

free flight • vol libre



1/04
Feb/Mar



Cu Nim welcomes you to the SAC AGM

20 March, Coast Plaza Hotel, Calgary

The AGM will be held in the Garden Courts Rooms. Seminars will be presented covering cross-country wave soaring along the eastern slopes of the Rockies in southern Alberta, soaring on the west side of the Canadian Rockies, a new look at the human factors and safety in our clubs, and an in-depth look at the SAC insurance program. Registration for the seminars and awards lunch will be \$25. In order to meet the Coast Plaza Hotel deadlines, registration must be received no later than 27 February. Guest room rates are \$115 and registration can be made by calling West Coast Hotels at 1-800-426-0670. To receive this rate be sure to say that you are attending the SAC AGM. Coast Plaza Hotel information can be accessed through the SAC website or directly at <www.calgaryplaza.com>. Please write or call me directly if you have any questions.

A word on change and volunteering

It is likely accurate to say that each one of us sees at least one aspect of our sport that we would like improved. During the past year the range of topics posted on the Roundtable has been very broad and often the call has been for change. I observe that generally the expectation is that those who have already volunteered to fill a position of responsibility should also be the innovators, researchers and implementers of change. First, thanks to the volunteers who are keeping the system functioning! We couldn't fly without you. To those of us calling for change, let's go for it! But remember, moving the sport forward means volunteering to find the new ways, researching the viability of the ideas and convincing the organization of the need and benefits of a change. During the past year this approach was observed in action with the change to the new Roundtable. Several individuals presented detailed, researched proposals for consideration and graciously supported the 'winning' version. It will be great next year to look back on 2004 and see many more examples of "this needs to change ... I volunteer to do it" attitude in action.

The purpose of soaring?

I recently attended an evening of classical music where the pianist spent a few minutes musing over the "purpose" of classical music. Soaring certainly holds as many mysteries for the average pilot as classical music held for the audience listening to our guest violinist and pianist. The pianist spoke of the rush of our daily lives; the "noise" of activity that distracts us from really being alive. A classical musician's energy, focus and reward is all wrapped up in the music. Audiences have little to distract them; costumes and sets are unneeded and unwanted because the purpose of the music is listening. The notes of the previous bar of music are as irrelevant as the notes of the next. The focus is now — being alive in the moment! This struck me as parallel to the soaring pilot's experience. Each of us may have our own description of the purpose of soaring flight but its simple, pure form and the focus required lead me to believe that the purpose of soaring is to cause me to live in the moment: to be flying in a way that draws me out of the distractions of daily life and into the marvel of flight.

Ann Welch wrote in *The Story of Gliding* that "soaring provides an intellectual challenge which is greater than in almost any other sport. It is probably the single-minded effort which this involves that makes the glider pilot prefer to fly alone ... he feels part of his aircraft. There are good two-seaters, of course, but they are complementary, or useful, or fun, but not the same as one's own wings."

May your flights of 2004 bring you a greater appreciation of the privilege we have to enjoy flying in this way and the opportunity to introduce someone else to the sport of soaring. Safe flying. 

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1/04 – Feb/Mar

The journal of the Soaring Association of Canada
Le journal de l'Association Canadienne de Vol à Voile

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Cover

Marian Nowak flies his beautiful glass homebuilt, the *Egret*

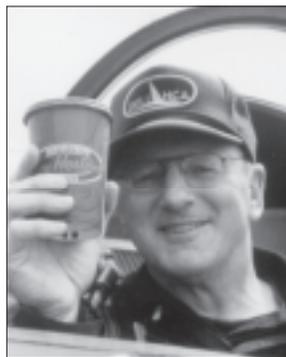
photo: Terry Healey

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ON-THE-JOB TRAINING

Doug Scott, Ontario Zone Director



MOST OF US HAVE HAD THE EXPERIENCE of graduating to a single seater, and no matter how much ground briefing you have had, sooner or later you have to go, and the dual time is not quite relevant. My first year as a SAC Director has been like that. Working with the rest of the Board and the Executive Director has been a little like flying in a gaggle versus striking off on your own. They may seem to hold you back at times, but generally they are there to offer some comfort and lead the way when you are struggling. The Roundtable is like maintaining a watch on 123.4 — the guys out on task, each radioing you with advice to head in a different direction. I've enjoyed the results of the efforts of those before me who have built and managed clubs, bought and maintained the fleets and fields. It was time to make some contributions of my own, and wishing to share with other clubs what I have learned, I asked for the support of Ontario clubs to become their Zone Director. As always with diverse volunteer groups, you can't please all, compromises are required, and one can't accomplish all you wish. We try to do the best to please the most people with the resources we have, and more volunteers are always welcome.

I promised more direct communication with all Ontario clubs, so visited all of them. I've taken an active role in working towards improving SAC services and have been grateful for the chance to make some small improvements. I studied the worldwide research efforts to attract and retain members, and set up three committees to carry on that work in Canada. I wish them success, but they need the help of everyone at every club. I was asked to get involved in re-vamping the Roundtable, and my major contribution was a call for volunteers that resulted in a couple of new helpers and a whole new look, which will hopefully be spam-free. Thanks to Susan Snell for all her ongoing work.

I have been able to improve communications between SAC members and Directors and help clarify misunderstandings about SAC — an example would be the erroneous claim that SAC refuses to deal with COPA insurance, when in fact the COPA plan excludes club aircraft, which is our primary concern. I corrected the notion that FAI fees were \$25 each, when they are closer to \$6. I helped in clarifying that SAC does not have vast financial resources and cannot get involved in self-insurance. I was able to encourage people to submit material for publication in *free flight*. I gathered statistics from those who run the Online Contest in Canada to support the fact that SAC's sponsorship has encouraged greater participation, and support ongoing SAC sponsorship. I cherish the many, "thank-you for your effort" notes sent to me, as well as the personal support given while visiting other clubs. The most rewarding part of the job has been the opportunity to visit with all the clubs, renew old relationships, make new ones, and fly in different locations. I would now feel comfortable landing out just about anywhere in Ontario.

I wrote in the Roundtable about my visit to Bonnechere, the blueberry capital of Ontario. The hospitality extended to us by Iver Theilmann and his family was amazing. You should have seen him barbecuing pork chops in his yard, while keeping watch for the six o'clock bear. While the club is small, and not poised for growth, it is a fine example of everyone pulling together to make it work and finding inventive ways of creating revenue. That posting resulted in an invitation from Terry Beasley to visit MSC at Hawkesbury. I've always wanted to go there, and it was all I expected and more. As far as I can tell, the main rivalry between them and neighbouring Pendleton and Champlain involves who has the better swimming pool. The highlight was the campfire after dinner, marshmallows and all. I renewed my friendship with André Pepin — he and I had the longest flight of the day — our last flight together in 1998 ended in my first landout. He flies 300 hours a year, more than some clubs and more time than many of us have in total.

I had a great time at Guelph Gliding and, flushed with my success at MSC, got suckered into a \$5 bet with Paul Nelson about who could stay up longest. Paul suggested I go west to the brickworks, he went east to the town, and I'm five bucks lighter. (Note to self: next time get a handicap for home field advantage or, take André with me.) COSA is always



The 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 national aero clubs. The ACC delegates to SAC the supervision of FAI-related soaring activities such as competition sanctions, issuing FAI badges, record attempts, and the selection of Canadian team pilots for world soaring championships.

free flight is the official journal of SAC.

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.

Images may be sent as photo prints or as hi-resolution greyscale/colour .jpg or .tif files. Prints 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 contact their Zone Director.

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L'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.

vol libre est le journal officiel de l'ACVV.

Les articles publiés dans *vol libre* 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.

vol libre 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.

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fun, the food and the hospitality are great, and they hosted the Provincials again. Having camped out quite a bit, I would have put the Great Lakes Snoring team of Kerry Kirby, Craig Wright and Bob Tooth up against anyone, but I now have a newfound awe for the volume and range of Chris Luxemburger at COSA. A word about Great Lakes — I made it a personal mission to help Wayne Store achieve his Silver badge. One day as I was going to shepherd him, he showed great patience in hovering over Alliston at 6000 feet while I had two relights enroute to coming up and showing him how to find lift. Another job better suited for André or Paul. Rideau Valley was the only place I did not fly, but I had a great time learning about the club and meeting the duty crew. Apparently I brought inclement weather which followed me to Pendleton and dampened the Nationals. I had been invited to help tow but was demoted to Head Sniffer. I found out I had to pay for the flights, but given the conditions, they were short and cheap. Later, I was further demoted to Head Chef and had to BBQ 120 burgers. Still, I got to fly with fellow directors Phil Stade and Marty Vanstone. During a lull in the contest, Dan Cook showed me inventive ways to spin a Puchacz. Here's a tip for you budding aerobatic pilots — bananas. Unlike other foods, they taste the same coming up as they do going down.

London Soaring wins the Hospitality award — I did not have to pay for my flights. They are tied with Air Sailing and Erin for "the most difficult field to spot from the air" if you are a visiting pilot. Erin made me feel welcome by letting me help tow and instruct, and Stan Martin flew with me in Peter Rawe's Lark almost ten years to the day I was licensed in it. I met Bob Lepp and Alex Foster again at Toronto Soaring and had another winch launch in my quest to land out on the highest spot in southern Ontario, as noted in *free flight 5/02*. I highly recommend a visit to experience the winch ride. One of the benefits of the visits was the ability to share information. I was able to help Toronto repair a Brush Hog using experience gained at SOSA, and Stephen Sikora at Air Sailing gave me some useful tips on Twin Grob wheel brake maintenance that I was able to take back to SOSA. (Ask Stephen for the BMW part number for the master cylinder.) Air Sailing had a great open house, well-attended by other clubs.

SOSA, my home club, had a good year for fun and flying. CFI Ian Oldaker tried an experiment in student flight management that asked some instructors and students to show up on certain days, such as mid-week evenings, rather than the usual Saturday morning rush. Any club that wishes to grow and retain members needs to pay careful attention to member and student satisfaction levels; maximizing flightline efficiency is a great start. Ian Sutcliffe ran a well-received cross-country clinic by taking people for "Virtual 50K" flights in his Cessna, allowing them to practise navigation and scout fields for landouts. Dave Springford ran a couple of Bronze badge courses and Tom Coulson had two instructor courses. I have to mention that during their July Dust Bowl Contest, "14" became the first glider in Canada to land out within walking distance of the pilot's house.

I was impressed on both visits to York Soaring with the fostering of cross-country efforts, including a joint Bronze badge course with Erin and the holding of the CAS clinic. They were very busy, and run their line as efficiently as I have ever seen. Many of the guest flights came from an adventure tour place, and you can get the details from Charles Petersen. I was helping strap a guest in, and since I was researching membership and marketing issues, I always ask how people heard about the place. She was planning to attend Ottawa's Winterlude last February, went to their website to locate activities, saw an ad for the tour place, and ended up this summer at York. Club marketers take note. That day I had my most moving experience of the summer when I met Marlowe Horn. A young lady with a disability, Marlowe so impressed me with her enthusiasm, as did Charles Petersen and Richard Sawyer with their flight program, that I got them all, including Marlowe's mom, to write their stories in *free flight 5/03*.

