

# free flight libre



2011  
Summer



# Priorities

Sylvain Bourque & John Mulder

**I**N ORDER TO MAKE SAC MEMBERSHIP FEES EASIER TO UNDERSTAND, let us comment on the SAC membership categories. The official reference is the SAC Bylaws, and most of the following information is available in the *SAC Membership Changes 2011 March.pdf* found in the Documents Vault of [www.sac.ca](http://www.sac.ca) under Info/General Forms. SAC memberships are tax deductible. SAC is recognized as an official Canadian sports organization. A tax receipt is sent by our National office upon membership payment by your club. If you don't receive your tax receipt, contact the office at [sac@sac.ca](mailto:sac@sac.ca)

The SAC insurance plan covers members and guests at SAC-insured airfields and when flying SAC-insured gliders. To be covered under the SAC insurance plan when flying SAC-insured gliders, all glider pilots, instructors, tow-pilots and solo student-pilots must be valid SAC members. SAC strongly advises that ALL student pilots (ab-initio and pre-solo included) should be enrolled as SAC members to ensure problem-free coverage for members, clubs and SAC. If a pilot or a student-pilot (flying solo or not) is involved in an accident and is not registered as a valid SAC member, coverage for the loss could come into question. People who buy "5 flight introductory" type packages need not join SAC immediately, but once they have completed the package and decide to join the club as a student-pilot, they should be set up as SAC members at that point. Familiarization flight (intro) passengers, friends and relations, and FAI-associated (eg. SSA, BGA) guests are covered under our plan. All membership categories except Youth have voting privileges. Half-year membership is available in all categories for new members joining after August 1st; however, previous year members have to pay full year even after 1 August.

- **Club-affiliated (\$120 – \$60 1/2 year)** is the regular membership category for ab-initio and non-solo student pilots, solo student pilots, glider pilots, instructors, and towpilots.
- **Spousal (\$60 – \$30)** is for a spouse of a Club-affiliated SAC member.
- **Junior (\$60 – \$30)** includes members under the age of 21 or a full time student under the age of 25 as of 1 January of the membership year.
- **Youth (free)** membership includes all members under the age of 19 at the start of the membership year. The Youth category replaces the previous Air Cadet category and was opened up to all youth, not only air cadets.
- **Associate (\$60 – \$30)** is for a non-flying member.

**50% SAC rebate for returning members** For many years soaring has had significant membership problems. One is that people join clubs, then after a year or two, they leave and do not return. At this year's AGM the SAC Board moved to address this issue in part by establishing a new initiative, the "Back to Soaring" program. SAC will rebate back to the club 50% of any SAC membership paid in 2011 by a person who has previously been a SAC member but has been absent from soaring for one year or more. This is your chance to contact previous members, encourage them to rejoin, and your club is reimbursed 50% of their SAC fee for the club's own use. More details are available on the SAC website or by e-mailing Eric Gillespie at [egillespie@gillespielaw.ca](mailto:egillespie@gillespielaw.ca)

**SAC membership is now available online for clubs!** Access is restricted to an individual responsible for membership at each club. The reason we set up the process in this manner concerns the requirement that a SAC member must be a member of a SAC club. In the future we may find a method to allow individuals to renew online but at this time we felt it appropriate to restrict access to the person responsible at each club for club membership. Access to the membership form and payment on the website requires special permission as outlined in the information previously sent to club executive e-mails and located on the website. Several clubs are using the online membership process. If you have not read the update, there is a link on the home page of [www.sac.ca](http://www.sac.ca). Everything you need to know is available there. If you have additional questions please send John Mulder an e-mail at [johnmulder@shaw.ca](mailto:johnmulder@shaw.ca) or contact Tanya at the SAC office.

This is the first step in applying some automation to our membership database management. You may have noticed that the membership information requested includes your instructor and OO number as applicable. We want to ensure the member information is current and accurate. We hope to develop the membership database to eventually allow members to search the database using one of several options to locate committee members, individual members, instructors, and Official Observers by name, location, and club. Please remain patient as these advances will be a few years away.

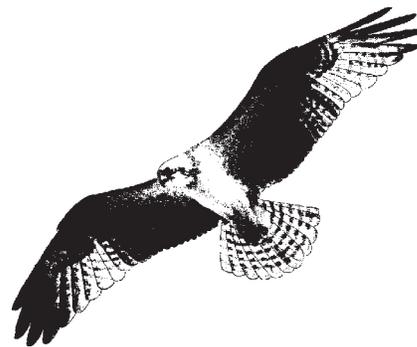
# free flight

vol libre

2011/3 – Summer

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Le journal de l'Association Canadienne de Vol à Voile

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<b>a tribute to Jim</b>	<b>4</b>	on becoming a life member ♦ <i>John Toles</i>
<b>in the matter of Icarus</b>	<b>6</b>	an accident report and court claim ♦ <i>Ken Armstrong</i>
<b>prairie triangulation</b>	<b>8</b>	on flying a 500 km record ♦ <i>Bruce Friesen</i>
<b>more prairie geometry</b>	<b>10</b>	a Diamond distance at 90 ♦ <i>Walter Mueller</i>
<b>view from the barrel's bottom</b>	<b>11</b>	the virtue of sloth ♦ <i>Doug Scott</i>
<b>the evolution of contest soaring</b>	<b>12</b>	part 2 – how contest rules affect tactics & safety ♦ <i>John Cochrane</i>
<b>the mnemonics trap</b>	<b>16</b>	the problem with CISTRIC ♦ <i>Henry Wyatt</i>
<b>X-C potential in southern Ontario</b>	<b>24</b>	stats on the great days ♦ <i>Wilfried Krueger</i>



Bruce Friesen's shiny red Standard Austria – Scarlet Lady – ready to go at ESC. Read all about its record flight on page 8.

photo: Steve Allen

## DEPARTMENTS

- |           |   |
|-----------|---|
| <b>18</b> | <b>Safety &amp; Training</b> — I wonder what the accident rate is this year?, embarrass yourself naturally, freeze-dried pilots, instruction notes  |
| <b>20</b> | <b>Miscellany</b> — how can the club support the new cross-country pilot?, a new Kremer prize, Ontario pilots do well at Ionia, 2011 IGC plenary meeting, the support of members to SAC, a glossary of aviation terms |
| <b>25</b> | <b>FAI Badges</b> — current badges and badge legs   |
| <b>25</b> | <b>FAI Records</b> — current record claims  |



## A tribute to Jim McCollum

At the November Board meeting, directors of the Soaring Association of Canada unanimously moved a vote of appreciation for the many contributions Jim has made to SAC. This included the awarding of an honorary life membership to Jim. The award was in the form of a letter and an engraved plaque reading:

*Jim McCollum*

\*\*\*\*\*

*In appreciation of many years of service  
to the Soaring Association of Canada  
as its Treasurer and Executive Director*

\*\*\*\*\*

*Honorary Life Member*

So who is James F. (Jim) McCollum, and what has he done that deserves recognition? Jim is a long time SAC member, club contributor, glider owner, and soaring promoter. He became our corporate treasurer 1984, a time of turbulence and uncertainty for SAC. Organizations like SAC lost the advantages of government funding, and a restructuring of the organization was necessary. Jim brought his strong financial background to this volunteer position, and worked with the directors to eliminate the deficits and establish fiscal stability. His position has been listed as Treasurer/ Executive Secretary and most recently Treasurer/Executive Director as the position evolved to include some remuneration for his services. Previously, SAC had rented office space and employed an office secretary. The timing was right, as this position filled Jim's "retirement" time.

During the approximately twenty-five years that Jim was involved with SAC business, he worked in close cooperation with the various SAC presidents and directors. One of his roles was to offer advice and continuity to new boards as the SAC positions changed. His contributions were much broader than financial. In Tony Burton's words, he was "a steady hand at the tiller".

Jim's contacts and experience with various government agencies made it possible to negotiate many benefits for SAC members. At one time, there was an annual radio licence fee for all ground and aircraft radios. This was a detriment to using radios in gliders. With Jim's help, SAC was successful in eliminating this annual licence fee. Other fee reductions included reduction of pilot medical fees, reduction in the fees for type certification for gliders, and the exemption of the NAV Canada fee for gliders. At one time there was an insurance administration fee of \$12,000, and this was removed. Although we still pay a relatively high fee for belonging to the Aero Club of Canada (for FAI affiliation), Jim negotiated a realignment of the fees saving SAC \$6,000 annually.

Jim has been successful in lobbying Transport Canada, on behalf of SAC, on many important issues, such as the eligibility of Class 4 medicals for glider pilots. TC once proposed requiring a minimum of a Private Pilot Licence for operating motorgliders. We can now fly them with a Glider Pilot Licence. Jim was instrumental in negotiating the exemption of a transponder requirement for gliders, and has been involved in the roll back of controlled airspace extensions that would have affected soaring. Much of this was achieved with the help of various SAC committees that were strengthened by his recommendations of key appointments. These included the Technical, Airspace, and Flight Training & Safety committees. Most members other than the directors haven't been aware of these contributions and their implications.



### SOARING ASSOCIATION of CANADA

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

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

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

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

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

Material from *free flight* may be reprinted without prior permission, but SAC requests that both the magazine and the author be acknowledged.

For change of address and subscriptions for non-SAC members (\$30 or \$55 for 1 or 2 years, US\$35/\$60 in USA & overseas), contact the SAC office at [sac@sac.ca](mailto:sac@sac.ca). Copies in .pdf format are free from the SAC website, [www.sac.ca](http://www.sac.ca).

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Deadline for contributions:

**10** March, June  
September, December

## 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 vélivoles aux normes de la FAI, telles les tentatives de record, la sanction des compétitions, la délivrance des insignes, et la sélection des membres de l'équipe nationale aux compétitions mondiales.

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

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

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

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

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

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

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The first aviation website in Canada was established by Jim in 1984, before there was general access to the internet for most people. Jim obtained the *sac.ca* web domain and created an early website through a server at Carleton University.

It is in the financial area that Jim's contributions are best known. Jim guided SAC from a position of deficits and uncertainty to an organization with assets of around \$1.2 million, mostly held in the various trust funds he established. In his first years as treasurer he worked with the directors to establish the Pioneer Fund to provide financial security for SAC. There were a number of generous early contributions that resulted from the establishment of life memberships. At a time when the SAC fee was \$59 and rising, a contribution of \$1000 or more to the Pioneer Fund provided a life membership. Through effective investing, some assets helped keep fees reasonable and retained membership. In constant dollar terms, SAC fees have fallen steadily over the past twenty years.

Jim had an eclectic education: MA (geography), PhD from Rice, MA (finance) from McMaster, honorary degrees from the universities of Waterloo and Ottawa, and he also instructed at Ottawa on occasion. Jim had an exceptional career at the Ministry of Finance. He wrote, inter alia, the text of the law that enabled the authorities to seize assets that are acquired with money generated by criminal activities, thus depriving criminals of their "retirement package" after their jail term. If you have seen the movie or read the book *The Firm*, you see how complicated financial operations are put together to launder money. Jim worked for a number of years with Interpol to untangle such montages. He was also ghostwriting ministers' responses to complicated questions raised in the House of Commons. Jim's responsibilities got him involved with many exotic duties that he kept mostly to himself.

Jim is a quiet, private person, but well worth getting to know. I had the opportunity to work with him as a SAC director and president over a period of seven years. During that time, I managed a few individual meetings with him, including lunches and discussions other than just SAC business. During those times I got to appreciate his many other talents. He has degrees in both French and Spanish, and speaks Italian (this was to prep for his career in International Finance). He has a subtle sense of humour – when he updated the SAC directory, it was never the "spring edition" or "fall edition", but titled to reference some obscure ancient holiday that fell in that season like "Michaelmas" for fall. Can you picture Jim and Elizabeth touring on their motorcycles or raising and training dogs for competition? Another of Jim's passions is unusual automobiles, ranging from a classic Ford Capri to a 1984 Citroën 2CV "deux chevaux" he found in Europe and brought to Canada. Jim's philanthropy includes making scholarship contributions to the universities he attended, as well as supporting SAC.

It's hard to please everyone in an organization of over a thousand members, and Jim's contributions were not always appreciated. He seldom tried to "sell" his ideas to the membership, and as a result his intentions were occasionally misunderstood. Rather, he worked quietly and effectively behind the scenes for the benefit of all, and was much more than just a SAC number cruncher.

Since his retirement as SAC Executive Director, Jim has continued to offer assistance and support as a volunteer. The transition from a dedicated SAC office to the contract with the COPA National office to handle SAC's clerical responsibilities has been a large undertaking, and Jim's assistance has been greatly appreciated. Jim, I hope you will now have time to get out to your club more often, do more flying and enjoy your other leisurely pursuits.

**John Toles**, with contributions from Pierre Pépin & Tony Burton

# In the matter of Icarus ...

Ken Armstrong, VSA



17th-century relief depicting the fall of Icarus, with the Cretan labyrinth.

