INQUA - International Union for Quaternary Research

QUATERNARY PERSPECTIVES

The INQUA Newsletter

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Cover photo:
The mammooth is coming to INQUARoma2023!
Credits:
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XXI INQUA Congress
Rome
13-20 July 2023

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QUATERNARY PERSPECTIVES
is the newsletter of

INQUA
INTERNATIONAL UNION FOR QUATERNARY RESEARCH

Established in 1928, INQUA is the representative body for Quaternary science world-wide. INQUA is dedicated to removing barriers and to fostering diversity and inclusivity by prioritising funding for early career and developing country researchers to enable their participation in the international scientific networks that INQUA supports. INQUA promotes – and operates according to – a philosophy of inclusivity, not discriminating against any individual on the basis of race, colour, religion, gender, gender identity or expression, sexual orientation, genetics or disability. We encourage you to join INQUA through any of its Commissions, and contribute to the development of Quaternary science worldwide.
inqua.org/about

Back in Rome

The 4th INQUA Congress, the first one after the War, was in Italy in 1953, with meetings in Roma and Pisa. It was a very successful meeting that was attended by many, (now) famous, scientists for instance Gian Alberto Blanc, the president of the organising committee, Milankovitch, Van der Vlerk and Woldstedt. For INQUA as organisation it was also an important meeting. INQUA expanded globally and the current basic structure of the Union, with an INQUA Executive and Commissions was established at the 1953 INQUA Congress. Five Commissions were founded:

1. for the study of Shorelines;
2. for a Quaternary dictionary;
3. for Nomenclature;
4. for the study of Recent Tectonics;
5. for a geological map of the Pleistocene of W. Europe.

And now, 70 years later, we are back in Rome where our Italian colleagues organised the XXI INQUA Congress. Finally, we can meet again in person after a number of years of travel and meeting restrictions. In the years with mainly zoom/ teams meetings, we all realized how important it is to meet in person. Zoom meetings are efficient, they safe time and reduce our carbon-footprint but they are not an alternative for in person meetings. Attending in person meetings, listing to talks, meet each other in the pub, appears to be more efficient to exchange ideas and to build up a network. And in person meetings are much more inspiring than staring at a screen.

The XXI INQUA Congress, with more than 3000 participants from ca. 100 different countries, is the first large congress after the pandemic, organised at the main campus of Sapienza University (Città Universitaria) in Rome, in the centre of town. The Congress offers a diverse program with interesting keynote speakers, 14 parallel sessions with presentation of many (young) scientists as well as rooms for poster presentations. The XXI INQUA Congress is for Quaternary scientists the place to be, the place to meet your colleagues, to meet famous scientists and those that will be future leading scientist in Quaternary research.

The closing ceremony of the XXI INQUA Congress 2023 (July 20, 2023) marks the end of the 2019-2023 intra-Congress period that started at the XX INQUA Congress in Dublin. The 2019-2023 intra-congress period was an unusual one due to the global spread of the coronavirus and the pandemic related travel restrictions. The INQUA Executive did not have to opportunity to meet in person with the entire team and/or with the Commission presidents. Still, we managed to keep INQUA moving forward. Together with the other members of the INQUA Executive, Enikö Magyari, Freek Busschers, (Brian Chase), Maria Fernanda Sanchez Goni, Laura Sadori, Zhengtang Guo, Lynne Quick and Allan Ashworth, with input from the Commission Presidents and ECR representatives, we modified the organisation, we established the INQUA Foundation, and we appointed Artina Haliuc as INQUA secretary and we started the INQUA Monthly Newsletter, to mention a few of the changes.

The closing ceremony of the XXI INQUA Congress 2023 marks not only the end of the 2019-2023 intra-Congress but also the end of my term as INQUA President. Enikö, Freek, Maria Fernanda, Laura, Zhengtang, Lynne, Allan and Aritina, it was for me a pleasure and inspiring to work with you. Together we did a great job! It was, in addition, for me a big honour to serve the INQUA community during the past four years as INQUA President.

Thijs van Kolfschoten[1,2]
INQUA President

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INQUA Roma 2023: Opening Ceremony

Opening Ceremony

Friday, July 14 - 10:00-11:00
Aula Magna of the Rectorate of Sapienza

We are proud to announce the presence at the Opening Ceremony of the **President of the Italian Republic Sergio Mattarella**.

INQUARoma2023 continues in the tradition of being honored by the presence of the highest representatives of the host country institutions, as it was in last Congresses such as Nagoya in 2015 and Dublin in 2019.

INQUA Roma 2023 in numbers:

- 144 sessions
- 5 plenary lectures
- 15 fieldtrips
- 13 thematic workshops/short courses
- 2647 registered participants
- 1408 orals,
- 82 keynotes,
- 2150 posters

INQUA Roma 2023: Plenaries

Saturday, July 15 – 14:00-14:45

Quaternary Earth's gradients

Any process on Earth is generated by a physical or chemical gradient. The surface of the planet is featured by complex geological patterns produced by both endogenous and exogenous gradients. The lack of direct investigations still makes the Earth's interior poorly understood and prevents complete clarification of the deep gradients and the mechanisms ruling the Earth's vitality. However, present-day plate motions and the geometry of plate boundaries allow a preliminary integrated understanding of the geodynamics of the Earth. Viscosity gradients in the low-velocity zone (LVZ at 100-200 km depth) determine variable decoupling and velocity gradients in the overlying lithospheric plates. On the other hand, consequent positive and negative velocity gradients between plates control gravitational and elastic pressure gradients at plate boundaries, hence strain rate, seismicity, and volcanism. Therefore, a cascade of gradients dictates Earth's geodynamics. The tidal bulge is slightly easterly misaligned with respect to the Earth-Moon gravitational alignment, triggering a pressure gradient generating a torque of the lithosphere able to westerly shift the lithosphere relative to the underlying mantle, and slowing down the Earth's rotation. The speed of plates oscillates with the tidal harmonics, confirming the body tides as being a fundamental mechanism in controlling plate tectonics and the asymmetry of plate boundaries both in the past as well as in Quaternary times. Anthropogenic degassing in the atmosphere generated a further perturbing gradient determining climate warming.

Carlo Doglioni
Istituto Nazionale di Geofisica e Vulcanologia, Italy

Carlo Doglioni is professor of geodynamics at the Sapienza University of Rome since 1997, after having worked in the universities of Ferrara, Bari and Potenza in Italy. He visited several international universities such as Basel, Oxford, Rice Houston, and Columbia Palisades. He was President of the Italian Geological Society (SGI, 2009-2014). Since 2016 he is president of the National Institute of Geophysics and Volcanology (INGV). His research is mainly on the mechanisms of plate tectonics controlled by the combination of tidal forces and mantle convection, and the origin of seismicity, studies for which he has received numerous awards. He is member of the National Academy of the Lincei, of the National Academy of Sciences called the XL, and of the Academy of Europe.

Monday, July 17 – 14:00-14:45

Speleothem-based Chronology and Quaternary Climate Change

Speleothems are secondary cave deposits (calcite and aragonite) formed from meteoric percolation waters. Abundant climatic information held in the water, particularly the oxygen isotopic signal (δ18O and δ17O), was encoded in speleothems and extensively studied globally. Together with continued U-Th and U-Pb dating technical advances, speleothem records have become crucial in Quaternary sciences, providing coverage over virtually all the terrestrial regions with precise chronologies from orbital to decadal timescales. In the past decade, the new generation speleothem records, characterized by high temporal resolution, precise age control (due to high U content and annual growth banding) and large amplitude of δ18O variation, have gradually emerged, propelling speleothems to the forefront of Quaternary chronology and paleoclimatology. In this presentation, we briefly introduce new developments in speleothem records over the Quaternary from the Asian Monsoon (AM) domain. We then report a new composite speleothem δ18O record based on new generation speleothem records from the AM region, spanning the last 60 ka. A set of chronological benchmarks in this record leads to a much-improved chronology for calibrating and correlating climate variability in the time period. We also established the strategy to correlate the AM record to marine and ice core records, and validated it at subcentennial-precision via the Younger Dryas events globally. These new developments allow us to establish a precise timeline of climate variability recorded in speleothem, marine and ice core records on the same chronology, thus providing a powerful basis upon which we can better understand a number of fundamental issues in the Quaternary climate change, including the relations between the high-latitude ice sheet/Atlantic meridional overturning circulation (AMOC) and low-latitude monsoon variations, the cause and global propagation directionality of abrupt millennial-scale climate events, and interplays between low- and high-latitude hydroclimates.

