

Royal Aeronautical Society Flight Simulation Group



Newsletter

March 2009

Editorial

Welcome to the second newsletter issued by the Flight Simulation Group Committee (FSGC) of the Royal Aeronautical Society (RAeS). Despite the difficult financial times, the committee continues to organise and participate in a wide ranging programme of conferences and lectures on flight simulation. Details of the programme for 2009 are set out in the next section of the newsletter but already plans are in place for the Spring 2010 Flight Simulation Conference, which celebrates the 40th anniversary of the first RAeS symposium on flight simulation.

In addition to the regular conference programme, the committee has established links with younger members through the Merlin flight simulation competition and also with a seminar to form better links between the FSGC and simulation groups in the universities. One particularly innovative activity has been the FSG Challenges; a series of topics encouraging debate and forward thinking on the main issues for the flight simulation industry. The topics are summarized on page 4 and committee would like to encourage dialogue on these topics via the website.

We hope this newsletter is informative and useful and would welcome feedback, via email or possibly during one of our events, where we look forward to seeing you.

Dave Allerton

Forthcoming Events

- Universities Seminar 1st April 2009
- Spring 2009 Flight Simulation Conference: *Flight Simulation – Towards the Edge of the Envelope* 3-4 June 2009
- Merlin Flight Simulation Competition 12 June 2009
- RAeS/IWG/ICFQ/NAA Workshop 22 Sept 2009
- RAeS 2009 International Flight Crew Training Conference: *A Training and Regulatory Environment for Tomorrow* 23-24 Sept 2009
- Autumn 2009 Flight Simulation Conference: *Fixed Wing and Rotary Wing FSTDs – The Way Ahead* 18-19 Nov 2009
- Captain Ray Jones Memorial Lecture 23 July 2009

Further details from Emma Brown, at the Society, emma.brown@aerosociety.com

Flight Simulation Group Silver Medal

The Flight Simulation Medal has been awarded to Owen Wynn, past Executive Chairman, SEOS. Since its foundation in 1984, Owen had led SEOS to its position as world leader in the development and manufacture of visual displays for flight simulators. His leadership has resulted in immense improvements in the performance of display systems, particularly for rotary wing and military fast jet simulators. Owen has been a steadfast supporter of the FSG.



Captain David Rowland, President of the Royal Aeronautical Society, presents the Flight Simulation Medal to Owen Wynn.

Cranfield Short Course “Introduction to Flight Simulation”

Held annually for more than 25 years, the Cranfield Short Course “Introduction to Flight Simulation” will this year take place on 26-30 October 2009 at Cranfield University, Bedfordshire. The course aims to provide a structured and compact introduction to modern flight simulation technology and the application of flight simulators in civil and military training. It is international in scope. Technology topics include flight and avionic systems modelling, motion

systems and visual systems, database generation, rotary wing simulation and accident investigation using simulation. Human factors topics discussed include visual and motion perception and instructor and operator station design. Certification, regulation and standards in civil aviation, part-task trainers, the economics of simulator procurement and operation, financing methods and specific issues in military simulator procurement and defence simulation applications, including simulation interoperability, are also addressed.

Lectures are presented by academic staff of the School of Engineering at Cranfield University; members of the Flight Simulation Group, Royal Aeronautical Society; and practising specialists from organisations within the flight simulation industry.

Further details, including enrolment information and course fees, can be found at

<http://www.cranfield.ac.uk/soe/shortcourses/ase/page3196.jsp?id=redirect>

The course is suitable for people working in the simulator industry, for members of national aviation authorities, for managers of simulation facilities and other operational staff, for those involved in simulator procurement and for anyone seeking an overview of modern flight simulation.

Barry Tomlinson

Flight Simulation and Universities Seminar 2009

On 1 April 2009, the Flight Simulation Group (FSG) committee will host a seminar at the Society's HQ, 4 Hamilton Place, London W1J 7BQ. Participation is by invitation only. The Seminar will provide a forum for Universities to exchange information on their activities in teaching and research in flight simulation. Members of the FSG committee will outline the work of the Group. The overall aim is to explore opportunities to foster cooperation and links between the Universities and the FSG in the field of flight simulation.

