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# Uni Gliding

September 2006

The Official Journal of the Adelaide University Gliding Club



*A panorama of KYR thermalling*

*Photo: Justine Thompson*

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## QUOTE OF THE MONTH

*'See ya!'*

Sarah Allen

## Editor's Blurb

Hi all,

Well yet again I find myself assembling another newsletter. I think this marks the third time around that I have done this particular job. Hopefully I will find a volunteer to do next months. It isn't that hard. It is a bit like a jigsaw puzzle and all that you have to do is juggle various sized bits around till they fit. But you have to hassle various committee members to actually give you their bit first. The newsletter is an important part of the club's communication. It is avidly read across Australia. I have met a number of members from other gliding clubs who regularly read the AUGC newsletter each month because their club doesn't have a regular newsletter. It is something well worth doing.

A lot has been happening in the background that many members won't have seen. Anne Philcox and others have been working very hard to get the club involved in the [Jamestown Airshow](#). This is a great opportunity to promote the club and gliding in general.

Also in the background, Trent and Redmond have been kicking goals that have resulted in the Stonefield Aviation Association coming into being. A big night was held on Saturday 2nd September to mark this event as well to farewell Sarah to Lake Keepit.

Anthony  
Temporary Editor

## Will the Mighty Morph's Win?

I came across an article in a weekly aviation news magazine that I receive at work. It detailed the latest attempt at flying a UAV with a wing that was adaptable from cruise to loiter and back again. In essence the planform would morph between two shapes: the first a low aspect ratio, swept wing for high speed cruise and the other a high aspect ratio with low wing sweep.

Morphing wings are not a new idea in aviation. The Wright brothers invented it along with their Wright Flyer. They morphed the outer ends of the wings as a seamless whole to increase and decrease lift. They literally twisted the wings to give the Flyer roll control. (The aileron wasn't invented till a little while later, supposedly by Glenn Curtiss who the Wright brothers tried to sue for breach of copyright).

Swinging wings with variable sweep angle, made popular by the F-111, are another form of morphing, this time from high to low speed.

Various attempts at morphing have been made in gliding as well. Various Akaflieds have tried guerny flaps without great success. The Stuttgart FS-29 even tried to have outer wing panels which retracted over the inner wing panels in an attempt to have a variable wing span aircraft. It flew, but it was found that the wings couldn't be extended or retracted fast enough to be of much value.



Now, with a huge amount of research being invested in UAVs, the race is on to develop a wing that can adapt to the conditions. Might this technology appear in gliding as well in the future? The latest attempt at a morphing wing is pictured on the left. The wing is by NexGen Aeronautics and the fuselage is a MFX-1 UAV. Not a lot is published as to how the wing works. The red areas of the wing appear to be rigid structure, while the white areas appear to be a flexible trapezoidal structure. The published data states that the wing area changes by 40%, the span changes by 30% and the wing sweep varies from 15 to 35 degrees.

So how could a glider use this technology and would there be any significant benefit?

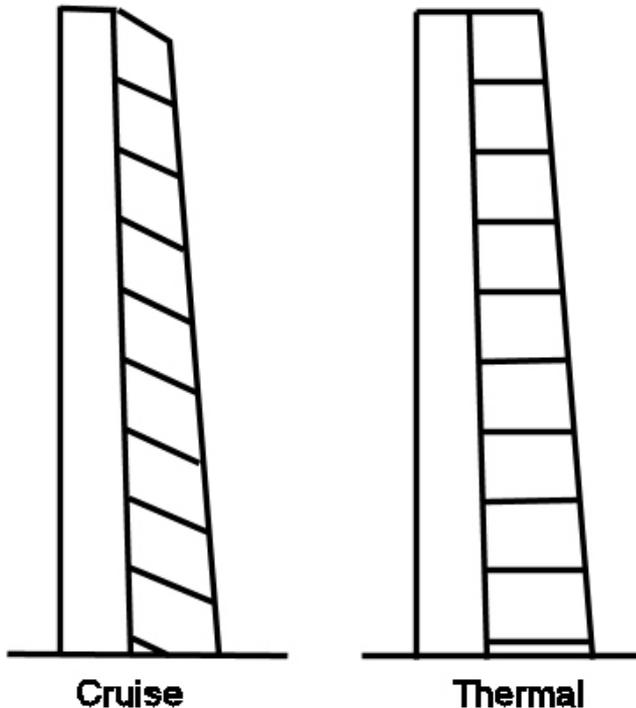
## September 2006



Jenny MacDonald And Derek Spencer thermal GZM near Stonefield. Photo:Justine Thompson

