

SUBSIDENCE OF THE CAMARGUE BASIN

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RESUME - L'étude de la subsidence d'une vingtaine de forages du bassin tertiaire de Camargue a montré que l'évolution tectonique du bassin peut se résumer en trois phases : (1) Extension du Stampien à l'Aquitaniien, (2) subsidence thermique de l'Aquitaniien au Miocène supérieur et (3) mouvements complexes à partir du Pliocène à la suite des charriages en domaine provençal.

The Carmague basin in S. France results from an extensional phase of Stampian to Aquitanian times. It is characterized by normal faulting delimiting horsts, grabens and tilted blocks, together with a thick continental to shallow marine evaporite sedimentation (up to 3000 m). During the lower to middle Miocene, this basin is infilled with shallow-water deposits and displays a gentle subsidence. From Pliocene times to present, restricted marine to continental fluviatile deposits infill the erosion reliefs appeared after the strong regression of Messinian age.

The subsidence of the basin is due to two main factors: the loading effect of sediments and the component due to the deep tectonic processes in the continental crust and the lithosphere.

The tectonic subsidence have been computed for 20 wells in this basin after backstripping the loading effect of sediments (WATTS and STECKLER, 1979). It displays a striking similarity from one well to the other, except for two wells which were drilled on ridges where the cenozoic series were very thin (Albaron, St Marie). The main tectonic phases may be distinguished after the subsidence curves which are in excellent correlation with geological observations in the studied area as well as in the adjacent basins: (1) the Oligocene-Lower Miocene phase, with important subsidence of linear pattern, is contemporaneous with the rifting of the Western Mediterranean basin, (2) the Miocene phase, with a smooth subsidence which may be interpreted as a thermal subsidence due to cooling of the subjacent lithosphere as, in the adjacent basin and (3) the Pliocene to recent phase, with a complex subsidence pattern, may be correlated with the eastwards overthrust in Provence.

WATTS and STECKLER, 1979 - Subsidence and Eustasy at the continental margin of Eastern North America. In TALWANI, HAY and RYAN (eds). Deep drilling results of the Atlantic ocean. Am. Geophys. Union, Washington, 218-234.

