

ESA/CONAE L/C/X band SAR TRAINING COURSE in Argentina

12th - 17th
November, 2018
Buenos Aires, Argentina

General Information

- ❖ The main objective of this course is to promote amongst the participants the use of SAR images in different areas of application relevant to Argentina.
- ❖ It is oriented to researchers or professionals, preferably, with scientific-technical training experience, such as Engineers, Physicists, Geographers, Agronomists, Biologists, just to name a few.
- ❖ The course program ranges from a general introduction in SAR theory to the synergy between the different bands (L/C/X) for the development of applications.



Course Content

❖ Topics to be developed:

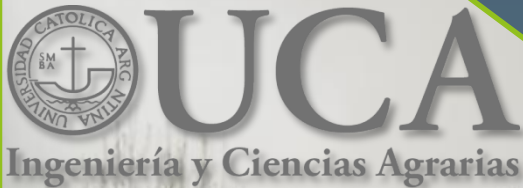
- SAR introduction and applications
- Introduction to existing and forthcoming SAR missions in L, C & X band.
- SAR Thematic Application to Forestry, Agriculture and Land Use
- Applications to Ground deformation (tectonics, volcanology and subsidence).
- Change detection with SAR and related applications. Disaster mapping .
- SAR Application for Snow Mapping.
- Surface Motion on Glaciers and Ice Sheets

❖ Lecturers:

- • Francesco Sarti (ESA)
- • Christiane Schmillius (University of Jena, Germany)
- • Daniele Perissin (Purdue University, USA)
- • Helmut Rott (University of Innsbruck, Austria)
- • Armando Marino (University of Stirling, UK)
- • Amalia Castro Gomez (ESA)



Meeting Venue



Av. Alicia Moreau de Justo
1500 & 1600
Puerto Madero
C.A.B.A.

Information: curso.SAR@conae.gov.ar

Considerations to arrive by car:

- Access to campus area is only through Chile Av. and Venezuela street.
- Parking facilities are not available at the campus.

Consideration to travel by public buses and subway:

- For public transportation a boarding card is needed: SUBE. It can be acquired at some "Kiosco" (candy & cigarette store)



Meeting Venue



UCA

Ingeniería y Ciencias Agrarias

Lectures will be held at:
San José Building
Av. Alicia Moreau de Justo 1600 (at the corner)
Room: 204

Instructions:
In main hall, (to your left) take elevators to 2nd floor then (to your right) find room 204.

Important: Badge will be required to enter the building.