Any University staff still wishing to attend should contact Emma Brown at the Society (emma.brown@aerosociety.com), 020 7670 4372.

Barry Tomlinson

FSG Autumn 2008 Conference

The Autumn 2008 Conference, **Military Flight Simulation: Present Capabilities and Future Potential - Where Do We Go From Here?** was held on 12-13 November 2008. The Conference drew 122 delegates and speakers from 14 nations, and comprised 4 keynote addresses, together with 24 presentations delivered over the 2 days.

The Conference was opened with keynotes from Dr Jim Blake, Program Executive Officer for Simulation, Training and Instrumentation, US Army, USA, on Interoperability: The Future of

Aviation Training. His theme was that the interoperability of training systems across the Live, Virtual and Constructive domains is now a driving force in providing cost-effective and increased training capability to the Warfighter

Andy Fawkes, DD Directorate of Analysis, Experimentation & Simulation, Ministry of Defence, UK, covered UK Defence Simulation Developments and Trends, and the growing importance of both simulator-based training, and achieving simulated effects in live training.

Finally, Chris Gane, Vice President and Managing Director, Thales Training & Simulation Business, UK, reviewed the historical trends in simulation, and looked ahead to how technological developments might affect Rotary Wing Training over the coming years.

The keynote on Day 2 was delivered by Adolfo Klassen, Chief Technology Officer, CAE Inc, Montreal, Canada, who discussed the challenge of leveraging the emerging software tools, applications and gaming engines to achieve more efficient, higher quality training systems.

Speakers' Conference topics ranged from a comprehensive overview of, and updates on, developments in networked collective mission training, to the role played by part task trainers and their use of COTS PC games software, via reports of current international simulator-based training services, and papers on motion and G-cueing, night vision goggle simulation, and the challenges in modelling the increasing variety and complexity of sensor systems. A number of papers also addressed the implications of emerging international standards for the design and accreditation of military simulators.

The Conference content and the interest it generated confirmed that simulation and synthetic environments are playing an increasingly important role in military training and operational readiness and skills development, but it also indicated that the users' demand for more functionality and higher fidelity is as strong as ever.

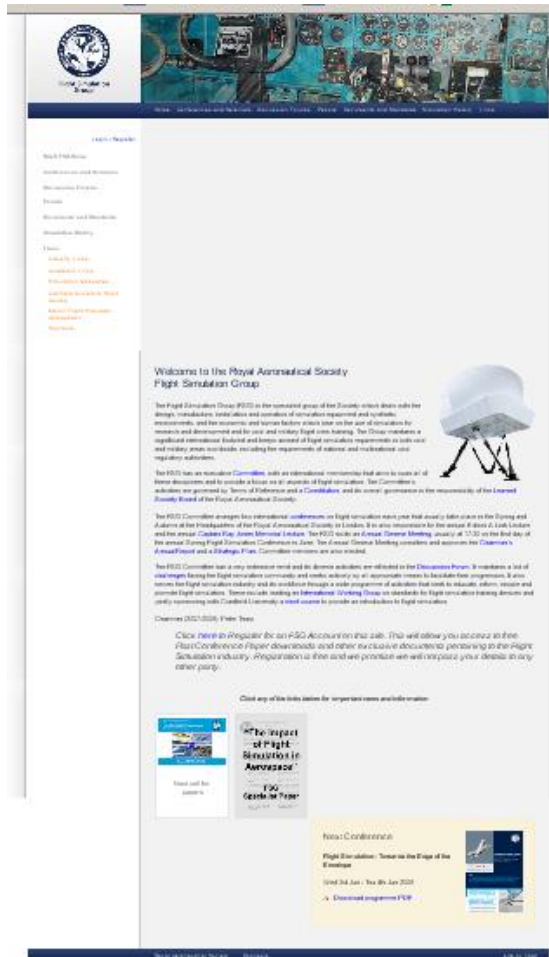
Gordon Woolley

FSG Website

The FSG web site at <http://www.raes-fsg.org.uk> has had a major facelift to bring it in line with modern web design practices and allow access to provide many more facilities. The site went live in early December and the consensus is that it is a tremendous improvement on the previous site. A further update programme is currently being defined, with the hope that we even more features will be added in the near future.

