



Aeronautical Society of South Africa

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A Division of the Royal Aeronautical Society

AeSSA Newsletter –December 2008

EDITORIAL

A somewhat belated newsletter to close off 2008 and 2009 with. However some time was needed by the team to consolidate the happenings of the 2nd half of last year. Since the last editorial, the world order has dramatically changed what with the economic chaos resulting in wildly fluctuating exchange rates and fuel prices amongst other woes.

Even though a much feared meltdown has not happened, there is a wide expectation of change in the way the Corporates and Governments determine policies to conduct business in a more financially robust sense. We trust that with the impending change in the US leadership, particularly with the fact that the US led us into the current situation, that they will be able to re-emerge as a reformed international partner.

So far, the effects of current business in Aviation have probably not yet hit bottom yet, Aviation normally lags effects of business ups and downs. There has been a significant downturn in the corporate aircraft market for obvious reasons, and many companies are entering receivership or have had to cut back on personnel. Airline travel too has hit hard times, many low cost airlines suffering from reduced passenger sales. This coming year brings new hope that current challenges can be turned into opportunities for a better future.



In this edition we cover a report back from the Symposium and AAD having been very successful events, and council will be looking at the planning for the next time and also for activities for the coming year.

RAeS President's Message



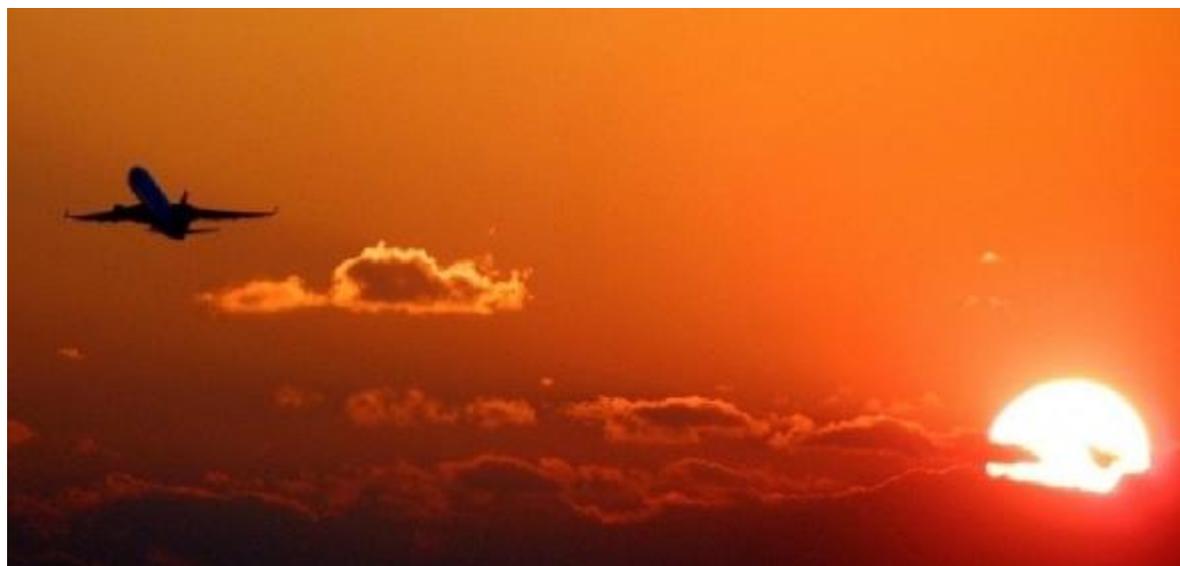
I recently spent a week visiting our Division in South Africa which included attending a two day Symposium and the African Aerospace and Defence Show. My detailed itinerary included meetings with the Deputy Minister of the South African Ministry of Science and Technology and with senior members of the South African Air Force, industry and academia. As your representative, I was always greeted with a warm welcome that reflects the respect in which the Society is held and the links we have with the Aeronautical Society of South Africa.

While their aerospace industry may be smaller than it was in former years, I was left with a clear impression of a highly skilled, specialised and modern industry with good working connections with the main centres of manufacturing in the world.

The Division is healthy and particularly successful in establishing a good relationship with corporate partners and in working to encourage young people into the industry through scholarships and other initiatives. My thanks go to the Divisional President, Rob Jonkers, and to his colleagues for the work they put in to planning my visit and for their hospitality and warm welcome. Maintaining the international theme, just a few days ago I had the pleasure of opening the Society's third Annual International Flight Crew Training Conference at Hamilton Place.

Delegates and speakers from 19 countries attended. This was quite an exceptional achievement and a tribute to the international reputation of the Society and to the hard work of the organising members and their Specialist Groups.

