



The Quarterly
Bulletin of the

CEAS

COUNCIL OF EUROPEAN AEROSPACE SOCIETIES

3AF-AIAE-AIDAA-CzAeS -DGLR-FTF-HAES-IIK-NVvL-PSAA-RAAA-RAeS-SVFW-TsAGI-VKI



Issue 2 - 2011
June



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- THE AERONAUTICS DAYS SIXTH EDITION WAS HELD IN MADRID ON 30-31 MARCH AND 1 APRIL
- THIS WAS A WIDELY RECOGNIZED SUCCESS: 1,400 ATTENDEES COMING FROM 45 COUNTRIES, 250 SPEAKERS.
- THE HIGHLIGHT OF THE EVENT: THE FORMAL LAUNCH OF FLIGHTPATH 2050 – EUROPE’S VISION FOR AVIATION

CEAS

WHAT IS THE CEAS ?

The Council of European Aerospace Societies (CEAS) is an International Non-Profit Association, with the aim to develop a framework within which the major Aerospace Societies in Europe can work together.

It presently comprises 14 Member Societies: 3AF (France), AIAE (Spain), AIDAA (Italy), CzAeS (Czech Republic), DGLR (Germany), FTF (Sweden), HAES (Greece), IIK (Finland), NVvL (Netherlands), PSAS (Poland), RAAA (Romanian Aeronautical & Astronautical Association), RAeS (United Kingdom), SVFW (Switzerland), TsAGI (Russia) and EUROAVIA, VKI ((Von Karman Institute, Belgium).

Following its establishment as a legal entity conferred under Belgium Law, this association began its operations on January 1st, 2007.

Its basic mission is to add value at a European level to the wide range of services provided by the constituent Member Societies, allowing for greater dialogue between the latter and the European institutions, governments, aerospace and defence industries and academia.

The CEAS is governed by a Board of Trustees, with representatives of each of the Member Societies.

Its Head Office is located in Belgium:

c/o DLR – Rue du Trône 98 – 1050 Brussels.

www.ceas.org

WHAT DOES CEAS OFFER YOU ?

KNOWLEDGE TRANSFER:

- A well-found structure for Technical Committees

HIGH-LEVEL EUROPEAN CONFERENCES

- Technical pan-European events dealing with specific disciplines and the broader technical aspects
- The CEAS European Air and Space Conferences: every two years, a Technical oriented Conference, and alternating every two years also, a Public Policy & Strategy oriented Conference

PUBLICATIONS:

- Position/Discussion papers on key issues
- CEAS Aeronautics Journal
- CEAS Space Journal
- CEAS Quarterly Bulletin

RELATIONSHIPS AT A EUROPEAN LEVEL:

- European Commission
- European Parliament
- ASD (AeroSpace and Defence Industries Association of Europe), EASA (European Aviation Safety Agency), EDA (European Defence Agency), ESA (European Space Agency), EUROCONTROL
- Other European organisations

EUROPEAN PROFESSIONAL RECOGNITION:

- Directory of European Professionals

HONOURS AND AWARDS:

- Annual CEAS Gold Medal to recognize outstanding achievement
- Medals in technical areas to recognize achievement

YOUNG PROFESSIONAL AEROSPACE FORUM

SPONSORING

THE CEAS MANAGEMENT BOARD

IT IS STRUCTURED AS FOLLOWS:

- General Functions: President, Director General, Finance, External Relations & Publications, Awards and Membership.
- Two Technical Branches:
 - Aeronautics Branch
 - Space Branch

Each of these two Branches, composed of specialized Technical Committees, is placed under the authority of a dedicated Chairman.

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EDITORIAL

SIXTEEN MEMBER SOCIETIES The CEAS continues its climb



Jean-Pierre Sanfourche
Editor-in-Chief,
CEAS Quarterly Bulletin

Since the end of 2010, three new aerospace associations joined the CEAS: the Czech Aeronautical Society (CzAeS), the Romanian Aeronautical & Astronautical Association (RAAS) and the Von Karman Institute of Belgium (VKI), bringing to sixteen the number of our Member Societies. We welcome them, hoping that they will find our organisation lives up to their expectations.

We counted eight members only in January 2007, at the time when the CEAS, from Confederation became Council, a legal entity conferred under Belgian Law. We have therefore grown by a factor two within four years: this is the result of the work of the officers of the board whose objective is to regularly improve the quality of CEAS's performances. And it is our intention to continue this growth because we are conscious, by doing so, to bring a significant additional wealth to the development of the European Union.

Our new members can be assured of our determination to satisfy their wishes. They precisely come when some new projects are being undertaken, among which:

- Setting up of three active "Specialists' Committees" – rotorcraft, aero-acoustics and GNC (guidance, navigation & control) - the latter being a continuation of the very successful 1st CEAS EURO GNC 2011 held on 13-15 April in Munich!
- Promotion of the concept of "double-badge" (CEAS and the national society involved at the helm) technical conferences and workshops;
- Students and young professionals oriented actions (*investing in youth: a top priority*);
- Realisation of a tool, the "CPMIS" (Conference Programming Management Information System), which will provide an overview of the upcoming aerospace events worldwide and will allow us to rationalize our own event programming;
- Development of our relations with the non-European organisations linked with us by a Memorandum of Understanding: the American

Institute of Aeronautics and Astronautics (AIAA), the Chinese Society of Astronautics (CSA), the International Council of the Aeronautical Sciences (ICAS) and the Korean Society for Aeronautical and Space Sciences (KSAS).

As regards the latter item, I take the opportunity of this editorial to express my warmest thanks to the AIAA, which regularly provides us with outstanding articles to be published in the CEAS Bulletin.

It seems to me more and more clearly that our CEAS is an association with a future: it slowly but surely continues its climb.

1. An extended Executive Summary of CEAS EURO GNC 2011 will be published in the next issue of the CEAS Bulletin.

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THREE MEETINGS TOOK PLACE ON 31 MARCH IN GETAFE (MADRID) AT AIRBUS MILITARY

AT 8:30, THE PCC MEETING

The CEAS/ASD CPMIS (Conference Programming Management Information System) project was presented by Jean-Pierre Sanfourche, Executive Secretary of the PCC (Programme Coordination Committee). The CPMIS is a computerized tool aimed at providing the aerospace actors with the list of the major upcoming Aerospace events. Thanks to a key word system, a search motor will allow the user to select the list of the planned events relating to a precise domain. This tool should allow, not only to make available an overview of the upcoming events, but also to optimise the programming of the future CEAS conferences and workshops.

The CPMIS will be a common ASD-CEAS tool, hosted on ASD Web server.

As a conclusion of a call for proposals conducted by ASD, it was decided to select DE VISU Digital, a "Global Communication Agency" located in Brussels, for developing the system.

- Cost: €4,692 (VAT incl.), shared 50/50 between ESD and CEAS.
 - Maintenance cost: €300 per year to be supported by CEAS.
- Planning: Prototype demonstration in the end of June – Start of the operational phase in the end of October.

AT 10:00, AN EXTRAORDINARY GENERAL ASSEMBLY

This EGA was held in order to pronounce a decision concerning the candidatures of the Romanian Aeronautical & Astronautical Association (RAAA) and of the Belgian Von Karman Institute for Fluid Dynamics (VKI).

- **The Romanian Association** was unanimously admitted in the quality of Full Member.
- **The Belgian VKI** was unanimously admitted in the quality of Associate Member.

FROM 10:30 TO 17:00, THE 16th TRUSTEES BOARD MEETING

All items mentioned on the agenda were reviewed: operation, communication, membership, co-operations, E-CAERO, students & young professionals, awards and membership, finance.

A long time was devoted to the organisation of the Venice Conference (24-28 October 2011).

The budget presented by François Gayet, President of the PCC, for the development of the CPMIS was approved.

CEAS AWARD 2012

The proposal from the Awards committee to confer the CEAS Award 2012 to Prof. Manfred Fuchs was confirmed.



About Prof. Manfred Fuchs

Manfred Fuchs was born in 1938. After studying aircraft engineering in Munich and Hamburg, he was employed as a development engineer at Hamburger

Flugzeugbau (HFB) and later as a space technology engineer at ERNO, Bremen.

He was involved in such major projects as Ariane 1, Spacelab, Columbus and various satellites.

In 1985, he went into business on his own and acquired shares in OHB-System GmbH, Bremen, becoming managing shareholder of this company. Since 2002, he has been CEO of OHB-System AG and a member of the management board of OHB-Technology AG responsible for Space Technology and Security. He also worked closely with Russia for over 15 years in the area of satellite launches as well as German MIR 02 and MIR 05 missions.

Prof. Fuchs has received several awards including "Bremen entrepreneur of the Year for 1995" in 1996 and an honorary professorship at the Bremen University of Applied Sciences. In 2005, the Milan Polytechnic awarded him an honorary doctorate "Dott. Ing. h.c."

