The Geogarden of the University Roma Tre: creation of a prototype of a Geological Garden of Lazio for the dissemination of Geological Sciences in Rome

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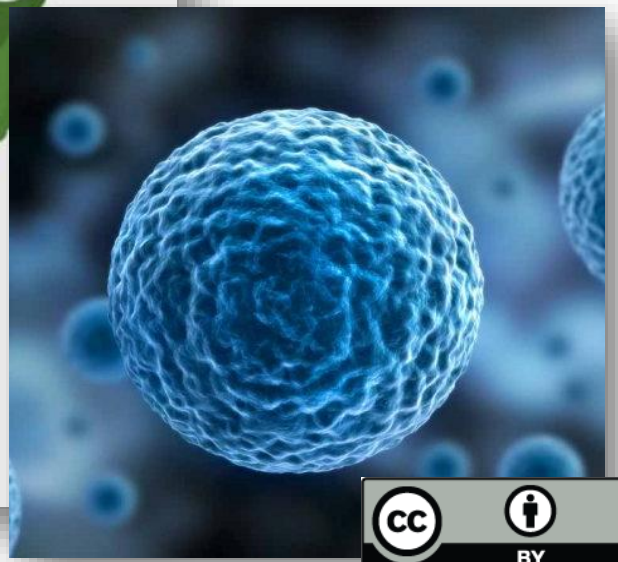
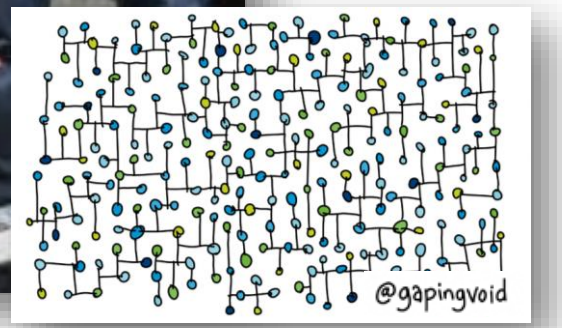
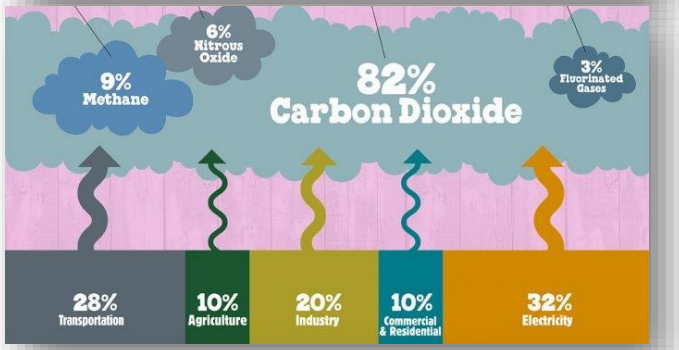
Between 2017 and 2019, a prototype of a geological garden for the dissemination of Geological Sciences to the general public was created in the open-air spaces of the Department of Sciences of the Roma Tre University. This first nucleus is the result of a Citizen Science activity carried out by students of the High Schools of Rome and its province, conceived and guided by a group of University researchers and high school teachers, in collaboration with local institutions and some mining companies operating in the surroundings of Rome. Currently the prototype consists of six large rock samples representative of lithotypes cropping out in the Roman Campaign and in the nearby Central Apennines that allow to tell the evolution of the territory surrounding the city of Rome since about 15 Ma ago, with particular reference to the history of the Roman countryside in the Quaternary period. Guided tours for schools and a general public and events popularizing scientific culture at various scales have represented the main dissemination activities carried out so far. Currently the garden is being expanded and integrated with numerous plant species representative of the botanical heritage of the Lazio region.

