→ 6th ESA ADVANCED TRAINING COURSE ON LAND REMOTE SENSING

Course Overview

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European Space Agency ESRIN, Frascati – ITALY

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14–18 September 2015 | University of Agronomic Science and Veterinary Medicine Bucharest | Bucharest, Romania

Context

Why ESA ADVANCED TRAINING COURSES

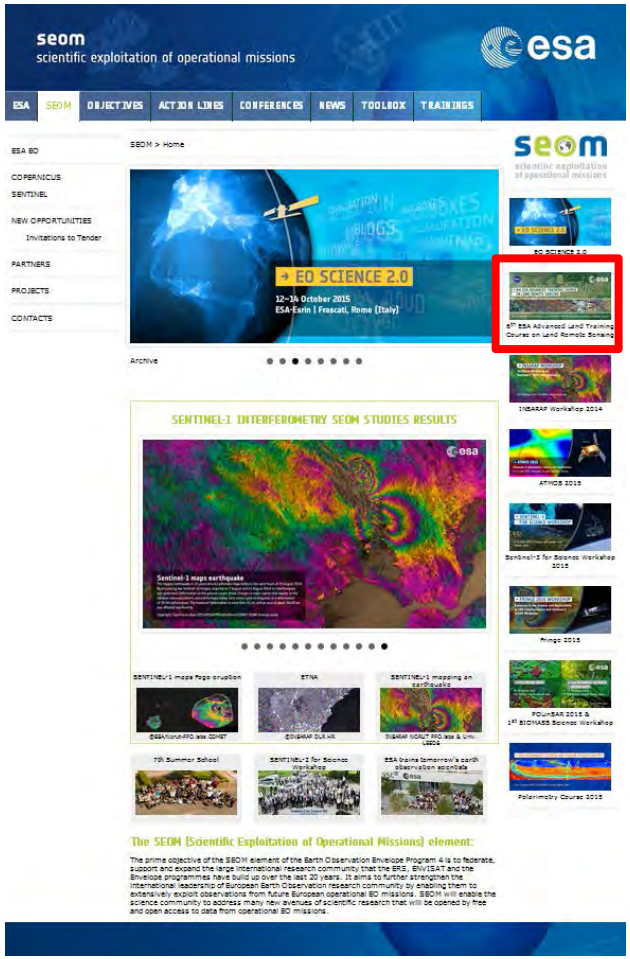
- Action of **SEOM** (Scientific Exploitation of Operational Missions) element of EOEP-4 program

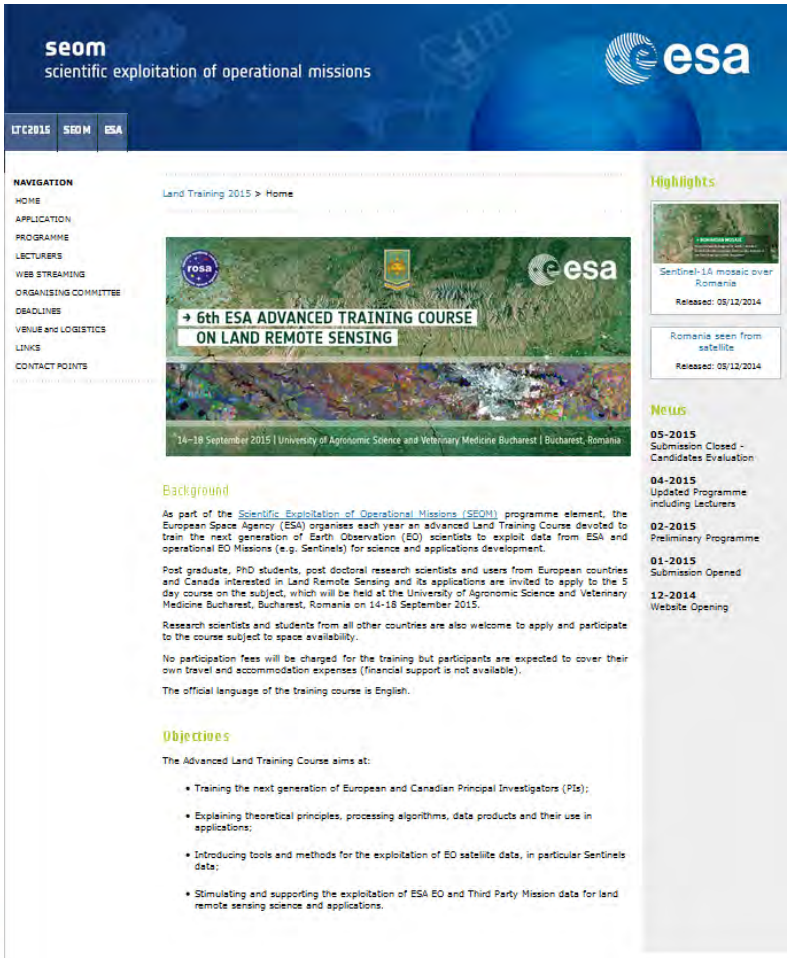
seom
scientific exploitation of operational missions