In 2008, he was named Honorary Citizen of his home town of Latsch in South Tyrol, Italy.

IN THE EVENING, A GALA DINNER AT REAL MADRID FOOTBALL STADIUM

In the evening, the AIAE offered a splendid dinner to the members of the board in the prestigious place of Real Madrid Football Stadium. Let us here address our warmest thanks to President Felipe Navio Berzosa.



On the left, Sergey L. Chernyshev. On the right, Georges Bridel.



A view of the dinner.



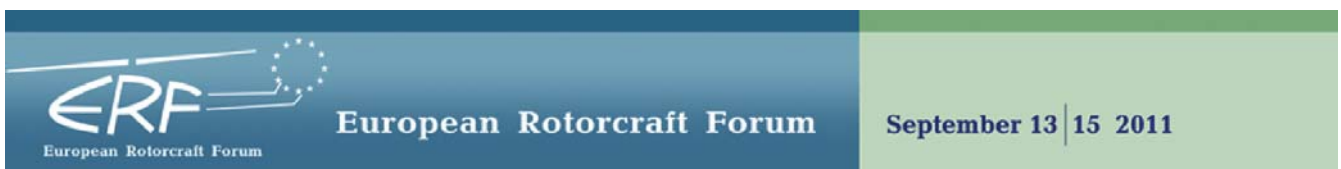
In early September 2010 (7-9 September), the 36th edition of the European Rotorcraft Forum (ERF) was held in Paris Bercy Village. This Forum represents the opportunity for all the players of the rotorcraft research and industry to meet and exchange. It brings together manufacturers, research centres, academia, operators and regulatory agencies to discuss about research, development, design, manufacturing, testing and rotorcraft operations.

In Paris the attendance was up to 200 participants from 18 countries, with 35% people coming out of European Union. Each year, the best paper is awarded, relying on a selection made the International ERF committee. The 2010 Ian Cheeseman Awardee is Dr Yuri Nikishkov, from School of Aerospace Engineering, Georgia Institute of Technology (Atlanta, GA) for the paper on Finite Element-Based Damage Tolerance Methods for Aircraft Composites, co-authored by Andrew Makeev (GIT), Christopher Cline, John Beasley, and Russ Fay (Boeing).

This Cheeseman Award paper have been presented to the 67th AHS Forum, 3-5 May 2011, in Virginia Beach, VA, where a commemorative plaque has been handled to the awardee by Blanche Demaret, Chairman of the 36th ERF, in the presence of Dr Judah MILGRAM, AHS Technical Chairman.

The European Rotorcraft Forum is alternatively organized in France, Italy, the Netherlands, United Kingdom, Russia and Germany.

The 37th European Rotorcraft Forum will take place in Italy, from the 13th to the 15th of September 2011, in Gallarate (Varese), close to Milano (see <http://www.erf2011.org>).



37th
2011



ABOUT THE EUROPEAN COMMISSION'S AERODAYS 2011 CONFERENCE

“Innovation for sustainable Aviation in a Global Environment”

ORGANISED BY THE EUROPEAN COMMISSION, THIS THREE-DAY CONVENTION TOOK PLACE IN MADRID, PALACIO MUNICIPAL DE CONGRESSOS, ON 30-31 MARCH AND 1 APRIL 2011. IT PRESENTED AN PROGRESS UPDATE ON THE LATEST AERONAUTICS AND AIR TRANSPORT RESEARCH IN THE EU'S 7th FRAMEWORK PROGRAMME (FP7). IT BROUGHT TOGETHER OVER 1,400 DELEGATES - POLICY MAKERS, AEROSPACE MANUFACTURERS, ENGINEERS, RESEARCHERS AND CUSTOMERS - TO REPORT AND DISCUSS THE CHALLENGES AND SOLUTIONS FOR CREATING GREENER, SAFER, SECURE AND COMPETITIVE SOLUTIONS FOR AEROSPACE AND AIR TRANSPORT IN EUROPE. HIGHLIGHTS INCLUDED “FLIGHTPATH 2050”, THE EU'S NEW VISION FOR FUTURE AIR TRANSPORT, AS WELL AS A CALL FOR A NEW DEBATE ON EU FUNDING STRATEGIES.

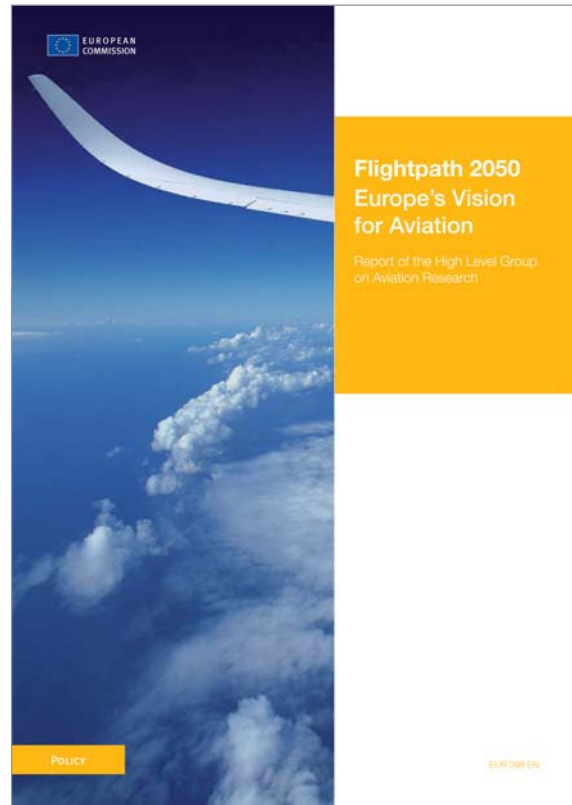


Over 1,400 delegates attended the aerodays event in Madrid.

THE OPENING SESSION: INNOVATION FOR SUSTAINABLE AVIATION IN A GLOBAL ENVIRONMENT

The opening session comprised a number of keynote speeches: **Cristina Garmendia**, Spanish Minister for science and innovation, **Siim Kallas**, Vice-President of the European commission and Commissioner for transport, **Rudolf Strohmeier**, Deputy DG of Research Programmes (EC), **Eva Pierra** from the Ministry of economy, regional government of Madrid, **Ines Ayala** from the European Parliament, **Antonio Vazquez**, president of the newly created IAG (International Airlines group), **Tom Enders**, president and CEO of Airbus, **Johann-Dietrich Wörner**, chairman of the German aerospace research centre DLR and **Giuseppe Orsi**, CEO of Agusta Westland.

THE HIGHLIGHT OF THE FIRST DAY WAS THE FORMAL LAUNCH OF FLIGHTPATH 2050, EUROPE'S VISION FOR AVIATION.



The cover page of the document FLIGHTPATH 2050, Europe's Vision for Aviation.

Being a follow-on from the ACARE 2020 report first launched ten years ago, the new report looks ahead at how the challenges and goals that European aviation might and should face 40 years into the future. It looks at the needs of both air transport users and suppliers, as well as the environment. It was prepared by a High Level Group on Aviation Research composed of Marek Darecki, Charles Edelstenne, Tom Enders, Emma Fernandez, Peter Hartman, Jean-Paul Herteman, Michael Kerkloh, Ian King, Patrick Ky, Michel Mathieu, Giuseppe Orsi, Gerald Schotman, Coln Smith and Johann-Dietrich Wörner. This work was conducted in co-operation with key stakeholders in the European aviation industry, including airports, air traffic controllers, airlines, manufacturers, energy providers and researchers. Among the major ideas expressed in the document, the following ones are to be mentioned:

- A world in which piloted aircraft and UAVs operate in the same airspace is to be envisioned.
- The development of sufficient quantities of bio-fuels to replace fossils-fuels is mandatory.
- We need new quieter more efficient aircraft and multi modal transport hubs where fixed wing and rotorcraft air

transport connect seamlessly with high-speed land-based systems.

- Some tough environment related targets are to be reached:
 - CO₂ emissions reduced by 75% and NO_x emissions reduced by 90%;
 - NO_x emissions reduced by 90%;
 - Noise levels reduced by 65%;
 - Emission-free aircraft taxiing;
 - Development of sustainable alternative fuels;
 - Accidents reduced by 80%;
 - Non-intrusive and swift security checks for passengers;
 - ATM systems to be improved in order to enable an increase in the number of commercial flights from its present annual total of 9.4m to 25m in 2050 while protecting the environment and maintaining Europe's global competitiveness against overseas competition.

