



Geochemistry and Sr isotopes of the rocks of the Plana pluton

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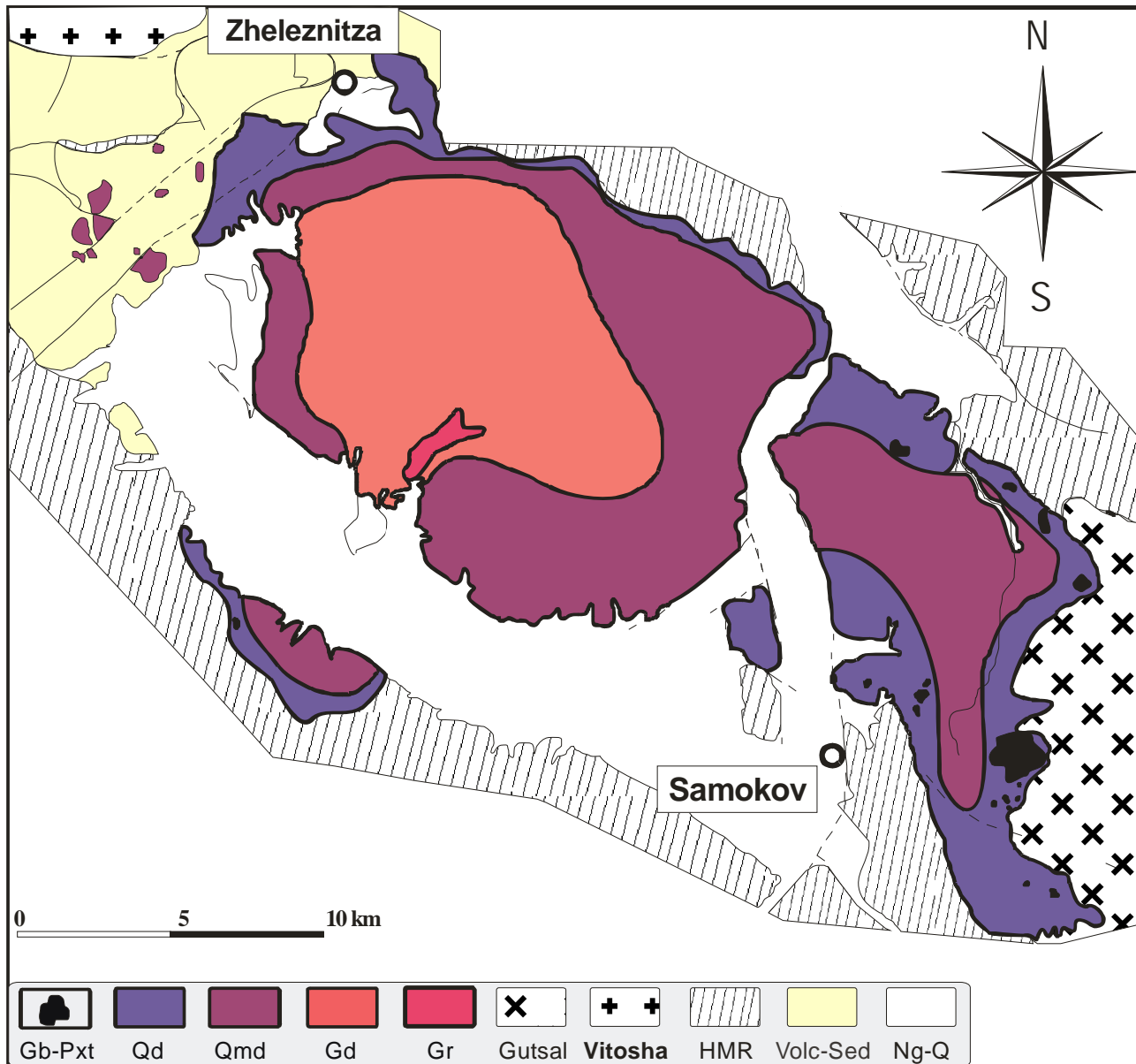
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Regional position of the Plana Pluton

