

GEOLOGY, GEOPHYSICS AND GEOCHEMISTRY OF MUD VOLCANOES: INTRODUCTION

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Mud volcanoes are a typical manifestation of accretionary complexes and are widely observed all over the world, mainly along continental margins. Faults associated with shale diapirism processes strongly influence mud volcanoes occurrence. Extrusion products are clay muds, connate salty waters and gases (mainly methane). Mud is driven upward by buoyancy forces arising from the bulk density contrast between an over pressured muddy mass and an overburden of greater density.

Morphostructural features and geochemical evidences allow to consider mud volcanoes as confined fluid reservoirs located along tectonic disturbances. Variations in the local stress fields induce pulses of activity in which the highly pressurized fluids within subduction zone migrate upwards at the surface. The continuous geophysical and geochemical monitoring of mud volcanic activity can be a powerful tool for monitoring on going seismogenic processes.