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Variations in the geochemical composition of dolerites of the Sette-Daban event

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Sette-Daban LIP-related event [1] was dated by U-Pb baddeleyite and Sm-Nd isochron methods, but very limited information has been published on the geochemical and isotopic compositions of the associated igneous rocks. This work presents a new dating and the largest geochemical base of samples from the Sette-Daban event.

Mafic sills of the Sette-Daban event are most widespread in the upper part of the Lakhanda Group and lower part of the Uy Group (Maya-Kyllakh zone). Two intrusions were dated by the U-Pb baddeleyite method, yielding ages of 1005 ± 4 Ma - Sakhara river and 974 ± 7 Ma - Allakh-Yun river [2]. Isotope dating of a sublatitudinal dike in the Belaya River area gave an age which overlaps the already known dating along the Sakhara river.

Studied samples from the rivers Yudoma and Allah-Yun confirmed the already obtained result from the previous work [3]. The Sette-Daban dolerite sills resemble low-Ti lavas of intraplate flood basalt provinces (e.g., Karoo, Siberian Traps) and possess IAB-like trace element patterns.

In turn, samples from the Belaya River are enriched more strongly and closer to the OIB distribution. The rare earth elements contents (e.g., La, Ce, Pr, Nd, Sm) in Belaya samples is 2-5 times higher than in Yudoma. However, $\epsilon\text{Nd}(T)$ values vary from 4.3 to 6.3 which corresponds to the already known range of values for the Sette-Daban complex.

Thus, detailed geochemical studies made it possible to identify a new zone (Belaya) in the Sette-Daban complex, which has significant differences from the previously obtained values.

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