



# Aeronautical Society of South Africa

(Association incorporated under section 21)  
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A Division of the Royal Aeronautical Society

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## AeSSA Newsletter – May 2007

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### EDITORIAL

The importance of the Aerospace industry in South Africa can no longer be in question despite its rather varied fortunes during the last 20 years. The staging of an International Aerospace Symposium opened by the Deputy Minister of Science and Technology marked the “coming of age” of our industry which has survived a very lean time since the heady days of rapid growth due to massive defence spending in the ‘70s and ‘80s.

The symposium established South Africa as a credible player in the global Aerospace industry and the Society can be proud of the fact that, even though it was not actively involved in the staging of the symposium, the chief mover and shaker was in fact one of our own Council members. We will have more to say on this subject in the next newsletter.



**Kittyhawk Airfield – Glen Dell’s two aerobatic display aircraft**

## Forthcoming Events

The long awaited lecture on the A400M on 09 May (see advert elsewhere in this issue) will be the last event in the current year which will end with the Society AGM on 30 May. However an exciting programme of events for the coming year is already in the pipeline and it will include the Major Miller Lecture (topic still to be finalized), a lecture on EADS and a special event for modeling enthusiasts, a lecture and demonstration on flying model aircraft. Full details of these events will be published as soon as they are finalized which will hopefully be soon after the AGM.

Functions to diarise then are;

09 May – A400M lecture at Aerosud 18:00 for 18:30

30 May – Society AGM at the Aeroclub in Midrand. The formal notice and full details will be circulated by email. There will be a lecture given on the National Aerospace Centre of Excellence (NACoE) to be presented by Francois Denner.

**The Aeronautical Society of South Africa**

Presents

**Industrial Aspects of the  
South African A400M Programme**

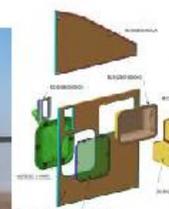
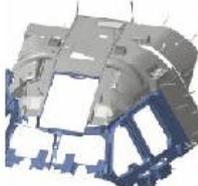
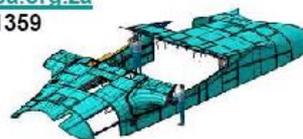
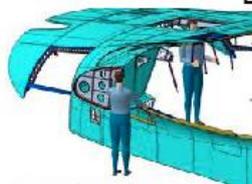
by  
**Peter Jost – EADS**  
A400M Project Overview

**Eli Schwartz – Denel-SAAB Aerostructures**  
Wing to Fuselage Fairing Structural Aspects

**Johan Steyn – Aerosud**  
A400 Interiors Design and Materials Development

Wednesday 9<sup>th</sup> May 2007 18h00 for 18h30  
Venue – Aerosud Innovation & Training Centre

RSVP before 2 May to  
E-mail: [admin@aessa.org.za](mailto:admin@aessa.org.za)  
Fax: (012) 808 1359