Musée Antoine Vivenel

**IF** HUMOUR IS THE BEST MEDICINE and flying is the greatest sport, you may be interested in the following account of how our Greek friend Icarus and the world's first man-powered flying accident would have been seen by the Transportation Safety Board of Athens (TSBA) and then how the law firms would pony up to the bench to represent those involved in the ensuing court case. Since this author is involved in accident reconstruction and providing opinion to law firms and the courts on aviation matters, it is interesting to be able to look at this not so factual information – without providing an opinion.

But first, a little history lesson provided by everyone's internet friend, Wikipedia. "Icarus' father, Daedalus, a talented and remarkable Athenian craftsman, attempted to escape from his exile in the palace of Knossos, Crete, where he and his son were imprisoned at the hands of King Minos, the king for whom he had built the Labyrinth to imprison the half man, half bull Minotaur. Daedalus, the superior craftsman, was exiled because he gave Minos' daughter, Ariadne, a clew (or ball of string) in order to help Theseus, the enemy of Minos, survive the Labyrinth and defeat the Minotaur.

Daedalus fashioned two pairs of wings out of wax and feathers for himself and his son. Before they took off from the island, Daedalus warned his son not to fly too close to the sun, nor too close to the sea. Overcome by the giddiness that flying lent him, Icarus soared through the sky curiously, but in the process he came too close to the sun, which melted the wax. Icarus kept flapping his wings but soon realized that he had no feathers left and that he was only flapping his bare arms. And so, Icarus fell into the sea in the area which bears his name, the Icarian Sea near Icaria, an island southwest of Samos. It also has been said he flew too close to the sea and the feathers got wet, no longer working due to added weight. But, let's not get too complex on this; for all we know there could have been other factors involved such as cg problems, potentially flying over  $V_{ne}$ , or hypoxia ...

## TSBA ACCIDENT REPORT ON ICARUS

TSBA Accident Report A0000001 (initial report subject to change)

Site of accident: 5 miles northwest of Crete  
Date of accident: Approx. 250 BC  
Aircraft type: Homebuilt, man-powered (ultralight)  
Injuries: 1 (fatal)

Investigator: Senator Avionicas Maximus  
(Head of Air Ops, Mediterranean)  
Date of Report: 1/1/0001

## Details of Accident

Considerable delay has occurred between the accident and the investigation, so the following notes only detail the facts that have been established.

The aircraft was a homebuilt ultralight of original design, one of two constructed. The aircraft was constructed from a range of novel composite materials. The accident occurred on the first flight of the type. The pilot was the co-designer of the aircraft, and at the time of the accident had no flying time on type, did not possess a valid private or student pilot licence nor was there any record of a medical validation. At the time of the flight the wind was 180°/ 3kts and the sky clear.

There are no records of the pre-flight inspection, indeed the indications are that none was performed and no paperwork detailing CofG calculations was left at the base of operations. On the day of the accident witnesses report the aircraft to have successfully taken off from Crete, the pilot having announced the intention of making for Greece (although no flight plan had been filed). The flight was in company of another aircraft of the same type flown by the co-designer and father of the pilot. The second aircraft was also on its maiden flight, and its pilot also had no experience on the type prior to the flight.

Approximately 25 minutes into the flight, some 5 miles northwest of Crete, the aircraft was observed to climb to a considerably higher altitude than its partner. At this point it appeared to suffer a substantial structural failure followed by a departure from controlled flight; the aircraft entered a dive from which it did not recover before impact with the sea. There was no evidence of a post-impact fire. Indications are that the flying structure's powerplant was not producing meaningful thrust at the time of impact. No search was attempted due to lack of facilities, but the circumstances of the accident suggest that the pilot would have died on impact. The second aircraft proceeded successfully to its destination.

## Analysis of Accident

Despite the elapsed time and total absence of surviving physical evidence it is felt that sufficient information exists to infer the sequence of events and the cause of the accident. The novel composite structure of the aircraft was known to be the subject of physical restrictions on operating temperature. These restrictions had been carefully explained to the pilot before the flight. When the pilot climbed to a higher altitude the levels of ambient solar radiation probably led to these temperature restrictions being exceeded, resulting in a thermal degradation of the basic structure. A progressive failure would have occurred, initial delamination of the upper skin material would have been followed by a compressive failure of the upper main spar. Brazier forces would then have extruded the internal wax core material leading to a catastrophic failure of the entire primary structure. This theory would help to explain why the second aircraft (at a lower altitude) experienced no such failure.

## TSB Observations

This accident was clearly caused by an inexperienced pilot paying scant regard for the operational envelope of the airframe. Although the novel materials used in the airframe had strict limitations, these were well documented and explained to the pilot. It is regarded as significant that, despite the known thermal limitations of the materials used, no attempt had been made to protect the structure from infrared radiation.

In view of this and other design deficiencies in the aircraft, it is recommended that Form 100 signatory approval be withdrawn from this manufacturer. It is further felt that from today (1/1/0001) onwards no pilot should be permitted to attempt primary training flights as solo P1 on an experimental type. If this regulation had been in force at the time, Mr. Icarus would probably not have attempted the flight.

## TSB Recommendations

Given the apparent risks of powerless flight with its accident rate of 50%, we recommend Transport institute the following measures to help prevent accidents:

- 1 Flights should not be conducted during daylight to avoid the affects of the sun.
- 2 Flying should not be conducted from areas of imprisonment.
- 3 Approved landing areas should be authorized and licensed so pilots do not just "drop in" anywhere.
- 4 Pilots should be medically tested annually to ensure they are prepared and in shape for the rigorous physical activity related to flight.
- 5 Pilots must remain in formation following a leader so as not to venture into flight envelopes which are dangerous.
- 6 A group of individuals should be created to form a cadre that will represent the interests of those whom pilots and parts of their machines might fall upon.

## Estate of Icarus against Daedalus, King Minos et al

Athenian Court action Z0001A

Plaintiffs Claims: Product Liability, Negligence, Unlawful Imprisonment, and Short Term Mental Anguish

The deceased, Icarus, was killed while attempting to escape an unlawful imprisonment, ergo Defendant King Minos is strictly liable for this death. The deceased was killed flying a defective homemade aircraft, designed and produced by the defendant Daedalus. The defendant's claim of the plaintiff causing his own death are not supportable.

The defendant, Daedalus, an expert inventor and engineer, affixed feathers to the wings with heat soluble wax. Alternative glues were known to the builder. Daedalus failed to consider alternative, more heat-tolerant, glues. The warning given to the operator Icarus was inadequate. In particular, the warning claimed to be given was, "Icarus, my son, I charge you to keep at a moderate height, for if you fly too low the damp will clog your wings, and if too high the heat will melt them. Keep near me and you will be safe." This warning is excessively vague and failed to specify that melting the wings would lead to the death of the minor operator. Given the youth of the operator, it is critical that a warning be given in the clearest and most explicit language.

The only testimony supporting the claim that an oral warning was given is the self serving testimony of the negligent inventor. In any case a warning is inadequate if a safer non heat sensitive glue is available. There was no clear definition of "moderate", "too high", or "too low" and the operator's experience was insufficient for him to determine the optimum altitude.

A water landing was a reasonably anticipated outcome of even a successful flight. No provision was made for a safe water landing. No safety equipment or training was provided. Sources indicate that, notwithstanding the claim of instant injury, Icarus in fact drowned. Bullfinch states: While his mouth uttered cries to his father he was submerged in the blue waters of the sea which thenceforth was called by his name. His father cried, "Icarus, Icarus, where are you?" At last he saw the feathers floating on the water, and bitterly lamenting his own arts. He buried the body and called the land Icaria in memory of his child.

The claims that flying higher caused the sun to melt the wax is based on "junk science" inadmissible in this litigation. There is no evidence at all that radiant solar energy increases at the heights involved in this matter and, if anything, the atmosphere cools as the flyer ascends.

Given these facts, the plaintiff's estate demands one thousand gold pieces in damages. If Daedalus is proven to be the employer of Icarus, as well as father to the youth, a further sum may be payable due to Employer's Liability. There may also have been a breach of the Workmans' Compensation Act.

We are seeking damages and also pursuing legislation to prohibit powerless flight without an approved power plant.

*Author's note: Thank goodness the Athenian empire was destroyed before they could draft those regulations and the task was left to Transport Canada ...*

# Prairie triangulation

Bruce Friesen, ESC

**F**or many years, the *Scarlet Lady* understood there were two flights remaining on her bucket list, a 500 km declared closed circuit and a 750 km downwind dash. In 2009 she carried me the 512 km to Paynton, Saskatchewan, and back. In reward, I snuck a 500 km triangle onto her list.

Why a large triangle? Ever since long downwind flights became just too long, the declared triangle has been the classic soaring task, the gold standard in soaring performance. This was recognized this year with the OLC bonus for triangles, to encourage and reward “area” flying. I felt that tackling the 500 km triangle raised the bar a bit, but was still within the realm of the achievable. Also, a review of the table of Canadian soaring records revealed some low hanging fruit. Let’s go!

Sunday, 29 May, and Edmonton Soaring Club members heard “hooting and hollering” from the clubhouse office, as some of us checked the weather data. We had had our heels cooled most of the month of May as Chipman, along with the rest of the country, experienced unusual weather patterns. Winds had been consistently from the east or southeast, strong at times, and bringing moisture and clouds in the middle levels. At last we had light winds and a tephigram promising strong convective conditions lasting all day across a broad swath of central Alberta. The only problematic aspect was the smoke from forest fires in northern Alberta; about that we could only cross our fingers.

I chose a “start on leg” triangle of 503.5 km: Chipman/Thorhild/Elk Point/Forestburg/Chipman, a route that kept me fairly close to home and over familiar territory for the first half of the flight, then a decision on whether or not to “go for it” or to break off for home and a more modest OLC claim. *Scarlet Lady*, my Standard Austria S, was ready to fly and on the line by 10:30. We were not alone, as this was shaping up to be a great day of cross-country flying for the club. OO Gary Hill was doing yeoman service moving from glider to glider witnessing the placement of flight recorders and noting serial numbers in his phone.

The *XC Skies* point forecast had predicted cumulus cloud formation starting later in the day. Now we were seeing numerous dainty cu to the east. Did that mean things were a bit different over there, or did it mean inadequate convective activity over the field to support a glider? A nod and a wink to the towpilot had the towplane off on an extended warm-up-the-engine circuit. The report was encouraging enough to launch at 11:18. Bob Hagen is a master at placing each glider in lift consistent with the needs and skills of each pilot. My radio call “Delta Mike off tow” elicited a cheery “Told yah!” response, and our adventure began, climbing, sampling the air, bending around to the start zone for an 11:35 am start.

The first leg, 56 km northwest to Thorhild, was very familiar, passing over the Bruderheim sand hills and crossing the North

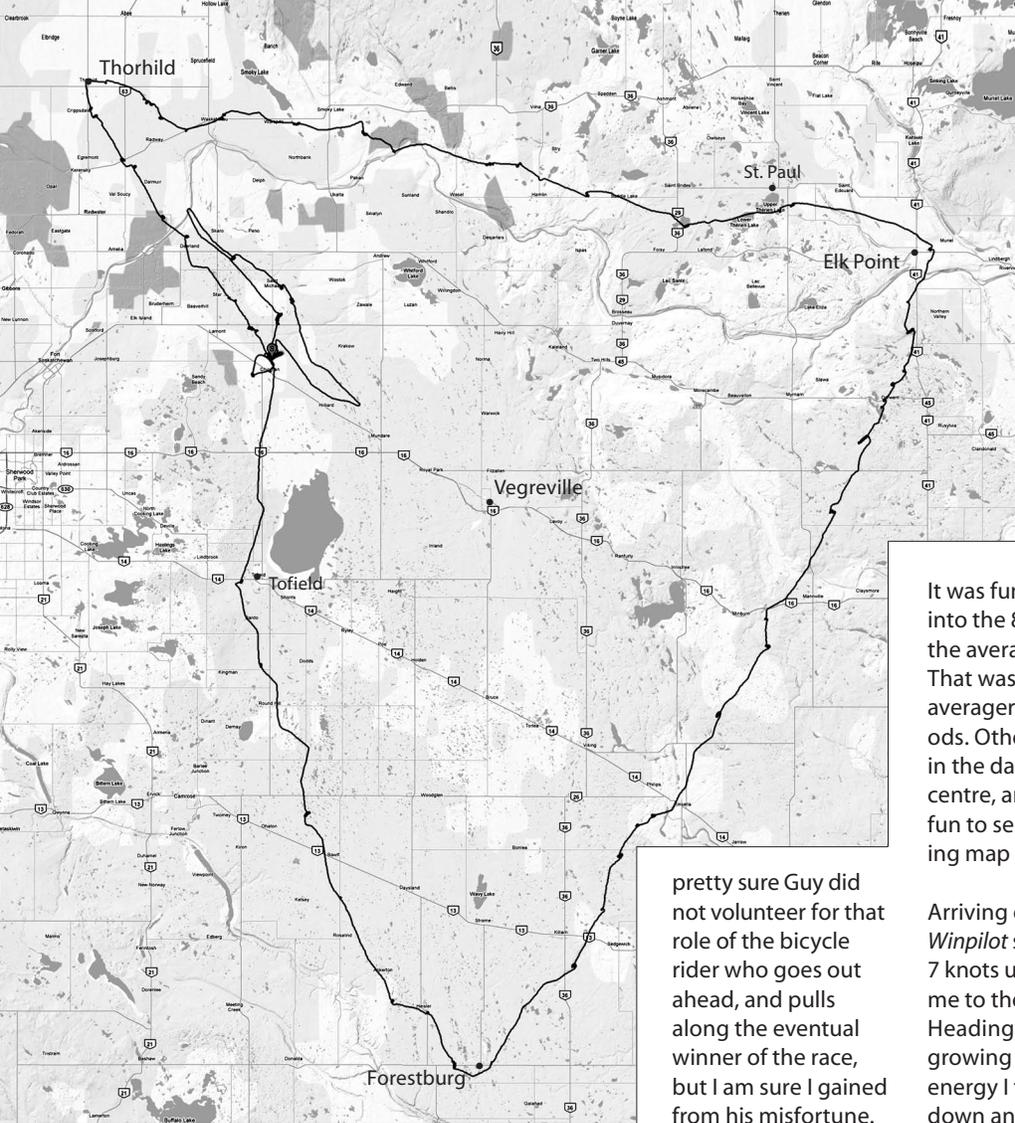
Saskatchewan River valley. A few wisps of convective cloud began appearing, but they were too short-lived and too far off track to warrant deviation, so the flight started with blue-day technique, and cautious but steady progress. It was a relief to confirm the horrible “sink monsters” of the previous couple of days had not come out to play, at least not just yet. Firmer clouds showed up past the river, as is often the case and over Thorhild, which was all very encouraging, as was completion of the first leg within an hour – too slow for the entire task, but acceptable at the start of the day.