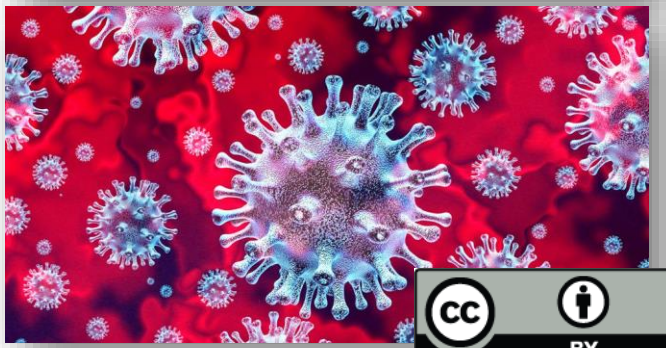
GAIA_Earth as a living organism



Challanges







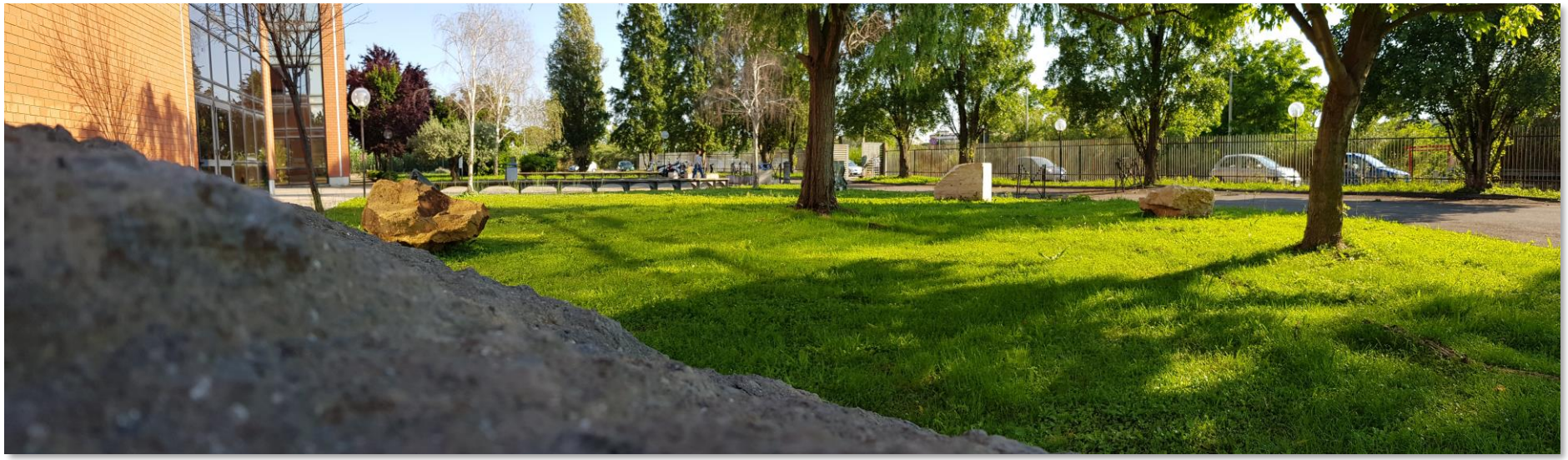
Where do we put our feet?

Project goals

1. To build an open-air archive of rocks for educational purposes for students (from primary school to university) and citizens to learn the basics of Geology and Lithogenesis

Third Mission at Roma tre University

2. Developing for High School students the complete chain from the observation of nature to its scientific knowledge and dissemination, learning/teaching the "craft" of the scientific disseminator of Geology



3. Involve the operators in the mining sector of the Municipality of Rome to enhance the mining activity and places of activity as site of geological interest

4. Raising the awareness of university researchers on the importance of transferring scientific knowledge to non-experts

5. Raising the awareness of the city's population to the geological heritage of Rome and its surroundings and to the evolution of this territory

