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Reconstruction of Pleistocene drowned karst lake landscapes on the Dalmatian coast (Croatia)

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The Croatian coastal region is a part of Maritime Dinaric Alps (termed also as the Dalmatian coast) which and coincides with the Mesozoic Adriatic Carbonate Platform (AdCP). Since a part of the karstified AdCP is drowned and its palaeo-valleys, depressions of variable size, as indicated by seismic data can be attributed to the period of the Miocene Messinian salinity crises , contain up to 900 m of well stratified sediments (Kvarnerić bay, N. Adriatic) allowing insight to earlier periods of the Quaternary. Generally the larger karst depressions lie between the islands at present day water depths of - 40 m to -90 m. These geomorphological and sedimentological landscapes contain archives of climate and have experienced repeated relative sea-level cycles during the Quaternary. The submerged landscapes sediments that have experienced repeated relative sea-level cycles. Between the last interglacial (MIS 5) and Holocene periods the present submerged karst depressions of Kvarnerić bay (-80 to -90 m below present day sea level), Valun bay and Lošinjski kanal due to sills at various sea depths and the amounts of fresh water feeding the basins during the glacial low-stand favoured development shallow glacial freshwater lakes. A landscape reconstruction of selected sites, based on high resolution geophysical methods, allowed insight to the preserved changes of marine sediments, submerged landscapes and the morphology of paleo-lakes in Lošinjski kanal, Kvarnerić Novigradsko more and Karinsko more, Telašćica bay, Pirovački zaljev and Koločepski kanal. The thickness of paleo-lake sediments varies from up to 2 m in Karinsko more to more 10 m in Lošinjski kanal. Details of environmental change are extracted for the integrating mineralogy, lithostratigraphy, biostratigraphy (pollen, foraminifers, ostracods, tephrostraigraphy and chemical stratigraphy, with well-defined 14C AMS radiocarbon chronologies. Most of the present day lakes along eastern Adriatic coast formed during the early Holocene (Bokanjačko blato, Vransko jezero near Biograd, Veliko jezero- Mljet). Vransko jezero on the Island of Cres survived from the Pleistocene as probably did lake Crniševo (Baćina lakes). The LGM lakes of Lošinjski kanal and Valun bay were flooded at onset of the Holocene, while the Pleistocene lake in Pirovac bay was flooded by the sea 8 ky cal. BP and Veliko jezero on Mljet Island at 3 ky cal. BP.