FOUR PLENARY SESSIONS

Following the keynote speeches, the conference divided into four Plenary Sessions:

1. Plenary Session One, chaired by **Rudolf Strohmeier**, DG Research and Innovation, EC: *Sustainable Air Transport*.
2. Plenary Session Two, chaired by **Arturo Azcorra**, DG of CDTI (Centro para Desarrollo Tecnológico Industrial): *How the Global Scene is Evolving*.
3. Plenary Session Three, chaired by **Joachim Szodrich**, co-Chairman of ACARE: *Mastering the Future in Aeronautics*.
4. Plenary Session Four, chaired by **Matthew Baldwin**, Director Air Transport, DG Mobility and Transport, EC: *The Future of Air Traffic Management*.

EIGHT PARALLEL SESSIONS

Each of these four Plenary Sessions was then followed by eight specialized parallel working sessions. The latter included in particular such subjects as making airports and aircraft safer and more enjoyable for passengers, engine and structures technology, novel manufacturing techniques, air transport and the environment and research support. Highlights included presentations of a behavioural study of security in airports and the CASAM project the aim of which is to protect civil aircraft against man portable missile launchers, as well as an Airbus Military project on structural health monitoring.

A YOUNG SCIENTIST COMPETITION

A Student Participation Programme, as integral part of the Aeronautics days 2011, was organised to provide student members an educational experience of European dimension that prepares them for their future as aeronautical researchers and engineers.

This event was sponsored by the CEAS (Council of European Aerospace Societies) and co-sponsored by the CDTI (Centro para el Desarrollo Tecnológico Industrial). More than 70 students participated in this special event – 34 European students from over ten different EU countries and two non-European students presented their projects. They had illustrated them with a poster and had the possi-



Mr Pierre Bescond, President of the CEAS, welcoming the students.

bility to present their own topics within 15 minutes in an official speech. In addition to the presentation, the students were allowed to visit all sessions from the conference and toured to the National Institute for Aerospace Technology (INTA). At the end, the highest scoring projects in the categories "Undergraduate/Graduate", "PHD Candidates" and "Student Groups" were recognized with the **Aeroday 2011 Students Award**. Overall, 12 students were priced with an award for their outstanding projects. Five students got the Price One (see photo page 8).

THE CLOSING SESSION: PREPARING THE FUTURE OF AVIATION, A JOINT EFFORT OF EUROPE

The closing session on 1 April was chaired by **François Quentin**, Co-Chairman of ACARE (Advisory Council for Aeronautical Research in Europe). Five personalities spoke: **Máire Geoghegan-Quinn**, European Commissioner for Research and Innovation, **Juan Tomas Hernani**, Secretary General for Innovation, Spanish Ministry of Science and Innovation, **Domingo Ureña**, President of ASD, **Jean-paul Herteman**, CEO of SAFRAN, and **Regino Moranchel**, CEO of Indra.



Máire Geoghegan-Quinn
European Commissioner
for Research, Innovation and
Science.

In her closing speech, **Máire Geoghegan-Quinn** called on the sector to make the Flightpath 2050 Vision a reality by cooperating and setting joint research goals.

"At the heart of the Europe 2020 Strategy adopted last year by the EU Member States is the conviction that we need to innovate to get Europe back on the path to growth and jobs", she said. "And the Innovation Union Flagship, launched last October, is our response to Europe's 'innovation emergency'.

She noted that while Europe 2020 sees the EU thinking ten years into the future, the aviation industry is used to thin-



Mock-ups and posters of the main breakthroughs in European aeronautical research in the last years were present in parallel.

king over even longer terms. “With such long life cycles in aviation what we are dreaming about today may only take to the skies in 20 or 30 years time” [...] “In that sense, the report ‘Flightpath 2050 – Europe’s Vision for Aviation’ is not about an abstract future. We – researchers, industrialists and policy makers – are quite literally forming the future today”, she declared.

Now is the time to build on the success of ACARE and develop a new strategic roadmap for aviation research, development and innovation. The speaker continued: “The real worth of having such a roadmap is that public and private funding programmes all across Europe can build on it when establishing their own priorities. And we will have the greatest chance of success if it has been drafted with the full participa-

tion of all the relevant European stakeholders.”

New debate announced:

A new Green Paper will now be the basis for a wide ranging public consultation on key questions for the next Common Strategic Framework on research funding, and Maire Geoghegan-Quinn is encouraging all players in the aviation and aeronautics sector to take part in the debate. “Your views will be crucial for the Commission in developing its legislative proposal on the Common Strategic Framework by the end of this year” [...] “I truly hope that Flightpath 2050 will motivate us and push us all to achieve by 2050 the challenging and ambitious objectives that have been set out. These will benefit not just to aviation sector, but also millions of people whose lives are enriched each and every day by the freedom of travel”.



J.-P.S - Summary written on the basis of information data coming from www.aerosocietychannel.com/aerospace-insight/2011/03/aerodays/ and www.ec.europa/research/transport

First placed students with the EU Commissioner for Research and Innovation Máire Geoghegan-Quinn and the President of ASD Domingo Ureña.

PREPARING THE NEXT GENERATION WORKFORCE FOR INTERNATIONAL COOPERATION

James D. Rendleman, Member, AIAA
International Activities Committee
Colorado Springs, Colorado, USA



James D. Rendleman

There is a powerful case to be made for the nations of the world to conduct cooperative aviation and space activities. International cooperation allows states to leverage resources and reduce risk; improve efficiency; expand international diplomatic and other engagement; and enhance prestige of engaged states, improve political sustainability of projects, and foster workforce stability. Given the benefits, the sentiment to support cooperation and collaboration efforts is not new. Indeed, reflecting the desire, the newly issued United States National Space Policy declares international cooperation to be among its key goals.

Engineering, science, and industrial innovation has secured the dramatic success of the global economy. This success can be traced directly to nations striving to develop their own technologically and scientifically superior and vibrant workforces. However, individual national efforts are not enough. To repeat the great successes of the 20th century, the next generations of engineers, scientists, and leadership must be prepared to understand, accept and leverage the great opportunities cooperation provides.

The hope and desire in international projects is that one plus one will equal three—that the diverse resources, skills, and technologies of the partners will achieve synergy, adding up to more than the sum of their parts¹. National Aeronautics and Space Administration (NASA), commercial, and European space activities have already achieved considerable success with their cooperative efforts. Over half of NASA's 42 ongoing space and Earth science missions have international participation. Of missions it has under development, nearly two-thirds involve international contributions and participation, pleasing the astronomy and astrophysics community with leveraged and expanded international investments in great science projects. From a commercial perspective, the International Telecommuni-

cations Satellite Organization (INTELSAT) has achieved great success, beginning in 1964 with 11 participating countries; it now provides service to over 600 Earth stations in more than 149 countries, territories, and dependencies². The global aerospace community has also watched in awe as the 18 members of the European Space Agency (ESA) have integrated their respective space programs and worked toward common goals.

International aviation projects have also prospered through international cooperation. Cooperation has been part of the aviation community since its earliest beginnings. The Wright brothers demonstrated their new flying machine at Camp d'Auvours, and as a result were able to sell construction licenses for the Wright Model A to Britain, France, and Germany. European aviation capabilities then leapt ahead and the United States expeditionary forces employed British and French aircraft during the First World War. Over the past half century, cooperative development and manufacturing of military and commercial jet aircraft systems has provided important foundations of the NATO alliance, its industrial and economic integration, and global air travel.

Of course, cost motivations dominate the calculus on whether a state or commercial entity should engage in international aerospace efforts. Why? Most such endeavors are terribly expensive and capital intensive, and as a result, are highly debated, especially the returns on investment, except in the most authoritarian states. Cooperation offers the potential to reduce the burdens to gain access to the marketplace by even the poorest of nations. And, with cooperation, a state can draw in outside resources. As an example of this reality, even ESA has engaged the United States and Japan to join them in what were previously traditional *European-only* science missions as a way to rescue the European mission portfolio from increased cost growth³.

International cooperation also offers an opportunity to improve the efficacy of expenditures, which is a significant cost consideration. With cooperation, resources can be *rationalized, standardized, and made interoperable* to bring about the best and most efficient use of research, development, procurement, support, and production resources. International cooperation can rationalize resources and provide for much needed programmatic redundancy. Standardization of hardware, software, procedures, and the like also helps achieve close practical cooperation among partners and improves programmatic efficiency. This enables an efficient use of resources and reduction of operational, logistic, technical, and procedural obstacles. International partnerships usually begin their efforts by standardizing administrative, logistic, and operational procedures, and originators of standardizing systems and pro-

cedures often become the de facto leaders of collaborative efforts. Designing for interoperability enables partners to substitute each other's critical capabilities with relative ease. It also provides much needed redundancy in event one nation cannot supply a key service or component for any number of reasons.

