



Paleomagnetism and $^{40}\text{Ar}/^{39}\text{Ar}$ age determinations of the Ediacaran traps from the southwestern margin of the East European Craton, Ukraine: relevance to the Rodinia break-up

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In order to test geodynamic models for the break up of Rodinia a palaeomagnetic study and age determinations have been performed on Ediacaran basalts from the northwestern Ukraine. The basalts form part of a ca 200000 km² trap formation located in the western part of the East European Platform. The basalts were sampled in four rock quarries and 272 samples were collected. At least four different generations of magnetization have been isolated. The ages of magnetization have been constrained by the new $\text{Ar}^{40}/\text{Ar}^{39}$ age determinations and by the stratigraphic positions of the basalts. According to the radiometric ages (590 -560 Ma) the poles are almost coeval, however, they are widely separated. This is also true when comparing these poles with poles from other studies, which suggests that there has been very high continental drift and rotation rates. When rotating Ediacaran North American poles into the reference frame of Baltica, the pattern of APW for Baltica and Laurentia is similar for the period 750 Ma to ca 560 Ma, suggesting that the two continents were joined during this time period.

Calculating the position and orientation of Baltica based on these new poles, Baltica occupied high southern latitudinal positions at ca 580 Ma. This partly supports earlier

palaeogeographic reconstructions, however, in our reconstruction Baltica at this time was joined with Laurentia in similar relative position as for 750 Ma and 650 Ma. Baltica/Laurentia drifted to moderately low latitudes at ca 560 Ma (ca 25° -35°S) and Baltica then rotated clockwise some 180° degrees during the time of opening of the Iapetus. The glaciation during the Ediacaran thus took place when Baltic occupied latitudinal position higher than ca 25°S.