

EUFAR:
Education and Training opportunities
Call for Transnational Access proposals

(Ils Reusen - VITO, ils.reusen@vito.be; J.-L. Brenguier - Météo-France; P. Brown - Metoffice; M. Wendish - Johannes Gutenberg-University Mainz)

*EUFA*R N5ET and TA

BEO day – 28/04/2009, Maaseik

EUFA R - EUropean Facility for Airborne Research



EUFA R

Integrating Activity of the EC FP7



Budget 8 M€

Duration 4 years (2008-2012)

33 Partners

7 instruments and 19 aircraft open to Trans-national Access

www.eufar.net



EUFA Consortium

EUFA

Consortium

Aircraft open to TA

HSI sensors open to TA

Objectives

Activities

EUFA N5ET

Objectives

Training opportunities

ET-TC

ET-EC

ET-TA

EUFA TA

EUFA EWG

▲ Météo-France (FR) Coordinator

▲ MetOffice (UK)

▲ DLR (DE)

▲ NLR (NL)

▲ Enviscope (DE)

▲ CNRS (FR)

▲ NERC (UK)

▲ INTA (ES)

▲ GTK (FI)

▲ FUB (DE)

▲ FZK (DE)

▲ AWI (DE)

▲ CNR-IBIMET (IT)

▲ UNIMAN (UK)

▲ VITO (BE)



▲ Jülich (DE)

▲ JOGU (DE)

▲ STFC (UK)

▲ USZ (HU)

▲ UCAM-DCHEM (UK)

▲ UHEI (DE)

▲ UWAR (PL)

▲ COSINE (NL)

▲ IRSN (FR)

▲ COMAT (FR)

▲ VKI (BE)

▲ UZH-RSL (CH)

▲ WU (NL)

▲ USBE (CZ)

▲ TAU (IL)

▲ UEDIN (UK)

▲ GFZ (DE)

▲ PML (UK)

15 aircraft or instruments operators

18 experts in airborne measurements

Of which 12 hyperspectral instrument providers
and/or hyperspectral remote sensing experts

www.eufar.net

Instrumented aircraft open to TA

EUFAR

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFAR TA

EUFAR EWG

www.eufar.net



OPERATORS	CATEGORIES				
	1. Stratospheric aircraft	2. High level jets	3. Large aircraft	4. Medium aircraft	5. Small tropospheric aircraft
MetOffice			BAe146		
DLR		HALO		Do-228	
NLR		Citation		Metro	
ENVISCOPE		Learjet			Partenavia
SAFIRE		Falcon 20	ATR42		Piper-Aztec
NERC				Do-228	
INTA				CASA-212	
GTK				Twin-Otter	
FUB					Cessna 207
FZK					ASK-16
AWI			Polar 5		Microlight
ISAFoM					ERA Sky-Arrow
UNIMAN					Cessna 182J
TOTAL AIRCRAFT: 19	0	4	3	5	7
k€ / Flight hour	none	7 to 28	4 to 13	4 to 5	0.9 to 4

HyperSpectral Imaging sensors open to TA

EUFAR

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFAR TA

EUFAR EWG

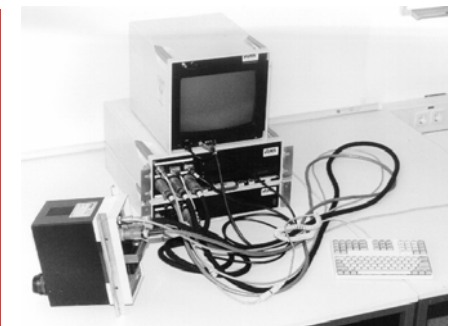
www.eufar.net



Operator	Instrument
VITO	APEX*
DLR	ARES**
NERC	Eagle/Hawk
INTA	AHS
FUB	CASI

*available 2009

** available 2010



Long Term Objectives

EUFAR

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFAR TA

EUFAR EWG

To lay the groundwork of a European distributed infrastructure for airborne research in environmental and geo-sciences ...

