

SUMMER SCHOOL SARDINIA 2023



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UNIVERSITÀ DEGLI STUDI DI SASSARI



UNIVERSITÀ DI PAVIA
Dipartimento di
Scienze della Terra
e dell'Ambiente



'Structural analysis of migmatites and their surroundings'



with the patronage of:



Organization:

Leonardo Casini, Matteo Maino

General information

The Sardinia Summer School (19-22 June 2023) is a 4-days event supported by the University of Sassari, University of Pavia and University of Cagliari under the patronage of the Italian Group of Structural Geology (GIGS), a section of the Italian Geological Society (SGI). Registration is open to 26 participants and the cost is 270 euro. The fees cover the guidebook of the field trips, accommodation in bungalows (3 to 5 places each) at the camping La Lìccia [Camping La Lìccia - Google Maps](#) (the costs of accommodation include bed sheets, towels, tourist fees, and final room cleaning) plus breakfast and dinner. All the transfers by minivan are also included. The weather in north Sardinia in late June is usually hot and dry and the vegetation is typical Mediterranean scrub, so it is highly recommended to wear comfortable and robust clothes, as well as hat & sunscreen. The outcrops are easily accessible by dirt roads and tracks and require minimal hiking attitude. It is highly recommended to bring the usual fieldwork equipment (notebook, a lens, backpack, light trekking shoes). The first- and second-days trips run close to some of the most spectacular beaches of the central Mediterranean, so don't forget your swimsuits!

Scientific program

The program of the school focuses on field structural analysis of migmatites, HT-HP metamorphic complexes and plutons. The main topics that will be addressed by lectures on world-class case studies and practical activities include: i) strategies and common pitfalls in designing geochronological or geochemical studies using accessory minerals, ii) the non-linear feedbacks between rheology, fluids and metamorphism, iii) rates of tectonic and metamorphic processes, and iv) the relationships between crustal reworking and metallogenesis.

Lecturers:

*Leonardo Casini¹, Alfredo Idini¹, Stefania Corvo², Antonio Langone², Francesco Secchi¹, Silvio Ferrero⁴
Stefano Naitza⁴, Chiara Amadori², Ausonio Ronchi²*

Field trip leaders:

Matteo Maino^{2,3}, Leonardo Casini¹, Ausonio Ronchi², Marcello Franceschelli⁴, Gabriele Cruciani⁴

¹University of Sassari, Department of Chemistry, Physics, Mathematics and Natural Sciences

²University of Pavia, Department of Earth Sciences

⁴University of Cagliari, Department of Chemistry and Geology

Aknowledgements

The school is scientifically supported by the Italian Group of Structural Geology (GIGS), a section of the Italian Geological Society (SGI).

DETAILED PROGRAM:

Day 1 (19 June 2023):

9:00 meeting of the participants in Porto Torres (SS), Piazza Dogana (coordinates 40.83873679401962, 8.401019433623729), coffee at 'Bar Pasticceria Cristallo' https://www.google.it/maps/place/Bar+Pasticceria+Cristallo/@40.8385033,8.4011362,15z/data=!4m2!3m1!1s0x0:0x76440da6104b001c?sa=X&ved=2ahUKEwjzpvR-YX-AhWH7aQKHWMNA-YQ_BJ6BAheEAg

9:30 field trip through the post-Variscan late Palaeozoic and early Mesozoic sedimentary basin of Porto Ferro-Cala Viola (NW Sardinia)

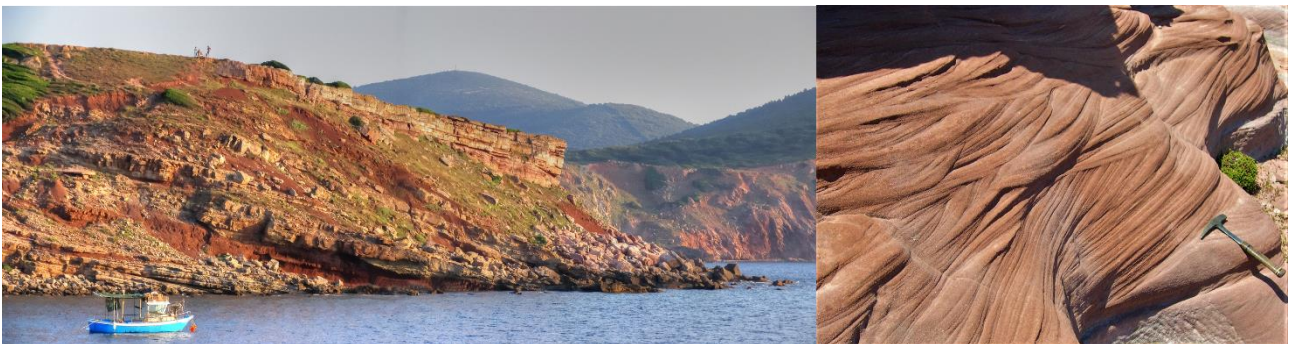
The late Palaeozoic-early Mesozoic succession of the Nurra region (NW Sardinia) was deposited on the Variscan crystalline basement and is represented by continental lower-middle Permian alluvial sediments evolving into continental-to-shallow marine Triassic deposits with the classic Germanic facies (Buntsandstein, Muschelkalk and Keuper Auct.).

