

REGISTRATION / WELCOME

PLENARY SESSION 1 - OPENING

Chair: Christian Mari, 3AF/Former Safran
Welcome by Louis le Portz & Michel Scheller, 3AF Presidents
Alain Rousset, Prsident du Conseil rgional de Nouvelle-Aquitaine

COFFEE BREAK

AERONAUTICS

SPACE

Table with 8 columns: ANERS, R01 (G1+G2), R02 (D1+D2), R03 (F1), R04 (E1), R05 (E2), R06 (F2), R07 (H1), R08 (H2)

10:40-11:00 Symposium Introduction and Session Moderation: John-Paul Clarke (UTC & Georgia Tech)
Symposium Opening Speeches: M. KYRIAKOPOULOS (European Commission)

11:00-11:20 Evaluation of Drag Reducing Paint-Riblet in Flight M. KURITA, Japan Aerospace Exploration Agency, JP

11:20-11:40 RT1: Research Networks Activity Reports
ASCENT (USA), ECATS (EU), FORUM-AE (EU), X-NOISE / ANMA (EU), ANNA (Int'l)

11:40-12:00 Investigation of base drag reduction on bodies of revolution implementing passive and active flow control techniques C. BLAMIS, Aristotle University of Thessaloniki, GR

12:00-12:20 A Review of Experiments on Control of Cross-Flow Disturbances Using Dielectric Barrier Discharge D. SBOEV, TsAGI, RU

12:20-12:40 Ongoing progress in Flow Control Actuators and required electronics G. AIGOUY, Cedrat Technologies, FR

LUNCH

PLENARY SESSION 2

Chair: Christophe Hermans, DNV
KEYNOTE SPEECH 1: The space climate observatory : a green new deal, Jean-Yves le Gall, CNES President
KEYNOTE SPEECH 2: "Clean Sky: towards climate-neutral aviation", Axel Krein, Executif Director Clean Sky JU

Table with 8 columns: Session 10: NOISE IMPACTS ANMA Special Session, Session 11: Aerodynamic Aircraft performance, Session 12: Hybrid/Electric Thermal management, Session 13: Composites analysis & modelling, Session 14: Numerical Simulation and Optimization of Novel Aircraft Concepts, Session 15: Clean Space, Space Debris II, Session 16: Environmental Control and Life Support in Space, Session 17: Space Propulsion II

15:00-15:20 An overview of ANMA's achievements on aviation impact management L. LEYLEKIAN, ONERA, FR

15:20-15:40 Quality of Life: An expanded agenda of airport responsibility? F. RAJE, Manchester Metropolitan University, GB

15:40-16:00 A role for communication and engagement in a comprehensive approach to aircraft noise annoyance mitigation G. HEYES, Manchester Metropolitan University, GB

16:00-16:20 Aircraft Noise Management Practices in Eastern European countries E.-N. BURTEA, National Research And Development Institute For Gas Turbines Comot, RO

16:20-16:50 Exemplar case studies of aviation noise mitigation strategies in the European Union G. HEYES, Manchester Metropolitan University, GB

17:10-17:30 Health impacts of aircraft noise exposure S. BENZ, Zeus GmbH, DE

17:30-17:50 Foundations for a comprehensive approach of acoustic and non-acoustic measures of aircraft noise annoyance mitigation J. HALBRICH, Zeus GmbH, DE

17:50-18:10 Association between short-term annoyance and heart rate during aircraft noise exposure B. OHLERFORST, Nr, NL

18:10-18:30 Aircraft noise exposure and impact assessment and management O. ZAPOROZHETS, National Aviation University, UA

18:30-18:50 A novel tool to estimate the impact - beyond acoustics - of aircraft noise on airport communities I. LEGRIFON, ONERA, FR

END OF DAY 1

TRANSFER TO BORDEAUX COUNTY HALL (TRAM)

COCKTAIL PARTY

BORDEAUX COUNTY HALL

Wednesday 26th February 2020

PLENARY SESSION 3  
Chair: Rafael Bureo Dacal, ESA

KEYNOTE SPEECH 3: Common aeronautics-space technologies, Pascale Ehrenfreund, Chair of the Executive Board, DLR

KEYNOTE SPEECH 4: Space Electric propulsion, José Gonzalez del Amo, Head of the Electrical Propulsion Section, ESA

COFFEE BREAK

09:00 - 10:00  
10:00-10:30  
10:30-10:50  
10:50-11:10  
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18:30-18:50  
18:50  
20:00

Table with columns: ANERS, AERONAUTICS (R01, R02, R03, R04, R05, R06), SPACE (R07, R08), and sessions. Contains abstract titles, numbers, and author names for various presentations.