We have begun a comprehensive programme of making available for download a large number of Conference Proceedings from past FSG conferences as far back as the first conference held

in 1970. Currently proceeding are available for 1970, Spring 1976, Autumn 1979, Spring 1984, Autumn 1995, Spring 1996 and Spring 2001, with several others to be added. These Papers are accessible once visitors to the site have undergone a simple, free, registration process giving access to this exclusive information, as well as other documents in the future. The Conference Papers on the site are in PDF format and are fully searchable. Of course, the FSG undertakes not to pass on any personal details to third parties. To register on the site, just click the Login/Register link in the left-hand pane (or the 'Click here' link in the text paragraph at the foot of the FSG introductory information) and enter your email address and chosen password along with your name, affiliation and country of residence. Then just click the 'Register' button to complete the process.



FSG Website

Also, the FSG is seeking reciprocal web links with other suitable organisations active in Flight Simulation. If your organisation would like to be a part of this initiative please let us know via the FSG Discussion Forum at:

<http://www.raes-fsg.org.uk/cgi-bin/yabb1f/YaBB.pl>

The two Forums (FSG Discussion and ICAO9625 Working Group) are still accessible from the web site, and these also have undergone a software revision update to make use of new and better features of our chosen Forum/Bulletin Board software package. The IWG site has been useful but in general is winding down along with the activities of the Working Group itself. On the FSG Forum, we would like more feedback on the issues affecting Flight Simulation. These categories are designed to solicit comments from the industry, so please feel free to make use of them and let us know your views.

Malcolm Blackwood

The Evaluation Handbook

The Objective Testing section of the Aeroplane Flight Simulator Evaluation Handbook is currently being updated to reflect the changes brought about by the ICAO9625 Third Edition Working Group. They have almost completed their task and so the update to the Handbook is timely.

The changes are many and are generally designed to align with the work of the ICAO 9625 IWG, but will include, for the first time, reference to lower level devices (i.e. those not currently designed to Level C or D) and more information on some of the practical issues that may be open to interpretation. Expected publishing date is Autumn 2009 for Volume 1, followed by the publication of Volume 2 (Functions and Subjective Testing) six months or so later.

Malcolm Blackwood

Arinc FSEMC

The Call for papers for the 2009 FSEMC Conference in Cairo has been issued by FSEMC. The FSG International Working Group will provide a briefing at this event. FSEMC has decided to commence a Working Group on Guidelines for Visual Database Currency, triggered of course by the latest FAA Part 60 requirements. They have also approached the RAeS IWG regarding the possible need for further development of the ATC Environment criteria. The update to the current ARINC 610B standards is expected to be released in 2009.

Peter Tharp

IATA Training and Qualification Initiative (ITQI)

The ITQI was created to address the critical need for qualified personnel for both piloting and aircraft maintenance in the mid and long term future. This requirement is still the primary target, despite the current economic crisis, which put other elements of the programme in greater focus especially the

realisation of short term cost savings and the need for harmonised implementation in all regions.

As one of their main activities, IATA has completed the concept for a new edition of the IATA Flight Simulator Design and Performance Data Requirements document. This document has been accepted as the industry standard by manufacturers, purchasers and flight simulator users for over three decades. The new edition will reflect the requirements for flight simulators taking into account modern aircraft system technologies and flight operation procedures to design most efficient flight training devices.

The related ICAO document providing the necessary regulatory framework has been completed. Work will continue to develop new guidance material for the cost effective distribution of data required to manufacture a flight simulator according to the new standards. IATA will continue to work with all industry stakeholders to evaluate solutions for an agreement on data ownership in order to mitigate the risk for significant cost increases.

Peter Tharp

Regulatory Affairs Update

JAA Liaison Office

JAR-FSTD A & FSTD H have been published (1st May 2008) on the JAA website and can be accessed via Publications and NPAs -> JARs -> new releases. Although an effectivity date of 1st August 2008 has been published the individual European NAAs are implementing the new requirements at different times.

