



Technical Aerospace and Unmanned Systems Conference 2007

This conference addresses the need for a truly in-depth and international technical discussion forum on Aerospace and Unmanned Systems within the South African context, free of dedicated marketing

In 2004 and 2005 more than 230 professionals from the armed forces, industry and academia attended the Workshops on Maritime Surveillance at Stellenbosch University. This conference now serves as a natural extension of the original workshop, with even more focus on technical depth and with an extended scope.



Anchor Sponsor



The presenters are carefully selected professionals who will provide insight into the latest advances in the areas detailed below:

Operations and Applications

Sensor Systems

Structures, Aerodynamics and Aeroelastics

Guidance, Control and Simulation

Vehicle Development and Propulsion Systems

Systems and Software Safety

Date: 29 - 31 October

Venue: Neethlingshof

Stellenbosch

South Africa

Technical Aerospace and Unmanned Systems Conference 2007



Who should attend

- Technology managers and acquisition experts (users and developers)
- Research and development scientists and engineers
- Academics and representatives from research and development funding agencies



International Participants

A number of researchers and R&T managers from international organizations and various Universities will be attending and presenting



The scope

The conference scope includes aerospace surface ,underwater and unmanned vehicles



Benefits

Attendees will have the opportunity to exchange technical information and ideas on future requirements, technologies and solutions both on a formal and informal basis



Technical Aerospace and Unmanned Systems Conference 2007

Technical Aerospace and Unmanned Systems Conference Programme Day 1 Mon 29 Oct

OPENING

- 09:00 to 10:00 Arrival Registration Coffee/Tea
10:00 to 10:20 **TBA:** Opening, welcoming & general remarks
10:20 to 10:50 **Brig Gen (ret) John Wesley:** (CSIR DPSS) Aerospace in South Africa, the industry and Research Environment'

10:50 to 11:10 *Tea/coffee*

OPERATIONS AND APPLICATIONS - Chair: Capt (SAN) Andre Katerinic

- 11:10 to 11:30 **Brig Gen (ret) Lee le Crerar:** 'Determining Unmanned Systems Requirements'
11:30 to 11:50 **Helmoed Heitman** (Airbus): 'Tactical Unmanned Vehicles for Ground Forces'
11:50 to 12:10 **Gerrie Smit** (Armcor): 'The effectiveness of Unmanned Systems'

12:10 to 13:00 *Lunch*

OPERATIONS AND APPLICATIONS (Continued) - Chair: Capt (SAN) Andre Katerinic

- 13:00 to 13:20 **Col Nic Duplessis** 'Noise Abatement, Maintenance and Systems Approach'
13:20 to 13:40 **Carl-Marcus Remen:**(SAAB Underwater):'Operational Experience with an Advanced Mine-Reconnaissance AUV'
13:40 to 14:10 **Jan van Toor** (EADS): 'UAV Technology in Support of European Operations'

14:10 to 14:30 *Tea/coffee*

SENSOR & COMMUNICATION SYSTEMS -Chair: Francois Denner (NACoE)

- 14:30 to 14:50 **Mr Ian Robertson** (Tellumat):'Contemporary UAV Radio Links and a Vision for the Future '
14:50 to 15:10 **Nic Nicolaides** (CSIR): 'Underwater Sensors'
15:10 to 15:30 **Maria Petterson** (SAAB Underwater): 'Acoustic Underwater Communication between Submarines & UV's'
15:30 to 15:50 **Willie Gunther** (IMT): 'The Detection of Small Underwater Targets'
15:50 to 16h00 Announcements and closure for Day 1 - **Program director**

17:00 to 19h30 **Cocktail function: Neethlingshof Estate**



Technical Aerospace and Unmanned Systems Conference 2007

Technical Aerospace and Unmanned Systems Conference Programme Day 2 Tue 30 Oct

08:00 to 08:30 Arrival Registration Coffee/Tea

08:30 to 08:40 Opening - **Simphiwe Hamilton, AMD**

SAFETY, SOFTWARE and CONTROL of DYNAMIC SYSTEMS - Chair: Prof. T Jones (Stellenbosch University)

08:40 to 09:00 **Mr. Etienne Coetzee** (Airbus): 'The Application of Non-Linear Dynamics in Civil Aerospace Design'

09:00 to 09:20 **Mr. Iain Peddle** (Stellenbosch University): 'Development of an Autopilot for a Counter-rotating Ducted-fan UAV'