- ABTS belt
- Small Cu-occurrences
- Central Srednogorie

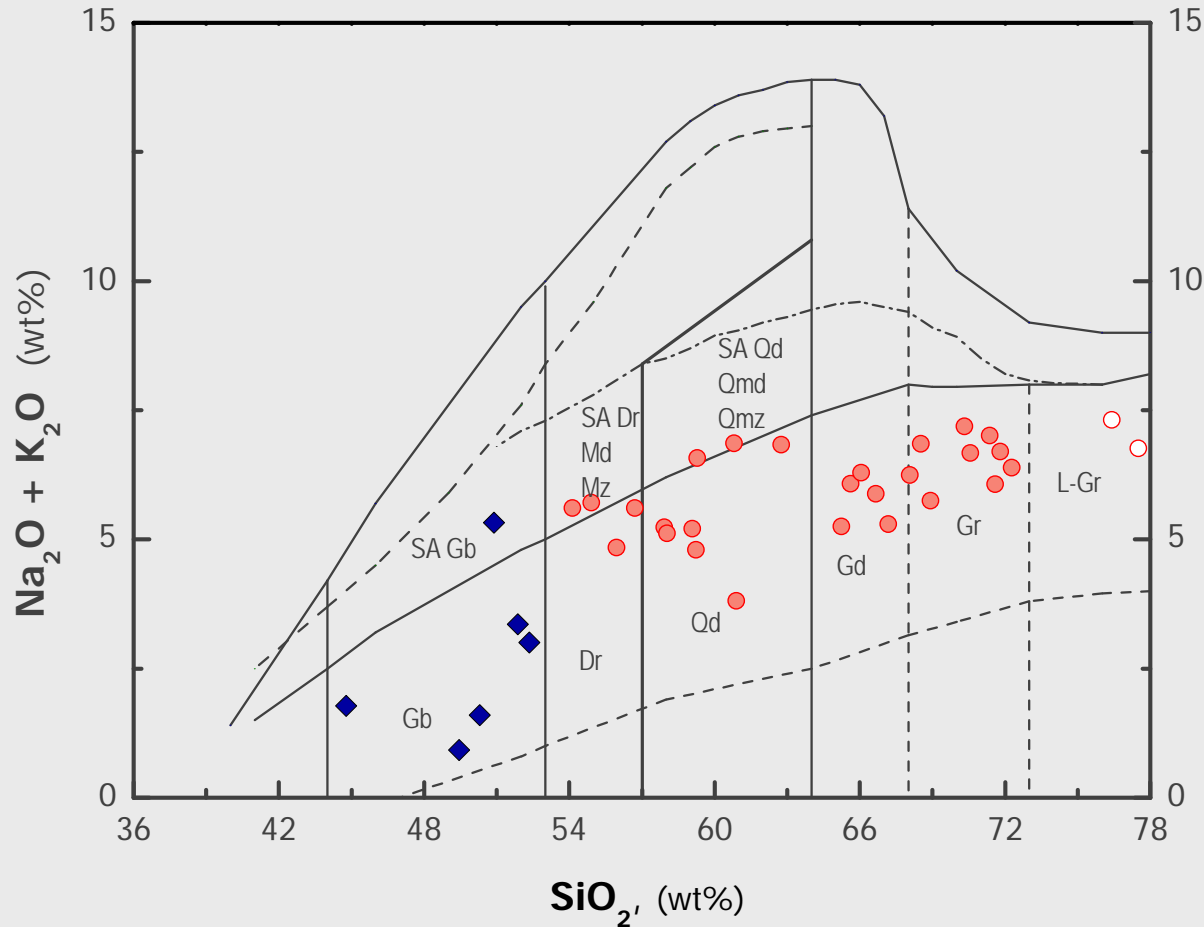


Major characteristics of the pluton



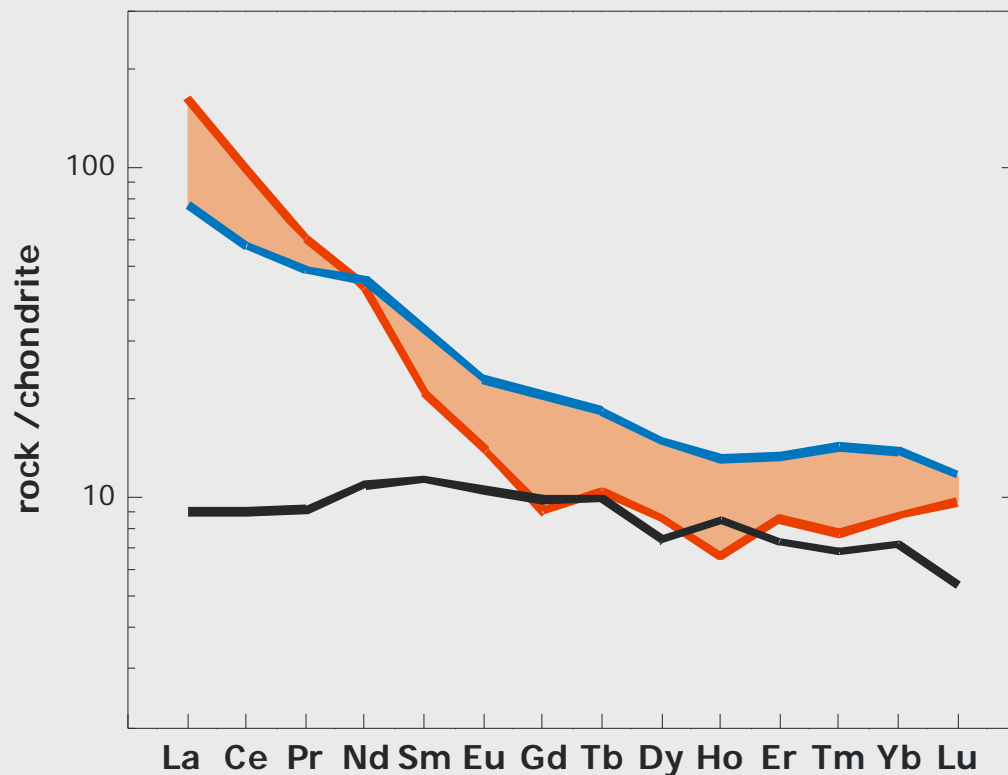
- ***in situ* crystallization**
 - Pegmatites and Gr
 - ± Ms bearing aplitic granites
 - arrangement of the rock types
- Presence of mafic microgranular enclaves
- Presence of mezo- to regional scale dykes
- local structural and textural changes in the host rocks
- Px hornfels

