

free flight libre



Trust Funds 101 – an introduction for SAC members

THIS IMPORTANT INFORMATION should be well known to SAC members. However, although most members know that these SAC funds exist, very few know much about them, particularly members new to the sport. I hope this article will help with the understanding of the origins, purposes, and restrictions on this substantial amount of our SAC assets.

To appreciate the origin and growth of the trust funds, a short history lesson is in order. In the early eighties SAC had lost government funding, office rent and salaries took a large portion of the annual income from fees, and members were unhappy with annual fee increases. At the AGM I attended in Ottawa in 1984, nearly two hours were spent on questions and discussions regarding finances and fee increases. Clearly, something had to change. Jim McCollum became Treasurer during the year and, along with a dedicated Board of Directors, was instrumental in turning things around. SAC went from an organization with virtually no assets (in fact, on occasion, directors loaned SAC personal money just to meet payments until fees came in) to an organization with net assets of around \$1.2 million at the end of 2010. A tribute article about Jim's contributions will appear in a future issue – a major contribution was the establishment of the Pioneer Fund.

What do we mean by the term "Trust". It is money that, over the years, has been donated, invested, and is earning interest, dividends and capital gains. The money is held in trust for use according to the terms of each trust deed. For those interested in the exact text of each trust deed, they have been placed on the SAC webpage "Document Vault" under *Info/General Forms*. The funds are complicated a bit by also using the term "restricted" or "restricted fund". We have generally interpreted this to mean the funds are restricted for a particular use. However, according to the accounting definition, the proper term is "internally restricted" and refers to money that can be transferred for general fund use. By this understanding, only the Pioneer Fund is truly "restricted". The other trust funds are considered to be held as "deferred contributions" in the general fund and appear as such on the financial statements.

Another area of misunderstanding is that each of the trust funds is held as a separate investment. In practice, all funds are invested in a variety of short term and longer term guaranteed bonds, mutual funds, and interest earning holdings managed by Nesbitt Burns, RBC Dominion, and Royal Bank. The advantages are lower management fees and a sharing of risk and returns. If each fund was invested separately these advantages would be lost. The funds are separated for accounting purposes as indicated in the financial statements.

As SAC revenues have a strong seasonal pattern while expenses are more uniform over the course of the year, funds may be transferred back and forth between the bank account and short term interest earning assets to gain some short term interest while ensuring that funds are available to pay the bills each month.

The trust funds consist of the Pioneer Fund, Wolf Mix Fund, Air Cadet/Youth Fund and the Peter Corley Memorial Fund. As well, there are two "in-out" funds. A World contest fund, the Wolf Mix Fund, was established to support Canadian soaring teams at the world contest level, and the Youth Bursary Fund supports youth soaring. The following describes briefly each fund.

The **Pioneer Fund** was established to generate earnings to replace government funding and other revenue losses such as those associated with lower membership. The government stopped funding small amateur sports organizations like SAC. At the time, government funding accounted for a significant proportion of SAC's income and also helped support Canadian participation in the World competitions. The fund started with a few initial donations. ⇒ p24

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Phil Stade in the Cu Nim L-33 Solo auto-tows at the 2010 Cowley summer camp.

photo: Pablo Wainstein

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Sporting Committee annual report for 2010

Jörg Stieber & Derek Mackie



SOARING ASSOCIATION of CANADA

is a non-profit organization of enthusiasts who seek to foster and promote all phases of gliding and soaring on a national and international basis. The association is a member of the Aero Club of Canada (ACC), the Canadian national aero club representing Canada in the Fédération Aéronautique Internationale (FAI), the world sport aviation governing body composed of the national aero clubs. The ACC delegates to SAC the supervision of FAI-related soaring activities such as competition sanctions, processing FAI badge and record claims, and the selection of Canadian team pilots for world soaring championships.

free flight is the official journal of SAC, published quarterly.

Material published in *free flight* is contributed by individuals or clubs for the enjoyment of Canadian soaring enthusiasts. The accuracy of the material is the responsibility of the contributor. No payment is offered for submitted material. All individuals and clubs are invited to contribute articles, reports, club activities, and photos of soaring interest. An e-mail in any common word processing format is welcome (preferably as a text file). All material is subject to editing to the space requirements and the quality standards of the magazine.

Photos: send *unmodified* hi-resolution .jpg or .tif files. Photo prints are acceptable and are returned on request.

free flight also serves as a forum for opinion on soaring matters and will publish letters to the editor as space permits. Publication of ideas and opinion in *free flight* does not imply endorsement by SAC. Correspondents who wish formal action on their concerns should communicate with their Zone Director.

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Deadline for contributions:

10 March, June
September, December

IGC Plenary Meeting, March 2010 I attended the IGC Plenary Meeting in Lausanne as the IGC delegate for Canada. The full minutes of the meeting can be downloaded from the IGC website at <http://www.fai.org/gliding/meetings>. We supported the nomination of Ross Macintyre, the chair of the IGC Sporting Code committee, for the prestigious Lilienthal Medal. The nomination was carried.

Presentation by the European Gliding Union The EGU is an effective organization representing the interests of glider pilots against over-regulation in the EU. The regulatory developments in Europe affect Canadian glider pilots in two ways:

- cost of gliders
- with the weight of the EU behind them and the need to standardize internationally, European regulations tend to get exported and may show up as TC regulations. At an annual membership cost of 150 Euros, it may be wise for SAC to join and support the EGU. The EGU website is www.egu-info.org.

The following vote was taken regarding pilot selection for World Championships: Every nation is guaranteed one pilot per class. If a class is over-subscribed, the International Pilot Ranking List will be used to decide which nations have to drop their second pilots.

A US proposal to host the next IGC plenary meeting in Dayton unfortunately did not receive the required two-thirds support.

I am planning to attend the upcoming 2011 plenary meeting 4-5 March in Lausanne. I will discuss issues to be voted on with the SAC Board and the general membership through the Roundtable. As the sole IGC delegate for a number of years now, I have been looking for an alternate delegate as a back-up. Unfortunately, so far, no luck.

Canadian Nationals The Canadian Nationals on 15-24 June 2010 were jointly hosted by the Soaring Association of Saskatchewan and the Alberta Soaring Council in North Battleford, SK. Despite the difficult weather in Saskatchewan at the time, the Nationals were successful with six scoring days. The competition was held in two handicapped classes, FAI Class for high performance gliders and Club Class (lower performance range). The winners were:

<i>FAI Class</i>	1. Jörg Stieber, JS	LS-8	4887 pts
	2. Nick Bonnière, ST	LAK-17	4381 pts
	3. Dennis Vreeken, 4Q	SZD-55	4281 pts
<i>Club Class</i>	1. Bill Cole, BC	Mosquito	4644 pts
	2. Tony Burton, E2	Russia	4077 pts
	3. Bruce Friesen, SL	Std Austria	3886 pts

There was good participation from central Canada as well as from western Canada. Comfortable facilities and great hospitality made the Nationals enjoyable for all. Thanks to all who helped putting on a great contest! The results of the FAI Class were submitted to the International Pilot Ranking List. The 2011 Canadian Nationals will be hosted by SOSA from 29 June to 8 July 2011.

World Gliding Championships – best Canadian result in 40 years Canada sent a strong team to compete in the 31st WGC for 15m, 18m and Open class in Szeged, Hungary. Jerzy Szemplinski's 4th place in 18m class was the best result any Canadian Team has achieved in 40 years. In fact, Jerzy missed the podium by an incredibly tight margin of 11 points out of a total of 6000.

Unfortunately, Willem Langelaan landed on last place in Open Class. Possible factors were:

- Exhaustion from competing in the Flatland Cup in Szeged just before the Worlds. The weather was extremely hot both during the Flatland Cup and the first part of the Worlds.
- He was severely disadvantaged flying a non-motorized 18m glider in the prevailing weak conditions against mostly engine-equipped Open Class ships with spans of up to 28m. The Open Class was the only class sent on task on an extremely marginal day following the logic that most of them will be able to return under motor, therefore it won't be a mass landout.

ASSOCIATION CANADIENNE DE VOL À VOILE

est une organisation à but non lucratif formée d'enthousiastes et vouée à l'essor de cette activité sous toutes ses formes, sur le plan national et international. L'association est membre de l'Aéro-Club du Canada (ACC), qui représente le Canada au sein de la Fédération Aéronautique Internationale (FAI), laquelle est responsable des sports aériens à l'échelle mondiale et formée des aéroclubs nationaux. L'ACC a confié à l'ACVV la supervision des activités véliplanes aux normes de la FAI, telles les tentatives de record, la sanction des compétitions, la délivrance des insignes, et la sélection des membres de l'équipe nationale aux compétitions mondiales.

free flight est le journal officiel de l'ACVV publié trimestriellement.

Les articles publiés dans *free flight* proviennent d'individus ou de groupes de véliplanes bienveillants. Leur contenu n'engage que leurs auteurs. Aucune rémunération n'est versée pour ces articles. Tous sont invités à participer à la réalisation du magazine, soit par des reportages, des échanges d'idées, des nouvelles des clubs, des photos pertinentes, etc. L'idéal est de soumettre ces articles par courrier électronique, bien que d'autres moyens soient acceptés. Ils seront publiés selon l'espace disponible, leur intérêt et leur respect des normes de qualité du magazine.

Des photos, des fichiers .jpg ou .tif haute définition et niveaux de gris peuvent servir d'illustrations. Les photos vous seront retournées sur demande.

free flight sert aussi de forum et on y publiera les lettres des lecteurs selon l'espace disponible. Leur contenu ne saurait engager la responsabilité du magazine, ni celle de l'association. Toute personne qui désire faire des représentations sur un sujet précis auprès de l'ACVV devra s'adresser au directeur régional.

Les articles de *free flight* peuvent être reproduits librement, mais le nom du magazine et celui de l'auteur doivent être mentionnés.

Pour un changement d'adresse ou s'abonner à la revue, communiquez par <sac@sac.ca>. Le tarif d'abonnement est de 30\$ pour 1 an et 55\$ pour 2 ans. Pour l'extérieur du Canada, le tarif est de 35\$US pour 1 an et 60\$US pour 2 ans. La revue est disponible gratuitement, en format "pdf" au <www.sac.ca>.

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The Team's results were: *Dave Springford* 15m, ASW-27 34th, 69% of winner's score
Jerzy Szemplinski 18m, ASG-29 4th, 94% of winner's score
Willem Langelaan Open, Antares 43rd, 34% of winner's score

It was our goal to keep our gliding friends and SAC members at home informed through the team blog which was updated several times daily on <<http://wgc2010teamcanada.blogspot.com/>>. A detailed article about the 31st Worlds was in *free flight*.

Online Contest The OLC continues to be very popular among Canadian pilots. The 2010 season ended on 11 Oct 2010. Statistics over the last four years for flights scored in Canada:

	2007	2008	2009	2010	
No. pilots	246	248	264	268	
Total flights	2765	2226	2636	2594	
Total distance (km)	596,000	407,691	448,290	450,811	
Highest km (pilot)	28,429	18,150	13,529	14,935	<i>Trevor Florence in 2010</i>
Highest km (club)	127,425	87,103	71,959	70,033	<i>MSC in 2010</i>

Winners and achievements of the 2010 OLC season:

Best flight by a Canadian:

OLC Canada *Trevor Florence* 773 pts

OLC N. A. *Adam Zieba* 1481 pts *this flight scored 2nd overall in the OLC N. America*

Five Canadians submitted flights of over 1000 km to the OLC North America.

OLC Canada champions were:

Classic: 1. Ian Spence 4254 pts
2. Tim Wood 3497 pts
3. Bruce Friesen 3270 pts

FAI: 1. Bruce Friesen 1906 pts
2. Jerzy Szemplinski 1797 pts
3. André Pépin 1699 pts

Top Canadians in the OLC North America:

Classic: 1. Adam Zieba 4581 pts – 11th overall
2. Ian Spence 4254 pts – 16th overall
3. Wilfried Krüger 4029 pts – 21st overall

There are rule changes for the OLC season 2011, which are posted on the OLC website:

- A new feature is the OLC Plus score which combines the scores for the FAI OLC with the OLC Classic by awarding a 30% bonus for FAI triangle portions of the task.
- For the OLC Classic score, legs 5 & 6 are not devalued, all six legs are now scored 100%.
- There is now a Barron Hilton Challenge for flights on an electronically pre-declared triangular course.
- Most importantly, the submission deadline is now 48 hours after landing (not midnight Tuesday as before).
- Derek Mackie spearheaded a project to update and refine the rules for the OLC Canada. They will be posted on the SAC website.

BAIC, Canadair, & "200" Trophies In 2003 these trophies were integrated with the OLC as recommended by the committee. A Roundtable discussion was moderated in 2010 in response to questions about what really constitutes the "best flight". Suggestions ranged from allowing a bonus for declared flights to using the FAI OLC as a scoring basis. There was little interest in the discussion except from the Canadian Rockies group. Since under the current rules the BAIC and Canadair trophies have been almost exclusively awarded for flights originating in Invermere, the majority of Canadian glider pilots who don't have the opportunity to fly there seem to have lost interest in these trophies. The new *OLC Plus* category offers a somewhat more level playing field.

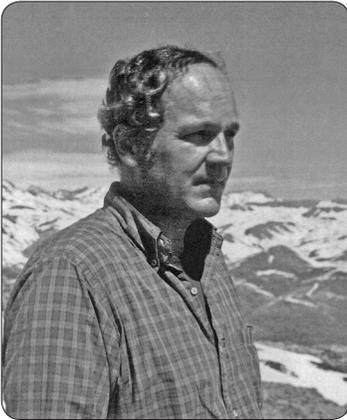
Recommendation to the SAC Board of Directors: In order to rekindle a broader interest, the Sporting committee recommends linking the BAIC, Canadair and 200 Trophies to the results of the *OLC Plus* score.

National Competition Trophies With an increasing number of competition classes and a declining number of competitors, it has become impractical to field the traditional FAI classes in the Canadian National Championships. For a number of years now, the different ⇒ p21

Sol y Sombra

Edward Williams

Sol y Sombra (Sun and Shadow), the recipe for a traditional Spanish liqueur (anise symbolizing the Sun, and cognac the Shadow), is one way to describe the stream of experiences I have encountered as a pilot flying airplanes and gliders for almost sixty years. Besides the United States, I have held flying licences in Mexico, Chile, and Jamaica, vastly different cultures with their own idiosyncrasies. There have been many adventures and friends, some now gone. Most of it has been sunny, but, now and then, darkness.



Of the many quality moments that one never forgets, gliding experiences do stand out as being especially fulfilling. I might be labeled an “experience freak” as well as a flying addict, and soaring has always promised an array of non-boring exposures. But to fully appreciate the merits of soaring flight, it is instructive to have sampled other forms of piloting: I have flown classic tail draggers and sophisticated singles, instrument and multi-engine, some serious aerobatics in the T-34s, Pitts, and a dual control TF-51 as well as a FB-111 simulator. I loved it all.

Nonetheless, Hanna Reitsch, the famous German test pilot who flew everything from the Messerschmitt Me-163 rocket fighter to gliders, wrote something that really strikes me:

“Powered flight is certainly a magnificent triumph over nature, but gliding is a victory of the soul in which one gradually becomes one with nature.”

The ‘gradual awakening’ is critical, it happens over time. Gliding was Hanna Reitsch’s preferred form of flight. Few aviators have had a broader perspective on that subject. There is an almost metaphysical aspect to soaring which can open one’s sensibilities to ruminations about people, places, and machines. This is the other, humanistic side of the sport, far from the steely-eyed top-dog racing pilots with their computers and engineering machinations, driven to be the best and fastest in their classes.



Valley of Mexico In the early morning hours the west wind had formed a mammoth lenticular cloud over the Valley of Mexico, a formidable beast that would raise the heartbeat of any soaring pilot. It lay there, astride the control area for the International Airport where only turbine animals are welcome. It was untouchable, protected by the

Virgin of Guadalupe and the Civil Aviation Authority, another wave lost in the history of that long-populated place. There were, without doubt, some aviators in the city who spotted it and admired its heroic proportions. But only veteran glider pilot Michel Kun and I shared the secret; we were likely the only ones who had savoured the joy of navigating in high altitude mountain waves.

Yes, the valley has been a wave generator for hundreds and thousands of years. What celestial delights did the ancient tribes witness over the centuries? Did Montezuma and his priests ever look up and see the cloud as an ominous sign from the gods of things to come? During his conquest of Mexico, did Hernán Cortés ever gaze upward and wonder what was creating those impressive aerial displays? Moot questions to be pondered about any site where the topography and climate are ideal for spawning gigantic lift energy.