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
				1	2 Go Gliding!	3 Go Gliding!
4 Help at West Beach	5 Help at West Beach	6	7	8	9 Go Gliding!	10 Go Gliding!
11 Help at West Beach	12 Help at West Beach	13 SAGA Winter Lecture Flying your first competition	14	15	16 Go Gliding!	17 Go Gliding!
18 Help at West Beach	19 West Beach BBQ	20	21	22	23 Go Gliding!	24 Go Gliding!
25 Help at West Beach	26 Help at West Beach	27	28	29	30 Go Gliding!	1 Go Gliding!

The first step is to consider the wings structure. It has to resist bending and twisting and it doesn't need to sweep back and forwards. Perhaps the best way is to have the front 40% of the wing rigid, like the d-nose and spar of a wooden wing. That leaves the rear 60% of the wing to be a flexible trapezoid like that on the MFX-1. The trapezoidal structure is covered by a stretchy material, which at this stage handles wing loadings of up to 400 lb per square foot (roughly 16.6 kg per square meter). This is a bit light on for gliders at the moment which typically have wing loadings from 25 to 40 kg per square meter. Hopefully a bit more research and development will yield an improved material.



So what kind of gain can we get? The fuselage of a glider has only minimal width. So there is limited room to retract the 'rear spar' of the trapezoid into the fuselage. The result is that the trapezoidal area can only change by approximately 16.6% or so. Given that the front 40% of the wing is fixed, the nett wing area change is 10%. This is not a huge amount. Increasing the wing area greater than a conventional glider would reduce the stall speed of the aircraft from 36kts down to 34kts (approximately 5% lower) and hence tighten the radius of a thermalling turn by 10%.

Alternatively, the thermalling performance could be kept the same and the wing area retracted by 10% for the cruise. It would effectively bump up the wing loading by 10% and improve your best cruise speed by 5%. Perhaps here is where the real gain is. Overall cross country speed may be improved by roughly 2.5% which is all it takes to come first instead of fifth in some competitions.

Of course there are down sides. A trapezoidal mechanism is most likely to be heavier. Aileron control would be a significant challenge. The MFX-1 had rigid ailerons on the rigid portion of the wings. Perhaps it would be time to go back to the dawn of powered flight and revisit Wilbur and Orville. Given that the material covering the trapezoid is able to be stretched, a wing warping mechanism could be employed. It would still be a challenge to get it to work with the wing in either climb or cruise settings.

The change in the effective chord length of the aft portion of the wing would lead to some design challenges with the airfoil too. It would need to be carefully designed so as not to have laminar separation bubbles at higher speeds and the wing in cruise setting. The shorter chord means that the air has less distance to slow down over, which means a faster deceleration and hence a greater risk of a bubble forming.

So will the mighty morph's win? Maybe not in the next decade or so, but it does demonstrate the advances being made in another area of aircraft design may eventually leak into our sport.

Anthony

## Stonefield Aviation Association Incorporated

### What Has Happened

As described elsewhere in this newsletter, there was a big event on September 2<sup>nd</sup> to celebrate the commencement of shared operation of the airfield facilities. At this event, the two clubs signed to accept membership of the Stonefield Aviation Association, which will operate the airfield.

### What It Means

In money terms, this means that AUGC will no longer pay a lease to BVGC for access to the airfield, but AUGC will be making a long-term commitment to contribute to the improvement of the facilities. SAA will pay the airfield operating expenses and the clubs will contribute by way of the Airfield Services Levy. SAA will also pay the costs for winch operation on the airfield and will effectively hire the winches to the pilots. The amount that

each pilot pays for winch launches will be set by the club Treasurers as before, but no immediate change is expected. Pilots will not be getting bills from SAA - all payments will be via existing club accounts. Derek Spencer

In people terms, it means that members from both clubs can and should use and maintain any airfield equipment, after seeking appropriate training and advice. It is hoped that more AUGC members will learn to maintain and drive the trailer winch, BVGC members will learn about the fire trailer and so forth. There are some projects being planned to upgrade the area around the clubhouse and it is expected that AUGC members will be making a big contribution to this work.

## What Happens Next

There will be a transition period during which the ownership of the facilities, as well as responsibility for insurance, will be transferred to SAA, and the Treasurers will come to grips with the new arrangements. Anyone with questions or ideas about the airfield arrangements is invited to raise them with their club representatives on the SAA committee.