International cooperation provides a wonderful capacity to increase a nation's political will to sustain and fund aerospace programs and associated budgets. As noted, cooperation provides a nation an opportunity to draw on additional resources when its own are not adequate to achieve desired space goals and visions. Cooperation also enables program teams to hunker down and increase chances to survive attempts to be reined in even when faced with contentious and devastating cost-growth or budget realities (something nearly all aerospace programs invariably face). Thus, from United States perspective, a civil space program can usually win a bit of sanctuary from cancellation threats or significant budget reductions to the extent that Congress and the administration feel compelled to not break, stretch, or withdraw from international agreements the program is associated with.

Finally, cooperation in aerospace presents tremendous opportunities to develop dependencies among nations that

may obviate conflict. Such cooperation may foster improved understanding, and, indeed, friendship. This friendship cooperation now extends to a whole range of scientific endeavors. The full realization of cooperation's promise began to be more fully realized with the end of the Cold War. Science and technology, research and development, space exploration, and commercial integration efforts were no longer bound and subjugated by an overarching competition between two superpowers. Europe and the United States are now reaching out to large powers like India and China, both growing economic and engineering powerhouses, in the hope such engagement shapes their future aerospace and engineering activities in positive directions. The next generation of engineers, scientists, and leaders in aviation and space must be able to appreciate the growing importance of collaboration to their efforts. Their education and early training should show that designing, deploying, operating and sustaining more and more complex aerospace systems will demand international cooperative efforts. Industry, academia, and government sectors should be funded to provide programs to satisfy this need so that young professionals can better synthesize future successes. Security, competition, and cultural barriers must be broken down to encourage their involvement in cooperative programs. Finally, the best and brightest in aerospace's next generation should be encouraged to



Lockheed Martin Space Systems technicians work on the science deck of NASA's Phoenix Mars Lander. The Phoenix mission was led by a principal Investigator at the University of Arizona, Tucson, with project management at NASA's Jet Propulsion Laboratory and development partnership with Lockheed Martin Space Systems. Significant international contributions for Phoenix were provided by the Canadian Space Agency, the University of Neuchatel (Switzerland), the University of Copenhagen, and the Max Planck Institute in Germany. JPL is a division of the California Institute of Technology in Pasadena, California. Image credit: NASA/JPL/UA/Lockheed Martin

engage in international professional activities.

Given the importance of international cooperation, the American Institute of Aeronautics and Astronautics (AIAA) works to foster professionalism and improve the capacities of the global scientific, technical, math, and engineering communities. It does this through sponsored and co-

sponsored conferences, workshops, symposiums, training and education programs, and networking events hosted in the United States and throughout the globe. Many of the AIAA's own International Activities Committee members are globally recognized aviation and space experts and leaders.

1. See "International Cooperation: When 1+1=3", Toshifumi Mukai, ASK Magazine, NASA, Summer 2008, page 8.
2. Ryan Zelnio, "A model for the international development of the Moon," The Space Review, December 5, 2005.
3. "Fighting Inflation, ESA Science Candidates Pushing the Cost Curve Could be Saved by U.S. and Japanese Roles," Aviation Week and Space Technology, December 7, 2009, page. 46.

ON 13-14 APRIL, UNDER THE HUNGARIAN EU PRESIDENCY, EDA HELD A HIGH-LEVEL CONFERENCE IN BUDAPEST ON EUROPEAN TECHNOLOGY NON-DEPENDENCE (ENND)

THIS CONFERENCE HELD FOR THE FIRST TIME SENIOR DEFENCE EXPERTS AND POLICY MAKERS FROM ACROSS EUROPE TO DISCUSS THE 'ETnD' RELATED SUBJECT. NON-DEPENDENCE ON KEY TECHNOLOGIES IS THE POSSIBILITY FOR EUROPE TO HAVE UNRESTRICTED ACCESS TO ANY REQUIRED TECHNOLOGY, WHICH IS A PRE-CONDITION FOR A ROBUST, SUSTAINABLE, GLOBALLY COMPETITIVE EUROPEAN DEFENCE TECHNOLOGICAL AND INDUSTRIAL BASE ((EDTIB)). EDA IS PROPOSING THAT ITS MEMBER STATES DEVELOP A COMPREHENSIVE EUROPEAN APPROACH. THE GOAL OF THE CONFERENCE WAS PRECISELY TO CONVINCED ALL STAKEHOLDERS OF THE STRATEGIC IMPORTANCE OF THIS 'ETnD' FOR DEFENCE AND THE NEED FOR A PROACTIVE POLICY.

THE EDA KEY NOTE PRESENTED BY ADAM SOWA, EDA DEPUTY CHIEF EXECUTIVE: "TOWARDS A COMMON STRATEGIC EUROPEAN TECHNOLOGY NON-DEPENDENCE" IS REPRODUCED HERE BELOW



On the right, Adam Sowa during his keynote speech.

“Distinguished Guests

Ladies and Gentlemen,
Good Morning

It's indeed a great pleasure for me to be here in Budapest to address this distinguished audience.

First, let me congratulate the Hungarian Presidency for organizing this excellent and important conference on European Technology non-Dependence and thank you for hosting this event.

In particular allow me to thank our Hungarian colleagues: Siklósi Peter and Keszthelyi Gyula and their team for their excellent

It seems to me that it has now become a kind of tradition that this exceptional venue, the Stefania Palace, conference center of the Hungarian MoD, should host a succession of important events, lastly on Pooling and Sharing.

So, it seems we have no choice but to continue that tradition and to have a very successful conference.

Hungary has a long history of achievement in Science and Technology and numerous outstanding scientists, including several Nobel Prize winners.

I am very pleased to learn that the representatives from the Hungarian academy of science are also here with us today.

As I am told, on 19 May this year, this renowned academy of science will award the European Inventor Award, honouring outstanding inventors in five categories, namely:

- "Industry"
- "Small and Medium Enterprises"
- "Research"
- "Non-European countries" and finally
- "Lifetime achievement".

This is a good news for European innovation.

Now to the topic of our conference – “Towards a common strategic European **Technology non-Dependence**”.

It seems obvious that Technology non-Dependence is critical for the development and production of world class defence systems, meeting the most demanding capability requirements of our forces.

We should remember, however, that it is equally vital to the global competitiveness of the European Defence Industry and to our export autonomy.

While some European nations strive independently to achieve Technology non-Dependence in dedicated technology areas, we still lack a clear vision for Technology non-Dependence on a European level.

In practice, Technology non-Dependence is rarely fully achieved, except perhaps for a limited number of very critical sectors in some countries.

To achieve non-Dependence one needs a vision, an ambitious plan, substantial funding and strong determination.

The US and Japan are excellent examples of countries that meet these preconditions, demonstrating that Technology non – Dependence can be realized in critical areas. It is maybe worth mentioning the cases of China and Russia in this respect. Some examples can also be found in Europe in specific areas like civil aerospace and the automotive industry.

As we all know, the Defence sector has its specificities, in particular relating to national security. Having access to critical technologies and having reliable supply chains is a must.

The dependence on technologies from outside Europe could limit the availability of some capabilities for Europe. In the current financial situation, a common European approach seems to be a reasonable step forward.

When the Agency was created in 2004, with the objective to further develop defence capabilities, in the field of crisis management for CSDP, strengthening of the European Defence Technological and Industrial Base was also identified as a strategic goal. This includes promoting research aimed at leadership in critical technologies for future defence capabilities.

The European Defence Agency supports a common approach to innovation development, for the benefit both of our soldiers and our national budgets.

During this conference, a number of my Agency’s colleagues will contribute to achieving this goal.

The EDA Research and Technology Director, Christian Bréant will contribute to setting the scene this morning and he will chair the final panel discussion to develop the way ahead and make recommendations for the future.

To build on concrete cases, we have also asked our EDA Research and Technology assistant directors to moderate this afternoon’s subsessions on components, materials and devices.

In a more globalized world, the security of Nations is challenged by wider threats than that of traditional military conflicts. While state against state conflicts are no longer

an immediate threat, we are challenged, among others, by global terrorism, cyber-attacks, regional conflicts and organized crime. Economic and financial stability may also be included in the equation.

Dependency on various technologies make the EU more vulnerable to political changes or natural disasters in other regions, which also increase risk. The crisis in Japan, apart from the immense human tragedy, has also demonstrated, in a dramatic way, that there are cases where tiny, sophisticated, microelectronic or mechanical components, or devices and high tech materials are so critical to larger systems that they cannot function without them.

In order to remain stable, strong and competitive, Europe must aspire to keep those key enabling elements which are beneficial to society and security in Europe.

Like the US, Europe needs common policies and strategies for reducing technology dependence.

Many critical key enabling technologies for defence, space and security contribute fundamentally to the safety and wellbeing of the European citizen now and in the future.

Working together with the European Space Agency and the European Commission, on critical space technologies, EDA has already demonstrated its pragmatic approach and added value in this domain.

In less than 6 months, some key technologies of common interest to the issue of non-dependence have been identified, prioritised and jointly addressed through the Commission Research Framework Program.