New Hampshire Similar sentiments emerged while Bill, a fellow member of the New England Soaring Association, and I were chatting one evening by the fire. It was October, the glorious month of fall foliage, and Bill recounted a flight made in 2007. He had nursed his motor-glider up to 18,000 feet and was parked in the Killington wave in Vermont. The conditions were a little squirrely, but for a few minutes he had time to have a look around and observe the panorama, bathed in the smooth streamlines that caressed the airframe. Such moments are rare when one is engaged in high performance soaring.

In the immensity of it all he was struck by the realization that he was a miniscule speck of humanity suspended there by the grace of Mother Nature. We later reflected on the past of that unique wave site, the thousands of years of explosive energy that had been wasted, gone unharvested, before the age of soaring. And even now there is only a cluster of people who can play the game. Like a primeval grove of maples that had never yielded an ounce of sap, it was sitting there, waiting, virtually untouched by man. The comforting wisdom is that it will continue to regenerate itself forever, ready for future generations of visionary airman who can capture its bounty. The “speck” idea is intriguing. In the whole world, the number of men and women who have the urge to fly as pilots is a tiny fraction of humanity. And those who have chosen to fly gliders, to seek the favours of the whimsical Lift Goddess, represent an even smaller part of that band.

Flying shares a lot of associations with skiing. It is a volunteer act, not something that can be forced upon any-

one. The basic psychology is similar: you have to 'let go' to some extent, and it is a sport of hazard even if you are paid for it. In order to improve, you have to take some reasonable risks, otherwise you will stagnate at one performance level. The trick is to know when you've pushed too far and exceeded your limitations. The common thread as a pilot, no matter what specific vehicle is used, is the passion to fly. The tendency for some practitioners to distinguish among different classes of pilots, some more elite than others, obscures the truth that we all share a very special bond apart from the groundlings.

The connection between different types of aviating becomes clear when you know someone like Bill who might be described as a renaissance airman. When he is not flying FedEx freighters overseas he serves as the CFI of the local club and devotes a lot of effort toward stimulating youngsters' interest in learning to soar. In his spare time he works as an A&P fixing his vintage Piper and Cessna. His ability to cross over from one aviation activity to another is admirable.

Paragliding Paragliding was a sport that I had always viewed from afar. One of the more esoteric sites is in Germany near the bizarre castle of the mad King Ludwig in Bavaria. The flyers take off from the precipices above the castle and ride thermals and ridge lift for hours, wheeling around the turrets and battlements high above the gawking tourists.

Guillermo Cepeda is the first paraglider pilot I have come to know. During the week he is a hard-charging business executive in Mexico City. On weekends he pursues his passion for paragliding.

It is Saturday at 1:30 pm on a steep hill at the north end of a narrow valley, eight kilometres up from the sixteenth century Spanish Colonial town of Malinalco. Guillermo and four companions are carefully gauging the five knot breeze that is funneling up the valley, inducing a mild venturi effect that is triggering small thermal bursts as they flow over the face of the slope. They are studying the little wisps of nascent cumulus, not thinking about the Aztec Eagle Warriors who practised ancient rites in a cliffside temple above the town.

The question is whether the day is good enough to fly. All five flyers are seasoned soarers in their thirties and forties who share a common love for the sport.

Now they are doing an initial pre-flight, inflating their wings, checking to be sure that the intricate web of thin gossamer lines is properly arranged. Artful control of the network of Kevlar and aramid lines can produce turns, acceleration, and air braking. Average L/D is about 9/1 for the type of wing they were using that day; a hang glider will achieve about 15/1. Mishandling in the air or extreme turbulence can collapse a wing with serious consequences. In case of problems with the wing, the parachute is a small reserve to be used if there is enough height. Guillermo's paraglider, fabricated in the Czech Republic, is a marvel to behold. The savvy of how to manipulate this spider web safely and for maximum performance is beyond my comprehension, although the basic principles are familiar enough.

It won't become a booming day, my weather instinct and theirs coincide on that. However, it is getting late and there

is hope that some limited gliding can be done. Even a short flight can make a day worthwhile, as we all know.

Guillermo is the first off. In and around his coveralls he has all the gear needed to handle an outlanding. Practically any paraglider flight can end up off-field so one must be prepared. In the beginning he hangs in close to the slope, circling in zero sink, then reaches out farther into the valley. The thermals are weak and variable, he is slowly ceding altitude. After twenty minutes he is down low over the fields near the town, trying to make a futile save. No luck, his bright coloured wing marks the landing spot in a tree-lined patch near the road. The others launch with similar results. One lands beside Guillermo, the rest stick to the hill and stay airborne for a while, then return to the start point, making top landings.

Afterwards at a quaint restaurant in the town they talk about paragliding. I am amazed that most of it sounds so familiar, not very different from how pilots of conventional gliders would speak. They often mention rotors, potentially dangerous turbulence downwind of a ground feature. Despite the low L/D they do attempt to fly cross-country. A downwind float would appear to be the best way to cover ground. What is evident is that the gentle venturi breezes snaking up that historic valley will prevail for a long time to come.

What makes soaring different? The soaring culture is like a precious multifaceted jewel. Exploration of the various facets leads to a rich accumulation of personal flying experiences not equalled by other forms of flight. As with life, there is the Sun and the Shadow, emotions from the heights of euphoria to the depths of despair. Accumulating these facets over time works to create a wonderful storehouse of memories for an active soaring pilot – here are some of these facets.

The machines Once involved in soaring, one often takes for granted the remarkable technical features of early glass era ships. The 'newest girl in town' syndrome for the most advanced models acts to obscure the impressive values of the birds that have preceded them.

Let's evaluate one landmark design to illustrate this point. An ode should be written to the Standard Libelle! I submit that it is still the most beautiful and practical sailplane in the world for an aviator who is not deep into racing and record setting. Aesthetically it is a gorgeous fibre-glass sky sculpture best admired from a side view with the low profile canopy option. It seems to have some Messerschmitt roots tracing back to the Bf. 109 with its sleek nose and long slender tail boom. The cockpit is narrow and snug, shades of the 109. In flight it is a dream. You can fly it with your fingertips, like a Pitts aerobatic biplane. Tight thermalling is smooth. A slight tail buffet occurs near the stall. The dive brakes are generous and landings are straightforward. Ground handling with the factory trailer is as good as it gets. I owned one once, it was love at first sight, I wish I still had it.

Now let's step back fifty years and look at another landmark design, the humble Schweizer 1-26. This is a simple, minimalistic craft that has served loyally for decades. An

honest, forgiving glider, it is easy to fly and maintain, a solid value for those who can live with 23/1. An unbeatable cost/benefit ratio if the goal is fun soaring.

Up close Normal soaring activities offer a unique perspective for observing other aircraft and pilots at close quarters. During times of war, the six o'clock position has usually been the "kill zone" for a trailing fighter. That's where we are located behind the towplane on a routine tow. Of course, we treat the airplane up front with respect and fly carefully. However, some clumsy clowns have actually destroyed towplanes without firing a shot by deviating into exaggerated towline attitudes!

A large gaggle of sailplanes cavorting in the same thermal resembles a wartime dogfight where opponents are jockeying around in tight turns trying to outmaneuver each other. No other type of civilian flying except airshow formations permits a pilot to judge his performance and that of his machine against others in a real life environment. Gaggling is an exciting learning experience where the adrenalin can flow freely. Another form of flight unique to gliding is winch launching, akin to a rocket assisted take-off. It is economical and popular in Europe, but it demands well checked-out participants and has its hazards. However, aerotow is my preferred technique if there is an option. My old Standard Libelle feels the same way!

Thermalling Basic to the art of soaring is knowing how to thermal well whether it be around the airport or on a cross-country venture. On those occasions when I've been flying airplanes but no gliders and then have come back to soaring, the magic moment begins when I start to thermal. The thrill is always there, the soft, visceral downhill skiing feeling combined with the upward thrust of the updraft, strong or weak, the continued quest for the core, the urge to define its hidden anatomy and feed on the purest energy bubbles.

There are many scenarios: down low scratching for scraps of buoyancy to make a dicey save, blasting heavenward on the wings of angels, frolicking with brother hawks, or applying delicate stick artistry to stay up on a soggy day. These are all elementary soaring techniques that make thermalling the foundation stone of our sport and a rich source of primal enjoyment for flight in any type of glider.

Cloud base Glider pilots spend time near cloud base. The broad, dark shadow with wisps of vapour swirling about, the underbelly of a vast gray zeppelin, at times a little foreboding and mysterious, the presence of hefty lift – it's there to buy a free cross-country ticket on a cloud-street, or just for stoozing around. They say cloud base is the best place to be, but it is also a bit spooky and you need to stay alert...

My old Ka-8 had an electric turn and bank indicator. Having recently done some instrument flying in airplanes, I decided to try blind flying without a motor. A wide 180 put me into the side of a towering fair weather cumulus. It was an eerie feeling without the reassuring roar of an engine, a silent toboggan slithering around in a white-out, all alone – what a relief when we popped out into clear blue air again.

Waves Flying mountain waves is one of those shows reserved only for glider pilots. For me, the big ticket event was at the Peak named after Zebulon Pike, west of Colorado Springs. After several tries, I succeeded in riding the magic carpet up to 31,000 feet for an altitude Diamond. The topography of that wonderful mountain is deeply engraved in my mind's eye. Magnificent lenticulars condense over steep ranges in the west; modest ones, sometimes mixed with thermals, are usually produced by the lower terrain of the US northeast.

The point is to personally fly in a wave and encounter that strange new world. Each one is different; occasionally there is clear air without cloud. With the cloud there it is easier to position the glider and park. The rotor is always around somewhere. The most amazing aspect is how the normal slipstream noise turns into a general murmur when the smooth streamline of the wave engulfs the airframe in a laminar flow. To savour that, you have to be there.

Squall lines From the ground, the approach of a typical midwest squall line is awesome. A boiling wall of brutal black and gray elephants stampeding and trampling everything underneath, they are unstoppable. From the air, the view is even more spectacular if you dare to get close enough.

The conventional wisdom is to stay away – good advice if you're flying an airplane. However, if you fly cross-country, chances are that you may tangle with a squall line sooner or later. This is because gliders thrive in bubbly air which also hatches thunderstorms, and sailplanes operating over flat, open plains have many off-field landing options available if the weather deteriorates. And then, there is the temptation to cruise along in that wedge of rising air that runs parallel to the front edge of a squall line.

In 1967, I flew in a regional contest sponsored by the Soaring Society of Dayton out of Richmond, Indiana. I started out due west on the first leg with my Ka-8 without a radio. It was hot and hazy, spotty lift, until some small, dark, crisp-edged clouds emerged through the murk. Suddenly there was cool, rising air. The clouds grew black and solid, revealing a massive squall line advancing from the northwest. I drifted southwest and soon was climbing at 1500 feet per minute under the giant sloping cloud awning. The terrific lift was propelling me into the underside of the monster even with the brakes fully extended. The storm was transforming from a straight frontal wall into an irregular, crescent-shaped pattern with me at the centre.

That's when I escaped, diving out for several miles until I found a large plowed field. The brisk crosswind across the furrows was a little tricky. I got it down with a few tears in the fabric around the wheel, just in time to tie it down before the monsoon rain and electricity arrived.

That was my initiation to squall lines. It happened again in a contest at Cordele, but that time my Standard Libelle gave some extra margin to cope and I knew what to expect. One important lesson learned is that squall lines are not completely linear or symmetrical – they have

ragged leading edges punctuated by bays, bayous, and caverns that can trap you. And the powerful updrafts under the overhang and the driving rain that follows can pose complications. While running squall lines is not recommended, this kind of insight is different from what you would ever be able to perceive in an airplane.

Ridges and canyons When you live in South America you become accustomed to living upside down and facing north to see the sun! Chile exposed me to a distinctly different point of view about soaring. Unlike flatland pilots, Chileans seem most comfortable when they've got a wingtip tucked in beside a rock wall.

In December, 1983, mid-summer, Srdjan Radic of the Santiago Glider Club invited me to make an excursion into the depths of the Andes. Radic was famous as the first man to cross the peaks of the Andes, uphill and against the wind, from Argentina to Chile. We started out in a 17m Janus from the club's airstrip along the river. Swinging northeast, we spiralled up to 1000 metres in thermals and then turned east up the narrow river valley flanked by sharp canyon walls. Weaving in and out of bends in the canyon, sometimes circling and other times driving straight ahead, there was no sense worrying about the proximity of the wingtips to the rocks. We were attuned to invisible zephyrs that only Radic could detect.

He was a human condor, having an innate instinct that avoided the perilous downdrafts and sniffed out the sweet spots in the rising currents. We climbed higher and higher, passing lofty crags and pinnacles and condor nests that no human had ever invaded.

We finally came to the 3000 metre pass at Portillo, then angled south and west, slowly burning off altitude as we slid by magnificent glaciers and mining camps, until we returned to Santiago, elapsed time two hours and fifty-five minutes. This intense, valiant, soft-spoken gentleman had just given me the most incredible ride of my life! It was a privilege to have known him and to have witnessed him in action at the top of his form.

Cross-country Following the first solo flight, the most important rite of passage is when you set out alone on your first cross-country adventure. Generally it will not be a great distance but it should be far enough from home base to break the umbilical cord so that you face up to the possibility of landing out. You've been trained to handle the glider capably and know how to select a landing spot and bring it down in one piece. After you've done it once, subsequent trips over longer courses assume a normal learning curve. Oddly enough, I don't remember my first outlanding, whereas I'll never forget my first foray away from the airport.

Racing A soaring contest can be likened to an enormous air battle over hundreds of miles of landscape. All the elements are there: feisty pilots determined to win, pre-flight mission briefings, loyal ground crews, well-prepped aircraft, ingenious individual strategies and tactics, fast flying and aggressive maneuvering, winners who make it back, and losers who are scattered around the real estate waiting to be rescued.

The concrete benefits to be derived from any competition are the chance to compare one's skills against other participants, the drive to stretch oneself beyond previous limits, and the fun of being with a lively crowd which you will seldom find in everyday life.

Shot down The humbling event that happens to everybody (some more than others) is running out of thermals and having to make an outlanding. A cold slide is particularly irksome if you are sitting in a cornfield and others are still in the air. It provokes introspection about what went wrong and how it can be avoided next time.

I vividly recall one time late in the day when my Ka-8 had stopped floating just as a dot appeared on the horizon. It turned out to be AJ Smith whistling overhead in his gray metal Sisu at 2000 feet as if there were no tomorrow.

What happens after touchdown in a strange pasture is a source of many amusing yarns. The situation is the same as if you had arrived unexpectedly by parachute. My most negative encounter was the man atop a tractor who kept on plowing his field after I landed right beside him. After tense negotiations we were finally able to pull the Libelle off his land. The grandest welcome occurred on a Kentucky bluegrass horse farm where the proprietor treated me to bourbon and a visit to his gun collection while waiting for my crew. All in all, outlandings should be considered as character-building exercises.

At one with the weather Glider guiders develop a greater sensitivity to microclimate and small nuances of temperature, thermal activity, and cloud conditions than airplane pilots who are less dependent on these factors to reach their goals. On days when I am not flying, I continue to pay attention to what's going on up there, an ingrained habit of many years.

Final glide To oversimplify, there are two kinds of final glides: the devil-may-care high speed finish at the end of a booming day, and the gentle, gradual loss of energy near sunset that foretells an imminent landing.

One day over the flatlands of Indiana the soft type of final glide became a surrealistic experience. The trip of three hours was coming to an end and my Ka-8 was sinking slowly in dead air. Without a radio I felt cut off and alone, not knowing what was in store on the ground. At the same time I was absorbed by the serenity of the scene, and the absolutely smooth air without the tiniest bump.

There were plenty of good places to land so I let it slide down to 500 feet before picking out a field near a tidy farm. Nice, recently plowed soil, a perfect spot. I had landed in a Mennonite community, which sympathized with an engineless bird and gave me a fine welcome until my crew arrived after sundown ...

If you have the patience, luck, and opportunity to sample the full gamut of those jewel facets that soaring offers at various stages of your life, your reward will be an immense satisfaction. You will not only become "At One with Nature" but also "At One with Yourself". ❖

my mid-life crisis

flying the L-19 at MSC

Murray Balzer, Montreal Soaring Council

I STARTED FLYING GLIDERS in 1983 with the Air Cadets in British Columbia. Eventually I became a gliding instructor and even did a little bit of towing during my college years with Pacific Soaring Centre in Nanaimo, BC. I've always loved the excitement of being around the glider field and every spring since I stopped flying in 1992, I would long to join another gliding club.