The second leg extended 148 km almost due east to the town of Elk Point, about as far as a glider can go without venturing over the bush of northeastern Alberta. It skirted just north of the wanderings of the N. Saskatchewan River, brushing back within gliding distance of Chipman. Over the first half of the leg there were cu of the “don’t go there because the lift will be gone by the time you arrive” variety, but by the time I reached Saint Paul the day had transitioned to classic prairie flying. Consistent with the generally light winds, throughout the day there was almost no streeting of the clouds nor apparent (to me!) lines of energy. As a consequence about 30% of the task time was spent thermaling. Fortunately, the lift was strong. Part way along that leg I popped out from under the Edmonton Terminal airspace, and was able to climb above 9500 feet, using a band from about 8000 to 10,500.

Passing St. Paul, I chatted with Brian Murray flying the club L-33, confirmed he had completed his Silver distance and offered some encouragement and advice on the rest of his flight (a 300 km out and return!). This flight completed all three legs of Brian’s Silver badge and he posted an excellent result on the OLC!

Southwest from Elk Point stretched my longest leg of the flight, 166 km to Forestburg. It passed within 100 km of Chipman – a decision point if needed. Having completed the first two legs, over 200 km, within three hours, I was on schedule and feeling pretty comfortable. However, that leg did present some interesting wrinkles. I called up Guy Blood, flying a declared 300 km out and return to Kitscoty, as his track crossed mine. Well, he asked me to hold off a bit, as he was currently busy. Soon after, he reported he was on the ground. I was able to relay that information to Brian flying over Vegreville and thence to Chipman: Guy was down and safe.

I had already noted the clouds were less well formed in that part of the sky, and there was more spreading out of the cloud in the mid-levels. Perhaps there was a bit more moisture on the ground? Regardless, I soon found myself in several pockets of sink. I thought: this may be how it all started for Guy! Shift down. Work any lift you find. I’m



The third leg was a bit slower, taking 2-1/2 hours, but turning for home by 5 pm felt fine. I was confident the day would last but I reminded myself there was still 132 km to fly, over one quarter of the entire day's work yet to put in. Focus! *Winpilot* said I needed about another 11,000 of climb to complete the task. That looked like a big number, but I did the math – assuming 5 knot average climbs, that meant only about 20 minutes thermaling, plus a little over an hour of cruising – an hour and a half to go; back by 6:30. Looking good!

It was fun to watch that altitude-required number drop, into the 8000's and then after one lovely climb in which the average touched 10.4 knots into the 3000 foot range. That was the best thermal of the day – many times the averager was showing 6, 7, or 8 knots for extended periods. Other climbs were around 4 knots, particularly early in the day when the thermals were small and hard to centre, and times when I chose to be cautious. It was also fun to see the Camrose airport "turn green" on my moving map display, followed a bit later by Tofield airport.

pretty sure Guy did not volunteer for that role of the bicycle rider who goes out ahead, and pulls along the eventual winner of the race, but I am sure I gained from his misfortune.

Arriving over Tofield at 8000 about 38 km from Chipman. *Winpilot* said I could glide on home but the vario now said 7 knots up. An investment of a little over two minutes got me to the 9500 foot airspace and a great safety margin. Heading out on course, there was a wisp, and then a growing cloud, and then another wisp, the best line of energy I found all day. All I could do was put the nose down and charge, 85, 90 knots, my personal  $V_{ne}$  in an old wooden glider, and still going up. Pull up the nose, slow down, break out the spoilers; five or six times in all, flying both slower than I wanted and flying dirty. Finally I broke free of that unwanted rising air, and drove for home.

The other interesting factor was the wind. My instruments indicated winds light from the south up to about 8000 feet, but then picking up to as much as 12 knots from the southwest, bang on my nose, by 9500 feet. Should I constrain myself to a lower height band, or stay high and fight the wind? The area below me – south of Innisfree – was not attractive, typical prairie pot-hole country. Guy was on the ground. I was on schedule. I stayed high. Almost certainly I would have completed the task faster had I gone lower, possibly I would have been quite disappointed.

Radio call over the field, "Delta Mike, over mid-field – you'll just have to imagine the victory roll!"

It seemed to me I had a headwind on every leg throughout the day, although in fairness it was probably a cross-wind on the final leg. So why didn't I just go around the other way? The short answer is, but I would have been in a different place at each time of day, wouldn't it! The longer answer is the weather data was very confusing, with the various models and multiple sources of information disagreeing, showing winds shifting around in different patterns through the day. I flipped back and forth between maps and charts until I threw up my hands in despair and decided to choose a task with lots of options to head home early, and several airports strung out along the final leg. I also applied a snippet of local knowledge: I have observed over the years a tendency to overdevelop earlier in the day north of the North Saskatchewan River, so that influenced my choice to go there first.

At that point, at 6:30 pm, there was lift all over to an 11,000 foot cloud base. A radio call: "Delta Mike has the opportunity for a huge OLC score, can I impose on my OO?" That brought the appreciated response, "Go for it, Bruce." I did manage to add about 100 points to the OLC total, but there had been far more available. All the intensity had drained out of me, and that was that. Down at 19:54, I had been in the air just over 8.5 hours, of which 7:03 hours were on task, for a task speed of 71 km/h.

Before landing I was able to ask, "Bravo Mike Xray, did you complete your task?" "Affirmative" replied Walter Mueller, in the pattern to land his Open Cirrus after a successful 500 km folded quadrilateral for his Diamond distance at 90-2/3 years old! The comment by "True North" on the SAC Roundtable was perfect: "A great flight in a glider that was built in 1969 by a pilot who was built in 1920."

All in all, an excellent day of prairie soaring. The bucket list? Yes, one more flight. The perfect downwind day, and the Scarlet Lady and I are off on the last big challenge. ❖

# More prairie geometry

Walter Mueller, Grande Prairie

*"It is never too late to have a happy childhood."*



Dwayne Doll

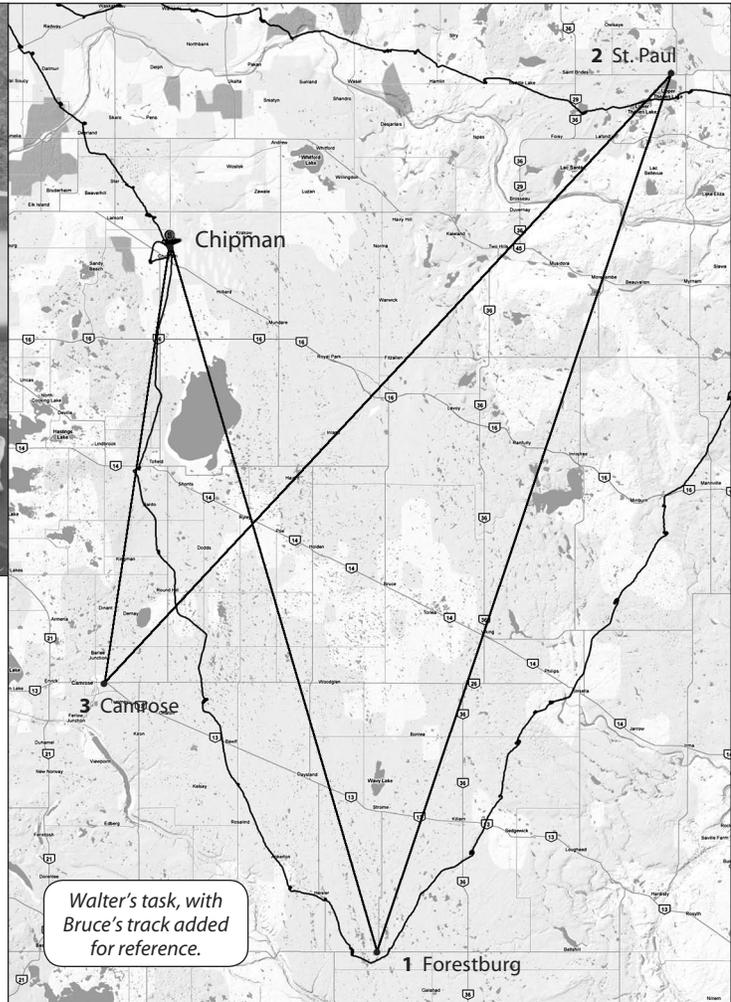
**A**FTER A FLIGHT IN MY CIRRUS on my 90th birthday last October I felt that I was mentally quite capable to resume this wonderful sport again this spring. So during the winter months I did a lot of flying on the VFR chart and laid out different tasks which I then copied on paper to have only the map with the task with me for easy handling in the cockpit. I still fly the old fashion way, by drawing a line on the map and then following the line \* just as I had been taught seventy years ago.

I chose a task with three turnpoints, Chipman/Forestburg/St. Paul/Camrose/Chipman, for a total of 522 kilometres. May 29 started with a beautiful blue sky without the strong crosswind of the previous two days. Before noon I was the second pilot in the air behind Bruce Friesen, who was trying for another Canadian record to add to his list. There were no thermal markers in the sky yet, but blue thermals were already there over some summer fallow fields after release from tow. Soon I was on course for Forestburg and the soaring conditions improved as time went on.

To complete this task I had to change my habit of circling in every small thermal that came along in order to increase my average groundspeed to well over 70 km/h if I wanted to get back before the sun sets or the thermals stop, whichever comes first.

Luck was on my side and it turned out to be a booming day so that I used only thermals of 5 knots or better. In less than

*\* Finally, the secret formula for successful cross-country flying that the world's glider pilots have been searching for. editor*



two hours I had the Forestburg airport in sight and flew straight towards it. I was in sink until after I had rounded my turnpoint and was a few kilometres on the second leg of the task – this was the only low point of the flight. While I was still a safe gliding distance back to Forestburg, I connected with a good thermal and from then on I was always at an altitude to be able to glide to any of several airports scattered in the area of my task.

On the flight north to St. Paul one can see several small lakes in the farming country with white-coloured alkali "beaches" that are visible from a great distance.

Across the North Saskatchewan River to the next turnpoint and back south again passing just west of the Two Hills airport on my course towards Camrose there was a stretch where I had to deviate from the straight course line to take advantage of the best lift band. It was getting ⇨ p26

# The view from the barrel's bottom

Doug Scott, SOSA

SOMETIMES THINK that my lasting contribution to Canadian soaring has been to “lower the bar”, so to speak, in order that others may be seen in a more positive light.

Let's face it – there cannot be a winner unless someone else, usually me, loses. Just think how smug all the others must be when they compare their otherwise drab and uneventful lives to mine. Think how lucky they feel that they are not me.

In my first contest, I was beaten by a pregnant woman who was flying a 1-26. At a cross-country clinic, one day we had a lecture on finding and centering thermals, then the class went flying. At least, the rest of them did. I was launched 2nd, 12th, and 13th. I prefer to think that I performed a valuable service in marking all the sink for others to avoid.

Many years ago, I was flattered when our CFI, “Fearless Fred” Hunkeler, asked me to become an instructor. At the year-end meeting, Fred was running through his achievements and noted that he had had some difficulty in finding acceptable instructor candidates, because all the good ones were already taken. He paused, looked over at me and said, “Sorry, Doug.”