Smarter co-operation, guided by a strategy which generates and secures critical key enabling technologies could be a viable approach to make Europe reasonably technologically non-dependent, now and in the future. Such a strategy would have to focus strongly on leveraging synergies between the civil and defence communities, to answer challenges posed by the economic crisis.

I look forward to learn your views on these issues.

It is important that constructive conclusions and recommendations are developed to contribute to the way ahead on common European Technology non-Dependence.

As the Chinese proverb says: “Every long journey begins with the first step! Let’s take it together”.

Thank you for your kind attention and I wish you a very successful conference. ”

J.-P.S - From information provided by the EDA.

www.eda.europa.eu

ACCIDENT TO THE AIRBUS A330-203 FLIGHT AF 447 ON 1ST JUNE 2009

Following the article published in the CEAS Quarterly Bulletin 1-2011 "A new phase of researches for the wreckage of the AF 447 Rio-Paris flight", we are publishing here below the update on investigation, based upon the first analyses of the flight recorders which were recovered in the end of the successful Phase 4 of the new undersea search campaign performed under the operational responsibility of the US-based Woods Hole Oceanographic Institution (WHOI). Following underwater search subsequent operations the Digital Flight Data Recorder (DFDR) and Cockpit Voice Recorder (CVR) were recovered.

Immediately after completion of the operations to open, extract, clean and dry the memory cards from both "black box" flight recorders, French BEA (Bureau Enquêtes Analyses) Safety Investigators were able to successfully download the data as early as 14-15 May 2011. These operations were filmed and recorded in their entirety. This was done in the presence of two German investigators from BFU, an American from NTSB, two British investigators from AAIB and two Brazilian investigators from CENIPA, as well as an officer from the French judicial police and a court expert. Reading the black boxes has raised all the technical data for the parameters of the flight and the last two hours of conversations and noises in the cockpit.

In the framework of the safety analysis, all of this data will now be subjected to detailed in-depth analysis. This work constitutes Phase 5. Financed by the French State, the latter is being directed by the BEA. It will take several weeks.

On 27 May, the BEA published a preliminary report entitled:

"ACCIDENT TO THE AIRBUS A330-203 FLIGHT AF 447 ON 1ST JUNE 2009 UPDATE ON INVESTIGATION"

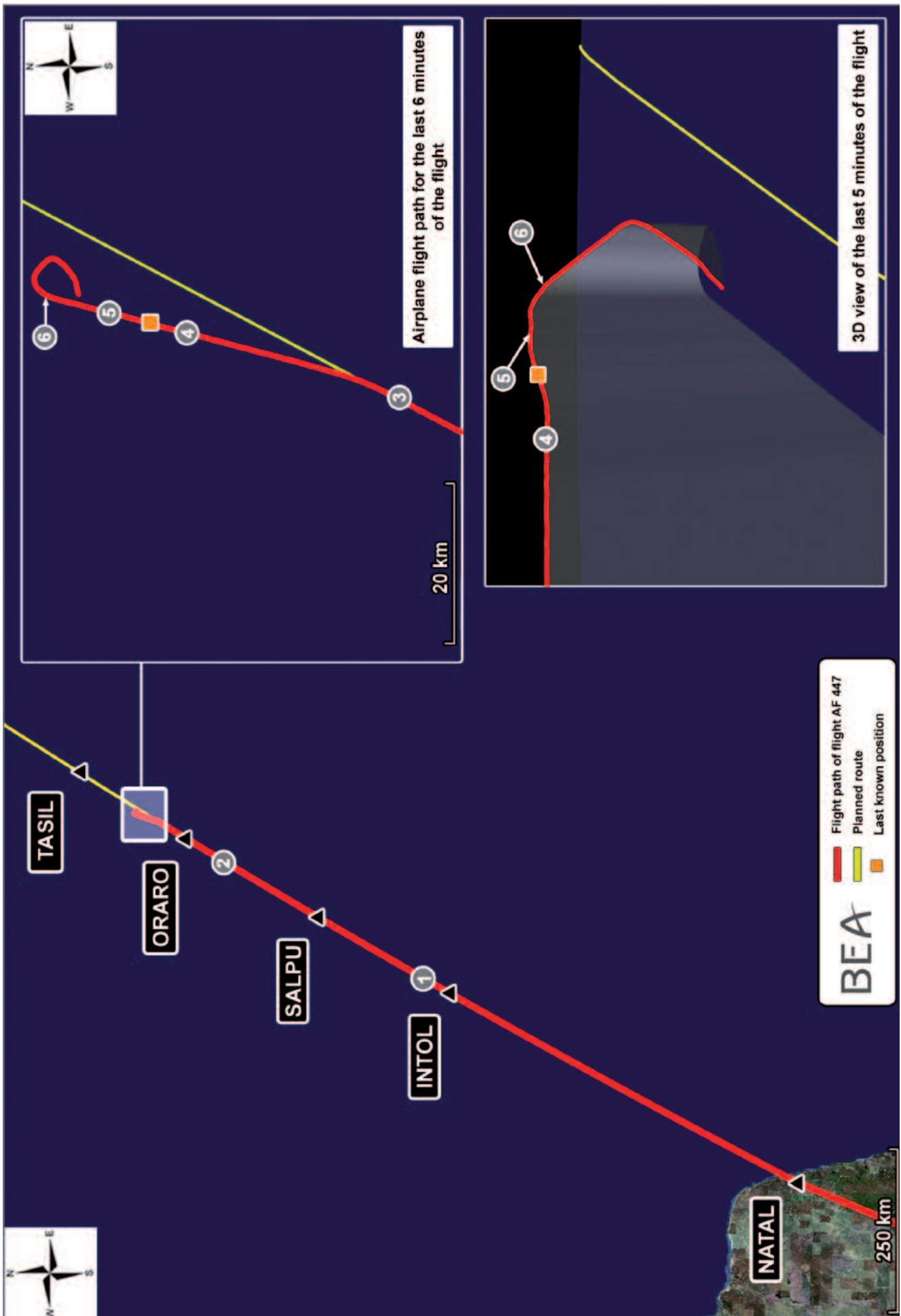
Some large excerpts from this document are given here below.

- The take-off took place at 22h 29 UTC on 31 May 2009 at Rio de Janeiro airport: weight 232.8 t (for a MTOW of 233 t) including 70.4 t of fuel, 216 passengers, 12 crew members (3 flight crew - the Captain and 2 co-pilots - , 9 cabin crew). The composition of the crew was in accordance with the operator's procedures.
- At 1h 35 min 15 (1), the crew informed ATLANTICO controller that they have passed INTOL point. They also transmitted their SELCAL (SElective CALLing system) and a test was successfully performed.
- Between 1h 59 min 32 and 2h 01 min 46, the Captain attended the briefing between the two co-pilots, and then left the cockpit for his resting time. During this briefing, the co-pilot had said: "[...] we are in the cloud layer

unfortunately we can't climb much for the moment because the temperature is falling more slowly than forecast", [...] the logon with Dakar failed". When the airplane approached the ORARO point (2), it was flying at FL 350 at Mach 0.82 and the pitch attitude was about 2.5 degrees. The weight and balance were within the operational limits. Autopilot 2 and auto-thrust were engaged. From 2h 06 min 04, the plane entered a turbulence area.

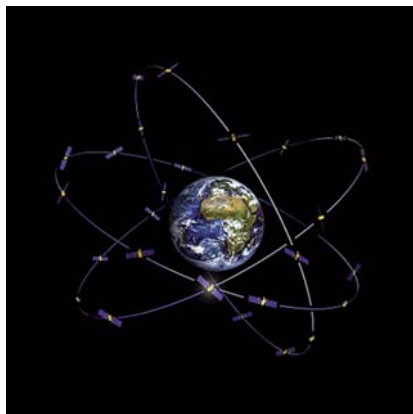
- At 2h 08 min 07 (3), the crew began a slight turn to the left, the change in relation with the initial route being about 12 degrees. He level of turbulence increased slightly and the crew decided to reduce the speed to about Mach 0.8.
- From 2h 10 min 05 (4), the autopilot then auto-thrust disengaged and the pilot said: "I have the controls". The autopilot and the auto-thrust remained disengaged until the end of the flight. The plane began to roll to the right and the crew made a left nose-up input. **The stall warning sounded twice in a row.** The recorded parameters show a sharp fall from about 275 kt to 60 kt in the speed displayed on the left primary flight display (PFD), then in the speed displayed on the integrated standby instrument system (ISIS). A few seconds later, at 2h 10 min 16, the pilot said: "we have lost the speeds" then "alternate law [...]". The pitch attitude increased progressively beyond 10 degrees and the plane started to climb. The crew made nose-down control inputs and alternately left and right roll inputs. The speed displayed on the left side increased sharply to 215 kt (Mach 0.68), the altitude was about 37,500 ft and the recorded angle of attack was around 4 degrees.
- At 2h 10 min 51 (5), the stall warning was triggered again and the plane stalled. The maneuvers allowed recover fifteen seconds later the altitude of 38,000 ft, with an angle of attack of 16 degrees.
- At around 2h 11 min 40 (6), the Captain re-entered the cockpit. During the following seconds, **all of the recorded speeds became invalid and the stall warning stopped.** The airplane stalled, the inputs made by the crew were mainly nose-up. The descent lasted 3 min 30, during which the airplane remained stalled. The angle of attack increased and remained above 35 degrees. The engines were operating and always responded to crew commands. The recordings stopped at 2h 14 min 28: the last recorded values were a **vertical speed of 10,912 ft/min** (approximately 180 km/h), a pitch attitude of 16.2 degrees nose-up, a roll angle of 5.3 degrees left and a magnetic heading of 270 degrees.

