



Padova, 16–18 September 2025

ABSTRACT BOOK

a cura della Società Geologica Italiana



Geosciences and the Challenges of the 21st Century



DIPARTIMENTO
DI GEOSCIENZE



UNIVERSITÀ
DEGLI STUDI
DI PADOVA



PRESIDENTS OF THE CONGRESS

Davide Novella (SIMP), Giulio Di Toro (SGI).

SCIENTIFIC COMMITTEE COORDINATOR

Stefano Poli (Università di Milano).

SCIENTIFIC COMMITTEE

Gilberto Artioli (Università di Padova), Germana Barone (Università di Catania), Francesca Bianco (INGV), Andrea Brogi (Università di Bari), Cristiano Collettini (Sapienza Università di Roma), Annalisa Ferretti (Università di Modena e Reggio Emilia), Eduardo Garzanti (Università di Milano-Bicocca), Diego Gatta (Università di Milano), Fausto Guzzetti (CNR), Anna Maria Marotta (Università di Milano), Luca Menegon (University of Oslo), Marta Pappalardo (Università di Pisa), Mariano Parente (Università di Napoli "Federico II"), Massimo Pompilio (INGV), Elisabetta Rampone (Università di Genova), Francesca Salvi (ENI), Cecilia Viti (Università di Siena).

ORGANISING COMMITTEE

Claudia Agnini (Università di Padova – SGI), Matteo Ardit (Università di Padova – SIMP), Omar Bartoli (Università di Padova – SIMP), Donato Belmonte (SIMP), Bernardo Carmina (Università di Pisa), Eugenio Carminati (SGI), Chiara Dalconi (Università di Padova – SIMP), Paolo Fabbri (Università di Padova – SGI), Lorenza Fascio (SIMP), Patrizia Fumagalli (SIMP), Massimiliano Ghinassi (Università di Padova – SGI), Giulia Innamorati (SGI), Nadia Malaspina (SIMP), Virginia Marchionni (SIMP), Lara Maritan (Università di Padova – SIMP), Fabrizio Nestola (Università di Padova – SIMP), Fabio Massimo Petti (SGI), Nereo Preto (Università di Padova – SGI), Manuel Rigo (Università di Padova – SGI), Gabriella Salviulo (Università di Padova – SIMP), Lisa Santello (Università di Padova – SGI), Telemaco Tesei (Università di Padova – SGI), Luca Valentini (Università di Padova – SIMP), Alessandro Zuccari (SGI).

ABSTRACT BOOK EDITORS

Bernardo Carmina, Lorenza Fascio, Giulia Innamorati, Virginia Marchionni, Marco Pasero & Fabio Massimo Petti.

COVER IMAGE

Padua, Italy at Prato della Valle by Sean Pavone. Site: elements.envato.com

*Papers, data, figures, maps and any other material published are covered by the copyright own by the **Società Geologica Italiana**.*

DISCLAIMER: The Società Geologica Italiana, the Editors are not responsible for the ideas, opinions, and contents of the papers published; the authors of each paper are responsible for the ideas opinions and contents published.

The Italian Geological Society and the scientific editors are not responsible for the opinions expressed and the statements published in the articles: the author(s) is/are the sole responsible party/parties.

Quaternary subsurface integrated stratigraphy of the Brescia area: New evidences from the CARG BS1 scientific drilling (N-Italy)

Aghib F.S.*¹, Norini G.¹, De Franco R.¹, Muttoni G.², Zerboni A.², Violanti D.³, Pini R.¹, Di Capua A.¹, Bonomo S.¹, Caielli G.¹, Mazzini I.¹, Crippa G.², Felletti F.², Tantardini D.², Baio M.², Pezzotta A.², Cardola R.^{1,2}, Barilaro F.¹, Rusconi D.¹, Bertuletti P.¹, Groppelli G.¹, Schirolli P.⁴ & Piccin A.⁵

¹ CNR-IGAG. ² Dipartimento di Scienze della Terra “Ardito Desio”, Università di Milano. ³ Dipartimento di Scienze della Terra, Università di Torino. ⁴ Museo Civico di Scienze Naturali, Sezione di Scienze della Terra, Brescia.