Aim of this trip is to analyze the stratigraphic framework, unconformities and sedimentary features of lower-middle Permian and Early-Middle Triassic (Buntsandstein) fluvial deposits that are superbly exposed along the north-western coast between Cala Viola and Torre del Porticciolo. The architecture of different alluvial deposits, paleontological sites and the complex multiphase tectonics will be observed in key outcrops along the rocky coast.

10:00 - 12:30 Torre del Porticciolo outcrops

12:30 – 14:00 Lunch (Porto Ferro beach)

14:00 – 16:30 Continuation of field trip to Cala Viola



Torre del Porticciolo bay

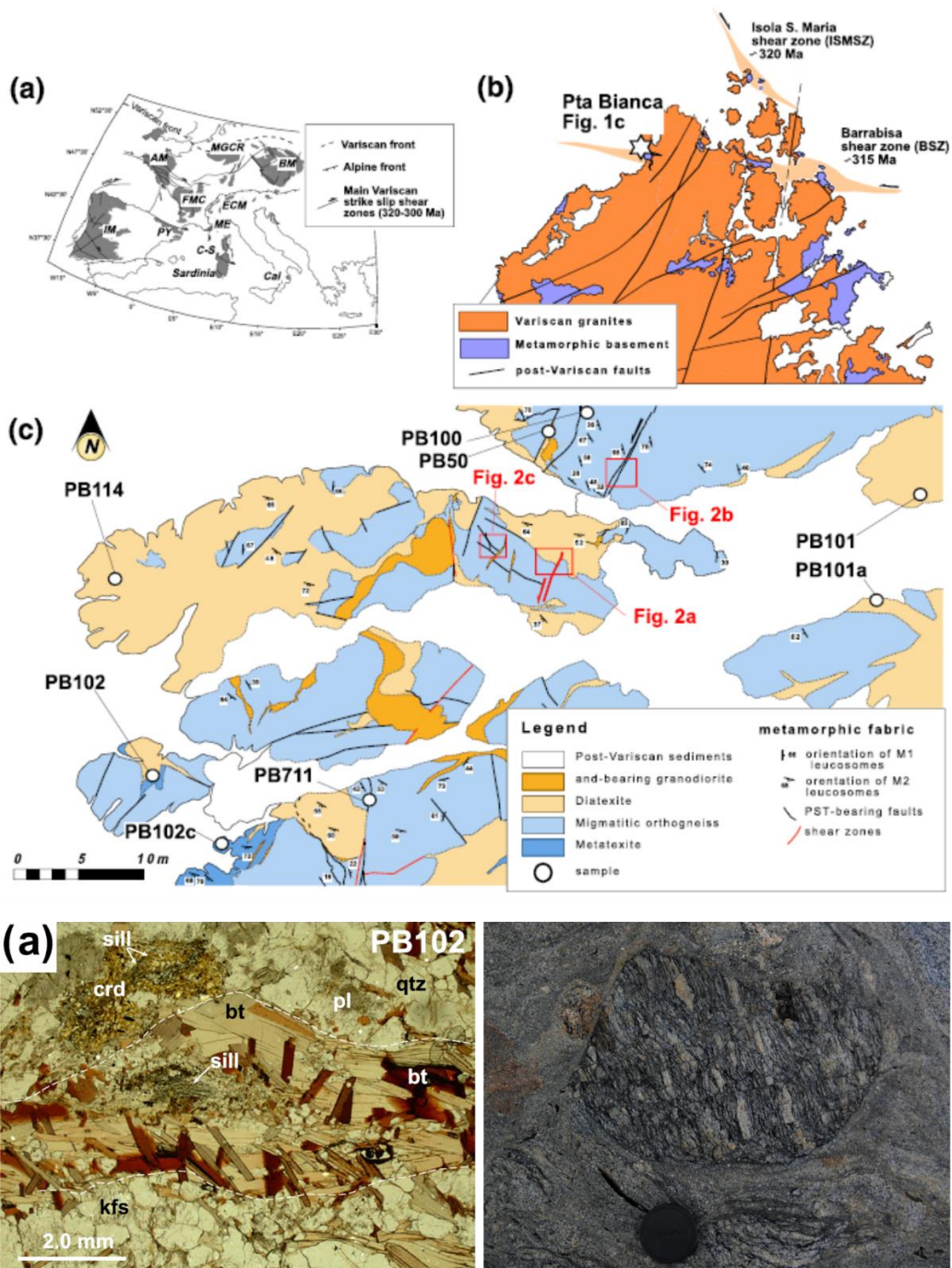
Day 2 (20 June 2023):

Lectures:

9:00 prof. Leonardo Casini: 'The Variscan chain of Sardinia'

9:30 prof. Leonardo Casini: 'Geology of the Punta Bianca Migmatitic Complex'

