

## **THE HIGHLY EXPLOSIVE UPPER CRETACEOUS VOLCANISM LOCATED CLOSE TO RIO DE JANEIRO, BRAZIL**

ALVES, D. B. - PETROBRAS/CENPES, Rio de Janeiro, Brazil

In the Upper Cretaceous section of the Campos Basin, more than fifteen bentonite beds occur intercalated with the marine sedimentary rocks of the Ubatuba and the Carapebus formations. These up to 1-m-thick beds exhibit planar geometry, good lateral continuity, extensive area of distribution and sharp contact with subjacent lithologies. They are mainly composed of highly expandable clay minerals. Relict textural features and geochemical parameters indicate they have been formed after subaqueous alteration of trachytic volcanic ashes settled as ash-fall deposits. They represent the finer volcanoclastic facies of an eruptive process. Other types of volcanic deposits with the same lithology have not been found. The associated turbidites are composed of arkosic sandstones derived from granitic-gneissic rocks. The presence of bentonite beds therefore implies intense volcanic activity close to the Campos Basin. Geochemical data of successive beds suggest that there were more than one volcano and that the precursor trachyte corresponded to a product of mantle partial fusion, with significant continental crust contamination. Therefore the volcanoes were located in an intraplate tectonic context different from that of the Lower Cretaceous basalts. The main period of this volcanic activity extended from Late Coniacian to Maastrichtian time, for about 25Ma. The distribution of the volcanic ashes embraces the adjacent Santos and Espírito Santo/Mucuri basins, with a minimum area of 700,000km<sup>2</sup>. The volcanoes were highly explosive being classified as (ultra)plinian. Petrological and geochemical data indicate that these volcanoes were located in the adjacent Serra do Mar province.