Meeting Venue



UCA

Ingeniería y Ciencias Agrarias

**Tutorials will be held at:
San Alberto Magno building –
Facultad de Ingeniería y Ciencias Agrarias**

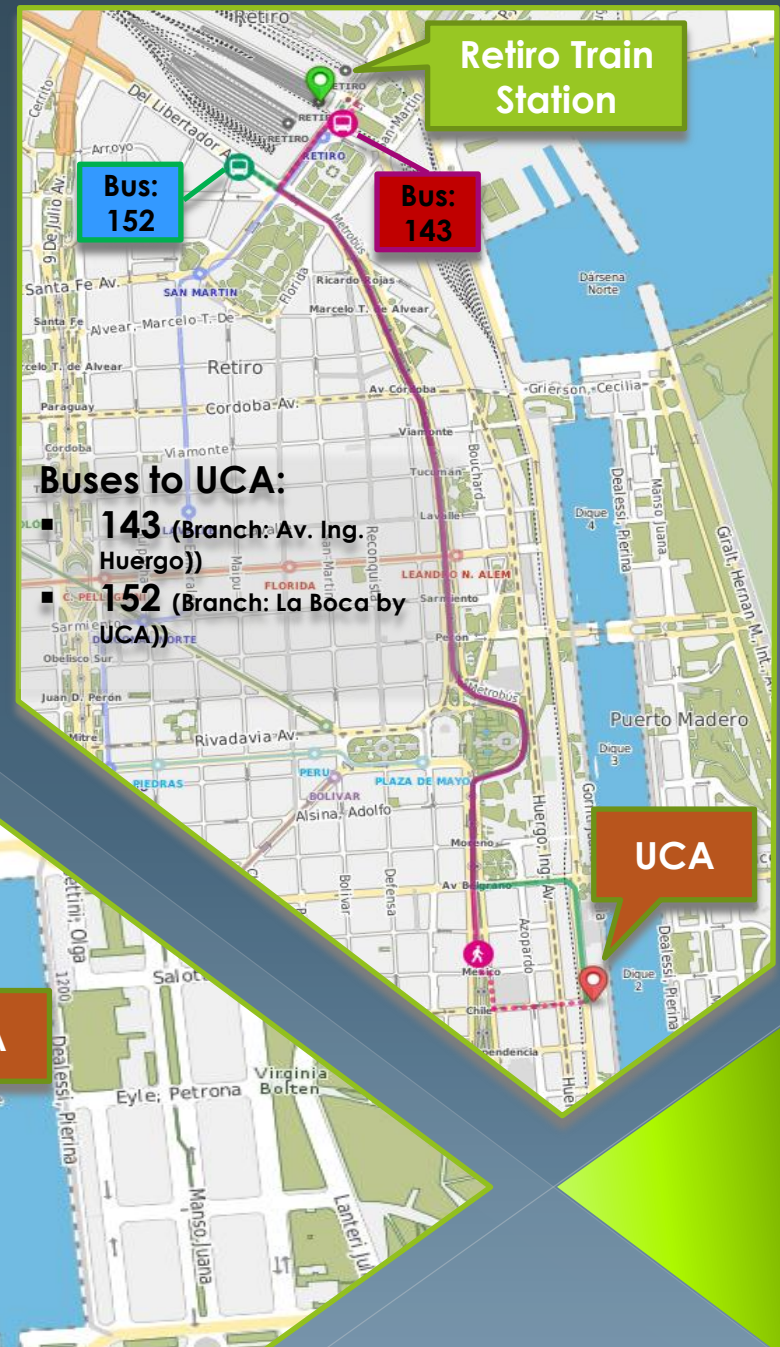
**Av. Alicia Moreau de Justo 1500
Lab: 360**

