PROGRAMME

1st ECATS Conference on
Technical challenges for aviation in a changing environment

Monday 18 November 2013

13:00-14:00 Registration

14:00-14:15 Opening and conference start by ECATS Chair, Sigrun Matthes

14:15-15:00 First KEYNOTE speech: Aviation Emissions and Environmental Impacts by David S. Lee (MMU/CATE)

15:00-17:30 SESSION I – Climate Impact of Aviation Emissions:

Chair: Jan Fuglestvedt / Rapporteur: Volker Grewe

15:00–15:20 Efficient evaluation of measures for air traffic climate optimization, by K. Dahlmann (DLR), V. Grewe, A. Koch

15:20–15:40 Results of the FAA's Aviation Climate Change Research Initiative, by G. Brasseur (ACCRI), R. Halthore

15:40–16:00 Study of microphysical and radiative properties of contrail cirrus using LES, by R. Paoli (Cerfacs), O. Thouron, D. Cariolle

16:00–16:30 Coffee Break

16:30–16:50 An update on radiative forcing and metrics from IPCC Working Group 1, by J. Fuglestvedt (CICERO)

16:50–17:10 Multi-model assessment of aviation climate impact in REACT4C, by S. Matthes (DLR) et al.

17:10–17:30 Plenary / panel discussion

19:00-21:00 Icebreaker (Leonardo Hotel)

Tuesday 19 November 2013

09:00-12:00 SESSION II – Aviation Environmental Modelling and Databases

Chair: Urs Ziegler / Rapporteur: Paul Brok

09:00–09:40 Technical KEYNOTE: IMPACT & AAT: Towards enhanced European modelling capabilities by Ivan de Lépinay (EASA), Laurent Cavadini (EUROCONTROL)

09:40–10:00 AERO-MS and airport environmental assessment options, by J. Middel (NLR), T. Witte

10:00-10:20 Development and Implementation of a Tool Suite for Environmental and Economic Aviation Modelling for Policy Analysis, by S. Maertens (DLR), R. Berghof, P. Brock

10:20–10:40 Clean Sky Technology Evaluator, by A. Junior (DLR)

10:40–11:00 Coffee break

11:00–11:20 Environmental modelling, by G. Fleming (Volpe)

11:20–11:40 Future year air quality and health impacts due to aviation growth under Changing Climate, by S. Arunachalam (University of North Carolina), M. Woody, J. H. Bowden, M. Omary, E. Kamai, J. Levy

11:40–12:00 Plenary / panel discussion

12:00-13:00 Poster Session (linked to Sessions I+II)

13:00-14:00 Lunch

Tuesday 19 November 2013

14:00-15:40 SESSION III – Alternative Fuels – Mitigation Options:

Chair: Joanna Bauldreay / Rapporteur: Simon Christie

14:00–14:40 Technical KEYNOTE: Alternative Fuels by Mike Farmery (Shell Aviation)

14:40–15:00 Renewable jet fuels: Multiple pathways to commercial reality, by C. Bertelli (UOP), A. Ray, G. Fichtl

15:00–15:20 EU ITAKA Project (Initiative Towards sustAinable Kerosene for Aviation): Addressing challenges to bio jet fuel take off, by C. Velarde (SENASA), I. Gómez

15:20–15:40 Bio jet-fuel challenges and a new technology from “non-food”-resources and residues, by P. Haug (Greasoline), V. Heil, A. Kraft

15:40-16:00 Coffee break

16:00-16:40 Poster Session (linked to Session III)

16:40–17:00 About the suitability of alternative aviation fuels – from the European perspective, by M. Braun-Unkhoff (DLR), U. Riedel

17:00–17:20 Impact of fuel composition on the PM emissions profile for aircraft engines burning alternative fuels, by P. Lobo (Missouri S&T), S. Christie, D. Hagen, P. Whitefield, D. Raper

17:20–18:00 Plenary / panel discussion

Wednesday 20 November 2013

09:00-12:00 SESSION IV – Optimal Flight Trajectory: Climate & Safety

Chair: Sigrun Matthes / Rapporteur: Tomas Martensson

09:00-09:40 Technical KEYNOTE: SESAR & Environment, by Celia Rodrigues (SESAR JU)

09:40-10:00 REACT4C approach for climate-optimized aircraft trajectories, by S. Matthes et al. (DLR)

10:00–10:20 Reduction of the contribution of air traffic to climate change: REACT4C case study, by V. Grewe (DLR), C. Frömming, S. Matthes, S. Brinkop, O.A. Sovde, J. Fuglestvedt. T. Berntsen, E.A. Irvine, K.P. Shine, T. Champougny

10:20–10:40 Climate Impact Mitigation Potential given by Flight Profile and Aircraft Optimization, by A. Koch (DLR)

10:40–11:00 Coffee Break

11:00–11:20 The impact of climate change on trans-Atlantic flight routing, by E. Irvine (University of Reading), B. Hoskins, K. Shine

11:20–11:40 RECREATE – Research on Cruiser Enabled Air Transport Environment, by T. Martensson (FOI), M. Hepperle, F. Holzapfel, J. C. Kuijper, D. Löbl. F. Morscheck, R. Nangia, R., H.G.Visser

