

Course Overview

Y.-L. Desnos¹, C. Stewart², I. Renis³

¹ EO Science, Applications and New Technologies Department
European Space Agency ESRIN, Frascati – ITALY

² RSAC c/o ESA-ESRIN

³ Serco c/o ESA-ESRIN

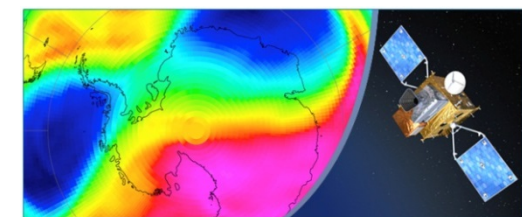
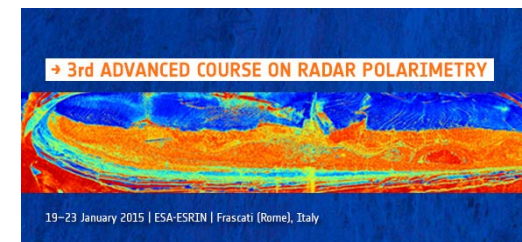
Context

ESA ADVANCED TRAINING COURSES

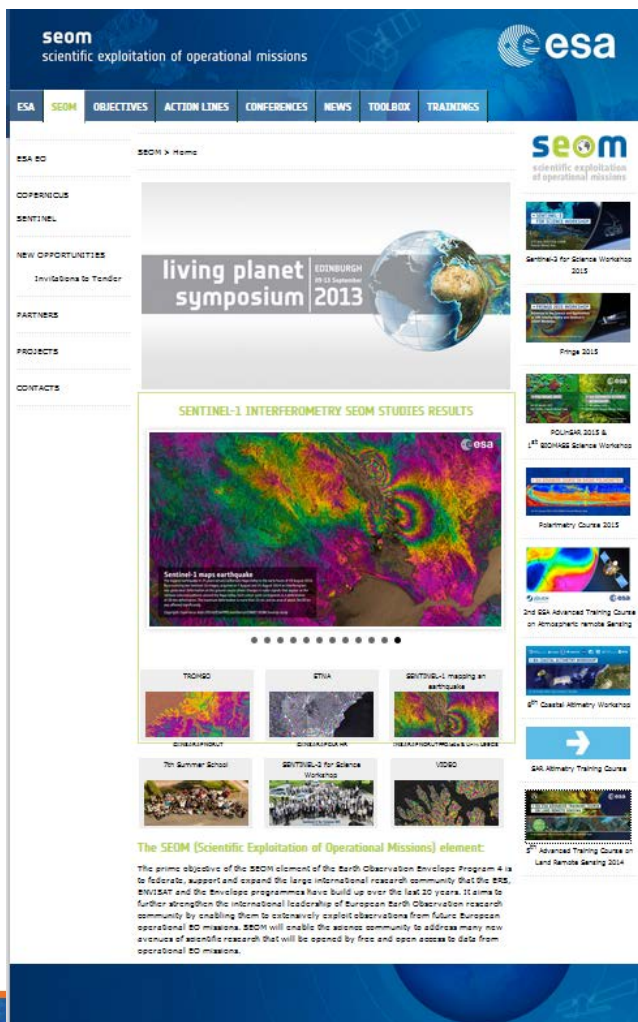
- Action of **SEOM** (Scientific Exploitation of Operational Missions) element of EOEP-4 program

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>



The screenshot shows the SEOM website homepage. At the top, there's a navigation bar with links for ESA, SEOM, OBJECTIVES, ACTION LINES, CONFERENCES, NEWS, TOOLBOX, and TRAININGS. Below this, a sidebar on the left lists various categories like COPERNICUS, SENTINEL, NEW OPPORTUNITIES, PARTNERS, PROJECTS, and CONTACTS. The main content area features a large banner for the 'living planet symposium 2013' in Edinburgh. Below the banner, there's a section titled 'SENTINEL-1 INTERFEROMETRY SEOM STUDIES RESULTS' showing a colorful satellite image. Further down, there are several smaller images and text blocks, including 'Sentinel-1 maps earthquake', 'TCHGO', 'STUA', 'SENTINEL-1 mapping an earthquake', 'SENTINEL-1 SAR', 'SENTINEL-1 SAR for Science Workshops', 'VODCO', and 'The SEOM (Scientific Exploitation of Operational Missions) element:'. The bottom section describes the SEOM element's objective: 'The prime objective of the SEOM element of the Earth Observation Envelope Program 4 is to federate, support and expand the large international research community that the ES, ENVISAT and the Envisat programme have built up over the last 20 years. It aims to further strengthen the international leadership of European Earth Observation research community by enabling them to extensively exploit observations from future European operational EO missions. SEOM will enable the science community to address many new avenues of scientific research that will be opened by free and open access to data from operational EO missions.'