When I tow in contests at SOSA, and Scott McMaster is *not* there, he makes me use the Citabria and the other guys use the Pawnees, they tow faster and everyone laughs at me. On days when Scott *is* there, I get a Pawnee, he tows in the Citabria, and he still tows faster than I do. Everyone laughs louder. Last year I went for a visit to York Soaring, and volunteered to help out doing retrieves with a golf cart. I did until the battery died and I had to be towed back to the hangar by the *better* golf cart. Citabria, Pawnee, golf cart – same story. It's no wonder that I don't have any friends.

Flight line managers are encouraged to keep order on the field and ensure a smooth and efficient operation. To my knowledge, there has been only one serious fist fight on the SOSA flight line, and not only was I Duty Field Manager at the time, I actually caused the fight. I wasn't in it, mind you, I just started it.

While everyone else in the SOSA campground had a flashy trailer with real beds and lace curtains, I slept in a used truck camper up on blocks – it was called my Fortress of Squalitude. The previous owner failed to disclose that he never slept in it, but instead used it to store his

beekeeping supplies. You know that expression about catching more flies if you use honey? Actually, I didn't have to worry much about the flies. The bees and hornets and wasps ate most of them. In turn, those insects attracted the woodpeckers. Then they were all killed when the thing blew over in a windstorm and crushed Ray and Pat Wood's picnic furniture. I was so ashamed; even my camper has landed out. I was told that it was an eyesore and to get rid of it, but it was tough to haul away when it had no wheels. I kept hoping for a stronger and longer windstorm to take care of moving it for me.

One June day in the late 90s I gave Joe Stubbs his first ride in an airplane, a 1946 Aeronca Champ configured as an L-16. I assume that he was impressed with my skill at handling the old warbird. Heck, how would he know what to compare me with – it was his first ride. Ten years later, almost to the day, I took Joe up in an advanced ultralight that I found very difficult to manage, even after hours of practice. His first landing, with no instruction, was perfect. I don't need to fly with him again – I have now made him feel really good about himself.

A couple of issues of *free flight* ago I wrote about not feeling the love at another club when I asked to fly at member rates, and it became evident that I was not as well known in Canadian gliding circles as I had thought, even though my mother is the membership director there!

So, that is the service that I provide to 'Canadian Soaring'. Picture, if you will, anyone who has had a mediocre day, perhaps towed someone into sink, had someone disparage their instructing technique, maybe had someone get around the course a bit faster, or had a tough day keeping order while working the flight line. It's nightfall, and their trailer window is a bit loose, so the noise of wind flapping the lace curtains and the buzzing of a lone insect makes it harder to fall asleep on the goose down mattress which has developed a couple of lumps. Instead of counting the proverbial sheep, why, all they have to do is count their blessings that they are not me, and it's off to Dreamland.

I was recently given an award for “significant contribution by a towpilot at SOSA”. No one was more surprised than me. There were lots of better towpilots in the room, and while I have made some positive contributions in towing, last year was not my best effort. I was away for a month at the Nationals. (I was towing in the smallest and slowest of four tugs, of course.)

⇒ p23

# The evolution of contest soaring

John H. Cochrane

the Ralph S. Barnaby Lecture, 2 October 2010

## Part 2 – How do contest rules affect tactics and safety?

**T**HE RULES To some, rules are boring, but rules make the race! The character of racing has changed a lot as rules change, and it will continue to evolve.

*Measurement versus incentive* The “Big Picture” of rules evolution in the USA is this: we have come more and more to understand that good rules balance the two functions, rules as measurement and as incentive. The minute a rule says, “this is how we measure your performance,” the pilot asks, “how does it affect my strategy?” In an ideal set of rules, it doesn’t. You just go fly, as fast as you can. However, often rules set up to measure well leave lots of options for strategizing and “gaming” the rules. Most changes from our US rules committee come with exquisite attention to avoiding lots of strategizing and getting contests more to a “just fly” experience.



Here is a classic example. Why is it that at the Worlds there are huge gaggles and start gate games, unlike in the US? Some speculate that it’s a cautious national character, versus “individualistic” Americans. But put those cautious Europeans in a Grand Prix and they fly like maniacs.

No, the answer is simple, and we’ve known about it for at least twenty years. It’s all in the day devaluation formulas. In World rules, the “lone wolf” who starts early and makes it home when the gaggle lands out gets little for his effort. The lone duck who lands out when the gaggle makes it home, or who tries the “lone wolf” strategy but the gaggle eats him up, loses a catastrophic number of points. There are no wolves left in Europe. The incentives are not perfect in the US, but a lot better.

It is very common in Europe for contest pilots to indulge in two hours of start gate roulette, and then all land out. This happened to us several times in Szeged. Yet each pilot is acting exquisitely rationally given the rules. In an Australian Worlds it once happened on a blue day that nobody wanted to start first, and nobody did. The entire gaggle hung around all afternoon, and nobody went on course. Again, a perfectly rational decision for each pilot given the rules.

Do we want races that value the pilot, his reading of the weather, and his machine? Or do we want races that value

start roulette, tactics, big gaggles, and exploit tricks in the rules? You can achieve either once you understand that rules must balance measurement and incentives.

*Should the USA use Worlds rules?* Many say it would prepare US pilots better for world competition. Having been there, I can vouch they are right. But many pilots who advocate this have not read the World rules nor experienced them. I have, and can state with a bit of authority that this step would be a disaster for US soaring.

Imagine if the US adopted rules that led to mass landouts, huge gaggles, and start gate roulette. Even fewer would show up. Mass landouts means you need either a crew or a motor. To fly European contests, you need a crew or you need a motor. If we require crews or motors, we’ll lose half our pilots. A contest cannot be run only to prepare the US Team – two pilots aren’t enough to pay for the towplane. All of this comes from a simple failure to recognize the difference between measurement and incentives in world rules. Here are a few more classics:

- **Start** The main start geometry at the Worlds is an unlimited altitude gate. What’s the result? Cloud flying. They do have a procedure (not used at Szeged) for a limited altitude gate, but no time or speed limit before the start. Quick, this is a quiz, what do you expect pilots to do? That’s right, they still climb in the clouds, then dive at Vne parallel to the line and duck out when they hit the top. The US cylinder with start anywhere and two minute under its top puts an end to this nonsense.
- **2 pts/km or 1 pt km/h** There is a lovely provision in World rules for a simplified scoring system in which you get 2 points per km and 1 point per km/h. This is a great idea for measurement – it’s a disaster for incentives. At the beginning of a race, you have to make a roll of the dice to go for distance or speed. Needless to say, it is so transparently silly it has never been used.
- **Time out distance** A race can be called where you are scored up to the maximum time. Good measurement. The optimal strategy is to go deep, and up at the downwind turnpoint, dive for the ground at time-out, and then try to squeak home for the bonus.
- **Don’t finish** There are actually circumstances in which you’re better off stopping and orbiting rather than

finishing. You need a sharp Team Captain to keep track of scores to tell you if this is the case.

Instead, the Worlds should become more like the US rules (though these rules need some work too, especially on day devaluation formulas). And they are; US start and finish procedures are slowly diffusing eastward, as is the popularity of the TAT (which they call the AAT). This year, the IGC recognizes that gaggles are a real problem after two mid-air, and are determined to do something about it. Perhaps they will finally change the devaluation formulas, which they have known for twenty years to be the source of the problem, as well as rely more on AATs.

**Safety** The final trend I will comment on is safety. Contests are getting slowly safer. If you watch the spectacular film, *"The Sunship Game"* from 1970, you'll not only be struck by how much everyone smokes, and how little they wear in the sun, you'll also be struck by the amazing amount of glider carnage, and the casual attitude towards it.

In many ways, contests are extremely safe. I do not know of a single recorded PTT (premature termination of tow) accident at a contest, though they are rampant in regular flying. There has been exactly one, though tragic, assembly failure, and that on an informal practice day. In fact, contests are a great place to learn how to fly in a much safer and more disciplined way. Much of this comes from a collective effort. Over time we have developed a lot of safety practices and knowledge. Dehydration and pee systems may seem small, but one or two accidents per year add up. Tow procedures and the careful dance around the airport all keep the monster at bay.

Moreover, contests have evolved mechanisms to pass on useful safety knowledge. Oldtimers may wince at the daily safety talk – another US innovation – but how else are new pilots to learn vital lessons including thermal etiquette, landouts, and most of all that even the top pilots make far different and more conservative decisions in the air than you might think from a discussion around the bar? A lot of person-to-person mentoring goes on at contests as well.

Tasking has evolved towards a greater concern for safety. Better weather forecasting, the ability to change tasks on the grid and in the air, and the MAT and TAT means that sending pilots into a hopeless thunderstorm is very rare. CDs think much harder about poor terrain or weak ridge lift.

Rules affect safety. Once you realize that rules consider measurement and incentives, there is an obvious safety implication: if we remove temptations – places in which pilots can earn hundreds of points by accepting a physical risk – we can lower the accident rate. We have to balance this effort with "measurement" of course; such changes are only really attractive if they do not reduce the "measurement" function, ie. spoil the race.

A recent example occurred in a crash at the World Championships in Hungary. There were really good fields for the last few kilometres before the airport, then a road, a fence and the airport. A pilot returned with low energy. In ground effect, he had just enough energy to pull up over the

fence... except there was a truck going down the road. The driver was severely injured in the resulting crash.

Now why did this pilot ignore the perfectly good field short of the finish with gliders in it, and instead try to pull up from ground effect to just skim a barbed wire fence (to say nothing of the road)? Well, obviously, the rules gave him about 400 points if he cleared the fence by one millimetre. This isn't an isolated accident. It's been going on for fifty years. Year after year around the world where this possibility exists, there is regular carnage in the fields (or lack of fields) in the last few kilometres before the finish, or resulting from arriving at the airport with 10 feet, 40 knots, and no ideas.

What should we do? We can deplore it, as we have for fifty years. "What a bozo, a good pilot like me would never do that." Alas, this answer is of little comfort at funerals. And even very safe pilots who once proclaimed this sort of view become more circumspect after they get caught pulling up over trees on final, or giving in to other temptations. I speak from experience. I work on these things because I know I am not immune to temptation.

How do we actually reduce the accident rate? The answer is obvious; don't give 400 points for being 1 mm above the fence. Move the "finish" point upwards. It makes no difference to the quality of the race, since the change is the same for everyone. The US is moving to this system. The IGC is belatedly waking up, and slowly moving the finish out and up. They still are not assessing a sufficient penalty. If you blow a high finish on World rules, you get a warning the first time and 25 points the second time. Measurement versus incentives: what do you do if you're low? Answer: 400 points and a warning beats 400 points off and no warning. The wild flying and poor accident record at the Grand Prix led to a 100 metre hard deck there; no points for a metre below. This works.

Protesting rule changes based on safety is interestingly common in all sports. Bike racers fought helmets for years in the face of strong clinical evidence about what asphalt does to the human brain. They claimed "helmets will worsen safety, because they obstruct your vision." Race car drivers fought safety rules. This kind of change is not an attempt to legislate safety. The idea is simply to remove temptation, where it costs little (measurement) to do so.

We decide what actions we want to reward with contest points. That is our responsibility. If we think the skill of skimming in ground effect and judging whether you'll be 1 mm above the barbed wire or 1 mm below the barbed wire is not the skill we want to use to select our champions, then it is entirely our job, and our duty, to change that. This is nothing new. This is a history talk, so I can point out that we've been doing it forever.

This is the extension of a longstanding trend, not some wild new idea. Here are just a few examples:

In the 1970s, you could land out, return, assemble and try again. The result was a 90 mi/h retrieve, a 5 minute rig,

and a 10 second preflight. Pilots didn't do a very good job of exercising their responsibility. The rules changed; now once you land out you're done for the day.

In the 1970s, the pilot was free to do whatever he wanted with water ballast. Some pilots chose to ignore manufacturer limits and put huge bags in the wings. This one is interesting because so few points, really, are at stake, for a substantial risk. At any rate, pilots not doing a very good job of decision-making led to weight rules and weighing, despite the substantial cost and hassle involved.

Rolling finish procedures are a great example, because of what pilots were willing to do for surprisingly small number of points. Here is a true story, only slightly embellished (actually two true stories merged into one). We're at Hobbs, with a main runway and a second, very rough runway that extends about a mile away from the main one.

CD: "Rolling finishes get 5 extra minutes of time, you're scored when you stop, and must be on the main runway."

Pilot X: "Why 5 minutes, and why can't we roll on the other runway?"

CD: "Because the last time I let you do that, you, Pilot X, deliberately landed out there to save the two minutes to the finish gate."

Pilot X: "Okay, but why can't I be scored when I touch down, not when I stop?"

CD: "Because when we let you do that, you, Pilot X, were smacking the ground at 120 knots on the end of the runway and then orbiting for a landing in order to save the minute of flying to the actual line."