Hai Cheng
Institute of Global Environmental Change, Xi'an Jiaotong University, Xi'an, China

Hai Cheng received his PhD degree in geochemistry at Nanjing University (1988) and is currently a professor at Xi'an Jiaotong University, China. He has over the past three decades been at the leading edge in technical developments of U-series to address fundamental questions in Quaternary climate change. He is one of world-leading experts on paleoclimate studies and played an important role in the reconstruction of climate history in numerous climate systems using speleothem records worldwide. The related researches have produced a set of absolute chronological benchmarks for correlating and calibrating climate variability globally. The broad significance of his scientific contributions is attested by ~600 publications, including 30 in Science and Nature (H-index=110, citations>70000), and a current ESI rank of 16th in geosciences. Hai Cheng is also a foreign corresponding member of Austrian Academy of Sciences, AGU fellow, Geochemical Fellow of Geochemical Society, and AGU Emiliani Lecturer.

Tuesday, July 18 – 14:00-14:45

An-ecosystem reconstruction revolution using ancient sedimentary DNA

Ancient sedimentary DNA (sedaDNA), which has provided new insights into megafauna extinction and even the reconstruction of two million old ecosystems, is revolutionizing our understanding of long-term ecosystem changes. A large proportion of plants may be identified to species level, allowing us to use plants traits to reconstruct past abiotic (e.g. moisture, temperature, pH) and biotic (pollinators, mycorrhiza) environments. Consistent detection of mammals has been challenging, but methods have improved, allowing regional-scale analyses. Also, other organisms such as fish, birds, and worms are regularly detected. I will present some highlights from our studies in arctic and alpine regions. These reveal several thousand-year delays in plant arrival following glacial retreat in Northern Fennoscandia, and millennial time-scales for the formation of stable and resilient levels of diversity and ecosystem functioning. The earliest postglacial terrestrial mammal to arrive was reindeer, followed shortly after by wolf. Boreal species like beaver arrived at the same time as the tree species of pine, mountain ash, and poplar. Elk did not appear until around 8,700 years ago, after which the trait and ecosystem functional diversity stabilised and even became resistant to new immigration. Sedimentary ancient DNA may also be used to reconstruct human impact, either by using domesticated species or indicator species as a quantification. For the Alps, humans had stronger impact on species richness over the last 6,000 years than climate. We are currently exploring how we can combine time-series, process-based ecosystem models, and inverse modelling methods, to recover the biotic and abiotic processes underlying ecosystem dynamics. The next step will be to use these informed models to extrapolate beyond current dynamics and provide robust forecasts of ecosystem responses to future climate change.

Inger Greve Alsos
The Arctic University of Norway, Norway

Professor Inger Greve Alsos is Director of the Aurora Centre for Arctic Ecosystem Genomics at UiT - The Arctic University of Norway, Tromsø. Her research focuses on the effects of climate change and human impact on northern and alpine ecosystems with special emphasis on plants. She generally works on long timescales (Pleistocene-Holocene) and at regional geographical scales (circumpolar/arctic-alpine), and particularly on post-glacial dispersal frequency and routes in the amphi-Atlantic region. More recent work concentrates on using ancient sedimentary DNA to study past ecosystem diversity, species persistence, and ecosystem build-up. She has also assembled large-scale genome-skims of vascular plants which greatly improves species identification in ancient DNA studies and facilitates methods for going beyond species level detection (palaeophylogeography). Her research group is also moving towards full-ecosystems reconstruction providing new data on the past diversity of a range of organisms in terrestrial and marine environment.

Wednesday, July 19 – 14:00-14:45

The Pliocene-Quaternary Evolution of the Arctic: the messy transition from Forest to Tundra, and now our return to the Pliocene

The geologic record paleoenvironmental change across the Arctic since 4 million years ago provides insights into natural experiments of the impacts of climate change. The Arctic borderlands were mostly forested to the coast of the Arctic Ocean 3 million years ago and it's likely that sea ice existed only during the Pliocene winters. The Greenland Ice sheet did not yet exist except for tidewaters glaciers exiting the high mountains of eastern Greenland. Global temperatures were only about 3 degrees warmer than today. However, the transition from that warm "blue arctic" to one supporting a glaciated Greenland was punctuated by numerous super interglacials, possibly coinciding with the repeated collapse of Greenland and likely partial deglaciation of parts of west Antarctica. Evidence of exceptionally warm Arctic interglacials from Lake El'gygytgyn NE Russia, combined with new evidence for the periodic collapse of the W. and E. Antarctic Ice Sheet and Greenland drives the need to reassess climate sensitivity and cryosphere dynamics on many timescales. Some questions remain about the timing for the onset of perennial vs seasonal sea ice across the Arctic Basin around the time of the MPT. Moreover, our binary view of the Bering Strait arctic gateway – as a 50 m deep seaway either flooded or subaerially exposed depending on global sea level over the past 2 milllion years – is driving new questions across scientific disciplines ranging from paleoceanography to climate modeling. A simply eustatic view of this gateway will require cross-disciplinary efforts to incorporate terrestrial, oceanographic, environmental, genomic, tectonic, and Indigenous perspectives on the history of Beringian terrestrial and oceanographic connections. Paleoclimate evidence of the polar cryosphere response to elevated global temperatures of only 2-3 degrees (or less) combined with polar amplification presages a warming future, partially hidden in recent years by the lagged response of the oceans, atmosphere, and cryosphere to anthropogenic influences. Our future will depend on the ability of societies to recognize and respond to the consequences of significant environmental change. The challenge to the science community is to communicate this data-driven reality.

Julie Brigham-Grette
University of Massachusetts-Amherst, USA

Julie Brigham-Grette has 40 years of research expertise in Arctic climate change recorded in the ocean and terrestrial sediment records of Beringia. She is especially knowledgeable about climate change over the last few million years, including the history of Arctic Sea ice, sea level change, and western Arctic landscape change. She is currently engaged with the people of Mekoryuk and Kongiganak AK via the NSF Navigating the New Arctic Program and landscape change. She was Chair of the Polar Research Board of the US National Academy of Sciences (2014-2020) and Past-President of the American Geophysical Union Global Environmental Change section, Past-President of the Quaternary Division of the Geological Society of America. Brigham-Grette is an elected Fellow of the American Geophysical Union and the Geological Society of America.

Thursday, July 20 – 14:00-14:45

Geology floods in Himalaya

The increasing frequency of large floods and population in Himalaya compounds the fragility of this active mountain belt into successively bigger hydrological disasters. The sedimentary archives of floods inform greatly on how the continental scale geology of Himalaya controls the flood magnitude and damage to infrastructure and society. The geology of Himalaya comprises several southward propagating thrust sheets that are separated by major thrust zones like the Main Central Thrust (MCT), the Main Boundary Thrust and the Himalayan Frontal Thrust and build a unique orography. It is the geometry of the Décollement of Himalayan wedge that induces duplexing below the MCT zone and steep rise in the topography that acts as an orographic barrier to northerly trajectory of the Indian summer monsoon (ISM). The geomorphic investigations after the 2013 large flood in Himalaya exhibited damage clustering over this zone that implied linkages between Décollement geometry and intensity of flood hazard. Similarly, the continental scale geomorphology of the Southern edge of Tibet seems forcing the flood intensities in the rivers Indus and the Brahmaputra that are orders of magnitude higher in the later catchment. The large part of these rivers drain through drier northern front of Himalaya and the knowledge on their water-sediment routing, erosional hotspots and ISM-flood dynamics is much warranted. Geochronology, sediment and provenance studies on the Slack Water Deposits (SWDs) preserved along the rivers like the Indus, the Brahmaputra provided a detailed geological perspective on (i) predictability of damage zones in Himalaya (ii) flood magnitudes in these rivers and geological controls (ii) erosional hotspots (iii) How ISM variability controls the flood frequencies in these rivers? (iv) do the floods control Human migration? The talk will dwell on the field and laboratory datasets and will attempt answer these questions.

