OPEN ACCESS Freely available online

Journal of Geology & Geophysics

Perspective

Early Evalution of Granitoids, Classification and its Chemical Composition

Artem R Oganov*

Department of Geosciences, State University of New York, New York, USA

DESCRIPTION

After decades of development and revision, no classification system for granites *sensu lato* has yet gained widespread acceptance. Here, the more or less well-known connected causes of this seemingly insurmountable endeavor are discussed. The major issue is that different granitoids do not represent a continuous spectrum of rock types both in their chemical and modal compositions, but rather fall into distinct categories with obvious limits. The granites' rigorous definitional minimum-melt nature serves as the defining characteristic because both primary and developed melts can have granitic compositions. Two effects of this minimum-melt character are the fundamental causes of the lack of distinct divisions in all modal or chemical compositional classification schemes. First, some granite represents a rock series formed by continuous magmatic evolution rather than discrete steps due to the chemistry of granites, which spreads from the minimum, melt to non-minimum compositions. Secondly, granite series, which are produced from various sources and through various petro genetic processes, eventually converge at the most silica-rich compositions. The lack of a proper chemical classification is caused by a link between the tectonic possibilities for granite formation and the chemical overlap: The Wilson cycle's long-term effects on tectonic settings as well as more complex circumstances alter the chemical and modal makeup of the granite sources. Due to the minimum melt nature, the overlap in the most silica-rich compositions of the granites *sensu lato* may extend to more mafic members of a granite series: A second factor that contributes to the lack of distinct distinctions across granite types is the higher overlap that results from sources that are similar in their composition. A significant contribution to granite petrology has actually resulted from the extensive efforts to develop a satisfactory chemical compositional classification system, including the identification of the primary chemical differences between different types of granite, the primary chemical parameters (silica content, alkalinity, aluminosity, maficity or FeOt+MgO content, and the Fe/Mg and Na/K ratios), and the petro genetic processes that alter these parameters. Therefore, the investigations have not been in vain despite the lack of consensus regarding the "ideal" classification system: The understanding that chemical classification systems should be left to differentiate between magmatic suites and to unravel potential petro genesis and geotectonic context; non-genetic classifications are preferable to name the particular rock samples.

In the strictest sense, granites are plutonic, silica-rich, and felsic rocks that fit under category 3 of the QAPF. These rocks have the following ratios of modal Quartz (Q), Alkali feldspar (A), and Plagioclase (P): 20<Q<60 and A: P=90: 10 to 35: 65. When additional granitoids are taken into account, granites are classified as plutonic rocks with 20<Q<60. This definition of granites has a major benefit but also a major drawback. The benefit is that neither the presence of other minerals in the rock nor how these rocks developed must be established; in other words, there is no genetic implication in that definition. As a result, it is a simple method for identifying granites in the field, from hand samples, and from thin sections (unless the rock is too fine-grained to recognize the minerals or too coarse-grained to obtain trustworthy mineral proportions by point counting). This non-QAP mineral component is variable in nature (e.g., garnet, muscovite, Al-rich/Al-poor biotite, metaluminous to alkaline amphibole or pyroxenes, plus different accessory phases) and amount (up to 40% vol.), which is a drawback of granites *sensu lato*. These additional minerals' existence and modal compositions provide details about the chemical makeup of the source, the melting circumstances, and the petro genetic processes that gave rise to the granitoids information that is lost in the QAP definition.

Correspondence to: Artem R Oganov, Department of Geosciences, State University of New York, New York, USA, E-mail: oganovr.artem@gmail.com

Received: 05-Jul-2022; Manuscript No. JGG-22-18923; **Editor assigned:** 07-Jul-2022; PreQC. No. JGG-22-18923 (PQ); **Reviewed:** 21-Jul-2022; QC. No. JGG-22-18923; **Revised:** 28-Jul-2022; Manuscript No. JGG-22-18923 (R); **Published:** 05-Aug-2022, DOI: 10.35248/2381-8719.22.11.1038.

Citation: Oganov AR (2022) Early Evalution of Granitoids, Classification and its Chemical Composition. J Geol Geophys. 11:1038.