And so it goes. For as long as we've been racing, we've put in rules that remove temptations for pilots to do something stupid. This year we tweaked the finish gate again: some pilots thought it was a dandy idea to do a sharp pull-up and enter the finish cylinder from the bottom, even though there could be lots of other gliders around. Seeing this great display of pilot decision-making, we changed the finish cylinder rule to remove that temptation.

**The future** Well, so much for the past. Rule changes that remove temptation, with little consequence to the quality of the race, have reduced the accident rate. Are there further possibilities?

John Cochrane is the author of numerous articles on contest flying strategy, rules, and safety, and currently writes the 'Contest Corner' column in SOARING magazine. His soaring articles, including the unabridged version of this one (the 2010 Ralph Barnaby Lecture sponsored by the US Soaring Museum), may be found at [http://faculty.chicagobooth.edu/john.cochrane/research/Papers/#For\\_glider](http://faculty.chicagobooth.edu/john.cochrane/research/Papers/#For_glider). John is a member of the US Rules committee. His first contest was in Uvalde in 1995, and he's been flying Regionals and Nationals ever since. Most recently, he represented the USA in the I5m Class at the Worlds in Hungary.

About some things, alas, not much. The first half of this decade sported a number of crashes in which pilots flew into mountains. Even I can't think of a way to reduce this temptation, at least without damaging the "measurement" function unnecessarily. (Unfortunately, the response here is mostly not to run races in mountains, though mountain flying is some of the most rewarding soaring there is.)

Until recently, there wasn't much rules could do about mid-air. Yes, we could set tasks like TATs, start procedures, and devaluation formulas to minimize the attraction of gagging, but there wasn't much we could do about aggressive thermaling. Flight recorders are beginning to change this. At the Worlds, Brian Spreckley prepared traces of reported near-misses and publicly chastised the offending pilots.

Traces can be used to penalize all sorts of unsafe behavior; or more properly, to remove the temptation to engage in unsafe behavior in the quest for points. To be effective, however, this strategy must be handled properly and objectively. We could fill up the protest meeting if complaining becomes a competitive strategy. Perhaps a computer can be programmed to find all the near-misses objectively.

The vast majority of contest crashes remain off-field landings. I look at all the NTSB reports, and I have looked at a lot of traces. Practically no contest off-field landing follows the standard circuit; straight in at 53 knots is much more common. The crash reports almost uniformly record the pilot circling at very low altitude.

These crashes could be addressed with a "hard deck." At an easy MSL altitude corresponding to roughly 600 agl, you are scored as if you landed out. This could be implemented tomorrow by simply making airspace below certain MSL altitudes forbidden, and including those in the .sua files. The altitude is over the valley, the ridge sticks out.

We are not removing any decision-making responsibility from the pilot, but are doing exactly the opposite. We are simply saying that at about 600 feet, "look, you need to make a good safety decision." Maybe you can thermal out. Maybe you should give up and land. Whatever you do, you're in a tight situation; be a good pilot-in-command and make that good decision. By the way, we don't want to bias that decision one way or another, so points are off the table no matter what you do. See you when you get back."

"What about my 200 foot save?" the anguished pilot cries. Well, I answer, what about the guys who didn't make it? The gun clicked five times in a row. Does that really mean Russian roulette is safe? Yes, I'm sorry, the 200 foot save will have to go, along with bouncing over the barbed wire fence in ground effect.

It's possible. It's simple. We'll do it someday. Probably after a rash of crashes. Of course, we can also continue the current practice of structuring tasks to reduce landouts, to

keep pilots over decent terrain when weather gets weak, or to keep them off the ridges in very marginal ridge lift.

A related controversy continues. Should the CD have the explicit right to call off the day if the weather gets out of control? In many other sports the CD-equivalent is in charge of the safety of the race and does this, sailing for example. Our CDs actually do have the authority to do it, but few know the technicalities of the rules to dream up that fact on the spot, and many falsely believe there is a rule against it.

Our tradition – not rule – is that once the start gate is open, the race is on for good, no matter if a tornado or squall line appears. Until a few years ago, the CD really did not know what was going on, but radar, satellites, and better radio communication open up the possibility. This isn't easy, as none of these decisions are. Some worry about legal responsibilities – if the CD does not accurately diagnose the thunderstorm and some bozo crashes, will he get sued? I worry about the opposite legal responsibility – if there is a tornado and the CD does not call it off, won't the lawyers sue us anyway?

Let's be clear, this is not an issue about "removing pilot authority" or "making decisions for him." All we are doing is thinking about when we give out contest points. We are debating whether the CD should be able to say, "Listen up, pilots. We have a tornado out there. Use your pilot decision-making to do the safest thing possible. But I'm not giving out contest points based on what you do now. It might be safe to come back, it might not. You make that decision. Forget about points, I want you totally focussed on making your own decisions."

And of course, as I emphasized above, gagging and leeching are only a function of rules, in particular task types, start procedures, and devaluation formulas. If we dislike them for safety reasons, as well as if we want to change the character of the race to focus more on soaring skill and less on tactics, that's an area of potential improvement.

Can we stop all accidents at contests? No. Can we remove all temptations? No. Are rules changes the biggest route to lower accident rates? No. But if we remove from glider racing the remaining 30% of the situations in which you can earn several hundred points from taking risks unacceptable in regular flying, will we reduce the accident rate? Yes. Some say "gliding is a dangerous sport, accept it." This is true, but it does not mean we need to make it artificially more dangerous than it already is.

Most of all the answer is participation. One accepts danger in "extreme sports" or in spectator sports. But one does not attract widespread *participation* with danger. When you tell people you soar, what do they always ask? "Isn't that dangerous?" If we could honestly refute that impression, we'd have a lot more participants.

A recent *Sailplane and Gliding* interviewed Hans Werner Grosse, and asked why he gave up flying competitions. He answered, "I still hate gaggles, tactical start line games,

and low approaches in close company with other pilots who have not been to enough funerals."

All that is rules, and all that can be changed. And it is changing, slowly.

**A vision** Let me close with a vision for contest soaring; perhaps reversing my charge to talk about the past with facts and instead talk about the future with hope.

I love contest soaring. It's very time-efficient – you go and fly on days you wouldn't get out of bed on a safari. And those weak days have produced many of my best flying memories. Imagine, you can go to a place with a great reputation for flying conditions, there is a weatherman who produces a daily briefing, three smart people spend all morning figuring out the best place for you to go. You then fly around the course with fifty of your best buddies, there is someone manning the phones to come get you if you land out, and you finish it all with a beer and Mexican food. Is that a dream? No, it's a contest!

Contests are where you get together with the best and most committed pilots. It's a very welcoming community. I have made lifelong friends through contest flying. Of course contests measure you. Any sport gets boring just for the enjoyment.

What hooks us on contest soaring is this pathological urge for self-improvement. And that's their function and their importance for our sport. Where is the knowledge of how to guide our amazing ships through the sky to unimaginable speeds and distances refined, learned, measured, and then passed on? In contests. And where is the knowledge of how to do all that safely also passed on? In contests. Contests are the vital place where our sport develops and is passed on. Without contest flying, these skills and this knowledge will be lost.

Contest and cross-country soaring are our sport. All of our gliders were built for speed. The natural progression of our sport should be from licence, to thermaling, to cross-country, and then to contests – without losing 95% of the pilots at each step of the way.

I dream that every year there is a contest in which every pilot and glider in the region shows up, including the ASK-21 and 1-26. We get together to have a big party, but also to learn from each other; to learn how to be better cross-country pilots and safer cross-country pilots. Nobody should feel "contests are beyond me" or "contests are unsafe for me." They should feel "contests are where I will learn to be better, and see all my friends, and learn to be safer."

I sense that there was some of this feeling in the 1960s, when new pilots routinely went to contests with a fresh Silver C in their hands. I'd like to recapture some of that feeling. Maybe we should stop calling them "contests" and "races" and instead call them "meets".

Then the real golden age of contest soaring will have arrived.

# The mnemonics trap

Henry Wyatt, Edmonton

**A**T THE END OF THE 2009 SEASON our L-33 took off with the tail dolly still on. The flight was uneventful. The group at the flight line trailer had not noticed. Then, in the mid-2010 season a sailplane was about to launch when a visitor asked if the tail dolly should be on. The tail dolly was removed. Again, those around the flight line trailer had not noticed.

How could this happen? In the first flight lessons in *Soar and Learn to Fly Gliders* we are told that in pre-flight walk-around checks: "See that the tail dolly has been removed". And that is what we teach. When we talk about it to other clubs we are reminded that we did not follow the basic rules. But we know that, we teach the rules and still mistakes like this happen.

We recognize that the pilot-in-command was responsible for such failures, yet nowhere on any of our written checklists or on those available from SAC, is it written, "Check tail dolly off". How can there be, for CISTRSC-O has no place for it? Using a mnemonic as the anchor for a written checklist has created a Mnemonics Trap.

Mnemonics are snappy, silly, or sometimes lewd word sequences to aid memory recall. Some, such as a simple made-up word like ROYGBIV, facilitate recall of the sequence of colours in the rainbow. Others, still so easily remembered more than fifty years after I learned it in the anatomy rooms, describe the order in which the nerves enter the eye socket: "Lovely French Tarts Sitting Naked In Anticipation". No traps in either one; the ordering of colours in the rainbow, and the way in which nerves reach the eye, have not changed and will not change, at least not within our lifetimes.

But checklists *do* change, or should at least be flexible in response to safety concerns, to reflect experiences like ours with the tail dolly. The pilot-in-command needs to be reminded that his first check is to make sure the tail dolly is removed.

Safety demanded that written checklists were needed in all flying – it used to be said that if you could not remember the checklists then you were not flying enough. So checklists appeared, but based on the memory mnemonic, with each letter of the mnemonic expanded to the word it represents, just as we see them on so many glider panels today. To aid recall we had a list of mnemonics – I'MSAF(F)E, CISTRS-C-O, CISTRSC-WROLL, CALL, SSSLOW, and SWAFTS. Pilots need a mnemonic for the mnemonics.

Checklist use has been addressed in *free flight* on several occasions. In the Jul-Aug 1986 issue, *Mnemonics*, by Peter

Savage argued that CISTRSC failed to cover all the checks needed in every sailplane. He discussed an approach depending on the position of controls and instruments in the cockpit, where one touches each control, instrument, or switch in turn in a rotary sequence, but he did not use a written checklist.

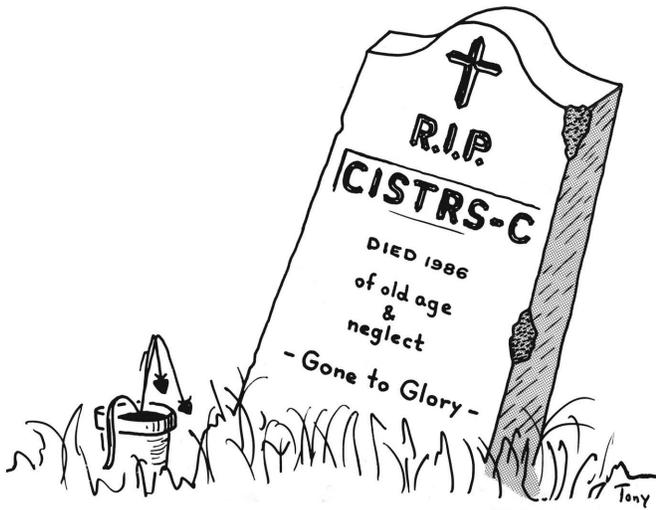
The Sept-Oct issue in 1991 contained an article from ICAO, *The Psychology of Checklist Use*, outlining the errors that can arise from human factors. Tony Burton summarized the article: "The study tells glider pilots to use a checklist, to take time completing it, and to do more than look at a control and say "open", but to also physically test its movement and observe that, for example, the spoiler is indeed out – because if we hurry, our eyes and brains will tell us bare-faced lies." But again, the trap created by basing a written checklist on a mnemonic was not recognized.

Other issues arising when a written checklist is based on a mnemonic were illustrated when Dan Cook wrote an article for *free flight* (Winter, 1/2011), listing his "pet peeves" about misuse of the CISTRSC pre-launch checklists by candidates in the instructor courses. To pursue the idea of a Mnemonics Trap, it is worth following the list through and adding comments.

**C-ONTROLS** Dan argues that with straps tightened it may not be possible to move the stick to the forward limits, and therefore you cannot know that the controls are full, free, and in the correct sense if you strap in first. On other occasions he has argued that sometimes straps may limit the pilot's ability to move the controls in flight, specifically in relation to full rudder movement in spin exit. Surely it is better to know that the straps do these things before one takes off and therefore to tighten the straps before checking the controls? Should we not instead start with straps & adjust them as necessary to allow full control movements?

**I-NSTRUMENTS** This is in a reasonable position, and follows as the second part of the cockpit checks. Dan does point out that later one must check that the yaw string is not trapped on canopy closure, but if that is the case why not put a yaw string check as the first item after canopy closure?

**S-TRAPS** The difficulties created by placing the straps check here is mentioned under the control checks above. The importance of being able to reach every



control and move it to its limits when the straps are tight is obvious.

