EUFAR

European Facility for Airborne Research for Environmental and Geo-sciences

NEWSLETTER

April 2015, Issue 13

Transnational Access Coordination

Following the Second User Group Selection Panel (UGSP) meeting held on 2 March 2015, three campaigns were selected for transnational access (TA) funding, out of the five projects under consideration, all relating to airborne earth observations. The flight campaigns have been confirmed with the selected aircraft operator, and will be carried out in the course of 2015.

In addition, the training course – SWAMP has been awarded TA flight hours and will take place in July 2015 in Poland (find more information under section on 'Education and Training').

The next UGSP meeting will take place before the end of April 2015, and look to evaluate three applications seeking to cluster themselves with the ICE-D campaign that will be flown by the FAAM (UK) in August in the Cape Verde Islands, and three further applications seeking to cluster with the large multi-national campaign DACCIWA (Dynamics Cloud Chemistry Interactions in West Africa) in 2016.

A further set of TA Calls for Proposals will be advertised during May with a closing date of September 2015, targeting specific science priorities such as polar research and continuing the promotion of small, low cost research aircraft in the TA fleet. We anticipate at least two further Calls during 2016 and one in 2017. Potential applicants are reminded that they can submit a short Expression of Interest for TA via the website at any time.

All TA operators have been requested to check and, where necessary, update the information on their instruments and aircraft, and also to update their aircraft planning information up to the end of 2016 on the current EUFAR website to make it easy to identify key opportunities for clustering of TA proposals.

Currently 18 research aircraft and 3 specialised instruments are available for transnational access, and a study is underway to evaluate the possibility of including new infrastructures in the EUFAR fleet, in particular instruments from CVGZ and ONERA.

Future of the fleet

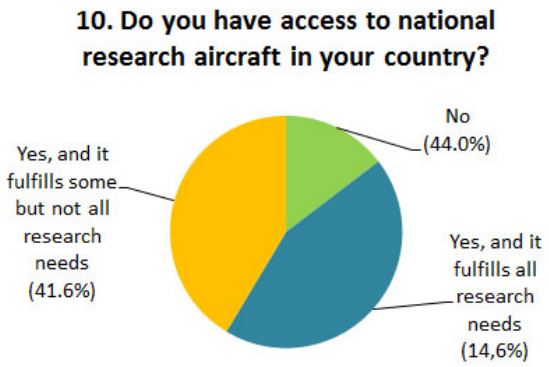
EUFAR Online Survey to establish user needs

At the end of November, the Future of the Fleet activity leader, Francesco Cairo (CNR) launched an online survey to evaluate the user needs of the airborne research community. The questionnaire consisted of 35 questions that aimed to identify present and future gaps in airborne research facilities in order to outline strategies for the long-term development of the fleet.

A summary of the responses collected was presented at the General Assembly in March 2015. In total 156 people participated in the survey, most of whom were leading/ established researchers with a high level of experience in airborne research.

Overall, the remarks collected were generally positive towards EUFAR. Some interesting responses highlighted the continued absence of stratospheric aircraft in the EUFAR fleet and lack of EUFAR involvement with remotely operated aircraft (UAVs), and included recommendations for a common scientific European aircraft and suggestions to focus on a smaller number of high capability aircraft than a large number of less capable ones.

The summary report of the survey results is available on the EUFAR website for registered members. To access this report, click here.



Summary Response to Question 10 in the User Needs Survey.

The EUFAR2 project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no. 312609

Expert Working Groups

Manfred Wendisch (ULEI), the activity coordinator, has restructured the Expert Working Groups (EWGs) and introduced new EWG leaders for some. The EWGs related to specific measurements fields have been particularly modified to be identical to the EUFAR handbook chapters, with the aim to develop supplementary material. The new groups with their respective leaders will be advertised on the new website once it is up and running, and relevant mailing lists will be updated and/or created. A number of proposals for expert workshops have already been submitted following the General Assembly in March, and at least one or two workshops will be organised in 2015.

