

[SES-01 General contributions to sedimentology](#)

**Update of the geological map of the metropolitan area of Mérida, Venezuela**

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This paper presents the results of the 1:25,000 surficial geological mapping of the Metropolitan Area of Mérida, carried out through the Multinational Andean Project: Geoscience for Andean Communities (MAP: GAC). The study identified the most important features of each unit and mapped their spatial distribution, highlighting the structural features in the area.

The area is crossed by the NE-SW striking Boconó fault (plate boundary) and Albarregas fault which parallel the Mérida Cordillera. There are minor local faults more or less perpendicular to the Cordillera. Both the Boconó and Albarregas faults are regionally significant, crossing the capital city. The region has been affected by compressional tectonic activity, producing zones of crustal shortening and extension.

Bedrock ranges in age from Precambrian to Tertiary and Quaternary sediments. The crystalline rocks of the Precambrian Sierra Nevada Group form two parallel NE-SW trending bands, constraining a group of grabens with Paleozoic, Mesozoic, Tertiary and Quaternary units. The Tostos Group and Sabaneta and Palmarito formations (Paleozoic) are exposed along the Pan-American axis, from La Hechicera to the Manzano Alto area in Ejido, where it is truncated by the Jurassic La Quinta Formation. The La Quinta formation is thrust over the Cretaceous Rio Negro, Apón, Aguardiente, Capacho and Luna formations. These are exposed along the upper reaches (northern margin) of the Montalban River basin. The Mucujun Formation (Mio-Pliocene) is exposed in a long band that extends from the Pedregosa Alta to La Hechicera, where it expands into a larger block towards the El Valle area and contacts the San Javier Formation (Eocene), which outcrops locally in this area. Finally, there are the Quaternary sediment deposits, composed mainly of terraces and alluvial fans underlying the cities of Merida (the state capital) and Ejido. These deposits were not differentiated in this study.

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**Sedimentological study of coalescent fans in the municipality of Campo Elias, Merida State, Venezuela, as part of the multinational andean project**

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This paper presents the results of a sedimentological study of three alluvial fans in the town of Ejido in the Municipality of Campo Elias in Merida State. The alluvial fans in the Montalban - La Ceibita Basin are linked to distinct events that occurred in the area. The fan profiles are related to the supply of high volumes of sediment caused by unstable geological settings, unfavorable geomorphological processes and exceptional hydrometeorological conditions. Grain size and mineral composition differences observed in samples and profiles reveal lithofacies and paleocurrent changes that vary from one fan to another. Therefore, the three alluvial fans represent different sedimentation mechanisms linked to debris flow (the La Vega fan in Ejido). According to sedimentological studies, the La Vega fan is related to the flooding of the Montalban River, which is a product of a sporadic natural phenomenon (rainfall) that increases both erosion and sediment load, depending on the duration and intensity of a given precipitation event. In the case of the La Vega fan of Ejido, sedimentological analysis suggests that the destructive debris flows of 1947 resulted from the failure of a natural dam in the headwaters of the basin. Cosmogenic <sup>35</sup>Cl exposure dating of rock avalanche deposits in the area of El Minal indicate that at least three similar mass flows have occurred in the past 1,000 to 2,000 years.



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[GHZ-12 Converting geosciences knowledge into action for natural hazard reduction: Lessons from multidisciplinary research](#)

**Communication as a means of reducing vulnerability to geological hazards: The case of the Montalban-La Ceibita Sub-basins, Municipality of Campo Elias, Merida, Venezuela**

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The Venezuelan case study of the Multinational Andean Project: Geoscience for Andean Communities was developed in the community of Montalban-La Ceibita, located in the city of Ejido, as a strategy for change. The project's work consisted of the production, transfer and application of geoscientific and social knowledge through the development of communication processes that enables people in the community to undertake actions to minimize their existing vulnerability to local geological hazards. Social and geoscientific studies were simultaneously carried out. The geoscientific investigations dealt with the characterization of mass movement susceptibility while the social aspect considered the vulnerability of the population in the area. In dealing with vulnerability, a methodology was designed that considered issues relating to community organization, experiences with natural events, risk perception, training, information management, perceptions, feelings, fears and socioeconomic characteristics.

The community of Montalban is currently undertaking a series of strategic actions to improve their ability to respond to an adverse event as a result of this work.