Well, in the spring of 2010, I finally had my "mid-life crisis" and, without buying a Corvette or cheating on my wife, I broke down and joined the Montreal Soaring Council. One of the things that drew me to the MSC is the fact the club operates three Cessna L-19 *Bird Dogs* as their towplanes. I have always loved the L-19 and I even had a small "flirtation" with flying one back in the early 90s, so my plan for the first season was to relive my youth as a tow-pilot flying the Cessna L-19.

Now, I don't want to give you the impression I stopped flying all aircraft in 1992. I just stopped flying gliders. I fly professionally, and have been all over the world as captain on a large corporate jet (a Bombardier Global Express). Having said that, I hadn't flown a light aircraft (Cessna 152) in nine years, a tailwheel aircraft (Cessna L-19) in eighteen years, or done any glider towing (Champion Citabria) in twenty-one years but I thought to myself, "I've done this before, how difficult could this be?"

I was about to find out ...

A friend of mine had spent the 2009 season as a towpilot at MSC and put me in contact with their Chief Towpilot, Alain Orfila. For those of you who don't know Alain, he has been flying L-19s forever. He started flying the *Bird Dog* with the French Army and actually flew them on operations in Algeria. He's pretty much mastered the art of making the L-19 do exactly what he wants; in plain words, he's tamed the dog. Anyhow, between our schedules, we set a date for me to come out to the field and start my checkout. Now I have to admit, I was really excited about getting back in to the L-19. I was so enthusiastic that I even dusted off my old L-19 Flight Manual so I could study the aircraft's checklists and limitations before my first training flight.

For my first day at the club, I spent the morning in the backseat of the towplane watching Alain do some towing and quite frankly he made it look easy. Once the

morning rush was over, it was my turn to fly the L-19. I flew it for thirty minutes from the front seat and it was mind-numbing. It was like I'd forgotten how to fly and to be honest I didn't enjoy it at all.

On takeoff, I couldn't keep the *Bird Dog* straight down the runway, in a turn, I couldn't keep the ball in the centre, I couldn't hold a constant airspeed and on my (one) landing, I flared at about 30 feet. We didn't even attempt a practice forced landing. There was also a suggestion made from the backseat about looking out for other aircraft, which I couldn't do because I was too busy holding on for dear life.

On that day, the L-19 had literally handed me my ass on a platter and it would have given me seconds had I asked for it. I'm sure the aircraft was laughing at me as I walked away. "Have you had enough or would you like to taste a little more?"

At the end of the day, it was obvious to me (as well as Alain) that if I wanted to tow gliders I would need recurrent training on a taildragger. I was humiliated and all I could think on the way home was, "How could this happen to me, a professional pilot?"

Have you ever tried to find something when you really need it? That's what it was like trying to find someone who provides training with a tailwheel aircraft in the Montreal/Ottawa area. Fortunately, through the local Maule dealer, I was put in contact with a fellow corporate pilot who was more than happy to train me in the art. After six hours with him in a 115HP Citabria, I was finally ready to have another go at the L-19.

This time my excitement for flying the *Bird Dog* was mixed with a good dose of nerves. My ego had taken a beating from the first time but I was bound and determined to have my mid-life crisis towing gliders, so back I went for more punishment.

With Alain in the backseat, we took off on my second training flight. This time, it went better. The ball stayed closer to the centre, I could keep the airspeed within about 10 mi/h of where it was supposed to be and I didn't flare at 30 feet. I was still intimidated by the aircraft in a crosswind but after this flight it seemed that I might finally get to fly the L-19 on my own.

After another training flight I was allowed to go “solo” to practise my upper airwork and do some touch-and-go’s. There’s something wonderful about looking behind you in a tandem aircraft and not seeing the instructor sitting back there; I had forgotten what that feels like and you know, it feels pretty darn good.

On my next trip to the club, I completed my five dual tows and had my logbook signed “OK TO TOW SOLO.”

The first weekend I showed up at the club as a qualified towpilot, I would be the only one on the schedule. I introduced myself to the other members and told them about my lack of experience. They all assured me it would be fine and that they would “point” me in the right direction should I need it. So, I did the walk around on IMJ, started the aircraft, completed the run-up and then took my first glider aloft. Back down I went to get another glider, careful not to shock-cool the engine and repeated the process six times.



By my third or fourth tow, I even heard someone say, “Thanks IMJ.”

It was genuinely nice to hear someone thanking me for the tow. In hindsight, maybe they were just happy to be gone from the back end of the wild ride I was giving everyone on my first day.

Regardless, by the time the day had ended I had a big smile on my face. I had completed my first day as a towpilot and not managed to ground loop the beast or hit another aircraft in the circuit. I also knew that the pilots I was flying with at MSC were great. You could ask these veterans anything about the operation and everyone was more than willing to give their best advice. For a guy who was pretty uncomfortable on his first day, I went home feeling very comfortable with the members of MSC.

Once I was checked out, the season seemed to fly by. I was having a lot of fun towing. My wife even came out to the club to see why I was smiling so much every time I came home. After she saw what I was doing, she probably felt it would have been better if I had found a girlfriend for my mid-life crisis – she learned then the sad truth – the *Bird Dog* had become my new mistress.

When the 2010 season ended I had the same old feelings from twenty-one years ago. I was sad to see all the equipment put away (especially the L-19) and looked forward to the start of the next season. Also, I could (almost) land the L-19 in a crosswind without being terrified of it. I must admit though, on those really gusty days it was nice to be landing on a 500 foot wide turf runway.

Some of the highlights from my first season included towing at the club’s annual wave camp in Lake Placid, New York. As well, on my last day of the season I was allowed to do a cross-country retrieve. I also was lucky enough to be on the schedule the day the top Air Cadets and their instructors from the Eastern Regional Gliding School based in St. Jean, Quebec joined us for a day of soaring.

But the true highlight of my first season with MSC is with the club itself. This is a club full of very dedicated people who all love to share their knowledge, experience and enthusiasm for the sport of soaring. They welcomed me in to their club and I was able to revive those same feelings I had in my youth. When you think about it, isn’t that what a mid-life crisis is all about?

The evolution of contest soaring

John Cochrane

Part 1 – all about tasks, technology, and classes

WAS ASKED TO TALK about the history and evolution of contest soaring for the Ralph Barnaby Lecture organized by the US National Soaring Museum, whose mission is also understanding and preserving soaring history, not just beautiful old gliders. I want to speak about why contest soaring has evolved the way it has. I can't resist also speculating about how contest soaring will continue to evolve in the future, and a little bit of how I think it *ought* to evolve, mostly using the USA contest scene as my example.

1985 I start my story in 1985. Races started with the gate, flew assigned tasks controlled by TP cameras, and then a fast final glide to an exciting flying finish. The classic strategy emerged: start late, catch the gaggle, bump up on final glide. The distance task was dropped, and tasks were short enough that the leaders at least typically made it home. Speed was the name of the game.

A remarkable set of new gliders like the Ventus, Discus, and ASW-20 dominated. Wing loadings went up; pilots learned to fly with a lot of water. The combination of the netto variometer and "dolphin flying" – really the art of careful course deviations – opened the way to the "long glide" style of flying as opposed to the thermal-and-bash-through-sink style of the 1970s.

To many, this is remembered as a Golden Age. That memory may be a bit fuzzy. Weather forecasting wasn't as good as we have become accustomed to, so there were occasional mass landouts. The late 80s had an uncomfortable string of mid-air. New pilots faced a daunting learning curve of landing out day after day on assigned tasks. But in many ways it was a golden age. Certainly contest soaring had achieved a certain maturity and stability after years of development. Then it all changed.

GPS GPS is the most obvious change. GPS made navigation much easier. There was a lot of grumbling, "real pilots know how to look at a map." To this day, there's lots of grumbling that "pilots will just stare at their GPS all day", ignoring how much head-down time map navigation and glide planning took. GPS was initially banned in contests, rules only giving in when costs got down to the thousand dollar range, and most pilots were flying with GPS in their everyday flying. It's interesting that we loudly protest \$1000 instruments, but think nothing of each new generation of gliders that double costs. Now, of course, no student pilot leaves on a Silver C attempt without two GPS and a moving map, and the immense controversy is hard to remember.

The vario got the same reception in the 1920s: "You're losing the real skill of soaring by the seat of your pants." Both cases are worth remembering as we think how future technology will infuse to the world of soaring.

By itself the change from cameras to GPS documentation was a minor though very useful improvement. The *Big Change* is that the flight recorder opened the way to fundamental changes in how we run and fly contests. These are:

GPS allows the turn area task (TAT)

Unlike the traditional assigned task, the competition director (CD) assigns a sequence of areas; in the US, circles between 1 and 30 miles in diameter. Pilots must fly through these in order, but can choose to go deeper in one or shallower in another area. A minimum time is announced, and if you finish undertime, your speed is calculated using the minimum time.

This task is slowly taking over as the default task. Many contests are now all TATs, with one MAT (modified assigned task) and one pure assigned task (maybe) thrown in for variety.

The TAT is fundamentally different because it is defined by time rather than by distance. Where a new pilot faced a steady stream of landouts in the good old days, now new pilots can simply cut the task short and come back home. Conversely, a CD who doesn't want to discourage his newcomers can still call a task that fully challenges the top guns. If you have four hours of soarable day between start open and the end of the lift, you can call a four hour task; the winners can do hundreds of miles, and the newcomers can also fly a full day but end up at home around the bar.

The other time-limited task is the MAT, modified assigned task, in which pilots pick their own turnpoints. This has evolved over the years. Its ancestors are the distance task, then the "cat's cradle" distance. The rules and typical task layout have changed as well, with more emphasis on the assigned part, and less on the go-where-you-want part.

However, pilots dislike MATs – it is a lot of in-cockpit head work, there is a lot of luck involved, in the sense that roll of the dice strategic decisions about which turnpoint to go to has a big influence on the results, and the optimal tactic is often to buzz around a few turnpoints in good

lift or close to home. This isn't real cross-country soaring. The MAT allows tasks in weather that even TATs can't accommodate, and situations such as very long ridge flights. But it isn't as popular as the TAT in most cases.

The MAT does spread pilots all over the sky, which lessens start roulette and gagging a lot. However, pilots like a certain amount of gagging, the feeling of racing, and the sense that the race depends on what you do with a given sky, rather than clairvoyant turnpoint choices.

The TAT is so popular because it seems to arrive at just the right combination. Pilots are in roughly the same sky, or at least parts of the sky that they can see and evaluate rather than guess. You do see other gliders, and small gaggles form. But start time tactics and massive furballs are much less present. The TAT is much more about the pilot, the glider, and the weather – not the start, the leech, and the gaggle. We are still adapting. I think some CDs call far too large circles – two 30 mile circles add up to “just go where you want.” Often CDs call too-short times, forgetting that a short time is not necessary to bring newcomers home, unlike a short distance.

All of which emphasizes my point. It was not GPS per se; or even GPS navigation or GPS flight recorders that made the big change. The big change is how GPS led to changes in how contests are run, flown, and won. And though GPS is twenty years old, that process is still underway.

GPS-controlled start and finish.

The olde days had a start line, visually controlled, with an altitude cap. You had to call the start gate, do an exciting V_{ne} dive, and hear “good start”. The finish was a line on the airport that you crossed, hopefully at high speed and 50 feet.

Now the start (in the US) is a cylinder, and it is controlled by GPS. You simply pass a line in the sky, or thermal out the top. The V_{ne} dive and other madness is not possible. The finish line is still available, but more and more contests are moving to a finish cylinder, also with a reasonably high floor of 500 to 1000 feet. You cross this line at normal flying speeds and enter a pattern to land. It's much less exciting – but it's a lot safer. We don't have any flutter through the start gate anymore, and the appalling string of accidents at and near the finish line has been sharply reduced.

Retrieves It goes without saying that cell phones and GPS have dramatically changed the retrieve experience.

The future of technology GPS is only the start. Here are some things I see on the horizon.

Weather information

In-cockpit satellite weather is now available. It can be extremely valuable in a contest. The visible satellite loop and radar loop in particular can help with the agonizing decision, do I go on in this turn area or go deep in the next one, sixty miles away? Both loops would help start decisions, and profoundly affect MAT strategy. The radar loop would make a big difference in threading thunderstorms – or deciding that even though five guys ahead are trying it, threading the thunderstorm line really isn't such a good idea.

So far, it isn't widely used, and it is illegal. So far, it's a bit cumbersome. Our instrument designers have not incorporated easy-to-use displays, though they are common in general aviation. I forecast that just like GPS, we will continue to resist for a while, then give in once units cross the \$1000 price barrier, are incorporated in soaring electronics, and pilots are using them in recreational flying.

FLARM FLARM is an anti-collision device based on interchange of GPS position via short-range radio. It was developed in Europe and is extremely successful there with upwards of 13,000 units sold. It is coming to North America in the 2011 season, and contest pilots seem to be on the path of instant adoption. Orders are growing fast.

FLARM's potential to reduce the danger of mid-air collision is obvious. However, we must be careful of the “spikes on the dashboard” problem. A colleague of mine once wrote a brilliant economics article when automobile safety regulation was being developed. He pointed out that, if you really want to reduce car accidents, you should put sharp steel spikes on the dashboard. Then people would avoid accidents in the first place!

I detect this problem in recent European contests. Pilots accept 30 glider gaggles, taskers call tasks that lead to thirty-glider gaggles, and organizers allow start procedures with 150 gliders in a small area with 2500 foot cloud bases. Is the thought, “Well, everyone has FLARM so mid-air won't be a problem”, leading to acceptance of risks that would otherwise be rejected? Reducing gaggles and mid-air possibilities is much on CDs minds in US contests that have not had FLARM so far. I hope it stays that way.

Thermal detector The biggest piece of technology on the horizon is the long-awaited thermal detector. Many physical principles can work. Radar can measure the speed or concentration of birds, insects, or other gliders.

John Cochrane is the author of numerous articles on contest flying strategy, rules, and safety, and currently writes the ‘Contest Corner’ column in SOARING magazine. His soaring articles, including the unabridged version of this one (the 2010 Ralph Barnaby Lecture sponsored by the US Soaring Museum), may be found at http://faculty.chicagobooth.edu/john.cochrane/research/Papers/#For_glider.



John is a member of the US Rules committee. His first contest was in Uvalde in 1995, and he's been flying Regionals and Nationals ever since. Most recently, he represented the USA in the 15m Class at the Worlds in Hungary. In “real life” John is a professor of finance at the University of Chicago Booth School of Business.

In Part 2 in the next issue, John concludes with how contest rules are changing to be a better measure of skill while taking away the scoring incentives for unsafe flying.

Doppler lidar measures airspeed by tracking dust. Microwave or infrared can spot the higher water concentration of thermals, and infrared can see their heat. All these technologies work right now in large expensive power-hungry ground-based forms. All it takes is the usual miniaturization and development to make them work in a glider. And remember, even knowing what the air is doing 100 metres away would be a revolutionary change. If there were any military application we'd have it now. (Can anyone think of a military application for a thermal detector?!) If the soaring market were 100 times larger, we'd have it now.

Like the vario or GPS story on steroids, we can predict the response. Many pilots will bemoan it as the end of soaring. But soaring will never be easy. Within a few years, every Silver C student in a 1-26 will feel he needs one.

I for one look forward to it. The thermal detector will mean the end of start gate roulette, gagging, and leeching. It will bring the biggest increase in our flying abilities since composite aircraft and laminar airfoils. And it will be the biggest bang for the buck we've ever seen. Even if units cost \$10,000 they will bring by far more performance than my current temptation to trade in my ASW-27 and \$80,000 for an 18m glider. I think they will enhance safety, in addition to the end of gaggles. If you know where the lift is, you're more likely to find it; if you know there is no lift, you're more likely to calmly glide to a good landing spot.

Two demographic developments

I have so far focused on technology. Most soaring pilots are analytic, engineer types, and a story line that focusses on technology is natural to us. But in tracing this story, already we've discovered that the technology per se was not central; it was how technology changed the "soft stuff": the rules, procedures, strategy, and character of contest flying.

As I review the development of soaring, it is the "soft stuff," the human side, that really is the story, in so many of the other developments we have experienced. Let me start with two demographic trends, and then review the big changes in races, classes, and rules.

Participation Participation in US soaring contests has shown the same slow decline as in the rest of soaring. We've lost about 10% over the last decade. Nationals in particular are getting smaller and smaller, in part because there are more of them. For example, in 2010, there were 8 pilots at the Open Nationals, 27 at 18m, 29 at 15m, 10 at Standard, a healthier (but still declining) 42 at Sports and 6 at the World Class. Smaller contests are less economically viable, and a committee's work now consists more and more of twisting arms rather than adjudicating too many bids.