Objectives

- Training the next generation of European and Canadian Principal Investigators (PIs)
- Teaching and demonstrating theoretical principles, processing algorithms, data products and their use in applications
- Introducing tools and methods for the scientific exploitation of EO satellite data
- Stimulating and supporting the scientific exploitation of ESA EO and Third Party operational missions

SEOM - http://seom.esa.int





Previous Training in Land RS

Portugal 2007

Czech Republic 2009

Poland 2011

Athens 2013

Previous Training in Land RS

seom
scientific exploitation of operational missions

LTC2014 | SEOM | ESA

HOME
APPLICATION
Submission closed
PROGRAMME and MATERIAL
WEB STREAMING
ORGANISING COMMITTEE
DEADLINES
VENUES & LOGISTICS
LINKS
CONTACT POINTS

5th ESA Advanced Training Course on Land Remot

5th ESA Advanced Training Course

8-12 September 2014, University of V

→ 5th ESA ADVANCED TRAIN
ON LAND REMOTE SENSIN

8-12 September 2014 | University of Valencia

Background

As part of the Scientific Exploitation of Operat
European Space Agency (ESA) organises ea
devoted to train the next generation of Earth
ESA and operational EO Missions for science an

Post graduate, PhD students, post doctoral
countries and Canada interested in Land Remo
apply to the 5 day course on the subject, wh
Valencia, Spain on 8-12 September 2014.

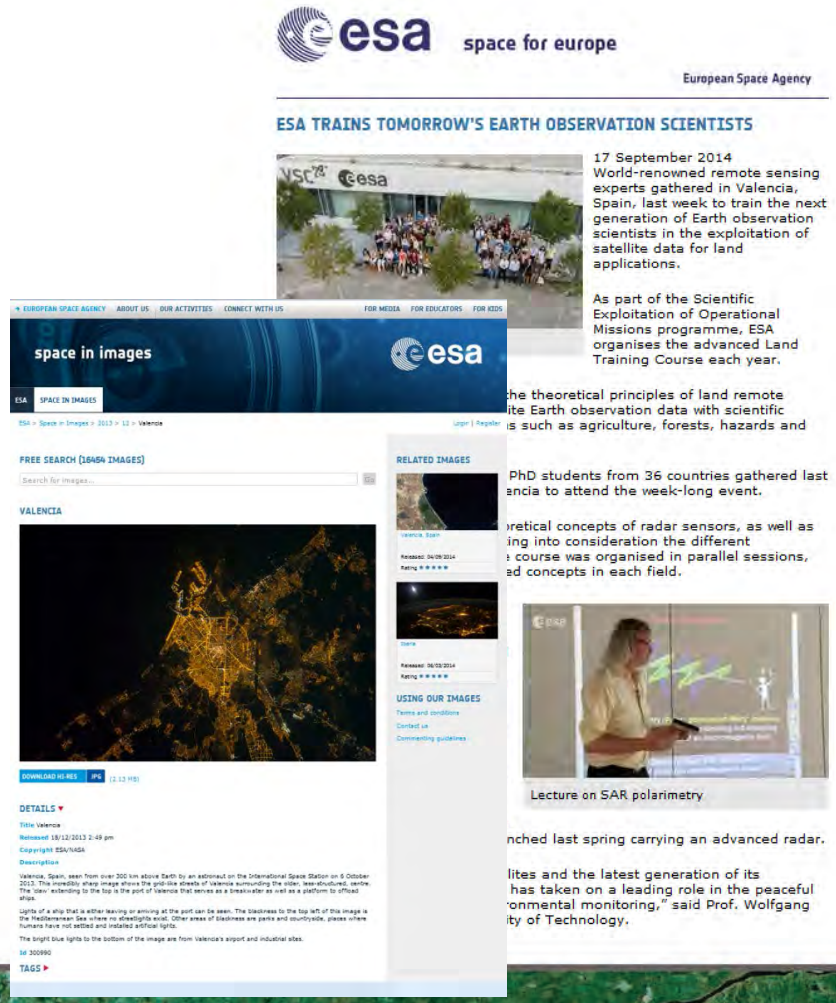
UVAL©

→ 6th ESA ADVANCED TRAINING COURSE ON LAND REMOTE SENSING
14–18 September 2015 | University of Agronomic Science and Veterinary Medicine Bucharest | Bucharest, Romania

Intranet Web Stories

A web story was published on ESA portal about the Training Course

An Image of the Week showing Valencia, Spain from the ISS acquired on 6 October 2013 was published on ESA portal as well as on the Training Course website.



LTC 2015 Flyer

DEADLINES

Website Opening	19 December 2014
Application Submission (opening)	19 January 2015
Application Submission (closing)	01 May 2015
Notification of Acceptance	by June 2015

APPLICATION

The number of participants is limited to a maximum of 70 students and subject to selection of application. Students wishing to participate can apply on-line via the training course website.

