Fine structure of the Kiama-Illawarra geomagnetic boundary based on type sections from the Middle Volga region, Russia

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Kiama/Illawarra boundary with the two adjacent magnetic zones N1P and R2P are well exposed at the outcrops of the Monastirsky and Ilyinsky ravines on the Volga river, Russia. These outcrops have been analysed in detail using palaeomagnetic method with up-to-date technique to study natural remnant magnetization.

Magnetic zones are 10 to 30m thick, and have clear boundaries. After decreasing a vertical sampling interval from 2-3 to 0.5-1.0m, it is seen that natural remnant magnetization has many deviations from dominating normal polarity direction that are mainly concentrated at the base of the Illawarra hyperzone. Lithologically, this series does not differ from the underlying argillaceous and carbonaceous sediments, and can be described as a separate magnetic zone of unstable polarity. This zone is 25m and 28m thick at the Monastirsky and Ilyinsky ravines respectively. At the Monastirsky ravine, sampling interval was 10 to 30cm, while the Ilyinsky ravine was sampled continuously. All samples were cleaned at 100, 150 and 250 deg.C, and showed an ancient component of natural remnant magnetization. Close grouping, (alpha)95 and position of poles are all indicative of the high precision of the reconstructions.