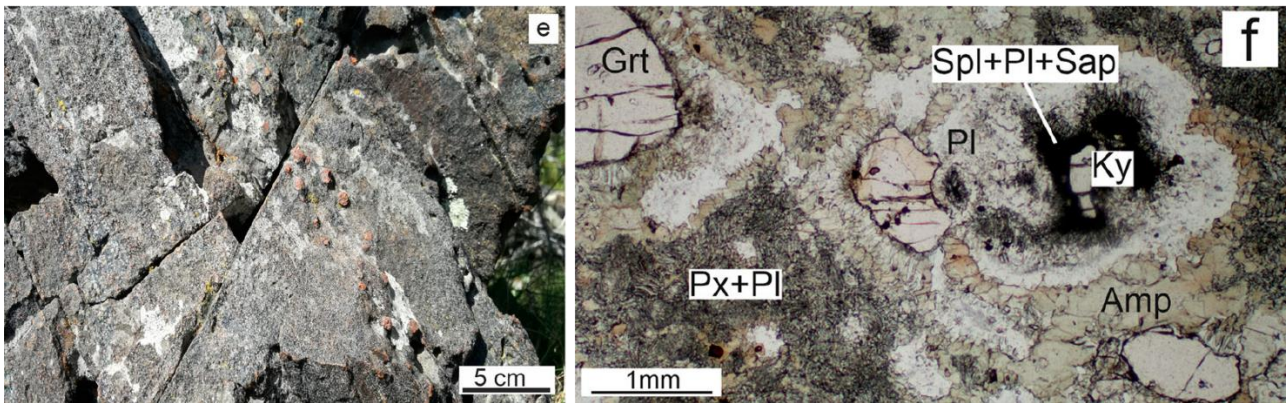
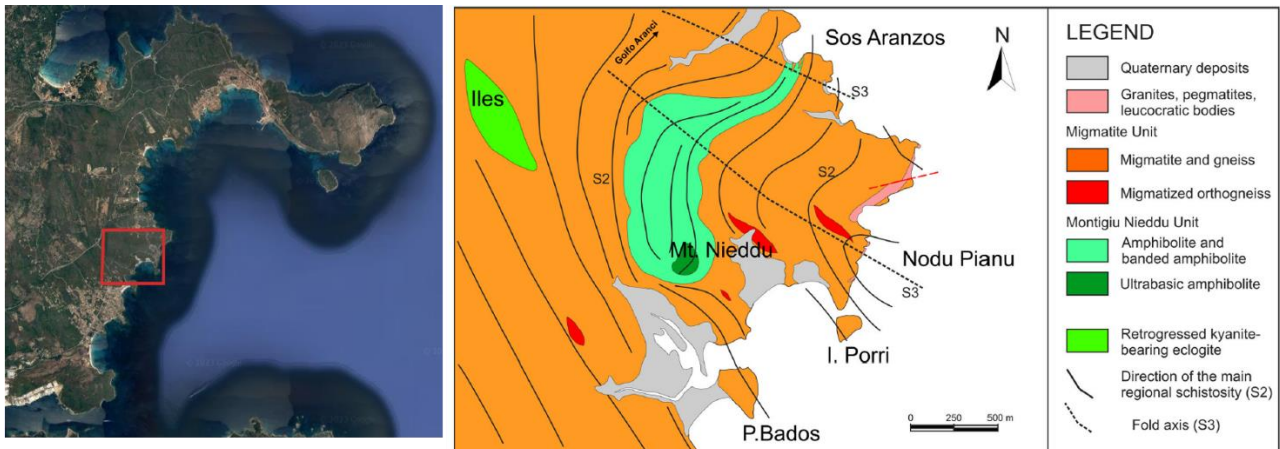
10:30 Field trip to the Punta Bianca Migmatitic Complex



Modified from Casini et al. (2023) – *Journal of Metamorphic Geology*

Day 3 (21 June 2023):

9:00 Field trip to the P.to Ottiolu and Pittulongu-Montiggiu Nieddu metamorphic complexes (NE Sardinia)



Modified from Cruciani et al. (2020) – Journal of Maps

Day 4 (22 June 2023):

Lectures:

9:00 prof. Silvio Ferrero: 'Fluid and melt inclusions in migmatites'

10:00 prof. Antonio Langone: 'Geochronology and petrochronology of high temperature events in the middle/low continental crust'

11:00 Dr. Alfredo Idini: 'The behaviour of geochemical twins in migmatites and anatectic melts – examples from Variscan Sardinia'

11:30 prof. Stefano Naitza: 'A review of metallogenesis in the Variscan crust of Sardinia'

12:30 Dr. Stefania Corvò: 'Microstructural analysis by SEM-EBSD applied to middle/low continental crustal rocks'

13:30 lunch

14:30 prof. Ausonio Ronchi: 'Post-orogenic evolution of the Variscan chain: sedimentary processes, and biological record'

15:15 Dr. Chiara Amadori: 'Exhumation rates of metamorphic rocks: insights from low-T thermochronology'

16:15 Final remarks and return to Porto Torres (eventual stop at the Olbia airport upon request)