Application submission will be available **from 19 January to 01 May 2015.**

Notification of acceptance will be sent via e-mail by June 2015.

FEES

No participation fees will be charged for the training. Participants are expected to finance their own travel and accommodation expenses. The official language of the course is English.

For further information please visit the Course website at:

https://seom.esa.int/landtraining2015

Bucharest

ORGANISING COMMITTEE

Yves Louis Desnos (ESA)
Michael Foumelis (RSAC c/o ESA)
Irene Renis (Serco S.p.A. support ESA)
Alexadru Badea (UASMV)
Doru Mihai (UASMV)
Ion Nedelcu (ROSA)
Cosmin Nistor (ROSA)

CO-SPONSORS

European Space Agency (ESA)
Romanian Space Agency (ROSA)
University of Agronomic Science and Veterinary Medicini Bucharest (UASMV)

CONTACT POINTS

ESA	UASMV
Irene Renis	**Alexadru Badea**
e-mail: eotraining@esa.int	email: alexandru.badea@usamv.ro

→ 6th ADVANCED TRAINING COURSE ON LAND REMOTE SENSING

14–18 September 2015 | University of Agronomic Science and Veterinary Medicine Bucharest | Bucharest, Romania

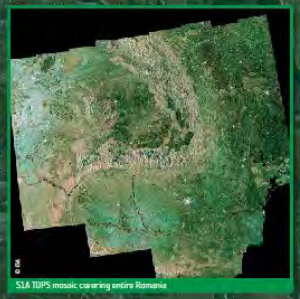
ERS-2 SAR multitemporal colour composite over Bucharest
(Red: July 2004, Green: January 2004 and Blue: April 2004)

BACKGROUND

As part of the Scientific Exploitation of Operational Missions (SEOM) programme element, the European Space Agency (ESA) organises each year an advanced Land Training Course devoted to train the next generation of Earth Observation (EO) scientists to exploit data from ESA and operational EO Missions (e.g. the Sentinels) for science and applications development..

Post graduate, PhD students, post–doctoral research scientists and users from European countries and Canada interested in Land Remote Sensing and its applications are invited to apply to the 5 day course which will be held at the University of Agronomic Science and Veterinary Medicine Bucharest (UASMV), Bucharest, Romania from 14 to 18 September 2015.

Research scientists and students from all other countries are also welcome to apply and participate to the course subject to space availability.



S1A TOPS mosaic covering entire Romania

OBJECTIVES

The Advanced Land Training Course aims at:

- Training the next generation of European and Canadian Principal Investigators (PIs);
- Explaining theoretical principles, processing algorithms, data products and their use in applications;
- Introducing tools and methods for the exploitation of EO satellite data, in particular from the Sentinels;
- Stimulating and supporting the exploitation of ESA EO and Third Party Mission data for land remote sensing science and applications.

LECTURERS

The team of lecturers will be composed of Principal Investigators and Professors from leading universities and research institutions.

Southern central Romania as captured by Komput-2 satellite on January 2013 showing the transitional region between the Southern Carpathians and the lowland plains

CONTENTS

The course will provide advanced scientific knowledge on theory and applications for land remote sensing. It will be organised around five main components:

- Presentation of the Sentinel-1, -2 and -3 missions;
- Theoretical fundamentals of spaceborne Optical, Thermal and SAR remote sensing;
- EO land applications lectures on Land Use and Land Cover, Change Detection, Terrain Motion, Hazards, Forest Bio-physical retrievals, Multi-temporal analysis, Flood monitoring, Snow Cover mapping, Climate (Water and Carbon);
- Practicals using ESA toolboxes for scientific exploitation of EO data;
- EO data processing and product demonstration for land resources monitoring.

The training course will include formal lectures by leading scientists as well as hands-on computing exercises exploiting real and simulated data for science and application.

The Organizing Committee

- Yves-Louis Desnos (ESA)
- Michael Foumelis (RSAC c/o ESA)
- Irene Renis (Serco c/o ESA)
- Alexandru Badea (ROSA/ USAMV)
- Doru Mihai (USAMV)
- Ion Nedelcu (ROSA)
- Cosmin Nistor (ROSA)

Co-sponsors

- European Space Agency (ESA)
- Romanian Space Agency (ROSA)
- University of Agronomic Science and Veterinary Medicine Bucharest (USAMV)

The Teaching Team: Optical & Thermal Lecturers (1/2)