The screenshot shows a page from the SEOM website dedicated to the '3rd Advanced Course on Radar Polarimetry'. The page has a blue header with the SEOM logo and navigation links for POLARIMETRY COURSE 2015, SEOM, and ESA. The main content area includes a 'HOME' link, a 'PROGRAMME' section, an 'ORGANISING COMMITTEE' section, an 'APPLICATION' section, 'DEADLINES', 'LINKS', 'VENUE / LOGISTICS', and 'CONTACT POINTS'. A large image shows a satellite in orbit with the text '→ 3rd ADVANCED COURSE ON RADAR POLARIMETRY' overlaid. Below the image, it says '19-23 January 2015 | ESA-ESRIN | Frascati (Rome), Italy'. A 'Background' section follows, explaining that the course is part of the SEOM programme element, organized by ESA to train the next generation of Earth Observation (EO) scientists. It mentions that post-graduate, PhD students, post-doctoral research scientists, and users from European countries and Canada are invited to apply. Research scientists and students from other countries are also welcome. No participation fees are charged, but participants are expected to cover their own travel and accommodation expenses. The official language of the training course is English. An 'Objectives' section lists the main objectives of the course: to train the next generation of European and Canadian Principal Investigators (PIs); to explain theoretical principles, processing algorithms, data products and their use in applications; to introduce available tools and methods for the exploitation of dual polarization and fully polarimetric data; and to provide first-hand and up-to-date information on the state of the art in Radar Polarimetry and Polarimetric SAR Interferometry.

The Organizing Committee

- Yves Louis Desnos (ESA)
- Chris Stewart (RSAC c/o ESA)
- Irene Renis (Serco c/o ESA)
- Kris Lemmens (ESA)

The Training Team: SAR Lecturers

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

Prof. Laurent Ferro-Famil – *University of Rennes 1, France*

Dr. Stefano Tebaldini – *POLIMI, Italy*

Prof. Irena Hajnsek – *DLR, Germany*

Mr. Chris Stewart – *RSAC Ltd c/o ESA, Italy*

The Training Team: Mission Presentations

Dr. Klaus Scipal – *ESA, Netherlands*

Dr. Malcolm Davidson – *ESA, Netherlands*

Dr. Masanobu Shimada – *JAXA, Japan*

Dr. Scott Hensley – *NASA, JPL*

The Training Team: PolSAR Ap Presentations

Dr. Matteo Pardini – *DLR, Germany*

Dr. Carlos Lopez-Martinez – *UPC, Spain*

Dr. Maurizio Migliaccio – *University of Naples, Italy*

Dr. Elise Koeniguer – *ONERA, France*

Dr. Kostas Papathanassiou – *DLR, Germany*

The Training Team: Keynote Speaker

Prof. Wolfgang-Martin Boerner – *Professor Emeritus and Director, UIC-ECE Communications, Sensing & Navi. Labs., USA*

The participants

Countries	24
EU-ESA Member State	15
Non-ESA Member State	9

66 Selected Participants

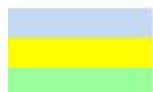
Male	40
Female	26

Gender

Post-doc researcher	23
PhD Student	30
MSc	9
MSc Candidate	4

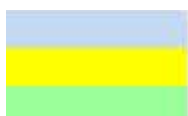
Education Level

Programme



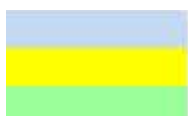
Presentation
Theory Session
Practical Session

