

Captivating But Hazardous Geological Phenomena Named Argillaceous Diapir Folds, Domes, Bulges, Feathers and Mud Volcanoes: Far from Rhetoric, Closer to the Reality

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Abstract

Current tectonic movements of the subduction zone between both the Caribbean and South American plates are caused by the internal centrifugal force of our planet because its own continuous spinning. These have a high chance of causing natural hazards in many cities along the Colombian Caribbean Coastal, such as: destruction of several houses in Turbaco, Bolivar in 2010; potential collapse of the slope of a mud volcano in Arboletes, Antioquia, 2010; and hazards for drilling in Galerazamba, Atlántico in 2012. Recently, scientific research into argillaceous diapirs as common phenomena at the Caribbean shoreline has improved. These new investigations used modern, scientific technologies but have lacked sociocultural analysis, especially as to how to mitigate these phenomena in natural areas protecting underwater platforms, coastal lines, old and new beaches, and even the large expanses of savannah along the continental margin. It is imperative to mitigate natural and social risks focused on people and their infrastructure caused by these natural phenomena such as bulges, domes, mud volcanoes, argillaceous diapirs, folds, and feathers, described since the late 1980s and classified in different scientific studies, including the Atlantic continental area in Colombia for kilometers at the Atrato Magdalena and Sinú River Valley. Since the 1970s, scientific attention has focussed on the phenomena of argillaceous diapirs in the Caribbean Colombian both at sea and on land, with scientific research into regional geology, tectonics, geophysical, and bathymetric analysis. Unfortunately, the area has not been part of a government and institutional administrative chain to attend to the coastal population's mitigation in natural disasters. The present work (field visits, literature reviews, analyses of remote sensing and assessment techniques for prevention, mitigation and emergency management) has led to invitations for young scientists to intensify interest in natural disaster areas for all Caribbean countries because the centrifuge force is bigger next to the Equatorial Imaginary Line. As a conclusion, it is important to mention the most significant appreciation from people about mud volcanoes. They are a scientific mystery. We only know that they represent a continental margin along the Caribbean, their temperatures in Colombia are similar to the environment, and they produce unfamiliar pollution. Their medicinal properties are a myth and their natural hazards are uncertain, their damage on the shoreline is undefined, their expansion area is private not public, and the authorities do not know exactly how these phenomena occur.