Prof. M. Caetano – *DGT/NOVA-IMS, Portugal*

Prof. E. Chuvieco – *University of Alicante, Spain*

Prof. G. Duveiller – *JRC, Italy*

Dr. J.-P. Gastellu-Etchegorry – *CESBIO, France*

Mr. J. Malik – *C-S, France*

Prof. S. Niculescu – *Univ. de Bretagne, France*

Dr. F. Ramoino – *ESA-ESRIN, Italy*

Prof. B. Su – *ITC, The Netherlands*

Dr. S. van der Linden – *Humboldt-Universität zu Berlin, Germany*

The Teaching Team: SAR Lecturers

Prof. M. Datcu – *Politehnica University of Bucharest, Romania*

Dr. M. Foumelis – *ESA-ESRIN, Italy*

Prof. R. Hanssen – *TU Delft, The Netherlands*

Prof. A. Hooper – *University of Leeds, UK*

Prof. E. Pottier – *University of Rennes 1, France*

Dr. D. Small – *ETH, Switzerland*

Dr. H. Yesou – *SERTIT, France*

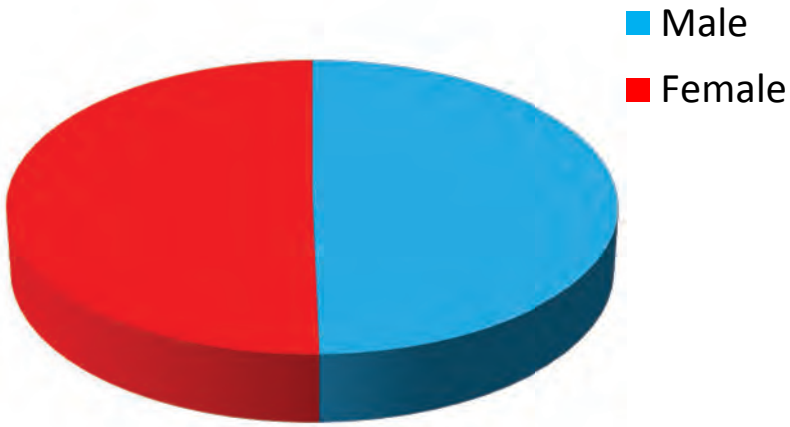
Dr. M. Younis – *DLR, Germany*

The participants

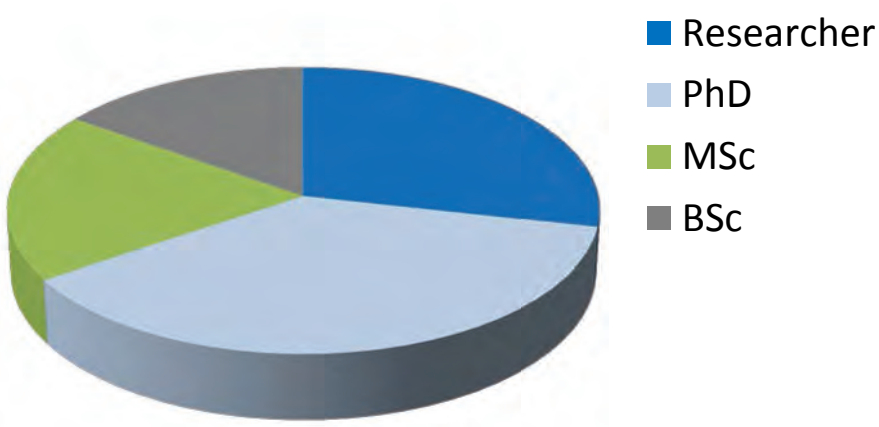
A total number of **151 participants** from 41 countries (127 EU-ESA Member State & 24 Non-ESA member)

Following an evaluation procedure **70/151** were selected

Gender



Education Level



Location

RECTORAT Building

FIFIM Building

AGRONOMIE Catering Complex

Lectures and Practical Rooms

The **Registration Desk, Welcome and General Introduction, and Closing Ceremony** will be held at the Auditorium on the ground floor of the **RECTORAT** building.

Access to **RECTORAT** building by the main entrance, Amphitheater APA.

Classrooms, training rooms, poster exhibition space and coordination room are located at the **FIFIM** building.

- The **Lecture Rooms** will be held at the second floor at Block A of **FIFIM** building:
  - Block A Classrooms **A–II-1** (Optical/Thermal) and **A-II-2** (Radar)
- The **Practical Rooms** will be held at the first floor of **FIFIM** building:
  - Block C Classrooms **C-I-1** (Optical/Thermal) and **C-1-5** (Radar)
- The **Poster Session** will be held on the ground floor at Block A of **FIFIM** building
- **Coffee Breaks** will be held close to the training facilities depending the location of activities (opening and closing sessions, lectures or practical sessions)