Gliding is a great metaphor for life, and I use flying analogies in my daily life, as do others. Some of the best things about joining clubs are the friendships that grow and prosper in the off season. Just before Christmas I got an e-mail from a gliding friend who has been out of work and was losing hope. He said he had been thinking of a story our friend Chuck Keith used to tell about a near landout that was avoided by seemingly endless circling in zero sink, which led to scratching away in a hard-won thermal. My friend was quite depressed, and was missing Chuck who died a few years ago, when a phone call came saying one of his many applications for a job had been accepted. My friend says that in life, as in gliding, a combination of hard work and patience pays off. Chuck, a great mentor, was still giving help from beyond. ❖

the Ontario downwind dashers

Tim Wood, SOSA

THE “DIRTY DOWNWIND DASH” form of cross-country soaring is great fun and very addictive. Once relieved of the back-of-the mind issues of how to get home and how to avoid landing out, the dasher can relax, enjoy a great sense of liberation, and focus on getting as far away from home as possible!

Possibly the greatest proponent of the downwind dash is Henry Combs, a US soaring pilot who has done over two hundred downwind dashes of over 500 kilometres (see SOARING, Nov 1998). Closer to home, Dave Marsden and Mike Apps did an epic dash from Edmonton to the south-east in 1984, setting a Canadian record of 707 kilometres to a declared goal of Indian Head, SK and then onwards to the Winnipeg Gliding Club at Starbuck for a 1093 kilometre free distance record. Twenty years later, both these records still stand! In 1990, Tony Burton did what is probably the second longest downwind dash with a splendid flight of 716.4 kilometres from Claresholm to Indian Head, Saskatchewan in EE, his homebuilt RS-15. In Ontario, Oscar Boesch, Steve Burany, Wilf Krueger and Steve Liard have also done excellent downwind flights, to name just a few. Inspired by this illustrious stable of downwind dashers, I decided to try my hand at it during the summer of 2003.

A key factor in this kind of flight is having a willing and able crew. I was very fortunate to be able to gather a pool of excellent helpers who enjoyed the adventure, and were able to put aside two days at a time for the dash attempts. Flying from the Toronto area, airspace issues are also a big factor as commercial traffic has voraciously gobbled up so many areas of excellent soaring terrain. With airspace in mind, I decided to fly out of York Soaring’s field at Arthur, where I had a membership in 2003. I made four downwind dash flights from York in the July-September period and ran east towards Montreal. This year we experienced a good number of weather cycles ending with the passage of a cold front, which set the stage for good downwind dash conditions. Following the frontal passage, a northwesterly airflow, a high centred over Chicago (the Steve Burany rule), and fair weather cu make the perfect setting.

My first dash took place on 18 July, launching from York and finishing at Iroquois Airpark, ON. I flew my trusty LS-3a, a 15m flapped single-seat sailplane, on this occasion without water ballast. The declared flight was from York to Hawkesbury, home of the Montreal Soaring Council.

Following a cold front passage the previous day, conditions appeared favourable. Winds were from the northwest at 10 to 15 knots, and cumulus first began to appear around 1030 in a clear blue sky. The chase crew consisted of Steve Bond of York Soaring. Communication was by VHS radio on 123.4, backed up by cell phones.

Truck and trailer moved off from York’s field simultaneous with glider takeoff at 1116. Very consistent strong thermals were present along Hwy 9 between Arthur and Orangeville,

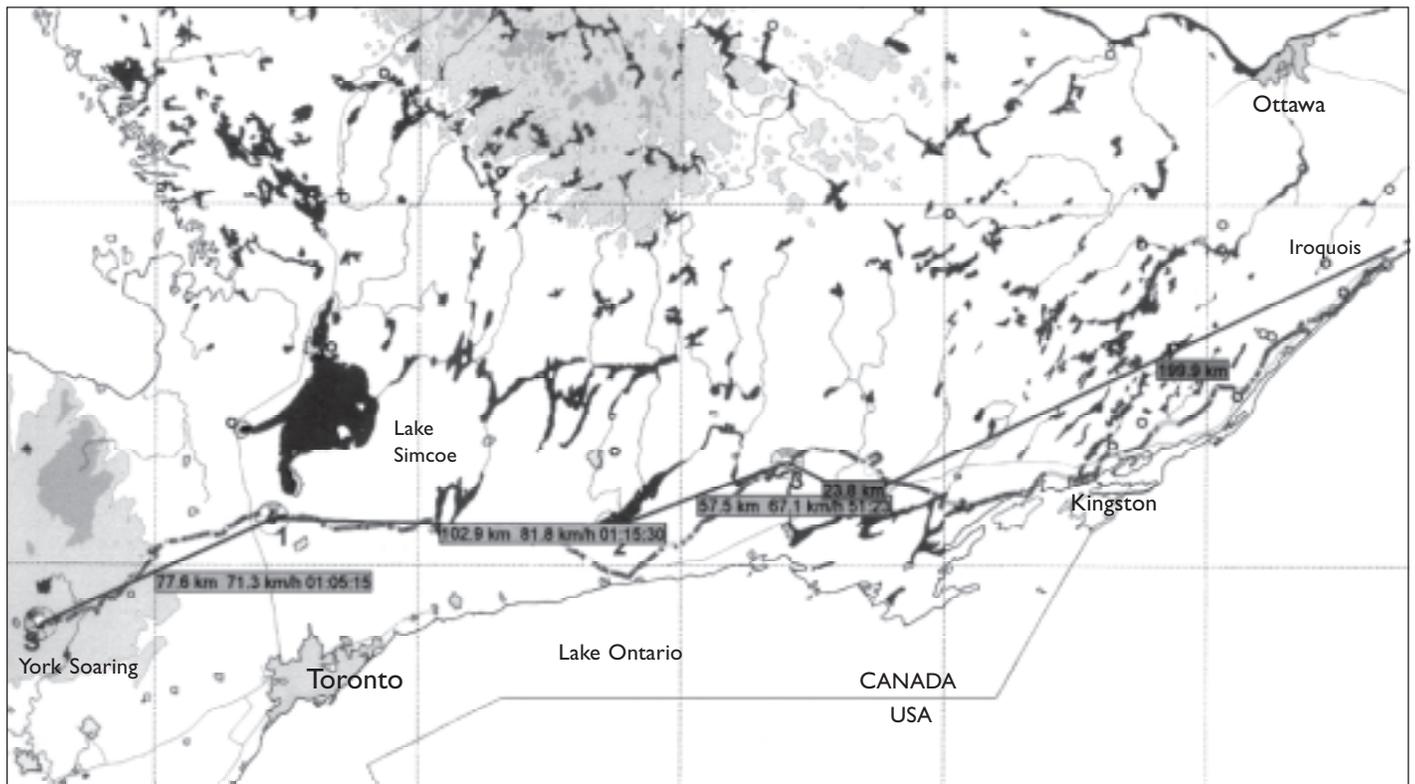
where the first of several airspace hurdles came into play. It was necessary to fly around the northern perimeter of Toronto Control Area from Orangeville to Bradford as the glider was not equipped with a Mode C transponder. The best looking cumulus were, of course, always in the off-limits airspace. After Bradford, it was necessary to cross the wetlands of the Holland March, just south of Lake Simco. Winds had picked up to over 10 knots at 5000 feet and a lake effect in the lee of the lake could be seen from the cloud formations immediately to the north.

Thermals remained strong as Lake Simco receded and I picked up speed around Newmarket, getting ahead of the ground crew. The sky to the east was full of cu as far as the horizon, and many options were open as to which course to follow. After Port Perry, the Lake Ontario shore looked very appealing, with a pronounced lake front close to the shore. I detoured south in order to connect with this but was too low on arrival over the water’s edge. The hoped-for bonus of a fast run along the lake front eluded me, and I retreated inland to reconnect with the more regular inland thermals. This was the first reversal of fortune in the flight, probably costing me a crucial half hour. Overdevelopment of the cu then began to occur as an almost continuous mantle at around 10,000 feet cutting the energy supply to the ground.

I flew around the northern edge of the Trenton controlled airspace, remaining in contact with Trenton Tower. Controllers were very interested in my flight and very cooperative and supportive. After passing the town of Sterling, increasing gloom and overdevelopment slowed progress further, and I began to take serious interest in potential landing sites. I moved towards the lake shore again as blue sky was still present over the water, and there were three airfields/airports in the Bay of Quinte area. The tailwind took me in the direction of Kingston as I struggled to maintain height. The sun shone brightly on Kingston and on the American shore, where a different airmass there was producing picture-book soaring conditions. I passed overhead Kingston airport and only had a margin of 500 feet remaining above circuit height when I contacted a “hallelujah” thermal. It took me from 2000 asl back up to 5300 feet — the flight was on again! Kingston Flight Service was very helpful and relayed communications to the chase car which had lost contact with me as we moved eastwards.

Contrary to frequently expressed views about flying east of Kingston along the 401, I didn’t see any lack of potential outlanding places in that area. I had final glide to Gananoque very shortly after leaving Kingston. After that, Brockville soon came into range and there are fields in between.

It was now clear that the flight would soon end as it was late afternoon and not much direct sunshine was reach-



ing the ground. Thermals were weak and elusive. The American shore was tantalizingly better, but I remained on the Canadian side, not wishing to provoke a rocket up my backside. I stretched my glide, finding any lift I could as I passed the Prescott area. Here, fields are scarcer, although some fields could be seen to the north, up Highway 416. Iroquois came into view finally, as the tell-tale islands in the river served as a very visible marker. I decided to let down there, and landed on the beautiful manicured airport, after a flight of 6:44 hours. The manager and his neighbours were very hospitable, and entertained me until Steve arrived with trailer in tow only twenty minutes later. Disassembly of the glider was a big treat for this airport community, and we had a good audience of interested onlookers as we derigged.

The distance "as the crow flies" from York Soaring to Iroquois airport was 425 kilometres. The time spent in thermals was 32% of the flight time, and in straight runs, 68%. The combined height gain in all thermals was 24,970 feet, and the average thermal strength was 190 ft/min. Thermals were strongest early on, and became progressively weaker as the day developed. Average thermal strength was 320 ft/min on the first leg, to Bradford from Arthur, and 280 ft/min on the second leg, Bradford to Gore's Landing. From there to Stirling there was a further decrease to 210 ft/min. The tailwind component was at least 10 knots throughout the flight; that contributed about 70 kilometres of bonus distance and was a Godsend in the final hour of the flight.

The conditions were good but not ideal for this exciting flight, and I felt that the distance flown could be extended even further east on a better day.

I made three more downwind dashes along roughly the same course in the July-September period, but did not exceed the distance achieved on the 18 July flight. In

these flights, I encountered a variety of conditions, but some things were consistent: stronger soaring conditions east of Lake Simco than in southern Ontario, lots of sink just west of Stirling, bad lake effect north of Kingston to as far east as Gananoque, and a resumption of strong thermals east of Gananoque.

The toughest of these was without doubt the flight I did on 6 September, which was a straight out flight from Arthur to Belleville airport. The highest point in the flight was at Alliston with 4800 feet. Conditions were almost windy enough to break up the thermals, and the sky went completely blue about one hour into the flight. At Peterborough I almost had to land, after cruising over the town looking for lift at 2000 feet asl. My climb rate in thermals was only 150 ft/min. and my average speed over the ground was only 55 km/h. Trenton very kindly allowed me to transit across their airspace, giving me a final glide to my goal from Stirling. After the 4-3/4 hour battle, I was relieved to sit for a while to compose myself and commune with the grasshoppers as I waited for Andrei Magyari to arrive with the trailer.

