



Torino 19-21 September 2022

# ABSTRACT BOOK

a cura della Società Geologica Italiana



GEOSCIENCES FOR  
A SUSTAINABLE FUTURE



Dominici R., Donato P., Imbrogno G., Lirer S., Tenuta M.* & De Rosa R. - Time-scale implementation of the EPM model: Implications in the Ofanto basin and in the physiographic unit connected to it .....	829
Olivetti V*, Balestrieri M.L., Zurli L., Perotti M., Pace D., Chew D., Cornamusini G. & Zattin M. - Oligocene-Miocene ice volume variations in the Ross Sea, Antarctica: insight from a provenance study on core DSDP270 empowered by U-Pb dating, apatite geochemical signature and fission-track data .....	830
Pellegrini C. *, Sammartino I., Schieber J., Rossi V., Tesi T., Paladini F., Chiggiato J., Schroeder K., Asioli A., Trincardi F. & Amorosi A. - On depositional processes governing fine-grained deposits: unlocking the Little Ice Age parasequence on the Adriatic shelf .....	831
Perri F.*, Cipriani M., Guido A., Cianflone G. & Dominici R. - Messinian mudrocks of the Calcare di Base Formation (Catanzaro Basin, Calabria): implications for source-area provenance and palaeoweathering conditions .....	832
Pierini M.*, Di Celma C., Pierantoni P.P., Negri A., Amorosi A., Di Martino A. & Leoni M. - Stratigraphic architecture of a late Quaternary incised-valley along the Adriatic coast (Chienti River, Marche Region, Italy) .....	833
Pinardi R.*, Artoni A., Tinterri R., Petrella E. & Fornaciari A. - The Middle Pleistocene fluvio-deltaic systems preserved at the margin of the Northern Apennines between Parma and Enza rivers (Po Valley – Northern Italy): a tectonically-controlled sink zone .....	834
Ruberti D. *, Buffardi C. & Vigliotti M. - The fate of the Volturno delta (northern Campania, Italy) among geological history and human influence .....	835
Sammartino I.*, Amorosi A., Tesi T., Langone L., Pambianco C., Asioli A., Trincardi F. & Pellegrini C. - Sediment provenance and environmental changes during the Last Deglaciation in the Adriatic Sea ....	836
Tentori D.*, Mancini M., Milli S., Stigliano F., Tancredi S. & Moscatelli M. - Compositional, micromorphological and geotechnical characterization of Holocene Tiber floodplain deposits (Rome, Italy) and stratigraphic implications .....	837
Usman M.*, Garzanti E. & Vezzoli G. - Tracing sediment provenance in the Shaotanghe River (southwest China) .....	838
Vergara N.A.*, Schito A., Corrado S., Michel P. & Gasparrini M. - Automatic organic facies identification using Raman spectra on dispersed organic matter by means of Unsupervised Learning techniques (Paris Basin – France) .....	839
<b>S33. Taphonomy and diagenesis of marine biogenic sediments in ancient and modern depositional environments</b>	
Bazzicalupo P.*, Malinverno E., Bracchi V.A., Varzi A.G., Savini A., Fallati L., Guido A., Rosso A., Sanfilippo R., Leonardi R., Negri M.P., Cipriani M. & Basso D. - Preliminary results on coccolith assemblages sedimented inside coralligenous build-ups (Marzamemi, Sicily) .....	841
Bojanowski M.J.*, Ciurej A., Dubicka Z., Minoletti F. & Olszewska-Nejbert D. - Il buono, il brutto, o il cattivo? The role of diagenetic alteration of coccolith-rich rocks in constraining the palaeoceanographic setting .....	842
Cipriani M.*, Basso D., Bazzicalupo P., Bertolino M., Bracchi V.A., Bruno F., Costa G., Dominici R., Muzzupappa M., Rosso A., Sanfilippo R., Sciuto F. & Guido A. - Autochthonous vs allochthonous micrite in Mediterranean coralligenous: ecological and depositional implications .....	843
Cornacchia I.*, Brandano M., Agostini S. & Munnecke A. - When was the Mediterranean water body born? What the Nd isotope record of Miocene phosphatic hardgrounds is telling us .....	844
Geniram A.*, Colizza E., Melis R., Torricella F., Tesi T., Pambianco G., Misericchi S., Gallerani A. & Colleoni F. - LGM–Holocene West Antarctic Ice Sheet evolution by multidisciplinary analysis of five gravity cores collected in the Glomar Challenger (Eastern Ross Sea, Antarctica) .....	845
Guido A.* & Vescogni A. - A mud-mound like carbonate build-up from the Messinian terminal carbonate complex of the Salento peninsula (Southern Italy) .....	846
Isella E.*, Lozar F. & Mancini A.M. - Coccoliths acidification: an experimental approach to constrain the preservation degree of nannofossil assemblage in sediment samples .....	847
Malinverno E., Bosio G.*, Gioncada A., Cimò R., Andò S., Mariani L., Coletti G., Boschi C., Gariboldi K., Galimberti L., Bianucci G., Urbina M. & Di Celma C. - Dolomite layers in the Miocene diatomaceous sediments of the Pisco Formation (East Pisco Basin, Peru) .....	848