Pradeep Srivastava
IIT Roorkee, India

Pradeep Srivastava is a trained sedimentologist and geomorphologist who has >20 years of working experience in the Quaternary landscape of Himalaya and its foreland. He researches has helped understanding the (i) fluvial aggradation and incision processes as function of climate and tectonics of Himalaya and the Ganga Plain (ii) past and present extreme hydrological events in Himalaya. He has published >100 research articles from across NW & NE Himalaya. He serves as an Associate professor at the Indian Institute of Technology at Roorkee.

Pradeep is a member of international science steering committee of Past Global Changes and is recipient of GK Gilbert Award of AAG, USA. He serves on the editorial boards of INQUA's flagship journal: Quaternary International and Journal of Quaternary Science (Wiley) and Paleo-3 (Elsevier). He is Vice President of Association of Quaternary Researchers in India and is an elected fellow of the Indian National Science Academy.

The 1953 IV INQUA Congress, 70 years later

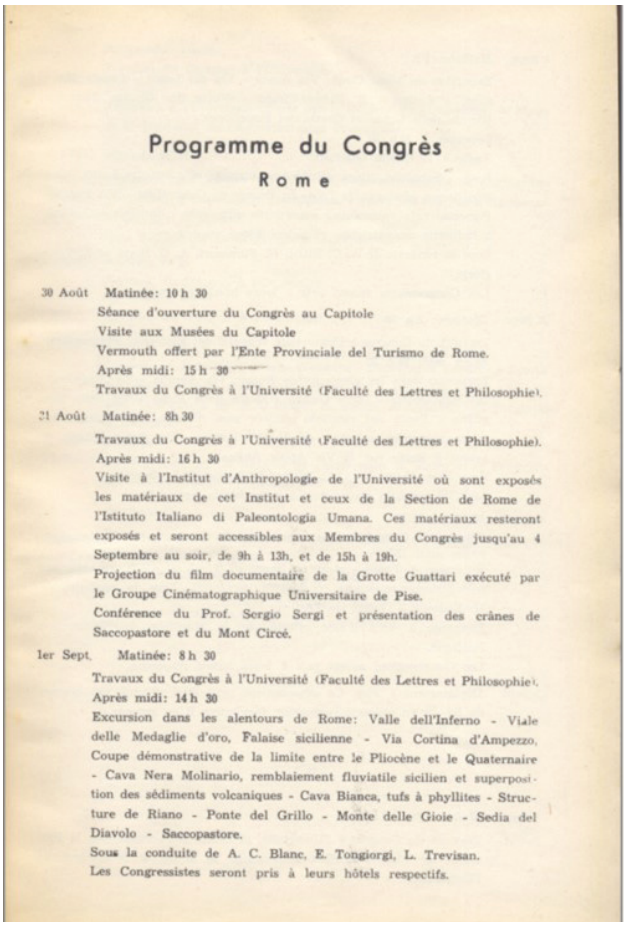
To celebrate the return of INQUA Congress in Italy, an exhibition has been set up in one of the poster areas, with original and unpublished material from the 1953 event.

For the first time in 1953, a logo was realized for the INQUA Congress and a pin with this symbol - representing climate change - was distributed to participants.
In the figure the Milanković s registration pin (courtesy of Zoran Stevanovic)

The material was kindly provided by the Istituto Italiano di Paleontologia Umana (hereafter IIPU), which was the organizer of the IV Congress in 1953, the first INQUA event after the Second World War, held in Rome and Pisa. The IIPU historical archive includes both publications and abstracts, as well as typewritten or handwritten documents that the various organizers exchanged, in order to carry on the organization of the event and subsequent developments.

Among the most interesting documents there are preparatory notes for publications and extracts, later printed and distributed to the public, mainly concerning excursions and exhibitions, like “History of the drainage of the Agro Pontino - 1952 - Notes by Eugenia Segre Naldini (Nenè) in preparation for the 1953 INQUA International Congress in Rome and Pisa” and a letter from A.C. Blanc to L. Cardini to plan a post-congress visit to the Arene Candide (an archaeological site in Liguria). Several original photos will also be in exhibition, representing striking pictures of conference participants during field trips and visits to exhibitions. One may notice old-fashioned clothing, but the same enthusiasm and passion for the Quaternary research!

The exhibition also features a focus on the history of the discovery of climate change in the past of our planet, with an in-depth look at the central figure of Milutin Milanković and the story of the troubled fortune of his theory.



Programme du Congrès

Rome

30 Août Matinée: 10 h 30
Séance d'ouverture du Congrès au Capitole
Visite aux Musées du Capitole
Vermouth offert par l'Ente Provinciale del Turismo de Rome.
Après midi: 15 h 30
Travaux du Congrès à l'Université (Faculté des Lettres et Philosophie).

31 Août Matinée: 8h 30
Travaux du Congrès à l'Université (Faculté des Lettres et Philosophie).
Après midi: 16 h 30
Visite à l'Institut d'Anthropologie de l'Université où sont exposés les matériaux de cet Institut et ceux de la Section de Rome de l'Istituto Italiano di Paleontologia Umana. Ces matériaux resteront exposés et seront accessibles aux Membres du Congrès jusqu'au 4 Septembre au soir, de 9h à 13h, et de 15h à 19h.
Projection du film documentaire de la Grotte Guattari exécuté par le Groupe Cinématographique Universitaire de Pise.
Conférence du Prof. Sergio Sergi et présentation des crânes de Saccopastore et du Mont Circé.

1er Sept. Matinée: 8 h 30
Travaux du Congrès à l'Université (Faculté des Lettres et Philosophie).
Après midi: 14 h 30
Excursion dans les alentours de Rome: Valle dell'Inferno - Viale delle Medaglie d'oro, Falaise sicilienne - Via Cortina d'Ampezzo, Coupe démonstrative de la limite entre le Pliocène et le Quaternaire - Cava Nera Molinario, remblaiement fluviatile sicilien et superposition des sédiments volcaniques - Cava Bianca, tufs à phyllites - Structure de Riano - Ponte del Grillo - Monte delle Gioie - Sedia del Diavolo - Saccopastore.
Sous la conduite de A. C. Blanc, E. Tongiorgi, L. Trevisan.
Les Congressistes seront pris à leurs hôtels respectifs.

The 12-days-programme of the Congress included 5 days conference plus one daily excursion in Rome and 2 days conference plus 3 daily excursion in Pisa (courtesy IIPU archive).

2 Sept. Matinée: 7 h.
Excursion au Mont Circé: Via Appia - Via dei Laghi - Canale Mussolini - Latina - S. Felice Circeo - Visite des Grottes littorales (Grotta delle Capre et Grotta del Fossellone).
Déjeuner à 13 h 30
Visite à la Grotte Guattari.
Paola - Sabaudia, dunes würmiennes incisées, côte lacustre à rias, dune versilienne, gisement de l'Age du Bronze de Caterattino - Via Pontina Pomezia, tufs volcaniques superposés aux sables dunaires würmiens à industrie moustérienne et paléolithique supérieure.
Sous la conduite de A. C. Blanc, M. Fornaseri, A. G. Segre et E. Tongiorgi.
Les Congressistes seront pris à leurs hôtels respectifs.