MONDAY 14 September 2015

08:30 - 09:30	**Registration**	
09:30 - 09:45	***Course overview***	
09:45 - 10:00	***Welcome Speeches by Local Orginisers***	
10:00 - 10:15	***ESA SEOM Programme*** Y.-L. Desnos *(ESA-ESRIN)*	
	Coffee break	
10:45 - 11:45	***Land Remote Sensing in Romania*** A. Badea *(ROSA)*	
11:45 - 12:15	***Sentinels for Science and Applications*** Y.-L. Desnos *(ESA-ESRIN)*	
12:15 - 12:45	***Sentinel Data Access & Tools*** M. Foumelis *(RSAC c/o ESA-ESRIN)*	
	Lunch	
14:15 - 15:30	**D1T1a** ***Introduction to Optical/Thermal RS*** E. Chuvieco *(Univ. of Alcala, Spain)*	**D1T1b** ***Introduction to SAR RS*** M. Younis *(DLR, Germany)*
	Coffee break	
16:00 - 18:00	**D1T2a** ***Advanced SAR 1*** M. Younis *(DLR, Germany)*	**D1T2b** ***Advanced Optical 1*** J.-P. Gastellu-Etchegorry *(CESBIO, France)*
18:00 - 20:00	***Ice-breaker (Welcome Social Event)***	

ESA and 3rd parties | THEORY | APPLICATION THEORY | PRACTICAL

RECTORAT building

FIFIM building

TUESDAY 15 September 2015

	SAR group	Optical & Thermal groups
08:30 - 10:15	**D2T1a** ***Advanced SAR 2*** R. Hanssen *(TU Delft, The Netherlands)*	**D2T1b** ***Atmospheric Correction Fundamantals*** J.-P. Gastellu-Etchegorry *(CESBIO, France)*
Coffee break		
10:45 - 12:45	**D2P1a** ***Sentinel-1 Toolbox*** M. Foumelis *(RSAC c/o ESA, Italy)*	**D2P1b** ***Sentinel-2 Toolbox*** J. Malik *(CS, France)*
Lunch		
14:15 - 15:30	**D2T2a** ***SAR Polarimetry*** E. Pottier *(Univ. of Rennes 1, France)*	**D2T2b** ***Land Cover/Land Use*** E. Chuvieco *(Univ. of Alcala, Spain)*
Coffee Break		
16:00 - 18:00	**D2P2a** ***POLSARPRO TOOLBOX*** E. Pottier *(Univ. of Rennes 1, France)*	**D2P2b** ***Sentinel-3 Toolbox*** J. Malik *(CS, France)*
18:00-19:30	***POSTER SESSION***	

ESA and 3rd parties | THEORY | APPLICATION THEORY | PRACTICAL

Based on previous recommendation duration of practical exercises was increased to 2 hours.

QR Codes available for electronically submitted posters

WEDNESDAY 16 September 2015

	SAR group	Optical & Thermal groups
08:30 - 10:15	**D3T1a** ***Flood Monitoring*** H. Yesou *(SERTIT, France)*	**D3T1b** ***Land Cover / Land Use*** M. Caetano *(DGT/NOVA-IMS, Portugal)*
Coffee break		
10:45 - 12:45	**D3P1a** ***Flood Monitoring*** H. Yesou *(SERTIT, France)*	**D3P1b** ***Land Cover / Land Use*** M. Caetano *(DGT/NOVA-IMS, Portugal)*
Lunch		
14:15 - 15:30	**D3T2a** ***Snow Mapping & Monitoring*** D. Small *(ETH, Switzerland)*	**D3T2b** ***Urban Mapping & Change Detection*** S. van der Linden *(Humboldt-Universität zu Berlin, Germany)*
Coffee Break		
16:00 - 18:00	**D3P2a** ***Snow Mapping & Monitoring*** D. Small *(ETH, Switzerland)*	**D3P2b** ***Urban Mapping & Change Detection*** S. van der Linden *(Humboldt-Universität zu Berlin, Germany)*

THURSDAY 17 September 2015

	SAR group	Optical & Thermal groups
08:30 - 10:15	**D4T1a** ***SAR Interferometry*** R. Hanssen *(TU Delft, The Netherlands)*	**D4T1b** ***Agriculture Monitoring*** G. Duveiller *(JRC, Italy)*
Coffee break		
10:45 - 12:45	**D4P1a** ***SAR Interferometry*** R. Hanssen *(TU Delft, The Netherlands)*	**D4P1b** ***Agriculture Monitoring*** G. Duveiller *(JRC, Italy)*
Lunch		
14:15 - 15:30	**D4T2a** ***Terrain Motion - Persistent Scatterers Interferometry*** A. Hooper *(Univ. of Leeds, UK)*	**D4T2b** ***Soil Moisture & Water Resources*** B. Su *(ITC, The Netherlands)*
Coffee Break		
16:00 - 18:00	**D4P2a** ***Terrain Motion - Persistent Scatterers Interferometry*** A. Hooper *(Univ. of Leeds, UK)*	**D4P2b** ***Soil Moisture & Water Resources*** B. Su *(ITC, The Netherlands)*