J.-P.S - From BEA document. www.bea.aero/fr/



GALILEO : EUROPE PREPARES FOR OCTOBER LAUNCH

ESA, Arianespace and the European Commission announced on 23 May that the launch of the first two satellites of GALILEO is planned to take place on 20 October 2011.



This announcement follows a detailed review held on 12 May under the chairmanship of ESA Director General, with the participation of Arianespace and industrial prime contractors.

The two Galileo satellites will be deployed using a Soyuz launcher. This launch will mark the inaugural Soyuz flight from the Guiana Space Centre.

Jean-Jacques Dordain, DG of ESA, pointed out the significance of this event: “The October launch will be a perfect example of European and international co-operation. On the one side we will have the first operational Galileo in orbit, resulting from the co-operation between the European Union and ESA. On the other side, this the first launch from French Guiana, a programme made possible through the co-operation between ESA and Russia.”

BACKGROUND: A BRIEF RECALL

The Galileo programme is Europe’s initiative for a state-of-the-art global navigation satellite system (GNSS), providing a highly accurate, guaranteed global positioning service under civil control.

The definition, development and In-Orbit Validation (IOV) phases were carried out by ESA and co-funded by ESA and the European Community.

The Full Operational Capability (FOC) phase is managed and fully funded by the European Commission (EC). The EC and ESA have signed a delegation agreement by which ESA acts as design and procurement on behalf of the EC.

*From information provided by ESA
Media Relations Office: media@esa.int*

SOME NEWS FROM SESAR JOINT UNDERTAKING



INTERVIEW ON THE TRANSPORT 2050 WHITE PAPER WITH MATTHIAS RUETE, EUROPEAN COMMISSION DIRECTOR GENERAL OF DG ENERGY AND TRANSPORT, CHAIRMAN OF THE SESAR JU.

Published on 22 May by admin



Mr Matthias Ruete

The European commission has adopted a comprehensive strategy (Transport 2050) for a competitive transport system that will increase mobility remove barriers in key areas. At the same time, the proposals will dramatically reduce Europe’s dependence on imported oil and cut carbon emissions in transport by 60% by 2050.

To achieve this will require a transformation in Europe’s current transport system. By 2050, key goals will include:

- No more conventionally-fueled cars in cities.
- 40% use of sustainable low carbon fuels in aviation; at least 40% cut in shipping emissions.
- A 50% shift of medium distance intercity passenger and freight journeys from road to rail and waterborne transport.
- All of which will contribute to a 60% cut in transport emissions by the middle of the century.

Matthias Ruete has given an in-depth interview to Views on the Transport 2050 White Paper. As well as discussing the impact this White Paper on the EU’s public transport systems, the interview looked at the importance of the aviation sector. In particular, Mr Ruete highlighted the fact that flying is a key factor for citizens’ mobility, and underlined the EU’s commitment not to restrict the growth of airports and airlines.

EDA FAMILIARISATION WORKSHOP

Published on 13 May 2011 by Amy Bumet

In the light of the relationship created between the SESAR JU and the European Defence Agency (EDA) and to welcome EDA's role in supporting the implementation of SESAR, SESAR JU organised a workshop on SESAR for staff from the EDA on 10-11 May.



In addition to the 12 EDA colleagues, three members of staff from NATO's Air Defence and Airspace Management – Defence Investment Division also attended the workshop.

The two-day familiarisation workshop consisted of a series of detailed presentations from SESAR JU and Eurocontrol staff, giving information on several aspects of SESAR:

- SESAR work programme;
- Operational and technical architecture, concepts and validations;
- Economic and environmental aspects;
- Future R&D;
- Administration and financial aspects, etc.

VINGA DEMONSTRATION FLIGHT IN GÖTEBORG



VINGA (Validation and Implementation of Next Generation Airspace) is a project within the international aviation industry, with the assignment to reduce CO₂ emissions through streamlined flight processes.

In the frame of AIRE (Atlantic Interoperability initiative to Reduce Emissions), the VINGA project is validated at Göteborg Landvetter Airport in Sweden during 2011. Its focus is to find various methods that will allow aircraft en route to and from Göteborg Landvetter to emit less carbon dioxide and produce fewer noise disturbances. VINGA can already show great environmental savings.

This project is a co-operation between airport companies Swedavia, Swedish ANSP LFV, airliner Novair, aircraft manufacturer Airbus and Quovadis, a 100% percent subsidiary of Airbus specialised in providing RNP.

To celebrate the start of VINGA green flight trials, a special event was held on 24 May at Göteborg airport.

SESAR AT THE ICAO SYMPOSIUM ON 20-23 SEPTEMBER 2011

The SESAR JU, together with the EC, Eurocontrol and EASA, will be present at the upcoming ICAO Global Air Navigation Industry Symposium in Montréal, on 20-23 September 2011. This symposium, entitled "Towards one sky", will be an opportunity for global industry partners to share their latest developments, to discuss emerging issues and to map out next steps in achieving a seamless, interoperable, global air navigation system.

J.-P.S - From SESAR documentation. www.sesarju.eu

CLEANSKY: 9TH CALL FOR PROPOSALS IS OUT



12.7 MILLION EUROS – DEADLINE 28 JULY 2011

The Clean Sky Joint Technology Initiative has launched its 9th call for proposals. The latter covers 23 topics with total available funding of 12.7 million Euros. Topics from the 6 ITDs cover:

1. ECO-DESIGN: 6 topics

2. GREEN REGIONAL AIRCRAFT: 3 topics
3. GREEN ROTORCRAFT: 3 topics
4. SUSTAINABLE AND GREEN ENGINES: 3 topics
5. SMART FIXED WING AIRCRAFT: 6 topics
6. SYSTEMS FOR GREEN OPERATIONS: 2 topics

www.cleansky.eu/content/pricurements/9th-call-proposals

24 MAY 2011: PAOLO NESPOLI LANDED BACK ON EARTH AFTER A 159-DAY MISSION ON BOARD THE ISS

ESA astronaut Paolo Nespoli landed back on Earth on Tuesday 24 May at 04:27 CEST (02:27 GMT) on the steppes of Kazakhstan as the Soyuz TMA-20 spacecraft fired its retrorockets for a soft landing, concluding his 159-day mission to the International Space Station. Paolo Nespoli had been serving as the flight engineer for Expeditions 26 and 27 since December.



The astronaut Paolo Nespoli.

Paolo and crewmates Dmitri Kondratyev and Catherine Coleman boarded the Soyuz on Monday 23 May night and undocked from the ISS's nadir Rassvert port at 23:35 CEST (21:35 GMT).

Busy schedule

During more than 5 months in space, P. Nespoli carried out an extensive research programme: nutritional tests, medical experiments, radiation monitoring, study of the convective pattern generated in a fluid confined in a sphere (like lava under Earth's crust), preparation of numerous samples to be brought back to Earth.

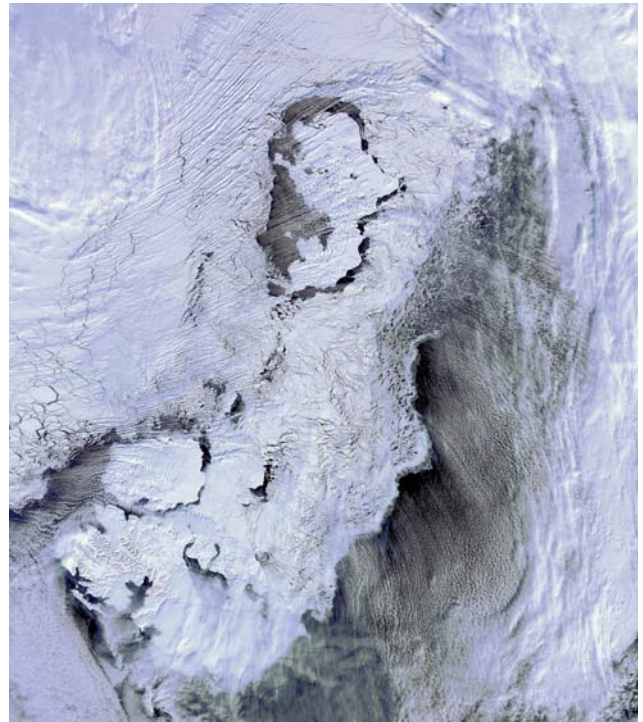
He also participated in the docking of two cargo spacecraft: Europe's second ATV Johannes Kepler in February and the second Japanese HII Transfer Vehicle in January.

