# ПУБЛИКАЦИИ ОСНОВНЫХ РЕЗУЛЬТАТОВ НАУЧНОЙ ДЕЯТЕЛЬНОСТИ СОТРУДНИКОВ НАУЧНО-ИССЛЕДОВАТЕЛЬСКОГО ИНСТИТУТА ПРИКЛАДНОЙ ЭКОЛОГИИ СЕВЕРА ИМЕНИ ПРОФЕССОРА Д.Д. САВВИНОВА В РЕЙТИНГОВЫХ ЖУРНАЛАХ, ИНДЕКСИРУЕМЫХ В БАЗАХ ДАННЫХ WEB OF SCIENCE / SCOPUS ЗА ПЕРИОД С 2017 ПО 2020 гг.

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1. Mary E Edwards, Lozhkin Anatoly, Patricia Anderson, Grigoriy N. Savvinov, Nadezhda Bakulina, Olesya V. Bondarenko, Marina Valer'evna Cherepanova, Petr P. Danilov, Vasiliy Boeskorov, Tomasz Goslar, Semyon Grigoriev, Stanislav V. Gubin, Julia A. Korzun, Alexey V. Lupachev, Alexei N. Tikhonov, Valeriya I. Tsygankova, Galina V. Vasilieva, O. G. Zanina. Preliminary paleoenvironmental analysis of permafrost deposits at Batagaika megaslump, Yana Uplands, northeast Siberia // QUATERNARY RESEARCH. – 2017. Vol. 87. Iss. 2. DOI: 10.1017/qua.2016.15. База данных: Scopus/Web of Science. Квартиль: Q1.

Аннотация

A megaslump at Batagaika, in northern Yakutia, exposes a remarkable stratigraphic sequence of permafrost deposits ~50–80 m thick. To determine their potential for answering key questions about Quaternary environmental and climatic change in northeast Siberia, we carried out a reconnaissance study of their cryostratigraphy and paleoecology, supported by four rangefinder ¹⁴ C ages. The sequence includes two ice complexes separated by a unit of fine sand containing narrow syngenetic ice wedges and multiple paleosols. Overall, the sequence developed as permafrost grew syngenetically through an eolian sand sheet aggrading on a hillslope. Wood remains occur in two forest beds, each associated with a reddened weathering horizon. The lower bed contains high amounts of Larix pollen (>20%), plus small amounts of Picea and Pinus pumila , and is attributed to interglacial conditions. Pollen from the overlying sequence is dominated by herbaceous taxa (~70%–80%) attributed to an open tundra landscape during interstadial climatic conditions. Of three hypothetical age schemes considered, we tentatively attribute much of the Batagaika sequence to Marine Oxygen Isotope Stage (MIS) 3. The upper and lower forest beds may represent a mid–MIS 3 optimum and MIS 5, respectively, although we cannot discount alternative attributions to MIS 5 and 7.

2. A. A. Danilova, G. N. Savvinov, L. D. Gavril’eva, P. P. Danilov, M. I. Ksenofontova, A. A. Petrov. Short-term exclusion of degraded pasture in the permafrost zone: aspects of soil microbial community // ARID ECOSYSTEMS. – 2017. Vol. 7. DOI: 10.1134/S2079096117030039. База данных: Scopus/Web of Science. Квартиль: Q3-Q4.

Аннотация

The properties of alas soils were studied in short-term isolation (4–5 years). According to the speed of the response to the isolation of degraded pastures, components of the cryoarid–alas ecosystem form the following decreasing series: above-ground vegetation—functional range of cultivated soil microbial community—colony-forming units—underground phytomass, total mobile soil carbon, and nitrification activity. The response rates, respectively, are equal to 1, 4, 5, and over 5 years. The biodynamic features of degraded grasslands in the early years of isolation indicate that these ecosystems have a high regenerative potential. The high activity of autotrophic nitrification indicates a continuing imbalance in the circulation of substances in the isolated area.

3. Grigoriev, S. E., Fisher, D. C., Obada, T., Shirley, E. A., Rountrey, A. N., Savvinov, G. N., Garmaeva, D. K., Novgorodov, G. P., Cheprasov, M. Y., Vasilev, S. E., Goncharov, A. E., Masharskiy, A., Egorova, V. E., Petrova, P. P., Egorova, E. E., Akhremenko, Y. A., van der Plicht, J., Galanin, A. A., Fedorov, S. E., Ivanov, E. V. & Tikhonov, A. N. A woolly mammoth (Mammuthus primigenius) carcass from Maly Lyakhovsky Island (New Siberian Islands, Russian Federation) // QUATERNARY INTERNATIONAL. – 2017. Vol. 455. Iss. 89. DOI: 10.1016/j.quaint.2017.01.007. База данных: Scopus/Web of Science. Квартиль: Q1-Q3.

Аннотация

A partial carcass of an adult woolly mammoth (Mammuthus primigenius) found in 2012 on Maly Lyakhovsky Island presents a new opportunity to retrieve associated anatomical, morphological, and life history data on this important component of Pleistocene biotas. In addition, we address hematological, histological, and microbiological issues that relate directly to quality of preservation. Recovered by staff from North-Eastern Federal University in Yakutsk, this individual is a relatively old female preserving soft tissue of the anteroventral portion of the head, most of both fore-quarters, and the ventral aspect of much of the rest of the body. Both tusks were recovered and subjected to computed tomographic analysis in which annual dentin increments were revealed as cycles of variation in X-ray attenuation. Measurements of annual increment areas (in longitudinal section) display a pulsed pattern of tusk growth showing cycles of growth rate variation over periods of 3-5 years. These intervals are interpreted as calving cycles reflecting regular shifts in calcium and phosphate demand for tusk growth vs. fetal ossification and lactation. Brown liquid associated with the frozen carcass turned out to include remains of hemolyzed blood, and blood samples examined microscopically included white blood cells with preserved nuclei. Muscle tissue from the trunk was unusually well preserved, even at the histological level. Intestinal contents and tissue samples were investigated microbiologically, and several strains of lacticacid bacteria (e.g., Enterococcus faecium, Enterococcus hirae) that are widely distributed as commensal organisms in the intestines of herbivores were isolated. (C) 2017 Elsevier Ltd and INQUA. All rights reserved.

