

PALEOCLIMATE RECONSTRUCTION ON THE BASE OF GEOTHERMAL BOREHOLE DATA.

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Earth's temperature profiles to depths of 200-300 meters have a memory for surface temperature variations in the last two centuries. Deeper temperatures can reveal some information on even earlier history, but the uncertainty increases. For correct climate reconstruction by geothermal data it is necessary to combine and analyse the temperature logs for stable boreholes, heat conductivity data for sedimentary cover layers, relationships between air and ground temperatures, the effects of hydrogeological factors. For Russian platform more than 80 geothermal borehole data were collected. 11 temperature logs of Belgorod region were investigated. The inversion showed ground surface temperature minimum between 1500-1750 with pronounced warming thereafter reaching maximum at about 1900. The 20th century is characterized by some cooling and later on by recent warming. The geothermal method of past climate assessment yields temperature of the Earth's surface, which may be different from local air temperature which is subjected to hydrogeologic and ecological conditions and reflects also man-made interference. The pure climatic effect is thus not always evident. More than 200 data on air-ground temperature relationships were analysed. The analysis of modelling for different regions shows similar results for Russian Platform, South Ural and Kirgistan (Issik-Kul area). The results of paleoclimate reconstruction for West Siberia differ from them due to permafrost zone effect.