09:20 to 09:40 **Mr. Alex Schmarr** (Denel Aerospace Systems): 'Guidance, Simulation and Control - the Seeker UAV Project'

09:40 to 10:00 **Dr. Karen Marais** (Stellenbosch University): 'Aerospace Software Systems'

10:00 to 10:20 **Mr. Japie Venter** (OTR): 'The testing of Unmanned Flying Objects: A Test Range Prospective'

10:20 to 10:40 *Tea/coffee*

STRUCTURES, AERODYNAMICS AND AEROELASTICS - Chair: Gen John Wesley (CSIR DPSS)

10:40 to 11:00 **Dr. Bennie Broughton** (CSIR DPSS): 'Aerodynamic Design and Optimisation of the Sekwa Research UAV'

11:00 to 11:20 **Dr. Gerd Schumacher** (EADS): 'Structural and multidisciplinary optimisation in aircraft design'

11:20 to 11:40 **Dr. Oscar Philander** (Cape Peninsula University of Technology): Theme TBA

Prof. Japie van Wyk (University of Johannesburg): 'Structural-Health Monitoring of Composite Structures by means of Embedded Optical-Fibre Sensors'

11:40 to 12:00 TBA

12:20 to 13:30 *Lunch*

VEHICLE & SYSTEMS DEVELOPMENT - Chair: Neels Fourie (Armcor)

13:30 to 13:50 **Roel Stolper** (CSIR): 'Using a UAV for the Inspection of High-Voltage Power Lines'

13:50 to 14:10 **Kobus Stoltz** (ATE): Theme TBA

14:10 to 14:30 **Hannes van Wyk** (IMT): 'AUV Technology'

14:30 to 14:50 **Prof. Thomas Jones** (Stellenbosch University): 'The SLADe and NTDA Projects at Stellenbosch University'

14:50 to 15:10 **Keith Gottschalk** (UWC): 'The Trans-Atmospheric Vehicle Project; the Case for Broadening it into an Indian/SA Partnership'

15:10 to 15:30 *Tea/coffee*

15:30 to 16:00 Closing remarks and summary - **Simphiwe Hamilton** (AMD)

17:00 to 18:30 **Wine farm excursion: Blaauwklippen Estate** (Optional selection on registration form)



Technical Aerospace and Unmanned Systems Conference 2007

Technical Aerospace and Unmanned Systems Conference Programme

Day 3

Wed 31 Oct

Student Showcase, Optional selection on registration form

OPENING

08:30 to 09:00 Arrival Registration Coffee/tea

09:00 to 09:10 **Prof. Thomas Jones** (Stellenbosch University): Opening, welcoming & general remarks

SESSION 1

09:10 to 09:30 **Mornay Riddles** 'Development of a UAV Technology Demonstrator'

09:30 to 09:50 **Steven Kriel** 'Comparison of Control Algorithms for Flight Transition of a VTOL UAV'

09:50 to 10:10 **Michael Sam** 'Investigating the use of Rapid Prototyping Technology for Direct Tooling in Composite Manufacturing'

10:10 to 10:30 **Jonathan Lun** Vacuum Arc Thrusters for Micropropulsion'

10:30 to 10:50 *Tea/coffee*

SESSION 2

10:50 to 11:10 **Rudi Gaum** 'Automatic Aerobatic Flight of a UAV'

11:10 to 11:30 **Steven Rhodes** 'A Study of the Landing Flare Manoeuvre of a Parafoil-Payload Systems'

11:30 to 11:50 **Deon Blaauw** 'Stabilisation and Control of a Variable Stability UAV'

11:50 to 12:10 **Michael Petersen** 'Numerical Investigation into Aerodynamics of an Aero-Morphing Wing for Unmanned Aerial Vehicle UAV Systems'

12:10 to 12:30 **Izak Marais** 'On-board Image Quality Assessment for a High Altitude Remote Sensing Platform'

12:30 to 13:30 Lunch

13:30 to 13:45 Announcement of winner of the "TAUSC 2007 Best Student Researcher" award

13:45 to 14:00 Closing Remarks

Contact Person: Prof T Jones: jones@sun.ac.za (+27-21-808-4319)



Technical Aerospace and Unmanned Systems Conference 2007

DIRECTIONS TO NEETHLINGSHOF ESTATE

FROM CAPE TOWN TAKING THE N2

On the N2 towards Somerset-West take exit number 33, which says "Baden Powell drive, Stellenbosch, Muizenberg. Turn left at the off-ramp towards Stellenbosch, follow the road for approx. 10km, past Spier, until you get to a large T-junction. Turn left at the T-junction, Neethlingshof is on your right after 400 m. The entrance is marked with a big fountain and 14 flag poles.

