

SM-ND ISOTOPIC SIGNATURES OF BANDED IRON FORMATIONS ORIGIN: FROM KOLA PENINSULA (RUSSIA) TO INDIA

¹Alfimova N.A., ²Felitsyn S.B., ²Bogomolov E.S., ³Nasipuri P.

¹SpbSU, Russia, SPb, per.Dekabristov 16, n.alfimova@spbu.ru, +79213244140

²IPGG RAS, Russia, Spb, Makarova emb.2, felitsynsergey@gmail.com

³Indian Institute of Science Education and Research, Bhopal, India, pritams@iiserb.ac.in

Banded iron formations (BIF) are the main source for iron ore all over the world, but also they are unique source of information about Precambrian environs, because they are believed to be chemical sediments of ancient oceans.

In our research we studied isotopic Sm-Nd signature of silica-rich and iron-rich layers separately from Kola peninsula BIFs (Olenya gora and Polmos-Poros deposits, 2.7 Ga), Karelia region BIFs (Kostomuksha deposit, 2.7 Ga), Kursk BIFs (Stoilenskoye deposit, 2.7 Ga) and newly discovered Indian BIFs (Bundelkhand craton, 2.5 Ga). Our previous studies had shown the importance of sample preparation and chemical treatment before measurements (Felitsyn et al., 2015, 2017) and thus we present here results after all necessary mineralogical and chemical separations.

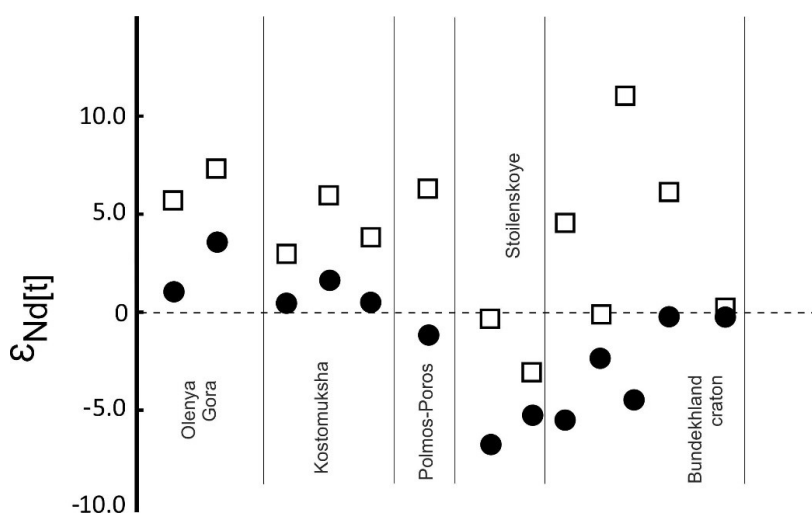


Figure 1. Isotope composition of Nd (in ϵ units) for neighboring Si- and Fe-rich bands in studied deposits. Circles – Fe-rich bands, squares – Si-rich bands.

As can be seen from fig.1 all studied samples demonstrate higher $\epsilon_{Nd[t]}$ values for iron-rich bands, then neighboring Si-rich bands from the same piece of rock, though absolute values are different for different deposits. That allows us to suggest that source of iron and silicon might have been different in all deposits, independently of the place and/or time, deposit was formed at.

Felitsyn S.B., Bogomolov E.S., Alfimova N.A. 2015. Isotope composition of neodymium in neo-Archean banded iron formations of Karelia and Kola peninsula. *Doklady Earth Sciences*. 2015. V. 465. No 2. p. 1268-1271.

Felitsyn S.B., Alfimova N.A., Matrenichev V.A., Bogomolov E.S. Sm-Nd and Rb-Sr systematics from Si- and Fe-rich bands of banded iron formations (Kola peninsula, Karelia and East-European craton). *Early precambrian vs modern geodynamics. Extended Abstracts and Field Trips Guide Book. Petrozavodsk*. 2017. p.257-258.