One of the key elements in the organisation of a successful conference is, of course, sponsorship. We are particularly grateful to those companies that regularly contribute, but we have a difficult year ahead. I hope that we will all, as individual members do what we can and, where appropriate, to encourage their continued support.



The Society at AAD

Although weather unfortunately played a role in flying activities at AAD, it meant the exhibits in the halls had the attention of many visitors. The Society was able to secure a stall at AAD courtesy of the National Aerospace Centre of Excellence (NACoE) as part of the dti pavilion.



Rob, Esther & Capt David Rowland at the AAD Stand

We were able to put up a simple display that featured the AeSSA's charter, an aviation career tree, and an interesting slide show. The stand was ably manned by Esther, the Society's admin officer who had her hands full on the public days when crowds of school kids were heading for the youth pavilion.

Capt David Rowland, the president of the RAeS who was in country for the week also toured the show grounds as well as a photo opportunity at the stand.



Capt David Rowland & Rob surveying the display halls



At least on Wednesday the weather cleared sufficiently for some validation flights to take place and the skies were filled with aircraft for the afternoon.

The first four Gripen dual seat fighters opened the show on Wednesday and also heralded their operational debut.



Gripen No 04 taxis in after 4 ship formation flypast

On Thursday, the only aircraft flying was the SAAF's PC12 heading for Overberg through the rain for a base visit to the Test Flight and Development Centre (TFDC) prepared for the RAeS president, well presented by the OC Col Chippie Cross.

Getting back to Ysterplaat proved near impossible and had to do an instrument let down into Capetown.



Col Chippie Cross & Capt David Rowland at TFDC



Rooivalk providing top cover for the downed helicopter in the war scenario

For sure the highlight of the flying displays were what looked like 20 helicopters taking part in a battlefield rescue demo, and the memorable sonic boom of the English Electric Lightning operated by Thundercity.



The Lightning heading for high altitude and the sonic boom

SAIAS 2008 – Aerospace Symposium

Without a doubt, this year's Aerospace Symposium could not have been held in a better location than in Stellenbosch, the heart of SA's wine route. Even though the cold fronts kept rolling in from the south, it did not dampen the spirit of the event. What better place to hold such an event than a good wine estate, where Spier located just west of the town hosted the Symposium.



There was a welcome function held at the Castle of Good Hope (SA's oldest building), where Karen van Breukelen from AMTS officially opened the Symposium. The evening's highlight was some live entertainment done by a group of Cape Minstrels. The evening ended with having to make a run for it through driving rain to the bus, where very few people had the benefit of sheltering under an umbrella.



The main Auditorium of Spier during the Opening

It was fortunate that an audience could be obtained with the Minister after his lecture with the President of the RAeS Capt. David Rowland to discuss matters of mutual interest, in particular the role the Society can play to enthuse the youth in the subjects of Science & Maths and to get them closer to aviation activities.

The Chairman of the Symposium, Prof. Kamal Parker welcomed everybody in an opening address and introduced the Hon Deputy Minister of Science & Technology, Mr. Derek Hanekom to give the opening keynote lecture that discussed the challenges facing SA's industry and research institutions, with particular emphasis on the role that the dst plays in stimulating the sector.



Prof Kamal Parker doing his welcoming address



The Hon. Deputy Minister Derek Hanekom presenting the Seeker to Capt. David Rowland while Rob Jonkers looks on

With this important contact made, we hope that the Society will be able to capitalise on the potential future co-operation with the dst on related aviation matters. The Minister also presented Capt. Rowland with a model of the Seeker UAV (designed and manufactured by Denei Dynamics) as a memento of his South African visit that also reflects the state of the art in aeronautical capability in SA.



With the inaugural speeches and lectures over, the Symposium got on with the rest of the lectures covering a host of topics that also featured many international delegates, and ranging from Aerodynamics of the very small (with the future application of micro flying machines as an ultimate goal), applications in using Titanium as a future lightweight aerospace material (in particular the current interest being the forming of Titanium products out of raw materials, which SA has in abundance.) There were many topics on UAV's, even one lecture on a UUV (Unmanned Underwater Vehicle) which left most of us dealing with air as an aerodynamic medium appreciative of the challenges facing waterborne aerodynamics.

This being a combined aeronautical and flight testing Symposium, also saw many topics on flight testing activities as well as the flight test measurement. This combination allowed many delegates to appreciate the work in other respective fields in a wide range of subjects.

Prof. Japie van Wyk and other delegates deep in thought

Capt. David Rowland as an invited keynote speaker gave a lecture on *"Concorde, A Real Life Time Machine"*. In the first century of powered flight, and to this day, there has never been another aircraft in operation, civil or military of any country, which can do what Concorde has done. There were, and are, aircraft that can fly higher, or go faster, or carry more people or fly further, but none that can combine all those capabilities to fly at Mach2, without refuelling, across the Atlantic with one hundred passengers on board. Looking back over those one hundred years and to the origins of Concorde, this talk gave the reasoning why Concorde was such a technological achievement and a commercial success in airline operation.