Major characteristics of the pluton



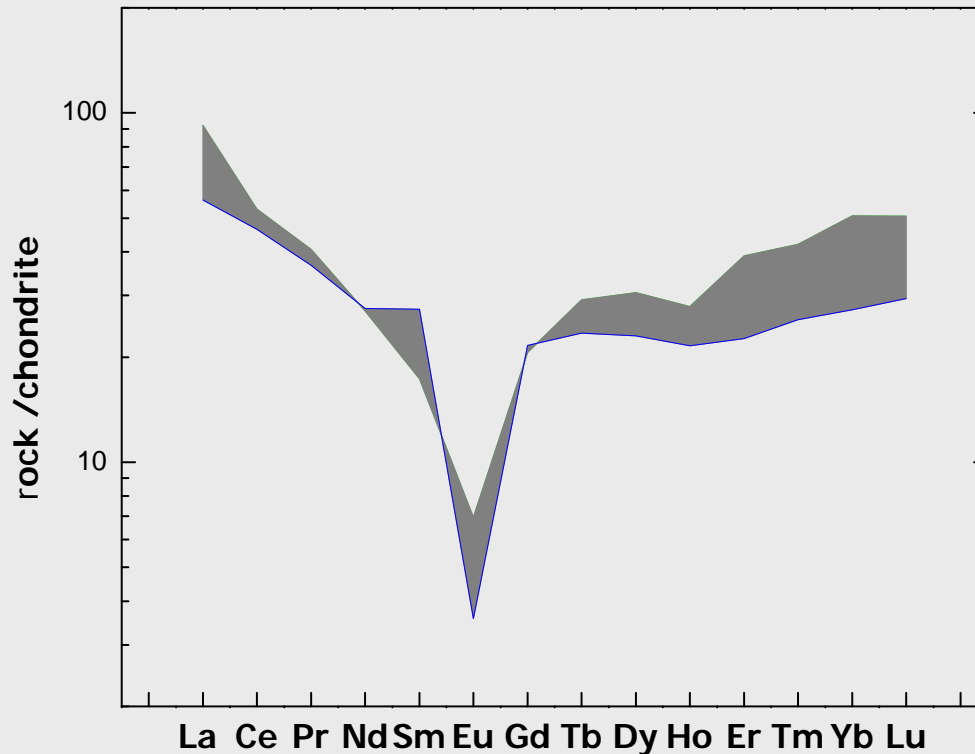
- Gb-MzGb-Dr-Qd-Md-Qmd-Qmz-Gd-Gr
- CA and HKCA series
- Metaluminous to peraluminous

Chondrite normalized REE patterns – granitoids + gabbroids



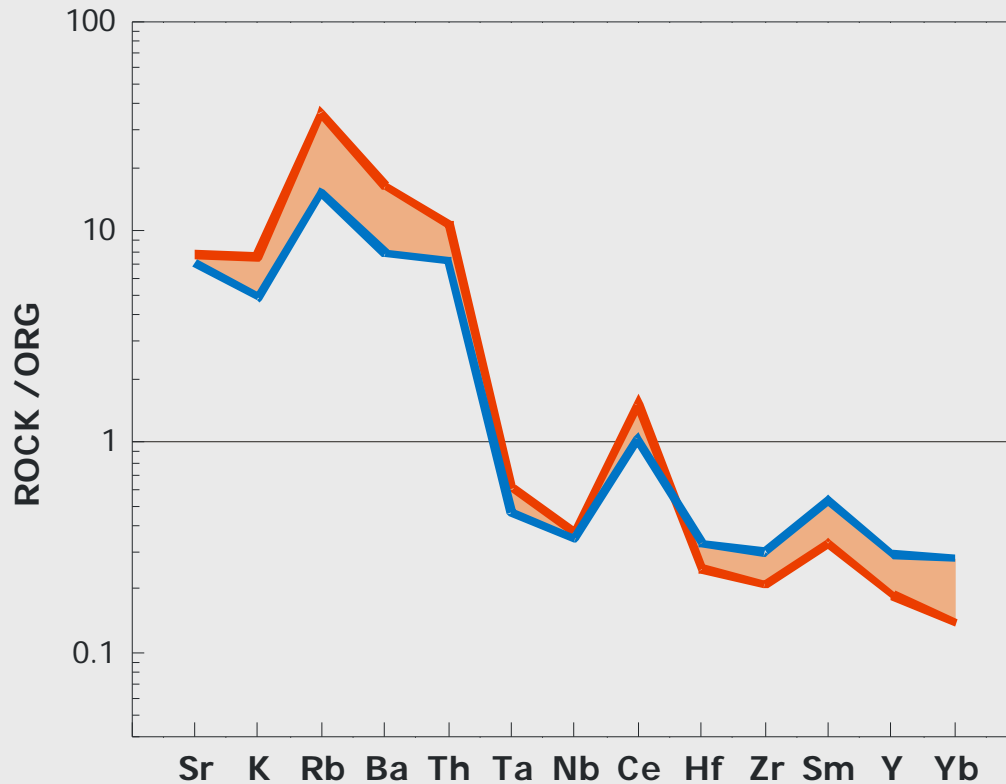
- Granitoids:
The more evolved the sample:
 - the higher LREE/HREE
 - the higher LREE/MREE
- Gabbroids:
 - flatter patterns
 - lowest LREE/HREE