FROM CAPE TOWN TAKING THE N1

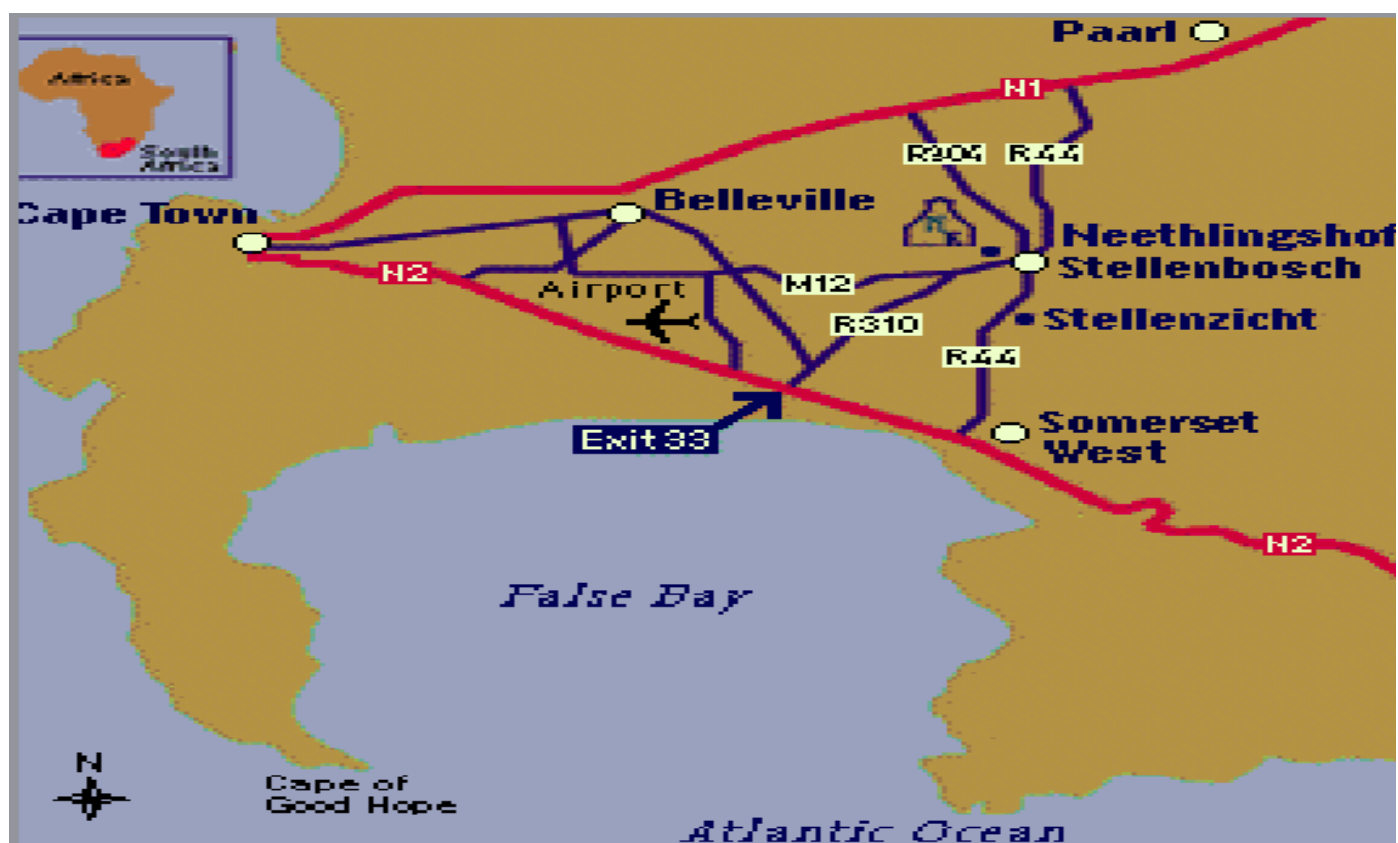
Take the R300 towards Michels Plain, this is the second off-ramp after Bellville. Follow the R300 to Exit 21, which is the Stellenbosch Arterial/ Cape Town International turn off. Turn left at the robot towards Stellenbosch, follow the road for 15km. Neethlingshof is on your left, the entrance is marked with a big fountain and 14 flag poles.