Capt. David Rowland giving his lecture on Concorde



Genl. Des Barker, guest speaker at the Gala Dinner

A gala dinner was laid on the evening of the 15th, where the delegates could enjoy an excellent buffet meal at the Spier Moyo restaurant which was held in a traditional African tribal setting, where entertainment was provided by African dancers.

The guest speaker for the evening was Genl. Des Barker, who recently took up a post at the CSIR as Competence Manager in Aeronautics, this after more than 40 years service in the SAAF, and gave a talk on *"South African Aerospace Research: Where to?"* with particular emphasis on getting the attention of the policy makers to capitalise on SA's installed capability to do research and the importance of research in our country to allow us as a nation to be able to be an intelligent purchaser of equipment as well as be able to tailor equipment for use in the SA environmental context.

The evening ended with Capt. David Rowland presenting a RAeS prize which was won by a group of South African researchers, and with all four recipients being in attendance, was very appropriate to do the presentation at this event. To round off the festivities, most of the delegates were treated to some traditional face painting.



The Gala dinner MC Rob Jonkers and Capt. David Rowland in a lighter moment during the dinner

To have made this Symposium successful could not have been done without the organising committee's hard work which started early in the year and special thanks to Kamal Parker, Karen van Breukelen, Mmboneni Muofhe, Lebo Ramela, Tembela Eweje, Jo-Anne September, Gary Corderely, Lester Ingham and Annalize van Zyl. I am sure that this team will review the Symposium's organisational experiences for the benefit of the next Symposium.



South African Team wins Royal Aeronautical Society Prize

Mr A Maneschijn, Prof. Thomas Jones, Prof. Theo von Backstrom and Mr Lester Ingham were recommended for a Written Paper Prize (a Bronze Award accompanied by the Hodgson Prize) This award is awarded for their paper published in the RAeS Aeronautical Journal last year.

The Hodgson Prize is awarded for a paper on subjects such as policy, law, operations, management, education or history. The following is the abstract of the journal paper.

Various programmes are underway internationally to establish legislative instruments for regulating civil and military unmanned aerial vehicles and systems. An analysis of a selection of these programmes revealed that the approaches used for airworthiness regulation are not harmonised and are usually limited to specific unmanned aerial vehicle types, indicating the need for a generic framework for airworthiness requirements.

A functional Reference Framework for unmanned aerial vehicle and system airworthiness requirements was developed using Annex 8 of the Chicago Convention as a reference basis, supplemented with airworthiness procedures and functional requirements derived from manned aircraft regulations, unmanned aerial vehicle and system airworthiness material, and flightworthiness guidelines for reusable launch vehicles. Various airworthiness elements were identified for which further research is required to develop appropriate airworthiness requirements. This paper summarises the development of the framework and proposes the Reference Framework as a functional basis for generating comprehensive South African civil and military airworthiness requirements for unmanned aerial vehicles and systems.

As the President of the Royal Aeronautical Society Capt. David Rowland visited SA for the Aeronautical Symposium and AAD, it was very appropriate for the team to be awarded their prize here in SA, and what better opportunity than at the Symposium gala dinner held at Spier in Stellenbosch on the evening of the 15th September. There, Capt David Rowland congratulated the team on their work that gained a prestigious entry into the Society's Journal.

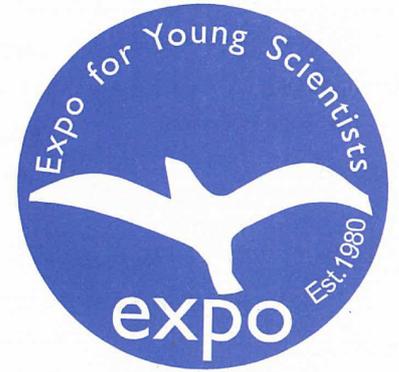


Prof Theo von Backstrom, Lester Ingham, Prof Thomas Jones, Anton Maneschijn receiving their prize from Capt Rowland at the Spier Gala Dinner

Eskom Expo for Young Scientists

This year's National Finals for participating schools for Young Scientist's was held on 4th October 2008 at the University of Pretoria Sports Centre and the Aeronautical Society was present as part of the judging panel.

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 Dr Rob Hurlin to carry out judging of projects with an Aeronautical flavour. Out of the 484 projects displayed, there were 5 such projects, and each of these were examined.