Trent

## President's Report

It's always unfortunate when a club loses a glider. Particularly when it's tattooed on someone's arse :-). Sarah Allen has accepted a job as Airfield Manager at Lake Keepit. She is one of the more colourful members of the gliding club and although lacking in height, she makes up for it with charisma.

My first flight with Sarah lasted 32 minutes and was on the 4th of April, 2004. I sent her solo on the 2nd of May, 2004. Her dedication was nothing short of amazing and so was her talent. In just over 2 years, she has clocked up over 400 hours. She will be dearly missed and we wish her all the best in her new job.

On the 2nd of September, Jim Mullen and I signed an agreement to become members of the Stonefield Aviation Association Inc. on behalf of the Barossa Valley and Adelaide University Gliding Clubs. We had a fantastic evening which was extremely well attended. The bonfires were awesome!

Just a quick reminder that the Jamestown Airshow is fast approaching. A big thank you to all helping prepare for this event. Please put the 14th and 15th of October in your diaries and help out not only the club, but gliding as a sport.

That's all for now, so until next month, have fun and fly safe.

Cheers,

Derek Spencer  
President AUGC

## Treasurer's Report

The Treasurer's Report was not published last month, due to the Editor's oversight, however, you didn't miss anything and most of the content is included here as it is still relevant.

### Bergfalke Flying Rates

The flying rates for the Bergfalke (GZM) have been reduced since June, however as this was not widely published, it has been decided to reduce them for an additional three months. The rates are \$0.40/minute (normal) and \$0.25/minute (concession). It is hoped that this will encourage more flying. I would encourage you to possibly plan some early summer cross-country mutual flights at these bargain basement rates.

### Bulk Flying Scheme Thoughts

There has been some discussion by the Exec about the existing Bulk Flying Scheme. It is felt that additional schemes should be developed to encourage a wider section of pilots to fly more. It is anticipated that AUGC will offer a scheme in which pre-paid hours are purchased and the pilot is credited with additional (or possibly unlimited) hours within a time window. For example, purchase 10 hours and receive a credit of 25% (2.5 hours), which may be accessed by provided 12.5 hours is flown within 2 months (otherwise, the 2.5 hours extra credit is null and void). Other suggestions are welcome.

### Prepaid GFA Forms

The GFA decided to discontinue the current payment arrangements for Introductory Membership Forms. We currently pay the GFA for memberships after they have been taken up, however in the near future we will pre-purchase membership forms from the GFA. Whilst people currently complete a form and nominate whether they are a student, in the near future members will need to complete either the normal or concession form. Void forms and incorrectly completed forms (where a normal form is completed by a concession) may see AUGC out of pocket. Please be careful to complete the correct form, direct others to do so and make sure the forms are passed on.

### Concession Rates for Non-Members

Concession launch and flying rates will no longer apply to non-members. AEFs will continue to be offered at normal (\$70) and concession (\$40) rates, however all additional flying will be charged to visitors at normal rates (\$6/ launch) and the relevant aircraft rate. It is hoped that this will provide encouragement to repeat (student, etc) visitors to join AUGC. It has been, in part, prompted by the necessity to subsidize concession rate launches under the new airfield ownership arrangements.

### VSU

VSU has now started, and so all members must pay \$33 (AU Student only) / \$66(concession/normal) for Sports Assoc. membership from now on. AU students are no longer members of the Sports Assoc through their payment of the Stat. Fee. Existing Sports Assoc members who join AUGC must let us know to avoid being charged twice. Incidentally, all members of the Sports Assoc. are now Ordinary Members as Sports Assoc student, affiliate and associate memberships have been merged.

### Construction of AUGC Hangars

It is hoped to quickly erect AUGC's hangars at Stonfield. It has been estimated that the cost of relocating the hangars will be \$11,000. The club presently has no funds available for this action. It was hoped that this would be made possible by a SA Dept. of Rec. and Sport grant, however we have been unsuccessful. In addition, I am pursuing a special grant from the Sports Assoc. (however their first priority is to solve several issues that our new constitution presents to the University administration).

Nevertheless this cost will offset the approximate \$150 per month that the club spends on hangar hire from BVGC. Incidentally, if the club were to loan additional funds from (say) members at the interest rate of approximately 5%, as it has done to purchase the MotorFalke, then \$150 per month would finance approximately a \$35,000 loan. Of course the club would need members willing to offer loans to the club to permit this. Regardless, this is an indication of the financial incentive that the club has to erect its own hangars as soon as is practical.

