EUFAR
A portal for airborne research in Europe

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EUFAR - EUropean Facility for Airborne Research

is an Integrating Activity of the EC FP7

Budget ~6 M€ Duration 4 years (2014-2018) 24 Partners 3 instruments and 19 aircraft open to Trans-national Access - www.eufar.net

- Provide scientists with access at equal terms to the most complete range of research infrastructures
- Develop trans-national access to national infrastructures
- Reduce redundancy and fill the gaps
- Improve the service by strengthening expertise through exchange of knowledge, development of standards and protocols, constitution of data bases, and joint instrumental research activities
- Promote the use of research infrastructures, especially for young scientists from countries where such infrastructures are lacking
EUFAR Consortium 2014 - 2018

Météo-France (FR) Project Coordinator
Met Office (UK) Science Coordinator
DLR (DE)
Enviscope (DE)
CNRS (FR)
NERC (UK)
INTA (ES)
FUB (DE)
KIT (DE)
AWI (DE)
CNR (IT)
U.Edinburgh (UK)
VITO (BE)

U.Leipzig (DE)
STFC (UK)
U.Warsaw (PL)
UZH (CH)
TAU (IL)
PML (UK)
ONERA (FR)
Cvgz (CZ)
TU.Vienna (AU)
U.Leeds (UK)
U.York (UK)

13 aircraft or instruments operators
and
11 experts in airborne measurements
Networking Activities

N1SEI – Strategy and European Integration
- Strategic Advisory Committee
- Long-term sustainability (beyond EC funding)
- Scientific coordination of the network

N2TAC – Transnational Access Coordination
- Prioritisation by SAC
- Promotion and implementation of Open Access process

N3FF – Future of the Fleet
- Access to stratospheric aircraft

N4EWG – Expert Working Groups
- Development of Supplementary Online Material associated with the EUFAR textbook (with N6ET)
- Topic-based workshops, to be decided

N5TTO – Technology Transfer Office
- Identification of opportunities for the exploitation of airborne research hardware and software by European industries
Networking Activities

N6ET – Education and Training
- Summer Schools – with student flights
- Support for participation in existing field campaigns
- Development of educational material (with N4EWG)

N7SP – Standards and Protocols
- Further development of standard software tools

N8DB – Database
- Archiving of EUFAR TA flight data
- Data-discovery tools and metadata

N9EC – E-Communication
- Maintenance and development of EUFAR website
- Transition to new Content Management System
Transnational Access (TA)

- Provides fully-funded flight hours on an aircraft appropriate to the user’s requirements
  - Plus limited travel funds for PI and others
- Open to users without access to those facilities in their country of employment
- Typically 10-15 flight hours per award
  - Larger awards available on the low-cost aircraft
- Clustering of TA campaigns with each other and with nationally-supported flight campaign
  - Allows users longer time in the field to obtain optimum conditions
  - Promotes interactions with scientists from other user groups
- Target for 2014-18 period to support 38 projects (428 flight hours)
- Calls for Proposals are continuously-open until May 2017. Visit http://eufar.net/projects/ta-application/
Aircraft Fleet open to TA (2014-2018)

<table>
<thead>
<tr>
<th>Operator</th>
<th>Categories</th>
<th>Stratospheric aircraft</th>
<th>High-altitude tropospheric</th>
<th>Large-capacity tropospheric</th>
<th>Medium-capacity tropospheric</th>
<th>Small tropospheric</th>
<th>Separate instrument facilities</th>
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<tbody>
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<td>Partenavia</td>
<td>ERA SkyArrow</td>
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<td>CASA-212-AR</td>
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- Total funding allows for 430 flight hours, 38 projects
- Potential users may currently submit EoI in TA via the EUFAR website
EUFAR website

http://www.eufar.net/
The 2015 EUFAR Survey

I. To evaluate the capability of the existing fleet in response to the scientific needs.
II. To provide directions for enhancing the capability of the fleet.
III. To outline strategies for the long-term development of the fleet.
IV. To define forthcoming challenges in airborne research.

Questionnaire on-line from 20 November 2014 to 20 January 2015 (http://eufar.net/cms/user-needs-survey/)

Invitation sent to everyone in the EUFAR mailing lists, and relevant European geoscience research Institutions

More than 150 responders
3. Do you consider yourself an experienced user of airborne research facilities?

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<tr>
<th>Category</th>
<th>Percentage</th>
<th>Count</th>
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<tr>
<td>First Stage Researcher (up to the point of PhD)</td>
<td>9.6%</td>
<td>15</td>
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<tr>
<td>Recognized Researcher (PhD holders or equivalent who are not fully independent)</td>
<td>18.6%</td>
<td>29</td>
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<tr>
<td>Established Researcher (researchers who have developed a level of independence)</td>
<td>40.4%</td>
<td>63</td>
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<td>Leading Researcher (researchers leading their research area or field)</td>
<td>31.4%</td>
<td>49</td>
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Total 156
10. Do you have access to national research aircraft in your country?

- Yes, and it fulfill all needs - 14.6%
- Yes, and it fulfill some but not all needs - 41.4%
- No - 43.9%
17. In the last EUFAR proposal, priorities for the development of the European airborne research fleet were indicated, based on the lack of accessible platforms at that time. These included the availability of: i. An airplane for stratospheric research; ii. A long endurance and heavy payload aircraft; iii. Promotion of exploitation of Remotely Piloted Aircraft Systems (a. k. a. UAS) for scientific research. Which of these priorities are most important to you?

[Bar chart showing percentages: 20.3% for Stratospheric aircraft, 30.4% for Long Endurance Heavy Payload aircraft, 58.1% for Remotely Piloted Aircraft Systems, 12.2% for Others (please specify).]
“I am interested in RPAV because...”

Much cheaper and more flexible than airplanes for small-scale analyses.
Higher spatial resolution and higher temporal repeat rates (for the same cost)
Faster and easier to deploy, target-oriented.
More suitable for Lagrangian experiments.
Can carry small sensors complementing large aircraft payloads.
Can cover areas not accessible otherwise.

“but...”

The legal framework is still under development.
Payloads can be not mature enough in terms of weight and power.
Coverage area may be too small.
A complementarity emerges

“and...”

Manned aircraft and RPAV can work best in coordination.

Within the EUFAR activity we plan to organize a meeting on complementarity of manned aircraft and RPAV.

The meeting could be held in the framework of the II International Conference on Airborne Research for the Environment Side meetings, to be held in summer 2017, in Germany.

This should produce recommendations in the EUFAR report, to try to steer efforts and funding toward platforms adapted to achieve pertinent scientific goals.
... so if you are interested please send an email to f.cairo@isac.cnr.it for further enquiries and information.

Thanks for your attention and see you at the International Conference on Airborne Research for the Environment (ICARE 2017) conference in Oberpfaffenhofen (Germany), July 2017.