11:40–12:00 Plenary / panel discussion

12:00-13:00 Show Case for Early Career Researchers

13:00-14:00 Lunch

14:00-14:40 CSAs: FORUM-AE and CORE-JetFuel

14:40-15:30 REACT4C Stakeholder Meeting – Project achievements

15:30-16:00 **Poster Session (Session IV, ECR and CSA) &** ***Coffee break***

16:00-17:30 REACT4C Stakeholder Meeting – Feedback session

16:00-18:00 Berlin City Guided Walking Tour

19:00-23:30 Networking Dinner (German Bundestag)

Thursday 21 November 2013

09:00-12:00 SESSION V – Atmospheric Observation for Aviation Safety

Chair: Andreas Petzold / Rapporteur: Peter Wiesen

09:00-09:40 Technical KEYNOTE: Status of volcanic ash observations in Europe from National Meteorological Services perspective, Deborah Lee (UK Met Office)

09:40-10:00 IAGOS – In-service aircraft for a global observing system, by A. Petzold (Jülich Research Centre)

10:00-10:20 In situ cloud measurements from commercial aircraft for hazard avoidance, by K. Beswick (University of Manchester), D. Gallagher. D. Baumgardner

10:20-10:40 Information on thunderstorm initiation, nowcast and forecast for aviation safety and efficiency, by D. Stich (DLR), C. Forster, A. Tafferner, M. Köhler, I. Sölch, T.Gerz,

10:40-11:00 Coffee break

11:00 -11:20 EARLINET – coordinated lidar observations for the characterization of volcanic aerosol, by G. Pappalardo (CNR-IMAA)

11:20-11:40 Aeronautics Lidar Applications - Airborne Remote Detection of CAT (Clear Air Turbulence), by P. Vrancken (DLR)

11:40-12:00 Plenary / panel discussion

12:00-12:40 Final KEYNOTE speech: FAA Environmental and Energy Research Portfolio, by Mohan Gupta (FAA)

12:40-13:00 Wrap-up

13:00-14:00 Lunch

14:00 End of Conference

Conference Location:

Leonardo Royal Hotel – Berlin Alexanderplatz
Otto-Braun-Straße 90
D-10249 Berlin
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ECATS Conference Poster Presentations

SESSION I – Climate Impact of Aviation Emissions

Gierens, K., F. Dilger: A climatology of formation conditions for aerodynamic contrails

Graf, K., U. Schumann, P. Minnis, D. Duda: Diurnal cycles of linear contrail coverage, cirrus coverage, and outgoing longwave radiation in the North Atlantic flight corridor

Iachetti, D., G. Pitari, G. Di Genova, A. Sovde, G. Myhre, Ø. Hodneborg: Multi-model estimate of direct and indirect radiative impact of aviation aerosols

Ponater, M., S. Dietmüller, C. Frömming, L. Bock: The shortwave to longwave ratio in contrail radiative forcing as evident in two radiation schemes used for global GCMs

Porebska, M., J. Kaminski: Representation of cirrus clouds and contrails in the GEM-AC model simulations

Stratmann, G.: The Impact of Aviation on the Nitrogen Oxide Distribution: An Analysis using CARIBIC Observations and the AERO2K global aviation Emissions Inventories

SESSION II – Aviation Environmental Modelling and Databases

Kazhan, K., V. Tokarev, O. Zaporozhets, R. Berghof, P. Brok: New Aviation and Environment Policy Modelling Interactions and Synergies Tool

Whitefield, P., L. Prem, D. Hagen, R. Miake-Lye: A Standard Method for Aircraft PM Emission Quantification – Description, Status and Its Implications for addressing some Technical Challenges for Aviation in a Changing Environment

Zaporozhets, O., K. Synylo, J. Fröhlich, J. Stiller: Aircraft jet penetration and buoyancy effects: comparison of CFD-Modelling and semi-empirical results.

Zaporozhets, O., K. Synylo, K. Kazhan, P. Wiesen, R. Kurtenbach, M. Gallus, S. Ifang, O. Drach, A. Beliajev: Monitoring of air pollution produced by aircraft engine emissions in the vicinity of airports

SESSION III – Alternative Fuels – Mitigation Options

Bhagwan, R., P. Habisreuther, N. Zarzalis, F. Turrini: Determination of Emissions Formation and Lean Extinction limits of Lean Turbulent Partially Premixed Swirled Flames of Synthetic Jet Fuels and Jet A-1 Under Varied Ambient Conditions

Blanch, A.: ISUM Model (ITAKA Scale-Up Model): A techno-economic and sustainability assessment of renewable aviation biokerosene uptake in Europe 2020

Ray, A., G. Fichtl, C. Bertelli: Renewable Jet Fuels: Multiple Pathways to Commercial Reality

SESSION IV – Optimal Flight Trajectory: Climate & Safety

Grewe, V., S. Matthes, S. Brinkop, M. Ponater, S. Dietmüller, P. Jöckel, H. Garny, E. Tsati, O.A. Sovde, J. Fuglestvedt, T.K. Berntsen, K.P. Shine, E.A. Irvine, T. Champougny, P. Hullah: Aircraft routing with minimal climate impact: The REACT4C - climate cost function modelling approach (V1.0)

Gustavo, G., A. Benito, C. Samuel, A. Blanch: CASSIOPEIA (Complex Adaptive Systems for Optimisation of Performance in ATM) Case Study 1: Local Environmental Restrictions

Irvine, E.A., B. Hoskins, K.P. Shine: The impact of climate change on trans-Atlantic flight routing

Luckowa, T., R. Wollenheit: The impact of new propulsion systems: Benefit of the Electric Taxi powered by a fuel cell