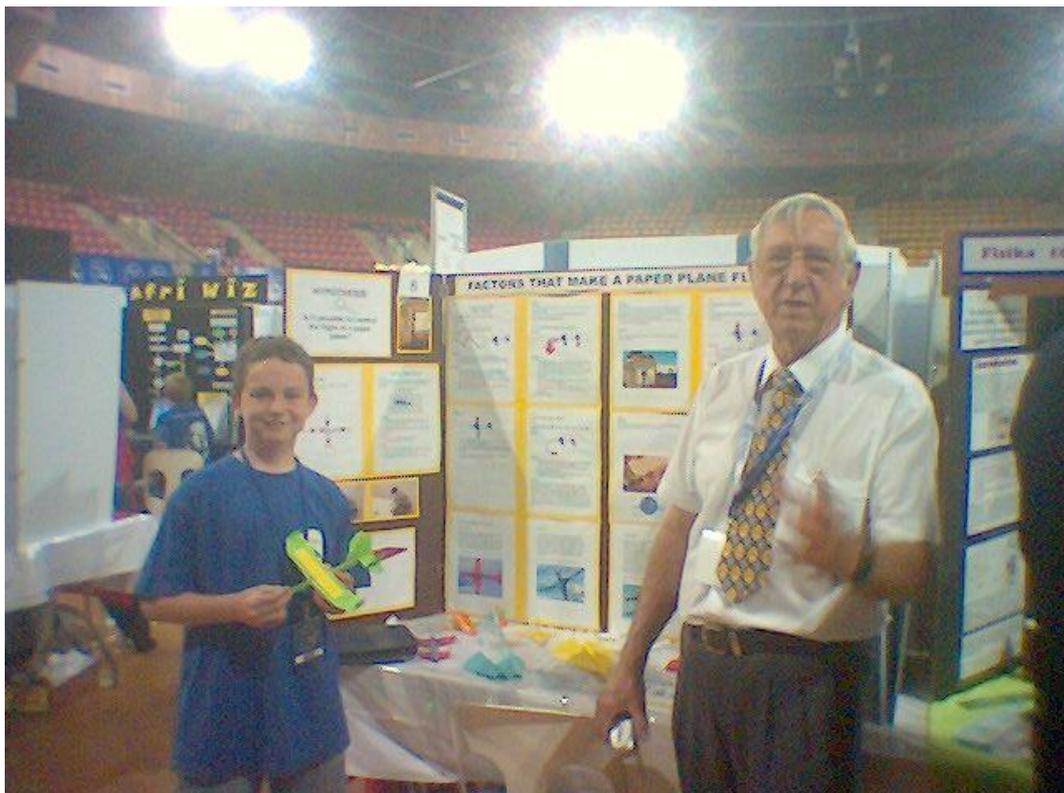


## **Eskom Young Scientists Expo**

The Aeronautical Society was present as part of the judging panel for the Eskom Young Scientists Expo on Saturday 30 September. This is a yearly event sponsored by Eskom to show the best secondary school science projects from around the country and to judge them against set criteria. The best projects out of the various scientific disciplines are then selected for international representation.

For this event, The Aeronautical Society of SA was represented by Prof Japie van Wyk and Rob Jonkers to carry out judging of projects with an Aeronautical flavour. Out of the 450 projects displayed, there were 10 such projects, and each of these were examined.

The project chosen as the best in the Aeronautics sub-category was presented by Grade 8 Armand Koetzier from Waterkloof Hoerskool. His project was named "Factors that make a Paper Plane Fly". It was observed that Armand had learned from first principles the laws that govern flight (with little help from research sources) and that most of his designs were based on trials of layouts that worked and didn't work. He was able to determine concepts such as the relationship of Centre of Gravity & Centre of Pressure, Moment Arms, Inertia with very basic hardware. He even built a wind tunnel (aerofoil mounted on a string) to demonstrate Bernoulli's Theorem. The Society congratulated him on his achievement in the understanding of basic flight and presented him with a cheque of R 250.



**The Paper Aeroplane Project**

## **Aerosud Visit**

A Society visit to Aerosud took place on 18 October where around 80 people attended to listen to Aerosud's 15 year history from its inception in 1990 to the company's vision into the future. The lecture was held in the new prestigious innovation and training centre that had been completed only days earlier.

Rob Jonkers was the speaker that shared all the hard work aspects of the company, and Pierre Dippenaar provided some insights into the fun aspects that happened over the years. Needless to say, the video that showed the Aerosud Mirage F1 taxiing to the runway dodging all those cars will be well remembered. The lecture was followed by a visit through the factory premises to show the "hardware" and then an excellent snack with coffee. Aerosud Management is thanked for their excellent presentation.



**Aerosud – with Waterkloof Air Force Base in the background**

## **Glen Dell Aerobatics Demonstration**

The Society was very privileged to be able to arrange a demonstration of aerobatics and a talk by Glen Dell who held the title of World Advanced Aerobatic Champion in 2004. This display was given at the Kitty-Hawk airfield east of Pretoria on Saturday 21 October where approximately 50 spectators, consisting of members with their families and friends, were able to witness world-class aerobatics at very close quarters.

