GEOMORPHOLOGICAL AND ARCHAEOLOGICAL EVIDENCE OF ROMAN TIMES SHORELINE IN THE LA SPEZIA GULF


Two sites in the western promontory of La Spezia Gulf are illustrated in which the identification of a shoreline slightly lower than present-day is possible. They are the archaeological site of Varignano Cove, a rural settlement of Roman Times where drainage channels in connection with a dock were identified and a cave in Palmaria Island (Riparo del Pozzale), in which a beach deposit was found in a pit 60 cm below present-day sea level. For both sites chronological attribution is discussed but we particularly focus, for each type of marker, on the sea-level indication and on the error associated to it. Available data point to a position of the 2,100 B.P. shoreline not higher than 41.5 cm below present-day sea level. This is consistent with a moderate uplift rate, testifying the general tectonic stability of the area in the upper part of the Holocene. The most recent tectonic behaviour of the area is comparable with what is known to be the crustal displacement trend in the area in the past 125,000 years.

KEY WORDS: Sea-level, Roman Times, Gulf of La Spezia (Italy).

INTRODUCTION

Local sea-level curves are dependant on the combined effects of eustatic changes and isostatic and tectonic crustal displacements. For this reason, also for the most recent times of geological history, altitudinal differences in shoreline displacement are accounted for all over the world (Pirazzoli, 1991). In Italy (Lambeck & alii, 2004a) tectonic complexity is the cause of the frequent differences between sea-level curves built up by means of different types of indicators and those model predicted. Measuring with great accuracy shorelines displacements is therefore of the greatest importance for outlining models of tectonic behaviour and trends of uplift/subsidence rates.

Archaeological markers proved to be very useful for highlighting recent tectonic displacements, provided that they are correctly employed (Alessio & alii, 1994; Morhange & alii, 2001; Sivan & alii, 2001; Antonioli & alii, 2003; Faivre & Fouache, 2003; Lambeck & alii, 2004 a and b). Among archaeological markers those preferred are piscinas, whereas coastal wells bear information about the palaeowater table at the time of their use and this provides an indication of the tide oscillation range. However, the site of Varignano Cove has provided new evidence to investigate coastal conditions in Roman times.