Greg

## Early Bird Award

The Early Bird Award is a new AUGC award for the first successful solo cross-country flight by a club member from AUGC's home airfield between July 1st and Oct 31st of each year. A suitable trophy will be presented to the winner at the AUGC Annual Award Ceremony the following year. The aim of offering the award is to get people thinking about cross-country flying before summer and to encourage cross-country flying in the club.

The award will go to the first pilot completing a verified cross-country flight that meets certain minimum requirements. The exact requirements may be modified from year to year but for 2006 the rules are:

### Eligible Tasks:

- Must launch from Stonefield, have a *Start Point* within 20km of Stonefield and have a *Finish Point* at Stonefield.
- Must be a declared task conforming to the course requirements for *Distance Using up to Three Turn Points*.
- The *Official Distance* must be at least 101km for Club/Standard Class gliders, 130km for others.
- At least one leg must conform to the requirements for *Silver Distance*.
- The flight must take place between July 1st and Oct 31<sup>st</sup>, inclusive.
- The task definitions and verification requirements are as specified in the FAI Sporting Code - Section 3, which is available on the FAI and GFA web sites <<http://www.fai.org/gliding/sc3>>. The terms written here in italics are defined in that code.

**Claim Requirements:**

- The pilot must submit an FAI claim form, signed by an *Official Observer*, which verifies completion of a qualifying task as above.
- The claim form must be submitted to the AUGC Coach or AUGC CFI within 30 days of the flight. If either the Coach or CFI is the claimant, the claim form should be submitted to the other. A copy of the claim form is sufficient if the original is being sent to GFA for a badge claim.
- The pilot must hold a C-Certificate.
- The pilot must be a member of AUGC on the day of the flight.
- In the event of more than one eligible flight on the same day, the first pilot to *finish* wins.
- The Coach or CFI receiving the claim will confirm the eligibility of the pilot, rule on any disputed eligibility for the award and will announce any winner of the award as soon as possible.

I don't believe anybody has already made an eligible flight this year so there are about seven weeks remaining for people to go out and try to win the award for 2006.

Good Luck,  
Trent

## CFI Report

### ***New Ops Directives from GFA***

The GFA Ops Panel has been busy since my last column.

They've released three Operational Directives (OD's), which I'll discuss below.

To get us started: The ODs are:

2/06: Instructor Authorisations

<http://www.gfa.org.au/Docs/ops/OD%202-06.doc>

3/06: Level 1 Instructor Privileges

<http://www.gfa.org.au/Docs/ops/OD%203-06.doc>

4/06: Level 1 Independent Operators

<http://www.gfa.org.au/Docs/ops/OD%204-06.doc>

### ***Instructor Authorisations***

Until OD2/06 was released, revalidation requirements for instructors were based on the amount of instructing they'd done over the previous two years. Instructors were expected to carry out 20 instructing hours and/or 50 instructing launches in every 2-year period ending on October 31 in an even-numbered year.

This meant that an instructor could theoretically perform 20 hours of instructing work during November 2004, at which point their rating would continue to be valid for four years (the end of the next revalidation period), taking them out to the end of October 2008. Even if they were completely out of currency, they'd still be considered a GFA instructor.

That's now changed. Instructor ratings now have currency requirements on them. An instructor who is not "current" can't instruct without receiving checkflights. And the CFI sends an "Active Instructors" list to the GFA every year, and any instructor who is not listed will lose their rating.

The hope and belief is that this will tighten up standards for instructing (by promoting currency requirements and regular review) and that it'll make revalidating instructors easier (because it's automatic provided they're current).

### ***Level 1 Instructor Privileges***

The GFA has issued three types of instructor rating, called Level 1, 2 and 3.

Level 3 instructors can teach the entire syllabus. Level 2 instructors can teach that part of the syllabus which isn't concerned with teaching new instructors. Level 1 instructors can teach the same stuff as Level 2 instructors, except that they can only instruct under the supervision of a Level 2 instructor, they can't conduct annual checks, and they're not permitted to send someone on their first solo flight.

Level 1 Instructors have historically been in a bit of a limbo zone. Because their instructing activities always required supervision by a Level 2, they couldn't instruct under the auspices of an independent operator rating. Bizarrely, the description of the Air Experience Instructor in the MOSP specifically states that AEs can carry out their instructing role without a Level 2 instructor's presence if they hold an independent operator rating, even though they're less stringently trained and checked than a level 1 instructor.