The Actors

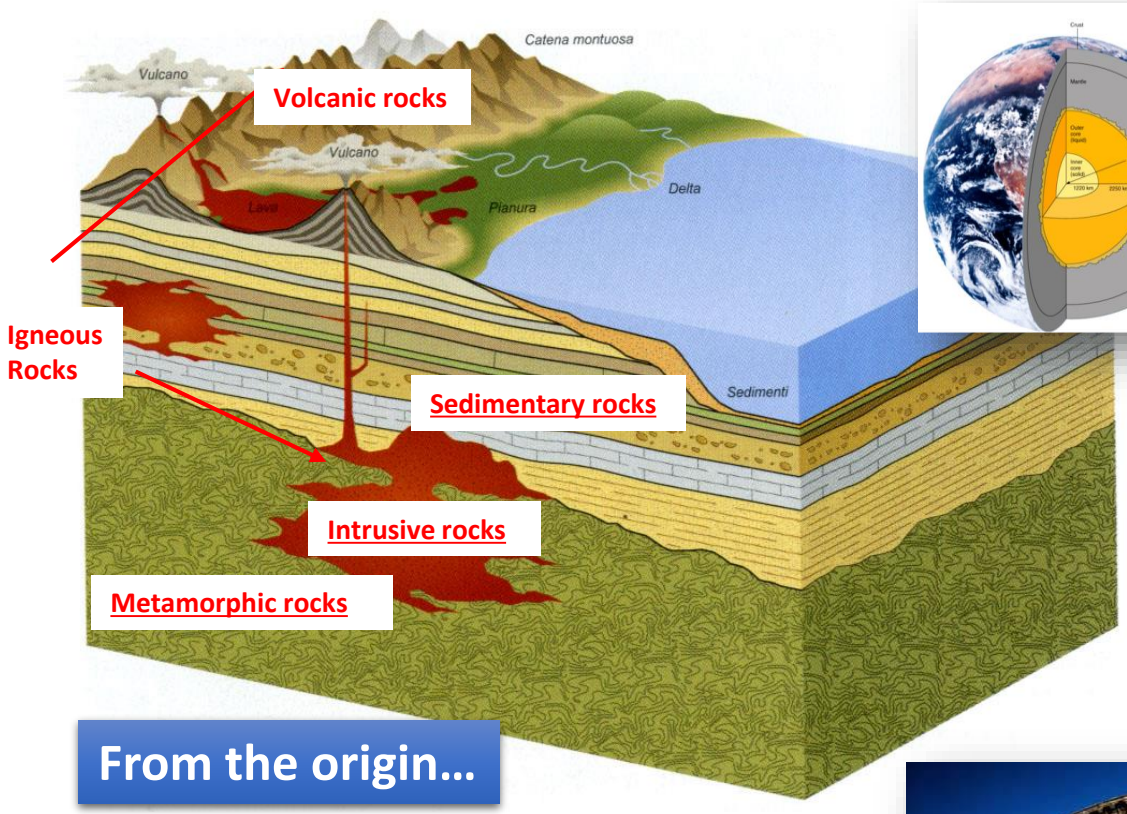
Schools

University

Companies

Municipality

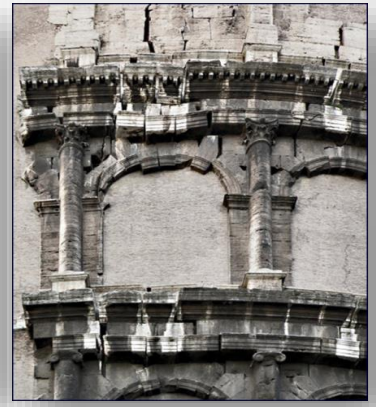
Main contents to disseminate



From the origin…

…to exploitation and past/present use..