Shuttle *Endeavour* docked just last week, bringing ESA astronaut Roberto Vittori.

His descent marked the first time that a Soyuz spacecraft departed with a Shuttle still docked on the ISS.

20 MAY 2011: GALILEO TAKES ITS PLACE ON TOP OF THE WORLD

20 May 2011 – Preparing for the launch of the first two Galileo satellites, ESA inaugurated the most northerly node in its worldwide network of Galileo ground stations: Svalbard, more than 78°N less than 1000 km from the North Pole.



Svalbard from space.

Located in Spitsbergen, the largest island of Norway's Svalbard archipelago, SvalSat, the Svalbard Satellite Station was established by the Norwegian Space Centre in 1997. Until now, it was owned and operated Kongsberg Satellite services. It already served as a ground station to polar-orbiting Earth observation missions, including Envisat and ERS-2.

For Galileo, Svaltsat will serve as a Sensor Station to check the timing and positioning accuracy of Galileo signals, as well as an Uplink station to transmit correction messages to the satellite as needed, sharpening the overall accuracy of Galileo navigation services.

The formal inauguration of Galileo Svaltsat Station was performed by Didier Faivre, ESA's Director of the Galileo Programme and Navigation-related Activities, Jean-Marc Pieplu, EC's Galileo Project Manager, Bo Anderson, DG of the Norwegian Space Centre and Alf-Eirik Rokenes, Kongsberg VP for Finance and Administration.

Didier Faivre and Alf-Eirik Rokenes signed contracts for



The inauguration of the SvalSat station.

Svalbard's operation through the end of 2014 as well as for two further Galileo ground stations on Norwegian territory: Jan Mayen Island (North Atlantic) and Norway's Troll base (Antarctic).

7 MAY 2011: ESA HANDS OVER KEYS TO SOYUZ LAUNCH SITE

On 7 May 2011, the official ceremony marking ESA's handover of the Soyuz launch site to Arianespace took place at Europe's Spaceport in French Guiana, after the site was declared ready for the first flight in next October and a successful simulated launch campaign performed from 29 April to 5 May.

Arianespace became responsible for the Soyuz launch site: at the end of the inauguration, Jean-Jacques Dordain, DG of ESA, handed over the Soyuz site's keys to Jean-Yves le



Commemorative plaque and stone.

Gall, Chairman and CEO of Arianespace. To mark this occasion and to celebrate the recent 50th anniversary of the first man in space, a commemorative plaque and a stone from the Baikonur launch pad from which Yuri Gagarine took off in April 1961, was sealed on the site.

Construction of the Soyuz site began in February 2007. Russian staff arrived in French Guiana in mid-2008 to assemble the launch table, mobile gantry, fuelling systems and test benches. The first two Soyuz launchers arrived by sea in November 2009 to be assembled in the new preparation and integration building. The launch site is almost identical to the Soyuz sites in Kazakhstan and Russia, although adapted to conform to European safety regulations.

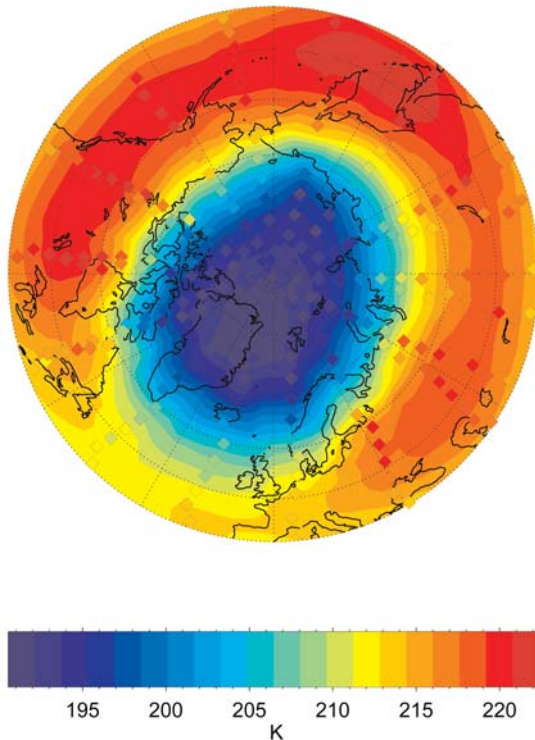
From information provided by ESA. www.esa.int



Soyuz on launch pad.

RECORD LOSS OF OZONE OVER ARCTIC

MIPAS Temp 20110306 50.00 hPa



Arctic temperature field

4 April 2011

ESA's Envisat satellite has measured record low levels of ozone over the Euro-Atlantic sector of the northern hemisphere during March.

This record low was caused by unusually strong winds, known as the polar vortex, which isolated the atmospheric mass over the North Pole and prevented it from mixing with air in the mid-latitudes.

This led to very low temperatures and created conditions similar to those that occur every southern hemisphere winter over the Antarctic.

As March sunlight hit this cold air mass it released chlorine and bromine atoms – ozone-destroying gases that originate from chlorofluorocarbons (CFCs) and break ozone down into individual oxygen molecules – predominantly in the lower stratosphere, around 20 km above the surface.

Ozone is a protective atmospheric layer found at around 25 km altitude that acts as a sunlight filter shielding life on Earth from harmful ultraviolet rays, which can harm marine life and increase the risk of skin cancer and cataracts.

Stratospheric temperatures in the Arctic show strong variations from winter to winter. Last year, temperatures and ozone above the Arctic were very high. The last unusually low stratospheric temperatures over the North Pole were recorded in 1997.

Scientists are investigating why the 2011 and 1997 Arctic winters were so cold and whether these random events are statistically linked to global climate change.

“In a changing climate, it is expected that on average stratospheric temperatures cool, which means more chemical ozone depletion will occur,” said Mark Weber from the University of Bremen.

“On the other hand, many studies show that the stratospheric circulation in the northern hemisphere may be enhanced in the future and, consequently, more ozone will be transported from the tropics into high latitudes and reduce ozone depletion.”

Answering this question requires more research on ozone modelling and ozone trend monitoring, which is only possible because of the historic satellite data on record. ESA's Climate Change Initiative Programme has a project dedicated to this research.

Arctic chlorine measurements

“Measurements from the Envisat's Sciamachy, MIPAS and GOMOS instruments are providing unique ozone information that is important in enabling scientists to separate chemical and dynamical changes and helping to identify the influence of climate change on the stratosphere. It is, therefore, essential to keep these instruments measuring for as long as possible,” said Weber.

Banned under the Montreal Protocol, CFCs have still not vanished from the air but are on the decline. Nevertheless, strong chemical ozone depletion will continue to occur in the coming decades during unusually cold Arctic winters.

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37TH EUROPEAN ROTORCRAFT FORUM

September 13-15, 2011
 ITALY - Vergiate/Gallarate - Ticino Park

The European Rotorcraft Forum is one of the premier events on the rotorcraft community's calendar. It brings together manufacturers, research centres, academia, operators and regulatory agencies, to discuss about research, development, design, manufacturing, testing and rotorcraft operations.



This Forum will be the 37th in a series of meetings, which take place annually across Europe, rotating around the United Kingdom, Germany, France, Italy, The Netherlands and Russia. The first ERF was held in Southampton, England, in 1975, and the most recent in Paris, France, in 2010.

The 37th European Rotorcraft Forum will take place in Italy, from the 13th to the 15th of September 2011, in an area known as the Ticino Park, where the most important AgustaWestland facilities are located. The first day of the Forum will take place in the AgustaWestland auditorium in Vergiate, close to the Final Assembly plant. The following two days will be held in Gallarate (VA), in the MAGA (Museo Arte GAllarate) congress center. Technical visits will be organized on the 16th of September.

The Ticino Park - the first Regional Park in Italy - was created in 1974 to protect and save the natural environment of one of the most beautiful territory in Lombardia. It protects the Ticino Valley and controls an area of more than 91 thousand hectares consisting of 47 Municipalities and 3 Provinces South of Lake Maggiore. Thanks to its nature, landscapes, arts and history, this park has been nominated as "biosphere's reserve" by UNESCO.

