Late Pleistocene and Holocene environmental changes in eastern Adriatic coastal karst lakes

[a]Ilijanić N, [a]Miko S, [a]Hasan O, [a]Bakrač K

Past environmental changes on the eastern Adriatic coast were studied using lake sediment cores. Karst lakes were tracked along a 300-km, NW-SE transect on the Eastern part of the Adriatic Sea and included three locations: Vrana (Northern Adriatic), Bokanjačko blato (central Adriatic) and Baćina Lakes (Southern Adriatic). All of the studied lakes have limestone- or dolomite-dominated catchments, with thin soil covers dominated by terra rossa. In this work, we present preliminary results on long sediment cores (approx. 7-10 m long) retrieved form these lakes. We are carrying geochemical analysis, radiocarbon dating, magnetic susceptibility measurements and pollen analyses. Additionally, clay mineralogy was determined in order to model the environment and to interpret the geochemical proxies (trace elements and REE distributions). Results are interpreted in terms of paleoenvironmental changes at local or regional scales. Dominant clay mineral phases are illite, chlorite and kaolinite. Clay mineral abundances and clay-mineral ratios are used to reconstruct the weathering conditions. The cold and dry periods during the glacial times were responsible for physical weathering and thus contribution of higher amounts of chlorite and illite, as they are less sensitive to chemical weathering. The abundance of kaolinite is good indicator of warm and humid interglacial period caused by extensive chemical weathering. Therefore clay mineralogy has become more significant in understanding the changes in paleoclimate conditions and sediment source. Based on the preliminary results there are indications that the lake core proxy data can be used to define the 2200 B.C. abrupt climate change event which is well documented in SE Europe (Greece and Aegean area) in the Holocene. Preliminary interpretations on other proxies (pollen, geochemistry, magnetic susceptibility) indicate hydrological changes in the lakes starting around 1200AD, possibly triggered by farming activities of Croats after the migration period (7th to 9th century AD) and Little Ice Age cold events. Holocene disturbances are reflected in an increase of soil dust material deposition tin the calcareous autochthonous lake sediments.

[a] *Croatian Geological Survey, Sachsova 2, Zagreb 10000, Croatia (nikolina.ilijanic@hgi-cgs.hr)*