Glen first gave a very polished performance in an Extra 330L, which was in Red Bull livery, and after landing parked the aircraft in front of the clubhouse where spectators could walk all round it and even peer into the cockpit. Those who could get close enough had the opportunity to speak to Glen and ask questions about the aircraft as well.

After this demonstration everybody moved to the clubhouse where our President, Prof Japie van Wyk introduced Glen and gave him the floor for what turned out to be an informal but immensely interesting and entertaining talk about his career, his world championship experience and the aircraft that he is currently developing. He started flying professionally in the SAAF then, like many former SAAF pilots, moved to SAA. Also like many enthusiastic pilots, flying commercial aircraft was not enough to satisfy his love of flying and he managed to break into aerobatic display flying and, his current activity, flying for the Red Bull air race team in which he is currently vying for the top spot.

His experience at the 2004 World championships was one of the most fascinating parts of his talk as he related that he entered the event in a borrowed aircraft and almost withdrew when he decided that he had no chance in that particular aircraft. However he was persuaded to continue and he is still convinced that it was his totally relaxed attitude, having decided to fly just for the fun of it that resulted in him leading the points table after the first round and eventually winning, albeit with a much less relaxed attitude than he had started with!

After a most interesting and entertaining talk Glen was happy to take questions from the floor and when the Q&A session finished we were treated to another polished display in the aircraft that Glen has been quietly developing with the help of a local design team. Known as the Slick 360 the objective in the design of this aircraft is to develop the ultimate aerobatic aircraft by packaging the largest engine possible into the smallest airframe with minimal inertia characteristics to allow maximum manoeuvrability.

He hopes that this kind of aircraft will become the aerobatic standard of the future. His demonstration of the Slick360's abilities in the air included a recovery from a flat spin – a fairly dangerous manoeuvre for pilots who are not in Glen's class.

South Africa is very fortunate to have the talent of Glen to display the best in world aerobatics and to have a supporting industry with the ability to develop a world standard aerobatic aircraft. Development and optimisation is ongoing on the Slick360, in particular on the control surfaces and weight saving. Those members who are into aerodynamics and structural design are welcome to assist in this homegrown project. Anyone who feels that they have the ability and desire to share their expertise should in the first instance contact the Aeronautical Society of South Africa at the email address in the heading of this newsletter.



**Glen Dell and his "Slick"**

## THE 2007 SIR PIERRE VAN RYNEVELD LECTURE



### “The Rejuvenation of the SAAF – Challenges and Opportunities”

The AeSSA hosted the biennial Sir Pierre van Ryneveld Lecture that has traditionally been a Society event where a South African Airforce General is a speaker who would speak on a topical subject of the day. This year’s event was all the more prestigious in that the current serving Chief of the Airforce, Lt Gen Carlo Gagiano, SM, MMM gave the presentation. The University of Pretoria, kindly offered their facilities to host this event.

General Gagiano presented a lecture on the topic “The Rejuvenation of the SAAF – Challenges and Opportunities”, in which he gave a historical overview of the SAAF’s activities from its inception way back more than 80 years ago. During this time there have been many cycles of growth and reduction in inventory of aircraft types and personnel, very clearly linked to the threats facing the country and the world at large.

In the current day and age, with technology in the aerospace field being very costly, affordability of an airforce fleet has also started to play a significant role, hence the size and make-up of the airforce’s inventory has become a challenge. The SAAF has to ensure that the right balances are struck in support of the South African community, particularly as any product decision made will effectively mean a minimum of a 30 year service life for such equipment.

He also went on to explain that modern day conflicts have moved away from conventional warfare, and rather to asymmetric warfare, this kind of conflict being more insurgency based and directed to very specific localized areas. Making use of equipment such as fighter jets then effectively becomes very problematic due to the nature of predicting the enemy's next move. In the context of Africa's needs today, and SA's commitment to support the wider African continent, most of the SAAF's activities are being focused on humanitarian aid, where transport and airborne support are the order of the day.

