



Seafloor mapping reveals new features associated with halokinesis in the upper slope of Santos Basin

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Abstract

Since 2011 a series of multibeam and sub-bottom profiler surveys performed on the Santos Basin upper continental slope revealed the occurrence of several bottom features associated with the escape of gas from the seafloor. These features include pockmark fields and carbonate mound ridges. The integration of these data with deep- multichannel lines from the Brazilian Agency of Petroleum, Natural Gas and Biofuels revealed a direct or indirect influence of the halokinesis, via salt diapirs, walls, and pillows, as the primary mechanism for the formation of faults and fractures and the consequent upward displacement of gas.

In this work, we present three cases of seafloor features (a pockmark field, a rig-shaped carbonate ridge, and a perfectly aligned carbonate lineament) associated with halokinesis and gas escape. First, the relationship between halokinesis and bottom features was recognized via direct diapir exhumation, generation of radial faults associated with the uplift of diapirs, and development of fractures associated with salt movement at the Albian Gap.

Our research puts in evidence the need for systematic seafloor mapping for geo- and biodiversity, geohazards, and gas dynamics on the Brazilian continental margin.

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