**Instructions:
In main hall, take elevators to 3rd floor**



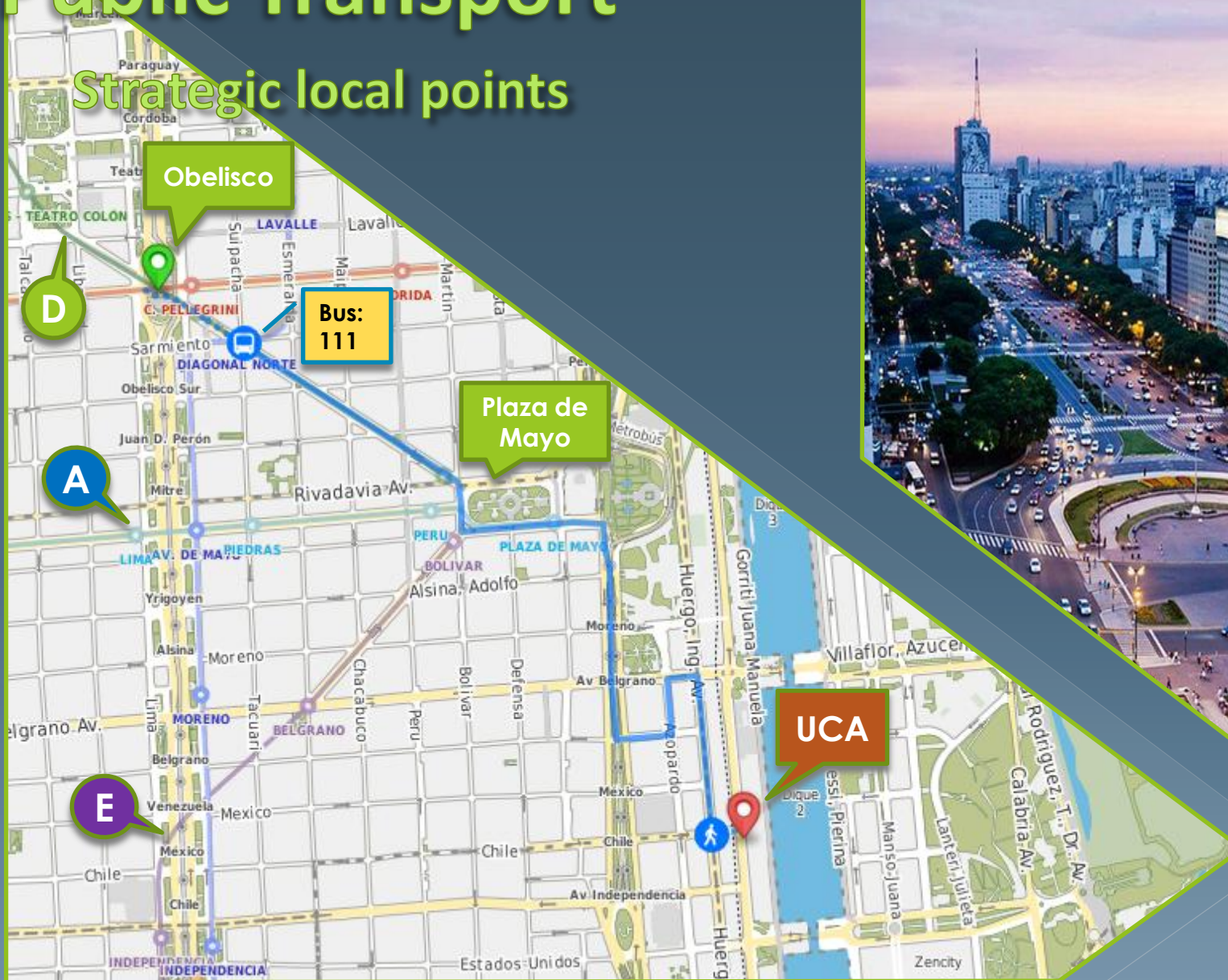
Public Transport

Strategic local points



Public Transport

Strategic local points



Agenda at a Glance

Monday, Nov. 12	
	Activity
08:30 – 08:45	Registration
08:45 – 09:00	Welcome Representatives/Authorities of SGCTIP, CONAE , UCA & ESA
09:00 – 10:30	<u>ESA and TPM radar missions. Data Access. Educational tools in SAR</u> F. Sarti
10:30 – 10:45	Coffee Break
10:45 – 12:30	<u>SAR Introduction</u> C. Schmillius
12:30 – 13:30	Lunch Break (Not included)
13:30 – 15:00	<u>SAR introduction (continuation) and applications. Potential & examples in the different bands</u> C. Schmillius
15:00 – 15:15	Coffee Break
15:15 – 18:00	<u>Exercises: SAR for forestry</u> <u>Exercises: SAR for Crop Monitoring</u> A. Castro Gomez / C. Schmillius Software: SNAP
	Ice Breaker

Theory
Practical

Agenda at a Glance

Tuesday, Nov. 13	
	Activity
08:30 – 10:30	<u>SAR Thematic Application to Forestry, Agriculture and Land Use (with potential & examples in the different bands)</u> C. Schmallius
10:30 – 10:45	Coffee Break
10:45 – 12:30	(continuation)
12:30 – 13:30	Lunch Break (Not included)
13:30 – 15:00	<u>Reminders of InSAR. SBAS, PS.</u> <u>Applications to Ground deformation (tectonics, volcanology and subsidence including those related to extraction/pumping) Potential & examples in the different bands</u> D. Perissin
15:00 – 15:15	Coffee Break
15:15 – 18:00	<u>Exercise 3: Interferometry</u> <u>Exercises 4: Multi-temporal Interferometry (small areas)</u> D. Perissin / A. Castro Gomez Software: SARPROZ, SNAP
	Presentation of SAOCOM by CONAE (time TBD)

