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BOOK of ABSTRACTS

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Role of Mineralogical Composition and Physico-chemical Properties of Sediment on Badlands Classification

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Figure 1. Badland areas from which samples were collected.

Badlands, areas exposed to wide range of geomorphological processes and sparse or absent in vegetation, thanks to differences in soil and rock characteristic can be formed in different climate conditions [1].

Beside common morphological properties, these kind of terrains fall under a wide range of geomorphic activities and dynamic behaviors.

Diversity of factors, led by lithology, weathering and erosion processes, play a significant role in formation of badland terrains. That diversity implies the complexity of the interactions and processes that are a part of badlands origin and evolution.

It was observed that in terrains with different lithologies may have different erosion rates and general processes, depending on the lithology. But not only that, even areas with same lithology may behave differently depending on the conditions that occur in the environment.

For these reasons mineralogical and physico-chemical characterizations attracted researchers' attention with the aim to link material properties, weathering and erosion processes and form current "site signatures". Link between sodium adsorption ration and electrical conductivity (SAR/EC) or pH (SAR/pH) are some of already established site signatures that define dispersivity of badland materials.

Knowing that, physico-chemical and mineralogical analysis were conducted on˜ 40 unweathered badland sediments samples taken from different areas (Fig. 1) with the aim to determine critical properties of material for development of badlands and to make additional classification of dispersive materials.

Wide database formed of data such as: mineralogical composition, grain size, pH, electrical conductivity, ions concentrations, the content of organic carbon (C_{org}) was formed. Results processing and a large number of statistical analysis showed that classification of sediments dispersivity based on its mineralogical compositions is mainly influenced by C_{org}.

Materials susceptibility to erosion processes is where C_{org} generally has an important role, while higher C_{org} have important role in improvement of materials resistance to dispersion.

In conclusion, this results processing suggested that a current importance of C_{org} obvious and that it could lead to forming a new site signature that would contain some of analyzed parameters combined with measured C_{org} values and would classify them based on their dispersity.

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