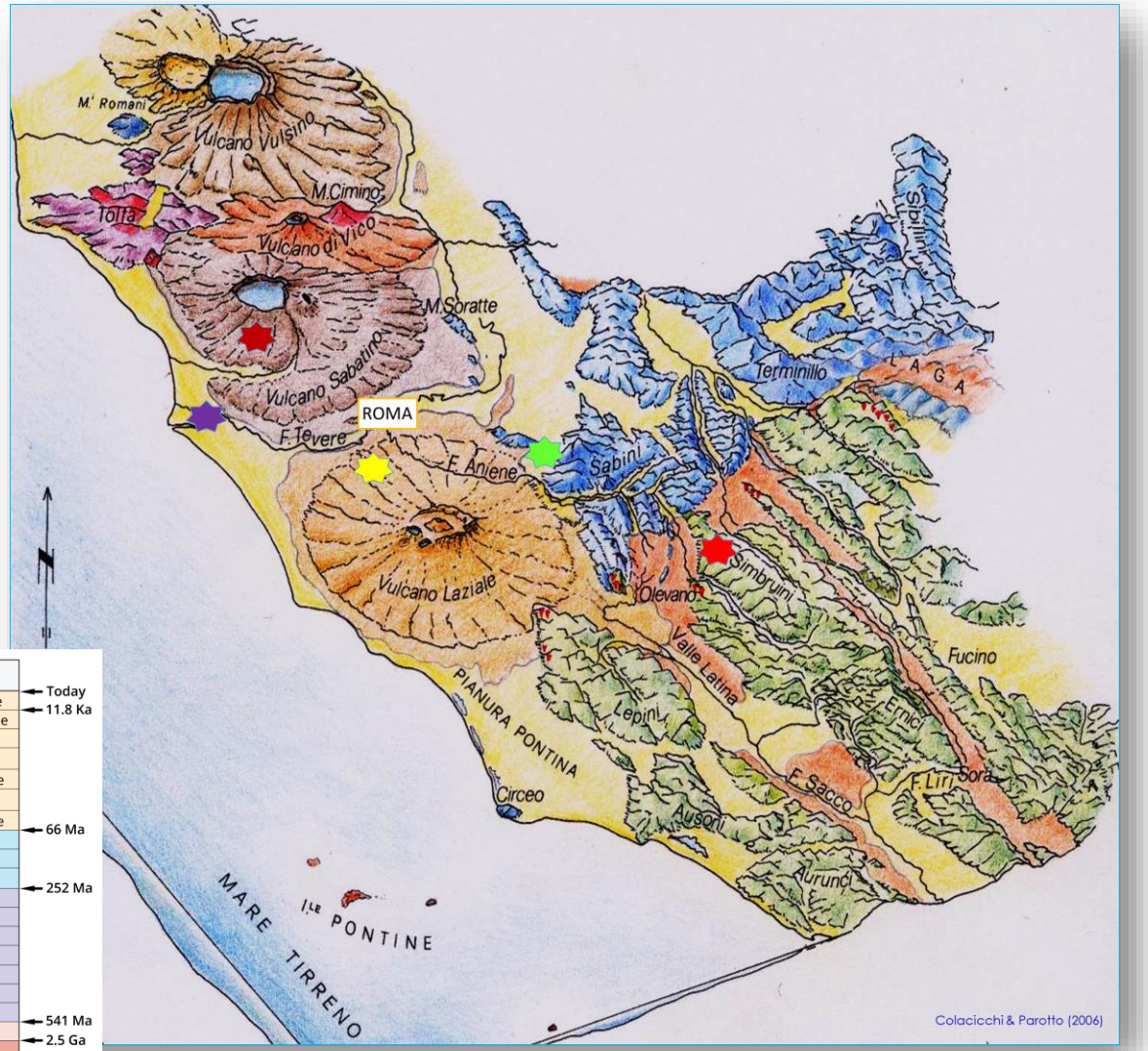
..to preservation



Sperone (volcanics)

Aswan Granite

Main contents to disseminate



Eon	Era	Period	Epoch	
Phanerozoic	Cenozoic	Quaternary	Holocene	Today
			Pleistocene	11.8 Ka
		Neogene	Pliocene	
			Miocene	
		Paleogene	Oligocene	
			Eocene	
			Paleocene	66 Ma
	Mesozoic	Cretaceous	~	
		Jurassic	~	
		Triassic	~	252 Ma
	Paleozoic	Permian	~	
		Carboniferous: Pennsylvanian	~	
		Carboniferous: Mississippian	~	
		Devonian	~	
		Silurian	~	
		Ordovician	~	
		Cambrian	~	541 Ma
Proterozoic	~	~	~	2.5 Ga
Archean	~	~	~	4.0 Ga
Hadean	~	~	~	4.54 Ga

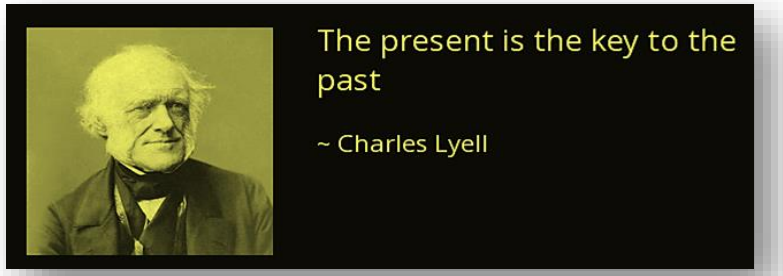
Younger ↑ Older

The story we tell is that of the Geology of the region Latium through time using our «Monoliths» (provenance areas with coloured stars)

Main lithogenetic environments of Latium are represented in the GeoGarden: from Mesozoic seas, Pleistocene volcanoes, pull apart basins Pleistocene travertines, Pleistocene paleo-delta of the the Tiber, the river of Rome!