... for each European scientist to get access at "equal terms" to the airborne facility the most suited to his scientific objectives, irrespective of his origin and of where the facility is operated.

EUFA R

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFA R N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFA R TA

EUFA R EWG

www.eufar.net

• **Networking Activities – 2 M€**

- N1. Scientific Advisory Committee (N1SAC-CNRM)
- N2. TA coordination (N2TAC-MetOffice)
- N3. Future of the Fleet (N3FF-Jülich)
- N4. Expert Working Groups (N4EWG-JOGU)
- N5. Education and Training (N5ET-VITO)**
- N6. Standards and Protocols (N6SP-DLR)
- N7. Airborne Data Base (N7DB-STFC)
- N8. E-Communication (N8EC-CNRM)
- N9. Sustainable structure (N9SST-CNRM)

• **Transnational Activities (TA) – 3 M€**

• **Joint Research Activities (JRA) – 2,4 E€**

- JRA1.** Development and evaluation of new and improved hygrometers for airborne research (DENCHAR-Jülich)
- JRA2.** Quality layers for airborne hyperspectral imagery and data products (HYQUAPRO-VITO)
- JRA3.** Airborne Laser Interferometric Drop Sizer (ALIDS-IRSN)

EUFAR

Consortium

Aircraft open to TA

HSI sensors open to TA

Objectives

Activities

EUFAR N5ET

Objectives

Training opportunities

ET-TC

ET-EC

ET-TA

EUFAR TA

EUFAR EWG

Objectives

- ❖ To attract new early-stage researchers to airborne research
- ❖ To educate and train (theoretically and practically) new early-stage researchers in airborne atmospheric research and airborne hyperspectral remote sensing
- ❖ To train trainers (e.g. university lecturers) in airborne atmospheric research and airborne hyperspectral remote sensing



EUFA

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFA N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFA TA

EUFA EWG

www.eufar.net

❖ EUFA offers 4 training courses (ET-TC)

- 1 training course/year
- Number of attendees to the training courses (60 students and 20 teachers)
- 3 training courses for **early-stage researchers**
- 1 training course for **teachers**=NEW in FP7 (cfr. UNESCO HyperTeach training course)
- **During 1 week to 10 days**
- **Equal emphasis on theory and practical training/demonstration + flight experiment** (i.e. demo, hands-on exercises, design an experiment, definition of sampling strategy, flight plan, flight, ...)
- Top-class scientists cover **complete chain** from acquisition to interpretation of airborne data
 - Upstream topics (e.g. sensor development)
 - Downstream topics (e.g. corrections, analysis, interpretation)
 - With special attention to « common definitions and standard approach » (N6-SP)
- Hand-outs (or ev. syllabi) + airborne data provided
- Evaluation
- Scientific reports from the students

EUFA

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFA N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFA TA

EUFA EWG

www.eufar.net

- ❖ Proposed time table, but depends on the selected applications to host a Training Course incl. TA flight campaign
 - Summer/autumn 2009 or spring/summer 2010: airborne atmospheric research
 - Summer 2010: airborne hyperspectral remote sensing
 - Summer 2011: airborne atmospheric research
 - Summer 2012: airborne hyperspectral remote sensing

ET-EC Join an existing field campaign

EUFAR

Consortium

Aircraft open to TA

HSI sensors open to TA

Objectives

Activities

EUFAR N5ET

Objectives

Training opportunities

ET-TC

ET-EC

ET-TA

EUFAR TA

EUFAR EWG

▶ The list of research campaigns open to students is available in the **planning of the EUFAR fleet** at the EUFAR website

▶ **On-line application at the EUFAR website**

www.eufar.net

ET-TA Participate in the design of a new field campaign

EUFAR

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFAR TA

EUFAR EWG

▶ In the frame of Transnational Access (TA), EUFAR offers the opportunity to join a host research group to design a field campaign (flight experiment) including