These four flights really wetted my appetite for more downwind dashes in the future, perhaps with two or more gliders flying together. My immediate goal will be to get past the Kingston lake effect death zone early enough and reach either Kars or Hawkesbury. On my final dash, I established a Canadian Straight Distance to a Goal record of 236.7 kilometres in the Club category, flying from York to Belleville airport. This is a pretty puny record and could quite easily be improved upon. I hope that more pilots from Southern Ontario will join in the fun and take a shot at the downwind dash in the coming summer. ❖

To see this flight, look for Tim's flights in 2003 on the Online Contest webpage and open <371A10D4.igc>.

A modest proposal

George Eckschmiedt, VSA
John Bisscheroux, MSC

The authors have presented a proposal through SAC to the FAI International Gliding Commission for the acceptance of commercial off-the-shelf (COTS) GPS units as GPS flight recorders for use in FAI Silver, Gold, and Diamond badge flights. The aim of this proposal is to facilitate the availability of lower cost FRs for the majority of dedicated amateur soaring pilots interested in the continuation of soaring, cross-country flying, and mainly for facilitating earning FAI badges with improved utility.

Rationalization One of the most important human needs is recognition. It applies very strongly to all soaring pilots, as can be seen from the spectacular popularity of the new On-Line-Contest (OLC). It provides world-wide recognition for all achievements, small or large. The success of the OLC is owed to the new flight recorders (FRs), and the fact that COTS GPS units were deemed acceptable for use as FRs for OLC flight data.

Prior to the OLC, this sought after recognition could only be achieved by the various regional, national, and international contest results, or by the FAI badges. In the past the IGC has issued specific and strict procedural criteria for earning these FAI badges that have served our soaring community well. With the implementation of the Global Positioning System, various FAI members were wise to recognize the outstanding capabilities of this system, and several manufacturers developed FRs specifically for soaring data collection. Their complexity did introduce new operational requirements, their evaluation for security is onerous and, for those not thoroughly familiar with computer technology, gives new problems for the Official Observer (OO).

To set the standards for the manufacture and use of flight recorders, the IGC publishes *Annex B to the FAI Sporting Code, Section 3, Requirements for Equipment Used for Flight Evaluation*. This document is a very precise, detailed specification for the type acceptance of "approved" secure soaring FRs. However, because of this new complexity, it appears that the IGC was somewhat doubtful of the OO's capability to function adequately, and this perception may be correct. However, we think that this should not be used as a reason for substituting the trusted human judgement of OOs with expensive technology alone as long as the OO is familiar with the FR being used.

Some history of FAI badges and the evidence required to claim them

Let's bring the subject of FAI badges into perspective. This history highlights that the necessary *documentation* for FAI badges has not been constant, but the *value* of the badge always has been, and we don't intend to change that. The soaring badges have been around for a long time. Pilots wear them with pride, talk about them and argue about them, yet few of them, even the otherwise most knowledgeable amongst them, know their history. Knowledge of the history would perhaps help in settling some of the most

contentious differences in ideas that surfaced in the last couple of decades.

The FAI (Fédération Aéronautique Internationale) was formed in 1905, just two years after the first flight of the Wright brothers, to record aviation achievements. The FAI recorded international records, but only for member nations. As a result of the Versailles Treaty, Germany was not allowed to be a member until 1926, and even the Soviet Union joined only in the mid-thirties. Therefore, the "official" record lists don't reflect the true status of the records. Between 1927 and 1929 the FAI actually recorded the outstanding results according to the better known soaring airports. It was in Copenhagen at the 1929 meeting of the FAI that they decided to keep a unified record list of achievements.

ISTUS (Internationale Studienkommission für motorlosen Flug), was founded in Frankfurt on 13 June 1930, to deal with international gliding matters. The founding nations were Belgium, France, Holland, Hungary, Germany, Italy, and the USA. Dr. Walter Georgii became its president and served in that capacity till the end of the Second World War, when ISTUS was dissolved.

The A, B and C badge emblems were designed by Fritz Kramer and many were earned in the late 1920s. ISTUS authorized the D badge emblems (or the Silver C as it is now called) as the first international achievement recognition in 1931. The first recipients of the D badge were Wolf Hirth and Robert Kronfeld, on 15 February 1931. The next year the FAI recognized soaring, and the Commission Internationale de Vol à Voile (CIVV) was formed. The E badge (now the Gold C) was established in 1938 and the F, adding Diamonds to the Gold badge, started after WWII. The A, B, and C badge requirements were defined by individual nations, but the basic requirements of the other more advanced badges have not changed in over seventy years. Therefore, their value remains the same throughout the world and so it should remain.

While the value of the badges did not change, the tools for earning the badges and their documentation system has evolved with time and technology. (The FAI is about to issue a book describing its history, and one can already reserve a copy.) The Bronze badge first surfaced in Great Britain and has been adopted by a few nations including Canada, but is not an international badge and doesn't apply to this proposal.

C badge flights could be earned with anywhere from a five minute to a one hour soaring flight, and in some countries carrying a barograph was mandatory. In the early days Peravia and Winter made barographs — the cost of the Peravia easily exceeded half the cost of many gliders, so there weren't many around! In time, the requirement was changed to today's one hour observed soaring flight. The A, B, and C badges are no longer controlled by the FAI but most nations comply with the general guidelines used by others, ie. half an hour soaring and one hour soaring above release height or low point.

What constitutes height evidence has changed with time. Canada's first Diamond Badge holder, Julien Audette, did not carry a "certified" barograph on his Diamond climb.

His altimeter knob was taped so it could not be moved, he photographed the face of it, and the pictures were accepted as proof of the climb at the time. This is a far cry from just a couple of years ago, when an 18-year-old pilot's Gold distance flight claim was rejected on the basis of not including the serial number of the barograph on the declaration photo! (It happened in Canada!)

Silver badge requirements changed only slightly throughout the years. Initially, a landing at other than the home airfield was mandatory. These days it can be done by declaring a remote start location and landing back at the home field, or even being part of a longer flight that includes a 50 kilometre segment. Its value remains the same. The Gold badge changed very little, the 300 kilometre flight now can be part of a longer claim. Again the value remains the same. Some of the larger changes were for the Diamond badge, where initially one of the requirements was a 300 km flight to a goal. This was later modified to allow an out-and-return or triangle flight when photographic evidence of reaching the goal became acceptable.

The tools of proving the flight changed the most, expanding only recently to accommodate flight recorders. For decades the Winter and Replogle barographs ruled for altitude data. In some cases the barograph did not even have to be calibrated by a nationally recognized laboratory for accuracy. It *did not* change the value of the flight. Now we better include its serial number on a flight declaration photo.

Photo evidence came into effect sometime in the very early 1950s when the 35 mm cameras started to be other than the Leica and Contax, perhaps even when the 126 format became available and inexpensive. Before photo validation was accepted, observers had to be at the landing point, or located at the turnpoints, and not only did they have to see the glider arriving, after landing the pilot also had to identify a sign placed on the ground by the observers — needless to say this limited out-and-return and triangle flights. The rules of observation zone entry now solve that restriction.

The IGC and its subcommittees devised some very good and thorough processes to certify that a flight was performed as claimed. Official Observers are now relied upon to verify that the claim was true, not fraudulent, in all respects. Barographs calibrated, the ICAO Standard Atmosphere tables had to be used, takeoff and landing certificates certified, Great Circle calculations performed, photos interpreted, etc. It worked!

Life became more complicated when we started to rely on more technology instead of people, and it created a more complex Sporting Code. The IGC also focussed a lot on preventing pilots from cheating as a result of some world record and competition misdeeds. If people want to cheat on records or contests they'll find a way to do it. Some were caught, but we shall never know how many were not!

It seems that the security issue drove GPS flight recorder design. The IGC direction was that if enough technology was applied, cheating could be eliminated, and the system evolved such that all flight documentation can be submitted on a single diskette file. As a result, a short list of "secure" recorders were developed, but due to their large development cost and small market, they are as expensive as about 10-20% of a used glider — the ones mostly used by

new pilots to earn their badges and where cheating is only against oneself — and this is hardly an encouragement to the growth of the soaring grassroots. Considering the astronomical performance capabilities of modern sailplanes (and their corresponding prices), perhaps the IGC supposed that pilots wealthy enough to buy one of these orchids should also buy the best possible instrumentation for it, and that includes IGC approved FRs. In our opinion it is incongruous to expect the same for a used 1-26, Ka-6/8, Phoebus, Libelle, etc.

In the meantime, relatively inexpensive GPS units have become available that do as much or more than the approved FRs. They collect flight data, can be used for navigation and produce exactly the data format required by the FAI. They may be single units, or just a dumb GPS that outputs location information into a Personal Digital Assistant (PDAs); one brand is the PalmPilot. Unfortunately they are considered "unsecure" since, outside the scrutiny of an OO or a contest director, they could be used fraudulently by a computer-savvy pilot.

In order to further encourage documented cross-country flying for the less well-heeled pilots, we therefore propose that the IGC modify the Sporting Code to not only allow the use of suitable standard off-the-shelf GPS units, but to actively encourage their use. Such a condition is already depicted without specifics in the current Annex B to the Sporting Code, para 1.1.3.3.2 (IGC approval for badge flights up to Diamonds). Many countries already use these devices in national or local contests, but are denied for badge flying use on the basis of lack of security.

Suggested conditions for the use of COTS units

- These "lower standards of security" COTS GPS units shall not be used for world records and international competitions or in any motorgliders.
- The use of these GPS devices shall follow all their certification requirements for badge flights, and OOs shall validate and verify this.
- Official Observers unfamiliar with the use of specific COTS units shall disqualify themselves from acting for a pilot using this equipment. "Senior" OOs should validate this.
- For altitude data recording, two of the devices (Garmin Etrex Vista and the Garmin GPSMap 76S) have barometric altimeters, others may also become available in the open COTS market. If the pilot wishes to use them for pure altitude data, the device shall be calibrated as a standard barograph and the calibration charts shall be supplied and evaluated as any other barograph.
- On most badge flights the main requirement is the proof of flight continuity and the altitude difference between the take-off/release and landing heights. The proof of flight continuity is readily available on the GPS altitude data. The take-off/release altitude difference can also be obtained from aeronautical charts and from towpilot certification.
- A COTS flight recorder shall not contain any ⇒ p18

The PW-6 / PW-5 combo

Yves Bastien, MSC
with Eddie ten Hoeve
photo: Michel Durand

THIS IS A STRANGE STORY REALLY — a couple of sailors test flying a new glider. The two of us had a remarkable opportunity to test the PW-6 only two days after its type certification in September 2000. We were also able to fly the PW-5 to examine the manufacturer's prime design objective for the PW-6: to create a high-fidelity trainer that would allow students a seamless and transparent transition to the World Class glider, the PW-5.

As luck would have it, our ships took us to Poland. A little bit of advanced planning, some helpful contacts and the internet were all it took to link up with Rafal Mikke, the technical manager of Aircraft Composite Structures – Development and Production Ltd of Warsaw. Rafal's response was outstanding and eventually encompassed deploying a PW-6, PW-5 and YAK-12 towplane — as well as a cast of test pilots, engineers and support staff to the Grudziadz Aero-club in Lisie Katy; all for our benefit! I would test the student-friendliness of the PW-6 as well as the transition between the two gliders. Eddie would comment on construction, fit, flight handling qualities and general impressions.