**T-RIM & BALLAST** These are two different things. Putting the trim into the takeoff position is appropriate at this stage, but checking the ballast is not. By this stage we are half-way through the pre-flight checks, and yet if the ballast is wrong we may have to undo the straps, climb out, adjust the ballast, and start again. Ballast would be better checked before we climb aboard, so BALLAST should go ahead of straps, & TRIM should stay adjacent to CONTROLS.

**R-ELEASE** This check is in a peculiar position. Of course, a check of the release mechanism is needed before the first flight of the day, really as part of a DI. But Dan points out that the release hook springs are life limited, so that we often teach our students not to actuate the mechanism until they are ready for hook-up, but to make this part of the mnemonic is a reminder of exactly where the release handle is located.

In any case, this is the wrong place for this check. In the 9th edition of *Soar and Learn to Fly Gliders*, on page 15, the student reads: "Check it now for freedom of movement and return to the closed position. Have the rope connected only after you have completed all items on the checklist". So the list should have an extra line for hook-up later in the list, but the mnemonic has no place for that. I suppose one could say that if one reminds oneself of the position of the release handle as one of the last items before takeoff it is a reversal of the Law of Primacy. This time it's, "Last touched, first remembered".

**S-POILERS & FLAPS** Logically this could just as easily go with, or just after, CONTROLS. They are part of the control system. But a final check for SPOILERS IN AND LOCKED should be placed immediately before launch but the mnemonic has no place for it there.

**C-ANOPY** The cockpit quickly becomes a hot-house when the canopy is closed (with a non-trapped yaw string), but we still have OPTIONS to do, and that must not be hurried. Therefore CANOPY would be better placed last, just after RELEASE and HOOK-UP.

**O-PTIONS** We still have WROLL to go through in the OPTIONS (Wind; Release planning; Obstacles; Landable areas; Launch interruption planning). And that's another set of memory gates. Do we need to spell it out?

**PASSENGER BRIEFING** The last item in Dan's review covers passenger briefing which must be fitted somewhere, but there is no space for that in the pre-launch mnemonic. Anyway, it is probably best done whilst standing with the passenger before anyone climbs aboard.

So we seem to have built up our pre takeoff checklist around a mnemonic which was designed before the acceptance of the need for written checklists. This has created a non-flexible, apparently mis-ordered list which excludes essential items added as the result of safety management system's analysis, in our particular case the removal of the tail dolly. One could not, I think, argue against the tail dolly check being a part of the pre-takeoff checklist, since that would seem to be the only way of guaranteeing that the pilot-in-command cannot miss it.

Following a MNEMONIC has created a TRAP. A pre-takeoff written checklist should have its items arranged in a sensible order, with room to expand or change as issues from incident analysis and Safety Management mitigation strategies demand. CISTRSC-O does not accomplish this goal. It has outlived its usefulness.

A checklist started from scratch *without* the mnemonic would be comprehensive and flexible. It could be written on a card to be stowed in the pocket on the side of the cockpit. What might such a checklist look like if we threw out the mnemonic and had a printed card to start working through even before climbing into the aircraft?

<i>The Old Mnemonic</i>	<i>The Logical Sequence</i>
<b>C</b> ontrols	Tail dolly
<b>I</b> nstruments	Ballast
<b>S</b> traps	Passenger briefing
<b>T</b> rim & Ballast	Straps
<b>R</b> elease	Controls including spoilers
<b>S</b> poilers	Trim
<b>C</b> anopy	Instruments
<b>O</b> ptions	Options
	Spoilers in & locked
	Weak link, rings, rope fray
	Release & hook-up
	Canopy & yaw string
	All Clear?

## "I wonder what the glider accident rate is this year"

Of the accidents that have happened that I know about, most were not the result of an "unforseeable, uncontrollable, unpreventable" freak event. Most factors appear to be judgement, fatigue, etc. In my limited experience, poor judgement complicated by either stress, fatigue or lack of experience seems to have been the chief factors.

I believe I can assure my wife and children that I am relatively risk free if I:

1. Keep up my flight time and recency,
2. Fly within the limits of my known abilities,
3. Keep my eyes open in flight,
4. On takeoff and landing have more than one option available,
5. Fly when I am rested and healthy,
6. Ensure my equipment is in good working order,
7. Make sound judgements, and
8. Stay away from others who do not follow rules 1 to 7 above.

Like any other accident chain of events, most people who have accidents have generally violated the above rules and end up eventually losing. When we say we are pushing the limits we are generally breaking some rule and showing bad judgement.

I feel that the real question is not, "is soaring safe", it is, "am I safe". Statistically my chance of an accident is either 0% or 100%. As an individual, it either will or will not happen. If I continually break safety rules I am pushing the 100%. If I always follow 1 to 8 above I'm helping to assure my 0% accident rate. I have no consolation in statistics when I fly. If I break some of my rules and I am in the process of scaring myself to death, my ability to start following my safety rules is my ticket to safety.

I do not think to myself, "I wonder what the glider accident rate is this year". The safety of a sport is the combined safety record of all of the individuals. My record and most of my club members is no wrecks and no injuries. I am not hoping to keep it that way; by following my safety list I plan to *keep* it that way. Metal fatigue or a freak meteorological event may still occur, but that's not my biggest danger; my biggest danger is me.

**William Snow**

## Embarrass yourself naturally

Dr. Daniel L. Johnson (the soaring physician) from *SOARING*

*We call it an 'accident' because we thought it wasn't gonna happen.*

Everything we do, as a pilot, is based on our own perception. Our senses (mostly vision and touch) send messages to our brain. Our brain organizes these in patterns that depend on its design and on what we expect. Expectations are based on training and experience. These perceptions are continuously translated into action (or restraint), from before takeoff until after landing. They result in admirable skill, or humiliating incidents, depending on the accuracy of perception.

Our brains are able to create complex patterns out of scrips and scraps of incomplete information. For example, we can read print that is degraded amazingly. For example, many websites use the CAPTCHA program, which requires us to correctly interpret a highly degraded string of characters in order to validate that we are not a machine creating spam.

One risk, in flying, is that this pattern-forming system is not always right. Our perceptions are not reality; they are a cartoon. Sometimes the cartoon is very accurate, leading to the amazingly precise actions we see in sports. Sometimes the cartoon turns out to be wrong, causing Personal Embarrassment and Humiliation. This happens in three ways:

- Inaccuracy – imprecise measurement due to sensory limitations;
- Error – incorrect pattern-forming due to incomplete sensory data or filling in patterns incorrectly due to ingrained expectation,
- Illusion – incorrect pattern-forming due to the limitations of our perceptual apparatus.

The most important thing about this is to understand that we cannot be aware of perceptual error until conflicting information of some sort reaches our consciousness (or near-consciousness). Normally we feel confident in our understanding of a situation. Our brains are very good at pattern-forming, and subconsciously do an amazing job of putting things together. German physicians a hundred years ago called this *blinkreit*, making a diagnosis in a flash. One of my mentors, when asked how he recognized a disease so

quickly said, "How do I recognize my grandmother?"

This idea inspired Malcolm Gladwell's book, *Blink*. He shows many examples of the power and accuracy of perception. But it's a mistake to be utterly confident in this power, because it's sometimes sabotaged by illusion, error, or inaccuracy. Therefore, we must be also utterly confident that we could be wrong. One of my colleagues, a brilliant physician, likes to say, with a laugh, "As soon as I know I'm right, then I'm going to be wrong."

So we must continually do what the psychiatrists call reality checking. We must deliberately and continually seek redundant perceptual data to refine our impressions. In medicine, this is a very complex process called "differential diagnosis". We force ourselves to say, "Even though it's obvious what's wrong with this patient, what could I be missing? What else could possibly cause this?" Most of my own mistakes have been due to not being able to complete this process.

Haste and confidence are hindrances to this. The basketball player cannot line up his shot like a golfer; the overwhelmed ER doc does not have hours to reconsider and second-guess, as the patient's attorney may do weeks later; and the pilot cannot hit Pause and re-assess the situation when the aircraft is zooming through the bumpy air and the situation feels dangerous and confusing. Only training can prepare us to focus on the essentials and to react appropriately; even then, we may be wrong.

This column, while it exists, is aimed at showing that some perceptual error is inevitable, that it's a result of the design limitations and operating characteristics of our senses, and it's aimed at showing that changes in our physiologic state can imperceptibly make us prone to awkwardness.

For example: a high-time, skilled pilot, with thousands of winch launches, does something very stupid-looking and incompetent during a winch launch at a mountain launch site at 6000 feet msl. Why? Was it hypoxia? Could a guy who feels perfectly fit be hypoxic at such a low altitude? (We need to know the context: where he lives and works; what might hinder oxygen delivery from air to brain.) Unfortunately, he can't know this, because the brain has no hypoxia detector, and because hypoxia degrades reality-checking even faster than it degrades skill.

How could this happen? Could you be next? Stay tuned.

## Freeze-dried pilots

Plain old fatigue can happen from many causes, but one of the most treatable is dehydration. Consider the following:

- We excrete about a litre of water a day.
- In hot weather, sweating can cause the loss of up to four litres in an hour! In the cockpit we won't lose that much, but a lot nevertheless.

There is also an altitude effect. As we go to altitude there is less air, and less water vapour, too. The tendency is for the human body to share its water with that virtually water free atmosphere. Water loss from low humidity at altitude increases "insensible" perspiration – insensible because we do not notice it. Our bodies, like wet sponges in the desert, continually lose water through evaporation, and this increases when the body is in the dry atmosphere at altitude.

However, thirst tends to diminish at altitude. The body, designed to survive on the surface, usually loses most water by sweating, not by insensible perspiration. Sweating also causes loss of body salts (electrolytes), and it's the change of electrolyte concentration in the blood which the brain detects to trigger the thirst sensation. As change in electrolyte concentration is not as dramatic when water is lost through insensible perspiration, the thirst warning lags behind actual need.

A lot of dehydration is self-imposed because we rarely drink enough water in the first place. *When the human body signals thirst, it's already about a litre low.* How many of us routinely ask for water at a meal? Not many... Why? Because we want something sweet like a soft drink, etc. – almost anything but water. But sugar can complicate the absorption of water into the body, and alcohol and coffee can cause a net loss of water.

Why haven't we dried up like a piece of beef jerky by now? Fortunately we also get water in our food and the body produces water as a byproduct of cell respiration. Add that to the water we get the hard way with sugared drinks, and we manage to stay alive, but are usually walking around in an almost freeze-dried state (glider pilots especially).

Even the early stages of dehydration can lead to emotional alterations and impaired judgement – not the sort of changes that go well with flying, (and dehydration is much more prevalent among glider pilots than power pilots due to their cockpit environment).

Dehydration must be recognized and treated – simply stop and take a couple of swallows of water *before* you think you have to.

adapted from **Aviation Safety Letter**, 4/83

### Instruction notes

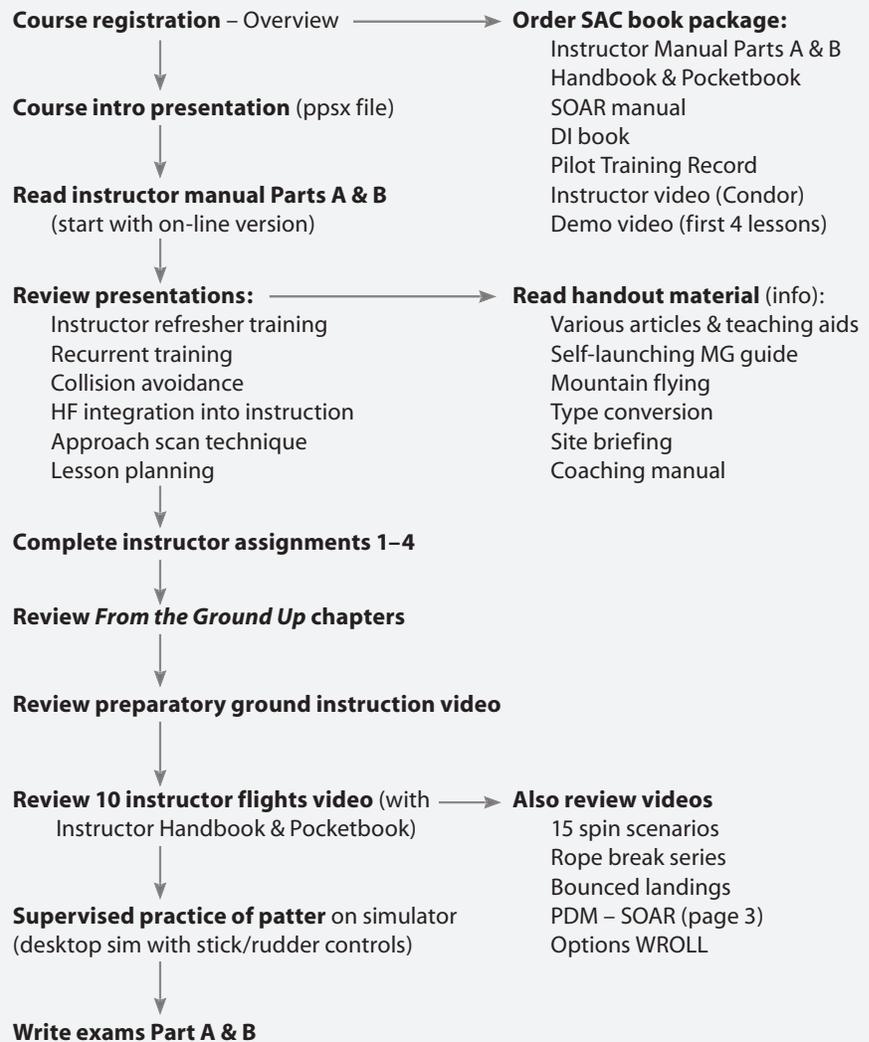
By now all club CFIs should have received a data DVD with the SAC Instructor Course Ground School. This DVD can be used to train new instructors, instructors converting to SAC training program, or instructor refresher training. Of particular interest to current instructors would be the PowerPoint presentation on instructor refresher training. It focuses on how to use the Pilot Training Record (PTR) more effectively and help standardize the training we do and improve communications between instructors. In addition, there are videos on all the inflight instruction stages on the current SAC instructor course which can help with refresher training and standardization.