- ❖ scientific content
- ❖ organisation of the campaign
- ❖ data analysis

▶ Selected applicants will be able to actively participate in the

- ❖ research flights
- ❖ data analysis
- ❖ publications

▶ **On-line application at the EUFAR website**

www.eufar.net

EUFA R

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFA R N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFA R TA

EUFA R EWG

www.eufar.net

• **Networking Activities – 2 M€**

- N1. Scientific Advisory Committee (N1SAC-CNRM)
- N2. TA coordination (N2TAC-MetOffice)
- N3. Future of the Fleet (N3FF-Jülich)
- N4. Expert Working Groups (N4EWG-JOGU)
- N5. Education and Training (N5ET-VITO)
- N6. Standards and Protocols (N6SP-DLR)
- N7. Airborne Data Base (N7DB-STFC)
- N8. E-Communication (N8EC-CNRM)
- N9. Sustainable structure (N9SST-CNRM)

• **Transnational Activities (TA) – 3 M€**

• **Joint Research Activities (JRA) – 2,4 E€**

- JRA1. Development and evaluation of new and improved hygrometers for airborne research (DENCHAR-Jülich)
- JRA2. Quality layers for airborne hyperspectral imagery and data products (HYQUAPRO-VITO)
- JRA3. Airborne Laser Interferometric Drop Sizer (ALIDS-IRSN)

EUFAR

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

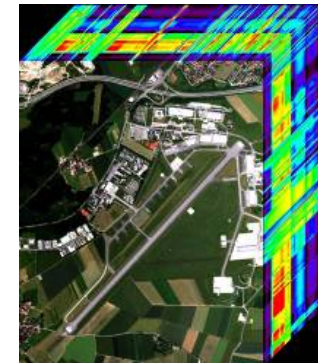
EUFAR TA

EUFAR EWG

- ▶ 7 instruments and 22 aircraft open to TA
- ▶ Support planned for 64 projects:
201 users and 538 flight hours

▶ EUFAR FP6 Achievements:

- ❖ 74 proposals received
- ❖ Support allocated to 46 projects: 230 users and 412 flight hours



Transnational Access (TA) call is now open!

EUFAR

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFAR TA

EUFAR EWG

www.eufar.net

- ▶ EUFA R Transnational Access call to **get 100% funded flight hours** for your experiments is now open!
- ▶ Call deadline: **June 1st 2009!**
- ▶ Pre-review (March-May 2009) and evaluation (June-September 2009) process
- ▶ Flight campaigns starting from October 2009
- ▶ Eligibility criteria available at www.eufar.net

- ▶ The competition is open until 2011 (6 calls closing on 1st June 2009, 1st December 2009, 1st June 2010, 1st December 2010, 1st June 2011, 1st December 2011), but with potential flying opportunities until 30th August 2012.

Transnational Access (TA) call is now open!

EU FAR

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EU FAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EU FAR TA

EU FAR EWG

www.eufar.net

Three types of TA proposals can be submitted

❖ Science projects

Proposals for **scientific projects** (primary acceptance criterion is the quality and impact of the science)

❖ Instrument development

Proposals that involve the **testing or development of novel instrumentation** in any area of airborne atmospheric or geo-science research

❖ Training courses

Proposals to **host** a 1 week to 10 days **training course including flight experiment** can be submitted on any topic for which the measurement capabilities of the EU FAR fleet+instruments are relevant.
(primary acceptance criterion is the quality of the teaching)

On-line application at the EU FAR website

EUFAR

Consortium

Aircraft open to TA

HSI sensors open to TA

Objectives

Activities

EUFAR N5ET

Objectives

Training opportunities

ET-TC

ET-EC

ET-TA

EUFAR TA

EUFAR EWG

TA Eligibility criteria

- ❖ The applicants (leader and the majority of the group) must work in a institution established in a European Member State or Associated State;
- ❖ The applicants (leader and the majority of the group) must work in a country other than the country(ies) where the legal entity(ies) operating the selected aircraft and/or instrument is(are) established;
- ❖ Only groups that are entitled to disseminate the foreground that they have generated under the project are eligible to benefit from access.

