AVIATOR

Assessing aViation emission Impact on local Air quality at airports: TOwards Regulation

Funding: European (Horizon 2020)
Duration: Jun 2019 - May 2022
Status: Ongoing
Total project cost: €5,573,720
EU contribution: €5,103,718

Objectives:
Emissions from aircraft have adverse effects on the air quality in and around airports, contributing to public health concerns within neighbouring communities. AVIATOR will adopt a multi-level measurement, modelling and assessment approach to develop an improved description and quantification of the relevant aircraft engine emissions, and their impact on air quality under different climatic conditions.

Engine particulate and gaseous emissions in a test cell and on-wing from an in-service aircraft will be measured to determine pollutant plume evolution from the engine and APU exhaust. This will provide an enhanced understanding of primary emitted pollutants, specifically the nvPM and vPM (down to 10nm), and the scalability between the regulatory test cell and real environments.

AVIATOR will develop and deploy across multiple airports, a proof-of-concept low cost sensor network for the monitoring of UFP, PM and gaseous species such as NOx and SOx, across airport and surrounding communities. Transport and impact of emissions from aircraft engines and APU will be monitored in this more complex environment through high fidelity and sensor measurements.

Campaigns will be complemented by high-fidelity modelling of aircraft exhaust dynamics, microphysical and chemical processes within the plume. CFD, box, and airport air quality models will be applied, providing validated parameterizations of the relevant processes, applicable to standard dispersion modelling on the local scale.

Working with the regulatory community, AVIATOR will develop improved guidance on measuring and modelling the impact of aircraft emissions with specific reference to UFP. Acknowledging the uncertainty surrounding health impacts of UFP, AVIATOR will work with the public health community to develop methodologies for the representative sampling of aircraft emissions.

AVIATOR will provide airports and regulators with tools and guidance to improve the assessment of air quality in and around airports.

Parent Programmes:
H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport

Institute type: Public institution
Institute name: European Commission
Funding type: Public (EU)
Other programmes: LC-MG-1-1-2018 InCo flagship on reduction of transport impact on air quality

Lead Organisation:
Instituto Nacional De Tecnica Aeroespacial Esteban Terradas
Address: CR TORREJON AJALVIR KM 4 2
<table>
<thead>
<tr>
<th>Organisation</th>
<th>Address</th>
<th>EU Contribution</th>
</tr>
</thead>
</table>
| 28850 TORREJON DE ARDOZ MADRID | Spain | Organisation Website:  
http://www.inta.es  
EU Contribution: €1,045,863 |
| Manchester Metropolitan University | Address:  
All Saints Building, Oxford Road  
MANCHESTER  
M15 6BH  
United Kingdom | Organisation Website:  
http://www.mmu.ac.uk  
EU Contribution: €497,459 |
| Flughafen Zuerich Ag -Unique | Address:  
Flughafen Kloten  
8058 ZURICH-AIRPORT  
Switzerland | EU Contribution: €131,725 |
| Ramem Sa | Address:  
CALLE SAMBARA 33  
28033 MADRID  
Spain | Organisation Website:  
http://www.ramem.com  
EU Contribution: €264,188 |
| Iberia Lineas Aereas De Espana Sa Operadora | Address:  
CALLE MARTINEZ VILLERGAS 49  
28027 MADRID  
Spain | Organisation Website:  
http://www.iberia.com  
EU Contribution: €150,627 |
| Manchester Metropolitan University | Address:  
All Saints Building, Oxford Road  
MANCHESTER  
M15 6BH  
United Kingdom |
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<tr>
<th>Organisation</th>
<th>Website</th>
<th>EU Contribution</th>
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<tbody>
<tr>
<td>Organisation Website:</td>
<td><a href="http://www.mmu.ac.uk">http://www.mmu.ac.uk</a></td>
<td>€606,131</td>
</tr>
<tr>
<td>Kobenhavns Lufthavne As</td>
<td></td>
<td>€39,625</td>
</tr>
<tr>
<td>Centro De Investigaciones Energeticas, Medioambientales Y Tecnologicas</td>
<td>Address: Avenida Complutense 22 28040 MADRID Spain Organisation Website: <a href="http://www.ciemat.es">http://www.ciemat.es</a></td>
<td>€210,214</td>
</tr>
<tr>
<td>Office National D'etudes Et De Recherches Aerospatiales</td>
<td>Address: CHEMIN DE LA HUNIERE 91120 PALAISEAU France Organisation Website: <a href="http://www.onera.fr">http://www.onera.fr</a></td>
<td>€655,622</td>
</tr>
<tr>
<td>Deutsches Zentrum Fuer Luft - Und Raumfahrt Ev</td>
<td>Address: Linder Hoehe 51147 KOELN Germany Organisation Website: <a href="http://www.dlr.de">http://www.dlr.de</a></td>
<td>€226,886</td>
</tr>
<tr>
<td>Ingenieria Analitica Sl</td>
<td>Address: Avenida Cerdanyola 73 P4 PTA IZQ 08172 SANT CUGAT DEL VALLES Spain</td>
<td>€288,867</td>
</tr>
<tr>
<td>Ingenieurbuero Janicke</td>
<td>Address: Hermann-Hoch-Weg 1</td>
<td></td>
</tr>
<tr>
<td>Organisation</td>
<td>Address</td>
<td>EU Contribution</td>
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<td>----------------</td>
</tr>
<tr>
<td>88662 Ueberlingen</td>
<td>Germany</td>
<td>Organisation Website: <a href="http://www.janicke.de">http://www.janicke.de</a></td>
</tr>
<tr>
<td>Rolls-Royce Plc</td>
<td>BUCKINGHAM GATE 62 LONDON SW1E 6AT United Kingdom</td>
<td>Organisation Website: <a href="http://www.rolls-royce.com">http://www.rolls-royce.com</a></td>
</tr>
<tr>
<td>Aena Desarrollo Internacional</td>
<td>Arturo Soria 109 28023 Madrid Spain</td>
<td>EU Contribution: €76,875</td>
</tr>
<tr>
<td>Cardiff University</td>
<td>Newport Road 30-36 Cardiff CF24 0DE United Kingdom</td>
<td>Organisation Website: <a href="http://www.cardiff.ac.uk">http://www.cardiff.ac.uk</a></td>
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**Technologies:**
- Aircraft operations and safety
- Air quality measurements

**STRIA Roadmaps:** Vehicle design and manufacturing

**Transport mode:** Air transport

**Transport sectors:** Passenger transport, Freight transport

**Transport policies:** Environmental/Emissions aspects

**Geo-spatial type:** Other