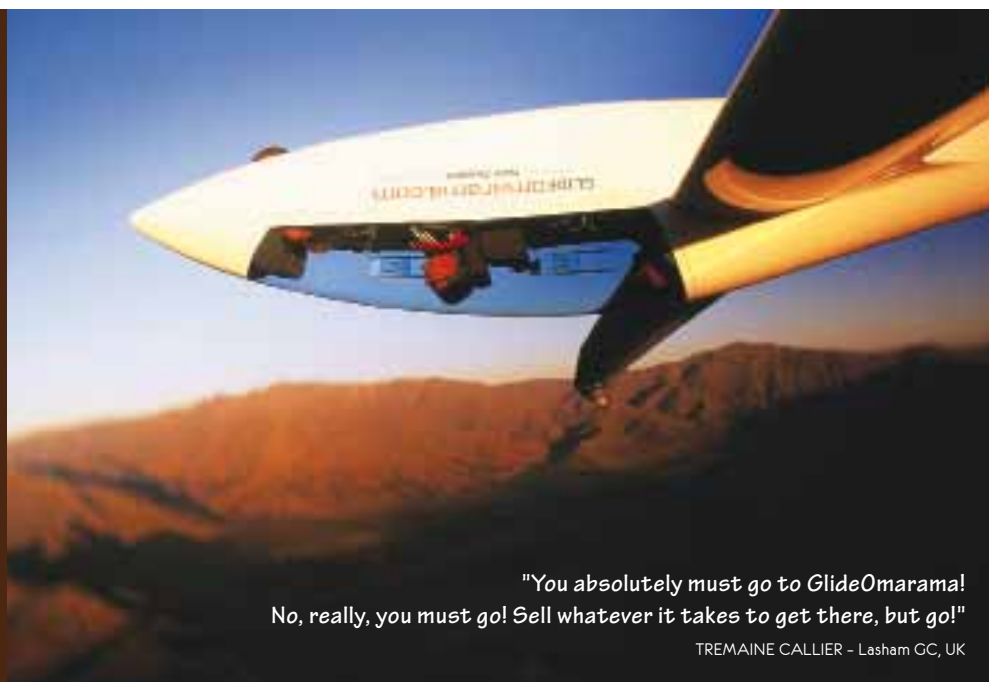
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PADDOCK LAND

By Steve Care, Northern ROO

Steve Care is the Northern Regional Operations Officer. He has 1800 hours gliding and 130 hours hang gliding. He has been instructing since 1984. Like a lot of others he is passionate about gliding and particularly cross country flying. Steve is keen to see our safety record improve and New Zealand gliding grow rather than go backwards.

There have been 18 gliding accidents since January last year and nine of them involved paddock landings – that is 50%. We need to find some of the causes and do our best to reduce them. It appears that the guys that have been around a while are featuring far more than they should. Approx 52% of the total accidents involved pilots with more than 1,000 hrs.

Additionally if we look back over the statistics, there seems to be a common theme of seemingly non-normal decision making at very low altitude, however they all have very human factors that led the pilot to that point.

Skill

There is no question that with more experience comes more skill, but there is a point where all the skill in the world is not going to get you out of trouble. There is an old saying “A superior pilot is one who uses his superior judgment to avoid having to use his superior skills.” We often don’t know where our skill level is, until

we make a mistake and have to use it. If you underestimate it you might not achieve your goals and if you overestimate it, you might end up having an accident. It’s always better to lean slightly toward the side of caution. Keep in mind that your goal will still be there another time.

Knowledge

I chaired a short workshop at the Taupo Nationals on paddock landings and how we should be teaching them. Most participants thought training was an unusual topic at the Nationals, but what I wanted to get across was a discussion on the basics, as well as means to improve our training. If you have been around a while, you can end up forgetting the basics and just making up your own idea of what is important and what is not. In a group situation it’s harder to go against a clear consensus of safe practices. Some very good ideas came out of this session that are going to be very worthwhile for future paddock landing training.

Rules

I am referring to self imposed rules and rules that are generally accepted when landing in paddocks. If you have set up your paddock landing and you throw a 360 degree turn at 300ft agl, in my view you are stretching the boundaries of safe flying. If you have left your decision making until you are very low on the basis that you are experienced, you can end up making decisions that you would not make if you were doing a circuit and landing at your home airfield. Quite a few of the recent accidents have come



It's really important to be both physically and mentally prepared. Remember the acronym "IM SAFE" and don't compromise. Stress and fatigue can have a huge effect on your decision-making, as can that insidious enemy, dehydration.

ING DECISIONS

about by pilots doing these things and then running into problems. Perhaps you have done it before and you have got away with it, leading you to believe that it is okay. Over time, it can change your whole attitude to what is safe, without you really being aware of it.

It's also human nature to want to tell others if you have had a low scrape and your superior flying skills got you out of trouble. This can lead others to also think it's okay. It's not.

Planning

In some ways cross country gliding is very much like a game of chess. You are trying to think a half a dozen moves ahead all the time. This means thinking about the 'what if's' as well as your planned strategies. It's very easy to become so focused on a particular task that it becomes too much effort to think of the possibility of any change in your situation. If you haven't thought of it ahead of time and your situation does change, it's then hard for you to then change your focus to a safer option. Time can then work against you to make rushed decisions that don't work.

Preparation

It's really important to be both physically and mentally prepared. Remember the acronym "IM SAFE" and don't compromise. Stress and fatigue can have a huge effect on your decision-making, as can that insidious enemy, dehydration. Have everything prepared: equipment, crew, task well before the flight and avoid taking any additional emotional baggage with you, such as job or family stress. Make sure you are current enough to tackle the task.

Stress

If you are doing a paddock landing, there should be a moderate but not a large amount of stress involved, and you should be nowhere near the point of being in terror. If you are experiencing large amounts of stress when you are doing paddock landings, then it could be a lack of preparation, technique or a past bad experience. Stress can rob you of clear thought processes, so it is important to keep on top of it. FDR said, 'We have nothing to fear but fear itself.'

He is right, but it is also important that you don't end up so casual that you don't consider the 'what if's'. A complete lack of stress will blind you to the possibility of anything going wrong, until it is too late to react.

Summary

Cross country flying is unbelievably satisfying and rewarding. For me it is what gliding is all about and I am sure we all want to promote and support it as much as we can. It doesn't need to be dangerous if you remember the basics and keep thinking all the time. None of us are immune from having an accident, but we can minimize the risk with good preparation, knowledge, planning and understanding of how our emotions and attitudes can affect the decisions we make.