EUFA R

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFA R N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFA R TA

EUFA R EWG

www.eufar.net

• **Networking Activities – 2 M€**

- N1. Scientific Advisory Committee (N1SAC-CNRM)
- N2. TA coordination (N2TAC-MetOffice)
- N3. Future of the Fleet (N3FF-Jülich)
- N4. Expert Working Groups (N4EWG-JOGU)
- N5. Education and Training (N5ET-VITO)
- N6. Standards and Protocols (N6SP-DLR)
- N7. Airborne Data Base (N7DB-STFC)
- N8. E-Communication (N8EC-CNRM)
- N9. Sustainable structure (N9SST-CNRM)

• **Transnational Activities (TA) – 3 M€**

• **Joint Research Activities (JRA) – 2,4 E€**

- JRA1. Development and evaluation of new and improved hygrometers for airborne research (DENCHAR-Jülich)
- JRA2. Quality layers for airborne hyperspectral imagery and data products (HYQUAPRO-VITO)
- JRA3. Airborne Laser Interferometric Drop Sizer (ALIDS-IRSN)

EUFAR

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFAR TA

EUFAR EWG

www.eufar.net

Objectives:

- ❖ To compile the knowledge in a high-level handbook on “**Airborne Physical Measurements – Methods and Instruments**” (state-of-the-art in airborne physical measurement principles and techniques)
- ❖ To improve the expertise among the specialized scientists in 18 fields of airborne research by organizing experts workshops
- ❖ To facilitate the transfer of expert knowledge to users, operators, and funding agencies

EUFAR FP6 Achievements:

- ❖ 12 Expert Working Groups
- ❖ 13 Expert Workshops organized

N4EWG – Expert Working Groups

List of Expert Working Groups:

EUFA

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFA N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFA TA

EUFA EWG

www.eufar.net

❖ Support to airborne measurements:

- Certification/Operation
- Instrument Integration
- Data Processing (Leader: Daniel Schlaepfer)
- Imaging sensors (Leader: Koen Meuleman)
- Cal/Val (Leader: Tim Malthus)
- Unmanned Aerial Systems

❖ Specific measurement fields:

- In-Situ Aerosols
- Gas Phase Chemistry
- Cloud Microphysics
- Radiation
- Solid-Earth Geophysics
- Thermodynamics
- Turbulence
- Stratospheric Research
- Polar Research
- Active Remote Sensing
- Hyperspectral Applications for Soil (Leader: Eyal Ben-Dor)
- Hyperspectral Applications for Vegetation (Leader: Michael Schaepman)
- Hyperspectral Applications for Water (Leader: Steve Groom)



