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Chronology of middle Holocene hunter–gatherers in the Cis-Baikal region of Siberia: Corrections based on examination of the freshwater reservoir effect

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ABSTRACT

A dataset of 256 AMS radiocarbon dates on human skeletal remains from middle Holocene cemeteries in the Cis-Baikal region, Siberia, and associated carbon and nitrogen stable isotope values are analyzed for new insights about culture history and processes of culture change. First, based on the typological criteria all dated human burials are assigned to mortuary traditions and typo-chronological units—Late Mesolithic, Early Neolithic, Late Neolithic and Early Bronze Age. Next, all dates are corrected for the Freshwater Reservoir Effect (FRE) according to the regression equations developed using paired radiocarbon dates on human and terrestrial faunal remains from the same graves and examined for chronological trends using a Bayesian approach. While the entire corrected culture historical sequence is younger by roughly 200–400 years relative to the previous model the shift of the specific period boundaries is not systematic due to the varying proportion of aquatic food in the diets of the relevant groups. Examination of the dataset subdivided into smaller spatio-temporal units provides additional insights. During the Early Neolithic, in the Angara and Southwest Baikal micro-regions there is a chronological trend toward increased reliance on aquatic food. During the Early Bronze Age in the Little Sea micro-region, there appears to be a trend toward increased reliance on the Baikal seal. This shift, however, can also be interpreted as increasing migration over time of new groups from the Upper Lena. The sample from the Early Neolithic Shamanka II cemetery in Southwest Baikal shows two non-abutting phases of use each displaying a trend toward greater consumption of aquatic foods. These findings provide new chronological framework for the study of other cultural changes affecting middle Holocene hunter–gatherers in the region. The results may also allow better correlation with other sequences, cultural and environmental, that are not affected by the FRE.

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1. Introduction

Middle Holocene prehistory of the Cis-Baikal region in East Siberia (Fig. 1) belongs to one of the many cases around the world

where examination of materials from mortuary sites has dominated archaeological research. Grave goods and human skeletal remains have been the focus of many studies essentially since the beginning of professional archaeology in the region. Although much has been written about culture history and cultural and biological variation among these groups, many questions regarding the processes of culture change still remain unanswered (e.g., Weber and Bettinger, 2010; Weber et al., 2011). The explicit

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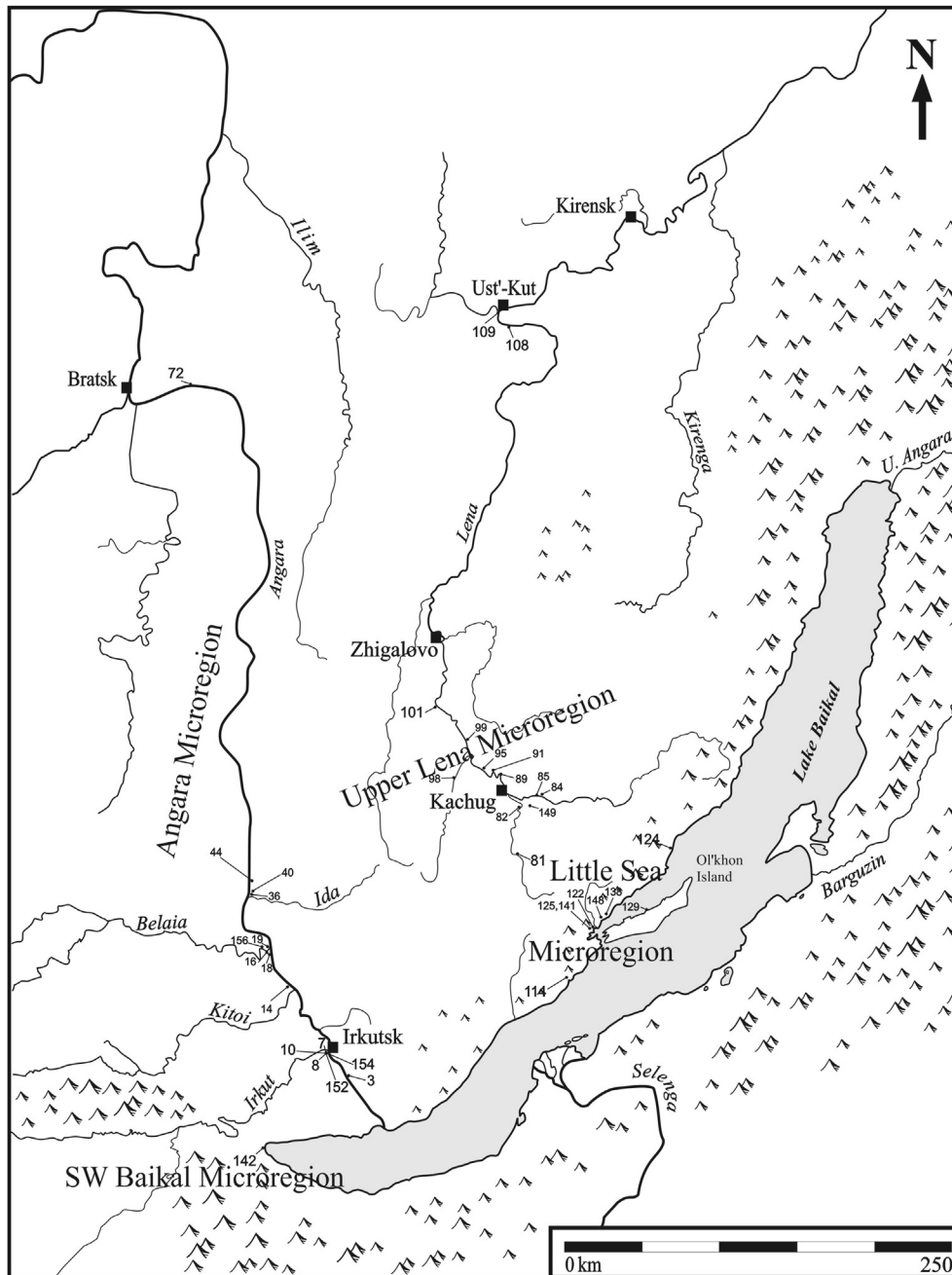


Fig. 1. Location of the archaeological sites examined in the paper.

emphasis on mortuary sites also created an imbalance with regard to dating, both typological and chronometric, as well as the cultural characterization of the different periods and micro-regions. The periods with well-documented cemeteries naturally have been given much attention with many attempts to define them in cultural and chronological terms. In contrast, the periods without cemeteries (e.g., Middle Neolithic and, to a lesser extent, Late Bronze Age) have received much less attention and their cultural characteristics and temporal boundaries remain vague.

Middle Holocene prehistory of Cis-Baikal is also interesting in that it has seen a long debate about its chronology and experienced several fundamental revisions to its culture history (cf. Weber, 1995 for review). To keep the matter brief, the first relatively well-

documented model of continuous progression of hunter-gatherer cultures or stages (Khin'–Isakovo–Serovo–Kitoi–Glazkovo–Shivera; Okladnikov, 1950) was criticized by many Siberian scholars and eventually fell apart under the weight of radiocarbon evidence (Konopatskii, 1982; Mamonova and Sulerzhitskii, 1989; Weber, 1995); however, the names of the relevant mortuary traditions are in use to this day without many revisions. According to the new chronological evidence, the Kitoi mortuary tradition is much older than Isakovo and Serovo, which, in turn, appear to be chronologically parallel. The Glazkovo and Shivera traditions, whose typo-chronological placement was based on the presence of copper and bronze objects, retain their original position at the end of the sequence. A few dates

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