3. Sept. Matinée: 8 h 30
Travaux du Congrès à l'Université (Faculté des Lettres et Philosophie).
Après midi 14 h 30
Excursion dans les alentours de Rome: Via Aurelia - La Maglianella - Malagrotta - Ponte Galera - Monte delle Piche - Via della Magliana - Ponte del raccordo anulare près d'Acilia, Tyrrhénien saumâtre superposé aux tufs du Volcan Latial - Via Appia Nuova, et retour à Rome par la Via Appia Antica.
Sous la conduite de A. C. Blanc, E. Tongiorgi, L. Trevisan.
Les Congressistes seront pris à leurs hôtels respectifs.

4 Sept. Matinée: 8h 30
Travaux du Congrès à l'Université (Faculté des Lettres et Philosophie).
Après midi 15 h.
Excursion à Tivoli - Arrêt à Bagni di Tivoli et visite au gisement paléolithique supérieur récemment découvert. Sous la conduite de M. Radmilli - Vallée de l'Aniene.
Reception à Villa d'Este offerte par le Ministère de l'Instruction Publique.
Les Congressistes seront pris à leurs hôtels respectifs.

5 Sept. Déplacement à Pise. Ce déplacement peut être effectué par chemin de fer ou en utilisant l'excursion facultative B en autocar.

Pisa

6 Sept. Matinée 9h
Travaux du Congrès à l'Université, précédés de l'accueuil par le Président de l'Administration Provinciale, le Maire et le Recteur de l'Université.

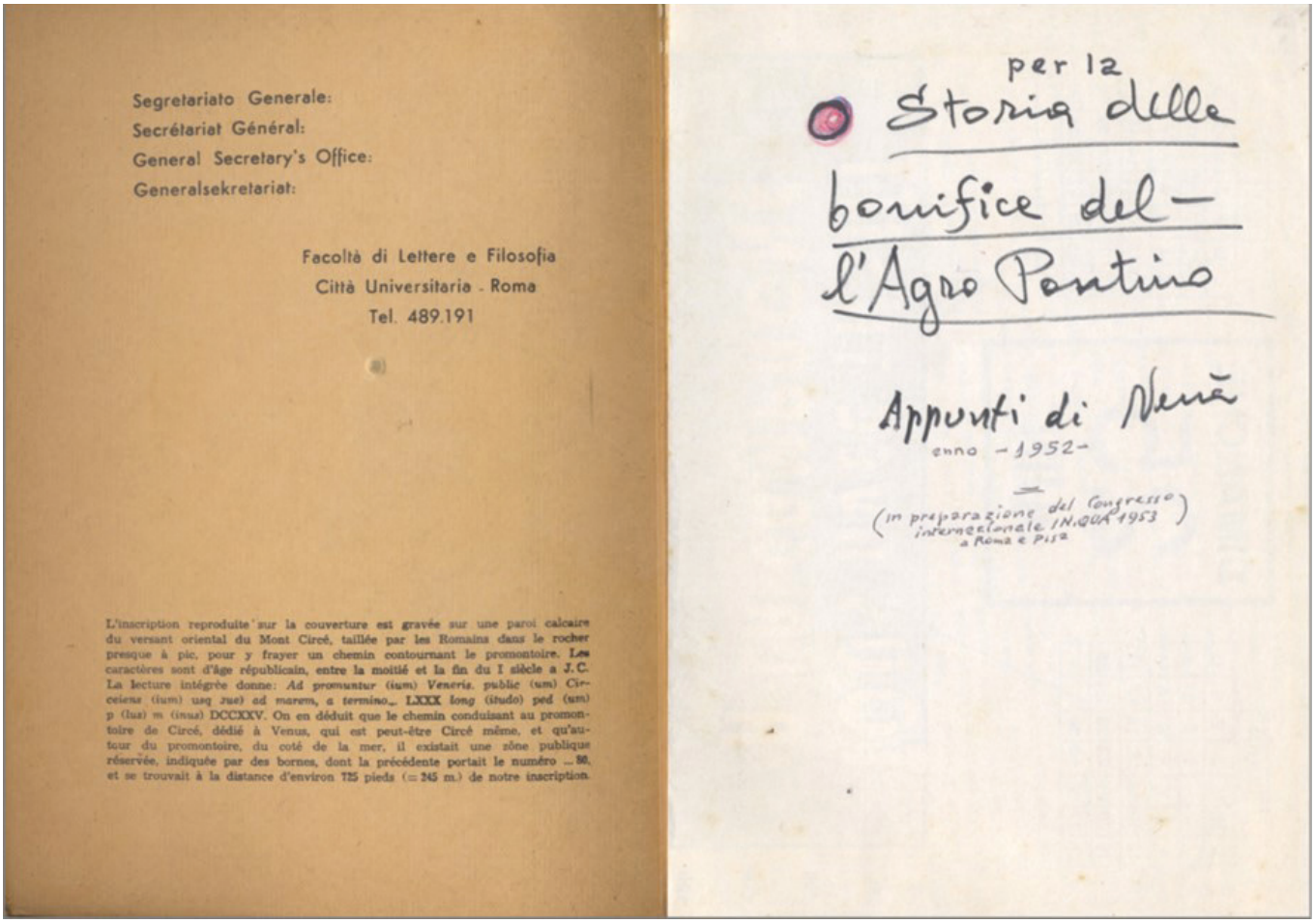
Après-midi 15h 30
Travaux du Congrès à l'Université.
Soir 21h
Réception à l'Université offerte par le Recteur de l'Université, le Maire et le Président de l'Administration Provinciale.

7 Sept. Matinée 8h 30
Excursion aux bassins pliocènes et villafranchiens de la Garfagnana - Déjeuner à Castelnuovo Garfagnana - Traversée des Alpes Apouanes. Retour par le littoral.
Sous la conduite de E. Tongiorgi, L. Trevisan.

8 Sept. matinée 8h 30
Travaux du Congrès à l'Université
Après-midi 15h 30
Travaux du Congrès à l'Universite.

9 Sept. Matinée 8h 30
Excursion à Bagni di Casciana, Volterra - Déjeuner à Volterra - Retour pas Castiglioncello, dunes würmiennes de la Buca dei Corvi, Livorno.
Sous la conduite de A. C. Blanc, A. Fiumi, E. Giannini, E. Tongiorgi L. Trevisan
Soir 20h
Diner présidé par le Recteur de l'Université, le Maire et le Président de l'Administration Provinciale.

10 Sept. Matinée 9h
Excursion sur la plaine côtière de la Bassa-Versilia: Massaciuccoli, Viareggio, Torre del Lago
Sous la conduite de A. C. Blanc, A. Mori, E. Tongiorgi
Après-midi 16h
Séance de clôture du Congrès.