EUFAR

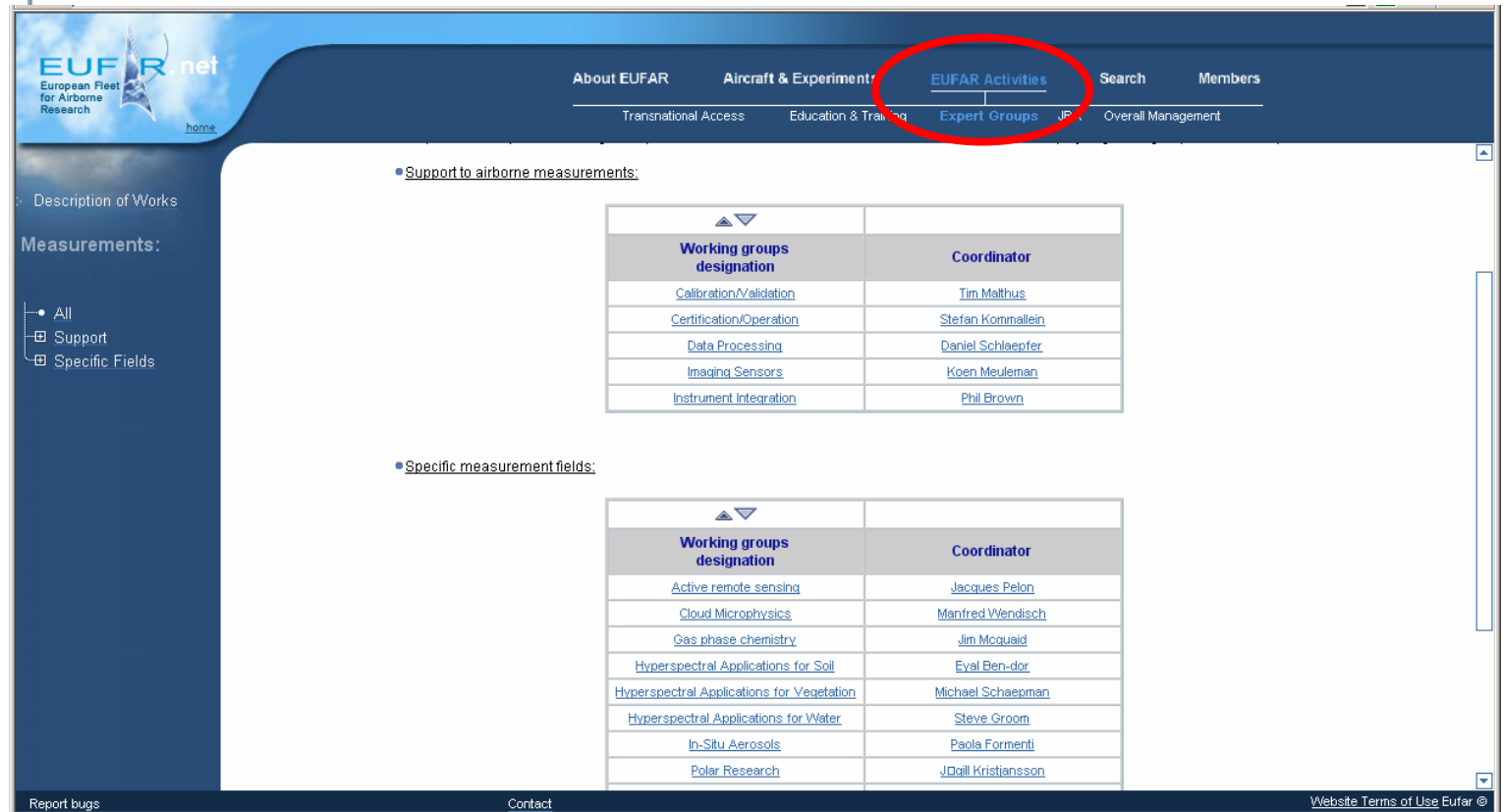
Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFAR TA