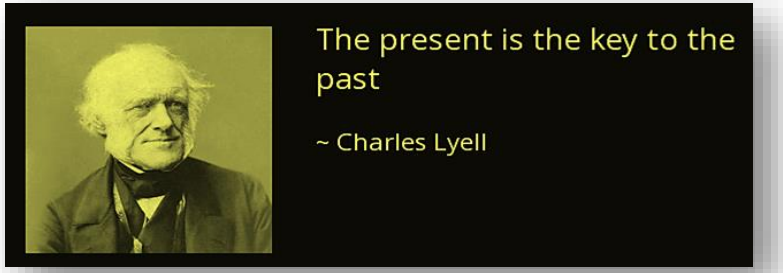
The GeoGarden at «Roma Tre»

Main contents to disseminate



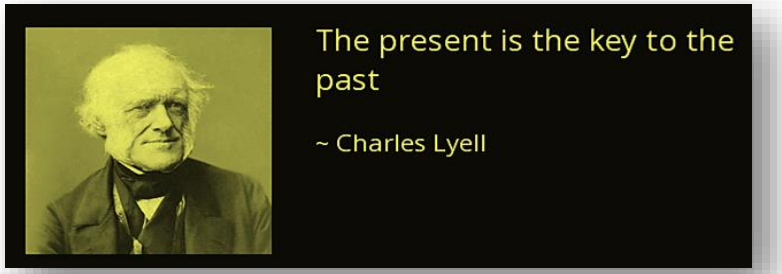
Mesozoic seas of Tethys

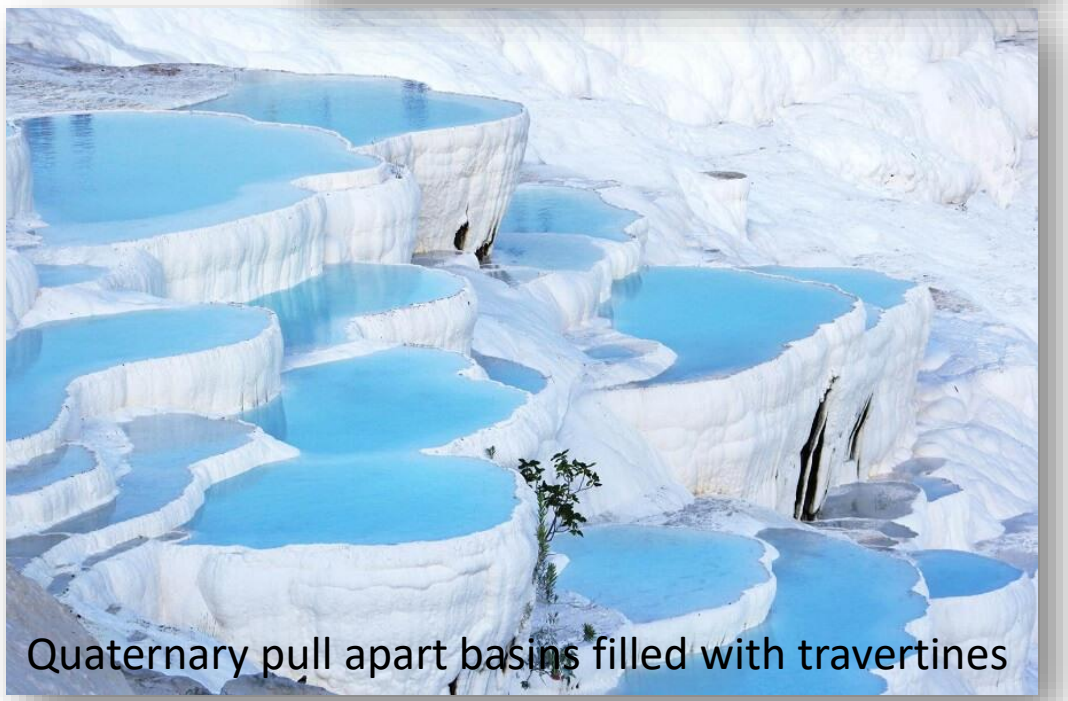
Main contents to disseminate



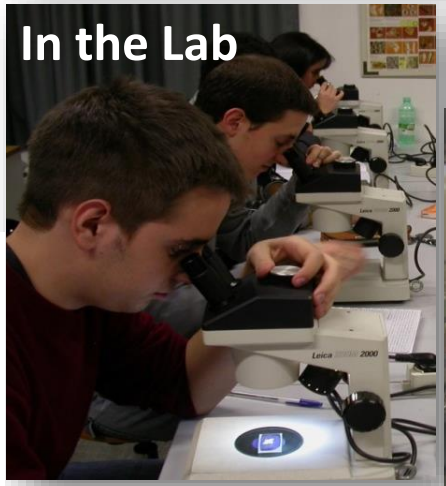
Quaternary peri-Tyrrhenian volcanoes

Main contents to disseminate





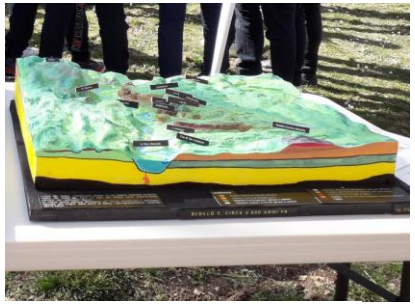
The starting experience during the Academic Year 2017-18



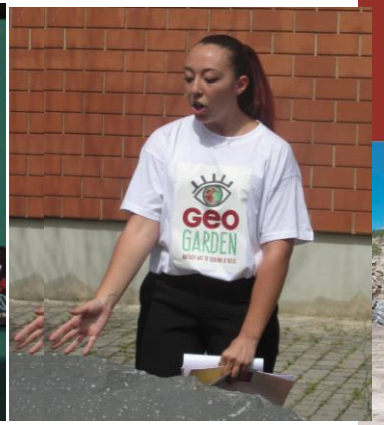
The dissemination experience led by students

- Guided tours
- Night of European Reseachers
- Week of Planet Earth
- Local and national dissemination events

The dissemination experiece led by researchers



Socials, gadgets, brochures



Papers and descriptive sheets


GEOGARDEN

ANOTHER WAY OF LOOKING AT THE ROCKS

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Prof.ssa Associata Dipartimento di Scienze Roma Tre

Marina Fabbri
Geologo, libero professionista

Nel 2018 nasce a "Roma Tre" un giardino un po' speciale: il primo Geogarden del Lazio! Un giardino al cui interno sono stati inseriti alcuni monoliti di rocce sedimentarie e vulcaniche, provenienti da diverse cave ubicate nella campagna intorno a Roma e nei rilievi calcarei del vicino Appennino. Il Geogarden, ubicato all'interno della sede del Dipartimento di Scienze dell'Università "Roma Tre", in Largo San Leonardo Murialdo 1, prende origine da una collaborazione, nell'ambito di un progetto di Alternanza Scuola Lavoro, coordinato da alcuni docenti di Geologia del Dipartimento, con quattro licei dell'area laziale - primo tra tutti il Liceo "E. Montale" di Roma - l'Assessorato alla Sostenibilità di Roma Capitale e cinque aziende che operano nel settore estrattivo del Lazio, che hanno gentilmente donato i monoliti esposti nel giardino. Attualmente sono cinque i monoliti, riportati in figura 1, rappresentativi delle seguenti rocce:

Calcarenite a Briozoi e Litotamni del MIOCENE (Langhiano p.p.-Serravalliano p.p.), proveniente dalla Cava SO.GE.MA in località Riofreddo (RM).
L'area della cava di provenienza del monolite è ubicata nel settore settentrionale dei Monti Simbruini, costituiti da una potente successione sedimentaria meso-cenozoica in facies di piattaforma carbonatica, ricca di fauna e flora caratteristiche di mari caldi e poco profondi. Questa roccia è rappresentativa di una sedimentazione di rampa carbonatica, sviluppatasi in Italia centrale su un fondale a debole pendenza su cui si deponevano, appunto, sabbie calcaree. In tale ambiente proliferavano alghe calcaree, invertebrati di vario tipo (tra gli altri, echinidi, pettinidi, gasteropodi) e organismi coloniali a guscio carbonatico, i briozoi. La calcarenite appare nel complesso

Travertino del PLEISTOCENE SUPERIORE - OLOCENE proveniente da una cava gestita dal Centro per la Valorizzazione del Travertino Romano, con sede a Guidonia (RM).
Il monolite è costituito da un calcare di origine chimica, un travertino d'aspetto massivo e struttura da compatta a concrezionale, marcata da allineamenti di vacuoli distribuiti in bande centimetriche. L'area di estrazione si trova all'interno del Bacino della Acque Albule, ubicato nella media Valle del Fiume Aniene, una depressione morfologica di recente formazione, avente un'estensione di circa 30 km². I depositi di travertino, che si sono formati per deposizione di CaCO3 a