EWGs to Support Airborne Measurements:

> Calibration/ Validation - to be confirmed
> Certification/ Operation - Guy Gratton (FAAM
> Remotely Piloted Aircraft Systems – Joachim Reuder (GFI)
> Quality Assurance/ Control – Hans Schlager (DLR)

EWGs to Specific Measurements Fields:

> Measurement of Aircraft State & Thermodynamic & Dynamic Parameters - Martin Zöger (DLR)
> In Situ Trace Gas Measurements - Jim McQuaid (UNIVLEEDS)
> In Situ Measurements of Aerosol Particles - Paula Formenti (CNRS)
> In Situ Characterisation of Clouds & Precipitation Particles - Christiane Voigt (DLR)
> Aerosol & Cloud Particle Sampling - Martina Krämer (Juelich)
> Atmospheric Radiation Measurements - Thomas Ruhtz (FUB)
> Hyperspectral Remote Sensing - Eyal Ben-Dor (TAU) & Ils Reusen (VITO)
> Lidar & Radar Observations - Julien Delanoe (CNRS)

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, 655pp, 2013

ISBN: 978-3-527-40996-9

Technology Transfer

The Technology Transfer Office (TTO), led by ONERA, seeks to support the transfer of innovative technologies, and facilitate the subsequent interaction between EUFAR experts and industrial partners. The activity will identify scientific expertise and promising research developments within EUFAR, principally through exchanges with the EWGs and joint research activities.

The first joint EWG/TTO meeting took place on 24 March 2015 to discuss the implementation plan and short-term actions of the EWG/TTO joint initiative. As a first step, a template will be circulated to all the EWGs leaders asking them to propose innovative technologies. Simultaneously, the TTO will populate a database of potential industrial players to contact. Once a list of state-of-the-art technologies has been confirmed, a first workshop between scientific experts and industrial players will be organised, hopefully in September 2015.

Education & Training

EUFAR, the Cost Action (OPTIMISE), and the Poznan University of Life Sciences (PULS) are currently organising a training course entitled "Spectrometry of a Wetland And Modelling of Photosynthesis with Hyperspectral Airborne Reflectance and Fluorescence (SWAMP)" from the 6-16 July 2015 in Obrzycko-Rzecin (Poland). Hosted by PULS, the main aim of this training course will be to teach early stage researchers (PhD students and post-docs) and a limited number of university lecturers how to plan and conduct an airborne research and (near-) ground validation campaign, and how to use the collected data.

The training course will include an airborne campaign with the APEX imaging spectro-radiometer mounted in the DLR Dornier DO228 aircraft combined with a concurrent ground campaign and near-ground campaign with small UAV platforms and satellite data acquisitions at the instrumented POLWET wetland study site.

Applications to participate are currently open with a closing date of 15 May 2015.

For more information, click on the flyer on the left or visit the Education & Training page on the EUFAR website (www.eufar.net/ET).

EUFAR is currently accepting, until the end of September 2015, TA-training course proposals to host a 10 to 12-day EUFAR training course (theory and practice) in airborne research with TA flight hours in 2016. If you are interested in hosting such a training course in 2016, you are requested to submit a ½ page proposal to the EUFAR E&T activity coordinator, Ils Reusen (ils.reusen@vito.be) before the end of July 2015.

Other EUFAR training opportunities (Join an Existing Campaign, Participate in the Design of a New Flight Campaign and Visit an Aircraft/Instrument Operator) are continuously open for online application via www.eufar.net.

Standards & protocols

The S&P activity held a half-day meeting on 25 March 2015, to discuss and brainstorm on the common protocols and standards for EUFAR, the involvement of EUFAR in broader standardisation initiatives and the S&P tools, and future of the EUFAR General Airborne Data-processing Software (EGADS). The S&P working group is currently finalising the compatibility check of current EUFAR S&P products with about 50 existing international standards selected according to relevance for EUFAR and EUFAR's potential to contribute to these initiatives.

The S&P activity leader is currently in contact with members of the former ENVRI project to investigate the possibilities of implementing the ENVRI reference model for EUFAR and involving EUFAR in ENVRI Plus, ENVRI's successor, set to launch in May 2015. The ENVRI reference model provides a predefined professional framework to clearly describe and harmonise roles and processes in research infrastructure operations. This helps to evaluate current research infrastructures for division of tasks and finding missing or duplicated actions within the European environmental research infrastructures community.

Database

The Database (DB) working group, based at STFC, has developed the EUFAR Flight Finder, a geospatial/temporal search tool to help locate EUFAR data in the archive. So far, this tool incorporates all the data in NetCDF (SAFIRE & FAAM) and some in ENVI binary format (NERC-ARSF). More data will be added in due course. The first beta release of the tool will be shared with the EUFAR steering committee for testing before the end of April.
The first data from a TA campaign flown under EUFAR2 (HYPOS) has now been received at the EUFAR archive. Further projects will be added as soon as they become available, incorporating Airborne Science Mission Metadata and implementing Digital Object Identifiers.

E-Communication

Work on the new EUFAR website is still on-going. Most of the website functionalities have been either migrated from the old website or created from scratch, a new graphic design has been implemented and almost all existing data has been transferred to the new website. A meeting, involving activity leaders and the development team from UWAR, will take place in Toulouse in mid-May, to test the new functionalities. If all goes as planned, the new website will be fully operational and launched in summer 2015.

