



EUFAR MANAGEMENT & STRATEGY

EUFAR became an AISBL!

After a lengthy negotiation period about 2 years, 8 European institutions representing 6 different countries involved in airborne environmental research have signed the necessary Statutes to constitute EUFAR as an AISBL – an international non-profit association under Belgian law. These documents were deposited with the Belgian courts on 30 August 2017. The formal constitution of the EUFAR AISBL was officially publicised in the [Moniteur belge](#) on 23 January 2018 (search by N° Entreprise: 687.812.944 or Dénomination: EUFAR).

The 8 founding Members of the EUFAR AISBL are (in alphabetical order of their home country): [VITO](#), [CzechGlobe](#), [CNRS](#), [Météo-France](#), [ONERA](#), [DLR](#), [University of Warsaw](#), [Met Office](#)). The 2nd General Assembly of the EUFAR AISBL (26 January 2018) marked the unanimous admission of 3 new Members - [INCAS](#), [FUB](#) and [UNICH](#). 3 other organisations ([CNR](#), [INTA](#), [TAU](#)) have undertaken the necessary steps to become Members, and 2 Polish organisations have recently submitted to the General Assembly formal applications for being admitted as Partners. In total, the EUFAR AISBL is currently composed of 11 Members from 8 EU Members States. The lists of GA representatives appointed by the organisations and EUFAR AISBL elected members are provided in the following tables:

Countries	Executive Board members (country level)
Belgium	Bart Deronde
Czech-Republic	Jan Hanus
France	Paola Formenti
Germany	Andreas Minikin
Italy	
Poland	Hanna Pawłowska
Romania	
UK	Phil Brown Peter Hughes (Treasurer)

Organisations	General Assembly representatives (organisation level)
VITO	Bart Deronde Ils Reusen (deputy)
CzechGlobe	Jan Hanus
CNRS	Gérard Ancellet Paola Formenti (deputy)
Météo France	Philippe Bougeault
ONERA	Bernard Rosier Stéphane Miniscour (deputy) Philippe Brouard (deputy)
DLR	Stefanie Holzwarth Andreas Minikin (deputy)
FUB	Thomas Ruhtz
UNICH	Piero Di Carlo
UW	Hanna Pawłowska
INCAS	Andreea Calcan Nicolae-Sorin Vâjâiac (deputy)
Met-Office	Phil Brown

General Assembly	President	Philippe Bougeault
	Vice-President	Stefanie Holzwarth
Executive Board	Chair	Phil Brown
Executive Secretariat	Executive Secretary	Elisabeth Gérard

Since then the EUFAR AISBL General Assembly has approved the admission of two EUFAR historical partners ([CNR](#) and [TAU](#)) as Members and two Polish institutions ([CBK-PAN](#) and [MGGP Aero](#)) as Partners. The admission process is ongoing.

The Executive Board met six times and the General Assembly three times since October 2017.

For more information, please contact bureau@eufar.net.



Participants at the 3rd EUFAR AISBL GA meeting, Brussels, 29 June 2018

Result of EUFAR proposal in Horizon2020 INFRAIA-01-2018-2019 Call 2018

The EUFAR AISBL submitted a proposal to the Horizon2020 call INFRAIA-01-2018-2019: Integrating Activities for Advanced Communities, single-stage RIA Research and Innovation action, deadline: 22 March 2018 5pm Brussels time. Unfortunately the proposal could not be funded because the score obtained did not suffice for funding, given the budgetary resources available for the call.

Call available [here](#).

Detailed guidance available [here](#).

For more information, please contact bureau@eufar.net.

EUFAR2 final payment

Started on 1st February 2014, the FP7 EUFAR2 project came to an end on 31 January 2018. The transnational access unit costs were justified by the operators over the duration of the projects and the RP3 technical and financial report and final report were submitted to the EC on 5 June 2018. Some requests from the EC Financial Officer related to real unit cost justification and financial statement certification (CFS) are being addressed.

The pending reimbursement of the expenses (15% of the € 6M maximum funding) will be distributed to the beneficiaries upon reception of the final payment by the Project Coordinator (Météo-France).

For more information, please contact bureau@eufar.net.