Chondrite normalized REE patterns – aplitic granites



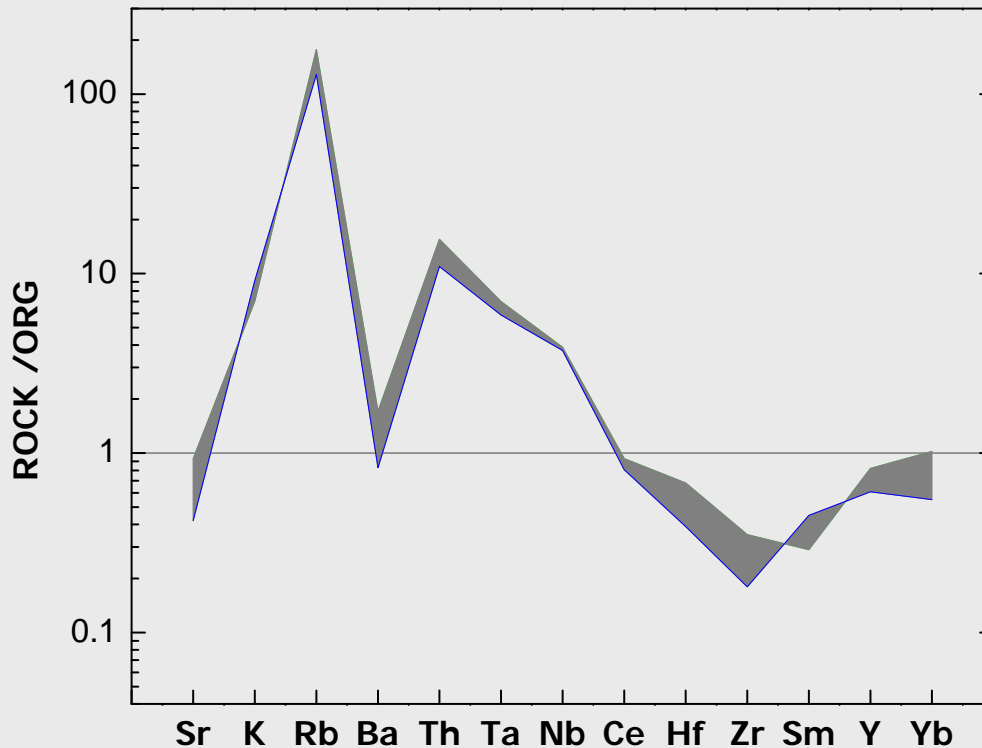
- deep Eu anomaly
- HREE enrichment (Gt)
- low LREE/HREE

