

## 3<sup>rd</sup> ECATS Conference on **Making Aviation Environmentally Sustainable**

21-23 April 2020, Göteborg, Sweden

Jointly with:

## 2<sup>nd</sup> annual Swedish Aeronautical Research Center (SARC) meeting

21-22 April 2020, Göteborg, Sweden

Following the series of earlier ECATS Conferences (Berlin 2013, Athens 2016), this scientific conference will give the opportunity to present state-of-the-art research, review recent achievements and at the same time will provide a strategic perspective on future directions in environmentally sustainable aviation.

The **Scientific Programme** covers seven key themes allowing in-depth discussions and poster presentations:

1. **Alternative fuels for aviation**
2. **Propulsion integration**
3. **Airport Air Quality**
4. **Aviation climate impact and mitigation concepts**
5. **Green flights – Climate optimal trajectories**
6. **Future materials for aircraft**
7. **Interdependency and aviation environmental modelling**
8. **General session for National Aeronautics Programme (NFFP)**

Detailed information on abstract submission and abstract guidelines are available on the ECATS web-site <http://www.ecats-network.eu/events/3rd-ecats-conference>.

During the conference, oral and poster presentations will be possible. A preference (oral/poster) can be given with the submission of the abstract. Extended abstracts of all presentations will be included in the conference proceedings, which will be available at the conference. After the event selected contributions will be invited to submit a paper for peer-review to a special issue of an international journal.

### Important Dates

Abstract submission <b>new date</b> (300 words):	5 Dec 2019
Notification of abstract acceptance:	17 Jan 2020
Early bird registration:	15 Feb 2020
Extended abstract (2-4pages):	20 March 2020

### Alternative fuels for aviation

The transport sector is under increasing pressure to diversify away from petroleum derived fuels for its energy. For aviation, alternative fuels are the most realistic mitigation option. This session will explore technical, operational and performance challenges and opportunities in achieving this sustainable position. There will be specific focus on the environmental consequences of using the new fuels. Additionally, it will seek to identify knowledge gaps to be filled to overcome shortcomings of, or exploit benefits of, alternative fuels.

### Climate impact and mitigation concepts

Aviation contributes to climate change and a joint effort is necessary to ensure both sustainable mobility and growth of aviation. However, large uncertainties remain when quantifying overall climate change from aviation. Contributions which emphasise the need to establish solid knowledge and well-evaluated measures and means, to provide quantitative estimates of aviation climate impact and mitigation concepts are particularly welcome. In addition, contributions which explore approach to help aviation are invited.

### Propulsion integration

Propulsion systems have for a long time increased in size, relative to the aircraft, making aerodynamic and structural integration an increasing challenge. Additionally, a closer propulsion system integration may offer emissions reductions either through hybrid electric concepts or by ingesting the vehicle boundary layer. Moreover, the propulsion systems must be integrated under constantly more demanding noise constraints.

### Future materials for aircraft

Increasing environmental and cost demands drive the development of new aircraft materials for a range of applications. As composite material capability, manufacture and design methods develop their use in airframe and propulsion systems increase. Advanced manufacturing methods such as additive manufacturing, powder metallurgy and on longer term the use of graphene in aircraft promise to provide future steps in aircraft efficiency.

### Interdependency and aviation environmental modelling

Well-balanced sustainable aviation policymaking requires assessment of potential economic and environmental impacts of any technical, operational and or market-based measure. To facilitate implementation of such aviation environmental policies, a model-based assessment is often applied, ideally with open access to necessary databases. At the conference, European and international perspectives and contributions to integrated modelling and analysis of complex interdependencies and trade-offs will be discussed at air vehicle, airport and or air transport system levels.

### Green flights – Climate optimal flight trajectory

Finding the optimal flight trajectory remains one of the main challenges for air traffic management (ATM). Any trajectory has to comply with a growing list of requirements, amongst others safety and climate impact. Recent advancements in this field are invited which aim to expand current capabilities related to one or more of above mentioned key performance areas. Linkages with the Aviation System Block Upgrades are considered as defined in the ICAO Global Air Navigation Plan.