⁵ Direzione Generale Territorio e Sistemi Verdi, Regione Lombardia, Milano.

Corresponding author email: fulvia.aghib@igag.cnr.it

Keywords: Central Po Plain, sedimentary evolution, chronostratigraphy.

We present a multidisciplinary investigation of a 150-m-thick sedimentary succession recovered from a borehole (CARG BS1) drilled South of the Brescia metropolitan area (N-Italy) within the framework of the CARG Project (1:50,000 Geological Map of Italy, Sheet 121 Brescia). The CARG BS1 core provides a high-resolution stratigraphic record aimed at refining the subsurface geological framework of the central Po Plain, specifically in the sector bounded to the North by the Mesozoic Alpine outcrops and to the southeast by the tectonic reliefs of Castenedolo and Ciliverghe. The PS1 PS2 and PS3 depositional sequences and the magnetostratigraphically-calibrated R and Y regional unconformities represent the paleoenvironmental evolution from a shallow marine to a continental setting in the last 2 Ma (Carcano & Piccin, 2002; Aghib et al., 2024). In the CARG BS1 record, the R-surface is identified at 103.42 mbrf, based on magnetostratigraphic and biostratigraphic constraints between the top of the Jaramillo polarity subchron (ca. 990 ka) and the Brunhes-Matuyama boundary (780 ka). An interpolated age of ~870 ka is attributed to this surface, corresponding to MIS 22 (Muttoni et al., 2003). The R-surface marks the transition between the PS1 and PS2 stratigraphic units.

The Y-surface, at a depth of 43.41 mbrf, at the base of the PS3 sequence, is less well constrained chronologically, with an indicative age of approximately 0.45 Ma (Carcano & Piccin, 2002). The PS1 sequence is composed mainly of fine-grained sediments, representing a shallow marine depositional environment associated with phases of fan-delta progradation. It is attributed to the Calabrian (*pro parte*) based on foraminiferal biostratigraphy (macro- and microfossil assemblages) and the presence of a partial record of the Jaramillo subchron. The uppermost part of PS1 contains a fine-grained laminated interval suggesting brackish conditions passing upward to continental facies as revealed by the macro- and microfossil content, ostracods, foraminifera (*Aubignyina perlucida* and *Ammonia tepida*), and by the pollen types (*Tsuga*, *Carya*) typical of an Early Pleistocene age. The PS2 sequence (103-43 mbrf) consists of gravel/sandy gravels to silt/sands with sparse fresh-water ostracod assemblages, representing meandering/distal braided fluvial to glaci-fluvial systems influenced by climatic cooling, as confirmed by the disappearance of plants recorded in the lowermost core section. Moreover, the sand/clast petrography allowed to identify the Garda and Val Trompia basins as source areas. The PS3 sequence above the Y-surface at 43 mbrf represents proximal braided glaci-fluvial/proglacial setting, mostly consisting of massive unsorted sedimentary gravels related to the Pleistocene glacial advances.

The extensive multidisciplinary characterization of the CARG BS1 record allowed to establish a reference bio-chronostratigraphy for the study of the Quaternary sedimentary evolution of the central Po Plain.

Aghib F.S. et al. (2024) - The Pleistocene tectono-stratigraphic evolution of the northern Po Plain (Italy) around the Castenedolo and Ciliverghe hillocks. *Quaternary Research*, 117, 170-182, <https://doi.org/10.1017/qua.2023.47>.

Carcano C. & Piccin A. (2002) - *Geologia degli Acquiferi Padani della Regione Lombardia*. Regione Lombardia & ENI-AGIP: SELCA, Firenze, 130 pp.

Muttoni G. et al. (2003) - Onset of major Pleistocene glaciations in the Alps. *Geology*, 31, 989-992.