ORG normalized patterns – granitoids



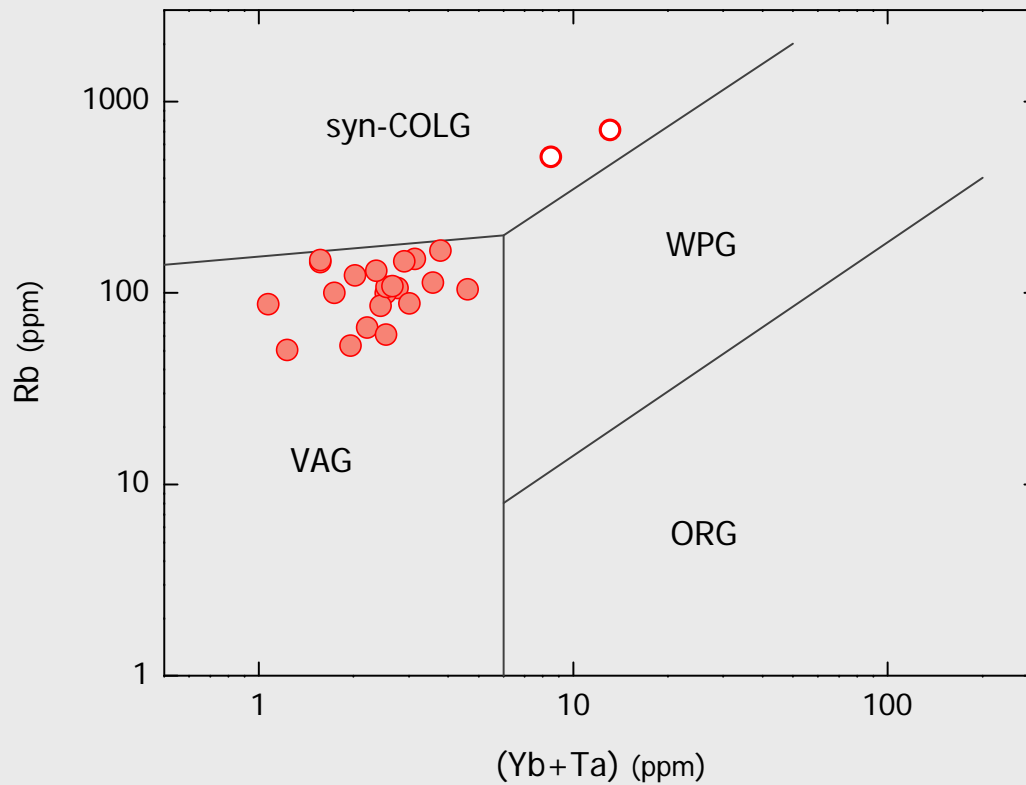
- LILE enrichment
- HFSE depletion
- Typical VAG (CA) pattern

ORG normalized patterns – aplitic granites



- strong Sr, Ba depletion
- Ta + Nb enrichment
- COLG / WPG (?)