AIRBORNE RESEARCH STORIES

WHISPERS 2018 Best Paper Award

As a result of the MASOMED (Mapping SOil variability within rainfed MEDiterranean agroecosystems using hyperspectral data) EUFAR 2017 measurement campaign supported by the EUFAR Transnational Access activity under the EUFAR2 EU FP7 project, the article *"Mapping crop variability related to soil quality and crop stress within rainfed mediterranean agroecosystems using hyperspectral data"* was selected to receive a best paper award by the WHISPERS 2018 Committee.

The main objective of the MASOMED project is to map soil and crop variability related to crop stress and land management based on hyperspectral data within the visible near infrared as well as thermal infrared, in a Mediterranean agroecosystem affected by soil degradation. The selected paper, focusing on the Camarena test site (central Spain), shows the strong influence of soil quality on crop variability and production based on hyperspectral imagery and yield data.

The MASOMED team includes members from five different institutions (Helmholtz Center in Potsdam, Centro de

Investigaciones Energéticas, Medioambientes y Tecnológicas - CIEMAT in Madrid, Tel Aviv University, Experimental Station of arid zones of the Spanish Council of Scientific Researches and the Technical University of Denmark) that participate in the different tasks of the project.

This award shows the high quality of EUFAR data and science works, and demonstrates the usefulness of the EUFAR Network for airborne-based research in Europe.

Congratulations to Sabine Chabrilat, Thomas Schmid, Robert Milewski, Paula Escribano, Monica Garcia, Eyal Ben-Dor, Stephane Guillaso, Marta Pelayo, Andres Reyes, Veronica So-bejano-Paz and Marcos Jiménez Michavila who received this award in September 2018 in Amsterdam (The Netherlands)!

For more information please contact [Sabine Chabrilat](#)



WHISPERS 2018 Best Paper Award



Award ceremony at WHISPERS 2018 with (left to right) X. Zu, R. Milewski, S. Chabrilat, J. Chanussot (image courtesy WHISPERS 2018)

The Story of a Research Flight

Airborne research often involves large teams that may be both nationally-based and international. Any single flight represents part of an iceberg that consists of many layers of preparatory activities, many of which are not seen by the casual observer. These include:

- preparing the scientific justification and funding applications,
- helping the researchers to adapt their instruments to aeronautical regulations, and dealing with the certification documentation that is required by the aerospace authorities,



The SAFIRE Falcon-20 prior to a flight during the MAGIC-Comet airborne campaign, Toulouse-Francazal, January 2018.

- planning the logistics for sending a team of scientists, engineers and pilots to an operating location that may be far from their home,
- preparing, calibrating and installing an array of cutting-edge instrumentation on the aircraft,
- making detailed flight plans that address the science objectives but ensure safe operation of the aircraft amongst the surrounding air traffic,
- quality-checking and processing the flight data,
- scientific analysis of the data, publishing reports and papers.

SAFIRE is a long-standing member of the EUFAR community. During the autumn of 2016, they supported the EPATAN-NEAREX campaign based in Iceland and part of the larger NAWDEX (North Atlantic Waveguide and Downstream impacts EXperiment). This was a multi-national initiative to improve understanding of the dynamical meteorological processes that generate high-impact weather events over Western Europe (strong winds and heavy precipitation). Using its previous program of financial support from the European Commission, EUFAR was able to provide Transnational Access to the SAFIRE aircraft to a group of scientists working in Norway during this campaign.

This short video illustrates several of the above parts of the story of an atmospheric research flight. In the video, you will also see aircraft of another EUFAR member, DLR, that were contributing other measurements as part of NAWDEX.



EUFAR TOOLS AND SOFTWARE

The EUFAR Flight Finder (EFF)

The EFF is a geospatial-temporal search interface to locate flight data within the EUFAR data archive at BADC and can be found at <http://flight-finder.ceda.ac.uk/>. Flights from FAAM, NERC-ARSF and SAFIRE aircraft are currently included - more will be added shortly.

All comments and feedback are welcome, by emailing: support@ceda.ac.uk.

ASMM & EMC

Check out the new versions of the ASMM (Airborne Science Mission Metadata) and EMC (EUFAR Metadata Creator) tools developed by EUFAR's standards & protocols team, available via the following links:

- emc.eufar.net
- asmm.eufar.net

For more information, click [here](#).