The UK CAA is currently preparing for the implementation of JAR-FSTD (A and H) as an interim standard pending final transition to the adoption of the EC regulations to assure ongoing mutual acceptance of qualifications issued by the CAA. Accordingly, the CAA will accept initial applications for, and qualify Flight Simulation Training Devices (FSTDs) to JAR-FSTD (A or H) requirements from 1 September 2008. From 1 September 2009, JAR-FSTD (A or H) will be the sole requirements for the CAA qualification of FSTDs. In the intervening period the CAA will continue to use JAR-STD (1A thru 4A or 1H thru 3H) if requested.

The so-called 'catch up process', which addresses the approval to use devices (which currently do not hold a JAR-STD Qualification but that have a FAA Qualification) within the Type Rated Training Organisations located in North America and Canada, continues with the evaluation of devices and Quality Systems.

The JAA liaison office will cease to exist after 30th June 2009.

European Aviation Safety Agency:

On the 8th of April 2008 regulation 1592/2002, the regulation that established EASA, was repealed and replaced by a new regulation 216/2008 which sets the framework for the extension of EASA's remit to cover Operations, Personnel Licensing and third country aircraft.

The implementing rules (IRs) for Operations & Licensing contain the relevant 'parts' for device qualification and Organisation approval; Part Authority Requirements (AR) and Part Organisation Requirements (OR).

The acceptable means of compliance (AMC), guidance material (GM) and the certification specifications (CSs), which are understood to be based on JAR-FSTD A and H, are contained within PART-AR and PART-OR. The draft document was published for review and comment at the end of October 2008 in the form of NPA 22-2008 ((a) to (e)). Interested parties should access the EASA website for details and be aware of the comment response document (CRD) format (NPA 2008-22A). The closing date for comment has been extended to mid-April 2009.

The draft implementing rules for Air Operators and Community Operators has been published as NPA 2009-02 Part OPS. The closing date for comment is 30th May 2009.

Peter Barrack

FSG Challenges

The FSG has identified over 20 main topics that can be considered as Challenges to our Group and our community. These were discussed at further at our February Committee meeting and updates will shortly be published on our Forum which can be accessed through our website www.raes-fsg.org.uk.

Our objective is to use the Forum as a platform through which these challenges can be discussed and possible actions identified. All are encouraged to contribute and benefit from the exchange of views and information.

The Challenges are listed below

- Visual Systems and Displays
- Motion Systems
- Database Generation
- Interoperability
- Instructor Operating Stations
- Rotary Wing Simulation
- Unmanned Aerial Systems
- ATC Simulation for the Civil Environment
- Military Communications, including Data Exchange, in Flight Simulation and Synthetic Environments
- The Science of Flight Simulation
- Balance of Live and Synthetic Training

- The Multicrew Pilot Licence
- Very Light Jets
- Maintenance Engineering Training
- Military Procurement Challenges
- Flight Simulation Data and the Concurrency of the Simulated Aircraft Configuration
- Regulatory Issues
- Simulator Testing
- Young People

Peter Tharp

Merlin Flight Simulation Competition

Merlin Simulation's 2009 competition, organised in conjunction with the Flight Simulation Group, will be held at the Society's HQ on 13th June. Once again the judges will be John Farley, ex-Harrier Chief Test Pilot, and Dave Southwood, fixed wing tutor at the Empire Test Pilots School.

Several Universities have already signed up for this competition. Another exciting day is in prospect. Competitors will, as in previous years, benefit immensely from the insights by the judges into their designs as they are tested.

The results of the competition will be published in the autumn edition of this newsletter.

Barry Swainston

Contact Us

We would welcome feedback on this newsletter and contributions for future editions. Please feel free to contact us via the FSG Forum <http://www.raes-fsg.org.uk/cgi-bin/yabb1/YaBB.pl>

The FSG Forum provides opportunities to contribute to discussions on the major challenges facing the simulation and training community. You will be welcome to contribute. If you are aware of anyone who might like to receive a copy of this newsletter, can you please forward their email address to Emma Brown at the Society, emma.brown@aerosociety.com?