Goldschmidt 2021 Abstract
https://doi.org/10.7185/gold2021.3261

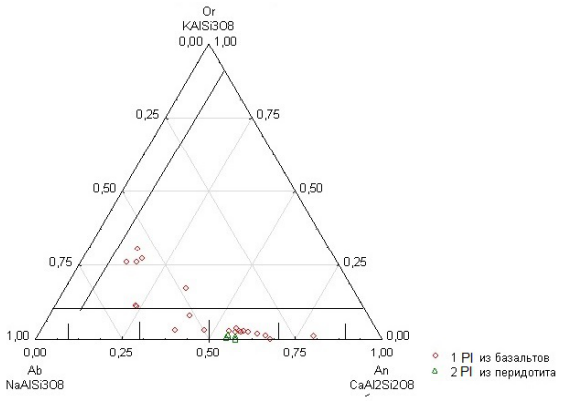
# Composition Specifics of basic rock-forming minerals of basalts and xenoliths from the Canary archipelago (Spain).

VERA KRYLOVA[1] AND **IGOR FEDOROVICH GERTNER**[2]

[1]Tomsk State University

[2]National Research Tomsk State University

Presenting Author: labspm@ggf.tsu.ru




*Olivines* are represented by forsterite and chrysolite. Based on the content of the fayalite minal, we can distinguish two relatively contrasting groups. The first group records the maximum values of iron index (26.8-27.1% Fa), which are observed in basalt phenocrysts. The second group includes forsterites and chrysolites (7.7-16.1% Fa), which are present in the peridotite xenolith. The presence of iron-enriched olivine (13-16% Fa) is typical for magmatic olivines formed in an intermediate chamber in the lower crust or represented by phenocrysts from ultramafic volcanics.

*Plagioclases* are present in basalts and xenoliths. Composition wise, we have determined plagioclases corresponding to labradorite, bitovnite, andesine, or oligoclase with an increased content of orthoclase minal. Labradorites are typical for peridotite xenoliths, and a wider spectrum from bitovnite to potassium-enriched oligoclase is typical for basalts. The presence of the basic plagioclase in the composition of "xenogenic" peridotites clearly indicates their cumulative nature.

Based on the analysis of rock-forming minerals of basalts and xenoliths of ultramafic rocks contained in the volcanic rocks of the La Palma and Lanzarote islands, we can conclude that the volcanic rocks themselves are represented by subalkaline varieties of OIB-type basic rocks, and the xenoliths are probably fragments of cumulative formations from a deep chamber at the boundary of the lithospheric mantle and oceanic crust. This is confirmed by the specifics of the mineral paragenesis of these associations. The presence of rather acidic plagioclases with an increased content of the orthoclase minal allows us to unambiguously identify them as Hawaiites and Mujeirites, which are typical for oceanic islands with interaplate origin. For xenoliths of Lanzarote Island, the presence of highly ferruginous olivine (up to 13-16% Fa - minal), diopside and basic plagioclase also confirms their formation exclusively in the deep chamber and does not allow the nature of mantle xenoliths below the asthenospheric layer or the lithospheric mantle.

The research was carried out with the support of the Ministry of Science and Higher Education of the Russian Federation within the framework of the state assignment (project №0721-2020-0041).

[1] V.A. Krylova, I.F. Gertner, IOP Conf. Cep.: Earth Environ. Sci. 319 012012