Participation is always small. Only about 5% of SSA members ever fly a contest. But that also means we could double contest participation if we just get an extra 5% of SSA members to show up! I see low and declining participation as the main challenge to contest soaring in the next decade.

You might say, "who cares?" A trivial percentage of drivers race the Indy 500, and that seems neither to hurt car sales nor lower the quality of the race. The answer is, you care. Soaring is a *participant* sport not a *spectator* sport. We are

organizing events for the enjoyment of participants, not for the big TV money. And the economics of our sport have vast "economies of scale." Everyone has a better experience if there are more people.

I had a vision of this a while ago. I spent a lovely half hour 500 feet above a golf course. As I looked down I saw a full parking lot, tennis courts with happy wives, a swimming pool full of happy children, a pro shop where you could buy golf clubs, a bar and a restaurant. And it occurred to me: why do we fly gliders out of dusty deserted airports in the middle of nowhere while these people pursue their sport in such pleasant surroundings? The answer is simple. Their club has 1000 members. I fly from a great club, well run, with great equipment. But we're not putting in a restaurant for 60 members!

Every bright idea anyone has had for improving contest soaring comes down to one obstacle: There aren't enough of us. More classes, more contests, cheaper gliders, better teams, more instruction, more coaching, more development, more fun times, better venues... It all needs the money that comes from scale.

Contest soaring is a key to stabilizing the numbers in regular soaring. When I looked back at the 1985 contest winners, it was striking that almost everyone on that page is either still soaring or dead. It seems we fly until they pry our cold dead hands from the stick! When they start flying cross-country or contests, they stick. The problem in soaring is not the numbers starting, it's that the typical member stays two years and then leaves. More contest participation can really help that trend.

Wives (spouses) and crews A big change in soaring since the 1970s follows a big change in society. Wives work! (Sorry for being sexist here but almost all contest pilots are men.) If you ask a modern wife to take her two weeks of vacation, and take care of the kids in the back of the SUV for two weeks in, say Uvalde Texas, and come pick you up from various ranch roads, you will get a big laugh. Those days are over. Partly as a result, there are fewer and fewer crews. Most contests now have more than half of the pilots showing up crewless.

On the one hand, it's a good thing rules and tasks have evolved to allow it. If we go back to distance days or mass landouts, we'll lose half our sport. On the other hand, the fact that so many pilots now show up alone – and the vast majority of pilots who are still working and have kids at home show up alone – is a big impediment to participation. The fact is, glider racing is now a sport that people take up in their mid-40s, when kids are at least a bit independent, and the majority of our population is retired or semi-retired with no kids in the house.

All of soaring needs to make the transition to this new demographic reality. The days are gone in which hubby could hang out at the gliderport while wife takes care of kids at home. I don't have any big answers, but this is the big question.

One small lesson here comes from contest experience. The successful contests are fun. The Seniors, Newcastle,

Perry and Mifflin are big successes. What do they offer? A great place, a well organized social scene, and a lot of support for newer pilots. This is a lesson for us winter pun-dits obsessing over rule changes. Team points, handicaps, etc. eventually matter a whole lot less than fun.

New races

The last twenty-five years have seen a very large structural change in how contest flying is organized. I start with two whole new race formats, the OLC and Grand Prix.

OLC The OLC is a big development. Pilots send their traces in from around the world and are scored on various formats, most of which emphasize long distance. This is another instance in which technology (the internet) enables a form of race organization that was previously impossible. It is immensely popular. Close to 1000 pilots fly OLC in the US, compared to about 350 that flew a contest in 2010. Put another way, two out of three active cross-country pilots chose not to attend any contests last year. Obviously, OLC is either a challenge – an alternative which may be sucking energy away from contests – or an opportunity. Here is a target population which could triple our numbers.

Why do people fly contests? In part for recognition; you want people to see your accomplishments. The OLC offers that. In many ways OLC really is the modern substitute for badge flying in that regard. And why might pilots find OLC satisfying over regular contests? Perhaps they dislike the tendency to short tasks, the milling around before the start, or tactical flying.

Certainly there is some convenience in a short event that does not mean a long drive or weeks away from home (see wives and crews, above). But things are lost: the camaraderie, the lifelong friendships we develop from contest flying. They lose the fast learning curve that the interchange of ideas of top pilots in a common location produces. They lose the challenge of flying and racing on weak days.

If we view OLC as a challenge, maybe OLC-style contests will attract pilots. We certainly can get together for shorter periods of time, and declare a 3 turnpoint MAT with very long minimum time! Or perhaps we just need to view the OLC as our target and mine it for contest participation.

Grand Prix The Grand Prix is a new race format instituted by the IGC and designed for the media and spectators. It has 3D real time tracking, and now has sponsorship and money. (Sponsors like advertising the “green” nature of soaring; they don’t show the towplanes, RVs, retrieve vehicles, and so forth!) We haven’t had a Grand Prix yet in the US, but it’s becoming more and more popular around the world.

Grand Prix races are run in a fundamentally different way from past contest formats. A small number, less than 20, start all at the same time. They fly a short assigned task. They are scored by place, not by points. These changes have a dramatic effect on the nature of the contest flight. Start gate roulette is pointless. Gaggling and leeching take on sailboat tactics – the thing to do is “cover” the opponent and then dash to the finish. If “covered”, the right

thing to do is tear off and do something wild. The finish is exciting when losing by an inch is as good as losing by a mile. Pilots under regular rules would not fight over one point, Grand Prix pilots do. That’s why I like it.

The Grand Prix nicely shows how regular soaring is a participant sport, not a spectator sport. The point of regular soaring contests is for the enjoyment of the participants, period. Watching a contest has always been as much fun as watching paint dry.

Now that we have the Grand Prix, we can cleanly separate the two goals. Grand Prix racing can go for the spectators, and then short tasks and wild rules make sense. You don’t have to pay much attention to safety. In fact a few telegenic crashes will bring in more spectators. You don’t need big participation. In turn, regular soaring can stop even thinking about amusing spectators, and come to the realization that there aren’t any, and focus on increasing participation. So good luck to the Grand Prix.

New classes

We not only have two new race formats, we have an abundance of new classes.

Handicapped racing One of the biggest innovations of the last twenty-five years has been the introduction of handicapped racing. As in other sports such as sailing, there’s a lot of whining in the winter about new rules and handicaps, which then prove extremely popular in the spring. The Sports Class is the most successful class in the US and it has spread to the world. It brought many new pilots into contests as it allows them to race older gliders. Again, technology had unintended consequences: time limited tasks opened the way for handicapped racing, as gliders of different performance require a course defined by time not by distance to both use the soaring day.

In the USA, the Sports Class developed initially with two missions: to allow handicapped racing, especially of older gliders, and to be a “beginner” class at the regional level that would feature easier tasking and a gentle introduction to contest soaring.

Europe developed the Club Class instead, which only allows a narrow range of handicaps to be used in a given contest. It has much less of a “beginner” mission, and no mission at all of allowing racing for lower performance gliders, or older high performance gliders that are uncompetitive in Open or 18m Classes. All this made sense as Europe has a lot of clubs which have Standard Cirrus level gliders, and the point was to let “club” pilots compete. The US has almost no clubs with such gliders that can go off to a contest. Almost our entire target is the private owner, but many of them have gliders which do not qualify under European “club” rules, and many of them are beginners.

Handicapped racing is spreading. Most countries have handicapped nationals for at least some classes. US Regionals now merge small FAI classes with handicaps, and this is proving very popular. At the US national level, it really is “handicapped racing” rather than a

⇒ p29

the ABC's of ADS-B

Myles Hynde

from *Gliding International*

ADS-B is replacing radar as the primary surveillance method for air traffic control worldwide. This new “situational awareness system” being introduced will present gliding with a mountain of problems – least of all the future of competitive soaring.

FEW GLIDER PILOTS will have caught up with the term ADS-B, but within this decade it is to become general aviation’s air traffic control medium worldwide. In fact, it is already operating in Alaska, the trial state that has shown it really works.

A recent FAA news release states that hundreds of general aviation aircraft have been equipped with ADS-B avionics along with a ground-based infrastructure that enables pilots to see where they are in relation to each other in poor weather and rough terrain. The fatal accident rate has been cut nearly in half for the ADS-B equipped aircraft.

Air traffic management is currently radar-based and managed by ground controllers, but the FAA and aviation electronic industries are now ushering in this next-system that relies on satellites to enable air traffic control capabilities from the aircraft flight deck.

This satellite-based navigation system called *Automatic Dependent Surveillance-Broadcast* (ADS-B) will still have the

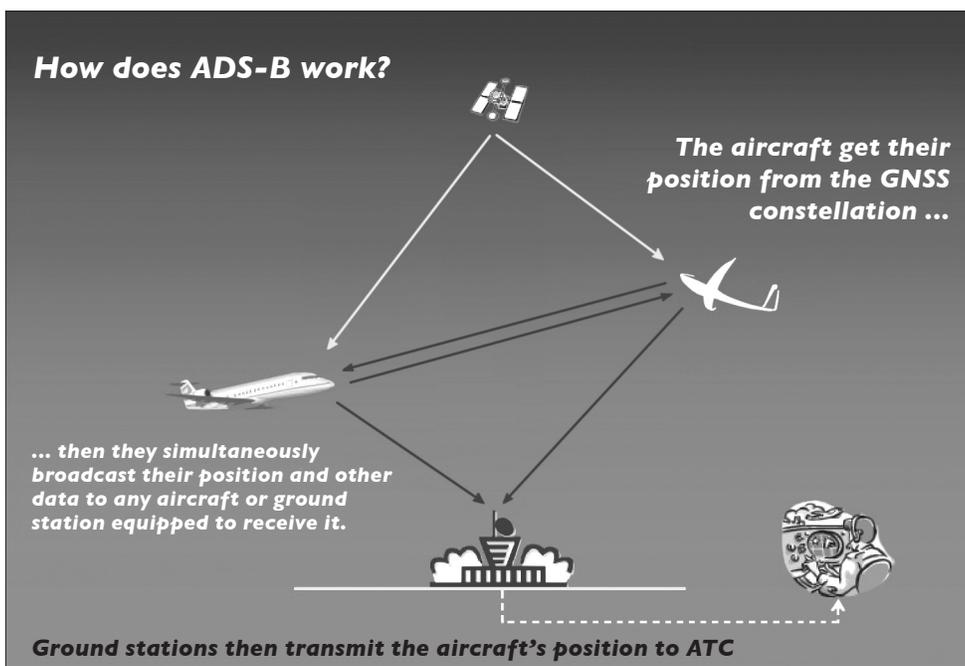
existing radar systems as backup for air traffic controllers, but the FAA will require all aircraft flying in any controlled airspace by 2020 to broadcast their positions through ADS-B.

Call it what you will, ADS-B to glider pilots is equivalent to FLARM in providing situational awareness, but with unlimited range. It will, when fully introduced, virtually interrogate and position report every aircraft flying.

Manufacturers already have the green light to begin building the on-board equipment that will allow air traffic controllers to know where aircraft are with greater precision and greater reliability. This is one of the key elements of *NextGen* as it is often referred to – a medium that will improve the safety and efficiency of flight. The first commercial certification of *ADS-B In* technology involved cargo carrier United Parcel Service. UPS has equipped six Boeing 757s and five 767s to trial the concept. They plan to have their entire fleet of 211 aircraft equipped and have already tested merging and spacing applications. UPS claim to have saved about 250,000 gallons of fuel a year by using *ADS-B In*, cut noise by 34%, and reduced engine emissions by 30%.

Situational awareness both for the controller and the pilot combined under ADS-B is a major leap forward. “ADS-B avionics will enable any aircraft to monitor its position in relation to other aircraft more accurately than they can today by using satellite navigation through the Global Positioning System”, says Adam Evanschwartz, marketing manager at Rockwell Collins.

What is ADS-B? It is far different from radar, which works by bouncing radio waves from fixed terrestrial antennas off airborne targets and then interpreting the reflected signals. ADS-B uses conventional Global



Navigation Satellite System (GNSS) technology and a relatively simple broadcast communications link as its fundamental components. Also, unlike radar, ADS-B accuracy does not seriously degrade with range, atmospheric conditions, or target altitude, and update intervals do not depend on the rotational speed or reliability of mechanical antennas.

In typical applications, the ADS-B capable aircraft uses an ordinary GNSS (GPS, Galileo, etc) receiver to derive its precise position from the GNSS constellation, then combines that position with any number of aircraft discretely, such as speed, heading, altitude and flight number. This information is then simultaneously broadcast to other ADS-B capable aircraft and to ADS-B ground, or to satellite communications transceivers which then relay the aircraft's position and additional information to air traffic control centres in real time.

Put simply, ADS-B has many applications but its main purpose is to enable an aircraft to determine its position using satellite navigation and then broadcast the position – along with its altitude, speed, heading, call sign, and aircraft type – automatically to other aircraft and to air traffic control.

By 2020, the FAA will require *ADS-B Out* equipment for aircraft flying in airspace including Classes A, B, and C, around busy airports and above 10,000 feet. The nationwide rollout of ADS-B ground stations will be complete by as early as 2013.

ADS-B Out is the information broadcast by the aircraft to ground control stations, which then relay the aircraft position data via radios from ITT Corp. in White Plains, NY to air traffic control stations. This technology is already being implemented by ITT on the ground.

The ADS-B information is broadcast on the 1090 MHz spectrum and is compatible with the transponders used for traffic alert and collision avoidance systems (TCAS). For the general aviation community, the ADS-B data link is 978 MHz, often called the Universal Access Transceiver (UAT) link.

ADS-B In

Where pilots will see the most improvements is with *ADS-B In*, the reception by aircraft of ADS-B data. *ADS-B In* is in contrast with *ADS-B Out*, which is the broadcast by aircraft of ADS-B data. *ADS-B In* will enable flight crews to view the airspace around them in real time.

ADS-B In will reduce the workload for controllers and the flight crew. It will bring greater situational awareness to pilots than they have today by providing continuously updated traffic information to the pilot's display in real time – whether on a primary flight display or an electronic flight bag (EFB). However, it does not eliminate the need for air traffic controllers.

The display standards for *ADS-B In* information on cockpit avionics or EFB is still being formulated. As a result, companies designing *ADS-B In* solutions are taking different

approaches. As of yet, there is not an *ADS-B In* mandate from the FAA as there is for *ADS-B Out*.

One of the things still to be determined is how to represent aircraft of different sizes and performance profiles on the cockpit display. Each pilot also might have different preferences for how much information he wants displayed on the screen. Some operators may want to have their situational awareness information overlaid on a moving map. Some want an audio form to keep the pilot's eyes focused on his forward field of view.

Meanwhile, the FAA has cleared the ITT-deployed ADS-B system for a nationwide rollout. ITT, under contract since 2007, is providing radios, routers, and radio control stations for the program. This means that air traffic controllers can now more accurately separate aircraft in the USA with ADS-B coverage by displaying aircraft tracked through the new ADS-B global positioning technology, as well as displaying traditional radar monitoring.

ITT has now commissioned the system at four sites in Alaska, the Gulf of Mexico, Louisville, KY, and Philadelphia, PA. The ADS-B technology provided for these four sites is for "critical" services, also known as surveillance services. Critical means critical to air traffic control. Test sites were determined due to the variety of their operational environments and challenges. Technology was then deployed to the test sites, and then it was evaluated and approved for nationwide deployment.

The next step involves essential services which cover *Traffic Information Services – Broadcast*, and *Flight Information Services – Broadcast*. *Traffic Information Services – Broadcast* provides additionally air traffic situational awareness from ground sources, such as radar, while *Flight Information Services – Broadcast* provides information such as weather reports.

The ADS-B radios

Over 300 radio stations have been completed and there will be 800 by 2013 when the program is complete. The radios provided by ITT are not commercial off-the-shelf stations. They were designed with stringent FAA requirements for receiving airborne data reports. Importantly, ADS-B radios are less expensive than radar radios. ITT's radio architecture enables the radios to distribute information to any ATC facility. The radio control stations provide central processing and data distribution services. Some installations will have backup radar control.