Vulcanite del PLEISTOCENE MEDIO proveniente dalla Cava di Porta Medaglia a

L'unità piroclastica si [illegible] caotico, litoide [illegible] alla zeolitizzazione, [illegible] a matrice [illegible] abbondanti [illegible] grigia di alcuni [illegible], a pomici porose. [illegible] minori dimensioni. [illegible] sono costituiti prevalentemente da frammenti lavici e subordinatamente da aggregati olocristallini (ricchi in clinopirosseno e magnetite) e clasti carbonatici; i cristalli sono costituiti prevalentemente da leucite, spesso analcimizzata, clinopirosseno e,

LAVA LEUCITITICA

Provenienza

Alpignano (Anguillara, RM). Cava SO.GE.MA

Coordinate: N 42 ° 01'01.70'' – E 12 ° 16'13.64''

Ubicazione della cava (Google Earth).

Un settore del fronte della cava

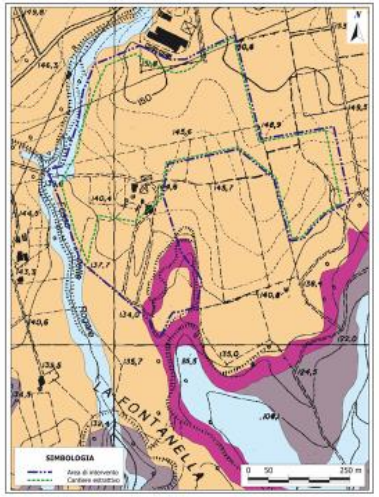
Ambiente genetico

Vulcanico

https://pixers.pl/plakaty/erupcja-wulkanu

La carta geologica dell'area della cava

Ubicazione della cava



Legenda della carta geologica

- Depositi alluvionali
- Tufi stratificati varicolari de la Storta
- Lava luecititica
- Tufo rosso a scorie nere vicano

Descrizione microscopica

La porfiricità è conferita da grossi cristalli di leucite, presenti in abbondanza anche con cristalli di dimensioni minori, e da fenocristalli di augite (foto 1). I cristalli di augite si presentano ipidiomorfi e spesso con evidenti zonature (foto 2). Nella pasta di fondo sono visibili abbondanti cristalli di augite, di leucite e magnetite, mentre più rari appaiono biotiti e feldspati (foto 3).

Foto sezioni sottili

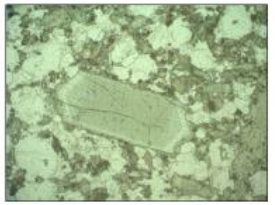


Foto 1
(Obiettivo 4X – Solo polarizzatore).

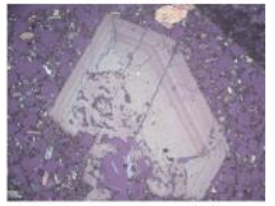


Foto 2
(Obiettivo 4X –Polarizzatori incrociati).

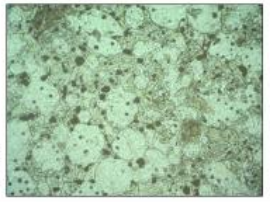


Foto 3
(Obiettivo 20X – Solo polarizzatore).

Analisi diffrattometriche XRD

I fenocristalli sono costituiti dalla leucite e in misura minore da sanidino (figura 1).
Nella pasta di fondo sono presenti leucite e augite, in misura minore sanidino e magnetite (figura 2).

Diffrattogrammi

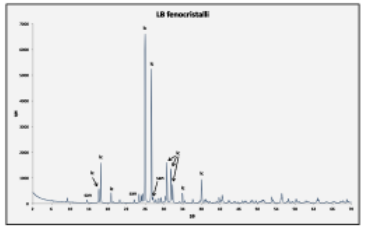


Figura 1

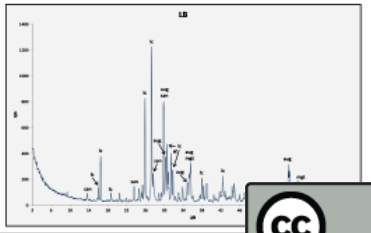


Figura 2

The next future

Integration with Botanical features of Latium and acquisition other monoliths

The dream for the future

Twinning with similar experiences around the world!

Thank you for the attention and see you on the 4th May on-line