

## WELCOME LETTER

On behalf of the Organising Committee, it is my pleasure to welcome friends and colleagues of ECATS and Forum-AE to the 2nd ECATS conference on 7th – 9th November 2016. The Organising and Programme Committees, the team at Gold Air and the staff of the hotel Titania are confident you will find it an ideal setting for the conference. We hope you will savour your stay in Athens and make time to explore the unique mix of cultural activities on offer at the heart of this European capital. The combined ECATS conference and FORUM-AE workshop is an important forum to discuss the current research challenges and opportunities for the aviation community. Hopefully the broad sweep of the presentations and posters over the three days together will allow some exposure to new ideas and an abundance of networking opportunities. This year the conference theme is “Making Aviation Environmentally Sustainable” which speaks directly to how we work together to develop and integrate our individual research activities. Our goal is to make the ECATS conference a rewarding and memorable experience for each of you.

We hope you enjoy your time in Athens!

Yours Sincerely,

Simon Blakey  
Chair of the Programme Committee ECATS 2016

## Organizing Committee

Simon Blakey, UK  
Kostas Mathioudakis, GR  
Thrassos Panidis, GR  
Nikos Zarzalis, DE

## Scientific Committee

Alexis Alexiou, GR  
Joanna Bauldreay, UK  
Simon Blakey, UK  
Paul Brok, NL  
Simon Christie, UK  
Dominique Collin, FR  
Volker Grewe, DE  
Didier Hauglustaine, FR  
Paul Madden, UK  
Sigrun Matthes, DE  
Gerd Saueressig, DE  
Xavier Vancassel, FR  
Urs Ziegler, CH

We would like to acknowledge contribution from:



# 2nd ECATS Conference

## Making Aviation Environmentally Sustainable



Professional Congress Organiser

**Goldair**  
congress

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## FINAL PROGRAMME

7-9 November 2016, Titania Hotel, Athens - Greece

# Monday November 7th, 2016

12.00 - 13.30 Registration – Welcome Coffee

13.30 - 13.45 Welcome

13.45 - 15.00 **Alternative Fuels for Aviation**

Chairperson:

Sustainable HEFAs for Aviation  
**Stella Bezergianni**

Alternative fuels for aviation. Beyond ITAKA  
**Inmaculada Gomez Jimenez**

Alternative aviation fuels - Lifecycle emission and energy profiles  
**Laura Lonza**

15.00 - 15.40 Coffee Break

15.10 - 15.40 Poster Session

**PP01:** Cost-effective and sustainable decarbonisation of aviation fuels  
**Stella Bezergianni**

**PP02:** Experimental and computational study of reciprocal interactions of O-Nitrile elastomer and alternative aviation fuel chemical constituents  
**Ehsan Alborzi**

**PP03:** Heat release markers for the combustion of alternative aviation fuels in gas turbines  
**George Skevis**

**PP04:** Methodologies for automatic hydrocarbon autoxidation mechanism generation  
**Matthew Dwyer**

**PP05:** Camelina oil - A possible biofuel for terrestrial application  
**Ionut Porumbel**

**PP06:** Intercooled recuperated aero engine: Early development stages and optimization of recuperation based on conventional heat exchangers  
**Dimitrios Misirlis**

15.40 - 17.40 **Alternative Fuels for Aviation** (continuing)

Chairperson:

**Christopher Lewis**

US Perspective - Alternative fuel research and the ASCENT program  
**Mohan Gupta**

Smart fuels for aviation: The SMARTCATS cost action  
**George Skevis**

Quasi automated approach for construction of reduced chemical kinetic mechanism for autoxidation of blend of conventional and alternative fuels  
**Ehsan Alborzi**

A study on the emissions of alternative aviation fuels  
**Marina Braun-Unkhoff**

Wrap-up  
**Christopher Lewis, Joanna Bauldreay**

18.00 Conference Reception at the Olive Garden of the Titania Hotel

# Tuesday November 8th, 2016

08.30 - 09.00 Registration – Coffee

**FORUM-AE Workshop on Climate Impact**

**Climate Impact and Mitigation Concepts**

Chairperson:

Intro: Climate impact of aviation  
**Sigrun Matthes**

**Sigrun Matthes**

Future aviation CO2 emissions impact on climate  
**Etienne Terrenoire**

Seasonal analysis of contrail and contrail cirrus  
**Margarita Vazquez Navarro**

10.15 - 10.45 Coffee Break

10.45 - 12.15 **Climate Impact and Mitigation Concepts** (continuing)

Chairperson:

Climate impact of contrail and contrail cirrus  
**Lisa Bock**

Chemical impacts of aviation emissions  
**Volker Grewe**

Alternative routing: Climate impact mitigation studies  
**Sigrun Matthes**

Wrap-up  
**Etienne Terrenoire**

12.15 - 13.15 Lunch Break at the Olive Garden Restaurant

13.15 - 15.00 **Climate Impact and Mitigation Concepts** (continuing)

Chairperson:

Intro: Greener by design  
**John Green**

Emission and mitigation concepts  
**Paul Madden**

Flame stabilization aerodynamics and emissions performance at stratified or fully premixed inlet mixture conditions  
**Panayiotis Koutmos**

Intercooled recuperated aero engine: Development and optimization of innovative heat exchanger concepts  
**Dimitrios Misirlis**

15.00 - 15.30 Coffee Break

15.30 - 17.25 **Climate Impact and Mitigation Concepts** (continuing)

Chairperson:

Assessment of PM emission from engines  
**Olivier Penanhoat**

The expected impact from the introduction of a new Strut-Braced Wind aircraft configuration on global air traffic emissions and climate - results from the WeCare project  
**Florian Linke**

Drag reduction in aircraft wings using dielectric barrier discharge  
**Zinon Vlastergios**

Aircraft level assessment of contrail mitigation  
**Jean-Charles Khou**

Wrap-up  
**Ling Lim**

19.00 Conference Dinner at The Acropolis Museum (meeting point at the hotel lobby)

# Wednesday November 9th, 2016

08.30 - 09.00 Coffee

09.00 - 11.00 **Green Flights - Climate Optimal Flight Trajectory**

Chairperson:

A note on how to internalize aviation's climate impact on Non-CO2 effects  
**Robin Ghosh**

Feasibility of climate-optimized air traffic routing for trans-Atlantic flights  
**Volker Grewe**

Simulation of air traffic using weather-based climate cost functions - Feasibility analysis  
**Tanja Luchkova**

US Perspective - ASCENT program and FAA studies on Interdependency and climate modeling  
**Mohan Gupta**

Wrap - Up  
**Florian Linke**

11.00 - 11.40 Coffee Break

11.10 - 11.40 Poster Session

**PP07:** Environmental impact functions: Linking environmental impact information for planning environmentally-optimal trajectories  
**Sigrun Matthes**

**PP08:** Eco-efficient aviation: An overview on first results from the WeCare project  
**Volker Grewe**

**PP09:** Identifying climate optimal trajectories in under different synoptical situations  
**Sigrun Matthes**

11.40 - 12.55 **Interdependency and aviation environmental Modelling**

Chairperson:

Assessing trends in aviation noise and emissions in Europe using advanced modeling capabilities  
**Laurent Cavadini**

Modelling of aircraft emissions in the airport area  
**Kateryna Synylo**

Modelling airport air quality at high resolution  
**Claire Sarra**

12.55 - 13.55 Lunch Break at the Olive Garden Restaurant

13.55 - 15.00 **Interdependency and aviation environmental Modelling**

Chairperson:

The aircraft emissions model: Future Aviation Scenario Tool (FAST)  
**Ling Lim**

An Integrated Modelling Approach for Climate Impact Assessments in the Future Air Transportation System - Findings from the WeCare Project  
**Robin Ghosh**

Wrap-up  
**Paul Brok**

15.00 - 15.20 Coffee Break

15.20 - 15.50 Early Career Researcher Award Ceremony

Wrap-up and closing remarks  
**Simon Blakey**