On the negative side

On the negative side is the problem regarding possible frequency congestion, that is why the FAA is proposing that airlines and other commercial traffic be on one frequency – 1090 MHz – while general aviation traffic be on another – 978 MHz, which has more available bandwidth and can provide the graphic weather information and other data. But solving the potential congestion problem brings up another problem, the need to re-broadcast information over *both* frequencies. It is important to ensure that different aircraft (equipped with different broadcast links) can still 'see' each other. ⇒ p28

2010 Annual Report

Safety Report See the separate safety report opposite. Significantly, we are at about half the annual average of accidents this year with no fatalities. Well done to all pilots and clubs. Let's keep working our successes!

Blanik L-13 situation What we know is that we have sixteen L-13 and 13A Blaniks in Canada affected by the AD grounding the aircraft. Two clubs (Silver Star and Saskatoon) make sole use of L-13 for training and Cold Lake trying to start up their club with one. A process to address the AD may be announced by LET in April 2011 and will likely involve non-destructive eddy current inspections for the spar components in question. Most current info is being posted on the SAC Roundtable forum.

Instructor courses The FT&SC trained 21 instructors (Class I and II) of which 12 were new class III ratings. Courses were run at VSA, ESC, GGC and Champlain. In addition, SOSA and York conducted their own instructor course, but the number of instructors trained is not known. The SAC curriculum is currently squeezing 10 days of training into a 5-day course. FT&SC is preparing the ground school portion of training on SAC DVDs for distributed learning under the responsibility of the club CFI. Once the ground school portion has been completed under the mentorship of the CFI or designate, candidates can participate in a flight evaluation to get their SAC rating. The FT&SC will assist clubs with both phases of training.

It is expected that the clubs will make extensive use of simulation (*Condor* is recommended) to practise the lesson pattern and lesson delivery with candidates to evaluate they are ready for the flight testing phase. To assist with the ground school, a new video of the ten flights on the instructor course has been completed which includes examples of all the stages in the curriculum including the fifteen spin scenarios and PDM using SOAR technique and US FAA P³ (Perceive-Plan-Perform) adapted from USAF. The videos will be available as part of the SAC Instructor Manual and copies will be forwarded to all clubs. Instructors wishing their own copy can e-mail <cook-daniel@shaw.ca> with your mailing address and I will forward you a copy.

Instructor Course materials In addition to the ten-flight video on the instructor course,

the pocketbook and handbook (January 2011 version) have been slightly revised with lessons learned on the instructor courses. Changes are primarily to teaching the circuit and isolating "planning the circuit" content from "flying the circuit" so that students can master one stage before moving to the next. In addition, the diagonal circuit explanation has been restructured to reduce confusion on teaching this element.

Shortly, the instructor manual will have some edits made to balance all documents. Several *PowerPoint* presentations will be available with the instructor course materials and include Collision Avoidance, HF Integration for Instructors, Instructor Initial & Refresher Training. A new DI book has been completed and will be printed this spring and be forwarded to clubs. The *Pilot Training Record* will be reprinted shortly with French on one side, English on the other. Preparatory ground instruction videos are in the works.

Simulator status A rudder pedal mod has been completed to make the system more robust. The portable simulator in each of three regions is available for instructor training, refresher training, and soaring promotion. Contact an FT&SC member if you are interested. Simulator use has been highly successful on the instructor courses, improving the quality of in-aircraft lesson delivery and reducing the number of additional flights required. Many clubs are obtaining their own simulators based on this success. This tool will be effective for recurrent training for experienced pilots, who have had five glider flights in the past six months and 100+ solo flights in gliders, in lieu of a spring checkout in a glider. Less experienced pilots would also have less difficulty on spring checkouts if they use the simulator prior to their first check flight.

The final decision has not been made regarding the simulator replacing the actual glider flight as more testing is required. But this shows promise for speeding up the spring checkout process and reducing costs. Teaching with a simulator takes organization and discipline to execute, so a simulator is only as good as the instructor who uses it as a teaching tool.

Recurrent training seminars

The pilot program introduced at the last AGM and the Nationals was deemed to be successful and the plan is to now send the package to all club pilots. To be most effective, all pi-

lots should see the presentation via e-mail distribution and then clubs should discuss the contents at a pilot meeting.

SAC instructor refresher A *PowerPoint* presentation will be distributed to CFIs to be used with the new instructor course video. Ideally, this should also be distributed to club instructors via club e-mail. The video should be discussed at the club spring instructor meeting to get full benefit from it in terms of standardization and safety along with improved communications.

SAC Safety Officer The SAC Safety Officer duties have been handed over to Dan Daly. Dan has worked in the military as a Flight Safety Officer and brings a wealth of experience to the committee.

FLARM Dan Daly has been working with Industry Canada to secure same frequency as in the US for PowerFLARM, 915 MHz, and has contacted the FLARM manufacturer to coordinate FLARM use in Canada. "PowerFLARM" is being designed primarily for the US market. The EU type FLARM will not transmit in North America because it operates on frequencies not available for approval by the FCC and will not be marketed in North America. PowerFLARM, unlike FLARM, receives transponder C/S and ADS-B signals and is an approved IGC flight recorder. Approvals are expected by spring 2011. FLARM is a tool to help identify glider traffic in congested glider flying areas typically having poor radar coverage. It does not replace transponders where there is a requirement for them.

Coaching Manual A SAC coaching manual will be placed on the SAC website documents page. The reference book for this manual is *Advanced Soaring Made Easy* by Bernard Eckey. It is an excellent easy-to-read, well-illustrated book that should be part of every pilot's library after licence. Copies can be obtained from MZ Supplies <wernebmz@magma.ca>, Ulli Werneburg, for around \$60 plus shipping.

OSTIV TSP Ian Oldaker, chairman of the OSTIV Training & Safety Panel, has made presentations to the IGC in the past two years on how to improve safety. The primary focus has been contest safety with discussions on safety management risk analysis/mitigation and a contest bonus points system for safety equipment in contest gliders (a Sailplane Development Panel initiative). Ian is also making

OSTIV TSP presentations for the second year at the SSA convention in January, this time on improving instruction and on the *FLYTOP* Club Safety training program which has been implemented successfully very recently in some European countries.

National Safety Program status

Performance measurement of the program is based on:

- clubs completing annual risk analysis and sending a copy of their annual safety reports to SAC,

- all pilots reporting all accidents and incidents,
- clubs reviewing safety audits every three years (only 1 safety audit received in 2010)
- clubs completing a Safety Program Manual/Guide and forwarding a copy to SAC.

We look forward to hearing from your club at any time but need your reports by December if the Safety Officer is going to learn about and report on any trends in his report in January. The good news is that about 80% of the accidents are being reported to SAC, up from

about 40% in previous years. What is missing is the club Safety Officer analysis on the form in the annual Club Safety Report.

Dan Cook: Chairman

Dan Daly: National Safety Officer

members: Joe Gegenbauer, Gabriel Duford, Richard Sawyer

Experience is a wonderful thing – it lets you recognize your mistakes when you make them again.

2010 Accident Report

This year we had 12 accidents and no fatalities, well below our annual average of 19 accidents and 1.5 fatal. We are very happy to see this reduced accident outcome. It is difficult to do trend analysis with such a statistically small sample. However, this is a good problem to have. We now need to report and track incidents better, and we request that clubs look at their own incidents/accidents and complete their analysis each fall so that they can share information on their findings by 1 December to make it possible for our committee to develop recommendations.

Pilots may also participate individually in the SAC National Safety Program by dual reporting directly to SAC/FT&SC. Remember, all safety experts say that if you are not reporting incidents (at your club) it's not because you don't have any, it's because your reporting system is not working.

Reported accidents in 2010

Puchacz (written off) In a thunderstorm the wind flipped it into the air onto its tail and then its back while being towed back to the hangar. Pilots holding wings observed lightning strikes near glider on airfield and took cover in tow vehicle. Pilot holding tail could not prevent a gust from lifting glider.

Lesson Learned Storms can suddenly change direction and approach rapidly. When build-up starts to occur, secure your aircraft early.

Grob 109B (likely written off) Glider was not going to clear trees at end of runway and pilot initiated turn towards the field and stalled. One pilot broke leg, arm, and ribs.

Lesson Learned A go/no-go point about halfway down the runway is recommended where the motorglider should achieve at least 70% of takeoff speed. This should allow sufficient distance to stop when the takeoff is aborted. Getting behind the power curve is

easier in a motorglider due to its relatively low power output.

L-13 Blanik (written off) Landed in field with crop and ground looped after low release by towplane with engine problems.

Lesson Learned Landable areas within reach at critical points in the takeoff need to be planned. This can be difficult when crops are significant. Special arrangements may have to be made to clear areas for possible launch interruptions.

Pawnee (substantial damage) Landing gear failed on normal landing, damaging wing tip and resulting in a prop strike. Cracks were also found in other gear shock assembly.

Lesson Learned Towing operations expose our aircraft to higher gear loads than normal operations. Additional attention is needed in detailed gear examinations for daily inspections and in the periodic maintenance schedules. Aircraft such as the Citabria and Scout have had problems with the king bolts and cracks in the sprung gear near the wheels. Some clubs send one side of the gear in each end season to be X-rayed for cracks not visible (NDT).

DG-400 (substantial damage) Landing gear collapsed on hard landing in crosswind landing. The engine could not be retracted after launch and the extra drag of the engine quickly slowed glider in the flare, and dropped quickly from about five feet.

Lesson Learned Motorgliders have specific training challenges. After training with engine closed it is suggested to practise landing with engine deployed if permitted in the POH/AFM. This can be also simulated with airbrakes open on the glider to replicate the sink rate and drag. Extra speed for rotation and flare is needed.

Ka6 (substantial damage, possible write-off, no SAC report) Pilot could not reach airport on local soaring

flight and attempted off-field landing. Wing struck ground on final and groundlooped the glider. Pilot sustained minor injuries.

Lesson Learned Altitude, winds, and drift on local flights must be monitored to avoid loss of situational awareness.

DG-505 (minor damage) Wingtip damaged in ground handling when wingtip struck towing gator.

Lesson Learned This type of accident is far too common. Wing walker must position themselves on the obstacle side of glider or use two wing walkers in confined spaces.

Pegasus (minor damage?) Landing gear damaged in hard landing on first flight by experienced pilot on type. Wind gust of 38 kts during landing phase balloons glider nose up to height of about 10 feet. Pilot closed airbrakes to try to avoid a hard landing.

Lesson Learned Pilots, regardless of experience, are at high risk whenever flying a new type. This transition training must occur during benign conditions.

Schweizer 1-26 (moderate damage, no SAC report). Automobile backed over right wing of glider.

Lesson Learned Vehicles and gliders must be parked in well-defined areas. Backup lookout should be used when moving vehicles.

Standard Cirrus (moderate damage, no SAC report). Hard landing?

LS-8 Damaged in trailer highway accident? (no SAC report).

VES1 Canopy cracked (no SAC Report).

Incidents (no significant damage or injuries)

- Two undetected gliders pass each other within 150 feet.

- Wing walker tried to slow glider by slowing wing, starting a ground loop.
- High sink in mountains surprises pilot – unable to make final glide to airfield.
- PW-6 pilot pulled canopy jettison release in flight as it is in centre of console similar to Blanik or 2-33 tow release position.
- PW-6 release handle found becoming unscrewed.
- PW-5 circlips for spoiler inboard pin slipping out of retaining grooves. Air dam could detach from inboard actuator rod, allowing damage to spoiler.
- Boeing 747 at 7000 feet approaching major airport reports 200 ft pass near glider.
- Inside control zone at major airport, aircraft reported passing glider by 500 feet that was not in contact with ATC.
- Glider reported in major airport control zone not in contact with ATC.
- TCAS alert on glider with both aircraft in contact with ATC in control zone; power traffic not alerted about glider by ATC.
- Libelle enters Class D airspace without establishing two way communications with ATC.
- Glider ELT found turned on in trailer by dispatched SAR Buffalo crew.
- Glider with no transponder reported in conflict with Cessna 650 in control zone.
- Glider canopy opened on takeoff, possibly because latch not properly closed.
- A Murphy Rebel passed underneath a towplane on final and forced the towplane to go around. Rebel pilot on wrong aerodrome frequency.
- Two gliders pass within 150 feet near gliding field as one pilot on 123.4 MHz instead of aerodrome frequency.
- Gliders pass nearly head-on within 200 feet in Nationals with only one pilot seeing the other.
- Training glider undershoots runway landing in tall grass after low, slow approach.
- High performance glider undershoots runway in wind gradient. Airbrakes were not reduced on final approach.
- A Libelle takes off with disconnected spoiler, pilot distracted during DI.
- An ASK-21 has a hard landing. Pilot not familiar with effectiveness of airbrakes.
- Glider being towed by ATV downhill overruns tow rope and damages gear doors.
- ASW-20 lands with gear not positively locked down.
- Pilot recovered from a recent cold is nearly incapacitated by sinus pain on approach and landing.
- Aerotow launch interruption due to worn cable near tow ring.

Analysis

Of immediate concern to some clubs would be the Pawnee gear failure accident and

PW-5/PW-6 incidents. You may want to inspect your aircraft if you operate these types.

In addition, there is an increase in air proxies reported. This indicates we may have been underestimating the potential risk. SOSA has taken positive steps and announced they are installing transponders in all club owned gliders/towplanes to mitigate the risk. FT&SC is examining use of the *PowerFLARM* for more remote areas and/or where gliders may be concentrated (like contests or ridge flying).

Note that *PowerFLARM* is not intended to replace the need for transponders, which addresses similar but separate issues. The main factor for glider pilots is the risk level and this depends where and with whom they do their soaring with. If they fly close to heavy metal areas they would want a transponder, if they fly in glider contests and mountain areas with many other gliders away from commercial aviation they will likely want *PowerFLARM*. If you want maximum protection from both risks you might install both.

Some of us aren't getting the message about increased risk in flying new types. Soon many clubs may be introducing different gliders to their fleets to replace the aging L-13. Higher risk with new types must be managed by the clubs and CFIs. A new type is defined as a glider type you have not flown before. Treat the transition similar to a first solo for the flying conditions and with proper supervision by an instructor familiar with the type. Also have a flight test plan at a safe altitude in order to familiarize yourself with controls, their effects, and aircraft handling in the flight envelope, before the first landing.

The lessons learned listed with the accident summary may be a bit generic due to limited

information available for this report. It is appreciated when clubs can identify their own analysis and lessons learned or their mitigating actions.

Conclusion

What is your club doing for safety training of your new pilots? Safety reports are archived in the Roundtable Safety section on the SAC website. As a minimum training effort, these pilots should be asked to review these reports before they get their licences, and discuss them with the CFI.

What is your club doing for recurrent safety training? Each spring should start with at least a pilot meeting to discuss club safety issues from last season. You can also use these past reports and the Recurrent Training presentation by FT&SC to base the discussion on what might apply to your club situation. This is an easy risk mitigation strategy to use.

Finally, I believe we should all start making more use of simulation. An easy simulator is a PC with *Condor* glider simulator software connected to (COTS) rudder pedals and control stick; the total investment is under \$1000.

A review of the past SAC safety reports will give you an idea of what exercises you may want to fly and replicate solutions on the simulator. *Condor* gives a good spin simulation compared to other simulations. Use the ASW-27 or other high performance glider for spin recovery training. Instructors – watch for correct control inputs for recovery!

Have fun and be safe. My thanks this year to the clubs which sent in safety information to the committee. ❖

Airspace in 2010

The bulk of the Airspace committee's time in 2010 was spent putting out fires from a few "near misses" and airspace incursions. These events highlighted a couple of issues SAC members should be aware of.

When we have a "near miss" or airspace trespass it focuses regulatory and commercial operator attention on us, and not in a good way. Of particular concern lately is the defence of the existing transponder exemption for gliders (CARs 605.35(1)). This exemption was instituted many years ago, back when it was impractical to put transponders in gliders.

The advent of lower powered transponders has made the technical justification of the

exemption increasingly difficult and countries the world over have forced gliders to carry transponders to use previously unrestricted airspace.

The result is that in the last five years many gliders have been successfully equipped with transponders and this has made the case for maintaining the Canadian glider exemption increasingly difficult. Any reported near misses between transport category aircraft and gliders really hurts.

This is important because the loss of the transponder exemption will result in substantial financial hardship for many clubs and private owners who wish to continue to fly in what is

now transponder required airspace for almost everyone else. With the loss of the technical argument, the only way we will be able to continue to justify the glider transponder exemption is to show that the risk we pose is not significant.

I believe this can be accomplished by stringent adherence to self-imposed/self-policed airspace restrictions in busy areas and limited voluntary adoption of transponders in areas where it is justified. By demonstrating our commitment to being responsible users of airspace we greatly reduce the weight of the arguments used by opponents to the exemption.