HYLIGHT tools

Under EUFAR's Joint Research Activity - HYLIGHT dedicated to the integration of airborne hyperspectral imagery and laser scanning data to improve image processing and interpretation, a number of tools have been developed by the working group. Most of the tools are available together with their installation guides and user manuals on the [EUFAR website](#).

ARTICLES & PUBLICATIONS

Junkermann, Wolfgang, and Hacker, Jorg: Ultrafine particles in the lower troposphere: Major sources, invisible plumes, and meteorological transport processes, Bulletin of the American Meteorological Society, 2587-2602, Dec 2018, doi:10.1175/BAMS-D-18-0075.1

The full article is freely accessible on the [EUFAR website](#) and via the doi.

Other articles related to airborne research activities

Click [here](#) to access the full online articles on the EUFAR website.

EVENTS

PAST EVENTS

EGU 2018, Vienna, Austria, 8–13 April 2018

The General Assembly of the European Geophysical Union brings together a very broad cross-section of the geophysics and environmental science communities. In previous years, we have been able to promote interest in EUFAR, especially for Transnational Access. At the time of the 2018 conference, EUFAR's previous funding from the EC had terminated and we were unsure of the status of the proposal submitted to H2020 (see elsewhere in this newsletter). The ENVRI community planned a large **booth** in the exhibition area to promote the activities of a broad range of environmental RIs, providing EUFAR with an opportunity to promote the formation of EUFAR AISBL and its future activities. EUFAR provided a small amount of financial support towards this exhibition booth. On the booth, we were able to show a Powerpoint presentation describing the capabilities of EUFAR and its members. We also contributed to the daily program of short talks that were given at the booth, themed around the Grand Challenges. This talk emphasised EUFAR members' ability to address the topic of Healthy Air, whilst also noting the broad range of capabilities offered by the EUFAR aircraft fleet. A similar exhibition booth is being planned for [EGU 2019](#).

Within the main conference programme, Phil Brown gave a presentation in the session on Atmospheric and Meteorological Instrumentation entitled "[EUFAR – future developments in access to airborne research infrastructure in Europe](#)".

For more information, please contact [Phil Brown](#).

WHISPERS 2018, Amsterdam, The Netherlands, 23-26 Sept 2018

The 9th workshop on hyperspectral image and signal processing ([WHISPERS](#)) with the title "Evolution in Remote Sensing" took place 23rd – 26th of September 2018 in beautiful Amsterdam, The Netherlands. More than 200 experts from all over the world did participate the different sessions during the four days covering all aspects of imaging spectroscopy, in particular related to hyperspectral data processing. In parallel to WHISPERS, the [Spectro Expo](#) took place with different exhibitors from sensor designers to end users presenting products and activities in spectroscopy. Of special interest to EUFAR was the round table discussion about standards and best practices when it comes to airborne data acquisitions, where EUFAR could actively contribute with its expertise.

See WHISPERS 2018 Best Paper Award [here](#).

The next WHISPERS will take place from 24-26 September 2019 in Amsterdam. Submission deadline is 15th of April 2019. See announcement [here](#).

For more information, please contact [Stefanie Holzwarth](#).

ENVRI week & BEERi meetings, Riga, Latvia, 5-9 November 2018

The penultimate ENVRI week was held in Riga, Latvia (5-9 November 2018). The early part of the week was occupied with parallel sessions presenting updates and outcomes from the [ENVRIplus project](#), which was approaching the originally-scheduled end of its funding period but which had just applied for and received an extension to the end of May 2019. [Board of European Environmental Research Infrastructures \(BEERi\)](#) is the oversight body for the ENVRI community. The BEERi meeting at the end of the week was convened as a workshop to discuss how and in what form the ENVRI community might continue beyond the framework of its existing funding. The workshop used professional facilitators from Deloitte in Finland who contributed greatly to the success of the meeting in running to time and achieving some successful outcomes. The early part of the discussion centred around agreeing the description of a Vision and Purpose for the ENVRI community together with the resources that might be required for implementation and obstacles that might stand in the way. There was also discussion of the different organisational forms that might be adopted. This was taken further at a subsequent BEERi meeting in early January 2019, which EUFAR was not able to attend, and is expected to be finalised at a BEERi meeting that will be a part of the final ENVRI Week (Helsinki, 25-29 March).