## The fate of the Volturno delta (northern Campania, Italy) among geological history and human influence

Ruberti D. \*, Buffardi C. & Vigliotti M.

Dipartimento di Ingegneria, Università della Campania “Luigi Vanvitelli”, Aversa (CE).

Corresponding author e-mail: [daniela.ruberti@unicampania.it](mailto:daniela.ruberti@unicampania.it)

*Keywords:* Volturno delta plain, recent coastal evolution, Holocene stratigraphy.

The present geomorphology of the Volturno River delta system (northern Campania, southern Italy) is largely a product of complex, long-lived relationships between geological evolution and human impacts. This presentation describes the evolution of the alluvial and coastal plain from the Holocene to the present time. The study was based on stratigraphic well log data analysis, cartographic sources from the last 150 years, bathymetric data acquired in 1887 and in 1987 and compared to extract seafloor changes in the delta offshore (Ruberti et al., 2022). The basis for the Holocene reconstruction was provided by the top of the Campania Grey Tuff (CGT) relief map, which evidences the incised valley excavation following the LGM sea level drop. The CGT is the product of a huge pyroclastic eruption of the Campi Flegrei volcanic district, occurred 39 ky BP, and thus represents both a major marker for the reconstruction of the subsurface stratigraphic record and a sturdy morphologic substrate engraved by river incision associated with the sea level fall that accompanied the last glacial period. The lowstand, transgressive and aggradation/highstand stacking of the Holocene facies were displayed. The present landscape appears largely inherited by the past MIS5 and LGM landscapes. A progressive increment of anthropic forcing took place after 2000 yr BP but the strongest modifications of the landscape occurred since the end of the XVII century. Until that time the landscape was largely covered by marshes and ponds. Human interventions started during the Spanish vice-Kingdom, at the end of the XVI century, when reclamation works were carried out with the aim to drain most of the marshy areas. The availability of reclaimed lands resulted in an intensive land transformation and the loss of most coastal wetland coupled with coastal erosion. Progradation of the delta ended during the early-middle XIX century. A peak of major alterations of the deltaic environment, and retreat of the coastline was attained between the 1960s and the 1990s. It is evident that the transformations of the landscape that have taken place over the last millennium are largely caused by anthropogenic impacts (i.e., reclamation, development of drainage network, land use changes). The sediment input of the river to the Tyrrhenian Sea sharply decreased, thus resulting in a dramatic change of the deltaic morphology and significant coastal land loss. The coastal zone, considered as a dissipative-type shoreline, evolved to an irreversible non-dissipative inshore profile characterized by mean erosional rates of 5 m/yr along the beaches and 24 m/yr on the delta mouth. The river delta changed from a cusped, wave-dominated delta to arcuate and eventually delta-estuary type.

Ruberti D., Buffardi C., Sacchi M. & Vigliotti M. (2022) - The late Pleistocene-Holocene changing morphology of the Volturno delta and coast (northern Campania, Italy): Geological architecture and human influence. *Quat. Int.*, 625, 14-28. <https://doi.org/10.1016/j.quaint.2022.03.023>.