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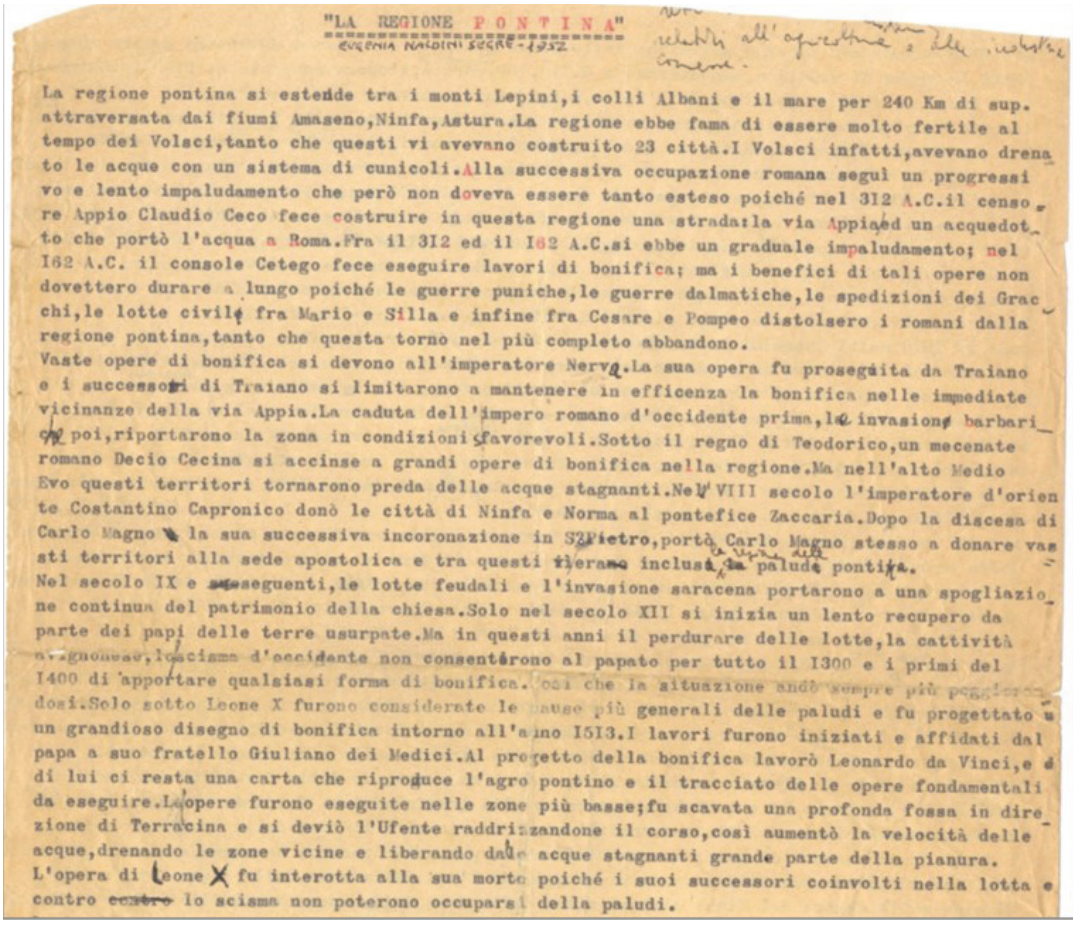
L'inscription reproduite sur la couverture est gravée sur une paroi calcaire du versant oriental du Mont Circé, taillée par les Romains dans le rocher presque à pic, pour y frayer un chemin contournant le promontoire. Les caractères sont d'âge républicain, entre la moitié et la fin du I siècle a J.C. La lecture intégrée donne: *Ad promuntur (ium) Veneris, public (um) Circeiens (ium) usq ad marem, a termino... LXXX long (itudo) ped (um) p (lus) m (inus)* DCCXXV. On en déduit que le chemin conduisant au promontoire de Circé, dédié à Venus, qui est peut-être Circé même, et qu'autour du promontoire, du coté de la mer, il existait une zône publique réservée, indiquée par des bornes, dont la précédente portait le numéro ... 80, et se trouvait à la distance d'environ 725 pieds (= 245 m.) de notre inscription.

per la
Storia delle
bonifiche del-
l'Agro Pontino

Appunti di Nenè
anno -1952-

(in preparazione del Congresso internazionale IN.QUA 1953 a Roma e Pisa)



"LA REGIONE PONTINA"
EUGENIA NALDINI SEGRE - 1952

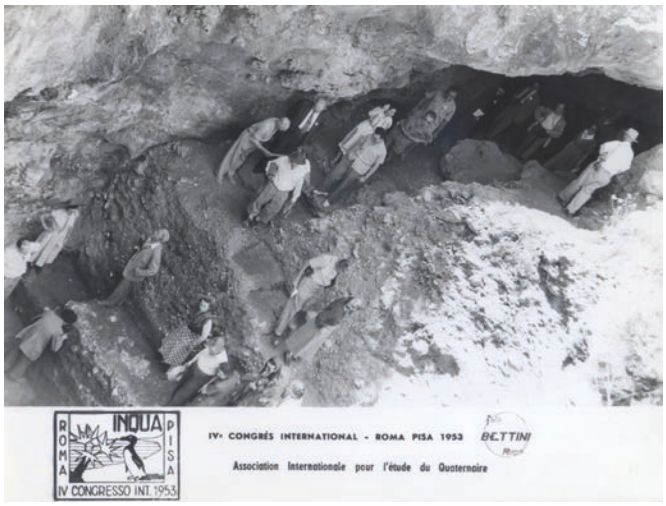
La regione pontina si estende tra i monti Lepini, i colli Albani e il mare per 240 Km di sup. attraversata dai fiumi Amaseno, Ninfa, Astura. La regione ebbe fama di essere molto fertile al tempo dei Volsci, tanto che questi vi avevano costruito 23 città. I Volsci infatti, avevano drenato le acque con un sistema di cunicoli. Alla successiva occupazione romana seguì un progressivo e lento impaludamento che però non doveva essere tanto esteso poiché nel 312 A.C. il censore Appio Claudio Ceco fece costruire in questa regione una strada: la via Appia ed un acquedotto che portò l'acqua a Roma. Fra il 312 ed il 162 A.C. si ebbe un graduale impaludamento; nel 162 A.C. il console Cetego fece eseguire lavori di bonifica; ma i benefici di tali opere non dovettero durare a lungo poiché le guerre puniche, le guerre dalmatiche, le spedizioni dei Gracchi, le lotte civili fra Mario e Silla e infine fra Cesare e Pompeo distolsero i romani dalla regione pontina, tanto che questa tornò nel più completo abbandono.
Vaste opere di bonifica si devono all'imperatore Nerva. La sua opera fu proseguita da Traiano e i successori di Traiano si limitarono a mantenere in efficenza la bonifica nelle immediate vicinanze della via Appia. La caduta dell'impero romano d'occidente prima, le invasioni barbariche poi, riportarono la zona in condizioni sfavorevoli. Sotto il regno di Teodorico, un mecenate romano Decio Cecina si accinse a grandi opere di bonifica nella regione. Ma nell'alto Medio Evo questi territori tornarono preda delle acque stagnanti. Nel VIII secolo l'imperatore d'oriente Costantino Capronico donò le città di Ninfa e Norma al pontefice Zaccaria. Dopo la discesa di Carlo Magno e la sua successiva incoronazione in S. Pietro, portò Carlo Magno stesso a donare vasti territori alla sede apostolica e tra questi vi erano inclusa la palude pontina.
Nel secolo IX e seguenti, le lotte feudali e l'invasione saracena portarono a una spogliazione continua del patrimonio della chiesa. Solo nel secolo XII si inizia un lento recupero da parte dei papi delle terre usurpate. Ma in questi anni il perdurare delle lotte, la cattività avignonese, lo scisma d'occidente non consentirono al papato per tutto il 1300 e i primi del 1400 di apportare qualsiasi forma di bonifica. Così che la situazione andò sempre più peggiorando. Solo sotto Leone X furono considerate le cause più generali delle paludi e fu progettato un grandioso disegno di bonifica intorno all'anno 1513. I lavori furono iniziati e affidati dal papa a suo fratello Giuliano dei Medici. Al progetto della bonifica lavorò Leonardo da Vinci, e di lui ci resta una carta che riproduce l'agro pontino e il tracciato delle opere fondamentali da eseguire. Le opere furono eseguite nelle zone più basse; fu scavata una profonda fossa in direzione di Terracina e si deviò l'Ufente raddrizzandone il corso, così aumentò la velocità delle acque, drenando le zone vicine e liberando dalle acque stagnanti grande parte della pianura.
L'opera di Leone X fu interotta alla sua morte poiché i suoi successori coinvolti nella lotta contro lo scisma non poterono occuparsi della paludi.

"History of the drainage of the Agro Pontino - 1952 - Notes by Eugenia Segre Naldini (Nenè) in preparation for the 1953 INQUA International Congress in Rome and Pisa" (courtesy IIPU archive).

