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## Data Article

# Distribution of the polycystine radiolarian species in the Quaternary sediment cores of the subarctic North Atlantic and Sea of Okhotsk



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## ARTICLE INFO

## Article history:

Received 7 December 2017

Accepted 16 January 2018

Available online 2 February 2018

## Keywords:

Quaternary sediment cores

Marine micropaleontology

Polycystine radiolarians

North Atlantic

Sea of Okhotsk

## ABSTRACT

Data files present information on the quantitative distribution of the polycystine radiolarian species in the Quaternary marine sediments from the subarctic areas. Dataset on the open North Atlantic north of 43 °N contains percentages of 35 abundant (> 1%) species in 145 samples of five sediment cores. Dataset on the Sea of Okhotsk contains percentages of 31 abundant (> 1%) species in 794 samples of seven sediment cores. Dataset on the bottom surface sediments of the North Atlantic contains percentages of 35 abundant (> 1%) species in 78 grab and core-top samples. For the microscopic radiolarian analysis, the sediment fraction of > 40/50 μm was used.

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## Specifications Table

Subject area	Earth Sciences
More specific subject area	Marine micropaleontology
Type of data	Tables Microscope

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<https://doi.org/10.1016/j.dib.2018.01.041>

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How data was acquired	
Data format	<i>Raw (percentages of species content)</i>
Experimental factors	<i>Standard laboratory treatment of the marine sediment samples using the hydrogen peroxide, sodium pyrophosphate, and Canada balsam as mounting media for slides preparation</i>
Experimental features	<i>As a rule, at least 300–350 radiolarian tests were counted per one slide</i>
Data source location	<i>P.P. Shirshov Institute of Oceanology, Moscow, Russia</i>
Data accessibility	<i>Data is with this article</i>

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### Value of the data

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- data on the distribution of the microfossils in the oceanic bottom sediments provide an information on the development of the environments and climate as the marine microorganisms are valuable environmental indicators
  - we publish the detailed micropaleontological datasets on the subpolar areas of the Northern hemisphere where the long- to short-term climatic changes exhibit a high magnitude
  - our micropaleontological data are obtained according the standard analytical technique so that they can be used without significant modification by other specialists
  - main research output from use of our datasets is a reconstruction of paleoenvironments (based on factor, cluster, correspondence analysis), such as water temperature, to define trends and possible cycling of the paleoclimatic changes
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### 1. Data

Data files contain the quantitative information on the relative content (%) of the abundant (> 1% of concentration) species of the polycystine radiolarians in the Quaternary sediments of the subarctic North Atlantic and Sea of Okhotsk. Polycystine radiolarians as protists with silica skeleton are one of major groups of the marine microplankton. They can be accumulated in great numbers on the oceanic floor, and then extracted from sediments for the biostratigraphic and paleoceanographic studies. The Quaternary sediments contain diverse lithophysical, geochemical, and micropaleontological information on the glacial to interglacial paleoclimatic changes. We provide detailed micropaleontological data mostly on the last glacial cycle (last interglacial to last glacial to Holocene as recent interglacial) in 5 sediment cores from the northern North Atlantic (35 radiolarian species in 145 samples) and 7 sediment cores from the Sea of Okhotsk (31 radiolarian species 794 samples) (Fig. 1; Table 1). Data were used previously in publications on the Quaternary paleoceanography of the North Atlantic [1–3] and North Pacific [4–7]. Also data on the radiolarian distribution in the bottom surface sediments of the open North Atlantic are presented.

### 2. Experimental design, materials and methods

The laboratory treatment of sediment samples (1–2 g of dry bulk sediment) and preparation of the radiolarian slides for the microscopic analysis was made the standard technique [8]: cleaning of the radiolarian skeletons while boiling of the sediment sample in solutions of hydrogen peroxide and sodium pyrophosphate, sieving of residue through the mesh of 40  $\mu\text{m}$  (for the Sea of Okhotsk sediment samples), and of 50  $\mu\text{m}$  (for the North Atlantic sediment samples), settling of radiolarian tests on the slide in the Petri dish, mounting of radiolarian tests on slides in the Canada balsam or Mountex. At least 300–350 radiolarian tests were counted per one slide to calculate the total radiolarian abundances and relative concentrations of radiolarian species.

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