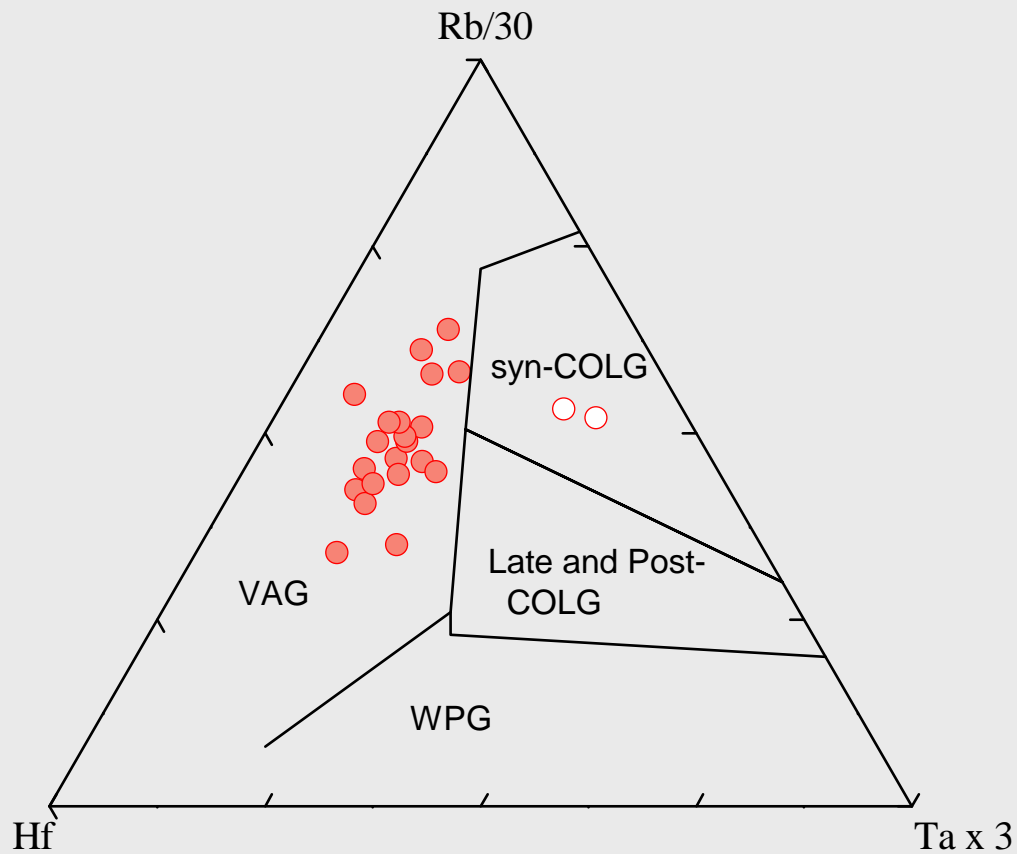
Tectonic setting



Granitoids: VAG

Aplites: syn-COLG

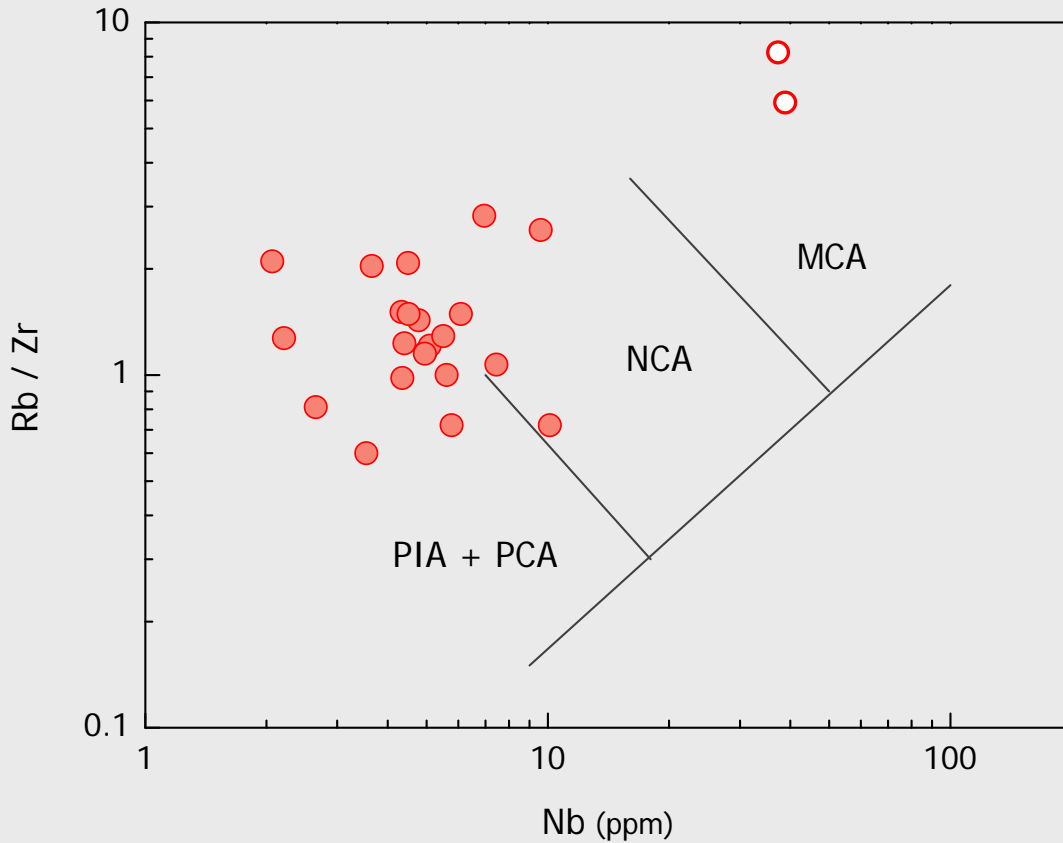
Tectonic setting



Granitoids: VAG

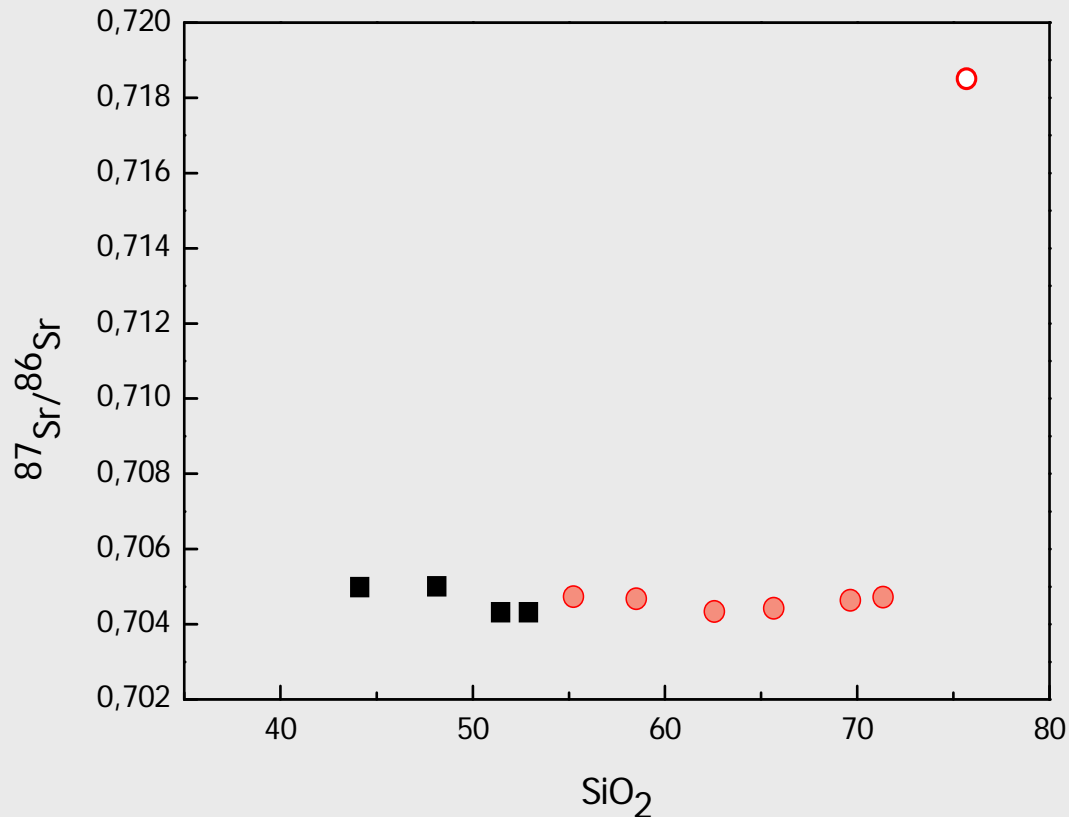
Aplites: syn-COLG

Tectonic setting



Primitive to Normal
continental arc

Sr Isotope geochemistry



- Plana pluton rocks
 - $^{87}\text{Sr}/^{86}\text{Sr} = \mathbf{0.7043 - 0.705}$
 - mantle source + slight crustal contamination
 - Sr isotopes of Plana rocks resemble the least radiogenic values of CSG and ESG (c.a 0.7040).
- Aplitic granites
 - $^{87}\text{Sr}/^{86}\text{Sr} = \mathbf{0.7185}$
 - crustal source

CONCLUSIONS

Based on geochemical data and Sr isotopes we distinguish two different magma types:

- **The Plana pluton**
 - *Formed as a result of in situ* crystallization
 - Primitive to normal volcanic arc setting
 - $^{87}\text{Sr}/^{86}\text{Sr}$ ratios account for mantle source + slight crustal contamination
- **Aplitic granites**
 - Syn-COLG
 - $^{87}\text{Sr}/^{86}\text{Sr}$ ratio is indicative for crustal origin



Thanks for the attention