END OF DAY 2

TRANSFER TO DINNER VENUE (TRAM)

GALA DINNER (PALAIS DE LA BOURSE)

Thursday 27th February 2020

PLENARY SESSION 4

Chair: Valérie Guénon, Safran

KEYNOTE SPEECH 5: Green bizjet technological developments within aeronautical research programmes, Bruno Stoufflet, CTO Dassault Aviation and Vice-Chairman of CORAC

KEYNOTE SPEECH 6: The Route to Sustainable Aviation, Paul Stein, CTO Rolls-Royce

COFFEE BREAK

COFFEE BREAK						
Aeronautics						Space
Auditorium A	R01 (G1+G2)	R02 (D1+D2)	R03 (F1)	R04 (E1)	R05 (E2)	R06 (F2)
<p>Session 50 : Emissions Moderation: Paul Madden (RR) &amp; Olivier Penanhoat (Safran)</p>	<p>Session 51 : High Speed Transport &amp; Environment Chair: S. Chernyev (TAAGI)</p>	<p>Session 52 : Evaluation of New Concepts Chair: C. Hermans (DWW)</p>	<p>Session 53 : Testing, Design methods &amp; concepts I Chair: C. Hillenbergs (DLR)</p>	<p>Session 54 : Materials Modelling, Analysis and Testing Chair: S. Shroff (CS)</p>	<p>Session 55 : Green and safe systems &amp; operations II Chair: M. Bourgois (Eurocontrol)</p>	<p>Session 56 : Space Structures, Thermal and Mechanisms II Chair: P. Corberand (Airbus Defence And Space)</p>
653 Impacts of cloud layers overlap on contrail- attributable radiative forcing I. SANZ-MORERE, MIT, US	620 A Method for Supersonic Commercial Market Estimation and Environmental Impact Evaluation C. WEIT, Georgia Tech / Ona, US	581 An analytical approach to determine the impact force of small unmanned aerial vehicle collisions with rigid and elastic targets F. FRANKE, Technische Hochschule Ingolstadt, DE	138 Rapid Wind Tunnel Testing & Advanced Instrumentation - Future Testing Pillars P. WHITE, Airbus Operations Ltd., GB	699 Finite element analysis of composite double-swept helicopter blades using node dependent kinematics M. FILIPPI, Politecnico Di Torino, IT	202 Optimal Definition of a Short-Haul Air Transportation Network for Door-to-Door Mobility L. TRANELLI, Politecnico Di Milano, IT	162 Fiber Bragg Gratings for prognostics in space applications: a thermo-mechanical characterization of minimally invasive sensing techniques P. C. BERRI, Politecnico Di Torino, IT
70 The impact of carbon dioxide aviation emissions on future climate change E. TERRENOIRE, ONERA, FR	496 Key technologies for raw generation SST A. KAZHAN, TAAGI, RU	591 HUMS, enabling technology reconciling ecodesign and global value proposition in a Circular Economy? K. LE BLEVENEC, VITO, BE	239 Common Numerical Methods & Common Experimental Means for the Demonstrators of the Large Passenger Aircraft Platform W. KRUEGER, DLR, DE	562 Bayesian reconstruction of goal orientated error fields in large aerospace finite element models M. SONEY, University Of Nottingham, UK	010 Experimental setup to measure and analyze ice adhesion on Air Cycle Machine turbine exit pipe surface A. VINCENT, Cranfield University, UK	129 EC H2020 Large Deployable European Antenna (LEA) M. KOSMALSKI, Hps GmbH, DE