For glider pilots in general there is a presentation on recurrent training included in the ground school material. Ideally all pilots should see this material but for it to have meaningful benefit it should be discussed at a club meeting how it impacts you. The DVD has video examples of pilot decision making (PDM) which works on the SOAR technique and shows what can be done with simulation and simulators. It is our hope that simulators will be integrated into instruction to help with reviewing material, practising exercises, and learning techniques between flights. With the cost of hardware dropping large screen monitors are reasonably available.

Last but not least the FT&SC blog on the SAC website Roundtable has information to assist clubs and instructors.

**Dan Cook**, chairman FT&SC

### Instructor Course Ground School Overview



## How can a club support the new cross-country pilot?

*Well, not only by general approval of the concept but also by actively booting them out of the nest at times. Brian Murray writes about his experience on 29 May, the day Bruce Friesen and Walter Mueller also completed 500+ km flights at the Edmonton Soaring Club. Here is Brian's e-mail to his club the following day (including a bit more that he e-mailed to me later):*

Hey all. This weekend, I was very happy to have completed a flight to St. Paul and back, netting me all the requirements for the Silver badge and a 386 point OLC score. It pales in comparison to the flights by Bruce and Walter, but I am pretty proud of it. But, as I reflected on it last night, I was reminded of a recent story in the Alberta Soaring Council magazine *ASCent* by Guy Blood in which he recounts a flight at Cowley, and concludes that while we are up there flying alone, it is a team effort.

I had been outside of final glide before, but not by much, so this was a new experience for me. I had been through the math of gliding and final glide calculations, I knew what the gliders could do theoretically, but had never really been able to picture it in my head. My iPhone told me where I could go, but I didn't really believe it. After this day, though my mantra was "play it safe", I now have a true appreciation for how far these aircraft can go, and can now trust the theory.

As I had never done a proper cross-country flight before, and this one was a spur-of-the-moment type of flight, I hadn't put the same type of thought and foresight into the day that Bruce or Walter certainly did. As such, I was entirely dependent on others around me. Without them, I never would have had such a successful day. So, I would like to thank all of those who made the day a success.

First, I would like to thank Bruce and Guy, who's hooting and hollering on Sunday morning at the day's prospects encouraged me to make an impromptu task and go for it. We were sitting in the club house and heard a ruckus from the office where they were looking up the day's forecast, which had prompted me to grab a flight recorder and get ready. I want to thank Bruce and Walter for inspiring me to start considering cross-country flying. While I do enjoy staying in the "cabbage patch", stretching out beyond it has been great, and I now see why those two dedicate so much of their valuable time

to getting into the air. I want to thank Bob Hagen, both for the tow into lift, as well as the innumerable times where he has prodded me to get into a glider and fly. Also, I want to thank Henry Wyatt for urging me to get a paper map in case my cell phone cut out (though the map was never unfolded). And I would also like to put a general "thank you" to everyone who has trained me, and otherwise helped over the years.

Lastly, I want to thank Gary Hill, who helped me in so many different ways. It started with the great breakfast that he and Mary Lou had cooked which gave me the energy to go. He also let me use his iPhone cable to load some extended maps onto my cell. He gave me a few good options for a task, which ultimately lead to my choice of St. Paul instead of just going for something closer. He loaned me his radio and his dog spike against a potential landout. He was also my OO, and ensured I did it all properly. He gave me a map in case my cell died. He even downloaded my flight and put it on the OLC and is preparing the documentation for my Silver badge.

I'm sure there are others that I have forgotten, but your assistance was still appreciated. And thank you to those who would have done a retrieve, but didn't have to, especially Bob who was standing by to do an aerotow retrieve if I (or others) landed at an airport.

So, thank you to everyone for making my day such a success. Without you, it would not have happened.

## A new Kremer prize

The Royal Aeronautical Society has organized a new competition, the "Kremer Human Powered Aircraft for Sport Competition". The original competition produced the *Gossamer Condor* and the *Gossamer Albatross*, both designs by the late Paul MacCready in the 1970s. The prize money is £100,000.

The purpose of this competition is to direct interest in human-powered aircraft towards the design for production and ongoing development of aircraft suited to athletic competition. In particular it is necessary to specify and design aircraft able to operate in normal reasonable weather conditions, as encountered in the UK.

An aircraft in the new competition must fit in a trailer, and be rigged and ready to fly in 30 minutes. The test comprises two flights

around a triangular course of 500m per side. Each flight must be completed within 7 minutes (faster than 22 mi/h) with a rest period allowed between the two, and a maximum overall time of 1 hour. Start and finish heights must be at least 5m. All propulsion must come from the pilot, and there can be no support from the ground. The complete rules are available at [www.raes.org.uk/cmspage.asp?cmsitemid=SG\\_hum\\_pow\\_kremer](http://www.raes.org.uk/cmspage.asp?cmsitemid=SG_hum_pow_kremer).

At present there is a serious contender from the Pennsylvania State University under Dr. Mark Maughmer, named the *Zephyrus*. Some project information is at [http://en.wikipedia.org/wiki/PSU\\_Zephyrus](http://en.wikipedia.org/wiki/PSU_Zephyrus).

## Ontario pilots do well at Ionia

The Region 6 North contest at Ionia, MI was run by a new contest management team. They planned a fun/inexpensive contest in an attempt to resurrect dwindling participation, and they actively marketed the contest to Canadian gliding clubs. They attracted seven competitors from three southern Ontario clubs who ended up dominating for much of the contest. They also planned daily seminars with Frank Paynter and Derek Mackie for those new to contest flying, and Paul Remde of *Cumulus Soaring* presented advances in soaring instrumentation.

The long-range forecast looked excellent for the entire contest period and there were high hopes for lots of flying. Alas, the wonky weather of this spring continued to play havoc with soaring conditions and the hopes were replaced daily with thunderstorms, damaging high winds and tornado warnings. In the end only three days were flyable and each of those were challenging.

Day 1 on 30 May was forecast hot and humid with winds at 15 knots and the possibility of some cu up to 3000 agl. A 2-hour TAT was called and after the sniffers struggled to the minimum height the grid was launched. The gate opened for the FAI Class and just about everyone made it out on course before the day started turning blue and dying. The Sports Class had a later launch and the few pilots who managed to get a start, landed out on the first leg. In FAI, most pilots found themselves out of luck in the second cylinder, facing a strong headwind home and all on course landed out making a pure distance day. In FAI, Jörg Stieber (JS) and Dave Springfield (F1) finished 1-2, while the rest of the Canadian contingent were peppered through the ranks.

The following two days were blown out with damaging winds destroying two tents in the



A bad day to be at the office. 2010 Cowley fall wave camp.

Ab Fotheringham

Canadian camp. The Day 2 forecast was for blue conditions up to 3000 feet. The Sports Class was launched and FAI delayed as they struggled to stay airborne. Eventually the conditions were strong enough to get everyone into the air, but the late day made for a short 1.5 hour MAT with both classes heading to the same mandatory turnpoint. This made for some good “glass markers” on the route and most made it home. In FAI, three Canadians finished in the top five, with Jörg and Dave keeping their 1-2 positions, and Derek (TT) moving up to fifth overall. In Sports, our newcomer from SOSA Krzysztof Wiercioch (MF) finished fifth, moving up into seventh overall.

The next day was called due to extensive overcast and it looked like we might not get another day in before the end, so a few pilots pulled out and headed home. However, Day 3 came as a bit of a surprise – the forecast looked poor to most of us, but local pilot and contest weatherman Bob Fidler (F4) was confident it would be flyable, so we gridded and waited. Jörg went up as sniffer and after several hours of fighting to stay up began to report better conditions. The grid launched and the gates immediately opened for a 1.5 hour MAT to the southeast in very hot and hazy conditions with difficult thermals. The mandatory turnpoint was in the middle of a

blue hole, making it a challenge to get in and out. Then pilots scattered in all directions to hit further turnpoints to make the required miles and use up the remaining time. In Sport, Krzysztof placed third on the day, landing exhausted from the struggle, but climbing to third overall. In FAI, three of the top four spots were taken by Jörg, Derek and Luke Szczepaniak (SZ), behind Bob, who took first. Jörg retained first place overall, while Derek moved into second and Bob into third for the contest.

The contest was very well run and in spite of the weather, we all had a wonderful time filling the non-flying with Condor racing and RC models. Given the weather this year we might be suggesting a new racing format; gliding, simulated gliding (Condor), and RC gliding with combined scores ...

**Derek Mackie**

### **IGC Plenary meeting, March 2011**

Friday 6 March 2011, 9:15 am. IGC President Bob Henderson greeted all the delegates. Formal proceedings got underway and the roll call revealed 37 delegates. IGC is hoping for even more delegates in future, to give more countries the opportunity to contribute their expertise to the sport. Two visitors present from Cranfield University in

England were designing and building a 13.5 metre glider. They were wished well in their enterprise.

There have been some problems in arrangements with a company to cover Grand Prix events – the meeting made it clear that gliding wanted some resolution in the matter. The next World Games will be in two years. FAI has an arrangement with Red Bull even though the air races were cancelled this year.

There had been a doping case where a gliding competitor was found to have offended. In fairness the pilot was suffering from a severe illness, but had not gone through the exemption process and the drug was not performance enhancing. He was only banned for two months. Competitors should note!

**OSTIV** Loek Boermans gave a summary of work done in this gliding technical and safety group which is very active. He remarked that there is room for many other members who are interested in the technology involved in aviation, in particular, gliding.

**Public Relations** Bob Henderson started by referring to a Youth Program running in New Zealand, a report was expected soon. FAI is now using Twitter and Facebook to spread information. He added that one of

the new FAI employees, Faustine Carrera, is responsible for communications to improve coverage. But it would need all countries to feed news and information she could get published.

Eric Mozer, IGC first vice-president and chairman of the Contest Management Committee, reported on World and Continental Championships together with the IGC nominations for steward and jury members. Several forthcoming championships scheduled did not have bids to organize and run them. This was resolved later when votes on bids were taken. New Zealand made the point that there are now too many world championships – devaluing the title of World Champion.

**Sporting Code** The Sporting Code committee had presented a number of amendments and several new rules to bring the Code into line with changes to the General section of the Code. These allowed a multi-seat world record flight to be treated as a team flight, and consequently not requiring the flight to be first recognized as a National Record.

The committee gave notice of a proposal for next year to question the existence of “Free Records” after several years in use. They had not done as was claimed when introduced, which was to significantly increase the distances flown in exceptional soaring conditions. Instead “free” distances were regularly claimed for a distance only a few kilometres greater than the declared flight that initiated the flight. It had become a “fly one, get one free” situation which is not really the way International records should be obtained. Reverting to restricting record claims to one distance claim per flight or allowing a claim only if it exceeded the declared flight by 10% were suggested as options. The paper was published with the aim of stimulating discussion and alternate options.

Annex A (contest rules) also had a number of amendments. One of the most contentious was the use of a finish ring rather than a finish line. The normal routine will be to cross the ring then land straight ahead. The Bureau approved these changes as a safety measure.

Next came the Air Traffic, Navigation, Display Systems (**ANDS**) committee led by Bernald Smith. Bernald has spent much time and energy and has a deep knowledge of GPS and similar devices. He has proposed a new rule for very high altitude flight altitude measurements (>50,000 feet) which would use GPS data from high quality GPS units rather than air pressure data, and he received general approval for the concept.

The **GFAC** (flight recorder) committee noted that some FRs now include Flarm or ADS-B technology. There has been an unexpected situation with the quietness of electric and jet engines, especially when they are run at low power which is a problem for a normal FR with ENL (engine noise level sensing). Annex B has been revised to clarify requirements for FR manufacturers.

