

PROJECT

## RAPTOR

# Research of Aviation PM Technologies, mOdelling and Regulation

**Funding:** European (Horizon 2020)

**Duration:** Nov 2019 - Oct 2021

**Status:** Ongoing

**Total project cost:** €995,210

**EU contribution:** €995,210



**Call for proposal:** H2020-CS2-CFP09-2018-02

[CORDIS RCN : 224162](#)

### Objectives:

Particulate Matter (PM) emissions from aircraft engines adversely affect air quality in and around airports, contributing to public health concerns for airport workers and within neighbouring communities. RAPTOR will bring together relevant stakeholders to bridge a wide and multidimensional portfolio of existing European research to:

1. provide enhanced insights into PM including the ultrafine PM (UFP) component within aircraft exhaust emissions;
2. explore interdependencies between noise and emissions particularly NO<sub>x</sub> and UFP;
3. work in association with other national and EU funded projects to determine a more nuanced understanding of the potential impact of UFP on health outcomes;
4. provide new insights on emission/exhaust measurement and emission modelling uncertainties;
5. create a more comprehensive understanding on the composition and potential importance of emissions from unregulated engines; and
6. support the European Commission and associated Agencies to develop a coherent European roadmap for action on aircraft engine particulate matter regulation.

To achieve these ambitious goals RAPTOR will undertake an in-depth review of available literature to assess knowledge gaps. This will include non-volatile nvPM measurement techniques & corrections and their associated uncertainties as these directly impact modelling studies of local air quality and inform aircraft-induced PM related toxicity and health effects. Findings will be communicated in an open access database, highlighting interdependencies between the measurements, modelling and health disciplines.

RAPTOR will forge synergistic links with existing national, EU and international projects to ensure a high degree of additionality and provide access to desensitised proprietary data. RAPTOR will also generate new data using a representative combustor rig to assess uncertainty of the current CAEP/11 nvPM standards, utilising two reference ICAO appendix 7-compliant nvPM systems.

### 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:** JTI-CS2-2018-CFP09-THT-06 Research for the development of Particulate Matter (PM) regulations and guidelines

### Lead Organisation:

**Envisa Sas**

**Address:**

Rue Oberkampf 22  
75011 Paris  
France

**Organisation Website:**  
<http://www.env-isa.com>

**EU Contribution:** €170,750

## Partner Organisations:

### The University Of Manchester

**Address:**  
OXFORD ROAD  
MANCHESTER  
M13 9PL  
United Kingdom

**Organisation Website:**  
<http://www.manchester.ac.uk>

**EU Contribution:** €82,918

### Nederlandse Organisatie Voor Toegepast Natuurwetenschappelijk Onderzoek Tno

**Address:**  
ANNA VAN BUERENPLEIN 1  
2595 DA DEN HAAG  
Netherlands

**Organisation Website:**  
<http://www.tno.nl>

**EU Contribution:** €77,375

### Manchester Metropolitan University

**Address:**  
All Saints Building, Oxford Road  
MANCHESTER  
M15 6BH  
United Kingdom

**Organisation Website:**  
<http://www.mmu.ac.uk>

**EU Contribution:** €127,869

### Office National D'etudes Et De Recherches Aerospatiales

**Address:**  
CHEMIN DE LA HUNIERE  
91120 PALAISEAU  
France

**Organisation Website:**  
<http://www.onera.fr>

**EU Contribution:** €98,590

### Rijksinstituut Voor Volksgezondheid En Milieu

**Address:**

Antonie Van Leeuwenhoeklaan 9  
3721 MA BILTHOVEN  
Netherlands

**Organisation Website:**

<http://www.rivm.nl>

**EU Contribution:** €67,340

**Ingenieurbuero Janicke**

**Address:**

Hermann-Hoch-Weg 1  
88662 Ueberlingen  
Germany

**Organisation Website:**

<http://www.janicke.de>

**EU Contribution:** €113,000

**Zurcher Hochschule Fur Angewandte Wissenschaften**

**Address:**

Gertrudstrasse 15  
8401 Winterthur  
Switzerland

**EU Contribution:** €128,750

**Cardiff University**

**Address:**

Newport Road 30-36  
Cardiff  
CF24 0DE  
United Kingdom

**Organisation Website:**

<http://www.cardiff.ac.uk>

**EU Contribution:** €128,619

**Technologies:**

Aircraft operations and safety  
Air quality measurements

**Development phase:** Research/Invention

**STRIA Roadmaps:** Other specified

**Transport mode:** Air transport

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

**Transport policies:** Environmental/Emissions aspects

**Geo-spatial type:** Other