EUFAR EWG



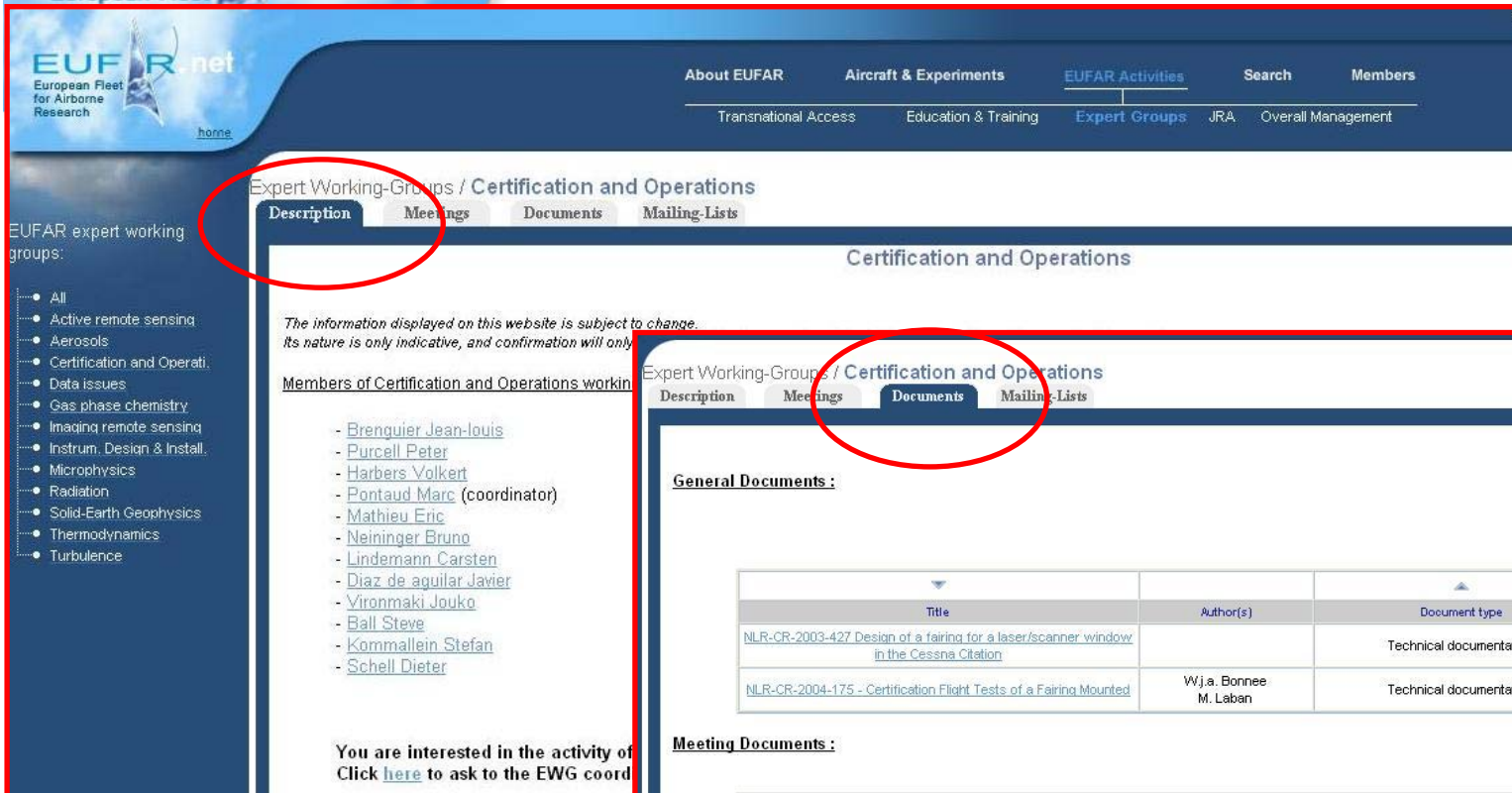
The screenshot shows the website's navigation menu with 'EUFAR Activities' highlighted in a red circle. Below the menu, there are two sections: 'Support to airborne measurements' and 'Specific measurement fields'. Each section contains a table with two columns: 'Working groups designation' and 'Coordinator'.