	Monday 19 DAY 1	Tuesday 20 DAY 2	Wednesday 21 DAY 3	Thursday 22 DAY 4	Friday 23 Day 5
9:30 - 9:00	Registration	SENTINEL-1 Mission Yves-Louis Desnos	BIOMASS Mission Klaus Scholp (ESA, Netherlands)	SAOCOM CS Mission and ESA Airborne Campaign Data Malcolm Davidson (ESA, Netherlands) (08:30-09:15)	PoISAR App Intro Dr. Matteo Pardini (DLR, Germany) (08:30 - 09:45)
9:00 - 09:30	Course Intro. & organisation Yves-Louis Desnos (ESA)				PoISAR App Theory Dr. Carlos Lopez-Martinez (UPC, Spain) (08:45 - 09:15)
09:30 - 10:30	PoISAR Basic Concepts Prof. Eric Pottier (University of Rennes, France)	PoISAR Advanced Concepts Prof. Eric Pottier	Pol-TomSAR Intro & Basics Prof. Laurent Ferro-Famil (University of Rennes 1, France) and Dr. Stefano Tebaldini (POLIMI, Italy)	PoISAR - Surface Parameters Estimation Intro & Basic Prof. Irena Hajnsek (DLR, Germany)	PoISAR App Ocean Prof. Maurizio Migliaccio, (University of Napoli, Italy) (09:15 - 09:45)
10:30 - 11:00	Coffee Break				Coffee Break (10:15 - 10:45)
11:00 - 12:00	PoISAR Basic Concepts Prof. Eric Pottier	PoISAR Advanced Concepts Prof. Eric Pottier	Pol-TomSAR Advanced Concepts Prof. Laurent Ferro-Famil and Dr. Stefano Tebaldini	PoISAR - Surface Parameters Estimation Advanced Concepts Prof. Irena Hajnsek	PoISAR App Urban Dr. Elise Koeniguer, (ONERA, France) (10:45 - 11:15)
12:00 - 13:00					PoISAR App Forest Dr. Kostas Papathanassiou, (DLR, Germany) (11:15 - 11:45)
13:00 - 14:00	Lunch				PoISAR App Agriculture and Wetlands Dr. Carlos Lopez-Martinez (UPC, Spain) (11:45 - 12:15)
14:00 - 15:30	PoISARpro Overview Prof. Eric Pottier and Chris Stewart (RSAC d/o ESA)	PoISARpro and Sentinel-1 Toolbox Prof. Eric Pottier and Chris Stewart	Pol-TomSAR Practical Forest Characterisation Prof. Laurent Ferro-Famil and Dr. Stefano Tebaldini	PoISAR Practical Surface Parameters Estimation Prof. Irena Hajnsek Prof. Eric Pottier	ALOS-2 PALSAR-2 Dr. Masanobu Shimoda (JAXA, Japan) (12:15 - 13:00)
15:30 - 16:00	Coffee Break				New Missions
16:00 - 17:30	PoISARpro Practical Basics Prof. Eric Pottier and Chris Stewart	PoISARpro and Sentinel-1 Toolbox Prof. Eric Pottier and Chris Stewart	Pol-TomSAR Practical Forest Characterisation Prof. Laurent Ferro-Famil and Dr. Stefano Tebaldini	PoISAR Practical Surface Parameters Estimation Prof. Irena Hajnsek Prof. Eric Pottier	UAV-SAR Dr. Scott Hensley (NASA, JPL) (14:00 - 14:45)
	Welcome Cocktail (17:30 - 19:30)				Keynote address Dr. Wolfgang-Martin Boerner Professor Emeritus and Director UIIC-EEC Communications, Sensing & Nov. Labs (14:45 - 16:15)
	Social Dinner in Frascati (not hosted)				Closing Session (16:15 - 16:45)



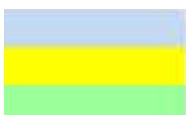
Presentation
Theory Session
Practical Session

	Monday 19 DAY 1
8:30 - 9:00	Registration
9:00 - 09:30	Course intro. & organisation <i>Yves-Louis Desnos (ESA)</i>
09:30 - 10:30	PolSAR Basic Concepts <i>Prof. Eric Pottier (University of Rennes, France)</i>
10:30 - 11:00	Coffee Break
11:00 - 13:00	PolSAR Basic Concepts <i>Prof. Eric Pottier</i>
13:00 - 14:00	Lunch
14:00 - 15:30	PolSARpro Overview <i>Prof. Eric Pottier and Chris Stewart (RSAC c/o ESA)</i>
15:30 - 16:00	Coffee Break
16:00 - 17:30	PolSARpro Practical Basics <i>Prof. Eric Pottier and Chris Stewart</i>
	Welcome Cocktail (17:30 - 19:30)



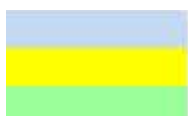
Presentation
Theory Session
Practical Session