4. Thomas Opel, Julian B. Murton, Sebastian Wetterich, Hanno Meyer, Kseniia Ashastina, Frank Günther, Hendrik Grotheer, Gesine Mollenhauer, Petr P. Danilov, Vasily Boeskorov, Grigoriy N. Savvinov, and Lutz Schirrmeister. Past climate and continentality inferred from ice wedges at Batagay megaslump in the Northern Hemisphere's most continental region, Yana Highlands, interior Yakutia // CLIMATE OF THE PAST. – 2019. Vol. 15. - Iss: 1443. DOI: 10.5194/cp-15-1443-2019. База данных: Scopus/Web of Science. Квартиль: Q1.

Аннотация

Ice wedges in the Yana Highlands of interior Yakutia – the most continental region of the Northern Hemisphere – were investigated to elucidate changes in winter climate and continentality that have taken place since the Middle Pleistocene. The Batagay megaslump exposes ice wedges and composite wedges that were sampled from three cryostratigraphic units: the lower ice complex of likely pre-Marine Isotope Stage (MIS) 6 age, the upper ice complex (Yedoma) and the upper sand unit (both MIS 3 to 2). A terrace of the nearby Adycha River provides a Late Holocene (MIS 1) ice wedge that serves as a modern reference for interpretation. The stable-isotope composition of ice wedges in the MIS 3 upper ice complex at Batagay is more depleted (mean δ18O about −35 ‰) than those from 17 other ice-wedge study sites across coastal and central Yakutia. This observation points to lower winter temperatures and therefore higher continentality in the Yana Highlands during MIS 3. Likewise, more depleted isotope values are found in Holocene wedge ice (mean δ18O about −29 ‰) compared to other sites in Yakutia. Ice-wedge isotopic signatures of the lower ice complex (mean δ18O about −33 ‰) and of the MIS 3–2 upper sand unit (mean δ18O from about −33 ‰ to −30 ‰) are less distinctive regionally. The latter unit preserves traces of fast formation in rapidly accumulating sand sheets and of post-depositional isotopic fractionation.

5. Kseniia Ashastina, Svetlana Kuzmina, Natalia Rudayad, Elena Troeva, Werner H. Schoch, Christine Römermann, Jennifer Reinecke, Volker Otte, Grigoriy Savvinov, Karsten Wesche, Frank Kienasta. Woodlands and steppes: Pleistocene vegetation in Yakutia's most continental part recorded in the Batagay permafrost sequence // QUATERNARY SCIENCE REVIEWS. – 2018. Vol. 196. – Iss. DOI: 10.1016/j.quascirev.2018.07.032. База данных: Scopus/Web of Science. Квартиль: Q1.

Аннотация

Based on fossil organism remains including plant macrofossils, charcoal, pollen, and invertebrates preserved in syngenetic deposits of the Batagay permafrost sequence in the Siberian Yana Highlands, we reconstructed the environmental history during marine isotope stages (MIS) 6 to 2. Two fossil assemblages, exceptionally rich in plant remains, allowed for a detailed description of the palaeo-vegetation during two climate extremes of the Late Pleistocene, the onset of the last glacial maximum (LGM) and the last interglacial. In addition, altogether 41 assemblages were used to outline the vegetation history since the penultimate cold stage of MIS 6. Accordingly, meadow steppes analogue to modern communities of the phytosociological order Festucetalia lenensis formed the primary vegetation during the Saalian and Weichselian cold stages. Cold-resistant tundra-steppe communities (Carici rupestris-Kobresietea bellardii) as they occur above the treeline today were, in contrast to more northern locations, mostly lacking. During the last interglacial, open coniferous woodland similar to modern larch taiga was the primary vegetation at the site. Abundant charcoal indicates wildfire events during the last interglacial. Zoogenic disturbances of the local vegetation were indicated by the presence of ruderal plants, especially by abundant Urtica dioica, suggesting that the area was an interglacial refugium for large herbivores. Meadow steppes, which formed the primary vegetation during cold stages and provided potentially suitable pastures for herbivores, were a significant constituent of the plant cover in the Yana Highlands also under the full warm stage conditions of the last interglacial. Consequently, meadow steppes occurred in the Yana Highlands during the entire investigated timespan from MIS 6 to MIS 2 documenting a remarkable environmental stability. Thus, the proportion of meadow steppe vegetation merely shifted in response to the respectively prevailing climatic conditions. Their persistence indicates low precipitation and a relatively warm growing season throughout and beyond the late Pleistocene. The studied fossil record also proves that modern steppe occurrences in the Yana Highlands did not establish as late as in the Holocene but instead are relicts of a formerly continuous steppe belt extending from Central Siberia to Northeast Yakutia during the Pleistocene. The persistence of plants and invertebrates characteristic of meadow steppe vegetation in interior Yakutia throughout the late Quaternary indicates climatic continuity and documents the suitability of this region as a refugium also for other organisms of the Pleistocene mammoth steppe including the iconic large herbivores.