Joint research activities

HYLIGHT - Integration of airborne hyperspectral imagery & laser scanning data to improve image processing & interpretation

Following the HYLIGHT workshop on Airborne Laser Scanning (ALS) software hosted by TU Vienna in November last year, HYLIGHT partners have contributed to the Algorithm Theoretical Baseline Document (ATBD) and Detailed Processing Model (DPM) for improved Hyperspectral Imaging (HSI) processing using ALS and improved ALS processing using HIS. These contributions are currently being integrated by ONERA and VITO.

JRA1 HYLIGHT held its second progress meeting on 24 March 2015, attended by all 9 HYLIGHT partners, to discuss activity progress and implementation plans for the next two years of the activity, including the development of related tools and contribution of a chapter on HYLIGHT to the EUFAR handbook.

TGOE - Traceability in Gas-phase Observations in EUFAR

Significant progress in the JRA2 TGOE working group has been achieved. Stephane Bauguitte (FAAM) has recently acquired the TGOE portable ozone calibrator (2B Technologies) and this will now be tested against the NCAS primary standard, and operational protocols will be developed. FAAM Carbon Monoxide measurements are now traceable to the revised WMO X2014 CO scale following the recertification of its NOAA surveillance standard. In February, FAAM also carried out the analysis of the UK Gauge project inter-comparison cylinders for carbon monoxide and a repeat of the CH4 and CO2 analysis carried out in July 2014. DLR has produced an overview of current technologies for measurements of reactive nitrogen species and calibration procedures and a first draft was presented during the JRA2 meeting held on 25 March 2014.

Strategy & European Integration

Establishing a sustainable legal form for EUFAR

In order to ensure a future for EUFAR, consolidate the network of airborne research facilities and pursue European integration by introducing new stakeholders, part of EUFAR's strategy consists of establishing a legal sustainable structure that will support core activities of the network. After careful examination of different relevant legal models, a position paper, on establishing EUFAR as an international non-profit association under Belgian law (AISBL) was circulated to about 140 EUFAR contact points in December 2014.

The document was accompanied with an MoU for partners interested in joining the AISBL and support the strategy outlined in the position paper, with the option to designate a representative to be part of the working group dedicated to this issue. Up to date, 6 institutions have signed the MoU (Météo-France, Met Office, CNR, DLR, VITO and CVGZ) and 2 institutions have initiated the signature process. A meeting in Toulouse in May is set to discuss and agree on the draft AISBL Statutes.

European Strategy Forum for Research Infrastructures (ESFRI) Roadmap

It was decided to not apply for inclusion of EUFAR in the 2016 ESFRI road map after discussions with a number of EUFAR national representatives and the EC Project Officer. Furthermore, focus will be placed on positioning EUFAR on the Horizon 2020 Work Programme 2018- 2019 (as opposed to 2016 -2017) where the item 'airborne research' needs to be included in the list of topics to be addressed in the Calls for Proposals within the corresponding timeframe.

A landscape document on European airborne research was prepared by the Scientific and Project Coordinators following the recommendation of the EC Project Officer to have a clear vision for what EUFAR is today and where it should aim to be in the next decades to come. This living document includes as annex providing a SWOT analysis for EUFAR (examining Strengths, Weaknesses, Opportunities and Threats) prepared with input from the activity leaders.

General Assembly Participants in front of DLR's High Altitude and LOng Range (HALO) Research Aircraft, Oberpfaffenhofen, March 2015

Photos (above & right) from organised visit to the Deutsches Museum Flugwerft Schleißheim (the German Aviation museum), during the General Assembly in March 2015.

Management

EUFAR2 2nd General Assembly 2015

Hosted by EUFAR partner DLR, the German Space Agency, the 2nd EUFAR General Assembly (GA) took place from 25 - 27 March 2015 in Oberpfaffenhofen, Germany. The Strategic Advisory Committee (SAC) and 5 networking and joint research activities also took this occasion to hold their own side meetings on the 24 and morning of 25 March prior to the GA. A total of 54 participants attended the GA, SAC and side meetings, representing 21 of EUFAR2's partner consortium, and including SAC members and invited guests from NASA. The participants were also treated to a tour of DLR's flight experiments hangars and the German Aircraft Museum.

Each networking and joint activity leader presented achievements, progress, challenges and future plans of the deliverables and tasks under his/her respective activity. At the end of the meeting, a full list of short-term actions collected during the GA, was presented and agreed on. A couple of organisations indicated their interest to hold the next General Assembly in 2016. The GA meeting report and presentations are available on the EUFAR website, accessible to registered members.