So that's now fixed. OD3/06 lets a CFI-approved Level 1 instructor with an independent operator rating take charge of a 2-seater and teach people how to fly even if a Level 2 instructor isn't present. A Level-2 is still required to send someone on their first solo and to perform annual checks.

### ***Level-1 Independent Operator Privileges***

The final dove-tail in this bunch of related ODs concerns independent operators.

Usually solo flight is carried out under the supervision and authorization of a Level-2 instructor. Independent Operator ratings let people who are sufficiently trained fly gliders without that requirement, as long as they're prepared to take responsibility for any outcomes that'll entail.

Until recently, the minimum requirement for an Independent Operator rating was a Silver Badge. This always struck me as weird, because Silver Badge is a sporting qualification and the Independent Operator rating is an Operations rating. The arrangement we had was akin to what we'd have if the Government said you were allowed to graduate from P-plates to a full license as soon as you were able to place inside the top ten drivers in a race at Mallala.

AUGC has historically had problems with this for other reasons. It takes some pilots three or four years to get a Silver badge, largely due to the requirement for a 5 hour flight, which few people look forward to. Many candidates wait until their first 300km flight, which often takes more than 5 hours, before they claim the badge.

I'd be perfectly happy for most AUGC "regulars" to operate independently if they wished, removing the need for the attendance of a Level-2 instructor, but they can't because most of them haven't claimed a Silver Badge.

OD4/06 fixes this by lowering the minimum requirement for Independent Ops to the C certificate. "C" is an operational certification. This change recognizes the fact that someone who is competent to fly cross-country is probably also competent and responsible enough to decide whether it's safe to launch without the aid of a Level-2 instructor.

### ***Putting it all together***

Under the old rules, if a duty instructor happened to be too sick, too busy, or too hung-over to fly, we'd cancel the day.

Under the new rules, the trained glider pilots (C certificate and higher) will be able to apply for independent operator ratings, so that they can still fly if there's no duty instructor available. If any of those Independent Operators also hold AEI ratings, we can invite AEFs up just like we usually do, and the day can more or less proceed as per usual.

Under the old rules, an "independent operators" day would mean we'd need to ring up all the trainees and tell them to stay home. Under the new rules, if one of the independent operators happens to be a Level-1 Instructor, training can still proceed.

Pilots who are somewhere between first solo and C certificate would not be able to fly on Independent Operator days, so the new rules aren't a complete relaxation of the regulations. The changes are merely an official recognition of the fact that there's a large segment of the gliding fraternity who do not require detailed supervision, and that segment ought to be able to carry out their activities without unnecessary impediments.

My personal view is that all pilots should have "Level 1 Independent Operator" as one of their goals. Advancement of skills to the point where you can take charge and accept responsibility for your own actions is an important milestone, probably more important than first solo in some ways. I'm looking forward to seeing how these new systems work in the real world.

Mark



## Stay In Touch

The club has an email group address, [augc-people@lists.internode.on.net](mailto:augc-people@lists.internode.on.net), that is used to either discuss or arrange things within the club. If you want to stay in touch with the club, subscribe to the mailing list by filling out the online form at:

<http://lists.internode.on.net/mailman/listinfo/augc-people>

You can still send an email to the list even if you have not subscribed to it. There is also an 'augc-announce' list for official club announcements, courtesy of our friends at Internode. If you are an AUGC member and have provided your email address then you will already be on this list. If you want to join this list or want to change your subscription, go to:

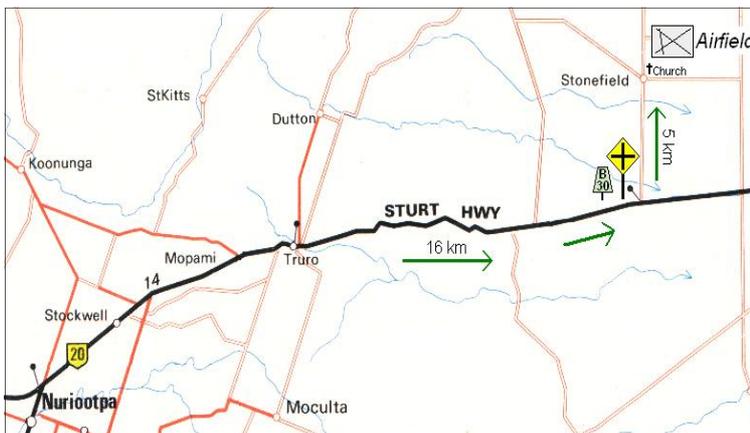
<http://lists.internode.on.net/mailman/listinfo/augc-announce>