**Airspace** The FAI Commission on Airspace and Navigation Systems (CANS) submitted a lengthy report commenting on airspace changes in many countries, the report is on the FAI website. It was noted that FAI commissions such as IGC only have observer status. IGC was urged to seek voting rights.

**IGC history project** This committee pointed out that progress was being made despite still not having the IGC meeting minutes for 1956 (St. Yan) and 1958 (Leszno).

The **Championship Structure** concentrated on the new classes, the 13.5 metre and the Multi-seat 20 metre classes. In the 13.5m Class, it was recommended that no maximum or minimum weight be specified, but a wing loading of 35 kg/m<sup>2</sup> will be included in Annex A for a vote in 2012.

**Safety** A talk, “Safety Pays”, by Helmut Fendt of the OSTIV Sailplane Development Group followed. Briefly, he used German statistics to point out that the fatality rate for gliding was about 1 per 2500 per year whereas automobile fatalities were 1 per 18,400. Obviously, gliding needed to improve its safety record. He pointed out two ways to improve the ratio:

First, internally, especially within contest flying. In the period he had considered there were 25 World Championships and 3 Grand Prix contests. Five pilots were killed, and 3 bailed out. 1 fatality per 8000 flights! His second suggestion was improvements to the aircraft. Enhanced emergency exit to help a bailout was one idea. It takes about six seconds after a break-up for a pilot to bail out, but there are aspects of the cockpit which slow this down, the instrument pod getting in the way being one. His third idea is awards for safety aspects of the glider, a percentage of points for each feature such as an airbag seat. His discussion paper is available on the website.

The bids for World Championship sites were then given ten minutes each to make their cases. An offer from South Africa was the only bid for the IGC meeting in 2012. Then Bob Henderson was elected as IGC President, there being no other nominees. The meeting then adjourned for the evening.

Saturday, 5 March began with a discussion on Type Certification vs Permit to Fly, a subject which had had a good airing on the *IGC-Discuss* forum. The feeling of the meeting was to treat each case as a single case under the authority of the competition management.

**Championship structure** The Bureau wants to reduce the number of entries to one entry/class/NAC. For the Multi-seat 20m Class, two entries were permitted, but it was argued that just one entry would benefit small countries. The rules for the 13.5m Class were treated separately and approved. Bids for the first championships are called for 2012.

The President of FAI, John Grubbstrom from Sweden, addressed the meeting. His background was as a balloonist for many years and is still competing. His aims for FAI are to reform, develop and expand. His entire address showed great enthusiasm for aviation and the role of the FAI.

The IGC’s strategic aims were then discussed, starting with a target number of at least 40 delegates at IGC plenary meetings and the continuation of monthly newsletters. The quality of events should be improved. It was noted there were too many accidents; IGC is briefing officials and producing videos to emphasize safety functions.

**Bureau proposals** The wording of the Multi-seat 20m rules in SC3 was amended to allow handicapping except for World Championships. On the ANDS proposal to allow altitudes above 50,000 feet to be determined by GPS records in the flight recorder: actual wording and detail is to be voted on in 2012. A USA proposal was to remove the need for the FR declaration to include the pilot’s name and the glider being flown, these details to be recorded and certified by an OO at the takeoff and landing. The proposal was amended to be for badge flights only.

A Canadian proposal that GPS heights be used to verify Silver and Gold height gains given an acceptable height error margin; for example, no more than 600m loss of height on a distance flight, and an excess of at least 400m over the required gain of height for an altitude flight are attained. Final wording to be voted on next year.

A discussion on the management of contests followed. Should IGC form a championship organizing team to take charge? Should IGC take a role in local organization? It is already the case that IGC has strengthened the authority of the Chief Stewards at championships.

**Ross Macintyre**



There were a few complaints, but fortunately I was also the Contest Director, so I could rule in my favour. Upon my return east I missed most of my duty days because of rain.

We have a Blue Book where members can record violations, ratting out their fellow pilots in the name of safety. This is sort of like the fist fight thing, you don't actually have to be involved to be named, you just have to be nearby.

Last year I was in the Blue Book as much as anyone, and was in it three times in one day, which I think is a club record, four if you count a noise complaint. One of the incidents involved swearing on the radio after a near miss. During a discussion as to whether the swear words were justified, Jörg Stieber noted that they were nearly my *last words*.

After I had such a lackluster year, why then did the club give me the towpilot award? Probably because as always, I made everyone else look good by comparison. Naturally I felt very guilty about accepting the award, and set about trying to actually make a "significant contribution" to the club.

There is a movement afoot at SOSA to have more involvement by all members in cleaning and maintaining the aircraft, keeping the grounds in shape, and sprucing up the campground. Normally, people moan and complain about having to do maintenance work instead of flying, and the work never gets

done. And those hardy souls who actually do some work feel they are not appreciated. I have devised a plan that should make everyone very happy to have me as a member.

This year, I plan to do absolutely nothing, and to be conspicuous about it. I have purchased a lawn chair and sunscreen, and amassed a supply of magazines and books and will regularly set myself up in front of the clubhouse to relax. In this way, everyone who works hard around me will feel so much better about themselves, club morale will go up, and I will have helped out yet again. ❖

*(Editor's note: We did not actually think that this article was very well written, but we included it in order to make the rest of the magazine authors look better by comparison.)*

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Eligible funds include the Pioneer Fund, Wolf Mix Fund, Peter Corley Fund, Air Cadet Fund, and the newly established Youth Bursary Fund.

### Le support de membres à SAC

Le support généreux de membres comme vous, envoie un message important et de bienvenu à tous nos bénévoles, qu'ils ne sont pas seuls à contribuer au niveau national et que leurs efforts sont appréciés. Les gains des investissements du Fond des Pionniers sont un facteur important pour maintenir les coûts des adhésions annuels sans augmentation. Aussi la SAC a pu offrir une assistance additionnelle aux équipes World Team et Junior Team, représentant le Canada dans les compétitions internationales et a contribué à 20 bourses des jeunes au travers le Canada.

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# Cross-country potential in southwestern Ontario

Wilfried Krueger, SOSA

**T**he weather in southern Ontario is influenced by the Great Lakes. Most of the time the lake effect is not desired; however, sometimes particularly close to Lake Erie, we can fly alongside the lake without circling as in the photo below. Nevertheless, opportunities to fly gliders cross-country exist, and year after year pilots enjoy flying over this beautiful countryside. The longest flight so far has been 800 kilometres by Adam Zieba. This is the good news; the bad news is there are not too many good soaring days in a season.

The table below shows the number of cross-country days we flew over the last four years. The data should be close to reality and are based on the OLC. An exception may be the weather in April. We know that cloud bases in spring can sometimes reach 9000 feet and good days are often missed due to pilots being unprepared and our runways being often too wet to operate from. In other words, there were probably more good days in April than listed.

Summarized, about every third day of the season is a X-C day but there are only about 8.5 days a season where we can fly long distances greater than 500 km. To find the X-C days, particularly the good ones, requires effort and commitment. It also requires patience, skill and using the right tools. Actually finding the good days is part of the fun and challenge of X-C flying. You can be the best glider pilot in the world but if you are unable to pick the good days you will not be able to go too far. Almost all long flights are the result of proper planning and preparation. Following this procedure I was able to enjoy many 500 km flights in Ontario, my longest flight out of Rockton was 760 km.

Based on my experience, the preparation process starts by following the weather reports on a daily basis and being committed, within reason, to take time off if necessary. I did this for many years and seldom missed a good day. I follow the local weather station and *Intellicast* for long and short term weather.

If conditions look promising I get *Dr. Jack* and *XC Skies* involved, usually late in the evening and early in the morning. The pre-decision to fly is done in the evening and the final one early in the morning. After I decide to go I try to leave at 7 am to make sure I have all the time I need. The glider and towplane need to be ready for takeoff before the first thermal is on the horizon. This should be before 10 am. The success rate of this procedure is about 90%.

Back to weather forecasts; it is important to stick with the same stations, understand the background and information, and compare the forecast with the actual weather. This gives us a pretty good idea about the accuracy of the forecast.

Once we decide to go, getting ready asap is important. Weatherwise we need to be optimistic. Nothing is lost waiting on the start line but valuable time is lost if we are not ready when the first thermal is visible. Don't wait for the forecast trigger temperature time; watch birds, clouds or club gliders. Select the first leg in the direction where the first cu developed. Be flexible. Lastly, fill the glider with water if you are planning a long distance flight – it will increase your speed. ❖

Year	Apr	May	Jun	Jul	Aug	Sep	Oct	total
2007	2	12	13	14	13	10	1	65
2008	3	7	8	11	10	9	2	50
2009	3	8	16	12	14	14	2	65
2010	9	11	4	13	11	5	5	58
Avg. X-C days/season	4.3	9.5	10.3	12.5	12	9.5	2.5	59.5
> 500 km 2007-2010	4	7	6	10	5	2	–	34
Avg. >500 km days/season								8.5
Total days per season: about 180 counting only flights over 100 km and claimed by SOSA, York, and Toronto Soaring.								



Wilfried Krueger

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## GOLD BADGE

330 Luke Szczepaniak SOSA  
331 Pierre Gavillet Montreal

## DIAMOND DISTANCE (500 km goal flight)

Marian Nowak Toronto 791.3 Egret Julian, PA

## GOLD ALTITUDE (3000 m height gain)

Luke Szczepaniak SOSA 3960 SZD-55 Lake Placid, NY  
Pierre Gavillet Montreal 3400 DG-300 Lake Placid, NY

## SILVER DISTANCE (50 km flight)

Richard Garvis Montreal 51.9 Discus Minden, NV  
Sebastian Cote Montreal 58.9 Libelle H301 Hawkesbury, ON

## SILVER ALTITUDE (1000 m gain)

Martin Camenietzki SOSA 1500 SZD-51-1 Rockton, ON

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2943 Gibson Kostiuik Winnipeg 1:50 Astir CS Starbuck, MB  
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The following preliminary notification of record claims has been submitted:

Pilot **Bruce Friesen**  
Date/place 29 May 2011, Chipman, AB  
Record type Free Triangle Distance, Territorial, Open & Club  
FAI category 3.1.4d  
Sailplane type Standard Austria C-FPDM  
Distance 512 km (609 km Club)  
Previous record Tim Wood 481.0 km (2007 Open)  
Tony Burton 515.7 km (2004 Club)

Pilot **Bruce Friesen**  
Date/place 29 May 2011, Chipman, AB  
Record type Triangle Distance, Territorial, Club  
FAI category 3.1.4h  
Sailplane type Standard Austria C-FPDM  
Distance 599 km  
Previous record Tony Burton 515.7 km (2004)

Pilot **Bruce Friesen**  
Date/place 29 May 2011, Chipman, AB  
Record type 500 km Speed Triangle, Territorial, Club  
FAI category 3.1.4j  
Sailplane type Standard Austria C-FPDM  
Speed 85.1 km/h  
Previous record Tim Wood 78.6 km/h (2010)

Pilot **Tim Wood**  
Date /place 4 June 2011, Elko, BC  
Record type Free out-and-return Distance, Territorial, 15m  
FAI category 3.1.4b  
Sailplane type DG-400 C-GETW  
Distance 614.4 km  
Previous record Ian Spence 596.7 km (2009)

## ARTICLES FAI POUR INSIGNES

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towards supper time when I arrived at my last turnpoint at Camrose and I was wondering if I would find enough lift to fly the last 77 kilometres north to Chipman. A little north of Camrose though, I found lift to bring me up to over 11,000 feet from where I just floated very leisurely straight towards Chipman with some more lift along the way so that I arrived over the field at over 8000 feet. So as not to waste all that beautiful altitude I flew another 12 kilometres north to St. Michael and return. By now my body told me to get back down to terra firma while I was still able to make rational decisions. After landing I appreciated the help I received to get out of the cockpit and it took me a few minutes before I could walk properly again.

Congratulations from my wife and my friends at ESC made me realize that it actually was quite an achievement and I am very happy that I was able to do it. The flight lasted 7:41 hours; it was my longest flight in a sailplane, both in time and distance, it counted for 675 OLC points, and it was my Diamond distance flight. And last but by no means least, I thank my wife Grace and friends from the Edmonton Soaring Club for their support and the help this old kid got to make this possible. ❖

**A glossary of some aviation terms**

Air carrier	Any container or vehicle used primarily for the purpose of carrying air.
Angle of zero lift	The angle that precedes a flight report.
Buffeting	Eating dinner while standing up.
Bulkhead	A derogatory expression: usually applied to persons of questionable intelligence.
Certified aircraft	An aircraft, the hazardous features of which have been overlooked.
Compensating the compass	A ritual performed by IFR pilots after emerging from cloud.
Gliding distance	One-half the vertical distance from a 2-33 to the nearest landing area.
Gusset	A light gust.
Hand forging	An illegal type of penmanship.
Jury strut	A dance popular in legal circles.
Lap joint	A bar or other establishment having private booths and/or dim lighting.
Solo flight	A glider flight conducted at low altitude.
Thermocouple	Newlyweds.

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