



Geospatial and Lithological Data on Roman Stone Monuments from Southeastern Slovenia

DATA PAPERS

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ABSTRACT

This paper presents an open-access dataset of 194 Roman stone monuments documented in southeastern Slovenia. The dataset includes funerary stelae, votive altars, inscription plaques, milestones, and architectural elements dated primarily between the first and fourth centuries CE. Each record contains typological classification, spatial coordinates (WGS84), monument dimensions, epigraphic information, bibliographic references, and macroscopic lithological attribution. The data were compiled through systematic review of published corpora, museum documentation, and field verification, and are provided in CSV format with an accompanying interactive GIS interface. The dataset supports spatial analysis, material provenance research, comparative monument studies, and digital heritage applications.

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(1) OVERVIEW

CONTEXT

Roman stone monuments represent a key source for understanding settlement patterns, commemorative practices, and local production systems in the provinces of the Roman Empire [1, 2]. In southeastern Slovenia, numerous funerary stelae, votive altars, milestones, and architectural stone elements have been discovered, often reused in later churches, castles, and rural buildings [3]. Although many of these monuments have been individually published in epigraphic corpora and regional studies [4], their documentation remains dispersed and lacks a unified georeferenced and lithologically classified framework.

The dataset presented here was produced within the broader research context of investigating local limestone supply and quarry exploitation in the Roman province of Pannonia. The main objective of this work is to provide an open, structured catalogue of Roman stone monuments that integrates typology, spatial

coordinates, epigraphic information, and macroscopic lithological attribution. By consolidating archaeological and geological data in a single accessible resource, the dataset establishes essential infrastructure for future research on monument distribution, material provenance, and the organisation of local stone production and trade networks in Roman southeastern Slovenia.

SPATIAL COVERAGE

Description: Southeastern Slovenia (Lower Carniola and Bela Krajina), Republic of Slovenia

Northern boundary: +46.0476° N

Southern boundary: +45.4868° N

Eastern boundary: +45.9496° E

Western boundary: +14.4973° E

The spatial distribution of the monuments within the study area is shown in [Figure 1](#).

TEMPORAL COVERAGE

CE 1 – CE 400 (1st–4th centuries CE)

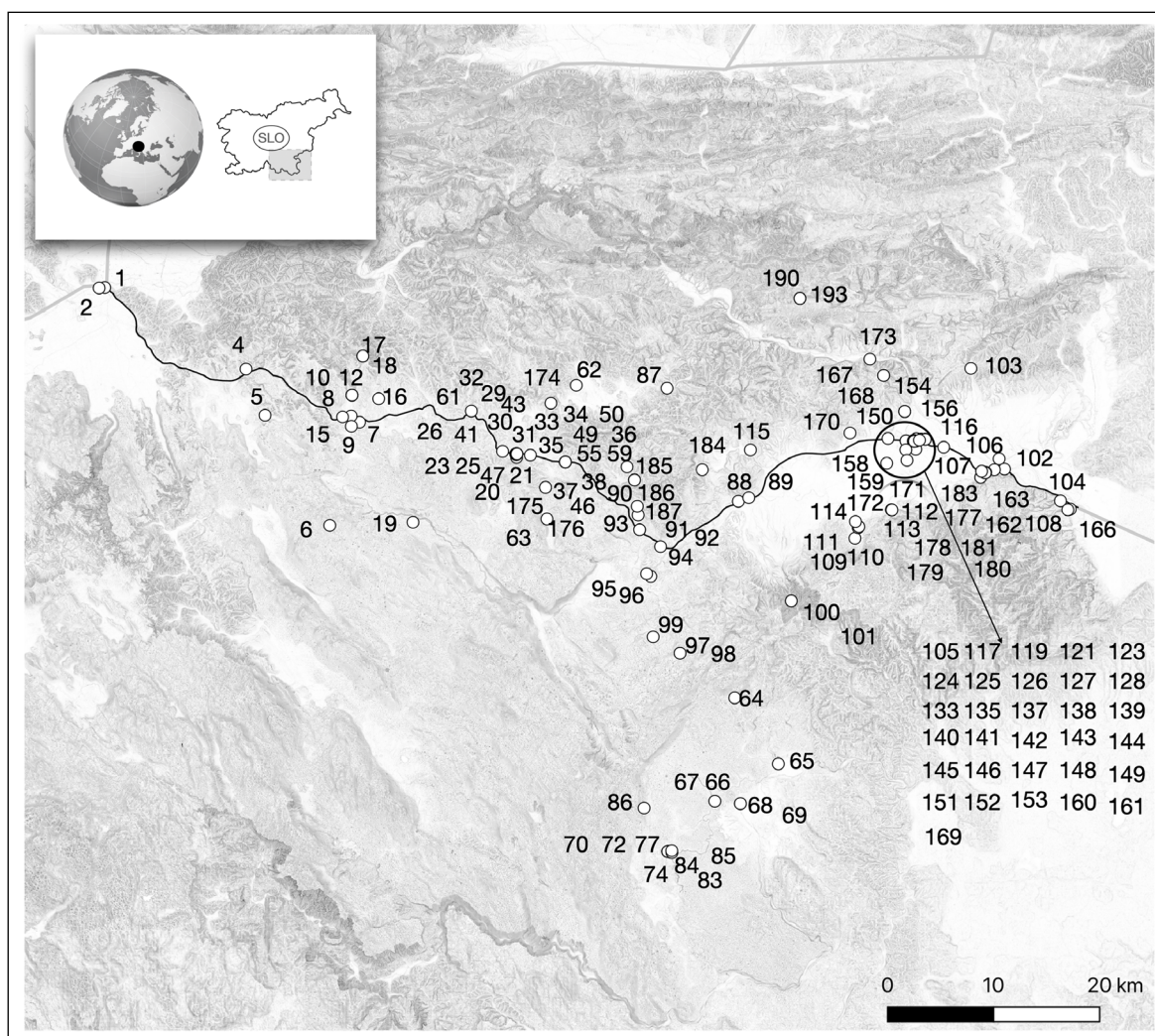


Figure 1 Geospatial distribution of Roman stone monuments in southeastern Slovenia (Lower Carniola and Bela Krajina). Monument IDs correspond to catalogue entries in the dataset.

