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VHR Reconstruction of a Portion of Late Holocene Transgressive Adriatic System Tract

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The Adriatic Sea is an epicontinental semi-enclosed basin characterized by a very low axial gradient shelf in the northern and central part and by a steeper gradient in the southern sector. During the last sea-level cycle in the Adriatic basin were deposited 1) low-stand deposits formed during the Last Glacial Maximum (LGM), 2) transgressive deposits formed during the last relative sea-level rise and 3) high-stand deposits confined in a narrow belt parallel to the modern shore-line. Across the low-gradient northern shelf, the stepwise, high-amplitude last relative sea-level rise favoured the deposition and in-place drowning of different generations of transgressive barrier-lagoon systems. Where present, the paralic transgressive deposits rest on a transgressive surface and are topped by a wave ravinement surface (Cattaneo and Steel, 2003). The transgressive deposits located south of the Po delta, offshore Ravenna show a dominant longshore trend similar to the modern sea-level high-stand deposits. These bodies are wreak of ancient coastal wedges drowned in place and consist in well sorted sand capped by ravinement surface and frequently drapped by a thin veneer of high-stand mud. In recent years, the study of the transgressive deposits has focused on the quality and the amount of sand for beaches nourishment. A stratigraphic characterization of one transgressive deposit at 33 m depth was carried out in order to understand its evolution before and during the last sea-level rise and define its sand content. 765 Km of very high resolution seismic profiles were acquired at 33 w.d. during NAD12 oceanographic cruise to increase the knowledge in a known shelf area. In each profiles the transgressive surface (ts) has been traced correlating the dated peat layers from published data and it has been digitized through SeisPrho which is an interactive software for processing and interpreting high-resolution seismic reflection profiles. Data processing defined a transgressive surface modelling which highlights an east-northeast trend of major depression in the study area following the glacial gradient of the shelf during the LGM. The fluvial pattern during the LGM shows a different trend compared with the east-southeast fluvial trend on the present sea-floor. The dense grid of data, very high resolution seismic and cores, allowed us to plot as well the base of the sandy portion and estimate the thickness of the sand. Moreover it was possible highlight the evolution of the transitional environment during the last transgressive cycle identifying different fluvial phases between the transgressive surface and the ravinement surface.

Bibliography

Cattaneo A. & Steel R.J. (2003) - Transgressive deposits: a review of their variability. Earth-Science Reviews, 62, 187-228.