History The origin of these two aircraft is, somewhat like European history, a convoluted affair. The story begins in the late 1970s at the Institute of Aeronautics and Applied Mechanics of Warsaw University, the Politechnika Warszawska (that's where the "PW" comes from). At that time a group of students and staff created a 56 kg, ultralight glider called the ULS-PW under the guidance of Dr. Roman Shitkiewicz. Most of the principal actors in today's companies originate from this pioneering group. Politechnika Warszawska's great achievement was having its PW-5 design selected as the IGC's "World Class" competition glider in 1992/93. See the website of the World Class Soaring Association's at www.ssa.org/WorldClass. The aim of the World Class is to level the playing field by flying identical aircraft, the theory being that results would then be solely a reflection of pilot skill. In 1995, PW conceived a two-seat version, the PW-6, and the university commenced design work. On 15 September 2000 the PW-6 achieved Utility category certification.

The PW-6 Sunday, 17 September dawned cold and clear. Much better conditions than we had expected but it would be a blue day. The airfield is gigantic; although grass, you could probably land a MIG there. A single 4–5000 foot runway is oriented east-west but the field is landable anywhere. The sky was clear but 15–18 knots of wind were blowing at a 30 degree angle to the runway. Upwind was a wooded escarpment of about 100 feet. The geography would later contribute to some "knock-your-head-on-the-canopy" turbulence on tow.

We walked out to the operations van and nearby were both aircraft sitting side by side, the sun glinting off their immaculate finish. The PW-6 appeared to be, as advertised, a two-seat PW-5. The only differences being length 7.85m versus 6.22m and wingspan, 16.00m versus 13.44m. The front cockpit in the PW-6 is apparently slightly smaller than that of

the -5 but I couldn't tell. The front canopy is almost identical while the after canopy hinges back like that of the ASK-21. A solid canopy bow separates the two and provides an added measure of protection. Both aircraft are fitted with fixed "bicycle" landing gear and a tailskid wheel. The main sits in an aerodynamic fairing and features a beefy shock absorber and drum brake.

While we were examining the PW-6, a test pilot took up a PW-5 to check local conditions. As the glider lifted off the magnitude of the crosswind and turbulence became apparent. The first 100 feet were quite bumpy. We would have to be careful and pay attention. After reviewing field procedures, communications and speeds with Jurek Kedzierski, my back-seater and factory test pilot, I strapped into the PW-6. Although the aircraft appears small externally, I was impressed immediately with the roominess and comfort of the cockpit. My 6'2", 220 pound frame fit easily into the aircraft and my knees slid comfortably under the panel. The instruments were logically arranged and all controls were colour coded in the customary fashion. An interesting addition was a handbrake lever on the airbrake actuating handle. Good news for those of us with long arms!

The big yellow YAK towplane wheeled in front as I was doing my cockpit checks. We were hooked on, I gave the signal, and we were off. Given the strong crosswind I kept the gear firmly planted on the ground and tracking straight until the tug was lifting off. This caused a bumpy ride but proved an effective technique.

Once airborne I immediately crabbed into the wind and began working to stay in position behind the tug! As we were nearing the far end of the runway at an altitude of about seventy-five feet we hit the turbulent air flowing down the wooded hillside. I saw the towplane suddenly roll thirty degrees before regaining control. I had enough time to warn Jurek to hold on before it was our turn. A sharp control deflection was enough to hold her on an even keel and I gained a quick appreciation of the responsiveness of this glider. We bounced around some more through the first 1000 feet.

Not my best rough air tow but the aircraft never got away from me and I always felt totally in control.



Following my first flight in the PW-6, I was able to share observations and impressions of the PW-6 with the engineers of PW.

The remainder of the ride up was pleasant and we released at 3000 feet and turned left. Once in a clear area I moved to the next item on my agenda: exploring the spin characteristics. I flew some “sloppy-turn” entries and got the PW-6 to spin once out of four attempts. In two of the attempts the glider mushed into an incipient spin. When recovering I didn’t even get to applying opposite rudder; the glider popped out of the spin by the time that I had centralized the stick and removed the rudder that I had applied to induce the maneuver in the first place. I also spun the glider by booting the rudder at the top of an exaggerated stall. Again, the PW-6 recovered without hesitation. While I certainly did not explore the entire envelope I can say that the PW-6 will spin, but at least with a person of my mass and the resulting forward CofG, the characteristics were benign and recovery immediate. Next on my list were stalls. I found that there was plenty of warning on the stall entry with an appropriate amount of buffeting. The glider also has a tendency to fly straight and not drop a wing. As with spins, recovery from stalls is immediate.

Inevitably, we had to return. Given the strong crosswind and my inexperience in this new aircraft I elected to land into the wind (as had our tug). It was no problem to adapt my circuit to this offset. I calculated an approach speed of 65 knots and was able to maintain it and control my approach through the use of the very effective airbrakes.



5, I was immediately greeted by Rafale Mikk and the other. When unstrap they were enthusiastically asking me about my aircraft and sharing these amongst themselves.

The flare was uneventful and, even though we were near maximum weight, the aircraft touched down on the fixed main gear without complaint. Directional control was assured once the nose wheel touched down. Some judicious use of the handbrake got me stopped about where I wanted. Moments later the PW-6 was surrounded by Rafal and his cadre of talented engineers eager to get my first impressions. I loved the glider and the only suggestion that I could come up with was to make the trim actu-

ating knob larger. I’ve never seen so many smiles break out on so many engineers so quickly!

The objective of my second flight was to obtain aerial photos and to try thermalling the glider. With Maciej Lasek (the other test pilot) embarked I lifted off much like before. I pulled the nose off the ground a little earlier this time and we held on for the ride through the turbulence. Not surprisingly the tow was better and we released again at 3000 feet. I was able to fly at precisely 65 knots while the towplane formed on me and Michel snapped many pictures.

The remainder of the flight was spent hunting the nascent bubbles of lift. The PW-6 was a joy to fly and the precise

trim control allowed for rapid and accurate speed control. The glider remained responsive at all angles of bank at the min sink speed of about 46 kts as I maneuvered around trying to hang on to any scrap of lift. On the crosswind leg of my approach I tried side-slipping both left and right. I found the PW-6 very gentle in this regard. My landing was uneventful and I was judged competent to fly the PW-5. Now I would get to explore the transition to the PW-5 and the similarities between the aircraft. Remember that this was one of the prime design objectives.

The PW-5 We each flew a three-flight profile in the PW-5 to achieve our Polish type endorsement. I strapped in the cockpit and was thoroughly briefed. It was made clear to me that the PW-5 would feel more responsive. I remarked that except for a shorter stick, the cockpit and view were identical to that of the front of the PW-6. My takeoffs were uneventful and the responsiveness of the aircraft allowed for precise and immediate corrections in the rough air. I released at 2000 feet for my “high” flight, headed off downwind to some promising features and immediately began searching for lift. It wasn’t long until I was rewarded with the chirping of the vario and, by working the ragged lift that had formed, I managed to soar to 3000 feet. Like the PW-6, the maneuverability of this aircraft was very good in all flight regimes. At one point I was thermalling too slowly and felt the onset of a stall. An instinctive, split-second flick of the wrist forward and I was flying smoothly again. Having hogged the glider long enough I returned to the pattern at 110 knots (V_{ne} 121 knots) slowed down and landed uneventfully. My other two flights were up-and-downers to 1300 feet for circuit work. The PW-5 is, not surprisingly, somewhat more responsive than the PW-6. We found, however, that there was less of a difference in control response between the PW-6 and the PW-5 than there is between your average two-seat trainer with an instructor in the back and without.

Conclusion After flying and comparing the two aircraft we were impressed. The PW-6 we examined was well built; its fit and finish were comparable to just about any glider on the market. The challenge for the manufacturer lies in maintaining this level of quality as the PW-6 enters serial production. If you want a high-speed, competition-busting 1000K ship, buy a DG-1000. In creating the PW-6 the designers have achieved their objective of creating a high-fidelity trainer for the PW-5, and they are committed to continuous improvement. The PW-6 is also suited as an ab-initio trainer, its price tag and availability should make it an even more popular choice.

Yves, a former Air Cadet gone bad, now commands a frigate of the Canadian Navy. Bitten by the sport, he is a novice pilot having achieved his 15th solo hour in the PW-5. Broadening his experience base, he has flown nine different aircraft out of seven different fields so far this year. Eddie ten Hoeve is the Deputy Engineer of a frigate of the Royal Netherlands Navy. He is a Flight Engineer by education. Since starting gliding as an Air Cadet he has over 750 flights in 400 hours. Together they have informally formed the STANAV-FORLANT soaring club. Eddie is president. Michel Durand is a professional photographer with Canada’s military. He has logged over 300 hours in CF-18s conducting aerial photography at Canada’s Aerospace Test Establishment. ❖

the sky is the limit

Réal Le Gouëff, MSC

AFRIEND OF MINE, Évangéliste St. George, and I had flown together in the fall of 2002 and experienced wave in Lake Placid to something like 9000 feet. It had been a first for both of us. Stimulated by this pleasant experience, I had promised that I would go with him again in the fall of 2003.

Just prior to leaving to fly in Morrisville, Vermont in October 2003, I was talking with Évangéliste on the phone about how to get to meet him in Lake Placid. The problem was that while in Morrisville it was difficult to get in touch. We decided that I would radio pilots flying in Lake Placid while I was airborne at Morrisville. Morrisville is about 110 kilometres east of Placid on the other side of Lake Champlain.

On 13 October I was painfully maintaining my altitude over Smuggler Notch, barely surviving on a short stretch of ridge at the top of the ski slope, when Romeo Sierra relayed the message to me that Évangéliste had arrived and was asking if I was going to come to Lake Placid the next day (Tuesday). I was somewhat busy flying the glider and therefore tried to postpone my arrival to Lake Placid to another day. For some reason the message got twisted around on the way to LKP ground operation and I got the response that it was OK, and I was expected to be there early tomorrow! I was too stressed to start a negotiation on the air, so I said okay ... I will be there.

I had brought my glider to Morrisville in the hope of learning a new environment. This was my third flight. The first was a thermal day that led me to go half the distance to Sugarbush. The second day was a low altitude wave day and today was a bad day. I wasn't able to move from this mini-ridge spot. A fellow pilot was having good ridge lift on the Hunger mountains to the east but it was out of reach for me. After waiting two hours for the condition to improve I decided to try Mount Mansfield where the Stowe ski resort is.

On my second attempt I finally made it to Stowe a few kilometres west and upwind and did get to the ridge. I was able to fly along the crest of the mountain almost rubbing my wings on it. The ridge was better, much more exciting, and it got more reliable as time passed. What started as a bad day ended up being a very rewarding flight. I was roaming back and forth on the ridge to the joy of the hikers sitting on the mountaintop. My recently gained experience in France was very useful for this ridge. The view was spectacular, almost identical to parts of what I did in the mountains in St. Auban though on a smaller scale. Right below me was the west slope of Mt.

Mansfield and on my side the crest of the mountain range of which I sometime flew close enough to count the needles on the few brave spruce trees defying the harsh environment.

As I got to know the ridge I could predict where I would get up and downdrafts. This was simply awesome with the sun slowly going down and giving an orange hue to the rocks accentuated by the dark shade of the slope opposite to the glowing sun rays. On the south portion of the ridge were a few pretty high communications antennas that I was to be careful about, a real glider trap, especially the numerous cables holding the antennas to the dry, rocky ground.