For me this view was strengthened this summer when one Ontario club equipped a number of its cross-country gliders with transponders while simultaneously reinvigorating its local airspace policy. The goodwill this local act generated in the broader aviation community has had a significant positive impact on potential national changes. I think it provides an example for how soaring can maintain airspace access in the future.

The other issue highlighted by one of this year's airspace incursions is the need for pilots to be aware of NOTAMs and the temporary restrictions they can impose on us.

In my experience the checking of NOTAMs is not done as rigorously by the soaring community as it is in other sectors of aviation. This has evolved for a bunch of reasons but unless you enjoy unexpectedly being in formation with the Snowbirds it is something we all need to pay attention to. It bears directly on the image of soaring pilots as responsible airspace users, and ignoring it seriously erodes our credibility as operators that other airspace users want to share the sky with.

On to other business. I would like to take this opportunity to welcome Tom Fudakowski and Bram Tilroe to the Airspace committee. Tom brings an airspace background from a career in Transport Canada and Bram is the chairman of Aviation Alberta. Both are very welcome additions and I expect we will be putting their expertise to good use in the coming years.

One of the first jobs for Bram is a review of the airspace around Edmonton, expected to start next year. We are working to ensure both SAC and affected clubs are represented at the review, and I expect Bram will be kept busy with this one.

For those who have read this far, thanks for your attention. To all, have a safe and successful 2011 soaring season.

Scott McMaster, chairman

2010 Sporting committee annual report

from page 5

classes have been combined into two handicapped classes, an "FAI Class" for higher performance sailplanes and a "Club Class" for lower performance gliders. As this practice will continue for the foreseeable future, the MSC Trophy for the 15m Class winner and the Shell Trophy for the Open class winner have become obsolete and will be retired.

The active trophies for National Championships are:

- CALPA Trophy Club Class winner
- Wolf Mix Trophy FAI Class winner (*formerly for the Standard Class winner*)
- Dow Trophies best Nationals flight in each class
- SOSA Trophy best Novice (per guidelines for Novice)
- Carling O'Keefe best team (at least two teams competing)

Expense Policy Guidelines of what expenses are eligible in SAC funded world level contests were submitted to the SAC Board as the basis for an expense policy. The Canadian Team in Szeged applied these guidelines and found them to be practical and workable.

New Seeding Procedure

Derek Mackie drafted a new seeding procedure with the following objectives:

- Identify the best pilots to represent Canada in World Championships.
- Align the procedure with the current competition class structure.
- Re-evaluate the current system of benchmark factors for non-Canadian Nationals.
- Re-evaluate the balance between recency and consistency.
- Better prepare pilots for World Championships by encouraging them to compete in high level international contests outside North America.

A "town hall" meeting was held in September 2010 during the Ontario Provincials with most of the top seeded pilots in attendance. Based on the input received, the draft was further refined and is currently being circulated in the competition community.

Junior Worlds 2011 The 7th FAI Junior World Gliding Championships will be held in Musbach, Germany starting on 5 August. Selena Boyle has been preparing for the Junior Worlds starting with the Canadian Nationals 2010. Selena has competed in the Australian Junior National Gliding Championships and the Australian Club Class Nationals. Details of these competitions and her ongoing preparations are published on Selena's soaring blog <<http://selenapb.blogspot.com/>>.

Selena has made a significant training commitment to prepare for the Junior Worlds. 2011 is the last year in which she is eligible to compete in the Junior Worlds. Selena has the unanimous support of the Sporting committee and of the leading Canadian competition pilots. We expect that Selena's participation in this world event will inspire more young Canadian pilots to take up competitive soaring.

Recommendation to the SAC Board of Directors: The Sporting committee recommends that SAC, in accordance with its funding policy for junior pilots, fund Selena Boyle as a competitor in the Junior Worlds 2011.

32nd World Gliding Championships 2012, Uvalde, TX The 2012 Worlds for 15m, 18m and Open Classes in Uvalde, TX will be of great interest to Canadian pilots as it has been twenty years since the last World Championships in North America. Without the cost of overseas travel and glider and car rental, the contest will be reasonably affordable for Canadian pilots. I hope, this time, the competition will not be over-subscribed and we will be able to field a team of two pilots per class in 15m and 18m. The Team will be selected based on the 2011 seeding list.

Thanks On behalf of the Sporting committee, I want to thank the people who have supported our work, in particular Ursula Wiese for maintaining the Book of the Best, Chris Gough for maintaining the contest letter registry and everyone who gave us ideas, Roundtable feedback, reminders and constructive criticism.

Members: Jörg Stieber (joerg@odg.com),
Walter Weir (2waltweir@gmail.com)
Derek Mackie (itshdwrk@gmail.com)

More on the FES sustainer engine

A new propulsion concept for sailplanes was introduced at the *AERO 2010* aeroshow in Germany. It is a simple idea which is known to all model airplane pilots where an electric motor drives a folding propeller which is mounted on the nose of the fuselage. This propeller folds itself smoothly against the fuselage during soaring flight, without creating any appreciable additional drag and it opens whenever engine power is applied.

The electric motor produces 15kW continuous power output at 100V but can produce 25kW over short time periods. The 5 kg motor, with a diameter of 18 cm and a depth of 8 cm, is sufficiently compact to fit into the nose of the fuselage of most sailplanes. It drives a light, 1m diameter carbon propeller designed and built by the developers of the system.

Two battery packs are used, each consisting of 24 in-line connected LiPO cells, in total providing 3.6 kWh. The batteries hardly lose any charge, even after 4-5 months. Recharging requires about 4 hours.

This motor is strictly meant as a sustainer to bring the plane back to its home port or suitable landing field. With electric motors the duration of energy provided by the batteries is always the critical point. The designers give following performance figures: maximum power gives a climb rate of 1.6 m/s. After the

climb, an additional hour is expected to be available for level cruising flight at reduced power. This value certainly will depend on the time/energy used on the climb.

The propulsion system is intended to be installed in new and used sailplanes, but the fuselage nose must be as round as possible. The increase by 35 kg within the maximum payload must also be possible. But as most modern gliders are already designed to allow for the additional weight of power plants, this should not present a problem. At this time some LAK planes can be ordered with the FES system. The price will be close to the currently available sustainer engine systems.

Conclusion FES is a new and interesting propulsion concept for gliders. It is surprising that it took such a long time before this relatively simple system used for many years on model gliders was developed for full size gliders by two enterprising engineers.

Many disadvantages of current propulsion systems do not exist on FES. The combination of the electric motor which always reliably starts, with a motor position which eliminates the extending and retraction of the propeller mount with all its possible operational problems, is an absolute plus for flying safety.

Advantages of this propulsion system are:

- Minimal drag
- Low noise level – no headsets required

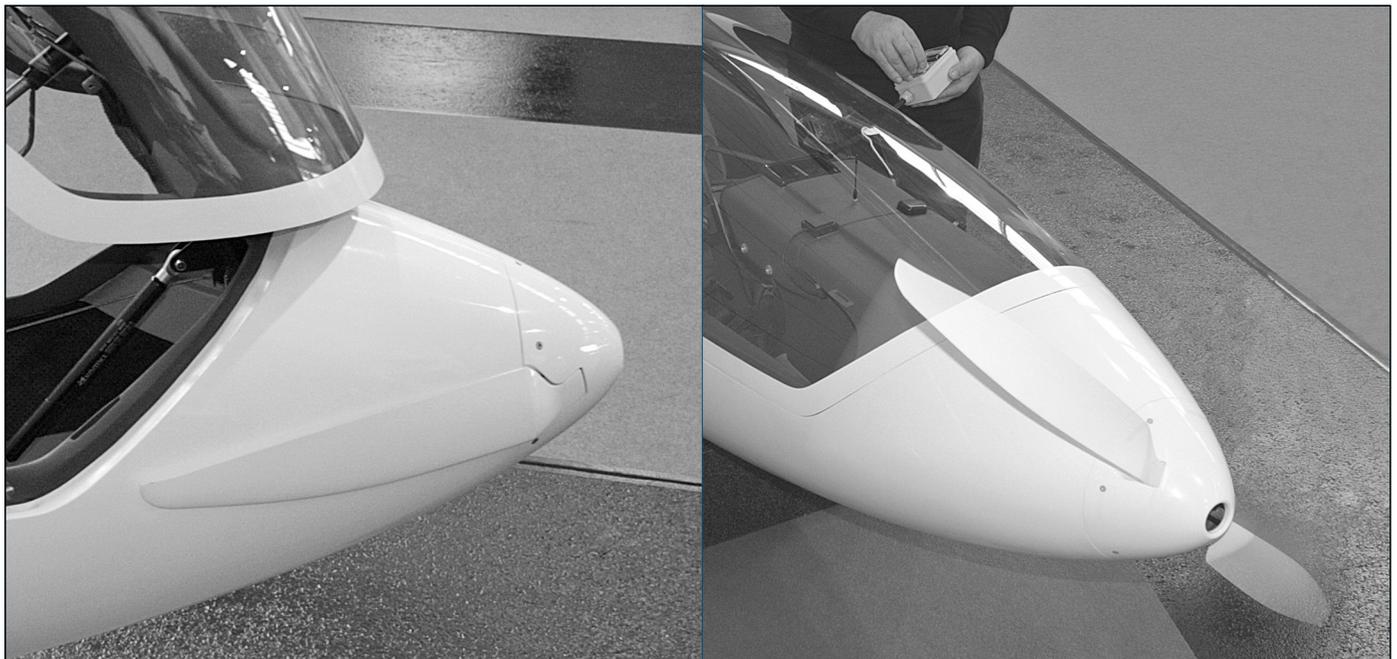
- Starting and stopping the motor is simple and without problems
- No centre of gravity changes while motor is in operation
- Fewer mechanical parts, less maintenance
- Minimal aerodynamic deterioration while motor is in operation
- A rapid start with no loss of height

The major accident source with existing systems is the excessive sink with an extended motor/propeller and also the time required to extend the propeller – both do not exist with the FES system. In addition, the electric motor ensures an immediate start, quiet and vibration-free operation, and no emissions.

late breaking news for clubs: 50% SAC rebate for returning members

For many years soaring has had significant membership loss issues. One is that people join clubs, then after a year or two, they leave and do not return. At this year's AGM the SAC Board moved to address this issue in part by establishing a new initiative, the *Back to Soaring* program.

SAC will rebate to your club 50% of any SAC membership paid in 2011 by a person who has previously been a SAC member but has been absent from soaring for one year or more. This is your chance to contact previous members, encourage them to rejoin, and your club is reimbursed 50% of their SAC fee for the club's own use. More details are available on the SAC website or by e-mailing Eric Gillespie (Ontario Zone Director) at <egillespie@gillespielaw.ca>.



Some highlights from the IGC annual meeting, 4-5 March 2011

The agenda and paperwork for the meeting filled 271 pages. In order to get through this mountain of issues in two days, IGC President Bob Henderson had to be strict to keep discussion on topic. Full minutes of the meeting are on the IGC website. A few highlights:

Threats to GPS Several nations have placed navigation satellites into orbit. These initially competing systems (GLONASS and GALLILEO) are now compatible with GPS. With China aggressively starting to launch satellites, there are concerns that all these satellites will create enough of a background noise to drown out the weak signals that are being used by the GPS units. A new generation wireless data system that is currently being installed in parts of the US is expected to interfere with some GPS units at low altitudes.

Canadian proposal on COTS GPS

The Canadian proposal to allow the use of COTS GPS height data with a sufficient error margin for Silver and Gold badge claims was accepted as a "year 1" proposal. This means that the Sporting committee will draft the specific changes to the Code for a final vote next year. The big advantage of this change is that pilots will not have to carry a second barograph on board.

6% for safety Helmut Fendt from the LBA and a member of the OSTIV Sailplane Development Panel presented glider accident statistics, particularly those in contests. He introduced a system under which pilots who install safety features in their gliders would be rewarded with a scoring bonus of up to 6%.

Lilienthal Medal "To reward a particularly remarkable performance in gliding, or eminent services to the sport of gliding over a long period of time." Awarded to Reiner Rose, the creator of the Online Contest, and now leading a team operating the OLC. Well deserved!

Pirat Gehriger Diploma "Awarded annually for eminent services to international gliding."

Tony Burton received the Pirat Gehriger Diploma for his many contributions to gliding at the international level and in Canada. In particular:

- Member of the IGC Sporting Code committee since 1998 and key contributor to a major overhaul of the Sporting Code in 1999 and establishing its *OO & Pilot Guide*.
- The project pilot and operational manager for the joint Canada/USA "Chinook Wave Project" (1985 to 1989) which involved flying the 20m *Alcor*, to study Chinook-related surface windstorms in the Rockies.

- 29 years, editor of *Free Flight*,
- 25 years, Alberta Soaring Council Exec Dir.
- 22 Canadian records.
- and many other contributions.

Congratulations on getting this well-deserved honour, Tony!

Jörg Stieber

Ian Oldaker honoured somewhat unusually

The SAC Board realized last November that we had forgotten to reward Ian Oldaker with a SAC Honorary Life Membership when we presented him a token of our thanks for his many years of service on the FT&SC. We decided to rectify that oversight at the AGM. Ian had participated in the Friday FT&SC meetings and updated us on OSTIV activities. That evening at a dinner attended by FT&SC members, the Board and others, Ian mentioned that his flight was leaving the next morning and wished us a good meeting.

Ian's unexpected early departure required some quick thinking by Sylvain as he had a letter and speech all prepared for the occasion. Instead of at the Saturday AGM awards lunch, Ian was congratulated and presented the letter in his hotel room by Sylvain, with past-president John Toles, FT&SC chairman Dan Cook and myself on hand. Although there wasn't nearly the same number to witness the occasion, the closet-sized room that Ian was in made it seem like a crowd of hundreds! Thanks again Ian from the Board and all SAC members.

John Mulder

presentation text:

"The SAC Board has recently approved measures to recognize long serving members who have dedicated decades of service on SAC executive boards or committees. The wish is to honour those members who have made significant and specific contributions to the Canadian soaring community. The board's decision is to ac-

knowledge this service beyond a simple gesture of gratitude with an honour not given lightly.

Your three decades of work on the Flight Training and Safety committee and work as Chairman of that committee, your selection as Chairman of the OSTIV Training Safety Panel on behalf of SAC, and your authorship of the majority of the SAC training materials put you into this select group. In addition, we recognize your contribution to safety in your having received the TC Safety Award from the Minister of Transportation for your work on implementing safety programs for SAC.

On behalf of the Board of Directors for SAC and the members, we would like to honour you with a Life Membership in the Soaring Association of Canada. Thank you for your years of dedication and continuing hard work for the membership, making our organization all that much better."

Ian responds:

Greetings everyone. It was a complete surprise to receive you as a delegation late in the evening in Quebec! Thank you very much indeed for being named a Life Member of the Association. I feel it a great honour and will long remember the occasion! It seems funny now to receive it in my bare feet – lucky I was not in my PJs! When you presented it to me, I was still feeling numb at the delegation's presence, and the one thing that I will also remember is the very strong feeling of support you all gave me, and the smiles on all your faces. Many thanks indeed. I hope I have done justice to your support.

I will continue to work for soaring through not only the FT&SC, but through the OSTIV TSP. This is now becoming a very busy time for me as we have the fall meeting in Prague and I have been tasked with assisting the FAI and IGC to implement better safety management practices into their contest manuals for all air sports! I may well be asking Dan for assistance and support here. Thanks again.

Gliding is ...

Gliding is an improvisational art form, like jazz. You have to practise and practise, and then when you actually perform, you make it up as you go along. Unlike jazz, it actually matters if you hit a sour note.

Every pilot is a glider pilot – it's just a matter of time.

The art of ridge soaring lies in throwing yourself at the ground without actually hitting it.

All gliding stories are true, for a given value of "true".

Gliding is aeronautics most exquisite method of falling.

Learning soaring weather is like eating an elephant – it looks easy from a distance, but up close it gets messy and takes a long time.

An annual Pioneer Fund fall campaign was also started with requests for donations that qualified for tax receipts. To further increase the fund capital, the board decided to issue Life memberships with the proceeds going to the Pioneer Fund. These made sense at the time when interest rates were high.

Annual donations to the Pioneer Fund have ranged in the \$5,000–\$9,000 area. A small number of annual donors account for the bulk of donations. As well, the Pioneer Fund has also received a few memorial bequests – when the Bulkley Valley Soaring Club and a small club in the Peterborough area folded a few years ago, proceeds from the sale of club assets were deposited with the Pioneer Fund. Capital gains have been the major factor in the growth of the fund.