FROM SOMERSET-WEST

Take the R44 towards Stellenbosch. At the Mooiberge farm stall turn left into Annendale road. You will get to a T-junction at Lyndoch, turn right towards Stellenbosch, drive past Spier, until you get to a large T-junction. Turn left at the T-junction, Neethlingshof is on your right after 400 m. The entrance is marked with a big fountain and 14 flag poles.

FROM PAARL

Take the R101 (extension of main road) past Simonsvlei Wine estate. At the 4-stop in Klapmuts turn left on the R44 towards Stellenbosch. Follow this road into Stellenbosch (over the robot at the Mercedes garage) along the railway line, over 2 sets of robots (the first one only turns left, the second one only right across the railway line) At the next set of traffic lights turn right towards the airport. Follow this road for approx 5.5 km until you see Neethlingshof on your right. (this is just 250m after the R310 turn-off to Muizenberg)



Technical Aerospace and Unmanned Systems Conference Accommodation in Stellenbosch

Name	Email	Web Site	Telephone	Rates per Person per Night	
				Double Occup	Single Occup
HOTELS					
• Batavia Boutique Hotel	batavia@mweb.co.za	www.bataviyahouse.co.za	+27 (0)21 887 2914	R800 pp sharing	Rates on request
• Eendracht Boutique Hotel	reservations@eendracht-hotel.com	www.eendracht-hotel.com	27 (0)21 883 8843	R519 pp sharing	R 759
• Stellenbosch Hotel	info@stellenboschhotel.co.za	www.stellenbosch.co.za/hotel/	+27 (0)21 887-3644	R925 pp sharing	R 1,170.00
• Wedgeview Country House	info@wedgeview.co.za	http://www.wedgeview.co.za/	+27 21 881 3525	R895 pp sharing	
GUEST HOUSES/LODGES					
• Allegria Guest House	info@allegria.co.za	http://www.allegria.co.za	+27.(0)21.881.3389	R 830 per room per night	R 555, R 655, R 755 per room per night
• Alluvia Wine Estate	info@alluvia.co.za	http://www.alluvia.co.za	(+27 21) 885 1661	R850.00(2 pp sharing incl breakfast)	
• Beautiful South Guest House	enjoy@thebeautifulsouth.de	www.thebeautifulsouth.de	+27-(0)21-8838171	R360 pp sharing	R 550
• DeKraal Country Lodge	info@dekraal.co.za	www.dekraal.co.za	+27 (0)21 885 2634	R655 pp sharing	R 915.00
• Eikendal Lodge	info@eikendal.com	www.eikendal.com	+27 (0)21 855 - 3617	R440 pp sharing	R560 pp single
• Fynbos Villa Guest House	info@fynbosguesthouse.co.za	www.fynbosguesthouse.co.za		From R375 pp sharing	From R520 per night
• La Bri Manor	info@labri Manor.co.za	www.labri Manor.co.za	021 886 565 2	R390 pp sharing	R 550
• Le Jardin	info@lejardin.co.za	www.lejardin.com	27 (0)82 905 - 4009	Rates on request	
• Papyrus Lodge	info@papyruslodge.co.za	www.papyruslodge.co.za	+27 (0) 21 842 3606,	R620 pp sharing	
• Rusthuiz Guest House	rusthuiz@adept.co.za	www.rusthuiz.co.za	+27 21 886 6948	R450.00 - R500.00	R620.00 - R680.00
• Ryneveld Country Lodge	ryneveld@iafrica.com	www.ryneveldlodge.co.za	+27 (21) 887 4469	R 450 pp	R 650
• Summerwood Guest House	info@summerwood.co.za	www.summerwood.co.za	+27 (0) 21 887 4112	R 1 700.00	R 1,150.00
• The Villa Grande Guest House	info@villa-grande.com	www.villa-grande.com	21 887 8454	380 pp sharing	R 550.00
• Wedgeview Country House	info@wedgeview.co.za	www.wedgeview.co.za	+27 21 881 3525	R850.00 pp sharing	
BED & BREAKFAST					
• BellaBosch	info@bellabosch.com	http://www.bellabosch.com/	+27 (0)21 882 9686	R300 pp sharing	R400 single per night
• Crofters Guest House	info@crofters.co.za	http://www.crofters.co.za/	021 887 2237	R150 - R350 pp sharing	On Request
• Muratie Wine Estate	info@muratie.co.za	http://www.muratie.co.za/	+27 21 865-2330/6	R685 per cottage/night	On Request



