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Experimental modeling of the chemical remanent magnetization and Thellier procedure on titanomagnetite-bearing basalts

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Abstract

© 2017, Pleiades Publishing, Ltd.The results of the experimental studies on creating chemical and partial thermal remanent magnetizations (or their combination), which are imparted at the initial stage of the laboratory process of the oxidation of primary magmatic titanomagnetites (Tmts) contained in the rock, are presented. For creating chemical remanent magnetization, the samples of recently erupted Kamchatka basalts were subjected to 200-h annealing in air in the temperature interval from 400 to 500°C under the action of the magnetic field on the order of the Earth's magnetic field. After creation of this magnetization, the laboratory modeling of the Thellier–Coe and Wilson–Burakov paleointensity determination procedures was conducted on these samples. It is shown that when the primary magnetization is chemical, created at the initial stage of oxidation, and the paleointensity determined by these techniques is underestimated by 15–20% relative to its true values.

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Keywords

chemical remanent magnetization, oxidation, paleointensity, Thellier procedure, titanomagnetites

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