Milanković and Petar Stevanović on the steps of the Faculty of Letters at Sapienza, University of Rome during the INQUA 1953 congress. (courtesy of Zoran Stevanovic).
You will step the same stairs as two conference rooms and a poster area are hosted in the same faculty.

On 31 August 1953, in the afternoon, the congress participants were guided by A. C. Blanc to the Italian Institute of Anthropology, inside the Sapienza University in Rome. Here, archaeological, and palaeontological material was exhibited. In these photos, A. C. Blanc illustrates the finds from Grotta Guattari (Circeo), where a Neanderthal skull was discovered in 1939 (courtesy IIPU archive).
You will have the opportunity to see the same specimens as they will be exposed in the 1953 commemorative exhibition on the poster area.

Field trip to Grotta delle Capre, Circeo (courtesy IIPU archive)



Field trip to Grotta del Fossellone, Circeo (courtesy IIPU archive)

A.C. Blanc leads the conference attendees to the dock for boarding to Grotta Romanelli in Apulia (courtesy IIPU archive). Some of you will descend the same path to embark on a (hopefully more modern) vessel to visit the same site with pre-congress fieltrip #19.

The elephant and the lost hill

The exhibition originates from the restoration of a paleontological artifact that gained great notoriety at the time of its discovery in 1932, only to remain hidden from the public and scholars for over eighty years: the skull and left tusk of an ancient elephant - Elephas (Palaeoloxodon) Antiquus - found at the base of Velia Hill during excavations carried out to create Via dell'Impero, now known as Via dei Fori Imperiali. The dismantling of Velia Hill, connecting Quirinale and Campidoglio hills, was in fact necessary to create the connection between the Coliseum and Piazza Venezia

It was not until 2021 that the remains of the elephant were restored and put on display for the public. The Exhibition will provide an overview of the elephant's discovery within the long history of Velia, showcasing the different phases of occupation from antiquity to modern times. Archaeological, historical, artistic, and archival materials will be presented, all belonging to the Sovrintendenza Capitolina, the institution responsible for the preservation of the heritage that kindly offered to have the exhibition on stage for the XXI INQUA Congress. CNR IGAG also provided supporting material describing the stratigraphy and the geological evolution of Rome downtown area.

The exhibition was created by Claudio Parisi Presicce, Nicoletta Bernacchio, Isabella Damiani, Stefania Fogagnolo, Massimiliano Munzi.

More information at this link.

A journey through the Central Apennine: a look at the Gran Sasso

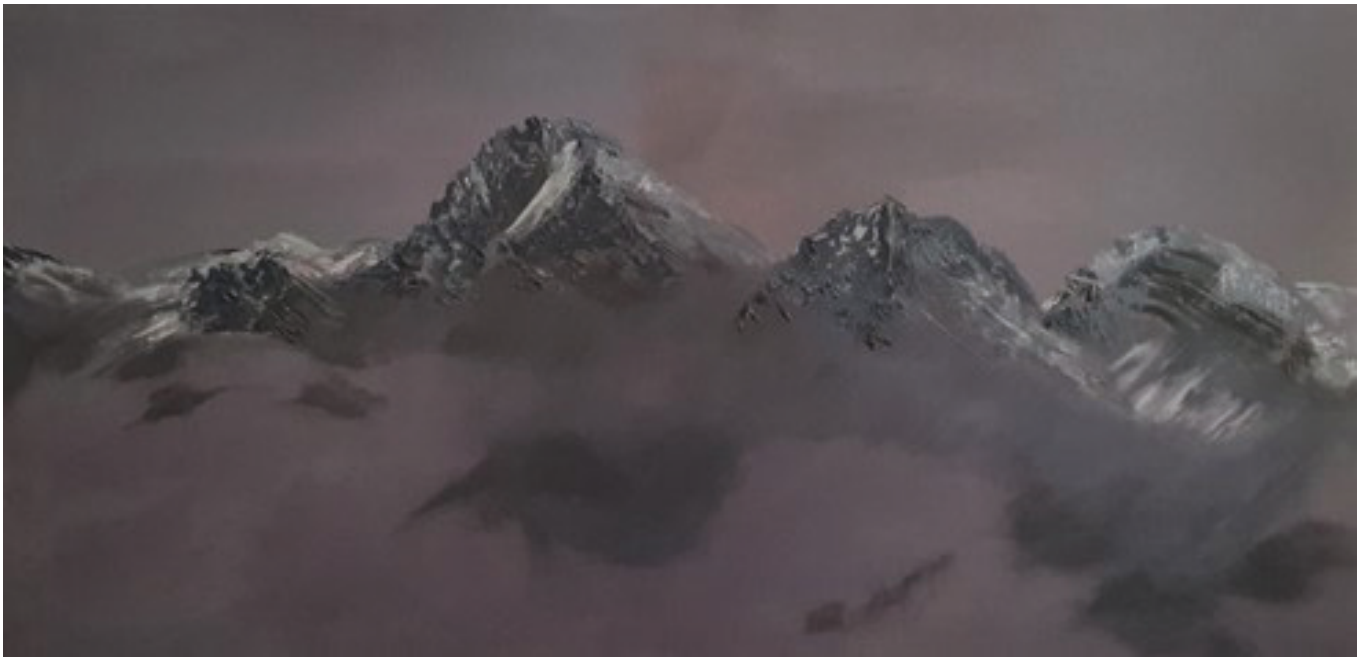
The Gran Sasso d'Italia massif is one of the best exposed segments of the central Apennines. Its peak is the highest in the whole chain (2912 m a.s.l.), preserving the southernmost glacier in Europe (Calderone Glacier). The lack of persistent vegetation provides a great opportunity to observe the landforms and the outcrops of the compressional geological structure of the chain, modelled since Early Pleistocene by glacial processes and active tectonics. The glacial footprint is evident in the depositional and erosional morphologies, making the mountain a monument to the Quaternary evolution of the Apennine.

The arrival at Campo Imperatore is thrilling: it is a place where time seems to have stopped and the imposing shape of the Corno Grande dominates the skyline of the plateau.

The works presented in the art exhibition, essentially oil painting, are all inspired by the Gran Sasso massif. Roberta Giuliani is a geologist, who has been frequenting the central Apennines for more than 20 years, studying the Quaternary geology, the surface and geomorphological effects of recent tectonics, and the crustal deformation in the area through a permanent GPS network.