215 Mitigation potential of climate-optimized routing: concept study for Europe S. MATTHES, DLR, DE	652 Global emissions estimation for commercial supersonic fleets under different design and regulatory scenarios I. SANZ-MORERE, MIT, US	016 An overview of the current and future aircraft environmental control system and its air filtration system E. ZAVAGLIO, UTRC, IE	013 Aircraft Engines Test Facilities Design Optimization for Flight Increased Safety and Environment Impact Reduction S. CHERMAN, COMOTI Romanian Research and Development Institute for Gas Turbines, RO	108 Dry Sliding Behavior and Particulate Emissions of a SiC-Graphite Composite Material for Braking Systems P. JAYASHREE, University of Trento, IT	251 Thermal-Dynamic Investigation of Advanced System Control Strategies for Decentralized Electro-Hydraulic Power Generation in More Electric Aircraft N. TROCHELMANN, Hamburg University of Technology, DE	063 Closing force evaluation of a sample return capsule for a Phobos Sample Return mission R. MIHALACHE, Romanian Research and Development Institute for Gas Turbines COMOTI, RO
134 Aviation's air pollution impacts in a changing world: effects of changing background atmospheric composition I. DEDOUSSIS, TU Delft, NL	693 STRATOFLY MR2: towards a complete decarbonization of long-haul routes R. FUSARO, Politecnico Di Torino, IT	107 Development of Fault Tolerant Electro-Mechanical Actuation System for Ailerons of Regional Aircraft T. RPEL, Honeywell, CZ	481 Development of a Multifunctional Fuselage Demonstrator S. VELDMAN, Fokker, NL	228 Simulation of the impact behavior of various materials Y. TOSO, DLR, DE	458 Passive anti-icing system using pass-through evaporator capillary pumped loop R. ROBOOD, Euro Heal Pipes, BE	252 Wall Roughness Modeling in Rocket Combustion Chambers O. RAFFAELE, Technische Universitat Muenchen, DE
584 Safran ultrafine particles campaigns in 2019 P. DUCHAINE, Safran, FR	690 H2020 STRATOFLY Project: technical and operational challenges of hypersonic flight N. VICOLA, Politecnico Di Torino, IT	680 Image-Based Path Following Control of an Unmanned Quadrotor H. HITOMU SAKI, National Research Institute of Fire And Disaster, JP	576 New Concepts of Environmentally Friendly High-Lit Devices and Their Application in a Small-Aircraft Transport Area W. STALEWSKI, IGA, PL	734 Optical fibre Bragg grating sensors for BVID detection on composite sub-components S. GOOSENS, Vrije Universiteit Brussel, BE	056 Ground Loads Time Monitoring System A. ROS CONTRERAS, Airbus, ES	230 Structural vibration control with passive isolation system for propulsion equipment P. ROSARIO, Airbus, GB
158 Airport in a Decarbonising Transport System, the Impact of Convergence in Disruptive Technologies and Services D. DIMITRIU, Manchester Metropolitan University, GB	745 Design of sonic boom simulators for low boom day and night noise and vibration perception studies F. COULLOUVRAT, ONERA, FR			127 Hybrid Sheet Moulding Compound With Carbon Prepregs J. SILVA, Inegi, PT		