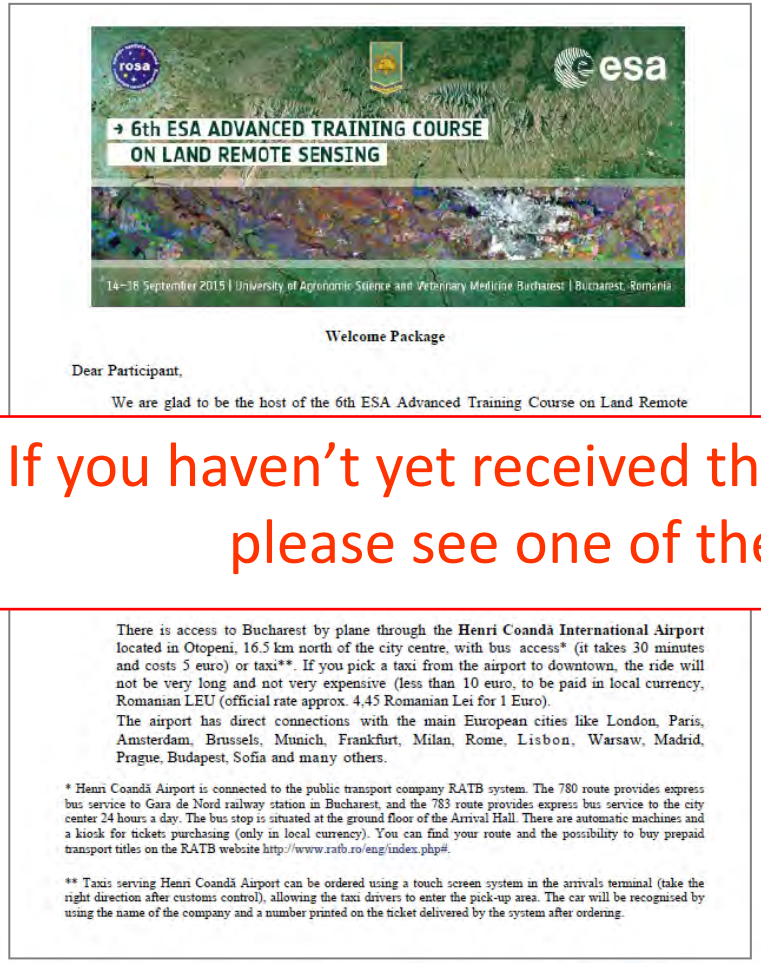
FRIDAY 18 September 2015

	SAR group	Optical & Thermal groups
08:30 - 10:15	**D5T1a** ***Data Mining*** M. Datcu *(Politehnica University of Bucharest, Romania)*	**D5T1b** ***Wetlands Monitoring*** S. Niculescu *(Univ. de Bretagne, France)*
Coffee break		
10:45 - 12:45	**D5P1a** ***Sentinel-1 - Do It Yourself Exercise*** M. Foumelis *(RSAC c/o ESA, Italy)*	**D5P1b** ***Sentinel-2 - Do It Yourself Exercise*** F. Ramoino *(Serco c/o ESA, Italy)*
Lunch		
14:15 - 15:30	**D5T2** ***Multi-temporal Analysis*** L. Bruzzone *(Univ. of Trento, Italy)*	
Coffee Break		
16:00 - 18:00	***CLOSING CEREMONY*** ***Course Summary***	

Delivery of the
Certificate of Attendance
at the end of the course

RECTORAT building

Welcome Package



- Bag
- ESA/Copernicus brochures

If you haven't yet received the **Welcome Package** please see one of the organisers

POSTER Session Organization

Poster Exhibition open at the Ground Floor of the **FIFIM building on Tuesday**

- Mounting of posters from Tuesday 15 Sept. 2015
  - Lunch / PM breaks
- **Please check to find your poster board from the list is in poster area.**
- Boards are labelled, please mount on the correct board
- Please take time to view the posters during the session
- Opportunity to exchange contacts and ideas

Poster Session: 18:00 to 19:30 Tuesday 15 Sept. 2015

- Adjudication by lecturers and organising committee
- Two Categories
  - *Optical /Thermal*
  - *SAR*
- 1 award for best poster in each category
- **Awards during Friday's closing session**