Participants were treated to a visit of DLR's hangar home to the HALO, Dornier DO228 and Cessna Grand Caravan.

The photos are of the HALO (left) and the Dornier DO228 (below).

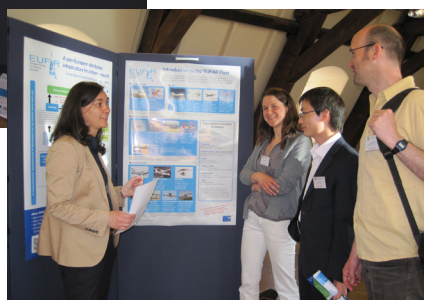
EVENTS

Past Events

EARSeL Imaging Spectroscopy Workshop Luxembourg 14-16 April 2015

The EUFAR S&P and E&T activity leaders, Stefanie Holzwarth (DLR) and Ils Reusen (VITO) respectively, presented two posters on the EUFAR activities at the 9th EARSeL Special Interest Group on Imaging Spectroscopy workshop organised from 14-16 April 2015 in Luxembourg.

The workshop was attended by about 180 participants mainly from Europe but also from the USA. EUFAR flyers were distributed and the EUFAR-OPTIMISE SWAMP training course was announced.



GO-ESSP & IS-NESS Workshop STFC, Abingdon, UK, 24-26 February 2015

Wendy Garland (STFC), the database activity leader participated in the joint GO-ESSP (Global Organisation for Earth System Science Portals) and IS-NESS (Infrastructure for the European Network for Earth System Models (EC FP7 project)) workshop that took place at the STFC premises. The workshop served to discuss the issues in getting data out to user communities, including data standards and formats. Wendy presented a poster on the EUFAR data archive to the 57 participants who assisted the workshop from UK, USA, Germany, Spain, France, Japan and South Africa.

European Geosciences Union General Assembly 12-17 April 2015, Vienna, Austria

The EUFAR Office once again held a stand at the annual EGU general assembly, the largest and most prominent European geosciences event, to disseminate information on EUFAR and draw interest on EUFAR's activities. The project coordinator, Elisabeth Gerard, presented a slide on EUFAR's transnational access scheme during the oral session on aircraft-based observation of the atmosphere and atmosphere-surface exchange processes.

About 165 people visited the EUFAR stand and a number of interesting discussions took place, principally revolving around training opportunities available related to airborne research, expert working groups, transnational access to research aircraft, the possibility of working with UAVs in the future, aircraft instrumentation capabilities, and the HYLIGHT and TGOE joint research activities. Flyers on different EUFAR activities and the EUFAR handbook on "airborne measurements for environmental research: methods & instruments" were also presented at the stand.

Upcoming Events

NCAR Observations in Atmospheric Research Workshop
New Orleans, Louisiana, USA, 21-23 April 2015

NCAR Earth Observing Laboratory will hold a workshop on Observations in Atmospheric Research: Conducting Field Operations in a Changing World in New Orleans, 21-23 April 2015. The workshop will focus on sharing information on best practices, lessons-learned and country-specific experiences by different groups for the planning and conduct of scientific research campaigns around the globe.

The agenda will consist of a mix of short, focused presentations, plenary and small breakout sessions, as well as invited keynote speakers, and will be agile to accommodate specific discussion items that different groups may bring to the table. You can find more information here.

ISARRA Conference
Oklahoma City, USA, 20-22 May 2015

The 2015 Meeting of the International Society of Atmospheric Research using Remotely piloted Aircraft (ISARRA) will be held in Oklahoma City in May. A society for researchers around the world using unmanned aircraft to observe and monitor, and to collect measurements, ISARRA organises a yearly conference to provide a forum for discussions and exchange of knowledge and experience. For more information, click here.

ICARE 2

A second edition of ICARE, the International Conference on Airborne Research for the Environment, is under examination, with the hope to host it towards the end of 2016. Similar to the first ICARE, which took place in October 2010 in Toulouse, ICARE2 will consist of a number of events such as research aircraft exhibitions, training courses and expert workshops related to airborne research. The conference will also bring on board the US airborne research community in line with EUFAR's efforts to collaborate beyond Europe. A web-conference will be planned in early May to discuss the possibility of holding ICARE2 at DLR, the German Space Agency, in Oberpfaffenhofen, and the steps forward, including the preparation of the conference concept, constitution the local organising and programme committee, topics of session, etc.

Collaboration with the US Airborne Research Community

UK scientists are again working with NASA as part of the ATTREX-CAST campaign using the NASA Global Hawk UAV. This multi-year collaboration has led to the development by UK—based teams of a number of new sensors to fly on this unique platform. For more detail, click here.

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