The project chosen as the best in the Aeronautics sub-category was presented by Grade 10 Sune Gerber from Waterkloof Hoerskool who got to grips with understanding the physics of propeller efficiency. She built a test rig with a balance mechanism and then tested various home made propellers with a given input power from an electric motor from which thrust could be measured in a variable free stream flow (homemade wind tunnel). She was able to produce graphs of propeller efficiency over a range of free stream speeds which showed the correct trend and was able to distinguish between

propeller shapes and types in terms of efficiency.

The Society congratulated her on her achievement in gaining an understanding of the principles of flight and presented her with a society cheque and medallion.



Award of Honorary Fellowship to Prof. Beric Skews

The occasion where the award was presented was the 97th Wilbur and Orville Wright Lecture at the headquarters of the Royal Aeronautical Society, 4, Hamilton Place, London on 11 December 2008. This function, held annually, is the principal event in the Society's year and is combined with the presentation of the Society's most prestigious awards. It is followed by a formal dinner so that a large percentage of those attending the lecture are in evening dress which includes the wearing of medals by those who have been bestowed with this honour.

The awards ceremony was the first item in the evening's programme and the award of an Honorary Fellowship to Prof. Skews was the first of eight awards made in 2008. The other seven were the RAeS Gold, Silver and Bronze Medals both for individuals and for teams and The Presidents award, which on this occasion, was made to an air traffic controller and the flight crew and cabin crew of a BA airliner who all played a part in the survival of all the passengers and crew when the aircraft suffered a total engine failure on the approach to Heathrow. It must be emphasised that none of the awards are made routinely every year. The committee which evaluates submissions has to be convinced that an award is truly deserved. The award to Prof. Skews was made "in recognition of his outstanding contribution to the aerospace profession" and the citation was as follows:

Professor Skews is recognised as being a leading international researcher, through the international peer-review system of the South African National Research Foundation. In a career spanning over 50 years he has been committed to the development and support of aeronautical engineering education, and fostering it's recognition as a distinct discipline in South Africa. He has done this by involvement in professional organisations and a vibrant and productive research group.

A glance at the list of previous recipients of an Honorary Fellowship shows that Prof. Skews is in very elite company including other eminent academics, senior members of the aerospace profession and of the Royal Air force and even members of the royal family who are known for their interest in and support of aviation, including HRH The Duke of Edinburgh and HRH The Duke of Kent.

The Wilbur and Orville Wright Lecture which followed, is always presented by a distinguished member of the UK or US aerospace communities and this year was delivered by Vern Raburn whose credentials leave no doubt that he is indeed a distinguished member of our profession. After learning to fly as a teenager he has accumulated more than 7000 hours of flight time on a wide variety of aircraft and holds type ratings in more than 16 aircraft ranging from WW2 bombers to piston engined airliners to modern corporate jets. However he would probably regard his love of flying as a hobby rather than a career since he has distinguished himself in several companies including Microsoft and Symantec Corporation and most recently as the founder of Eclipse Aviation. His lecture, entitled "Innovation: Air Transport to General Aviation" revealed him to be a deep and lateral thinker and the ideal choice of speaker on the subject of innovation. It will hopefully be reviewed in a future edition of the Society's magazine.



South African Design Team wins RAeS Bronze award

History was made when the team of the South African sailplane manufacturer, Jonker Sailplanes, received a bronze award from the Royal Aeronautical Society (RAeS) in London. The award was presented to them on November 5 at the 2008 Specialist Medals and Awards ceremony of the society.



This is the first ever South African organisation to receive such a prestigious award from the RAeS since its formation in 1866. The team from Jonker Sailplanes, Attie Jonker, Uys Jonker and Johan Bosman received the award for “work of merit, which led to advance or contribution in specialist disciplines in the aerospace industry”. This work was done in the development of the JS1 Revelation glider currently being manufactured at their factory in Potchefstroom.



Other award winners were a 30 man team from Skynet 5 Space for their work in developing an advanced military satellite for the British Ministry of Defence and a team from Airbus and Rolls Royce for work on a less noisy jet engine. It is a special honour for the South African team to be considered worthy to compete in the same league as these huge aerospace companies. Dr. Tienie Jonker, the Jonker brothers' father, received the award on behalf of the team.

The RAeS has a long history of recognition for work done in aerospace research since 1908, when Wilbur and Orville Wright came to London to receive the Society's first two Gold Medals.



President of the Society, Capt David Rowland and Dr Tienie Jonker, receiving the award on behalf of Jonker Sailplanes

FORTHCOMING EVENTS

The Council is hard at work on a programme of lectures and visits that promise to be both entertaining and informative for the coming year. Although no dates are set or confirmed we intend to cover amongst others topics such as Gripen Flight Testing, the JS 1 Sailplane, Rooivalk qualification. Watch your email & web site for further information.