BEST POSTER AWARD

For the best poster paper in SAR presented at the

→ 6th ADVANCED TRAINING COURSE IN LAND REMOTE SENSING

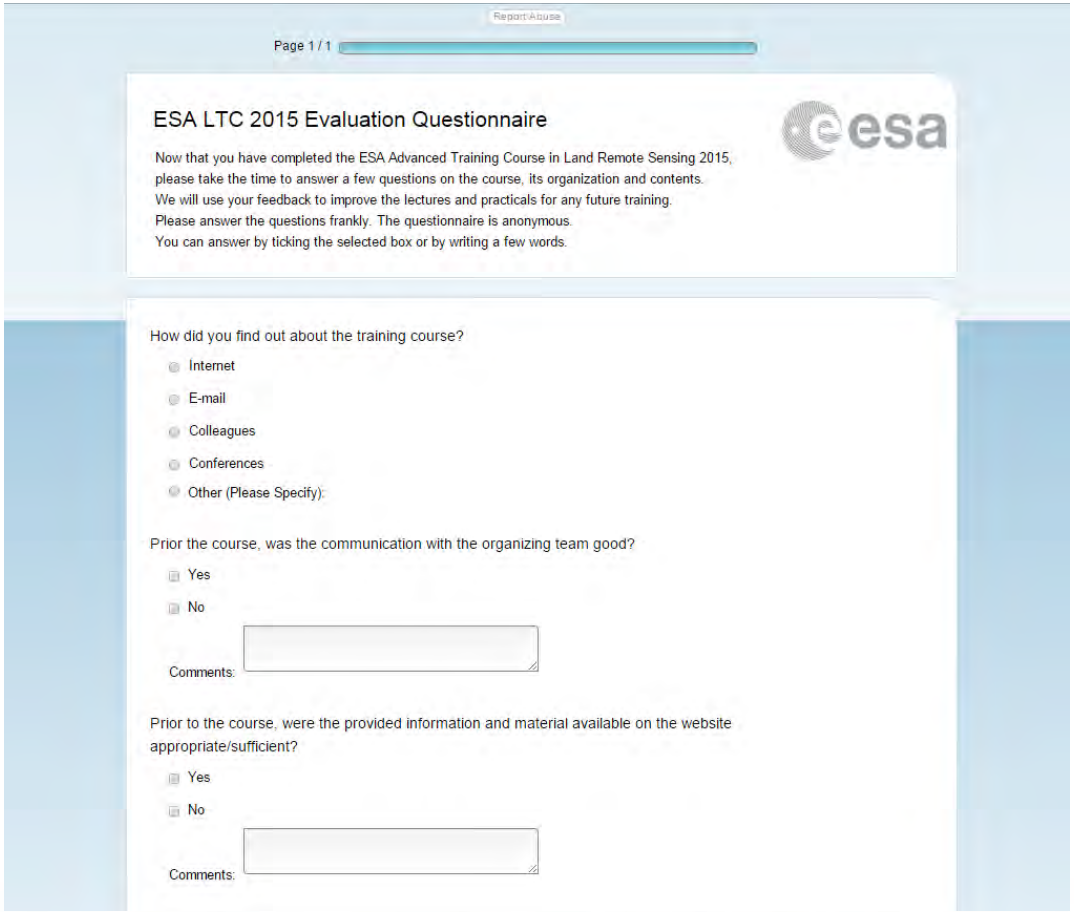
14–18 September 2015 | University of Agronomic Science and Veterinary Medicine Bucharest | Bucharest, Romania

Dr. Marius Ioan Piso
President and CEO
Romanian Space Agency

Dr. Razvan Ionut Teodorescu
Rector
University of Agronomic Science and Veterinary Medicine of Bucharest

Dr. Maurice Borgeaud
Head of Science, Applications & Future Technologies Department
Directorate of Earth Observation Programmes
European Space Agency

On-line Course Evaluation



Page 1 / 1

ESA LTC 2015 Evaluation Questionnaire

Now that you have completed the ESA Advanced Training Course in Land Remote Sensing 2015, please take the time to answer a few questions on the course, its organization and contents.
We will use your feedback to improve the lectures and practicals for any future training.
Please answer the questions frankly. The questionnaire is anonymous.
You can answer by ticking the selected box or by writing a few words.

How did you find out about the training course?

- Internet
- E-mail
- Colleagues
- Conferences
- Other (Please Specify):

Prior the course, was the communication with the organizing team good?

- Yes
- No

Comments:

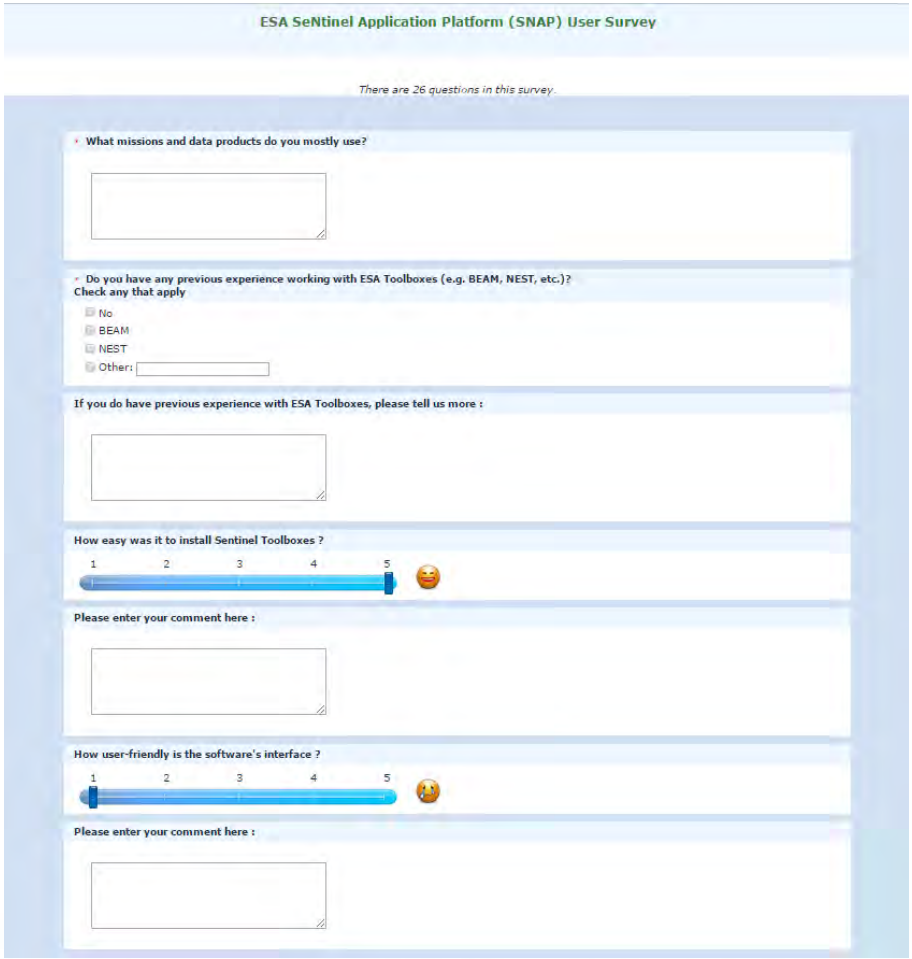
Prior to the course, were the provided information and material available on the website appropriate/sufficient?