LUNCH

ROUND TABLE 2: Electric/hybrid Propulsion  
Moderator: Rolf Henke, DLR Executive Board Member for Aeronautics Research  
Participants: Stéphane Cuello, CTO Safran, Jean Brice Dumont, Executive Vice President Engineering, Airbus, Mike Benzakein, former CTO GE, Assistant Vice President for Aerospace and Aviation Research Univ. Ohio State

COFFEE BREAK						
Aeronautics						Space
ANERS	Aeronautics					Space
<p>Session 50 Conf'ed : Emissions Moderation: Paul Madden (RR) &amp; Olivier Penanhoat (Safran)</p>	<p>Session 51 Conf'ed : High Speed Transport &amp; Environment Chair: S. Lemaire (Dassault)</p>	<p>Session 57 : CLEAN SKY Technology Evaluator Chair: J-F. Brouckaert (CS)</p>	<p>Session 58 : Propulsion Chair: V. Guénon (Safran)</p>	<p>Session 54 Conf'ed : Materials Modelling, Analysis and Testing Chair: S. Shroff (CS)</p>	<p>Session 59 : Autonomous Aircraft Operations Chair: T. Melin (FOI)</p>	<p>Session 60 : Mission Design and Space Systems I Chair: P. Landiech (CNES)</p>
232 Case study on the environmental impact and efficiency of travel E. OTERO, KTH, SE	465 The influence of the overpressure signature shape on the sonic boom loudness A. KAZHAN, TAAGI, RU	155 Clean Sky 2, Technology Evaluator* N. FLUEHMANN, DLR, DE	261 Methodology assessment for the design and analysis of aero-engine short intakes L. BOSGAGLI, Cranfield University, GB	747 Innovative manufacturing and numerical modelling of thermoplastic and thermoset composite structures for SHM aerospace application M. MORA-MENDIAS, FIDAMIC, ES	638 4D Flight Trajectory Optimization by Modified Dynamic Programming Approach A. KAWSER, University Of Beira Interior, PT	069 CNES Balloon systems and activities V. DUBOURG, CNES, FR
571 Marginal Climate and Air Quality Costs of Aviation Emissions C. GROBLER, MIT, US	555 Supersonic aircraft compliance with noise requirements to LTO performances and airport noise exposure/impact assessment and management O. ZAPOROZHETS, National Aviation University, UA	089 Environmental Impacts of Clean Sky 2 Technologies for Next Large Passenger Aircraft P. ARBEZ, Airbus Sas, FR	605 Clean Sky 2 Large Passenger Aircraft - Techno Bricks for future engines C. DIETJE, Safran Aircraft Engines, FR	403 Architecture-based conceptual design for mechanical systems applied to landing gear E. ALLEGAERT, Siemens, BE	720 Optimized Sampling for Environmental Monitoring with Airborne Sensors G. AVANZINI, Università del Salento, IT	103 Venus sample return mission revisited D. VALENTAN, Ifg, FR
RT2 Emissions Session Concluding Round Table Paul Madden (RR) & Olivier Penanhoat (Safran)	358 On the Possibility to Reduce the Intensity of Shock Waves Using Meshes with Application to Supersonic and Hypersonic Vehicles C. SANDU, COMOTI, RO	099 Clean Sky 2 TE - Environmental impact assessment for Next Large Passenger Aircraft M. VAN ENNIGE, NLR, NL	482 Future Aircraft Propulsion-A Preliminary Overview of Difficult Choices F. KIRKLAND, University Of Nottingham, GB	445 Experimental and numerical study of the composite wing structure embedding solar cells G. ROUXEL, Gm - Institut De Recherche En Génie Civil Et Mécanique, FR	594 Determination of acoustic characteristics of Autonomous Aircrafts for environment protection and collision avoidance in flight restricted zones V. MAKARENKO, National Aviation University, UA	723 Dynamic Motion of a Descent Vehicle during the Landing Stage M. HERMOGLIA, School Of Aeronautical And Space Engineering, Technical University Of Madrid, ES
Session 62 : ANERS Final Session						Session 63 : Mission Design and Space Systems II Chair: P. Landiech (CNES)
RT3 Environmental Interdependencies: D. Mavris (Georgia Tech) D. Zingg (UTIAS) E. Kora (Safran) M. Vinkainen (FINAVIA) A. Garcia Sainz (ARC) B. Olfenfort (NLR) Moderation: Delia Dimitriu (MMU) & Fay Collier (NASA)	228 Noise Reduction of Supersonic Civil Aeroplane at Takeoff And Landing Using Programmed Engine Throat Control I. KHALETSKII, Central Institute Of Aviation Motors, RU	295 Design Evaluation and Performance Assessment of Fast Rotorcraft Concepts in the 2050 timeframe D. NALANDA, Cranfield University, GB	337 Multi-fidelity assessment of exhaust systems for complete engine-airframe configurations J. HUESO REBASSA, Cranfield University, GB	008 Passenger aircraft composite centre wing box structure optimization M. KOWALSKI, Warsaw University Of Technology, PL	141 Environmental Benefits of Cooperative Obstacle Avoidance for Unmanned Aerial Vehicles using Artificial Potential Field D. P. MREA, University of Bristol, UK	401 Future-Oriented Research Platform For Orbital Cryogenic Storage Technologies (FROST) T. E. BRUNS, DLR, DE
16:00-16:20	577 Design Optimization and Dynamic Characterization of a Tallies High Speed Aircraft Configuration C. NAE, Incas, RO	421 European TRANSCEND for novel aircraft propulsion and alternative fuels roadmaps towards 2050 J. KOS, NLR, NL	482 VHBR Propulsion Technology - Smart Integration of Demonstrators and Techno-Bricks V. MELBOURNE, Rolls-Royce Plc., GB	167 Investigation of Load Collectives on Transport Aircraft Using Continuous Turbulence for Fatigue Analysis Purposes V. HANCOCK, DLR, DE	334 GPAHRS - navigation enabler for more autonomous aircraft G. BOURELY, Honeywell International, CZ	629 Modern Techniques and Technologies for Space Flight Vehicle Engineering G. ORTEGA, European Space Agency, NL

