



Diagram "alkali sum - silica" (TAS) for chemical classification and diagnostics of plutonic rocks

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Achievement of uniformity in diagnostics of magmatic rocks is one of the most important tasks of petrology. In order to solve this problem, many researchers proposed diagrams, taking into account the ratio of different components of rocks. On the 33rd International Geological Congress in Oslo, the Chairman of the IUGS Subcommission Bernard Bonin raised the question, whether the TAS-diagram for diagnostics of plutonic rocks can be used we created? In order to find the answer to this question the databank containing more then 6000 chemical analyses of plutonic rocks (except of ultrabasic and foid rocks) from various regions of the World. Figurative points of rocks' contents were plotted on the diagram and after the statistical processing of the data the areas of frequency maximums of chemical parameters were contoured. As a result, 15 fields of basic, intermediate and acid plutonic rocks of different alkalinity have been statistically defined. Determination of these fields was based on the principles and rules adopted by the IUGS Subcommission and on the methodics approved by authors of this paper at detailed elaboration of this diagram for volcanic rocks (Oslo, 2008). Defined fields of plutonites generally correspond to the fields of their volcanic analogs, but with some shift in the direction of silica increasing. Thereby the TAS-diagram, in our opinion, can be used for chemical classification of plutonic rocks as well as volcanic. Its practical application is the simplest and easy-to-use way for preliminary identification of magmatic rocks. It will provide the uniformity in there diagnostics and using of petrographic terms, which now are often ambiguous.