Technical Aerospace and Unmanned Systems Conference

Registered Delegates

Title	Name and Surname	Organisation
M Sc	Maria Petersson	SAAB Underwater Systems
Lt (Rej)	Carl - Marcus Reme'n	SAAB Underwater Systems
Mr	Fabio Josi	Denel
Ms	Vhongani Shumba	AAD
Mr	Lewis Robert Mathieson	AMSCOR
Mr	Wessel Joubert	ARMSCOR
Mr	Petrus Johannes Muller	AMSCOR
Mr	Rob Calitz	AMSCOR
Mr	Alex Schmarr	Denel Dynamics
Mr	Tsepo Monaheng	Denel Dynamics
Mr	Jacobus van Den Heever	Denel
Mr	Jan-Cor Roos	Denel Dynamics
Mr	Prevani Kistan-Naidoo	Denel Dynamics
Mr	Willem J Hough	Denel Dynamics
Mr	Piet du Toit	Parsec pty ltd
Mr	Harrie Heslinga	AMSCOR
Mr	Albert Van Lier	CSIR
Mr	Keketso Zwane	TMI Dynamics
Mr	Tristan Martindale	TMI Dynamics
Mr	Ian Robertson	Tellumat (Pty) LTD
Mr	Byrall Smith	ARMSCOR
Mr	Jacob Venter	Institute For Maritime Technology
Mr	Joe P Kramer	Institute For Maritime Technology
Mr	Robert Thomas Dobson	University of Stellenbosch
Mr	Hermans Malan	MBV Consulting Group
Mrs	Driekie Lourens	Freudenberg Nonwovens
Mr	Francois Denner	WITS (National Aerospace Centre of Excellence)
Mr	Albert John Fivat	Nhlansi Mechtrix Design
Mr	Jaco Jonker	Nelson Mandela Metropolitan University
Prof	Johannes Reinhardt Botha	Nelson Mandela Metropolitan University
Dr	Andre Venter	Nelson Mandela Metropolitan University
Mr	Chris Williams	Tellumat (Pty) LTD
Mr	Dine le Roux	Tellumat (Pty) LTD
Mr	Wynand van Eeden	Tellumat (Pty) LTD
Mr	Steve Leach	Tellumat (Pty) LTD
Mr	Williem Smith	Tellumat (Pty) LTD
Mr	Paul Potgieter	Aerosud
Mr	Estiaan Jacobsz	Aerosud
Mr	Marius Vermeulen	Aerosud
Mr	Leendert Johannes Du Toit	EMSS ANTENNAS (PTY)Ltd

Technical Aerospace and Unmanned Systems Conference 2007 Booking Form

PERSONAL DETAILS

Full Name:			
Rank/Title:		Initials:	
Position:			
Company/Organisation:			
Address:	City:		
	Country:		
	Postal Code:		
Business Phone:		Business Fax:	
Email Address :			

REGISTRATION DETAILS : Costs are inclusive of VAT (vat reg: 4150149716)

	COST	TOTAL DUE
Conference (national non-AMD members and all international)	R 1,500.00	
Conference (all AMD members, students and armed forces individuals)	R 1,000.00	
Wine Farm Excursion at the end of the day (Optional—30 October 2007)	R 500.00	
Attendance of Student Day (31 October 2007)	R 400.00	
TOTAL DUE		R

PAYMENT DETAILS

Bank transfers must state company name and delegate name.

Transfer should be made to Nedbank Branch : Midrand Branch Code: 168-642

Account name: Airasa (t/a AMD) Account No.: 1686035926 current account

PLEASE FILL HERE FOR ADDITIONAL DELEGATE

Rank/Title/Mr/ Ms/Mrs			
First Name			
Last Name			
Designation		Email Address :	

AUTHORISATION

I hereby authorise expenditure for the delegate's registered on this form. I have read the terms of cancellation and I am authorised to sign on behalf of my organisation.

Name.....
 Designation.....
 Signature.....
 Email.....

Right of admission reserved by AMD

CANCELLATION POLICY

All cancellations must be submitted in writing. A 10% handling fee will be charged for cancellations prior to 30 September 2007
 The full fee will be payable for cancellations after 26 October 2007

BOOK YOUR SEAT TODAY: Fax completed registration form and proof of payment to **+27 12 347 6406/6350**
 For more information contact: Ms Vhongani Shumba 084 840 3214 or by email admin@aadexpo.co.za