The archaeological site of Arslantepe (Eastern Anatolia) was occupied uninterruptedly for almost three thousand years and, after a series of interruptions, even for more. Archaeological research at the site has been bringing to light extraordinary remains of past cultures in this area of Eastern Anatolia, from the Late Chalcolithic to the Roman Age. The archaeobotanical remains coming from Arslantepe consist of large amounts of charred wood and seeds/fruits that have been studied with the perspective of investigating human selection and of landscape reconstruction.

In recent years a new approach has been attempted that obtains yet further information from the archaeobotanical: stable carbon isotope analysis. The $^{13}$C/$^{12}$C ratio of charred wood depends on several environmental factors, first of all on water availability during plant’s life. The comparison of carbon isotopic ratios from the same taxon from different archaeological periods can be therefore related to changes in humidity.

Charred woods of deciduous oaks and juniper have been analysed for ancient (3350-2000 BC) and modern plants (Baneschi et al., 2012; Masi et al., 2012; Masi et al. 2013). Changes in precipitation seasonality and the complex and peculiar hydrogeological situation surely hindered the interpretation of the isotope records. Overall, $^{13}$C/$^{12}$C contrasting ratios in juniper and deciduous oaks suggest that seasonality in rainfall distribution and aquifer recharge play a complex role. In the particular environmental situation of Malatya the two arboreal records are sensitive to two different climatic signals, one (provided by juniper) depending on local precipitation and short in time, one (provided by oaks) probably more related with summer drought and the time of aquifer recharge from the mountain regions outside the catchment, and possibly therefore delayed (see arrows) in time for karstic phenomena.

Cultivated plants, as opposed to the former, do not register only the natural environmental condition, but also water management, thus constituting a further precious source of information. Isotope analysis from barley and emmer caryophses was performed by combustion in an Elemental Analyser coupled with an isotope mass spectrometer. This analysis has been used to infer the water availability of caryophses between 3000 and 2000 yr BC at Arslantepe.

The isotopic values of barley show homogeneous values and the only variability over this long time is a small decrease in humidity between 3000 and 2800 BC. The Arslantepe data was compared with a selection of Near Eastern sites (Baneschi et al., 2008) to see if there is a water shortage between 3000 and 2800 BC in both records indicating the same centuries the emmer record from Arslantepe shows a maximum of humidity. It seems that a water shortage affected the Near East but the Arslantepe territory was more humid than the Near East. According to this interpretation barley provides a climate record related to regional changes in precipitation and short in time, one (provided by oaks) probably more related with summer drought and the time of aquifer recharge from the mountain regions outside the catchment, and possibly therefore delayed (see arrows) in time for karstic phenomena.