I flew only on the upwind side of the ridge, I dared once to pass a few feet on the lee side of the mountain only to be severely reminded that turbulence can be cruelly punishing on the wrong side. I held between 3800 and 4300, sometimes passing almost within arm's reach of the hikers on the highest part of the ridge. Finally, it was getting close to 6 pm and I could see in the distance that Morrisville airport was in the shadow, the sign that it was time to go back home. I was a bit apprehensive as I had to travel over on the lee side of the mountain and would probably experience some rough times.

On leaving the ridge, I encountered a flock of 50–75 Canada Geese and flew alongside them about 100 feet away on their right. I made sure I was somewhat higher to avoid colliding with them. As they twisted their heads and metamorphosed their V-formation into all sorts of other letters of the alphabet, I concluded that I had surely grabbed their attention. What a sight! I didn't want to be too intimate with them; who knows what would have happened if one of them had mistaken me for the mother of all geese and tried, shaken by emotion, to kiss my canopy! This would certainly have left me with a giant headache.

After a few seconds I broke away and tightened my straps for the expected rough downwind ride home. Yes, it was rough; my 4000 agl dwindled to a mere 1500 in just a few kilometres, but I finally landed without problem. I derigged my glider in almost total darkness, I had to finish the job with the headlights of the car to make sure I didn't lose or forget some parts in the grass.

The next morning I got up at 6:30, left my glider at Morrisville and drove to Lake Placid, passing through a wonderful dawn Vermont. I arrived at 9:45 and, sure enough, Évangéliste was waiting for me. We got everything ready, but prior to our flight there was a checkflight to be done in the Twin Astir to get acquainted with the area. This is an absolute necessity. My checkflight and first flight in Lake Placid in 2002 had been a real eye-opener. I remember that at some point on tow I almost passed in front of the towplane and had to use the spoilers to get the bowed tow rope and myself straightened out.

We were finally ready to go around 1 pm. On his way back, André had told us that there was wave all over the place. As I was dressing myself for a polar expedition, André told me that the forecast was for 20°C, meaning that I may be overdoing it. Nevertheless I thought it was better to be cautious. So I brought gloves, winter slippers, ... This got Évangéliste a bit worried as he looked at me in a stealthy way, puzzled by my very fashionable cosmonaut-like style. I guess I must have had some influence on him as he quietly decided to imitate my puffy look. I looked at the big oxygen bottle behind the back seat, thinking that it wasn't going to be an oxygen day, but who knows, so I checked it.

Évangéliste got in the front seat of the Twin Astir and I was the GIB (the Guy in the Back). Évangéliste did the tow. As we thought, it was somewhat rough. Suddenly at 4000 feet agl, in a snap we were into smooth constant. This must be the wave, we said to each other. But, being neophytes in this business, we took no chances and went up another thousand feet before releasing. It was indeed wave and a good one too, going up at +5 knots! Instant joy. Thank you to our towpilot Patrique Terrien who we can credit for finding the elusive G-spot for us right off the bat with his magic touch!

Looking up we could see the wave taking shape in a NW-SE direction and it appeared that there was a second layer much higher. The wave we were in extended to the east a few kilometres and then stopped. A bit further was another one which was a three-layer pancake-like wave. I had never seen that except in photos.

Évangéliste had brought a GPS with him. As we encountered variations in the wave strength I asked him to mark down the good spot on his device to enable us to come back if we got lost, but he was not familiar with the details of this technology. I asked him to trade the GPS for the control of the glider. After a few tries to pass the GPS we succeeded in some arabesque-like position envied by the most agile of figure skater duos. I had to fiddle around but found the way to plot the areas of interest on the GPS. This little bit of modernity has been more than handy as we were reminded each time we scrambled back after losing our max lift zone.

We gradually climbed to the base of this first set of wave to about 9000 feet where we then headed east. Though we lost the visible part of the wave it appeared to be extending further as we kept positive lift. Eventually we reached the pancake formation.

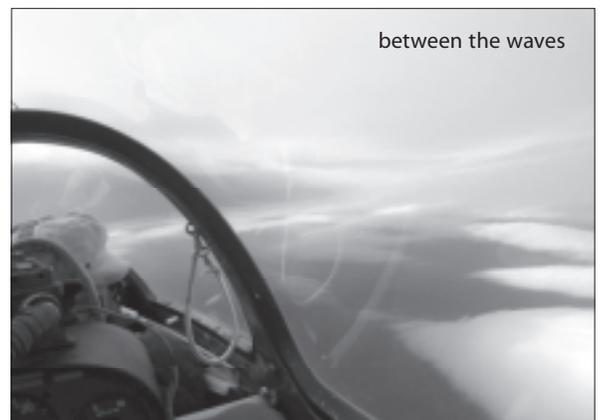
At something like 11,000 feet I looked at the oxygen stuff, and concluded that it might be reasonable to start doing something about it as it got more obvious that we were going to elevate ourselves to a higher level of existence. I tried to put on the old military type mask and got tangled up in the straps. Eventually, after getting my glasses back in place, I succeeded in harnessing the contraption. It was partly strapped to my head and partly hanging from my nose — a big nose needs a lot of maintenance but can be handy from time to time. Then came the complex operation of opening up the oxygen



flow. The handle was behind my right ear, as I was reminded by the many times I bumped into it on the turbulent tow, and it took more gymnastic moves to reach the handle and open it up. I succeeded in getting all my limbs back in their right place, I think, but I was surely good for a few physio sessions after all that.

We kept on climbing at a steady +1 most of the time. Sometime later we reached 16,000 feet and maybe we were heading for higher than 18,000 (who knows!) so I thought it would be a good thing to try to get clearance. I asked Évangéliste to deal with the communications while I did the flying. Using the mike was difficult due to the mask; the task needed two hands, one for the mask and one for the mike. Just talking between us was daunting, even more so was keeping the mask tight as it fit so loosely that I had to press it to my face.

Évangéliste, with his French-accented English, started asking about how to get clearance to go higher and entered an unending relay of the message to ground control. The exchange was punctuated by the necessity



to breathe some oxygen and by questions from ground control that Évangéliste relayed to me in the hope of enlightening answers. All this talking was done on a fried-bacon-like background sound of less than cutting edge radio technology. Understanding that ATC was running out of patience, I rapidly said, "Request 20,000, for two hours, above Algonquin mountain". This laser-precise answer fueled some more barely audible communication due to the poor radio signal. At some point, it got so complicated that Évangéliste told me to just forget it! We had just hit 17,000 still climbing when the quarrel spread to the cockpit where his discouragement started rubbing off on me.

I looked again at the altimeter and we had just gone through 17,500 still climbing, vario +1, I looked at the wave above, it appeared still pretty high. I paused for a few seconds, trying to collect my arguments. I took a good whiff of oxygen, removed the mask and said to Évangéliste, "There are moments where it's worth it to go the extra mile and I strongly believe that this is one of them — when was the last time we were at 17,800 feet?"

Évangéliste turned his head to the left, gazing at the fabulous wave formations extending up to the horizon in a paradise-like vision for a few seconds, probably doing the math of it, nodded, and made some sort of agreement noise muffled by his mask, grabbed the mike to revive the radio exchange, and requested once more permission to go beyond 18,000. Among other things, we were told that clearance is supposed to be asked prior to takeoff and for badges! To that we answered that this was not foreseen because we had never gone half this high before!

By that time we had reached 18,100, still going, and anxiously waiting for the controller to answer. Minutes went by. As the radio transmissions dried up, the dead silence hung heavy in the cockpit. I was wondering when such an opportunity would present itself again.

I looked at the unbelievable scenery extending before our eyes. We could see the shape, size, thickness, and length and frequency of these fabulous waves from this privileged place 10,000 above the first layer. Never had I witnessed such a grand phenomenon. Thank God I had a digital camera (the one I sadly lacked when I was in the French mountains). No ordinary person would believe us without pictures. We had first got in the first wave layer, then climbed its edge and flew over it as if we were surfing on a fluffy snow covered hillside. At some point we caressed the fringe of the first layer of wave — anything more intimate would have made us IFR. Then up to the second layer, crossing on the way other smaller waves caught in between the two layers. What more can one ask for! Well, something like a higher clearance would be the cherry on the sundae!

Meanwhile we decided to try and reach the upwind wave which appeared pretty close. We headed straight upwind at 80 knots. Boy, there are days when one makes bad decisions and this was one; by half way we had lost 2000 feet! We made a 180° turn to get back to our spot. By the time we got back we had lost 3000. Then came the long-awaited answer from ground control: "VXQ, you are granted permission to go to 20,000 for 2 hours in the area of Mt. Algonquin". Hmm, too little and too late since

we had to get the glider down in the next half hour for Robert, another pilot who had arrived in the afternoon. We thought it almost impossible to get back to 18,000 or higher. Nevertheless, we found the lift again, barely +1.

We got back to 16 then 17 and, to our surprise, once more to 18,000. It kept on going and we counted each 100 feet as the clock was ticking for the short time we had left. 18,500 then 18,900 and 19,000 — the lift was very weak as we squeezed one more 100 feet. Then we called it quits as Évangéliste felt like the Michelin Tire man due to an over-inflated bladder and cold feet; it was -14C. The first layer of wave 10,000 feet below offered us a dramatic spectacle and had covered 50% of the sky and was threatening to cover more.

Now we had to be back for Robert to have his flight. We aimed for a hole and dove 30° down, spoilers out, at about 70 knots in a ride smooth as silk. After a while and 10,000 feet lower we went through the first layer of cloud. Doing so we left the bright sun for what appeared to be almost dusk as our sight was adapting to the lower light.

When we hit the 5000 foot level things got a bit rough, and the lower we got, the rougher it got. To be on the safe side, we started the circuit at about 2000 agl at 75–80 knots and got a ride for our money. Rarely have I had so much turbulence on a descent. Due to turbulence shaking the glider, my anxiety grew higher the closer we got to the ground. The final was impressive and I had doubts that I would be able to keep the glider level. Things eased up when arriving within ground effect. Considering that we could have made milkshakes in the cockpit, the touchdown was not that bad. Only after a full stop did we feel relieved, but a bit exhausted and bewildered by the sheer beauty of all we had witnessed from high above. I was once again amazed by what nature can offer to those who look at it from a privileged vantage point. Never had I seen wave clouds in the way we just did. I would remember this flight for a long time.

We were greeted by Robert Toupin who was hoping to get a checkride. We got the glider back in position and went up again, released at 5000 and found the wave right off the bat. We got to 9100 at the base of the first layer of wave, but that time the sky was totally overcast. Nevertheless, we had more than two hours of wave! Going down, André Pépin who had just landed, warned us about the violent turbulence he encountered in the circuit. Sure enough we hit worse than in the previous landing. This made me wonder where I was going to land the big bird. Having a heavy glider in this circumstance was a real asset, I can barely imagine what it was like in a single-seater. If you weren't well strapped in, you would break the canopy! Just a hundred feet before landing we got a wind shear that must have made us drop twenty feet in an eye blink! Good thing I didn't have a full stomach! Once on the ground Robert looked at me and said, "that was no kid stuff, eh."

