Report of the

EUFAR FP7

Joint Expert Working Group Meeting (EWG 10): Imaging Spectroscopy Sensors, Calibration/Validation, and Data Processing

April 14th – Edinburgh, Scotland (UK)

Last update on 18/08/2011 by Koen Meuleman

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2. List of attendees

Organizers:

Tim Malthus	CSIRO Land and Water, Australia
Daniel Schläpfer	ReSe, Switzerland
Koen Meuleman	VITO, Belgium

Attendees:

Steven M. de Jong	Utrecht University
Elisabeth A. Addink	Utrecht University
Stefanie Holzwarth	DLR - German Remote Sensing Data Center
Enzo Magliulo	CNR ISAFoM p.o. box 101
Jan Hanus	USBE AV CR
CARRERE Véronique	LPG Nantes, Université de Nantes
Sebastian van der Linden	Humboldt-Universität zu Berlin
Martin Habermeyer	DLR - German Remote Sensing Data Center
Dries Raymaekers	VITO, Belgium
Marcos Jiménez Michavila	INTA, Spain
Martin Bachmann	DLR - German Remote Sensing Data Center
Eva Ampe	Vrije Universiteit Brussel
Geert Verhoeven	LBI for Archaeological Prospection & Virtual Archaeology
Sabine Chabrillat	GFZ German Research Centre for Geosciences
Jose-Antonio Gomez-Sanchez	INTA Spain
Reno Kyu-Young Choi	University of Southampton
Veronika Kopackova	Czech Geological Survey
Gary M. Llewellyn	NERC Airborne Research and Survey Facility,
Heikki Saari	VTT Photonic devices and measurement solutions
Christian Fischer	German Aerospace Center
Andreas Hueni	University of Zurich
Stephen Achal	ITRES Research Limited
Zach Jacobs, Account Manager	ITRES Research Limited
Elizabeth M. Middleton	NASA/Goddard Space Flight Center
Rosa Maria Cavalli	Istituto Inquinamento Atmosferico
Ils Reusen	VITO
Timo Hyvärinen	SpecIm Finland
Trond Løke	Norsk Electro Optik, Norway
Rob Green	NASA JPL Pasadena
Luis Guanter	Oxford university
Eyal Ben Dor	TAU
Anna Brook	TAU
Ben Taylor	PML
Eduardo de Miguel	INTA

3. Meeting Outline

3.1. Goals

The three EUFAR Expert Working Groups Imaging Sensors, Calibration/Validation and Hyperspectral Data Processing teamed up for a day of discussions about acquisition, validation, calibration and processing of data from current and future imaging spectroscopy instruments. The aim was to give a state-of-the-art overview of instruments and processing and calibration techniques. All members of the above-mentioned EUFAR Expert Working Groups had been invited to participate in this event.

3.2. Program

The meeting was organised in 3 sessions and discussions about: imaging spectroscopy systems (technical overview, including system calibration), vicarious validation and inflight calibration, and imaging spectroscopy data processing, where a total number of 17 presentations from recognized experts in their fields have been given.

A final round table was used to discuss current issues regarding data processing and data quality standardization.
The problem intercomparison on imaging spectroscopy systems and their properties was also discussed.

4. Conclusion

The meeting showed the great variety of industrial solutions and imaging spectroscopy sensors which is available on the market. The vicarious calibration routines are well defined and have been developed significantly through the past few years. The application of such vicarious calibration routines is still difficult and requires a lot of man-power in the field and in post-processing..
Another major development is the miniaturization of sensors which has advanced down to 400g. This opens new fields, specifically in view of applications on UAV's. For the processing, the routinely operational processing has been established at various institutes throughout Europe. A comparable data quality is to be assured through cross comparison and standardization of the results.

Outlook

It has been recommended to put up a Wiki about Sensor and Processing Systems / Software. This action has been taken by the EWG leaders. Furthermore, there is a strong demand for improved and operational BRDF correction routine, a scientific task which still has not been solved satisfyingly.
The participants asked for the PDFs to be made available on the EUFAR web site. This will be done upon availability.

Recommendations towards EUFAR

The documents on the EUFAR web site can't be easily placed and found. It is recommended to allow direct links to the documents and to make handling of the documents easier.

5. Action list

1. Put PDFs on EUFAR web site:
   Koen Meuleman
   30.9.2011

2. Provide System List on Wikipedia
   Prepare matrix on behalf system providers.
   Daniel Schläpfer
   30.9.2011

6. Annexes (if applicable)

All annexes are available either in this report or at www.eufar.net

ANNEXES SUMMARY:

ANNEX I: the PDFs of the presentations are available through the EUFAR web page