Support to airborne measurements:

Working groups designation	Coordinator
Calibration/Validation	Tim Malthus
Certification/Operation	Stefan Kommallein
Data Processing	Daniel Schlaepfer
Imaging Sensors	Koen Meuleman
Instrument Integration	Phil Brown

Specific measurement fields:

Working groups designation	Coordinator
Active remote sensing	Jacques Pelon
Cloud Microphysics	Manfred Wendisch
Gas phase chemistry	Jim McQuaid
Hyperspectral Applications for Soil	Eyal Ben-dor
Hyperspectral Applications for Vegetation	Michael Schaepman
Hyperspectral Applications for Water	Steve Groom
In-Situ Aerosols	Paola Formenti
Polar Research	JGill Kristjansson



About EUFAR Aircraft & Experiments **EUFAR Activities** Search Members
 Transnational Access Education & Training **Expert Groups** JRA Overall Management

Expert Working-Groups / **Certification and Operations**
 Description Meetings Documents Mailing-Lists

EUFAR expert working groups:

- All
- Active remote sensing
- Aerosols
- Certification and Operati...
- Data issues
- Gas phase chemistry
- Imaging remote sensing
- Instrum. Design & Install...
- Microphysics
- Radiation
- Solid-Earth Geophysics
- Thermodynamics
- Turbulence

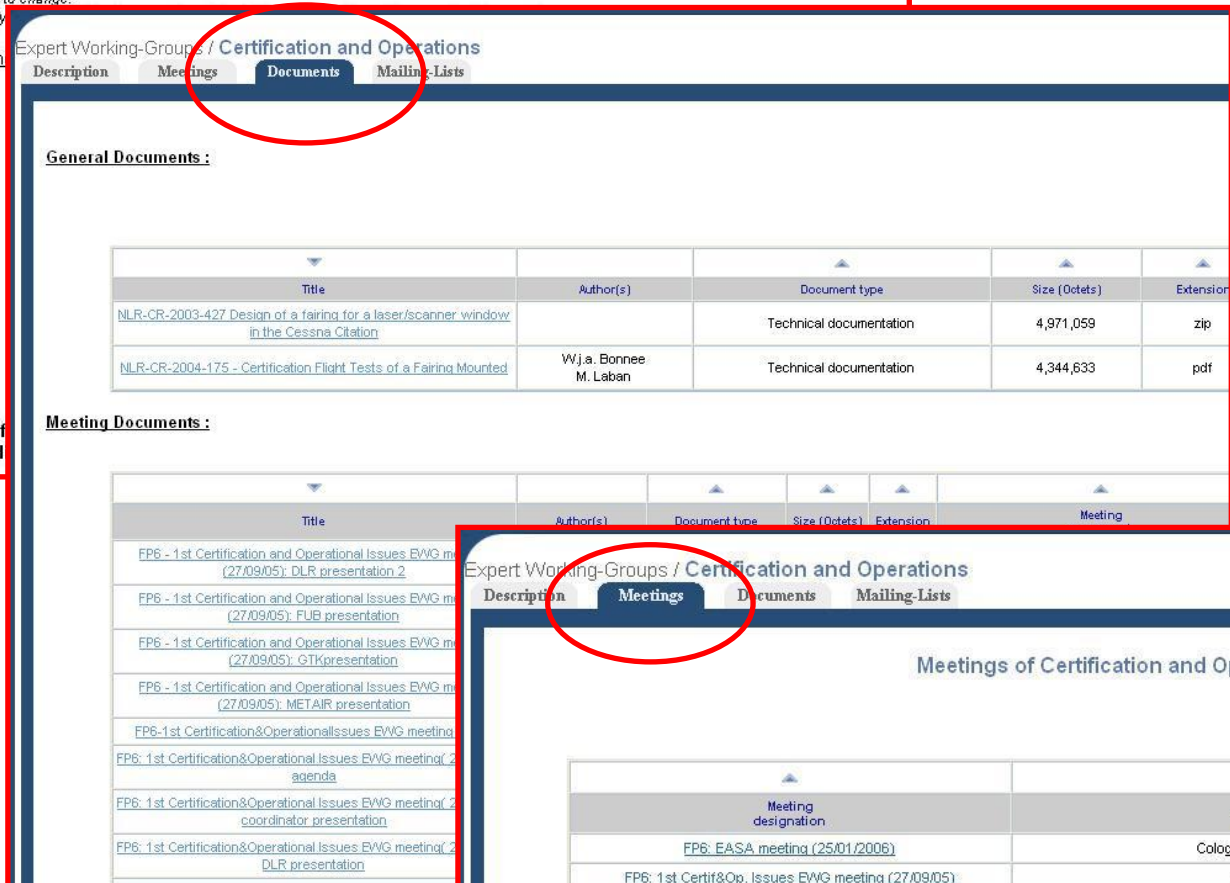
The information displayed on this website is subject to change.
 Its nature is only indicative, and confirmation will only...

