



Might be any shallow gas in the Ria de Vigo related to changes in the coastal environments?

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The Ría de Vigo is the southernmost incised valley on the Spanish Atlantic margin. In this ria a number of gassy fronts have been described and mapped during the last decade using seismic techniques. A recent pollen analysis performed from a gassy sediment profile in the middle of the ria (ZV1-core) revealed that the gassy horizon corresponds to the phase when riparian and mesophilous forest were better represented in the surroundings of the ria, dated between the X and XVI centuries. In addition dinocyst assemblages from the same profile suggest that gassy horizon coincides with an interval when the waters of the ria were less renewed by oceanic waters and had a plentiful supply of continental nutrients. Under these circumstances it has been postulated that anoxic conditions resulted from restricted vertical circulation of sea-water and/or high biological productivity.

Alternatively, escapes of gas bubbles can be directly observed in some places at the shallow subtidal and intertidal from San Simón Bay at the innermost part of the ria. Here, several recognisable organic beds appear in Cesantes beach, where several stratigraphic sections have been performed. Specifically, the profile CS-6, 39 cm depth, consist of at least two well differentiated facies: a basal level of 27 cm consisting of brown, clayed, less organic material and, overlaying, another 12 cm of dark, well-humified peat with abundant charcoals and plant remains.

Radiocarbon dating of the organic matter comprised between 34-36 cm depth result in an age of 1700 ± 50 BP (2σ : 598-803 AD), while the base of the peat (10-12 cm depth) reveals an age of 1630 ± 50 BP (2σ : 668-883 AD).

Pollen analyses of the CS-6 profile confirm that the peat horizon may corresponds to any strictly continental wetland (comprising *Alnus*, *Typha*, *Myriophyllum*, Cyperaceae

and other freshwater aquatics) that existed at this point in the past. In contrast, microrremains found in the earlier less organic levels suggest a clearly different environment characterized by increasing marine influence (higher percentages of Chenopodiaceae, Gramineae, Compositae, ferns, fungal spores and dinocysts). Tentatively, it may be interpreted as representing a series of sea-land transition ecosystems (most probably a complex environment including salt marshes, sea rush, dune vegetation, etc) which were previously developed at this locality. Thus, so the chronologies available as the pollen succession obtained suggest that in Cesantes beach an ancient salt marsh existed dated between VII-IX centuries. Subsequently it becomes in a fresh water environment now overlaid by a beach. Consequently, the correlation between ZV1 and CS6 confirms that changes in the coastal landscapes of Ría de Vigo existed in the recent past, and the available chronologies also suggests that these changes may be related with the accumulation and preservation of organic matter and therefore with shallow gas.