Apart from its natural beauty and the efforts to preserve it, this region is very important and famous for its historical background in the aeronautical field. Famous industries, such as Caproni, SIAI Marchetti, Agusta, now AgustaWestland, and Aermacchi, now AleniaAermacchi, started their activities, grew and reached international successes here. Recently, aerospace industries, universities and research centres joined to create an Aerospace cluster,



Distretto Aerospaziale Lombardo, to foster a further growth, not only for large companies but also for SMEs (Small and Medium Enterprises), and to achieve high standard of quality and specific excellence, operating worldwide.

AgustaWestland is involved in collaborative projects aimed at reducing the environmental footprint, to produce a "greener" rotorcraft both in terms of limiting noise and emissions, and developing new manufacturing concepts and designs. The choice of the Forum location is not casual also for the ever-existing link between the flight and its technology with the inspiration they provided to generations of artists and engineers. The Forum participants would be able to witness some of the artworks generated by the dream of human flight that became reality in Lombardia.

The participants are invited to present papers on topics, technologies, solutions, and projects aimed at protecting nature, saving energy, and reducing pollution for the so-called eco-green future rotorcrafts. The Forum will have a special session dedicated to these subjects.



YEAR 2011 - SECOND HALF

- 4 July • **EUCASS** – 4th European Conference for Aerospace Sciences – Saint-Petersburg, Russia – www.conferences.esa.int/
- 11 July • **ESA** – 4th International Symposium on Physical Sciences in Space – IPSP 4 – Bonn Bad-Godesberg, Germany
- 8-11 August • **AIAA** – AIAA Guidance, Navigation and Control (GN&C) Conference- Portland (Oregon) – Oregon Convention Center. www.aiaa.org/events/gnc
- 8-11 August • **AIAA** – AIAA Flight Mechanics Conference – Portland (Oregon) – Oregon Convention Center - www.aiaa.org/events/afm1
- 8-11 August • **AIAA** – AIAA Modeling and Simulation Technologies Conference – Portland (Oregon) – Oregon Convention Center – www.aiaa.org/events/mst
- 31 August • **ESA** – 3rd International Colloquium – Scientific and Fundamental Aspects: the GALILEO Programme – Copenhagen, Denmark - www.conferences.esa.int/
- 13-15 September • **Organiser NVvL - Rotorcraft Community** –37th European Rotorcraft Forum – ERF 2011 – Vergiate/Gallarate – Ticinio Park - Italy – hermans@nlr.nl
- 15 September • **EASA** –European Commercial Aviation Safety Team (ECAST) Plenary Meeting – EASA : Ottoplatz 1 – Cologne, Germany – www.easa.europa.eu/events/events.php
- 18-23 September • **Atmospheric Environmental Research** — 3rd iLEAPS International Science Conference – Garmisch Partenkirchen, Germany. ipo@ileaps.org – www.esa.int/esaLP/LPcalende.html
- 20-23 September • **ICAO** — Global Air navigation Industry Symposium – Montréal, Canada. www.icao.int/
- 28-29 September • **RAeS** – An International Approach to Flight Crew Training Standards – annual RAeS International Flight Crew Training Conference – conference@aerosociety.com – www.aerosociety.com/conference
- 28-30 September • **ESA** – 14th European Space Mechanisms and Tribology Symposium 2001. Constance (Germany). www.conferences.esa.int/
- 3-7 October • **IAF - IAC 2011** – 62nd International Astronautical Congress – Central theme: African Astronaissance – Venue: Cape Town International Convention Center (CTICC), Cape Town, South Africa. www.esa.int/esaLP/LPcalende.html - www.iafastro.org/index.html?title
- 18-20 October • **ICAO** – Workshop on Aviation and Sustainable Alternative Fuels (SUSTAF). Montréal, Canada. www.icao.int/
- 18-21 October • **SAE** – SAE 2011 Aerotech Congress & Exhibition – Centre de Congrès Pierre Baudis, Toulouse (France). The Aerospace community: preparation for future challenges and opportunities. www.sae.org/events/atc/
- 24-28 October • **WCRS, ESA, NOAA, NASA, NSF, EUMETSAT, UCAR, NCAR, NCA, AMS, CIRES, START** – WCRP Open Science Conference: Climate Research in Service to Society – Denver (CO), USA. www.esa.int/esaLP/LPcalende.html

YEAR 2011

24-28 October • **CEAS** – 3rd CEAS European Air & Space Conference – Giorgio Cini Foundation – Venice, Italy.
www.ceas2011.org

- Monday 24 October: Opening Plenary, Keynote speech Parallel Sessions, Exhibition, Welcome Reception
- Tuesday 25 October: Keynote Speech, Parallel Sessions, Exhibition, Civic reception
- Wednesday 26 October: Parallel sessions, Exhibition, Gala Dinner
- Thursday 26 October: Parallel sessions, Exhibition, Closing Plenary
- Friday 27 October: Technical Tours

Key Date: Full paper submission 31 July.

17 November • **IAA** – Conference: Climate Change and green systems, Disaster Management & Natural hazards, Planetary & Lunar exploration, Human Spaceflight. Ronald Reagan Building and International Trade Center, Washington DC – sgeneral@iaaweb.org

29 Nov. - 2 dec. • **ESA, SOLAS, EGU** – Earth Observation for Ocean-Atmosphere Interactions Science – Frascati (Italy)
www.esa.int

15 december • **EASA** – European Commercial Aviation Safety Team (ECAST) Plenary Meeting – EASA – Ottoplatz 1 – Cologne, Germany – www.easa.europa.eu/events/events.php

YEAR 2012

9-12 January • **AIAA** – 50th AIAA Aerospace Sciences Meeting – Nashville (Alabama) – Nashville Convention Center -
www.aiaa.org/

20-23 March • **ESA** – European Conference on Spacecraft Structures, Materials and Environmental Testing – ESTEC. Noordwijk (NL). www.conferences.esa.int/

12-17 June • **ILA Berlin** – International Airshow – www.ila-berlin.de

09-15 July • **International Farnborough Air Show**

23-28 September • **ICAS** – ICAS2012 Congress – Brisbane, Australia - secr.exec@icas.org
 Call for Papers is now downloadable. ICAS Secretary: Mr Axel Probst – ICAS Secretariat: c/o DGLR – Godesberger Allee 70 – 53175 Bonn, Germany. Tel.: +49 228 3080519

1-5 October • **IAC** – 63rd International Astronautical Congress- IAC2012
 Nostra D'oltremare Convention Center- Naples, Italy



**CONGRESS VENUE:
Giorgio Cini Foundation**

The event will be held in Venice, one of the most beautiful cities in Italy and which deserves to be visited at least once in a lifetime.

The conference will take place at Giorgio Cini foundation, located on San Giorgio Maggiore island, in front of Piazza San Marco. Giorgio Cini Foundation is located in a monumental complex which used to be a Benedictine monastery, featuring Palladio's Cloister and Refectory, Longhena's Library and other masterpieces from architects of the past.

CEAS 2011 FLYING TO THE FUTURE

CEAS 2011 is the International Conference of the European Aerospace Societies to be held in Venice next October, from 24th to 28th.

CEAS 2011 is a joint event merging the 3rd CEAS (Council of European Aerospace Societies) Air&Space Conference and the 21st AIDAA (Italian Association of Aeronautics and Astronautics) Congress.



Focused on research as a key factor for governments, academia, and aerospace industries facing new challenges regarding competitiveness, performance and sustainability, the conference theme "Flying to the future" is intended to promote cooperation and knowledge dissemination, both in air and space applications, in civil and military contests.

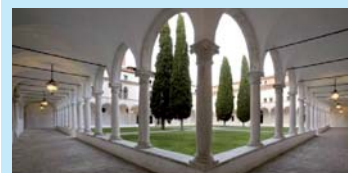
CEAS 2011 embodies the ideal mix of a unique location and the presence of aerospace experts, from Academy, Research Establishments and Industries from all the major nations across the world, to produce a fruitful exchange of scientific and technical findings. In this context, CEAS 2011 is a unique opportunity to meet companies, research and academic institutions from the European Union and worldwide, communicating, sharing and debating innovative concepts and technical solutions about space and aerospace themes.

The five full days program includes round tables, keynote speeches, parallel sessions with technical contributions. An exhibition area provides further opportunities to companies and institutions to present their activities. A rich program of social events will bring delegates to visit some of the most fascinating Venice locations. Technical tours are available for visiting the major Italian aerospace companies.

The technical program includes some special tracks dedicated to dissemination activities of FP7 funded projects.



Furthermore CEAS 2011 is hosting the "Forum on Innovative CFD Multi physics Methods, Tools and Software: Future Needs of Industry in Aeronautics & Propulsion" jointly organized by ECCOMAS, ERCOFTAC, EUROTURBO and CEAS under the EC funded project E-CAero.



More information is available at: www.ceas2011.org