This had been a wonderful day; two flights, got higher than I ever had, witnessed unbelievable sights, wrapped up my 200th hour of flying this year, gained a humongous amount of knowledge of wave, and above all had the privilege to share this with two remarkable fellow pilots: Évangéliste St. George and Robert Toupin. Wow! ❖

Put yourself in my paws

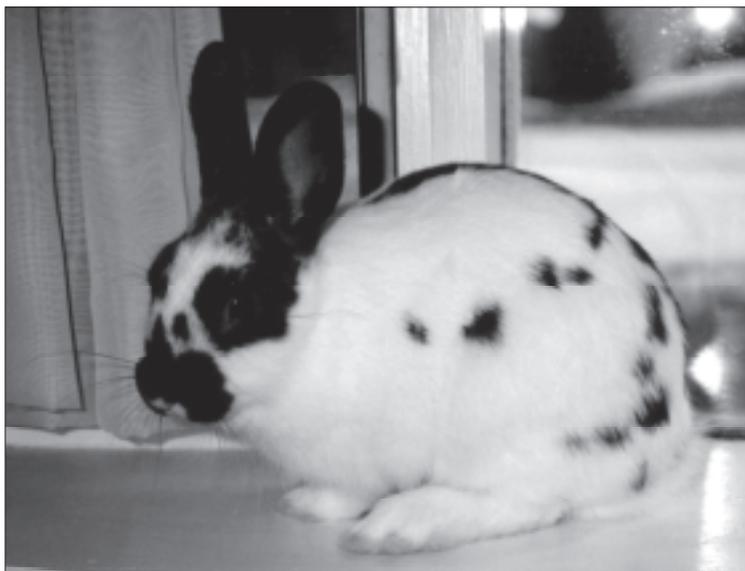
Patches Hildesheim

IT ALL STARTED three and a half years ago, when I moved from a lovely but quite unexciting pet shop to a lovely and much more exciting home. Little did I know that I had been adopted by a rare breed: a Flying Family. This team is well-oiled, with a fine pilot, a beauty of a plane and an exceptional mother/daughter crew. And they take their flying seriously, treating the club like a second home, going to contests, and to Lake Placid in the fall. And the best part is that they take me everywhere! (I've only been left behind once or twice, something about California and airplanes and how I'd be much happier at the neighbours ... still trying to forgive.)

So by luck, or maybe even destiny, my life took a turn that day three and half years ago, and I'm now part of the team too. I've learned things other rabbits never will, like never put your cage close to the ground around towplanes; the noise is deafening and the dust takes hours to clean off. Or, get used to sleeping in the back of a truck, because most B&Bs don't take pets. And that, while rigging, a pilot can tell his crew, "a little higher, a little lower, come forward, go back", just so many times before the crew's humour changes dramatically.

Terms like glider, towplane, aileron, or rudder did not come naturally to me as most things more than a foot or two off the ground rarely get my attention. But once you start hanging around pilots, it's amazing how infectious the whole thing gets. It's come to the point that I need to hear life at the airport; that moment when you first wake up and give yourself a little wash and the sound of the towplane doing its first DI flight fills the morning calm. The lulling sound of snoring in various trailers at night, accompanied by the wolves (yikes) howling and the whippoorwills chattering.

Even though I thoroughly enjoy life at my own club (GGC), I must admit it's much better on the road. At home, I seem to spend most of my time in the clubhouse. Of course, that's where I received my education by listening to pilots reliving the day's flight (over, and over, and over, ...), since the bench on which I'm usually plunked puts me right into the line of verbal fire. It also gives me an unparalleled view of everyone's kneecaps, except of course for all those tiny humans, who are at eye level and much more entertaining with their unintelligible chatter — which beats the older humans' jokes about my potential for dinner any time! But on the road at contests things improve considerably. Since I have to live in the truck, I get to go to the actual flightline and see the action. Mind you, I do remember the youngest human



and her mother putting that awful harness and lead on me once and taking me in the bicycle basket to the flightline. I never knew how high the jump was from basket to ground before, or how short the lead.

My first national contest was SOSA 2001. Even though I was a veteran of a few May Fly's at GGC, I was unprepared for the pace of a big event. My lodgings were quite comfortable in the rented trailer, my water kept cold even in the sweltering heat. I couldn't see much from the trailer, but the roaring of the towplanes helped me count the number of flights each day. I was surprised to hear some roaring in the night, until I learned that it came not from planes but from large furry predators nearby (*note – the African Lion Safari is next door*). Living indoors is good.

My second Nationals was MSC 2002. Now here I must protest: how can I have any stories to relate when I was left behind at GGC everyday? Though I do remember an evening where a big silver sphere was flying around the clubhouse to the delight of the crazy humans controlling (?) it. They called it a blimp. I thought it was a comment on my girth. But it was 2003 that turned me into a real groupie. Two Provincials and a National. Woo hoo! Living in a truck isn't so bad once you get used to it; you can make as much noise as you like and not bother anyone. It's too bad I have to stay in my cage, though, because I couldn't do any serious running around in there. And I've been dying to get my paws on the radio ... The driving part has its ups and downs. Literally. But to be there on site with the tailgate down and the wind flying through your fur, well, there's nothing like it! And I get to enjoy the best part of the morning, watching the gymnastics involved in rigging the gliders. The fact that I'm too short to hold the wing suits me just fine — I could be an asset at polishing ...

So what do I get out of hanging around contests? I'd say the people. It never ceases to amaze me how friendly everyone is: I get so many faces peering in and making funny noises, I get my picture taken, I get fed treats to make up for being caged in. Makes a bunny feel like one of the gang. And seeing how happy it makes my humans to be part of such a cool sport warms my little heart. I can't wait to see where we'll go next. And don't tell my pilot, but I can't wait to go on my first retrieve! ❖

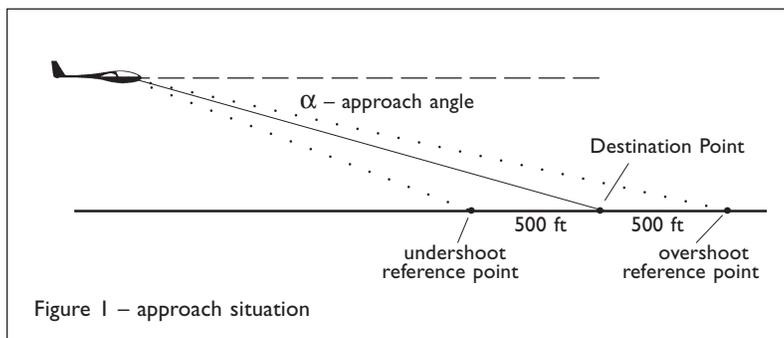
The reference points

Larry Morrow, Winnipeg

A REVIEW OF VARIOUS GLIDING MANUALS with regard to the reference point (formerly called the “aiming point”) and its use reveals that the subject is treated in a simple manner. While on final approach, the reference point is expected to move downwards towards the glider when the flight path is overshooting the point and vice versa. Later manuals (ref. 7,8) discuss variables which can cause the approach to be harder to judge. One variable noted (7,8) is the steepness of the approach angle. A steep approach angle makes it easier to judge the movement of the reference point. Another variable noted (7) is the visual difference between undershooting and overshooting — it’s harder to recognize an undershoot than an overshoot condition. Another explanation of this apparent movement is that the angle from the horizon down to the reference point is changing during both these conditions. Figure 1 shows a glider on final approach and the angle alpha (α) from the horizon to the reference point. We will equate the rate of change of α with the apparent movement of the reference point and assume that the more apparent the movement of the reference point, the easier to judge the approach path.

Three variables affect how these angles change and therefore how the reference point appears to move: distance from the reference point, approach angle, and undershooting and overshooting. When a glider is on final approach, the pilot must deal with combinations of these variables to judge the approach.

We will begin by assuming that the glider is flying in a no wind condition at a constant approach angle with a constant speed of 50 knots (84.4 feet/second) along the approach path. The destination point is the point where the glider will touch down when it is descending at a constant approach angle with a constant speed and the pilot does not round out. When the reference point and the destination point are the same the glider is on the correct approach path for the reference point. Figure 1 also shows the destination point and two points on the ground labelled the undershoot and overshoot reference points, each set 500 feet from the destination point.



Distance from the reference point

If the glider is on final and the destination point differs from the reference point, the further back the glider is from the destination point the less will be the rate of change in the angle α during an overshoot or undershoot. The rate of change of the angle to the reference point is inversely proportional to the square of the distance from the glider to the destination point. As the glider gets closer to the destination point the rate of change of the angle increases and becomes easier to see.

Consider a glider flying a 15° glide angle to the destination point for 60 seconds. The glider will fly a distance of 5046 feet along the approach path similar to Figure 1. The table below gives the angle α down to the overshoot or undershoot point at 10 second intervals when the glider is converging on the destination point.

time (sec)	overshoot ($^\circ$)	undershoot ($^\circ$)
0	16.6	13.7
10	17.0	13.4
20	17.6	13.1
30	18.6	12.6
40	21.1	11.6
50	34.6	9.4
60	undefined	0

We see that the change in α for the overshoot condition is 0.4° during the first 10 seconds of the approach giving an average change rate of $0.04^\circ/\text{sec}$. During the period from 40 to 50 seconds this change increases to 13.5° giving an average change rate of $1.3^\circ/\text{sec}$. After this period the angle will change quickly as the glider overshoots the reference point. For the undershoot condition, α changes 0.3° during the first 10 seconds of the approach giving an average change of $0.03^\circ/\text{sec}$. During the last 10-second period α changes 9.4° giving an average change rate of $0.94^\circ/\text{sec}$. In both conditions the rate of change of α will be smaller the further the glider is from the destination point.

Approach angle

The steeper the approach angle the greater the rate of change of α except for the final seconds of the overshoot when the rate of change of a shallow approach exceeds that of the steeper approach.

Let’s examine a very shallow 2° approach path and also a steeper 15° approach path in order to examine the behaviour near both extremes of the final approach path. In addition we will use both the undershoot condition and the overshoot condition. The glider in each case will fly 3376 feet along the approach path in 40 seconds. For the overshoot condition the 40 seconds will end when the glider is over the overshoot reference point. Since the total change in α is greater for the 2° approach we will consider only the first 30 seconds of the approach before the glider is close to the overshoot point.

	approach angle (α)	change in α ($^\circ$)	time (sec)	α change ($^\circ/\text{sec}$)
Undershoot	15	12.5	40	0.31
	2	1.7	40	0.00
Overshoot	15	6.4	30	0.21
	2	0.9	30	0.03

Only in the final 3 seconds before the glider is over the overshoot point will the change rate of the 2° approach overtake that of the steeper approach. In both the undershoot and overshoot condition the rate of change of α will be greater during the 15° approach and remain this way for most of the approach except as noted.

Overshooting vs undershooting

When the glider is on final, the approach angle will change increasingly faster as the glider approaches the reference point as noted above. However, α also changes through a much larger range in an overshoot condition compared to the undershoot condition. The size of the rates of change of the angles is also quite different in the two situations.

We will examine undershooting and overshooting for both the 15° approach and for the 2° approach. The glider in each case will fly 3376 feet along the approach path in 40 seconds however both of the approaches for the overshoot condition are considered to terminate when the glider is over the overshoot point at about 34 seconds into the approach.

	approach angle (α)	change in α ($^\circ$)	time (sec)	α change ($^\circ$ /sec)
Overshoot	15	72.5	34	2.1
Undershoot	15	13.0	40	0.3
Overshoot	2	87.5	34	2.6
Undershoot	2	1.8	40	0.05

In both the 15° and the 2° approaches the rate of change of α will be greater when the glider is overshooting than when it is undershooting.

Interaction between the variables

When the above three factors combine they may lead to situations where it is difficult to judge the movement of the reference point. A glider pilot who is on a long final approach at a shallow approach angle and is undershooting the reference point may have a difficult time detecting any apparent movement in this point until relatively close to it.