	Tuesday 20 DAY 2
8:30 - 9:00	SENTINEL-1 Mission <i>Yves-Louis Desnos</i>
9:00 - 10:30	PolSAR Advanced Concepts <i>Prof. Eric Pottier</i>
10:30 - 11:00	Coffee Break
11:00 - 13:00	PolSAR Advanced Concepts <i>Prof. Eric Pottier</i>
13:00 - 14:00	Lunch
14:00 - 15:30	PolSARpro and Sentinel-1 Toolbox <i>Prof. Eric Pottier and Chris Stewart</i>
15:30 - 16:00	Coffee Break
16:00 - 17:30	PolSARpro and Sentinel-1 Toolbox <i>Prof. Eric Pottier and Chris Stewart</i>



Presentation
Theory Session
Practical Session

	Wednesday 21 DAY 3
8:30 - 9:00	BIOMASS Mission <i>Klaus Schipal (ESA, Netherlands)</i>
9:00 - 10:30	Pol-TomSAR Intro & Basics <i>Prof. Laurent Ferro-Famil (University of Rennes 1, France) and Dr. Stefano Tebaldini (POLIMI, Italy)</i>
10:30 - 11:00	Coffee Break
11:00 - 13:00	Pol-TomSAR Advanced Concepts <i>Prof. Laurent Ferro-Famil and Dr. Stefano Tebaldini</i>
13:00 - 14:00	Lunch
14:00 - 15:30	Pol-TomSAR Practical Forest Characterisation <i>Prof. Laurent Ferro-Famil and Dr. Stefano Tebaldini</i>
15:30 - 16:00	Coffee Break
16:00 - 17:30	Pol-TomSAR Practical Forest Characterisation <i>Prof. Laurent Ferro-Famil and Dr. Stefano Tebaldini</i>



Presentation
Theory Session
Practical Session

	Thursday 22 DAY 4
8:30 - 9:00	SAOCOM CS Mission and ESA Airborne Campaign Data <i>Malcolm Davidson (ESA, Netherlands)</i> (08:30-09:15)
9:00 - 10:30	PolSAR - Surface Parameters Estimation Intro & Basic <i>Prof. Irena Hajnsek (DLR, Germany)</i>
10:30 - 11:00	Coffee Break
11:00 - 13:00	PolSAR - Surface Parameters Estimation Advanced Concepts <i>Prof. Irena Hajnsek</i>
13:00 - 14:00	Lunch
14:00 - 15:30	PolSAR Practical Surface Parameters Estimation <i>Prof. Irena Hajnsek Prof. Eric Pottier</i>
15:30 - 16:00	Coffee Break
16:00 - 17:30	PolSAR Practical Surface Parameters Estimation <i>Prof. Irena Hajnsek Prof. Eric Pottier</i>

Presentation
Theory Session
Practical Session

Friday 23 Day 5	
PolSAR App presentations	PolSAR App intro <i>Dr. Matteo Pardini (DLR, Germany)</i> (08:30 - 08:45)
	PolSAR App Theory <i>Dr Carlos Lopez-Martinez (UPC, Spain)</i> (08:45 - 09:15)
	PolSAR App Ocean <i>Prof. Maurizio Migliaccio, (University of Napoli, Italy)</i> (09:15 - 09:45)
	PolSAR App Cryosphere <i>Dr. Matteo Pardini</i> (09:45 - 10:15)
Coffee Break (10:15 - 10:45)	
PolSAR App presentations	PolSAR App Urban <i>Dr. Elise Koeniguer, (ONERA, France)</i> (10:45 - 11:15)
	PolSAR App Forest <i>Dr. Kostas Papathanassiou, (DLR, Germany)</i> (11:15 - 11:45)
	PolSAR App Agriculture and Wetlands <i>Dr Carlos Lopez-Martinez (UPC, Spain)</i> (11:45 - 12:15)
New Missions	ALOS-2 PALSAR-2 <i>Dr Masanobu Shimada (JAXA, Japan)</i> (12:15 - 13:00)
Lunch	
New Missions	UAV-SAR <i>Dr. Scott Hensley (NASA, JPL)</i> (14:00 - 14:45)
Future perspective on Radar Polarimetry and its Applications	Keynote address <i>Dr. Wolfgang-Martin Boerner</i> <i>Professor Emeritus and Director</i> <i>UIC-ECE Communications, Sensing & Nav. Labs</i> (14:45 - 16:15)
Closing Session (16:15 - 16:45)	

Social events

- **Welcome Cocktail** will be held on Monday 19 January from 17:30 to 19:30 in the Canteen.
- **Not-hosted Social Dinner** on Thursday 22 January from 19:30 at “La Vecchia Frasca” restaurant, Via Don G. Buttarelli 12, Frascati.
 - Cost of the dinner: 30 €.
 - Should you wish to participate in this social event, please confirm and buy your voucher at the Registration Desk during the coffee break of Day 1 (Monday 19 January).