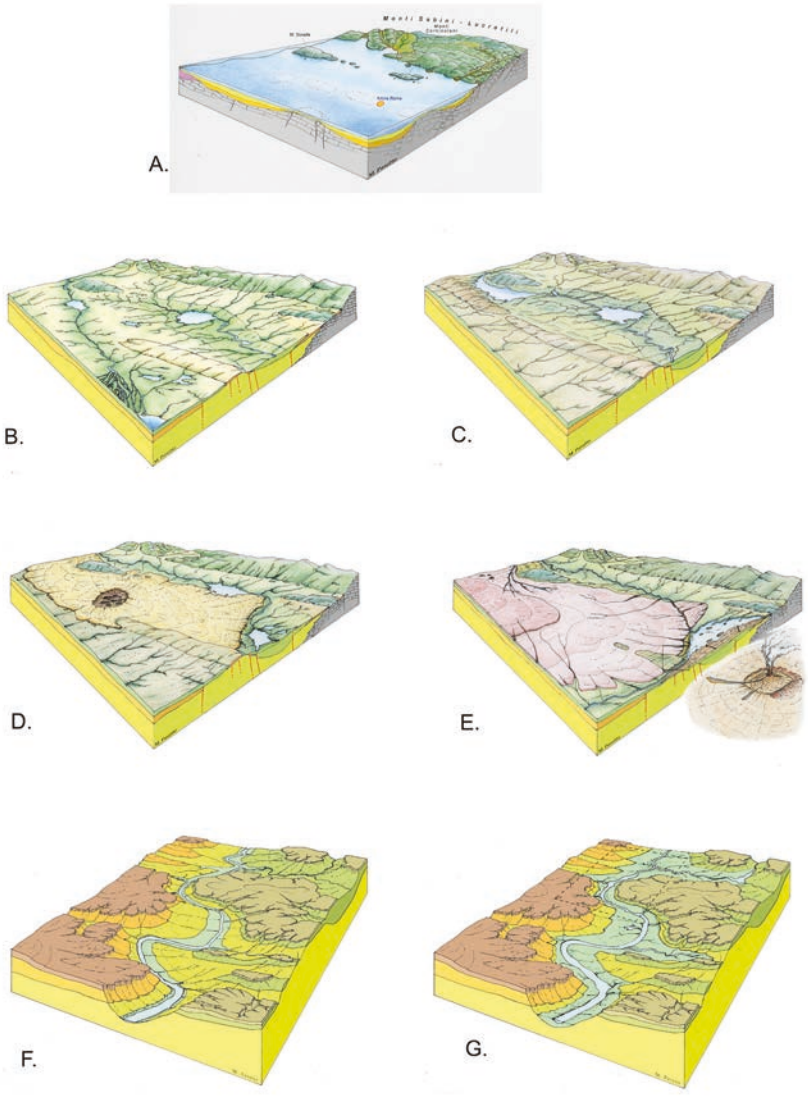
Her research activity allowed Roberta to have a deep relationship with each landscape she painted, as these landscapes belong fundamentally to her memory. The numerous canvases depict the Gran Sasso massif under different lights, corresponding to different times, enhancing its volumes and making it almost an abstract subject. The light, depicted at different times of the day, makes the subject changeable. The Gran Sasso massif is thus repeated in the many canvases with the same view, and the viewer is a participant in this representation that becomes a tale of time flowing on these reliefs determining different light conditions.

Participating in the exhibition as a very welcome guest is Giulio Speranza, a professional photographer and also a geologist, who has worked on the Gran Sasso for a long time, publishing a wonderful book of black-and-white photographs taken with cameras with large-format analogue systems. The dialogue between Giulio's photographs and Roberta's paintings focuses on three views. They meet different and very personal representations that depict the same mountain and express the deep involvement of both authors.



Roberta Giuliani, "Profilo 3", Canvas on oil

Rome is a "Quaternary City"



A. Pliocene (post-orogenic deep marine sedimentation);

B. Lower-Middle Pleistocene (marine regression and paleo-Tiber river delta formation);

C. Middle Pleistocene (Monte Mario horst uplift);

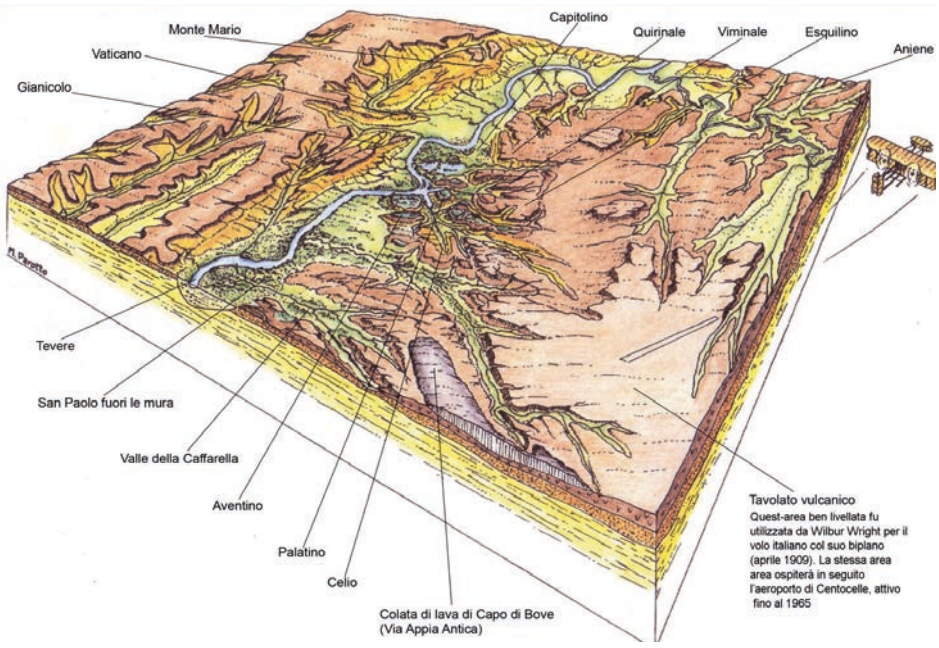
D. Middle Pleistocene (formation of the ignimbrite plateau of the Sabatini volcanic district);

E. Middle Pleistocene (formation of the ignimbrite plateau of the Colli Albani volcanic district; the small black box indicates the area illustrated in the next two block-diagrams);

F. Upper Pleistocene (incision of the last glacial age fluvial network);

G. Holocene (formation of the alluvial plains).

From: Parotto M. (2008), in Funiciello R., Praturlon A., Giordano G. (Eds) – La geologia di Roma dal centro storico alla periferia. Memorie descrittive dalla carta geologica d'Italia, Vol. LXXX. APAT, Servizio geologico d'Italia, Roma.



Landscape of the Rome area 10,000 years ago, before major changes caused by the antropic activity. The Tiber alluvial plain is bounded on one side by the Gianicolo-Mt. Mario hill, with sedimentary rocks, including Pliocene marine clay and its thin volcanic cover and, on the other side, by the remnants of the northern end of the Colli Albani volcanic deposits, dissected by fluvial erosion in different hills, among which the famous Sette Colli (Seven Hills). In this last sector, the continental sedimentary deposits only locally crop out, covering the marine clay substratum.

From: Parotto M. (2008), see above

A passepartout to Rome

Rome is the capital of Italy, a large cosmopolitan city with an artistic, architectural and cultural history that has been influencing the whole world for almost 3000 years. It is dominated by ancient structures with an infinity of places to visit, covering over two millennia of history. It is known all over the world as the Eternal City, a synonym for everlasting beauty, history and spirituality.

Located in the Centre of the Country and in the centre of the Mediterranean see, it is an easy reach from travellers from all over the world. Rome is one of the preferred sites for millions of tourists and it hosted successfully various international congresses.

Discover about Rome tourist information by visiting the Tourist Office Website. Here are some insider tips to help you enjoy your stay in Rome.

KEEP IN TOUCH

When you buy a SIM card in Italy, it should include both voice and data. You will need a voice SIM for a couple of reasons: making emergency calls to Italian authorities in the case of an emergency, calling restaurants to make a reservation or calling your home country. You will need a data SIM for most other things, like using WhatsApp to communicate, navigating with Google maps or just checking your email.

We suggest you to buy SIM Cards from the major Italian telecom companies, TIM, Vodafone and WindTre

Here are the links to their offers for tourists>

- https://www.tim.it/en/landline-mobile/

TRAVELLING TO ROME

Thanks to its excellent geographical position and its direct air, road, and rail links to the rest of Europe, Rome can be easily reached.

Rome is served by two international airports, well connected to the city centre: AIRPORT LEONARDO DA VINCI (Fiumicino) and AIRPORT G.B. PASTINE (Ciampino). For more information, please visit Tourist Office Website.

FROM AND TO FIUMICINO AIRPORT

Leonardo Express

At the airport's railway station the Shuttle-Train Leonardo Express is 32 minutes direct service to Termini Station leaving every 30 minutes (every 15 minutes during the time slots with higher traffic).The ticket may be purchased at ticket office, from self-service machines, travel agents', authorized vendors, Trenitalia counters near platforms.

FL1 train

The FL1 service to Tiburtina Station takes 48 minutes and leaves every 15 minutes on week days and every 30 minutes on weekends and on Holidays. The train also stops at Parco Leonardo, Fiera di Roma, Ponte Galeria, Muratella, Magliana, Villa Bonelli, Trastevere, Ostiense (where there is a connection with the Metro B Line) and Tuscolana.