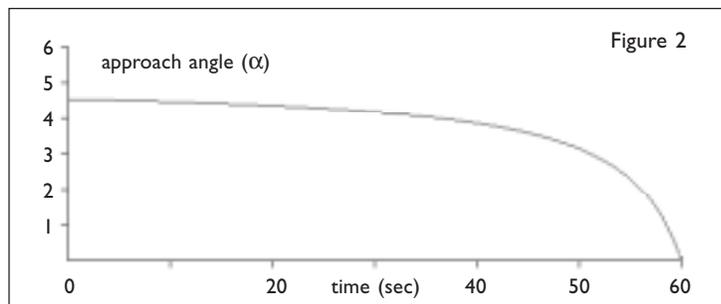


Figure 2 shows a glider flying a 5° glide angle to the destination point. Time is in seconds to 60 seconds, which represents a final approach of 5064 feet along the approach path to the destination point. The curve shows the angle α down to the undershoot reference point as the glider converges on the destination point. Below are some points from the graph and corresponding distances and altitudes.

time	dist (ft)	ht (ft)	α ($^\circ$)
0	5064	441	4.5
20	3376	294	4.4
40	1688	142	3.8
50	844	74	3.1
60	0	0	0.0

Note that in the first 40 seconds of the approach, α changes by only 0.7°. The next 10 seconds see a change of 0.7 degrees. In the last 10 seconds the angle changes by 3.14° for an average of 0.31°/sec over this period. The non-linear nature of these changes becomes evident. The small approach angle and the undershoot condition combine to give a total change in α during the approach of only 4.5°. The change in α is small for most of the approach; only when the glider is about 50 seconds into the approach and less than 100 feet above ground does the change in α begin to increase noticeably. Due to the low altitude, the pilot has few options at this time.

A qualitative conclusion and questions

The three variables discussed indicate that a long, shallow final approach in which the glider is undershooting will be the hardest to judge. This leads to questions regarding our ability to judge the apparent movements during a final approach. One question might be: "Do we find it easier to judge the angular change when the reference point is moving down (overshooting) than when it is moving up (undershooting), even if the change rates are the same?"

Some of the reference materials (2,7,8) suggest a training procedure for students which involves placing a marker on the ground to represent a reference point and walking towards it. The marker will appear to move down and towards the subject as it is approached. There are variations that involve simulating walking down the approach path and also simulated undershoots. Looking at the act of walking and generalizing to the way we are accustomed to moving and being transported in general, it may be that we are accustomed to viewing the earth from what appears to be an overshoot situation. Such activities as driving and riding bicycles reinforce a view of the world in which we focus on the horizon from a few feet up and everything below that point moves downwards while above the horizon there are fewer motion cues. In short we may be more accustomed to seeing the ground appearing to move downwards rather than upwards.

Another question would be what are the limits of our capability to detect this angular change or apparent motion of the reference point. While on final approach the pilot will select a reference point. Most points will be a distinctive feature on the ground few feet in diameter. A course limit on our capabilities would imply that there would be a large area around the destination point possibly including the reference point, which will also appear not to move. In effect the destination point will be a large area that will become smaller as the glider converges on it. This could impair our ability to discriminate between these points on long final approaches.

References:

- 1 British Gliding Assn. (1994). *BGA Instructors Manual*.
- 2 Knauff, Thomas (1993). *Glider Flight Instructor Manual*.
- 3 Langewiesche, Wolfgang (1972). *Stick and Rudder*.
- 4 Moggach, Paul (2001). *Life is hard and then you fly; a glider flight instructor's manual*.
- 5 New Zealand Gliding Association (2001). *NZGA Instructor's Handbook, Part 2*.
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- 7 SAC (2002). *Soar and learn to fly gliders*.
- 8 SAC (2003). *Soar and learn to fly gliders*.

The SAC Peter Corley Scholarship winners – a tie this year

Laura Trainor

Ever since I was a little girl I've always wanted to fly. I got that chance when I joined the Air Cadets and, with that organization, received my glider pilot licence and my private pilot licence. I was on an exchange trip to Belgium last year where I learned a lot of French, made a lot of new friends from all over the world and had a great time. This year I am in my first year at Memorial University of Newfoundland and Labrador where I am studying business. I hope to complete my undergraduate degree and then go on to study law.



Nic Kirschner

Ever since I can remember I have had a strong interest in aviation and have always wanted to be a pilot for a living. I started gliding at 15 and received my licence on my 16th birthday. Gliding at Hope has given me many opportunities to explore the aviation world; I've met many talented people and learned from them all. This past summer I completed my Silver C badge and also experienced my first outlanding on an attempt for a 50 km distance flight. I started my post-secondary education this past September with Coastal Pacific Aviation and the University College of the Fraser Valley where I will advance in the aviation industry and receive a bachelor of business administration degree.



Pay attention to this, people!

Members are not updating their addresses when they move and/or clubs are still providing SAC with incorrect and/or incomplete addresses. This continues to be a problem because:

- 1 In the first place, we have to pay 80 cents for each returned mailing, as well as the additional expense of mailing replacement copies of *free flight*.
- 2 Secondly, SAC's ability to maintain a bulk rate for *free flight* postage is contingent on the number of incorrectly addressed mail being below a certain percentage. If we exceed that, we will have to go to first class postage as well as mail *free flight* in envelopes which would add several thousand dollars to our costs.
- 3 Thirdly, it takes a lot of time to track down addresses, time that is in short supply and can be used much more productively in the office by Jim.
- 4 The member database is at the SAC office so send your personal data changes there, not to the *free flight* editor.

So, please take a bit more care and diligence in passing address data to SAC.

On another matter, pilots still occasionally send in their orders for FAI badge supplies to the SAC office instead of to the badge chairman, Walter Weir, even though this direction is stated at the top of the supplies list. The order must then be redirected by the office to Walter which delays your badge processing.

Tony Burton, editor

a modest proposal

from page 9

flight track other than the day the claim is considered. In case a relight is needed, the OO and the evaluating software shall unmistakably separate the flights. If the task is a declared badge attempt, it is recommended that any flight files created before the relight be cleared.

Suggested COTS FR preflight preparation

Assuming the pilot has prepared the unit with the waypoint database and the required settings for the locale in which the flight will take place, prior to an intended flight, the pilot will prepare a COTS FR unit for verification by an OO by doing the following:

- He shall enter the waypoints for his intended flight in the Routes section and activate it. This will only be required for flights requiring declared tasks.
- He shall delete all data in the Track log

and the Saved Tracks records (but consider the "relights").

- He shall ensure that the recording interval is set to make certain the entire flight can be recorded within the limit of the unit's memory. At this time he shall present the unit to an OO for verification of the above, immediately prior to the intended flight.

Suggested OO security actions

- The OO shall ensure that the unit is powered by its own internal, or a dedicated external battery.
- The OO shall be present after the pilot's return to the airfield from which the flight commenced and download the data via a suitable software program and save this as an .igc file.
- The OO shall verify the pilot's demonstration that any external computer, such as a PDA, connected to the GPS unit, as

allowed by Annex B, para 1.1.3.3.2, does not contain any previously recorded flight data. The unit may be placed in sight of the pilot if he wants the use of the navigation facilities.

- The OO shall print out the flight's record via facilities provided in software programs recognizing .igc file data and the G record. These printed records and the data on a diskette will form part of the official application.
- The OO shall ensure that the date and other data on the retrieved record complies with the flight he observed.

We wish to draw attention to the fact that the authors' only interest is to cause a change in the way we have traditionally approached the provisions for providing proof of having accomplished a flight in compliance with the established requirements as described in the Code. *Note: the shorter, official version of this proposal is now at the IGC for consideration.* ❖

club news

Big grant for hand controlled sailplane

We have just had confirmation of a \$75,000 grant from the Ontario Trillium Foundation <www.trilliumfoundation.org/OTF-English/new/index.htm>, for the purchase of a glider with hand controls. This grant was made to Youth Flight Canada as the lead partner of Freedom's Wings Canada; a collaboration of Youth Flight Canada, the Canadian Paraplegic Association (Ontario), K W Access-Ability, and York Soaring Association. We will purchase a new *Peregrine* (a US-built Krosno) from Barry Aviation in Florida. Barry will be devising and installing hand controls (a 'rudder stick' and a multi-position lockable spoiler control) and incorporating them into the type certificate. Tim Barry will be touring the aircraft to gliding clubs next season with the itinerary to be announced.

Freedom's Wings Canada was inspired and mentored by Freedom's Wings International <www.freedomswings.org> of Pennsylvania and Florida. They have been operating for 20 years, and have generously shared both their expertise and their aircraft in two trial programs: one week each at York Soaring this past summer, and the one before it.

Our focus will now turn towards recruiting a corporate sponsor who will pick up the costs of tows and club memberships for the members of Freedom's Wings Canada. We are hoping to run trials at other gliding clubs in the coming years, and to assist with the acquisition of similar aircraft for those programs. In the first season we will attempt to arrange one or two weeks at another Ontario club. Clubs that have a Grob 103 can obtain a factory kit to install hand controls.



A couple of us SOSA pilots took a road trip over Christmas to Washington, DC. We spent two days at the National Air and Space Museum of the Smithsonian. They opened a brand new exhibition hangar out at Dulles International Airport as a second wing of the museum.

The Steven F. Udvar-Hazy Center is a huge structure and they even have gliders on display. Suspended from the ceiling is the Grob 102 Std. Astir III that was flown by US pilot Robert Harris to the World Altitude Record of 49,009 feet in 1986. Below the Astir is the Enola Gay of WWII fame and also a Concorde and many other aircraft. They even have the Space Shuttle *Enterprise* on display. Other gliders on display include a Schweizer 2-22 and also an old Frankfurt T-1A. For those with a love of aviation, the museum is well worth seeing.

Steve Liard

Gliding clubs generally have all the resources necessary to mount such a program: a tow-plane, instructors, runways and volunteers. Only the hand controls need to be added, and a relationship with Canadian Paraplegic Association need be added.

Further information is available from me at <cfpeter@total.net>.

Charles Petersen

Chairman, Youth Flight Canada

Cowley Summer Camp date change

The "usual" camp dates have moved up to (we hope) the better soaring of June — see you 19-27 June (with the Provincials 1-4 July at Claresholm).



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FAI badges

2003 annual report

2003 was not quite as good as last year which was exceptional — but it was still pretty good in spite of the mediocre weather. The Gold badge total is at its highest level yet. The C badge total is the second lowest for the ten year period. Is this an indication of fewer new enthusiasts? One thing I noticed in compiling the numbers is that there were more Silver distances flown than either Silver altitudes or five hour durations — very unusual.

Badge enthusiasm

Get your club enthusiastic about badges! FAI badges are representative of achievements that will last in your memory, as well as on the pages of the Canadian Soaring Register, forever.

Last week I was talking to Klaus Stachow of Cu Nim. Klaus did his goal and height Diamonds in the 60s with his Scheibe SF-26 and finished in 1975 with a 609 km distance flight in his 17m Phoebus, earning Canadian Diamond badge number 21. He flew at Invermere long before the present operation was there. In the 70s he owned the first imported fibreglass glider in western Canada, and when he damaged the undercarriage he had to learn fibreglass repairs from a book supplied by the manufacturer because there was no other repair shop. Klaus is now 83 years old and has quit gliding. He took up golf with great enthusiasm when he was 80, is now beating opponents half his age, and recently got a hole in one! And what's important in his life? Well, the reason he was talking to me is that he misplaced his Gold badge with 3 Diamonds and wanted a replacement. His achievement, represented by that badge, is an important part of his life. For memories you can be proud of — fly badges.

