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Late Permian magnetostratigraphy on the eastern Russian platform

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Abstract

The Late Permian is characterized palaeomagnetically by the transition from the long-lasting Permo-Carboniferous reversed polarity superchron (PCRS; also called: Kiaman reversed superchron) to the subsequent Permo-Triassic mixed polarity superchron, often called Illawarra mixed polarity superchron. Many discussions have been devoted to the exact time of the onset of the Illawarra reversals. Apparently contradictory data have been obtained from magnetostratigraphic sediment successions formed in different environments in many regions of the world. These sediments have been dated using classical geological or palaeontological correlation methods without the possibility of absolute age control because volcanogenic materials are missing. Application of the local or regional stratigraphic schemes leads to difficulties and apparent diachronous age estimates of the end of the PCRS. This paper shows that in agreement with earlier investigations, the continental red beds of the Upper Permian Tatarian stage on the eastern Russian platform record the Kiaman/Illawarra boundary. The Illawarra reversal sequence measured in a type section at the Volga river can be correlated well with the corresponding polarity pattern found in the Tethyan realm if one assumes a longer duration of the Tatarian than previously suggested.

Keywords

Palaeomagnetism, Polarity superchron, Tatarian