Author: E. Lozić.

(2) METHODS

STEPS

The dataset was compiled through systematic integration of archaeological, epigraphic, spatial, and geological data. Monument records were collected from published corpora and online epigraphic databases, including *Inscriptiones Latinae Sloveniae* [4], UBI ERAT LUPA [5], and relevant regional archaeological publications [3]. Spatial coordinates represent the recorded location of each monument in the dataset, which may correspond either to an original in situ context or to a secondary context such as reuse in later architecture or recovery during excavation. Spatial coordinates were recorded using GPS measurements during field visits and verified using digital cartographic tools and GIS software (QGIS). Macroscopic lithological characterisation of the stone material was performed by G. E. Geološke ekspertize Igor Rižnar s.p., based on petrographic criteria and comparison with regional geological formations. Geological characterisation followed the methodology described in the associated geological report [6]. All records were standardised and structured in CSV format.

SAMPLING STRATEGY

The dataset includes all currently documented Roman stone monuments within the defined study area of southeastern Slovenia for which sufficiently reliable spatial and contextual information was available. No chronological or typological sub-selection was applied. Monuments lacking secure Roman attribution or reliable contextual information were excluded. While such exclusions may limit completeness in some areas, the dataset remains broadly representative of currently documented Roman stone monuments from the study region.

QUALITY CONTROL

Quality control involved cross-checking epigraphic data against established databases (e.g. the Epigraphik-Datenbank Clauss-Slaby (EDCS) and UBI ERAT LUPA), verification of bibliographic references, standardisation of typological terminology, and consistency checks of chronological attributions. Spatial coordinates were validated through GIS visualisation to identify possible geolocation errors. Where possible, a subset of monuments was additionally verified through field inspection, which helped confirm the documented location and improve confidence in lithological attribution. Lithological attributions were recorded according to a controlled classification system based on macroscopic geological characterisation, as defined in the associated geological report [7], in order to ensure internal consistency across the dataset.

CONSTRAINTS

Several monuments are reused in later architectural contexts, limiting direct geological inspection and measurement. In such cases, lithological identification relies on visible macroscopic features. Original findspots are not always known; coordinates therefore represent the documented location of the monument, whether original or secondary. Not all monuments could be verified in the field, and chronological attribution remains dependent on published epigraphic and stylistic analyses.

(3) DATASET DESCRIPTION

OBJECT NAME

Data_EN.csv (Complete catalogue of Roman stone monument records from southeastern Slovenia)

DATA TYPE

Primary data; processed data (Primary archaeological documentation + processed/standardised dataset structure)

FORMAT NAMES AND VERSIONS

CSV (comma-separated values)

ArcGIS Online interactive web application (Instant App).

CREATION DATES

01/10/2022 – 31/12/2024

DATASET CREATORS

Edisa Lozić – Dataset design, archaeological data collection, GIS processing, database structuring; ZRC SAZU, Institute of Archaeology, Ljubljana, Slovenia

Igor Rižnar – Macroscopic lithological characterisation and geological attribution; G. E. Geološke ekspertize Igor Rižnar s.p., Slovenia

LANGUAGE

English

LICENSE

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REPOSITORY LOCATION

Zenodo repository. DOI: [10.5281/zenodo.17289465](https://doi.org/10.5281/zenodo.17289465)

The dataset is further presented through an online searchable atlas (EOLITH) that enables users to explore monument records spatially and thematically [8]. Where known, records distinguish between original and secondary monument contexts, including reuse in later architectural settings.

PUBLICATION DATE

07/10/2025

(4) REUSE POTENTIAL

The dataset provides an openly accessible, georeferenced and lithologically classified catalogue of Roman stone monuments from southeastern Slovenia. It can be reused by archaeologists for spatial analysis of monument distribution, comparative studies of funerary and votive practices, and integration into broader corpora of Roman epigraphy and sculpture. The inclusion of macroscopic lithological attribution enables future provenance research and supports investigations of local limestone supply and quarry exploitation in the Roman provinces of Pannonia and Noricum. Researchers in ge archaeology and material culture studies may employ the data for reference and validation of regional lithotype classifications. The structured CSV format allows aggregation with other digital heritage datasets and use in GIS-based modelling, teaching, and interdisciplinary collaboration. Heritage professionals may also apply the accompanying interactive GIS interface for documentation, monitoring, and public engagement with Roman archaeological material.

The accompanying online atlas (EOLITH) facilitates teaching, heritage management, and public engagement [8].

DATA ACCESSIBILITY STATEMENT

The dataset described in this paper is openly available via Zenodo at DOI: [10.5281/zenodo.17289465](https://doi.org/10.5281/zenodo.17289465). An online searchable atlas is also available at: <https://arkas.caspio.app/genii-flex/public/catalogue-en?sid=e4ee8f036b2b4920b477bbe3d0184c77>.

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COMPETING INTERESTS

The author has no competing interests to declare.

AUTHOR CONTRIBUTIONS

E.L. conceived the dataset, carried out archaeological data collection and GIS documentation, coordinated lithological attribution, structured and validated the database, and wrote the manuscript.

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