Bus

There are different bus lines serving to Termini Station and others: Cotral service (public service), Atral Bus, Gaspari Bus, Terravision, SIT Bus, TAM.

Taxi

Taxis to Rome are found at the exits of both the domestic and international arrival terminals.

FROM AND TO CIAMPINO AIRPORT

Ciampino railway station is reached by special buses from the airport. Trains, which leave every 15 minutes, take 10 minutes to get to Rome Termini (Metro A & B).

Bus

Bus lines to Termini Station: ATAC, Atral, Gaspari Bus, Terravision, SIT bus

Taxi

Taxis to Rome stop in the small square in front of the airport itself. Taxis licensed by Rome City Council are white and have a sign bearing the word "TAXI" on their roofs. The symbol of Rome City Council is clearly visible on the front doors and the license inside the back left.

RAILWAY LINES

Rome has an important railway link connected with the rest of Italy and with Europe by high-speed trains which can offer the greatest efficiency at a low cost. The central railway station, TERMINI, is in the heart of the historical centre and very close to many hotels. Other important stations are: Tiburtina, Ostiense, Valle Aurelia, etc.

PUBLIC TRANSPORTATION

Public transportation can be used to visit the major tourist sites and attractions. Tickets are valid for metro, trams, buses (with the exception of the tourist buses) and even a number of regional trains. These tickets are not valid all the way to the airport. For more information and maps, please visit ATAC Website and the Tourist Office Website.

international-calling/from-italy/tim-tourist
- http://www.vodafone.it/portal/Privati/Tariffe-e-Prodotti/Tariffe/Estero/Vodafone-Holiday-English
- https://www.windtre.it/offerte-estero-da-italia/tourist-pass-en/

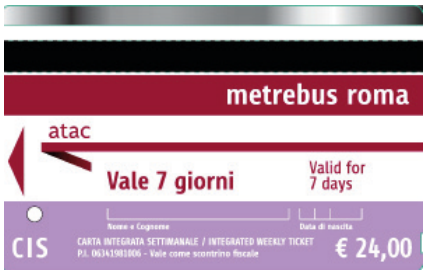
You can find their shops at the Fiumicino Airports, at the main railway stations (Termini and Tiburtina) and in official shops scattered in town.

Always buy from official shops!

PUBLIC TRANSPORTATION

Rome has an integrated transport system: you can use buses, metro and trains with the same ticket.

A single fare costs 1.50€ and is valid for 100 minutes from first validation. On the Metro, it is valid for a single journey, even using different lines. Children under 10 travel free on public transport services in the territory of Roma Capitale when accompanied by a fare-paying adult. From 10 years on children have to buy ordinary tickets or passes. On trains children have free access up to 4 years of age.

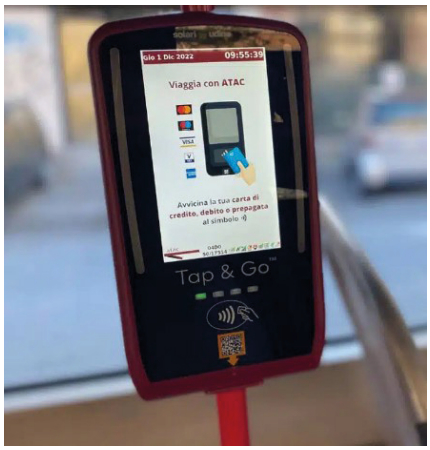


We suggest you to buy the CIS, an integrated weekly card, valid until midnight of the seventh day including the day of validation, for unlimited journeys within the territory of Rome. It costs 24€ ie 3.43€ everyday, so if you are planning to take public transportation more than twice a day it will be very convenient.

If you are a TIM, Vodafone or WINDTRE customer you can buy a BIT100 ticket writing a single SMS with direct charge on your phone credit. Write an SMS with the keyword "BIT" and send it to the Atac number 48018. In a few seconds you'll receive an SMS with a link to the digital ticket through QR code.

You can also use the Tap&Go service. To use the Tap&Go® service you just need a contactless credit, debit or prepaid card, or that has the symbol icon contactless. Access to buses, trams, trolleybuses and metro lines is possible also with digital cards on NFC-enabled devices (smartphones, smartwatches, wearables). Taps made to change between different means of transport (bus-metro/railway, metro/railway-bus and bus-bus), if made within the validity period of the ticket, are considered as one single tap and there will be no further charge.

To avoid potential penalty fares, remember to "tap" your card each time you change means of transport. Taps made within the validity period of the ticket do not count as a new payment. Therefore, always remember to "tap" on surface vehicles, before the 100 minutes run out. On metro line B1 there are also exit turnstiles and you will have to tap again to exit the station. The exit "tap" does not involve further charges.



CAR, SCOOTER, ELECTRIC SCOOTER AND BIKE SHARING IN ROME

Another option to move around the city is to use the transport sharing services. The services allow users to hop on and off their chosen transportation device, and help reduce pollution thanks to one leaving his/her personal car behind by opting to share one instead. By sharing one mustn't worry about paying for parking, insurance, or for gas–it's all included. Not to mention, the sharing factor comes in really handy when you are in a hurry and no public transport or cabs are in sight.

Sharing isn't limited to cars, and also includes scooters, e-scooters and bikes. All services are paid for and reserved through easy and ready to use apps. Each service has a different pricing range, its own app, and different vehicles to choose from.

Sharing is caring, so make sure you leave the transport as you found it after you finish scurrying around Rome. Here are some of the options:

Car sharing
- share-now.com
- enjoy.eni.com

E-bike/e-scooter sharing
- li.me
- ridedott.com
- tier.app
- helbiz.com

Scooter sharing (helmets provided)
- cooltra.com
- zigzagsharing.com

TAP WATER IN ROME

The romans have delivered clean drinkable water to the city for over 2000 years and they still do. It's clean and healthy to drink according to local Italian and international water quality standards. Despite this, Italians got accustomed to drink

bottled water in restaurants and at home as they got wealthier in the 80s and 90s. This is cultural and has little to do with water quality or taste. Rome receives 97% of its drinking water from springs and 3% from wells. The tap water is supplied by ACEA and considered of very high quality.

There are water fountains available throughout Rome called “nasoni” (big noses). You can find their position downloading the app “I Nasoni di Roma” from Google Play or App Store. Get a refillable water bottle and you will never have to worry about being hydrated and save the environment and money in the process. Or download the waidy app that shows you the closest water points, helps you monitor your daily hydration and reduce environmental impact.

QUATERNARY SITES TO VISIT IN ROME

The Casal de’ Pazzi Museum

The discovery of the Pleistocene deposit of Rebibbia - Casal de ‘Pazzi and the excavation that followed, carried out by the Archaeological Superintendence of Rome from 1981 to 1985, have considerably contributed to improve the knowledges on the earliest stages of human peopling of the Rome territory and of the Italian peninsula as well.

https://www.museocasaldepazzi.it/en/il_museo/editorial

SHOPPING ADDICTED

The summer sale season will start on July 6.

MUSIC ADDICTED

There are some fantastic concerts during the INQUA 2023 week:

- Depeche Mode - July 12
- Arctic Monkeys - July 16
- Muse - July 18
- Maneskin - July 20 and 21

THE ECR EVENTS @INQUA

The Early Career Researchers (ECR) Committee is planning to held a number of events at the upcoming Inqua congress, specifically targeted toward ECRs/DCRs:

- ECR Ice-breaker: evening of Friday 14th July - location: @MONKRoma Do not miss it!

- Navigating Inqua as an ECR: Inqua structure, funding scheme, the ECR Representatives and community: Saturday 15th July, during the lunchbreak
- For ECRs by ECRs: the backstage of the PASES INQUA-PAGES Workshop: Monday 17th July, during the lunchbreak
- ECR Business meeting: Monday 17th July

Let’s see each other in Rome!