Abstract

Subduction zones, domains where oceanic lithosphere is subducted into the mantle beneath an overriding plate, are one of the most dynamic tectonic environments. A wide range of the long-lasting subduction-zone processes may be suitably reproduced and studied through analog modeling and thus may be directly observed in laboratory, though at time and length scales that differ fundamentally from nature. The main goals of this Bachelor thesis are first to provide an overview of large-scale architecture of subduction zones, to present an overview of the published analog experimental methods, and then to discuss the main outcomes of analog modeling of subduction zones and accretionary prisms. The thesis also summarizes the main mechanical parameters of materials used in the analog modeling. Furthermore, a set of simple experiments were performed, with the main goal to model formation of basalt-bearing mélanges during subduction of seamounts and volcanic belts that may occur on ocean floor and are commonly incorporated into accretionary wedges as dismembered Ocean Plate Stratigraphy (OPS).