For more information, please contact [Phil Brown](#).

EPIC (Earth science Project International Collaborative) Workshop, Moffett Field, USA, 5-7 Feb 2019

The EPIC (Earth science Project International Collaborative) Workshop focused on sharing information and lessons learned when planning and managing earth science observational field deployments. The objective was to bring together the airborne and ground-based observational communities to share project management knowledge, helping us all to better serve the international scientific community.

The EPIC Workshop was hosted by NASA's ESPO (Earth Science Project Office) group and held at the NASA Ames Research Park located at Moffett Field in the San Francisco Bay area, 5-7 February, 2019.

For further information, contact [Vidal Salazar](#).

11th EARSeL SIGIS Workshop, 6-8 Feb 2019, Brno: Special Session on EUFAR

The EARSeL Special Interest Group on Imaging Spectroscopy organised its 11th Workshop from 6th - 8th of February 2019 in Brno (visit [here](#)), Czech Republic. Recent advances in technology, methods and applications of imaging spectroscopy have been presented and discussed. A special session during the workshop dedicated to EUFAR has been organised by Jan Hanuš ([CzechGlobe](#)) and Stefanie Holzwarth ([DLR](#)). As Imaging Spectroscopy is an important part of continuous EUFAR

activities the special session was dedicated to “10 years of airborne imaging spectroscopy within EUFAR”.

The following four presentations were content of the session covering results of [Transnational Access, Education & Training](#) and [Joint Research Activities](#):

- 10 Years of Airborne Imaging Spectroscopy within EUFAR, the European Facility for Airborne Research Stefanie Holzwarth, Jan Hanus, Ils Reusen, Elisabeth Gérard, Phil Brown
- Airborne Remote Sensing For Monitoring Essential Biodiversity Variables In Forest Ecosystems ([RS4forestEBV](#)): A EUFAR Summer School Roshanak Darvishzadeh, Andrew Skidmore, Stefanie Holzwarth, Marco Heurich, Ils Reusen
- Use of Bi-Temporal Hyperspectral Imagery to Determine the Influence of Soil Degradation on Rainfed Crop Yield
- Robert Milewski, Sabine Chabrilat, Thomas Schmid, Paula Escribano, Monica Garcia, Eyal Ben Dor, Stéphane Guillaso, Marta Pelayo, Marcos Jiménez Michavila
- [HYLIGHT](#) Activity and Biomass Mapper Tool Jan Hanuš, Jan Novotný

For further information, contact [Stefanie Holzwarth](#) and [Jan Hanus](#).



EUFAR session during 11th EARSeL SIGIS Workshop

UPCOMING EVENTS

Final ENVRI Week, Helsinki, Finland, 25-29 March 2019

The 8th and final ENVRI week will be organised in Helsinki, Finland from 25th until 29th of March 2019.

More information about the event is available [here](#).

EGU 2019, Vienna, Austria, 7-12 April 2019: new session initiated by EUFAR AISBL

The European Geosciences Union (EGU) General Assembly 2019 will bring together geoscientists from all over the world to one meeting covering all disciplines of the Earth, planetary and space sciences. The EGU aims to provide a forum where

scientists, especially early career researchers, can present their work and discuss their ideas with experts in all fields of geoscience.

The [EUFAR AISBL](#) is initiating a new session dedicated to “Airborne observations, campaigns, application and future plans” at EGU 2019.

Convener: [Thomas Ruhtz](#)

Co-conveners: [Paola Formenti](#) and [Phil Brown](#)