Flight recorder files

When I receive a flight recorder file (.igc file) as part of a claim the first thing I have to do

is validate the file using the *vali-xxx.exe* program provided by the manufacturer. Recently I've been receiving quite a few files for which the validation produces the notice:

"NOT VALID FOR AN OFFICIAL FLIGHT — THIS FILE HAS BEEN TAMPERED WITH"

IGC files are easy to edit with any text editor such as Word-Pad or Notepad. If even a space is added or removed or if a lower case letter is changed to upper case the file will not validate. The purpose of this is to prevent tampering with a file; for instance, it would be very easy to turn a "missed" turnpoint into a "made" turnpoint if it were not for the validation process.

I'm quite sure that the files I receive have not been maliciously tampered with. However, both *SeeYou* and *Strepla* will alter your file if you are not careful — and sometimes transmission by e-mail can cause alterations. So it is wise to save the original file downloaded from the flight recorder in a safe folder — then make a copy of it and use the copy to view the flight with any program.

Remember that the only file type that can be used to verify your flight is an .igc file. The only exception is that for Cambridge recorder models 10, 20 or 25, the .cai file is used for validation. *Strepla* produces a .FL2 file which cannot be validated. You can check for validation yourself. Download the *vali-xxx.exe* program from <<http://www.fai.org/gliding/gnss/freeware.asp>>. The "xxx" is the manufacturer's code, so the Volkslogger program is *vali-gcs.exe*, Colibri is *vali-lxn.exe*, and Cambridge is *vali-cam.exe*. The *vali* DOS programs are very small and quickly downloaded from the web. E-mail me if you need any help.

SAC Badge and badge leg statistics 1994 – 2003

	94	95	96	97	98	99	00	01	02	03	5 yr avg	% of avg
1000 km	1	0	2	0	0	0	1	0	2	0	0.6	—%
Diamond	1	2	4	1	0	3	2	1	2	1	1.8	56%
Gold	2	4	6	3	2	4	5	5	5	7	5.2	137%
Silver	11	12	16	8	17	17	7	8	19	19	14	138%
C Badges	55	42	39	30	34	33	15	38	57	26	33.8	77%
Badge legs	87	93	91	79	87	79	67	71	111	99	85.4	116%

Walter Weir

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The following record claim has been approved:

Pilot **Tim Wood**
Date/Place 16 Sept 2003, Arthur, ON
Record type Straight distance to goal, Club, Citizen
FAI Category 3.1.4d
Sailplane type LS3a, N57SS
Distance 236.7 km
Task Arthur to Belleville airport
Previous record not claimed

Tony Burton has been busy showing us all how it's done in Club class with multiple records in 2003.

It's these efforts that should remind us all that soaring is what you want it to be. Heading off on your own to attempt a task (and/or record) that has never been done can be a very rewarding experience. Instead of doing the standard 50, 300 or 500 kilometre task at your club, why not fly a 50, 300, or 500 task that has never been done. Here are statistics up to the end of 2003:

Claims received 14
Claims rejected none
Claims approved 17 (15 in 2003, 2 from 2002)
Claims pending none

2003 annual report

It has been another very interesting year for Canadian soaring records. Canadian pilots looking for some relief in Australia generated a few new records. Tim Wood started an assault on the Canadian Shield as he crossed from southern into eastern Ontario many times but not quite to his final goal of Hawkesbury.

As the new season draws closer, now is the time to check the calibration date of your flight recorder and reread the FAI Sporting Code if you plan to break records this year. It is important that you understand the rules and prepare in advance of the day of your flight. If you have any questions, please drop me a line and I will try to get you a timely answer. As always, it has been a continuing pleasure to be your records chairman. Let's all have a safe soaring season for 2004. ✦

CURRENT CANADIAN RECORDS (as of 10 Jan 2004)

C indicates a record by a Canadian citizen originating outside the country.
T indicates the corresponding record set within Canada. (These are noted only when a greater "C" record exists.)

RECORD TYPE	OPEN	CLUB	MULTIPLACE (OPEN)	FEMININE
DISTANCE (km)				
3.1.4a Free distance	Marsden/Apps 1093 1984	Mike Glatiotis 480.6 2002	Chester Zwarych (R Adam) 495.0 1986	Ursula Wiese 607.0 1986
3.1.4b Free out & return	Tony Burton 372.2 T 2003 Tracie Wark 750.2 C 2003	Tony Burton 442.9 T 2003 Tracie Wark 633.2 C 2003	Charles Yeates (K Yeates) 259.9 C 1999	Tracie Wark 750.2 C 2003
3.1.4c Free 3 TP dist.	Tim Wood 871.9 T 2002 Brian Milner 1394.0 C 1993	Mike Glatiotis 869.3 2002	Trevor Florence (J King) 689.0 2002	Sue Eaves 508.7 T 1995 Tracie Wark 592.6 C 2000
3.1.4d Strt dist. to goal	Marsden/Apps 707 1984	Tim Wood 236.7 2003	A Williams 305.0 C 1975	Tracie Wark 592.6 C 2000 A Williams 305.0 C 1975
3.1.4e Out & return dist.	Tony Burton 652.3 T 1993 Brian Milner 1128.9 C 1999	Tony Burton 442.9 T 2003 Pat Templeton 525.5 C 2003	Dave Marsden (E Dumas) 421.5 1979	Ursula Wiese 328.0 T 1984 Tracie Wark 510.3 C 2002
3.1.4f Triangle distance	Hal Werneburg 803.7 T 1982 Peter Masak 1007.0 C 1987	Tony Burton 482.2 T 2003 Spencer Robinson 655.9 C 2003	John Firth (D Webber) 510.4 T 1986 C Yeates (K Yeates) 510.2 C 1989	Jane Midwinter 317.6 1988
SPEED, Δ (km/h)				
3.1.4h 100 km	Kevin Bennett 131.1 T 1989 Dale Kramer 168.1 C 1999	David Mercer 115.6 2002	Dave Marsden (M Jones) 98.1 T 1975 P Templeton (D Springford) 112.7 C 2002	Tracie Wark 105.0 C 2003
SAC 200 km	John Firth 110.6 T 1984 Charles Yeates 116.3 C 1994	Tony Burton 99.0 2003	Lloyd Bungey (T Burton) 76.0 T 1983 D Springford (P Templeton) 108.5 C 2002	Tracie Wark 99.9 C 2002
3.1.4h 300 km	Kevin Bennett 113.1 T 1988 Peter Masak 148.9 C 1985	Tony Burton 78.2 T 2002 Dave Springford 92.0 C 2003	Dave Marsden (E Dumas) 69.9 T 1975 Ian Spence (J-R Faliu) 128.5 C 1991	Tracie Wark 99.1 2001
SAC 400 km	John Firth 99.0 T 1987 Charles Yeates 119.7 C 1994	Tony Burton 103.3 2003		Tracie Wark 95.0 C 2002
3.1.4h 500 km	Walter Weir 105.7 T 1991 Peter Masak 151.2 C 1985		John Firth (D Webber) 88.8 1986	
3.1.4h 750 km	Willi Krug 108.8 1982 Spencer Robinson 118.7 C 2003	Spencer Robinson 103.6 C 2003		
3.1.4h 1000 km	Peter Masak 106.5 C 1987			
ALTITUDE (m)				
3.1.4i Absolute altitude	Bruce Hea 10485 T 1981 Walter Chmela 12449 C 1974		Bob Shirley (P Campbell) 9083 T 1961 W Chmela (VanMaurik) 10390 C 1975	Deirdrie Duffy 8986 T 1991 A Cservenka 9772 C 1969
3.1.4j Gain of height	Dave Mercer 8458 1995		Bob Shirley (P Campbell) 7102 1961	Deirdrie Duffy 6575 1991
SPEED, O & R (km/h)				
SAC 300 km	Hal Werneburg 115.2 T 1983 Walter Weir 191.3 C 1989	Bruce Friesen 113.6 2002	Walter Chmela (H Rominger) 65.0 C 1976	Ursula Wiese 59.6 T 1984 Tracie Wark 132.3 C 2000
3.1.4g 500 km	Kevin Bennett 126.3 T 1992 Walter Weir 150.9 C 1996	Tracie Wark 86.1 C 2002		Tracie Wark 99.6 C 2002
SAC 750 km	Walter Weir 145.0 C 1994			
3.1.4g 1000 km	Brian Milner 147.0 C 1999			
SPEED, GOAL (km/h)				
SAC 100 km	Larry Springford 125.1 T 2001 Walter Weir 147.7 C 1992	David Mercer 113.0 2002	Trevor Florence (N Marsh) 105.1 2000	Tracie Wark 106.4 C 2002
SAC 200 km	Kevin Bennett 125.9 T 1992 Walter Weir 143.0 C 1995	Tony Burton 113.2 2002	Trevor Florence (J King) 91.5 2002	Tracie Wark 129.1 C 2000
SAC 300 km	Wolf Mix 108.6 T 1966 Walter Weir 145.9 C 1994	Dave Springford 97.5 C 2003	Jock Proudfoot (G Fitzhugh) 70.2 C 1981	
SAC 400 km	Tony Burton 81.5 1990			
SAC 500 km	Dave Marsden 97.1 T 1970 Walter Weir 138.4 C 1993			

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K6E, #4050, C-GTXP, build 1966, approx 950h, O2, Cambridge vario, Security chute, handheld GPS and radio, polyurethane finish, enclosed metal trailer, \$12,500 obo, <www@sbcglobal.net>, 408-732-9289.

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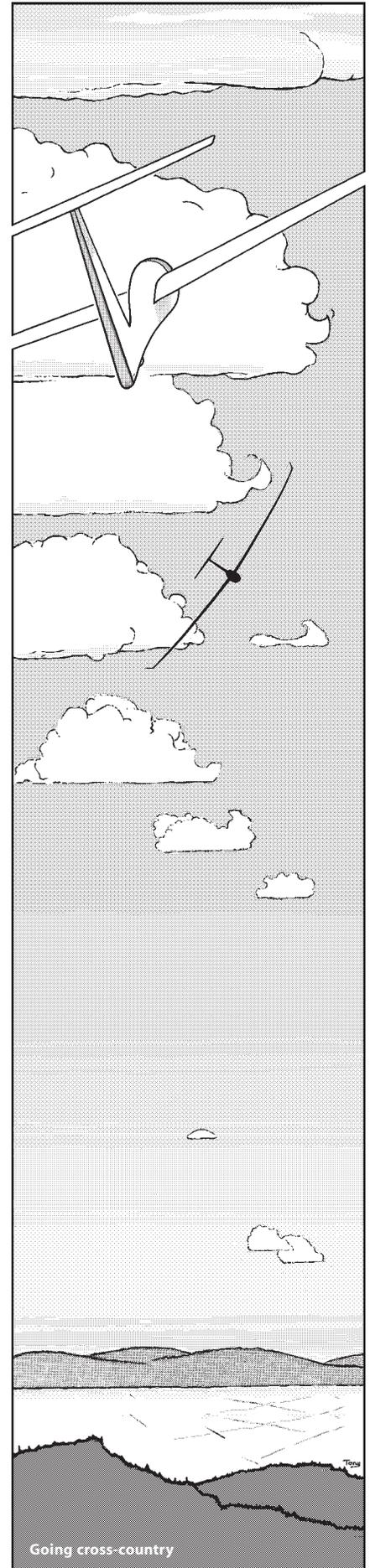
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