Sediment sequence in Bokanjacko blato (Croatia) as paleoenvironmental archives of changes through the Quaternary

#Nikolina Ilijanić[1]; Slobodan Miko[1]; Ozren Hasan[1]; Koraljka Bakrac[1]


The study focuses on the sediment profile in the karst field Bokanjacko blato on the Eastern Adriatic coast. Sediments were collected in length of 23 m, where it reaches the limestone bedrock. The multiproxy analysis was performed to identify environmental changes in Bokanjacko blato through the Quaternary. Chronological model was made for the first 7.8 m of the core, based on AMS radiocarbon dating and it covers the last 10300 cal yr BP, while deeper sediments are not dated. Red clays are deposited on the limestone and are around 10 m thick. They are predominantly composed of quartz, goethite, ultrafine magnetite and hematite and disordered kaolinite, vermiculite and illite, which suggest that they are very old sediments and are of similar composition to Istrian terrae rossa. On the 12.5 m, loess sediments occur, and from 8.5 m sediments that could mark the beginning of a shallow lake. From 7.8 m (10.3 ka BP), higher concentrations of the lithogenic elements indicate increased erosion and input of the material from the catchment. The deposition of the siliciclastic material lasted from 10.3 to 6.1 ka BP and then gradually decreases until 5.2 ka BP, when dominant carbonate deposition begins. Dominant clay mineral is smectite, which is derived from flysch deposits in Ravni Kotari or loess, while the upper part contains very little clay minerals, which are related to terra rossa and soils from the catchment. Pollen analysis has identified the establishment of a Mediterranean holm oak forest vegetation and forest degradation of evergreen oaks (maquis) in Bokanjacko blato around 4.1 ka BP. Supposed sedimentary sequence in Bokanjacko blato (lake sediments 0-10.5 m, loess 10.5-12.5 m and red clays 12.5-22.7 m) revealed new findings about the thickness and the composition of the deposits which formed the bottom of recently drained lake in Bokanjacko blato.