An evolutionary model of 1.8Ga granitoids of the Västervik-area (SE-Sweden) based on a refined geological map

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The Palaeoproterozoic (˜ 1.8Ga) Västervik area (Baltic shield, SE-Sweden) is located at a major terrane boundary of the Baltic Shield. The Transscandinavian igneous belt is located south of it and the Svecofennian domain follows to the north. In addition, the Västervik area is known for lp-hT amphibolite metamorphism in combination with intensive metasomatism. Mapping on a 1:10000 scale revealed the existence of at least four different granitoid generations. These granitoides discriminate well in their geochemical and Sr-Nd isotope signatures. The different groups are defined as primitive metagranitoides (MG I) of tonalitic composition, metagranitoides (MG II) of granodioritic to monzogranitic, and metagranitoids of syenogranitic (MG III) composition. A second magmatic pulse was triggered by crustal anatexis producing the youngest anatectic syenogranitic generation (AG).
MG I and MG II represent “normal” crust-forming granitoides with geochemical signatures of typical continental crust presumably produced by AFC-controlled petrogenesis. The above mentioned metasomatic fluids seem to have affected the MG III and AG, as for example initial $^{87}Sr/^{86}Sr$ isotope ratios are as high as 1.05. Such increased ratios are observed also in the surrounding metasedimentary Västervik-Formation indicating a genetic relation with the anatectically created AG. Furthermore, geochemical signatures and fluid classifications show that all MG-groups probably share the same petrogenetic evolution with the only difference of a fluidchemical imprint in the MG III granitoides.
Based on these results the geological map of the Västervik area is regenerated and the evolutionary model is refined.

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