Session: GI3.2/AS5.4/BG1.11/HS9.1.8/OS4.26

Abstract: Airborne observations are one major link to get an overall picture of processes within the Earth environment during measurement campaigns. This includes application to derive atmospheric parameters, surface properties of vegetation, soil and minerals and dissolved or suspended matter in inland water and the ocean. Ground based systems and satellites are other key information sources to complement the airborne data sets. All these systems have their pros and cons, but a comprehensive view of the observed system is generally best obtained by means of a combination of all three. Aircraft operations strongly depend on weather conditions either to obtain the atmospheric phenomenon of interest or the required surface-viewing conditions and hence require sophisticated flight planning. They can cover large areas in the horizontal and vertical space with adaptable temporal sampling. Future satellite instruments can be tested and airborne platforms and systems are widely used in the development process. The validation of operational satellite systems and applications is a topic that has come increasingly into focus with the European Copernicus program in recent years. The large number of instruments available on aircraft enables a broad and flexible range of applications. The range includes sensors for meteorological parameters, trace gases and cloud/aerosol particles and more complex systems like high spectral resolution lidar, hyperspectral imaging at wavelengths from the visible to thermal infra-red and synthetic aperture radar. The development of smaller state-of-the-art instruments, the combination of more and more complex sets of instruments simultaneously on one platform, with improved accuracy and high data acquisition speed together with high accuracy navigation and inertial measurements enables more complex campaign strategies even on smaller aircraft or unmanned aerial vehicles (UAV). This will further increase the capabilities of the existing fleet of airborne research.

This session will bring together aircraft operators and the research community to present

- an overview of the current status of airborne related research
- recent airborne field campaigns and their outcomes
- multi-aircraft campaigns
- satellite calibration/validation campaigns
- sophisticated airborne instrument setups and observations
- advanced airborne instrument developments
- UAV applications
- future plans for airborne research

For more information, visit the [EGU2019 website](#).

EUFAR on ENVRI booth at EGU 2019

For visitors to [EGU 2019](#), you will again find EUFAR represented on the [exhibition booth](#) of the ENVRI community of [Environmental Research Infrastructures](#). If you have potential interests in an airborne science project please visit the booth to see how EUFAR may be able to help you. If a EUFAR representative is not available then just leave your name and contact details and we will contact you. Each day of the conference there will be a program of short talks at the booth during the lunchtime period (“lunch-time talks”). EUFAR will contribute one of these talks so we encourage you to attend (EUFAR - airborne measurements for environmental research). A [research flight video](#) produced by the French research aircraft operator [SAFIRE](#) will be presented.

Meet us at the same exhibition location as last year (booths 2 & 3, right next to the entrance to EGU venue).

For more information please contact [Phil Brown](#).



ACROSS Townhall Meeting at EGU 2019

The air quality of urban megacities has been studied several times over the past few decades. These studies have used airborne and ground-based platforms usually to measure basic quantities such as ozone, oxides of nitrogen, carbon monoxide, ozone, emitted organic compounds, and aerosol physical and optical properties. More recent studies have included measurements of oxygenated organic compounds and aerosol composition, which have led to improved understanding of atmospheric oxidation processes. In order to advance knowledge further, the ACROSS project is proposed to involve conducting a multi-disciplinary, multi-platform, comprehensive field campaign to gather more information about the atmospheric chemical and physical processes as the Paris urban plume is impacted by emissions from nearby forest environments. The observational data collected will be used along with state-of-the-art numerical models to expose previous incomplete understanding and potentially unknown chemical and physical processes that will improve representation of the atmosphere in models and will enhance model predictive capabilities.

While details of this campaign are evolving, it is envisioned that there will be a least one supersite located in a forest within about 50 km of central Paris. This site would consist of a tower for sampling a wide variety of atmospheric constituents. These data would be combined with additional observations from aircraft, balloons and mobile laboratories to develop a temporal and spatial description of the evolving urban-biogenic mixture. A schematic diagram of the concept is shown in the entry gallery.

Key activities over the next several months include deciding on a location for the supersite and developing the infrastructure to support the project, involving interested scientists, companies, and agencies in the project, and identifying key platforms and instruments needed to provide the data necessary to advance science on this topic.

ACROSS is one of the first projects selected under the “Make Our Planet Great Again” (MOPGA) initiative announced by President Emmanuel Macron to attract foreign scientists to work in France.

The ACROSS project will be presented in a townhall meeting at this year’s EGU meeting in Austria. There will be a brief presentation summarizing the project followed by considerable time for questions. If you are interested in atmospheric composition and air quality (and related topics), you are welcome to come to this meeting and become involved in the development and execution of the ACROSS project.