Certificate of Attendance



→ 3rd ADVANCED COURSE ON RADAR POLARIMETRY

This is to certify that

participated and completed successfully the 3rd advanced course on Radar Polarimetry
19–23 January 2015 | ESA-ESRIN | Frascati (Rome), Italy



Yves-Louis Desnos
Head of Research and Development Section & Senior Advisor
Science, Applications and Future Technologies Department

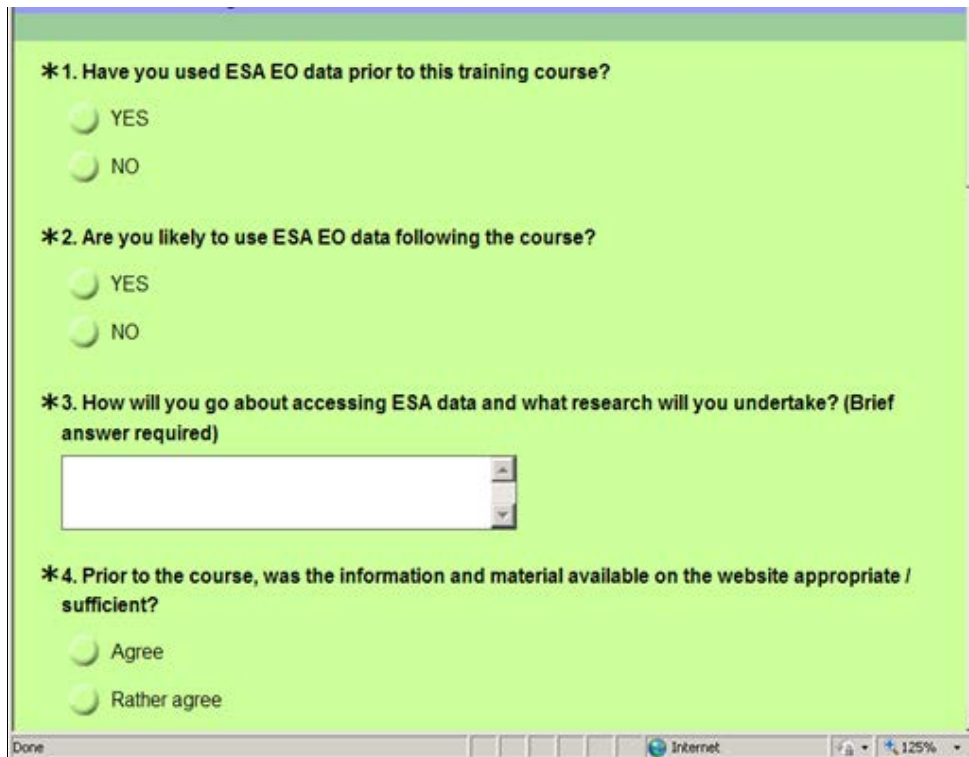


Prof. Eric Pottier
University of Rennes 1
Head Director, Institute of Electronics and Telecommunications of Rennes

European Space Agency

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 **Fri 23 January 2015**

On-line Course Evaluation

A screenshot of a web browser displaying an online course evaluation form. The form has a light green background and contains four questions. Questions 1 and 2 are multiple-choice with radio buttons. Question 3 is a short-answer question with a text box. Question 4 is a multiple-choice question with radio buttons. The browser's address bar shows 'Internet' and the zoom level is set to 125%.

*1. Have you used ESA EO data prior to this training course?

☐ YES

☐ NO

*2. Are you likely to use ESA EO data following the course?

☐ YES

☐ NO

*3. How will you go about accessing ESA data and what research will you undertake? (Brief answer required)

*4. Prior to the course, was the information and material available on the website appropriate / sufficient?

☐ Agree

☐ Rather agree

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

Welcome package

3rd Advanced Course on Radar Polarimetry

ESRIN, Frascati - Italy, 19 – 23 January 2015

Dear Participant,

Welcome to Frascati! In this Welcome Package you will find logistical details regarding the course as well as some useful information on both the Frascati and Rome areas that we hope will ensure your stay here as pleasant as possible.

Registration

Registration for the **3rd Advanced Course on Radar Polarimetry** will take place on Monday 19 January 2015 at the Registration Desk of Building 14, from 08:30 to 09:00.

Lectures and Practicals

The lectures and practical classes will be held in the Big Hall, Building 14.

