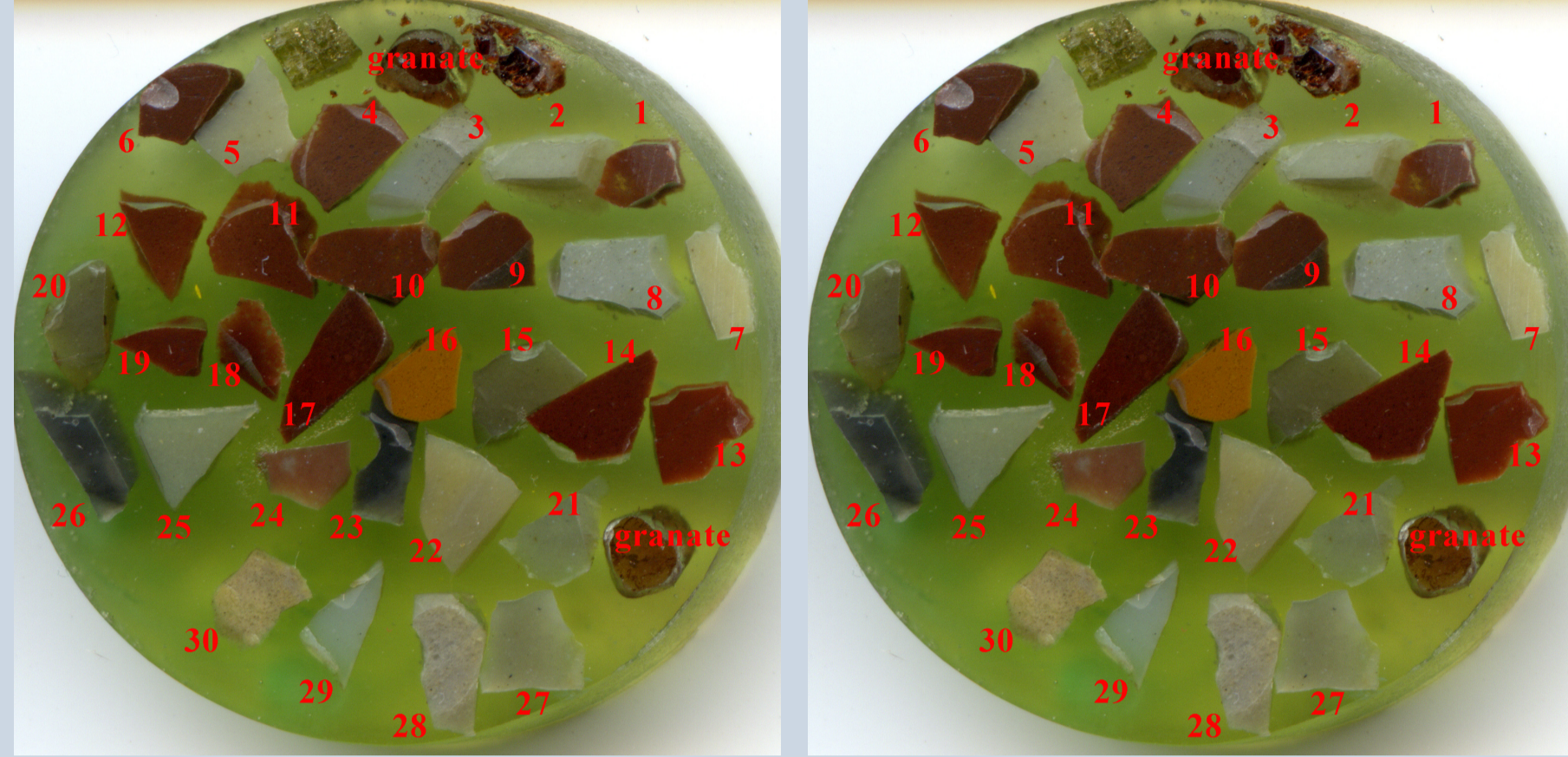## Mounts

Fig.1: Resin mounts. Red numbers indicate the samples: No. 11 – 20 **Vlara Bolešov**
No. 31 – 40 **Feuerstein**