General Gagiano was thanked for a very insightful lecture by General Thackwray and to round off the evening very appropriately, Japie van Wyk presented an honorary Society Fellowship to General Gagiano which was awarded by presidential invitation by the President of the Royal Aeronautical Society. General Gagiano graciously accepted and by way of aligning the SAAF more to society activities has also nominated the SAAF to become a Corporate Partner to the Society.

After the lecture was over, some snacks and drinks were enjoyed by all and, as the photograph shows, the younger students had the opportunity to debate SAAF activities with the Chief of the Airforce. The Society thanks the SAAF for making the evening a success and in supporting this lecture.



**Students in debate with the CAF**



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# Aeronautical Society of the University of Johannesburg

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## **Test Flight and Development Centre Visit - 16 February 2007**

On the 16<sup>th</sup> February 2007, the Aeronautical Society of the University of Johannesburg (AeSUJ), under the auspices of the Aeronautical Society of South Africa (AeSSA) and the South African Air Force (SAAF), gave a group of engineering students from the University of Johannesburg an excursion of a life time.

An early bus trip at 5 am ensured that the group of 39, including two staff members from the university, Prof. J. van Wyk and Mr. M. Goosens, was on time for the departure at 7.30am from Waterkloof Air Force Base.

The fun began right from the start. Many of the students had never even experienced a 'normal' flight, never mind a flight on a military troop carrier. That's right, our plane was a good-old trustworthy Herc. A C130 Hercules to be exact. After the short briefing on military 'on-board' procedures, we quickly shuffled into the plane, in single file I might add, and settled into our seats. The seating arrangements were two rows down the sides of the cabin. Shoulder to shoulder and two rows down the middle of the cabin, back to back. It was a new experience for most of us, not being able to see outside due to the windows (more like portholes) being located so high up on the fuselage. The flight itself was uneventful and we arrived at the Overberg Air Force Base after approximately 2hr. 20min. of flying time.



**Inside the C-130 Hercules**

Upon arrival, the group was quickly herded into the welcome center. After a welcome cup of tea or coffee, we were then asked to take our seats for a presentation by various Air Force and TFDC personnel. Capt. Jaques Le Roux of the TFDC and Dr David Holtzhauzen were on hand to make the presentation. A basic overview of the air-force base was given. Overberg Air force Base is located approximately 20km from Bredasdorp in the Western Cape. The base has two runways, one just over 3km's in length and the other just over 2km. the base is home to the 525 Security Squadron. It has an impressive 25 000 cubic miles of air space at up to 19 000ft. TFDC is located adjacent to the base.

TFDC's core business is to quantify and evaluate new systems designed for most of the military aircraft in use today. These aircraft include the Hawk, the Gripen, the A109, the Rooivalk and the Lynx. TFDC employs flight engineers, technicians, aerodynamicists and test pilots to test all of the new systems. The different forms of testing include aircraft performance, flight performance, ergonomics of the cockpits, structural testing and many other related tests.

After the presentation, the group was taken into the main hanger and split into four smaller groups. The groups each were then given a tour of all of the hanger's facilities and equipment. The most impressive sight was without a doubt the Gripen, the new flagship of the SAAF. To see the fighter plane up close and personal is an awesome experience. The Gripen's test pilot, one of only two men qualified to fly it, was on hand to answer many of the burning questions from both the students and the accompanying staff members.



**AeSUJ Members in front of C-130 Hercules at TFDC at the AFB Bredasdorp**

The group also had the opportunity to view some of the current military hardware such as the Cheetah and various helicopters. Another interesting occurrence was a rare opportunity to have a look at the mission control center. This room was intimidating to say the least. It was stacked almost roof high with state-of-the-art computers and telemetry systems. All of the flight tests are recorded and tracked in real time from this command center. Data is collected on the computers and then analyzed by the flight engineers whilst the plane is in the air, so that real life situations can be studied. This method of testing provides the most valuable information; it's as close to the real thing as possible.