Session: Townhall meeting TM15

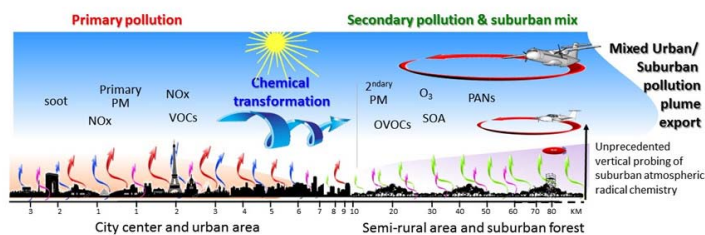
Title: ACROSS - A Project being Planned to Study Urban-Biogenic Atmosphere Interactions

Convener: Christopher Cantrell

Date: Tuesday, 9 April 2019 from 7 to 8 pm

Place: Room 0.31

For questions before or after the townhall meeting, please contact [Christopher Cantrell](#).



Primary and secondary pollution

ENVRIplus Final Dissemination Event, Brussels, Belgium, 4 June 2019

The [ENVRIplus](#) final dissemination event titled “Collaboration for the impactful Earth system science – European Environmental Research Infrastructures” will be organised in Brussels on 4 June 2019.

SAVE THE DATE in your calendar!

More information is available [here](#).

10th WHISPERS, Amsterdam, The Netherlands, 24-26 Sept 2019

The next WHISPERS Conference is announced!

The 10th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing will take place the

24-26 September 2019 in Amsterdam, The Netherlands. Hyperspectral imaging is one of the fast moving areas of research and industrial development in sensing technologies. The IEEE GRSS WHISPERS 2019 Conference aims at gathering high-level contributions dealing with the acquisition and processing of hyperspectral data. "Hyperspectral data" means signals acquired by spectrometers at close-range as well as images acquired from airborne and satellite sensors. Papers must address relevant topics in hyperspectral signal and image processing, and include sound implementation and validation procedures.

The **technical topics of interest** include (but are not limited to):

- spectrometers and hyperspectral sensors: design and calibration
- physical modeling, physical analysis
- noise estimation and reduction
- dimension reduction
- unmixing, source separation, endmember extraction
- segmentation, classification
- high performance computing and compression
- deep learning and artificial intelligence

We warmly welcome **application papers**, including

- airborne and satellite remote sensing
- monitoring of the environment, pollution, precision agriculture
- land, soil and mineralogy
- water bodies, oceans, coastal areas
- forestry, vegetation
- urban areas
- defense applications
- astrophysics and planetary exploration
- food safety
- detection of counterfeit products
- biomedical imaging

Important dates

15 April 2019: Paper Submission (note that three different kinds of contributions can be submitted: full conference paper, abstract only, or already accepted journal paper)

24-26 September 2019: IEEE GRSS WHISPERS Conference, Beurs Van Berlage, Amsterdam, The Netherlands

Format

Submit your manuscript [here](#). All submissions will be peer reviewed according to the IEEE GRESS WHISPERS 2019 guidelines. Prospective authors should consult the [dedicated site](#) for guidelines, templates and information on paper submission.

For more information, visit the [WHISPERS website](#).

Advertise with EUFAR today!

To publish airborne research related publications, job opportunities, events, etc., contact bureau@eufar.net

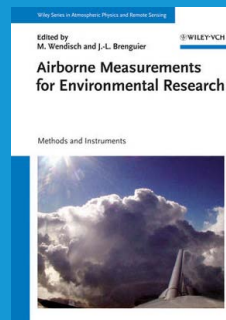


THE DORNIER 228-101, A TURBO PROPELLER OPERATED BY **DLR**.



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EUFAR Handbook

Reference: Manfred Wendisch & Jean-Louis Brenguier (Eds.) Airborne Measurements for Environmental Research: Methods and Instruments, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany, 2013
ISBN: 978-3-527-40996-9, 655pp

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www.eufar.net

Contact us:

EUFAR AISBL

General Assembly President:

Philippe Bougeault

philippe.bougeault@meteo.fr

+33 (0)5 61 07 94 10

Executive Board Chair:

Phil Brown

phil.brown@metoffice.gov.uk

+44 (0)1 39 28 67 40

Executive Secretary:

Elisabeth Gérard

bureau@eufar.net

+33 (0)5 61 07 98 38