- Bag
- USB
- Notebook
- Pen

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

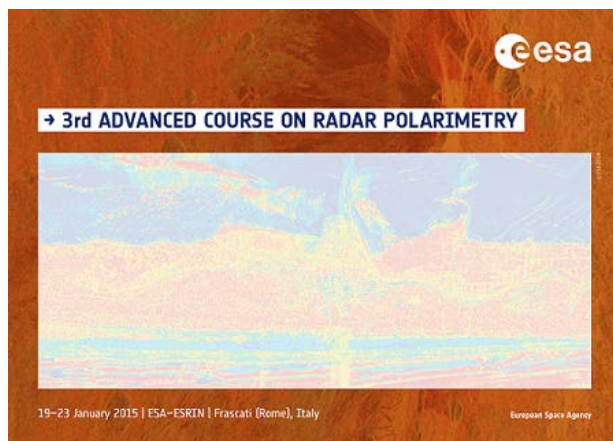
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Not-hosted Social Dinner on Thursday 22 January 2015 from 19:30 at "La Vecchia Frasca" restaurant, Via Don G. Buttarelli 12, Frascati. Cost of the dinner: 30 €.

Should you wish to participate in this social event, please confirm and buy your voucher at the Registration Desk during the coffee break of Day 1 (Monday 19 January 2015).

Taxi

Badges

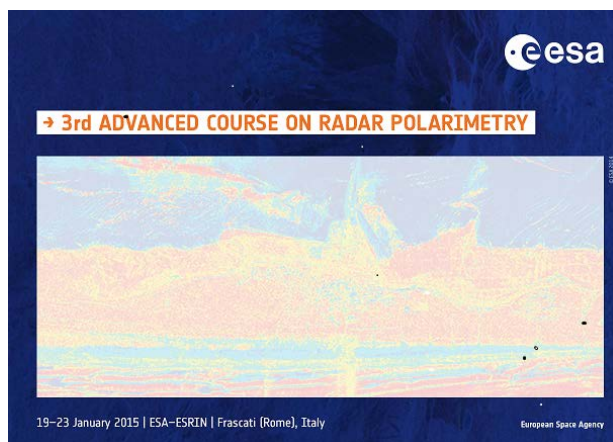


Colour coded:

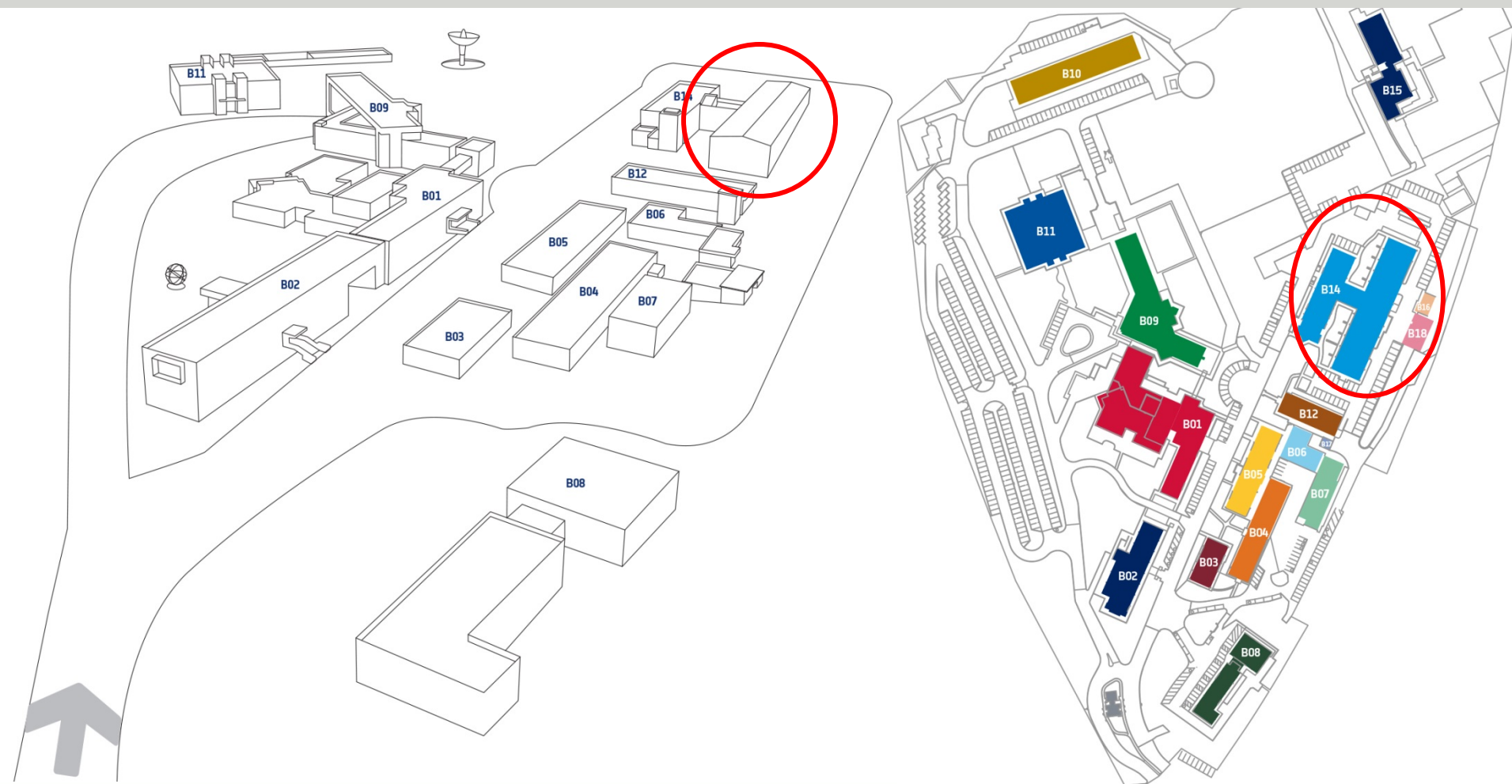
- Lecturers – orange
- Trainees – blue

Helps us to get to know each other's names

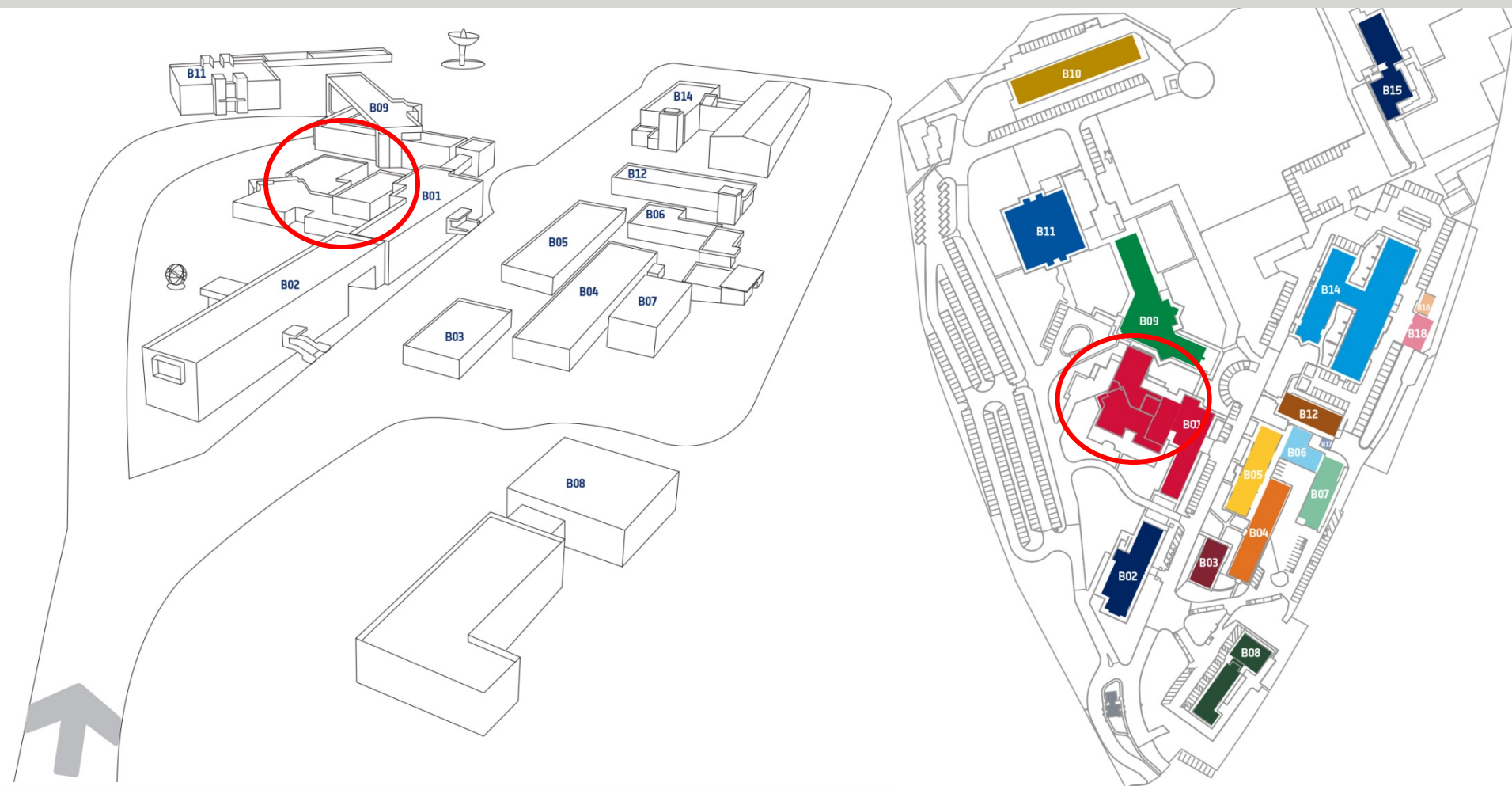
Please wear at all times while on site



Location of training



Location of Canteen



Directory structure on computers and pendrives

- In folder C:\3Polarimetry\
 - Data
 - Presentations
 - Software
 - Programme
 - Welcome Pack

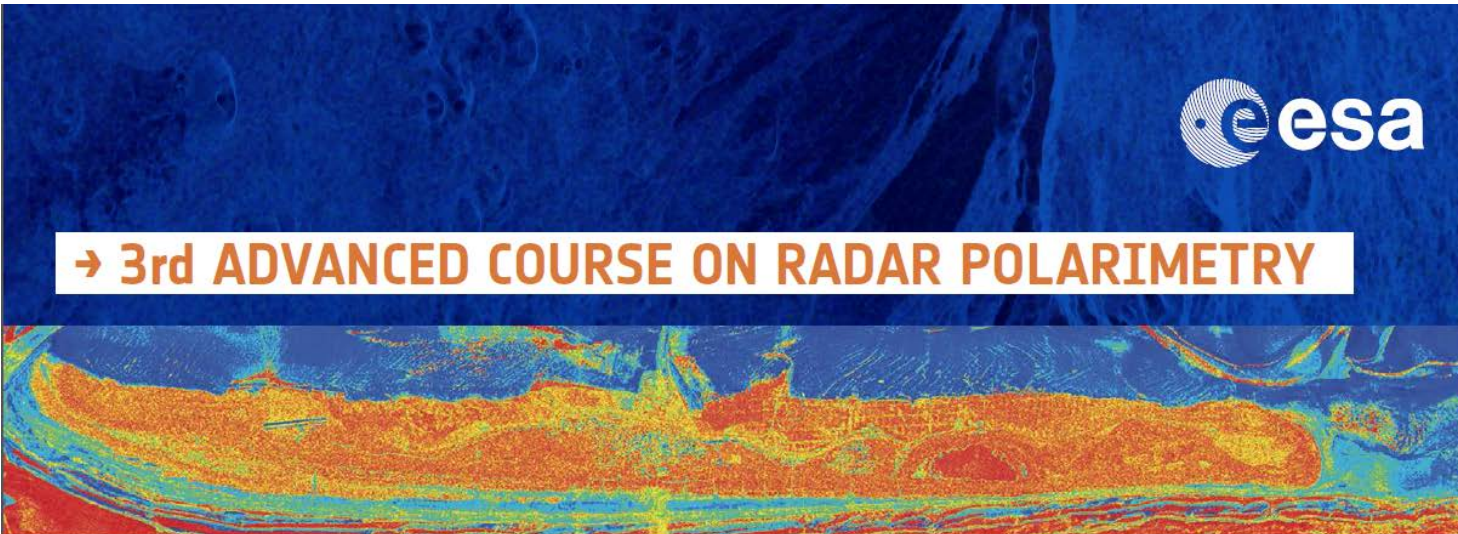
Internet Access


- LAN (desktop PCs)
- Wifi (those with own computer)
- No web surfing or checking mail during course!!

Further Info

- Training **course material** updated on website following course
- In case of **any need** please ask the organizing team

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

A horizontal strip of a radar polarimetry image, showing a landscape with varying colors (blue, green, yellow, orange, red) representing different surface properties. The image is framed by a dark blue background.

The ESA logo, consisting of a stylized circular emblem with a dot in the center, followed by the lowercase letters 'esa'.

→ 3rd ADVANCED COURSE ON RADAR POLARIMETRY

19–23 January 2015 | ESA ESIRIN | Frascati (Rome), Italy

www.esa.int

European Space Agency