

# **Geology, Petrology and Geochemistry of Coal-Seams from the Chimu Formation (Lower Cretaceous) in Alto Chicama Basin (Northern Peru).**

<sup>1</sup>CARRASCAL MIRANDA, E.R. and I. <sup>2</sup>SUAREZ-RUIZ, I. <sup>1</sup>Escuela de Geología. FIGMM-UNI. Av.Tupac Amaru s/n. Lima. Peru. <sup>2</sup>Instituto Nacional del Carbón (CSIC). Ap. Co.73; 33080-Oviedo. Spain.

The study carried out on the coal-seams from the Chimu Formation (Lower Cretaceous) in the Alto Chicama Basin (Peru), has provided both, a detailed knowledge of the characteristics and properties of their coals and the integration of the obtained data into a geological context of regional character. These coals are of humic type, mainly of autochthonous character with a variable ash content. Their organic components are of a continental nature and they derive from trees and shrub vegetation; and scarcely from herbaceous vegetation. According to the lithological and petrological characteristics, the coal seams of Chimu Formation were generated in deltaic facies with fresh and brackish water influence, in a paralic basin in which the humid and warm paleoclimatic conditions predominated. On the other hand, these facies were part of a very active deltaic system of great size with a high rate of transportation and sedimentation. This great delta was filling up the so-called Western Peruvian Basin (from Upper Jurassic to Lower Cretaceous), whose inorganic sediments came from the highly metamorphized areas of East and Northeast of Peru (Marañón Anticline, Brazilian Shield and Guiana). To conclude this work, the influence of tectonic, igneous and metamorphic activity undergone by this Basin and the development in the coals from Chimu Formation of specific morphologic and physic features at different scales, as well as their intense and fast coalification, are established. The anomalous high content in elementary sulphur in some coal beds and the local hydrothermal processes are also discussed.