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Environmental conditions in Kuma-Manych region during Early Bronze Age (reconstruction on the basis of paleosoil data)

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Morphological and chemical properties of soil are greatly depends on climate conditions. Climatic changes in the first place, the changes of precipitation, result in quantitative and qualitative changes of morphological and chemical properties of soils. Therefore it is possible to use soil properties as environmental indicators.

Ancient kurgans are known to serve as sources of paleoenvironmental information. When kurgan creating an ancient soil surface are covered by kurgan mound and preserved in initial state till the present. Morphological and chemical properties of paleosoils buried under kurgan mounds give us information about soil development and climatic conditions which took place at the time of kurgan creation.

Three paleosoils of different ages buried under kurgan mounds as well as modern background soils within desert steppe zone of Ergeny Upland and Stavropol Upland have been studied. The time of kurgan creation (and the time of soil burying, consequently) was determined according to archaeological scale, with ^{14}C dating of human bones from the main burial of each kurgans carrying out too. According to archaeological estimation and radiocarbon data two kurgans were constructed during Maykop culture of Bronze Age: 5100$\pm$50 BP (3970-3800 cal yr BC) and 5190$\pm$70 BP (4070-3945 cal yr BC) and one kurgan was constructed during Yamnaya culture of Early Bronze Age: 4300$\pm$100 BP (3029-2709 cal yr BC).

Results of the comparative analysis of chemical and morphological properties of paleosoils of Maykop time (4000-3800 cal yr BC) and modern soils as well as other ecological data obtained indicate that the ancient paleosoil properties are similar to

those of modern soils. The paleosoils had thick humus horizon with organic carbon content exceeded 5%. The upper part of soil profiles had been leached from soluble salts and gypsum. The soils with such properties are developed under conditions of annual precipitation of about 350 mm per year or even more. The properties of paleosoil buried 700-800 years later are also similar with those described above, on the one hand, and modern soil properties on the other hand. The data obtained allowed us to suppose that climate in the area under investigation during whole Early Bronze Age (4000-3000 cal yr BC) was rather humid and like, in the general way, the climate of the present.