COFFEE BREAK

COFFEE BREAK						
Aeronautics						Space
ANERS	Aeronautics					Space
<p>Session 62 Conf'ed : ANERS Final Session</p>	<p>Session 64 : Urban air mobility and its impact on the environment Chair: J-G. Biele (Thales)</p>	<p>Session 65 : Testing, Design methods &amp; concepts II Chair: C. Hillenbergs (DLR)</p>	<p>Session 58 Conf'ed : Propulsion Chair: G. Way (Rolls Royce)</p>	<p>Session 61 Conf'ed : Structures Design Chair: P. Schmolgruber (ONERA)</p>	<p>Session 66 : Satellite Communications &amp; Operations, Software and Robotics Chair: R. Bureo (ESA)</p>	<p>Session 63 conf'ed : Mission Design and Space Systems II Chair: P. Landiech (CNES)</p>
RT3 Environmental Interdependencies: D. Mavris (Georgia Tech) D. Zingg (UTIAS) E. Kora (Safran) M. Vinkainen (FINAVIA) A. Garcia Sainz (ARC) B. Olfenfort (NLR) Moderation: Delia Dimitriu (MMU) & Fay Collier (NASA)	392 Future Sky Urban Air Mobility: An Outlook on the New Thematic Programme within the EREA Joint Research Initiative C. ESCHMANN, DLR, DE	292 Wall-modelled LES (WMLES) of flow conditions E. HODZIC, Queen's University Belfast, UK	479 Testing a future UHBR low-speed fan V. MELBOURNE, Rolls-Royce Plc., GB	048 Failure modes analyses and impact on aeroelastic stability of a regional aircraft equipped with morphing winglets I. DIMINO, CIRA, IT	060 Design, manufacturing and testing of an antenna reflector for deep space missions D. MIHAJ, COMOTI, RO	192 Micro/Nano Satellite Hybrid Power Management Strategy Research and Simulation L. CHENWAO, TSL-Escha GmbH, DE
360 A Methodology and first Results to assess the potential of Urban Air Mobility concepts V. GOLLNICK, Hamburg University of Technology, DE	338 Comparison of two different flow diverters for inverted inlet T. REN, Beijing Electro-Mechanical Engineering Institute, CN	671 Parametric Study of a Solid Propellant Slotted Grain O. YAQOUB, Military Technical College, EG	139 Impact Resistant and Low-Weight Composite Solution for Aircraft Fuselage R. RICARDO JORGE BRAGA ROCHA, Inegi, PT	524 AI Enhanced Multi Media System Architecture for Human Habitation in Space Mission H. KESUMA, Aes - Aircraft Elektro/Elektronik System GmbH, DE		
Symposium Closing Speech J. HILEMAN (FAA) Moderation: Dominique Collin (Safran)	695 Supersonic Flow Analysis on Different Multi-Row Inlet Devices G. SINGH, Amity University Uttar Pradesh, IN	052 Effects of Material and Geometrical Parameters on the Design of a Trailing Edge Twist and Camber Morphing Surface Y. ZAHOOR, Tu Delft, NL	627 Ice Digging Robot with Navigation P. CATALIN, Incas, RO			
			668 Applications of a novel Semi-Active Piezoelectric Tuned Mass Damper for Vibrations Mitigation in Aircraft Structures N. CHRYSOCHODIS, Patras University, GR	580 Emergence of Airware® 2050 for Space applications M. NEZDANSKI, Constellation, US		

PLENARY 5 - CLOSING: Chair Zdobychlaw Goraj, TU Warsaw, CEAS President  
KEYNOTE SPEECH 7: Clean Aviation in Horizon Europe - status and views from the European Commission, Hervé Martin, Head of Unit "Low Emission Future Industries" Directorate-General for Research and Innovation, Clean Planet, European Commission  
Best paper Awards ceremony

WINE TASTING  
CONGRESS CENTER  
END OF THE CONFERENCE

POSTERS: From 25th to 27th February 2020 the posters will be displayed in the exhibition area

Friday 28th February 2020

TECHNICAL VISITS (from 9h00 to 13h00)  
- ArianeGroup Issac premises  
- Dassault Aviation  
- Thales

WINE TOUR (from 10h00 to 17h00, additional cost for the participants)

ReMAP Workshop

Time	Activity	Presenter / Participants
09:00 – 09:20	Welcome, Introduction and presentation of ReMAP project	Bruno Santos (TUD)
09:20 – 10:30	ReMAP preliminary results, including: <ul style="list-style-type: none"><li>▪ The IT ecosystem</li><li>▪ SHM – Sensing technologies and initial tests</li><li>▪ PHM – initial diagnostics and prognostics models &amp; results</li><li>▪ Safety assessment and regulatory requirements</li></ul>	ReMAP Team
10:30 – 10:45	Q&A	All
10:45 – 11:00	Coffee break	--
11:00 – 12:00	Brainstorm discussing: <ul style="list-style-type: none"><li>▪ Technical issues</li><li>▪ Market opportunities</li><li>▪ Data sharing</li><li>▪ Certification</li><li>▪ Existing running initiatives</li></ul>	All – in groups
12:00 – 12:10	Coffee break	--
12:10 – 12:30	Summary of the brainstorm per group	Groups representatives
12:30 – 12:40	Conclusion and next steps	Bruno Santos (TUD)