- Yes
- No

Comments:

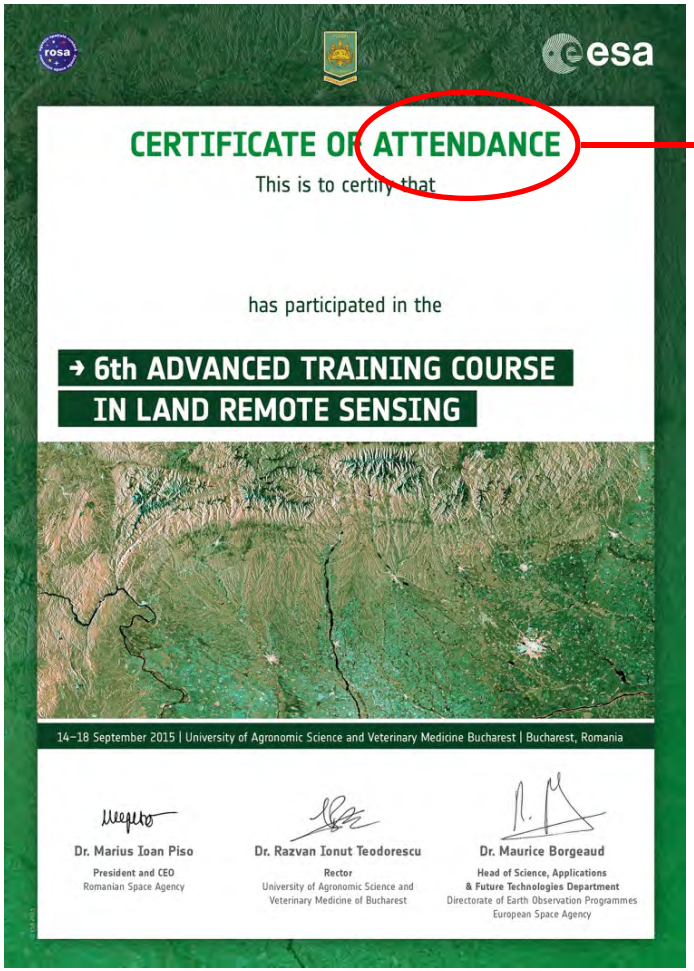
- To provide feedback to improve for future courses
- 10 minutes to complete
- The questionnaire is anonymous
- Link to website will be provided by email

On-line ESA Toolboxes Survey



- Provide feedback on the Sentinel Toolboxes
- Graphical User Interface friendliness
- Propose additional functionalities
- The questionnaire is anonymous
- Link to website will be provided by email

Certificate of Attendance



1. To get a certificate, attendance is mandatory for **all** lectures and practical classes
2. Not enough to attend one or two lectures or to pick and choose from the programme
3. Attendance lists will be in circulation
4. Certificates will be awarded during the closing ceremony **Friday 18 Sept. 2015**

Plus ECTS Credits from USAMV
(if required)

Badges

Colour coded:

- **Lectures – Blue**
- **Students – Green**
- **Guests – Red**
- **Organisers – Light brown**

Helps us to get to know each other's names

Please wear at all times while on site (guests of the University for the week)

WiFi Internet Access

IFIM-ETAJ1

PASS: ifim1234

Etaj2

PASS: ifim1234etaj2

Further Info

- Training **Course Material** updated on LTC2015 website (by end of September 2015)
- The **registration desk** will be open every day during coffee break in the morning for the whole week
- In case of **any need** please ask the organizing team (contact numbers provided in the welcome package)

We wish you a pleasant stay in Bucharest and a successful Training Course!