










## GEOMEMÓRIAS: EX SITU GEOCONSERVATION INITIATIVE PROMOTED BY THE DEPARTMENT OF GEOSCIENCES AT THE UNIVERSIDADE FEDERAL DE SANTA MARIA IN CELEBRATION OF THE 60<sup>TH</sup> ANNIVERSARY OF THE GEOGRAPHY PROGRAMS

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**Abstract:** *The year 2025 is significant for the Department of Geosciences at the Universidade Federal de Santa Maria, as it marks the 60th anniversary of the establishment of the university's first Geography program. As a way to contribute to the scheduled celebrations and to leave a long-term legacy, the interactive space Geomemórias is being developed. This space will feature activities and exhibitions of geological materials from the four main geomorphological provinces of the state of Rio Grande do Sul, promoting the integration of geology with physical geography, while also encouraging ex situ geoconservation initiatives in other analogous institutions.*

**Keywords:** *Mineral geoheritage, Regional geology of Rio Grande do Sul, Geomorphological geoheritage, Geosciences exhibition, Physiographic aspects*

## 1. INTRODUCTION

The state of Rio Grande do Sul, in Brazil, stands out on the international geoconservation stage for hosting three UNESCO Global Geoparks within its territory: the Caçapava Geopark (Borba & Guadagnin 2022, Xavier et al. 2025), the Caminhos dos Cânions do Sul Geopark (Sung et al. 2019, da Silva et al. 2025), and the Quarta Colônia Geopark (Figueiró et al. 2019, Figueiró et al. 2022). A key contributor to this achievement has been the Universidade Federal de Santa Maria (UFSM), which has supported initiatives through partnerships with public authorities and the private sector (Borba 2014, Moliner & Mampel 2019). Within UFSM's multidisciplinary framework, particular emphasis is placed on the Department of Geosciences (DEGEO), which is inherently interdisciplinary, bringing together geologists and geographers engaged in geoconservation efforts.

The year 2025 marks a significant milestone for DEGEO: the 60<sup>th</sup> anniversary of the creation of UFSM's first undergraduate Geography program. To commemorate this occasion, DEGEO has organized a series of celebratory activities aimed at preserving and honoring the program's legacy. Among these initiatives is the development of the interactive exhibition room *Geomemórias*, featuring geological samples (minerals, rocks, fossils, sediments, etc.) representative of all geomorphological domains of the state of Rio Grande do Sul (RS), where UFSM is located. This paper presents the planning and implementation of this space, aiming to support and inspire similar university-based geoconservation and outreach initiatives. The exhibition will be open to the public and will serve as a permanent facility within DEGEO, offering a wide range of interactive activities related to geology and physical geography.