Up to half the annual earnings of the fund, based on the long term average, may be transferred to the general fund for any year. This has produced balanced budgets with moderate or no fee increases while providing financial stability and additional member benefits.

Wolf Mix Fund

The Wolf Mix Fund was established following the accidental death of Wolf Mix, a member of Canada's international team, at the World competition in Yugoslavia in 1972. A few regular donors have helped build the fund. As well, in some years when the Nationals had a surplus, the host club contributed a portion to this fund. On one occasion, a competitor obtained donations that exceeded his expenses by about \$15,000, and this was added to the fund. A recent memorial donation by Linda Rumpf in memory of her late husband Udo has also increased the capital available for growth.

Capital gains have accounted for most of the growth of the fund. Earnings from the fund may be transferred into a specific World contest fund as required.

Air Cadet/Youth Fund

The Air Cadet/Youth Fund (initially the Air Cadet Fund) has evolved over the years in an attempt to build a relationship with the Cadet movement and assist some of their members in experiencing soaring flight.

A small fund had existed from previous attempts, and in the late 1990s the fund was enhanced by a memorial donation following the death of a member of Canada's original gliding team. This donation continued annually, and as I understand, was to continue as a

bequest. The fund provided a small scholarship each year to three cadets, selected by the Air Cadet League, to be redeemed at a local gliding club.

As few cadets got much benefit from this fund, it was decided to work at changing this to a fund that would provide training bursaries to all youth members and open to all cadets. In the first two years, many cadets have taken advantage of this Youth Bursary, and participation is growing annually. By a resolution approved at a past AGM, SAC provides funding of \$10,000 annually to fund twenty bursaries of \$500. These are matched by an equal amount by arrangement with participating clubs. Although the resolution was for a three year trial period, the success so far would indicate a continuing contribution. Additional donations, including a memorial donation of \$10,000 by Giselle Allen, widow of Brian Allen, will be retained in the fund with earnings available to provide even more bursaries. An additional benefit is an opportunity for local clubs to obtain free publicity for the goodwill created in support of youth in their communities.

Peter Corley Memorial Scholarship

The Peter Corley Memorial Scholarship was established by a donor who chooses to remain anonymous. The scholarships have an annual value of \$2300, and the annual donation is typically of that amount. Peter Corley was a member of SOSA who died in an ultralight accident. The scholarship was established in his memory to support students.

Another new feature of all these funds is the inclusion of a *Memorial Donation Wall of Fame* within each appropriate fund. For example, donations were made recently in memory of Udo Rumpf and Brian Allen, and their names will be included to help preserve their memories.

There are currently members who have made commitments through insurance policies or estates to make memorial donations to a fund or funds at some time in the future. This is another way members could consider giving back to their organization.

In previous years, letters were sent out in November requesting donations. Now that receipts are being issued for membership as they come in, a letter is being included with an opportunity to donate. Of course, donations will be accepted any time during the years. These funds are providing a basis for funding of various SAC programs along with a secure financial future for SAC. ❖

Jim McCollum awarded SAC Honorary Life Membership

SAC has benefited immensely from Jim McCollum's involvement in the association; Pierre Pépin gave a talk at the AGM outlining just how much we are indebted to him. Jim became Treasurer in 1984 and, along with a dedicated board of directors, was instrumental in getting SAC on the road to financial stability. SAC went from an organization with virtually no assets to one with net assets of about \$1.2M at the end of 2010.

As well as his responsibilities as Treasurer, Jim's background made it possible for him to work very effectively with other agencies such as Revenue Canada, Transport Canada, COPA, the Aero Club of Canada, and the Air Cadets. A complete story on his value to SAC will appear in the next issue.

John Toles

SAC Insurance report for 2010

For those with questions regarding the plan, please use the SAC Insurance committee address <insurance@sac.ca> – it's usually the quickest way to reach me. I try to reply within a couple of days. Thanks to all the club treasurers in distributing and collecting the renewals for their club and private owners. Their work ensures that both insurance and SAC membership are both processed and kept as close in sync as practical.

Our loss ratio continued to moderate from its peak in 2008 which stabilizes our longer term averages. We had fewer losses this year, and those that we did have, in large part, were smaller partial damage claims rather than complete losses.

SAC continues to apply a "Claims Surcharge" to those with claims in the last 3 years. This amount is in turn credited to all owners with a claims-free record in the form of a No Claim Bonus at each renewal. In 2010 the plan credited a total of \$6987 to those owners with claims-free records.

As I write this report, we are in the process of readying Requests for Proposals to send to interested underwriters in the Canadian market. The responses will be evaluated and we will finalize any changes for the 2011 plan. At this time we are not anticipating an increase to our premium rates. The 2011 policy year will run from 31 March 2011 to 31 March 2012. Coverage normally extends through April to renewing owners to allow for the renewal process, however it is important to complete your renewal as early as possible before 30 April. Failure to renew your coverage and

submit premiums can cause your coverage to be void in case of an incident, with no payment of your claim.

New for 2011 We hope to have a new facility up and running allowing for on-line renewal and payment for private owners. This should ease the season start-up task for club treasurers as they will not have to process private owner premiums. Due primarily to the size of club renewal payments, we will likely need to continue to do club renewals the current way, via e-mail and cheque, at least for this year. Further information will be sent out to private owners late March as we complete testing and finalize the details.

Major SAC insurance details

While this touches on the major points, both the plan coverage summary and policy document are available from your club treasurer. It should be required reading for all club executives and private owners. This helps to ensure that not only do you know what is being provided, but also what your responsibilities are. Claims reporting guides are also available to keep in your aircraft should an accident occur.

Who and what is covered?

- All SAC members (student and licensed) when piloting SAC-insured gliders and towplanes. There are no requirements for specific experience. It's important for both members and clubs to ensure that all club members' SAC dues (both student and licensed) have been submitted in a timely manner to ensure coverage. This is especially important to private glider owners, as their glider insurance coverage is dependent on being a current SAC member.
- Guests (FAI affiliated members, eg. SSA, BGA) members when piloting SAC insured aircraft.
- Private and club aircraft listed under the plan are insured for "pleasure and club business".
- Gliders – instruction and rental to club members and guests. Everyone receiving formal instruction as a regular club member should be a SAC member.
- Towplanes – towing gliders and instruction of towpilots but *not* any other use for hire or reward (this means club members and the towplane are *not* covered if members are using them for personal pleasure flying and log time accumulation)

Hull liability This is the coverage that covers most accident damage to your aircraft. It covers the aircraft and its normally installed permanent equipment. You purchase a specified value of coverage for each aircraft

that should reflect the value of the aircraft and its normally mounted equipment and instruments. This does *not* include your glider trailer. It is not a good idea to "under-insure" your glider. One way to view this is that the insured value should be an amount that you would be happy to receive if your glider suddenly disappeared from your trailer.

There is currently a \$500 deductible per incident for hull coverage. There are options to increase the hull deductible to either 5% or 10% of the hull value, providing a decrease in the premium. Many other aviation policies and recent proposals have higher minimum deductibles.

General aircraft liability This coverage provides payment in the case of damage to third party property, and bodily injury to third parties that may occur involving your aircraft while it is "in motion". An example of covered property damage would be crop damage during an outlanding. This is also the coverage which provides protection to the club and SAC in the event of an injury during an aircraft incident to a bystander, intro passenger or other guest who is not a SAC member or FAI guest.

Liability claims are potentially HUGE. Imagine the medical bills should a bystander or passenger be injured while operating your glider. Coverage is available in 1 and 2 million limits per private aircraft and 2 million limit for each club aircraft. There is no deductible for this coverage.

Minimum liability coverage on all private gliders under the plan is \$1,000,000 per seat. Minimum liability coverage for club aircraft is

\$2,000,000 per aircraft. One of the primary reasons for the higher club limit is that past club liability settlements have exceeded \$1,000,000, at least in part because clubs are seen to be held to a higher standard of "duty of care" than private owners.

Airport premises liability Coverage for all clubs in the plan is mandatory. This covers airport premises and operations other than aircraft to a liability limit of \$2,000,000. It provides important protection to clubs for damages and injuries that could occur on their airfield (owned or leased), which do not involve aircraft. An example of this would be a guest being seriously injured by tripping in a gopher hole.

Note this does *not* provide general liability or property coverage for your clubhouse or other facilities. This coverage in the general marketplace typically costs a minimum of \$2,500. Our cost is \$185/club. The premises liability coverage also provides \$100,000 of additional coverage specifically for "Instructor Errors and Omissions".

Claims service and legal representation

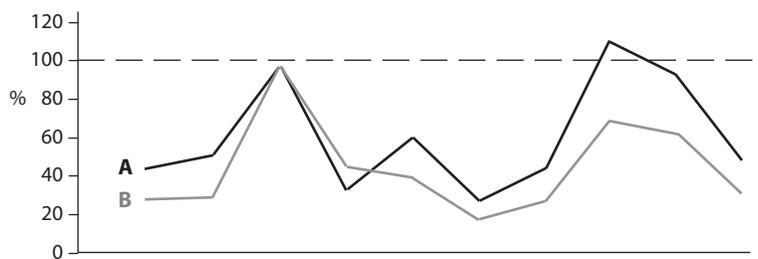
The insurance company provides claims adjustment and legal representation for all claims. Legal costs of defending a claim, particularly liability claims, can be substantial and are paid over and above the coverage limits purchased. We continue to have an excellent level of claims service from our insurance company.

Have a fun, challenging and safe year of flying for everyone in 2011.

Keith Hay,
Chairman, Insurance committee

SAC INSURANCE HISTORY, 2001 – 2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Insured Clubs	38	35	33	36	32	29	29	23	24	25
Total Aircraft	306	276	351	368	337	336	313	288	278	295
Hull Value (\$M)	9.49	8.56	13.35	13.60	12.7	12.3	11.7	11.5	12.0	13.1
Hull Loss Ratio (%) A	42	51	97	32	60	26	42	110	96	47
Total loss ratio (%) B	26	29	96	45	38	16	27	68	63	31
No claim bonus paid (\$)					9538	7632	8400	6586	5140	6987
Claims surcharge (\$)					8166	9173	8139	4357	8846	9504



2010 World Contest Funding Support

David Collard, SAC Treasurer

1 March 2011

At the 2009 SAC AGM meeting in Hamilton, two motions were passed providing matching funding of up to \$10,000 per year for three years creating the SAC Youth Soaring Bursary Program and the other providing matching funding of up to \$10,000 per year for three years towards supporting the World Contest Team and, in alternate years, the Junior World Contest Team.

- In 2009, Christopher Gough represented Canada at the World Junior Contest and received matching SAC funding support totalling \$9,711.04
- In 2010 our Canadian Team received matching SAC Funding support totalling \$16,787.51 as shown below. However it took a total team effort to raise all the funding needed to support the World Contest Team in 2010.

The funding support for the 2010 World Contest team was as follows:

Directly from SAC

1) Wolf Mix Fund (year end 2009 value – \$92,917.00)	
3% of WMF investment gain	\$2,787.51
2) World Contest Fund – year end 2009	\$4,000.00
3) SAC World Contest support available	\$10,000.00
Total available for 2010 World Contest	\$16,787.51

Paid out to date –

World Contest Fee	\$2,867.43
Funds remaining	\$13,920.08

The three contest pilots were paid an advance of 1/2 of the remaining funds or \$6,960.04 or \$2,320 each. The remaining \$2,320 to each pilot was paid out after the contest, supported by original receipts.

Other funding raised by team & SAC members

CAS/ Team X-C Soaring Seminars in Hamilton 2009	
and in Ottawa 2010, total	~ \$2500
SOSA Membership raffle	~ \$3000
WestJet raffle	~ \$3500
Advertising on the Team website	~ \$500
Dinners at the 2009 Nationals	~ \$1000
Dinner at the 2010 Nationals	~ \$600

237,919 Aeroplan points were donated, and Dave Springfod topped up to the 240,000 point level for the 4th ticket. So this saved the team four airfares to Europe that would likely be in the \$1500 range per ticket – \$300 per ticket taxes fees – total savings:

$$\$6000 - \$1200 = \$4800$$

*TOTAL FUNDING SUPPORT dollars	\$27,556.01
Aeroplan points dollar savings	\$4,800.00
Jörg Stieber – in kind donation	\$3,312.49
(tax receipt issued to Jörg)	

TOTAL FUNDING SUPPORT All sources \$36,000.00

Note from Jörg Stieber, Team Manager:

There were no other big donations that didn't run through the SAC fund.

Contest Pilots – claims submitted

Willem Langelaan	\$12,132.73
Dave Springfod	\$9,727.59

Jerzy Szemplinski	\$10,495.69
Total claim from team pilots & crew	\$32,356.01

*TOTAL FUNDING SUPPORT dollars \$27,556.01
Equal to \$9,185.33 per team

The foregoing is submitted to show our SAC membership what it costs to compete at the world level and also to encourage other competitors who thought it might be out of their reach for financial reasons to be on a World Contest Team. As one of the SAC directors stated, "I never really considered trying for the World Team because of the costs but seeing this type of financial support it puts a whole different light on the possibility of going."

2011 Junior World Contest – Germany

Selena Boyle has been selected by the SAC Sporting committee to represent Canada in the 2011 Junior Worlds in Germany. Donations are welcomed to help Selena raise her needed funding in order for her to receive matching support of up to \$10,000 from the SAC program.

All help would be appreciated and, if directed via the World Contest fund, a tax receipt can be issued. We wish Selena success in both her fund raising efforts (*see opposite page*) and at the contest. Christopher Gough, our 2009 JWGC competitor, will be assisting Selena at the Worlds as Team Captain and crew member. The SAC Board of Directors on behalf of all members wish Selena a safe and successful contest. We look forward to hearing of her progress – good luck, Selena.

SAC Youth Bursary Program – 2010

The SAC Youth Bursary program has completed two years of operation and it has resulted in 38 youth having the opportunity to expand their life experience into our sport of soaring. The upcoming season will be the third year of matching funding as agreed to at the SAC Annual General Meeting in the spring of 2009. I have very positive feedback from both the SAC clubs involved and the youth who have benefited from this program.

The idea of the SAC Youth Bursary program had its gestation from the Youth Flight Canada program and was modified to the SAC program by the BoDs in their desire to ensure our clubs could benefit regardless of their size. Another aspect of our program was the idea of the clubs being able to obtain free advertising and good will from their support of the SAC Youth Bursary recipients in their areas of club operations.

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- CAI 302A basic GPS navigation and FR
- CAI 303 Nav display for 302/302A

SCHLEICHER Sailplanes

ASK-21(Mi), ASW-27B, ASW-28(-18T), ASG-29(T),
ASH-30(Mi) – new 26.5m 2-place,
ASH-31E – new 18 or 21m self-launcher

A third benefit that was envisioned was the possible donations that could be raised both at the club level and the national SAC level in support of youth. To date at the SAC level, I am aware of three contributions totalling in excess of \$35,000 towards support of youth in soaring. These donations had different goals, one was toward the SAC Air Cadet/ Youth Bursary Fund, the second was towards the Wolf Mix Fund for the benefit of youth, and the third was in support of the youth programs at a SAC club. I am quite confident in saying that if efforts are made by clubs in their areas of operation, they would find sources of funding support for this type of endeavour. This funding support could be either from businesses in the area or individuals who just want to help financially the youth in their area. Are you taking advantage of this?

The SAC Youth Bursary program for 2011 will be increased to twenty-five bursaries. There was a carry-forward of two bursaries from 2010 and a further three are being funded by a portion of the earnings in the Air Cadet/ Youth Bursary Fund. The matching dollar support at the SAC level is \$12,500.

A marketing piece that VSA is using in searching out suitable candidates for their SAC Youth Bursary program has been uploaded to the SAC documents page under "Info/General Forms".

You are welcome to use this material as a template for your club's efforts. The following eighteen individuals were funded in 2010 under our SAC Youth Bursary program:

- AVV Champlain: *Simon-Pierre Dupont*, 24
- Canadian Rockies Soaring Club:
 - Chris Hildebrandt* - 18, *Chantel Fortier* - 17
 - Darcy Foo* - 15, *Patrick J Crawford* - 18
- Prince Albert Gliding & Soaring Club:
 - Robin Claus* - 23, *Rae Given* - 15
 - Wyatt Given* - 13
- Vancouver Soaring Association:
 - Sean Kitts* - 24, *Colby Timm* - 17
 - Jessica Holman* - 20
- SOSA: *Neil Wilson* - 18, *Rhys Juergensen* - 15
- George Holt* - 16
- Gatineau Gliding Club: *Ryan MacNeil* - 16
- Nicholas Ingold* - 16, *Emma Walker* - 16
- York Soaring Assn: *Andrew Lampert* - 17

Let's all make an effort to see twenty-five names on the list at this time next year. I hope you all have a successful 2011 soaring season. Good luck with your SAC Youth Bursary program and thank you for your continuing support of this endeavour.

