

Influence of the Andean Orogeny on the Coalification Processes of Main Coal-Bearing Series from the Mesozoic Basins in the North and Central Peru.

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The Alto Chicama, Santa, Oyon and Jatunhuasi Coal Basins (Upper Jurassic-Lower Cretaceous) are located in the Peruvian Andean Range. These basins were strongly affected by the Andean Orogeny (Upper Cretaceous-Upper Tertiary). The objective of this work was to determine the influence of these geological events on coalification processes (of chemical and physico-structural type) undergone by the main coal productive series of these basins. Thus, the regional variation of petrological and geochemical rank parameters shows a well-defined zonation of coal rank in the form of bands parallel to the Andean Range. This rank distribution is represented by the meta-anthracite and anthracite bands (Western part of this range) which include coals from Alto Chicama and Santa Basins. These bands are close to the large igneous intrusions. Next, to the East, the bituminous band is located. It is represented by coals from Oyon and Jatunhuasi Basins (low and high volatile bituminous coals, respectively). The intense coalification shown by some of the coal series is due to the high thermal gradient caused by regional metamorphism produced by the placement of intrusive bodies during the subduction of the Pacific Plate (Nazca dorsal) under the South-American continent. Thus, the rank distribution is linked to the progressive subduction processes and to the migration of magmatism. This explains the differential evolution of coals from Mesozoic Basins. Finally, the strong anisotropy of vitrinites in high-rank coals, their negative biaxial optical character and features of semigraphites, reflect the tectonic activity in this area which has produced a significant physico-structural coalification.