Fig.2: LA ICP MS unit

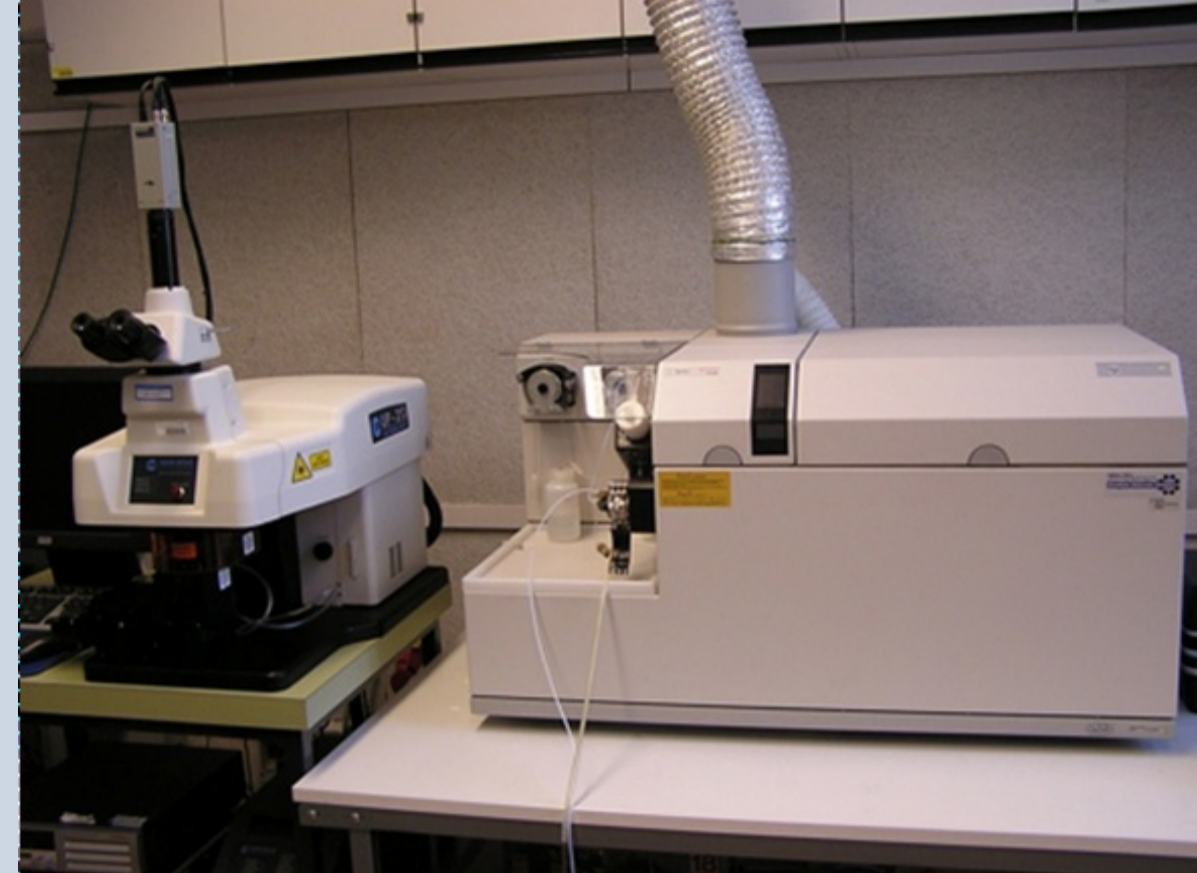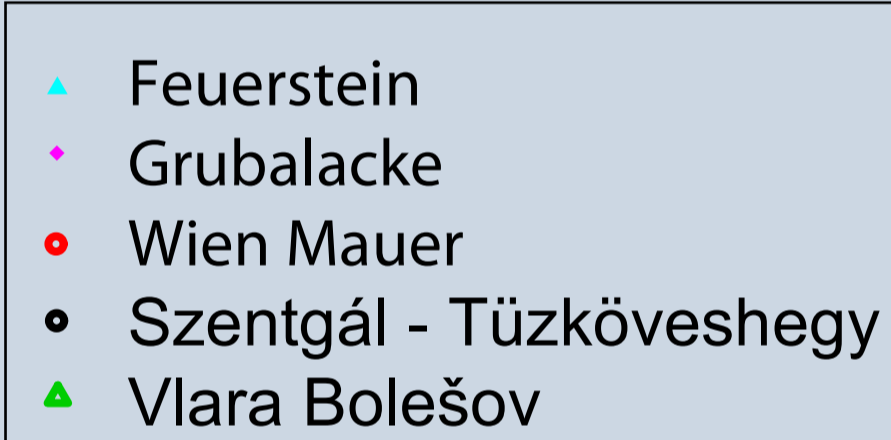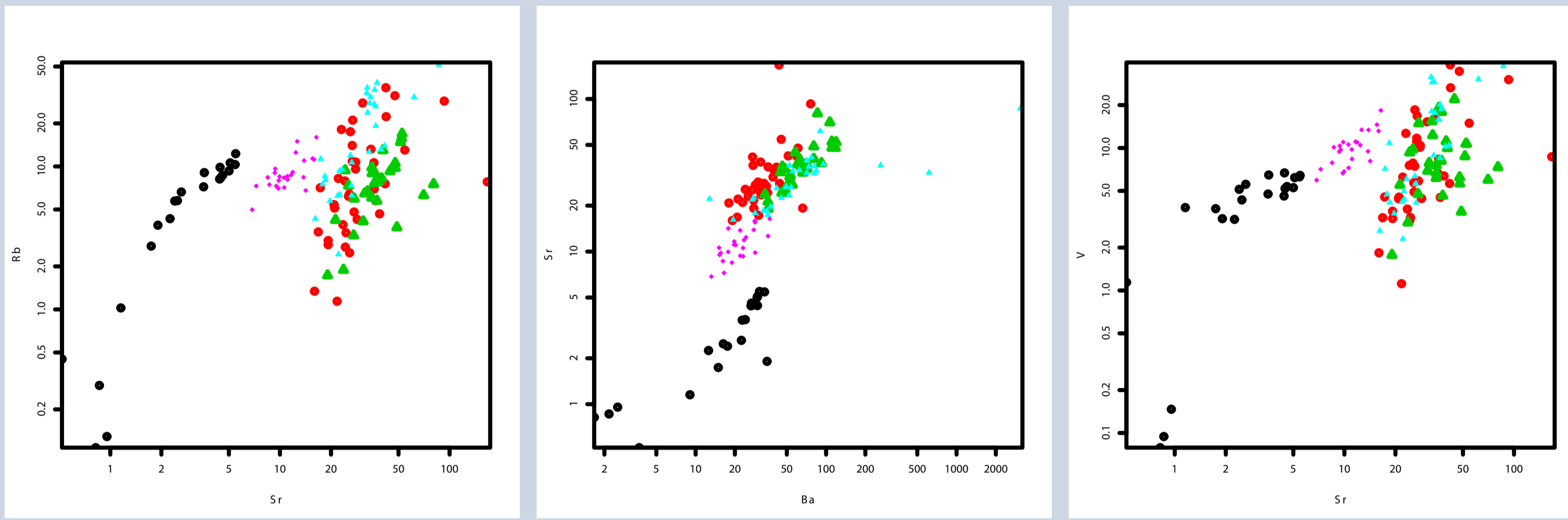## Plots of all samples