### Airport air quality

The increasing demand to fly and the subsequent expansion of airports are helping to drive research into the impact of aircraft emissions on air quality, health and airport sustainability. Contributions are particularly invited which focus on latest advances in characterising aircraft emissions (including ultrafine particulate matter), dispersion modelling, regulations, real case scenarios, future trends as well as mitigation actions that will assist airports and stakeholders better understand the air quality challenge.

### General session for National Aeronautics Research Programme (NFFP)

This is a general aeronautics session open for all Ph.D. students funded by NFFP. A new award, the Ivar Isaksen Prize for the best presentation has been launched. Details will be available on [www.ecats-network.eu](http://www.ecats-network.eu). Being an NFFP Ph.D. student means that you are eligible to compete, but you also qualify to compete if you are an international Ph.D. student or have a Ph.D. not older than 3 years. You will then need to present in any of the above sessions, but the prize ceremony will take place in this session.

## ECATS International Association

**From Network to Association** In 2005 a network of more than 100 researchers in the domain of aviation and environment was established within the Network of Excellence ECATS (Environmental Compatible Air Transport System). In 2010, the International Association, ECATS IASBL was established in Brussels, Belgium with the objective of helping to make future aviation sustainable.

**Association Objectives** are to build up expertise, exploit multi-disciplinary platform, organise exchange of knowledge, and to foster the technical, strategic and political debate.

**Association Members** Research establishments and academia leading in the field of aviation and environment are members of ECATS IASBL. Association is open to new partners with proven expertise in the field of aviation and environment.

### Conference Organisation

**Conference Session Structure** The event will be held in plenary sessions, to ensure the full exploitation of interdisciplinary networking and synergies between involved disciplines.

**Conference Location** The conference will be held in Chalmerska huset, in the heart of Gothenburg, walking distance from the central station.

**Networking Dinner** The conference dinner will be held in the Skansen Kronan, Gothenburg (included in registration fees).

### Registration fees

	Until 15/2/20	After 15/2/20
Delegates	350 €	400 €
ECATS members	300 €	350 €
Students	250 €	290 €

The registration fee covers access to conference, proceedings, lunches and coffee breaks, icebreaker, and conference dinner (Tue 21 Apr 2020, Skansen Kronan, Gothenburg).

### For updated information please contact:

eMail: [conference@ecats-network.eu](mailto:conference@ecats-network.eu)

Or visit the conference on the web:

[www.ecats-network.eu/events/3rd-ecats-conference](http://www.ecats-network.eu/events/3rd-ecats-conference)

Details on SARC meeting: <https://sarc.center>

## Scientific Programme Committee

- Bhupendra Khandelwal Sheffield, UK
- David Raper, MMU, UK
- Didier Hauglustaine LSCE/CNRS, FR
- Huadong Yao, Chalmers, SE
- Jan Middel, NLR, NL
- Leif Asp, Chalmers, SE
- Ola Isaksson, Chalmers, SE
- Peter Linde, Airbus/Chalmers, DE
- Sigrun Matthes, DLR, DE
- Simon Blakey, Sheffield/Birmingham, UK
- Simon Christie, MMU/CATE, UK
- Tomas Grönstedt, Chalmers, SE
- Tomas Mårtensson, FOI, SE
- Volker Grewe, DLR/TU Delft, DE

## Organising Committee

- Tomas Grönstedt (Conf. Chair), Chalmers, SE
- Ola Isaksson, Chalmers, SE
- Sigrun Matthes, DLR, DE
- Dave Raper, MMU, UK
- Carlos Xisto, Chalmers, SE
- Olivier Petit, Chalmers, SE
- Anna-Lena Larsson, Chalmers, SE

## ECATS International Association

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Chalmerska huset



Skansen kronan

### Call for abstracts

ECATS International Association organises the 3<sup>rd</sup> ECATS Conference on

**Making Aviation Environmentally Sustainable**

**Future Challenges for Aviation**

21-23 April 2020  
Gothenburg, Sweden