You can also get the latest newsletter and up to date news on what is going on at the club's web page:

<http://www.augc.on.net/>

If your email address is on the membership database the club's Assistant Treasurer can send you your account updates over the internet. Send an email to: [accounts@augc.on.net](mailto:accounts@augc.on.net)

## Want to fly this weekend?



Want to go flying on the weekend? You must ring the club contact person, Tom, on the Thursday before between 8.00pm and 10:00 pm on 0412 870 963, (or by email: [contact@augc.on.net](mailto:contact@augc.on.net)) so that he can organise instructors and transport for those intending to fly. Members can book via the online booking system at:

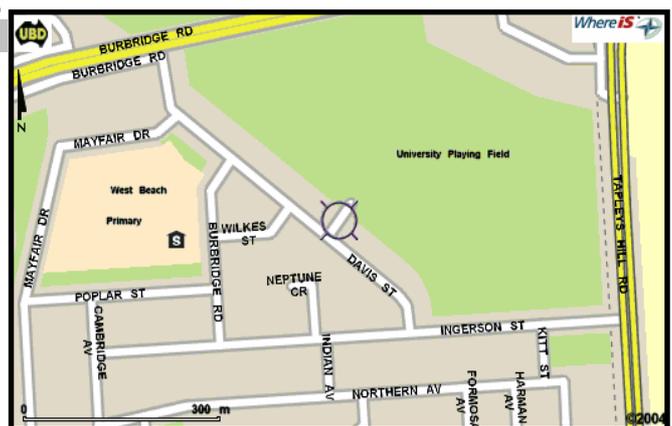
<http://www.harley.net.au/AUGC/index.asp>.

You can either drive up yourself by following the map at left, or Tom can arrange a lift to Stonefield either from the Adelaide University footbridge (meet at 7.15am to leave at 7:30 am), or from the Caltex Service station on the corner of Montague Road and Main North Road (meet at 7.45am to leave at 8:00 am).

## Want to help at West Beach?

West Beach is where we carry out the maintenance and repair on our gliders and equipment. There are usually volunteers working down there on Monday and Tuesday evenings. The entrance is at the end of Foreman St, West Beach.

So you want to help fix the gliders at West Beach, but can't get there? A lift can be arranged from the Adelaide University footbridge at 7.30pm via [augc-people@lists.internode.on.net](mailto:augc-people@lists.internode.on.net).



## Contact List

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## Upcoming Events

**Wed 13 September: SAGA Winter Lecture**

Room N123b, Engineering North Building, University of Adelaide

Fifth of the SAGA coaching winter lecture series. The topic for this "Making your first competition a positive experience" and "Flying the world comps in France" with Phil Ritchie, Peter Temple and Terry Cubley.

A great way to learn more about gliding and keep motivated over the long winter months.

**Tues 19 September: West Beach BBQ**

6.30 pm, West Beach maintenance shed.

Come down to West Beach for snags, socialising and sailplane maintenance. Snags, bread and sauce are available at \$1/snag (or 5 for \$3). Bring other food/drink yourself. Soft drinks and beer are available from the fridge at the usual prices.

**Sat 30 Sept - Mon 2 Oct: Labour Day Long Weekend**

Three whole days of gliding, BBQs, bonfires and more at Stonefield! What else would you do on a long weekend?

**Sat 14 + Sun 15 October: Jamestown Airshow**

The club will be putting on a display at the Jamestown Airshow. Come along and lend a hand or just sit back and watch all the flying.

Contact Anne Philcox for details

**Wed 25 October: SAGA Winter Lecture**

Room N123b, Engineering North Building, University of Adelaide

Sixth of the SAGA coaching winter lecture series. The topic for this "Proper radio procedures" and "Airspace and NAS2C procedures" with Brenton Hollitt and John Hudson.

A great way to learn more about gliding and keep motivated over the long winter months.

**Sun 6 + Sat 13 January: SAGA Coaching Week**

SAGA is holding its annual coaching week at Waikerie. It is a great opportunity to improve your cross country flying.

Contact Derek Spencer for details.