Members of Certification and Operations working group:

- [Brenquier Jean-louis](#)
- [Purcell Peter](#)
- [Harbers Volkert](#)
- [Pontaud Marc](#) (coordinator)
- [Mathieu Eric](#)
- [Neininger Bruno](#)
- [Lindemann Carsten](#)
- [Diaz de aguilar Javier](#)
- [Vironmaki Jouko](#)
- [Ball Steve](#)
- [Kommallein Stefan](#)
- [Schell Dieter](#)

You are interested in the activity of...
 Click [here](#) to ask to the EWG coord...

Interested in joining
 an Expert Working
 Group, click here to
 ask the EWG leader



Expert Working-Groups / **Certification and Operations**
 Description Meetings **Documents** Mailing-Lists

General Documents :

Title	Author(s)	Document type	Size (Octets)	Extension
NLR-CR-2003-427 Design of a fairing for a laser/scanner window in the Cessna Citation		Technical documentation	4,971,059	zip
NLR-CR-2004-175 - Certification Flight Tests of a Fairing Mounted	W.j.a. Bonnee M. Laban	Technical documentation	4,344,633	pdf

Meeting Documents :

Title	Author(s)	Document type	Size (Octets)	Extension	Meeting
FP6 - 1st Certification and Operational Issues EWG meeting (27/09/05): DLR presentation 2					
FP6 - 1st Certification and Operational Issues EWG meeting (27/09/05): FUB presentation					
FP6 - 1st Certification and Operational Issues EWG meeting (27/09/05): GTK presentation					
FP6 - 1st Certification and Operational Issues EWG meeting (27/09/05): METAIR presentation					
FP6-1st Certification&OperationalIssues EWG meeting					
FP6: 1st Certification&OperationalIssues EWG meeting/2 agenda					
FP6: 1st Certification&OperationalIssues EWG meeting/2 coordinator presentation					
FP6: 1st Certification&OperationalIssues EWG meeting/2 DLR presentation					

Expert Working-Groups / **Certification and Operations**
 Description **Meetings** Documents Mailing-Lists

Meetings of Certification and Operations

Meeting designation	Location
FP6: EASA meeting (25/01/2006)	Cologne (Germany)
FP6: 1st Certif&Op. Issues EWG meeting (27/09/05)	Toulouse

Contact person

EUFAR

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFAR TA

EUFAR EWG

www.eufar.net

For more info on EUFAR Education and Training opportunities

Contact

Dr. Ils Reusen
VITO
Boeretang 200
2400 Mol
Belgium
+32 14 33 68 62
ils.reusen@vito.be

Contact person

For more info on
call for Transnational Access proposals

Contact

bureau@eufar.net

or

Phil Brown

phil.brown@metoffice.gov.uk

EUFAR

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFAR TA

EUFAR EWG

www.eufar.net

Contact person

EUFAR

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFAR TA

EUFAR EWG

www.eufar.net

For more info on
EUFAR Expert Working Groups

Contact

Manfred Wendish
wendisch@uni-mainz.de

Thank you for your attention!

EUFAR

Consortium
Aircraft open to TA
HSI sensors open to TA
Objectives
Activities

EUFAR N5ET

Objectives
Training opportunities
ET-TC
ET-EC
ET-TA

EUFAR TA

EUFAR EWG

www.eufar.net

Looking forward to meeting you at
one of the EUFA activities!

To apply: www.eufar.net