## 2. ACTIVITY PLANNING

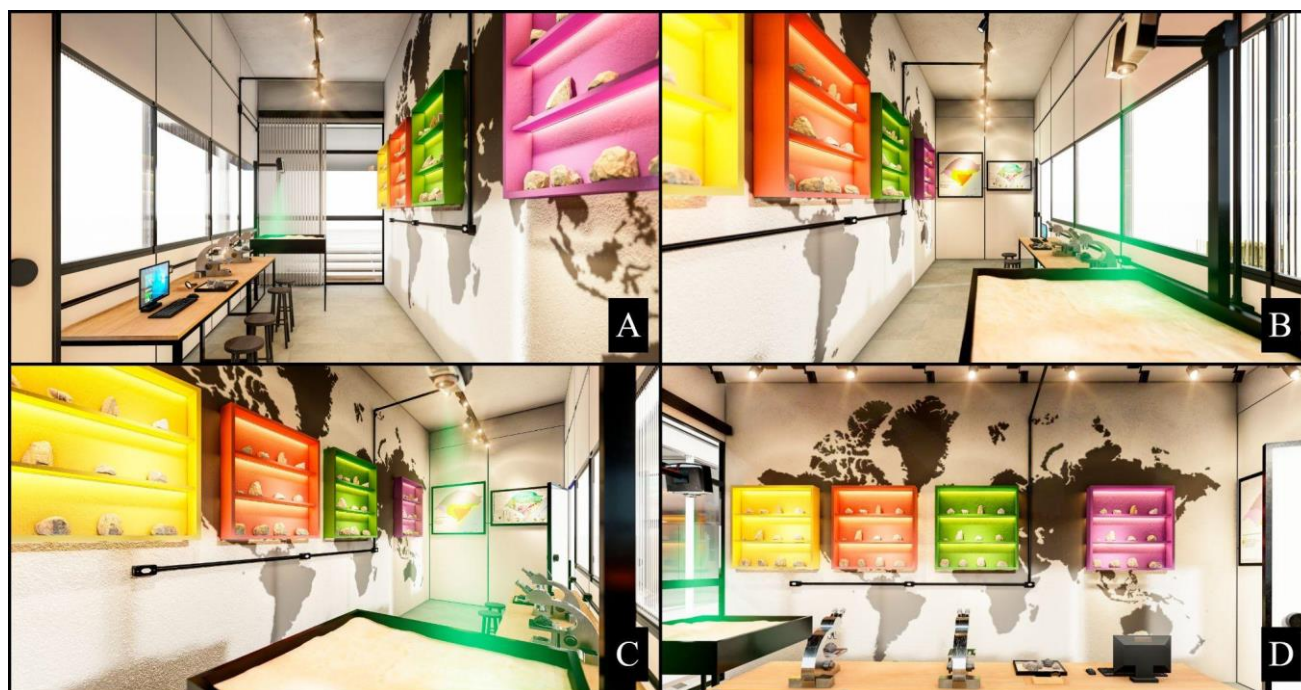
The conceptual basis for the exhibition was centered on the four geomorphological domains of Rio Grande do Sul (Gonçalves &

dos Santos 1985): the Coastal Plain, the Southern Rio-Grandense Shield, the Central Depression, and the Meridional Plateau. These domains are illustrated through representative geological materials collected from each unit. Geomorphological and geological maps will be displayed to contextualize the specimens. A systematic inventory of geological samples housed in DEGEO's lithotheque was carried out using standardized methods for ex situ geoheritage inventories (Nobre et al. 2024), and illustrative materials from each geomorphological domain were selected for exhibition.

To strengthen the connection between geoscientific research and public engagement, the exhibition will feature a robust petrographic microscope and stereoscopic magnifier, allowing visitors to observe mineral and rock features not visible to the naked eye. To enhance visitor interaction and complement the geomorphological content, the exhibition will also include an interactive sandbox - or augmented reality sandbox (Woods et al. 2016, Richardson et al. 2018) - to provide a three-dimensional visualization of topography and demonstrate the function of contour lines on two-dimensional maps.

## 3. ARCHITECTURAL DESIGN

The *Geomemórias* exhibition is located near the main entrance hall on the ground floor of Building 17 at UFSM's main campus. The room's renovation began with the painting of a world map on the largest wall, and the printing and framing of geomorphological and geological maps of Rio Grande do Sul. These domains were color-coded to match the display stands holding the geological samples, visually linking each domain with its corresponding geological materials. The architectural layout includes tables and benches for the petrographic microscope and stereoscopic magnifier, along with the interactive sandbox. The final architectural design of the *Geomemórias* space is shown in Figure 1.



**Figure 1.** Architectural design of the *Geomemórias* exhibition. **A)** View from the entrance. **B)** Spatial arrangement from the wall opposite the entrance. **C)** Geological and geomorphological maps of RS, sample display stands, interactive sandbox, microscope, and magnifier. **D)** Detail of the sample stands color-coded to match the geomorphological domains and positioning of the microscope and magnifier within the room.

#### 4. FINAL CONSIDERATIONS

The *Geomemórias* exhibition is a science outreach and university extension initiative promoted by the Department of Geosciences at UFSM as part of the celebrations marking the 60th anniversary of the university's undergraduate Geography program. Although originally conceived as a commemorative project, the space is intended to become a permanent fixture, serving as a public exhibition site within DEGEO and as a lasting legacy of the anniversary festivities.

Inspired by the color palette and diversity of geological environments and their geomorphological expressions, a logo was designed to provide the exhibition with a consistent visual identity and to support its visual communication. The logo is presented in Figure 2.



**Figure 2.** Logo of the *Geomemórias* exhibition.

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