David Collard,
SAC Treasurer



Aeroplan's charitable pooling program

Pooling Aeroplan Miles in support of local charitable initiatives

Aeroplan is glad to facilitate the transfer of miles to support the Canadian Junior Soaring Team.

Donations will be accepted from 1 to 31 May 2011.

Donated Aeroplan Miles will be used by the team members to travel to Europe to compete in the 2011 Junior World Gliding Championships in Musbach, Germany.

I (please print name here) _____

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Please return this signed pledge form to Selena Boyle by e-mail at selboyle@hotmail.com or by fax at 1-888-204-8245, or via mail at 9332-153 St, Edmonton, AB, T5R 1R1. All questions can be directed to Selena at 780-975-4578.

Note that in order to transfer Aeroplan Miles from one account to another, the legal signature of the donor on this form is needed; an e-mail pledge cannot be accepted by Aeroplan.

Selena's excellent adventure

In August 2011 Selena Boyle will be competing at the World Junior Gliding Championships in Musbach, Germany. She will be travelling with Team Captain Chris Gough. Travel is a major cost associated with flying at an international competition. In an effort to offset this cost, we have once again set up a donation program in conjunction with Aeroplan.

Donations to the program will be accepted from 1 to 31 May, 2011. Donated miles will be

used by the team members to travel to Europe for the competition. 120,000 points will be required to cover the costs of flights for both team members. Every donation makes a difference!

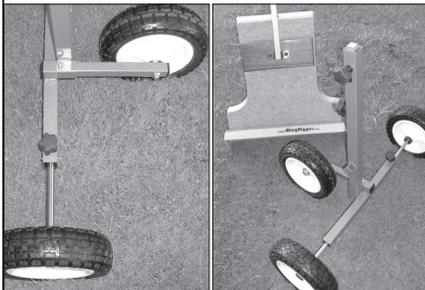
If you or anyone you know has miles that they would be willing to donate please complete the donation form which can be found in "Competition and X-C" on the SAC documents page or photocopy the form above.

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Germany has 7,867 registered gliders (1/3 to 1/2 privately owned) and 3,081 motorgliders (about 3/4 are private), though some fly in foreign countries.

fly one – get one free?!

At the March IGC plenary meeting, the Sporting Code committee gave notice of a proposal for next year to question the conduct of “free records” after several years of their use. Generally, they were not being flown as was expected when introduced – by significantly increasing the distances flown in exceptional soaring conditions. Instead, “free” distances are regularly being claimed for a distance only a few kilometres greater or even the same as the declared flight that initiated the flight. It has become a “fly one, get one free” situation, which is not really the way international records ought to be earned.

Reverting to restricting record claims to only one distance claim per flight, or allowing a second claim only if it exceeds the declared flight by 10% were suggested options. A paper was distributed with the aim of stimulating discussion and alternate options.

...talk about ADS-B from page 17

Another problem, as far as the USA is concerned, is the ownership and oversight of the new technology. ITT, which has received a \$1.8 billion contract to build the ground stations and provide the broadcast services, will own the equipment, not the FAA.

It will be difficult for the agency to build and sustain sufficient in-house knowledge of how the system actually works and how problems are solved since it will neither own the hardware, ground stations, and related software, nor be responsible for the operation and maintenance of the ground system.

The US Congress is concerned that FAA could find itself in the unenviable position of knowing very little about a system that is expected to be the foundation of their air traffic control system. Solutions to the problems created is going to take some time!

For gliding Already avionics companies are testing their receivers, transponders, data processing software, and avionics displays with airlines and aircraft manufacturers to see what will work and what the pilots themselves feel will be most efficient. At the time of writing, we are aware that at least three transponder manufacturers as used in sailplanes are producing units with *ADS-B Out* compatible features.

New owners and clubs about to equip a new sailplane should take professional advice on what is available and how it will affect the future operation of their sailplane(s). More important is where the ADS-B readout will fit on your panel? Then comes the problem of the battery drain that has to be provided for. If you already have a compliant transponder, the change to ADS-B will not be as expensive as you might imagine.

The USA is leading the charge in the development of the process, but it is inevitable that ultimately it will be a compulsory worldwide safety feature. While there is time to count the cost involved for your sailplane, don't believe the theory ‘that it won't be coming my way’ – it will!

What will it do to gliding competitions?

Where will in-cockpit graphical display of fellow competitors lead us? This debate must be opened before it is too late to influence what competitions may be like in a few years. Neil Goudi, on behalf of the British Gliding Association's Competition and Awards committee, has written an informative paper on the subject called, *Every Day A Blue Day – a glimpse of the future, nightmare or dream?*

Will new technology change gliding competition tactics and make ‘every day like a blue day’, and pilots will always try to start late and use the gaggles? Currently available cockpit displays displaying other competitors' situations are in their infancy, both in the range they can ‘see’ ahead and the information they display.

FLARM can give detailed real time information on aircraft within a 3-10 km radius – this is useful for keeping tabs on nearby competitors but once Mode-S is mandatory or widely used, details of gliders possibly up to 50 kilometres distant will be readily available. ADS-B receiver boxes are already available to pull in Mode-S generated signals and deliver them to LX instruments and other gliding displays but, unlike FLARM, there is no stealth mode to enable pilots to make their own flights without being watched by anyone who has the technology.

Extremely large, high resolution, good daylight readable displays are already available, newly developed tactical software will provide a pilot with detailed and relevant information about fellow competitors and gaggles. There is no technological barrier to this happening, it is just a programming exercise that will become refined and more targeted so that within a couple of years pilots will have full positional/performance awareness of any group of competitors they are interested in:

- You will never lose track of a gaggle again.
- You will be aware of gaggles/gliders around the start.
- You will be alerted to gaggles/gliders climbing well.
- You will ‘see’ gliders ahead at all times and how well they are doing.
- You will see your current task performance relative to your competitors.
- You will see all final glides and be able to compare best routes back to the airfield.
- Etc, etc. – and there will be a lot of ‘etc.’
- Technology will give everyone 40/20 vision.

All this information can be monitored by the ‘team’ on the ground and key tactical possibilities can be analyzed by ground based software and experienced coaches. If your ‘team’ has the resources and a good radio, you can take critical decisions together or allow yourself to be guided through all the critical parts of the flight. It would be a different sport. ❖

**An anti-complacency mantra:
before taking off, say to yourself,**

I'm just stupid enough to kill myself today.

... contest flying

from page 15

"beginner" event. What it does is allow pilots to enjoy national level racing without driving across country to the nationals of their class of glider. Effectively, we have "east" and "west" 15/18m Nationals without the name, with a few other gliders sprinkled in for fun.

At the same time, large handicap spreads are not ideal when the point is serious racing. The handicaps are fair on average, but introduce more luck than is desirable. This has led to the idea of a US "Club" Class consisting only of the middle of the handicap range. But if we do that, will we kill the rest of the Sports Class, and leave the old Nimbus 2/3, ASK-21, or the Silent, Russia, 1-26, etc. no-where to compete at all? If only we had more pilots ...

FAI classes The profusion of FAI classes is a really big change in contest soaring. Once upon a time, there was one class, the Open Class. Standard Class came about in the 1960s as a very sensible idea to create a class with good performance but simple operation and limited cost, as Open Class wingspans, costs, and complexity exploded. Then in the late 1970s, the IGC committed the original sin, since repeated. They couldn't decide whether to allow flaps or not in Standard Class, and didn't know what to do about legacy gliders that did or did not have flaps. So they split Standard Class in two, resulting in two classes of nearly indistinguishable performance, cost, and handling qualities. Within three years, all of the "legacy" gliders were obsolete. New gliders designed to the new class rules had displaced them, and we've been stuck with one class too many for 30 years.

Now we have Open, 20m two seat, 18m, 15m, Standard, Club, 13.5m (absorbing the World

Class), Junior and Feminine. In the face of declining participation, is fragmenting classes the right thing to do? Perhaps what's going on is that the IGC is thinking only about "World" competition. I put World in quotes because almost all the contests are held in Europe, and non-European participation is spotty for all but the big classes. So really, what they have done is create a large number of interesting venues for European championships. But this class structure makes little sense at the US National level, makes no sense at all for smaller countries, and none for Regionals.

Now, the IGC is repeating the original sin. The World Class was a fiasco – it wasn't a bad idea in the abstract – maybe pilots are really all hungering for simple cheap one-design racing and don't care that much about performance. The failure was in doing no serious market research, relying instead on "build it and they will come." It turns out that when offered the menu, pilots are all choosing \$180,000 18m gliders at the moment. At least we have all learned to beware of "build it and they will come" theories.

The IGC are faced with the question, what do we do with the PW-5? Thinking "legacy", they create a class which is not just the PW-5, but also Russias and Silents and other gliders developed for the original World Class idea can participate in. But the second a new glider is designed to the new rule, all those gliders will be as obsolete, as the PIK-20 was obsolete in Standard Class the minute the Discus and ASW-20 came out, and we'll be stuck with another pointless class for 30 years.

Why does this matter? It drives up costs needlessly. Fixed design, certification, and production costs are spread over much smaller runs. It dilutes effort.

What should the IGC do? Pick three classes for 15 years from now, and stick to it. Allow legacy gliders with handicaps. Think about classes for all races, not just the European scene.

I have pointed to several changes to competition going on at the same time: declining participation, fragmentation into many small classes, and the problem of distance.

On the last point, the vast majority of pilots do not cross the country for "national" contests. Standard gliders enter 15m contests, 15m gliders go to 18, 18 goes to Open, and everybody goes to Sports. What to do? The answer is obvious once you state the question – merge classes with handicaps to form viable races. Regionals already merge and do not offer all classes. Still, five classes with six gliders per class is not optimal. We'll probably do more merging. Perhaps we'll end up with just three handicapped classes, "FAI" with water, "Club" and "Low performance" will work; the handicap ranges can overlap and adjust to the gliders at hand.

Almost all countries already have adapted this way. As you can imagine, Belgium (say) does not try to offer multi-class nationals, they have a single, handicapped national. The US has only persisted as long as we have because we actually have a very large base of contest pilots compared to most other countries. I hear the gnashing of teeth from many anguished friends who detest handicapped racing. I don't like it either. I wish the IGC had settled on three reasonable classes that made sense at national and regional level as well as at world level. Until they do, I see no other way out of our quandary.

How to do it is the problem. For us, it is mixed with the problem of distance. There has been a longstanding demand for something like separate "east" and "west" nationals, as driving a week each way is a large cost. New Zealand already does this, as the body of water separating them is larger than in our case. ❖

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The Barnaby Lectures

The US National Soaring Museum initiated the Barnaby Lectures in 1973, to address historic and noteworthy achievements in motorless flight. They are named in memory of soaring pioneer Ralph S. Barnaby, who held U.S. Glider Pilot Certificate No. 1, signed by his friend Orville Wright. He helped form the Soaring Society of America in 1932, and died in 1986 at the age of 93, leaving to the Museum an extensive collection of books, papers and artifacts, as well as a substantial financial bequest.

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2010 Annual Report

COTS LOGGERS Commercial Off the Shelf loggers have been legal for a full season for badge legs up to Gold. The IGC calls them "position recorders" as opposed to the fully-qualified "flight recorders". Only one model has received SAC approval, the neat little FlyWithCE which sells for 89EUR (\$125 on 16 November). See <<http://www.flywithce.com>>. So far I haven't approved a single claim using this unit. A major drawback is that a separate altitude barograph must be carried. We are hoping that proposals being made to the IGC will eliminate this requirement some time in the future. To apply for SAC approval of other units go to www.sac.ca – Documents Vault – Badges and Records – GPS Position Recorder Application Form.

GOLD DISTANCE and DIAMOND GOAL flights If you are planning a 300 km flight you might as well plan to do both Gold distance and Diamond goal – but there are important differences between these two badge legs that you should be aware of. A Diamond goal flight must be either an out-and-return or a triangle. You can use a "start on a leg" triangle to help keep the flight path closer to home but the distance claimed is the distance between the three turnpoints – the extra distance to get from and to the start/finish sectors doesn't count. Turn points must be at least 10 km apart. The start point is at the same location as the finish point – they can't be different.

You must visit the start sector after release (or release in the start sector) and you must visit the finish sector before you land. Omitting this requirement can nullify your Diamond claim. There are other details you should know:

- If you lose more than 1000 m between start and finish your distance will be penalized.
- Only sectors or lines can be used for start/finish – cylinders are not allowed.
- Distances must be calculated using the WGS84 earth model.

Read the Code and get the task right. Good luck!

TIP Save a few bucks (like about \$18) by taking the picture for your FAI Certificate with your own camera.

The table below shows that 2010 was about the same as 2009 with an improvement in the top three achievements.

FAI badge and badge leg statistics, 2001 – 2010

	01	02	03	04	05	06	07	08	09	10	5 yr avg	% of avg
1000 km	0	2	0	0	0	0	0	1	0	1	0.4	250
750 km	-	-	-	-	1	1	2	1	0	2	1.2	167
Diamond	1	2	1	1	1	0	1	0	0	1	0.4	250
Gold	5	5	7	2	5	1	2	3	4	2	2.4	83
Silver	8	19	19	7	7	13	16	9	10	9	11.4	79
C Badges	38	57	26	18	33	19	27	21	23	19	21.8	87
Badge legs	71	111	99	51	47	60	90	40	55	58	60.6	96

Of the 58 badge legs, 13 were Diamond, 13 were Gold, 32 were Silver.

49 Maitland Street, Box 1351, Richmond, ON K0A 2Z0
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2010 Annual Report

Record activity in 2010 (38! in 18 flights previously listed here) was focused in two very different geographical locations, the mountains of the Columbia Valley in BC and the ridges of Pennsylvania. In the west, Tim Wood was at it again, this time with his newly-acquired DG-400 motorglider. Tim has been trying to optimize the available distance in BC and Alberta by launching out of different airfields such as Elko, BC and Pincher Creek, AB. Unfortunately, only his records flown in BC passed muster with the FAI Sporting Code but many valuable lessons were learned regarding long distance flights in the wave of the Chinook Arch. I'm sure that we will hear more from Tim in 2011 as he probes further (and higher) into "Wild Rose Country".

Easterner Nick Bonnière adopted the "well, I'm more than halfway there" philosophy, and he spent some time in Invermere after the Nationals in N. Battleford. I e-mailed Nick shortly after the Nationals asking about the contest and how he liked flying in Invermere. He mentioned that he had a "nice" flight. The next day I received his preliminary notification for his record setting flight from the previous day. I duly noted that Nick can be low key ... Meanwhile back east, Adam Zieba was tearing up the ridges with a couple of incredible flights. Well, you have only seen the one on 9 May where he essentially reset the book for citizen records. What you may not be aware of is that he flew a similar distance flight a couple weeks earlier but figured he could do better. I once again noted that Adam too can be low key ...

So went the 2010 record season. A blend of experienced record pilots exploring new opportunities and two very skilled newly minted record pilots quietly pushing the bar up for the rest of us. My lesson from 2010 is that everything your mother told you is true...you should watch out for the quiet ones... ❖

A potential change in distance records in 2012? Go to page 28 Tony

Where can I get my barograph calibrated?

Calibration facilities for your FR or a mechanical barograph, seems to be in short supply in Canada. Many aircraft instrument shops could do the work if asked and if their vacuum chamber is big enough to hold your instrument. The calibration facility must follow the IGC procedure which is found in your copy of Annex C to the Sporting Code (paras 11.3 to 11.5 for FRs or paras 13.1 and 13.2 for mechanical barographs). The relevant text should be printed out, maybe even laminated, and given to the calibration facility for their ongoing use. Note that it is your responsibility to set up your FR (para 11.2) or mechanical baro (para 13.1a) for the calibration. For FRs this is mainly setting an appropriate data rate and attaching a small battery to power it; for mechanical barographs this is preparing a fresh foil. A list of known calibrators should be posted on the SAC website and kept by the SAC Record and Badge chairmen. Known calibration facilities are:

Ontario: John de Jong <jdejong@sentex.net> (416) 819-4165
West: Airborne Precision Instruments, Calgary, AB (403) 275-4211
Pacific Avionics, Vancouver, BC <pacificavionics.com>

There must be others, commercial or otherwise – let everyone know.

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Clubs/Cowley info: www.soaring.ab.ca

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