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EDITORIAL
LANDFORMS, SEDIMENTS, AND SOILS: QUATERNARY STUDY CASES OF ARGENTINA

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This volume collects papers that combine Quaternary Geology and Sedimentology in study cases from Argentina. The Quaternary Science community of Argentina is dynamic and vigorous, accompanying the last decades of increasing significance of the Quaternary studies to face the environmental issues of a highly changeable Earth System regarding landscape, climate, and human impact. Numerous scientific teams spread along the country, in academic, scientific, and other governmental institutions, are studying the Quaternary record of Argentina. The result of that is, among others, the occurrence of the National Quaternary and Geomorphology Congress of Argentina (CACyG), which happens every three years in different Argentina's localities. The last version, the VIII CACyG, was held in San Juan City in September of 2022, and some contributions there presented were invited as paper versions for the Latin American Journal of Sedimentology and Basin Analysis. As a result of that initiative, we are here presenting this Special Issue, "Landforms, sediments, and soils: Quaternary study cases of Argentina," with four original research papers that received the standard peer-review of the LAJSBA. The research papers embrace different study cases of Argentina, from the piedmont areas of the Andes Cordillera and the Pampean Ranges to the glacial lakes and marine coasts of Patagonia. These papers expose novel results obtained through robust field surveys associated with the application of different tools like remote sensing, geophysical methods, and diverse laboratory analysis.

The first article, "Development and configuration of alluvial deposits in the Western Piedmont of the San Luis Range, in the context of the Pampean Ranges. San Luis, Argentina", Aranda et al., studies the stratigraphy, facies architecture and sedimentology of alluvial deposits developed in a regional broken foreland context. Local base level changes produced by the activity of the reverse San Luis fault produce thickness and facies changes in three alluvial deposits identified in the western piedmont of the San Luis Range. Compared to the proposed models, where alluvial fans exhibit a semi-conical and triangular shape that pinch out toward the distal border of the fan, the western piedmont San Luis Range alluvial fans show triangular and tabular shapes that pinch out toward the apex of the fan. Differences observed in facies architecture and geometry of the western piedmont San Luis Range alluvial fans are related to local disposal of accommodation space due to the complex structural configuration of the "piedmont foreland" model of the Longitudinal Central Depression developed between the San Luis and the Western Ranges.

A second contribution, "Soil-geomorphic relationships in a northeastern Patagonian tidal salt marsh, peninsula Valdés, Argentina" Ríos et al. present the study of a salt marsh ecosystem located at a transitional coastal area of Patagonia through a soil-geochemistry approach. The methodology included the geomorphologic mapping of a complex beach-ridge system, soil descriptions, and laboratory analyses of soil samples. The authors expose the relationship among different soils, δ13C isotope composition of soil organic matter, C/N ratio, and the Holocene evolution of salt marshes. The generation of sulfuric acid and potential metal release was analyzed; specifically, the described *Spartina alterniflora*

soil was considered a potential acid sulfate soil. The authors tested the plant zonation model in response to ecological succession combined with the geomorphology, soils, and vegetation of the region.

The third contribution, "Geomorphology and sedimentary facies of the Huaco River mega-fan, Bermejo basin, San Juan, Argentina", Santamaría et al. analyzed an example of a mega-fan a fluvial system developed at the terminal sector of the Huaco River, Eastern Precordillera-Andean broken foreland. The methodology included a detailed geomorphologic mapping using GIS-based remote sensing and field survey of the fluvial system and the facies analysis of its Quaternary deposits. The authors combined multispectral satellite image processing and in-site determination/description of sediments to classify the units composing the Huaco mega-fan. The authors employed this study case to discuss the definitions and classifications of mega-fans to contribute to the distributive fluvial system (DFS) model. The obtained results exposed the presence of different facies along the Huaco DFS and the significant contribution of the aeolian activity as a source of sediment supply.

Finally, the paper "Recent disturbance events recorded in the sedimentary infill of Lago Guillelmo (Argentina): tephra falls and hydrogeomorphic processes" by Amat et al., offers a geological-palaeolimnological study of a glacial lake at the Northern Patagonian Andes. The methodology combined subaerial and subaqueous information through morphometric determinations of watershed areas, Ground Penetrating Radar (GPR) profiles of the lake bottom, and lake sediment coring and analysis, focusing on tephra layers. The authors performed correlations of the sediment cores with hydrogeomorphic processes (like hyperpycnal flows) and volcanic ash fall events. The study highlights the significant anthropic impacts of road construction and gravel mining activities in the lacustrine record.