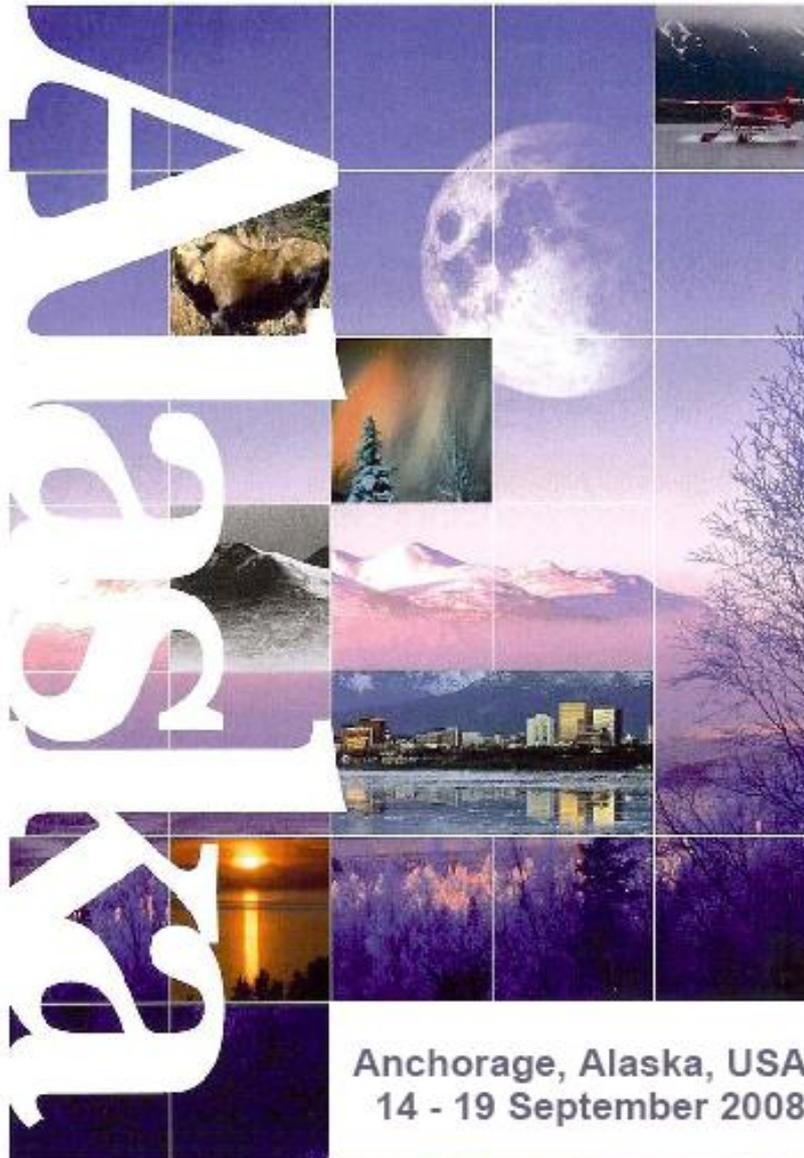
After an extremely interesting afternoon, the group was given time off until dinner to familiarize themselves with the base. A variety of activities, including pool and football, were enjoyed by all. The evening ended off with a well presented braai and some light entertainment in the form of darts and cards. There was also the opportunity to mingle with the staff from the air force base and the staff from the universities.

All in all, the trip was one to remember. New friends were made, much was learnt and many interesting and amazing sights were seen. Many thanks must go to the South African Aeronautical Society, in particular Prof. J Van Wyk, and the SAAF for organizing such a memorable trip to the TFDC. It was thoroughly enjoyed by all.



# ICAS 2008

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Anchorage, Alaska, USA  
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