Theory
Practical

Agenda at a Glance

Wednesday, Nov. 14

	Activity
08:30 – 10:30	<u>Change detection with SAR and related applications. Disaster mapping. Potential & examples in the different bands</u> D. Perissin
10:30 – 10:45	Coffee Break
10:45 – 12:30	(continuation)
12:30 – 13:30	Lunch Break (Not included)
13:30 – 15:00	<u>Exercises 5: Multi-temporal Interferometry (large areas)</u> D. Perissin / A. Castro Gomez Software: SARPROZ, SNAP
15:00 – 15:15	Coffee Break
15:15 – 18:00	(continuation)

Theory
Practical

Agenda at a Glance

Thursday, Nov. 15

	Activity
08:30 – 10:30	<p><u>Lecture 1: Radar signal interaction with Snow and Ice.</u></p> <p><u>Lecture 2: SAR Application for Snow Mapping</u></p> <p>H. Rott</p>
10:30 – 10:45	Coffee Break
10:45 – 12:30	<p><u>Exercise 1: Mapping snowmelt area with S1 and comparison with optical snow products</u></p> <p>H. Rott/ A. Castro Gomez</p> <p>Software: SNAP, QGIS</p>
12:30 – 13:30	Lunch Break (Not included)
13:30 – 15:00	<p><u>Lectures 3: Interferometric Coherence and Signals of Snow and Ice.</u></p> <p><u>Lecture 4: Surface Motion on Glaciers and Ice Sheets by InSAR and Offset Tracking.</u></p> <p><u>Lecture 5: SAR Applications to Monitoring Mass Balance and Dynamics of Glaciers and Ice Streams</u></p> <p>H. Rott</p>
15:00 – 15:15	Coffee Break
15:15 – 18:00	<p><u>Exercise 2: Use of single-pass InSAR for topography products and application for retrieving glacier volume and mass balance</u></p> <p>H. Rott/ A. Castro Gomez</p> <p>Software: SNAP, QGIS</p>

Theory
Practical

Agenda at a Glance

Friday, Nov. 16	
	Activity
08:30 – 10:30	<u>Exercise 3:</u> <u>Generating maps of ice motion with L-band SAR data (PALSAR), and synergy with C-band (S1) and X-band (TSX)</u> H. Rott/ A. Castro Gomez Software: SNAP, QGIS
10:30 – 10:45	Coffee Break
10:45 – 12:30	(continuation)
12:30 – 13:30	Lunch Break (Not included)
13:30 – 15:00	<u>Reminders of PolinSAR and related applications</u> A. Marino
15:00 – 15:15	Coffee Break
15:15 – 18:00	<u>Exercise: Polarimetry for Ship detection</u> A. Marino/ A. Castro Gomez Software: SNAP, PolSARpro, Python

Theory
Practical

Agenda at a Glance

Saturday, Nov. 17

	Activity
08:30 – 10:30	<u>Extension of polarimetry section (1h theory, 1h exercise)</u> A. Marino/ A. Castro Gomez Software: SNAP, PolSARpro, Python
10:30 – 10:45	Coffee Break
10:45 – 12:30	Wrap-up, discussion, Q&A A. Marino
12:30 – 13:30	End of lectures Lunch Break (Not included)
13:30 – 14:30	Feedback collection. Presentation of certificates
14:30 – 15:00	Representatives/Authorities of SGCTIP, CONAE , UCA & ESA

Theory

Practical