- Feuerstein
- Grubalacke
- Wien Mauer
- Szentgál - Tüzköveshegy
- Vlara Bolešov

The trace elements Sr, V, Rb and Ba have produced best results analysing radiolarites. Three clusters are well distinguishable:

1. Grubalacke/Tyrol
2. Szentgál – Tüzköveshegy/Hungary
3. Feuerstein/Vorarlberg, Vienna Mauer and Vlara Bolešov/Slovakia

The third cluster is problematic due to very similar conditions in geological genesis.

The third layer sourcing silicates are geochemical methods showing the highest resolution. In that special case LA-ICP-MS (Laser Ablation – Inductively coupled Plasma – Mass Spectrometry) was applied. Trace elements were determined by LA-ICP-MS (Laser ablation unit: New Wave UP 213; ICP-MS: Agilent 7500, ICP-quadrupole MS) at the Department of Chemistry and Department of Earth Sciences, Faculty of Science, Karl – Franzens – University, Graz (*see fig. 2*). Material was ablated by using a 213 nm laser pulsed at 5 Hz, 40-80 μm spot size and 85% laser power which corresponds to an energy of ~7 J/cm². Helium was used as carrier gas at ~1.2 l/min flow and data was acquired in time resolved mode. The standard glass NIST610 was routinely analysed for standardization and drift correction. The standard glasses NIST612 and BCR-2 were analysed as unknowns and could be reproduced within 10% relative error. Si was used as internal standard. Representative single grains of radiolarite were embedded into a resin mount (*see fig.1*) and polished for LA-ICP-MS analysis.

Conclusion

Taking all possible methods of radiolarite investigation displayed into consideration, it is obvious that the ONE analysis method does not exist. Only a combination of methods with different layers of resolution applied in a specific evaluation for every source area can provide usable results. These data form the basis for the creation of an individual system adjusted to every source at the state of the art.
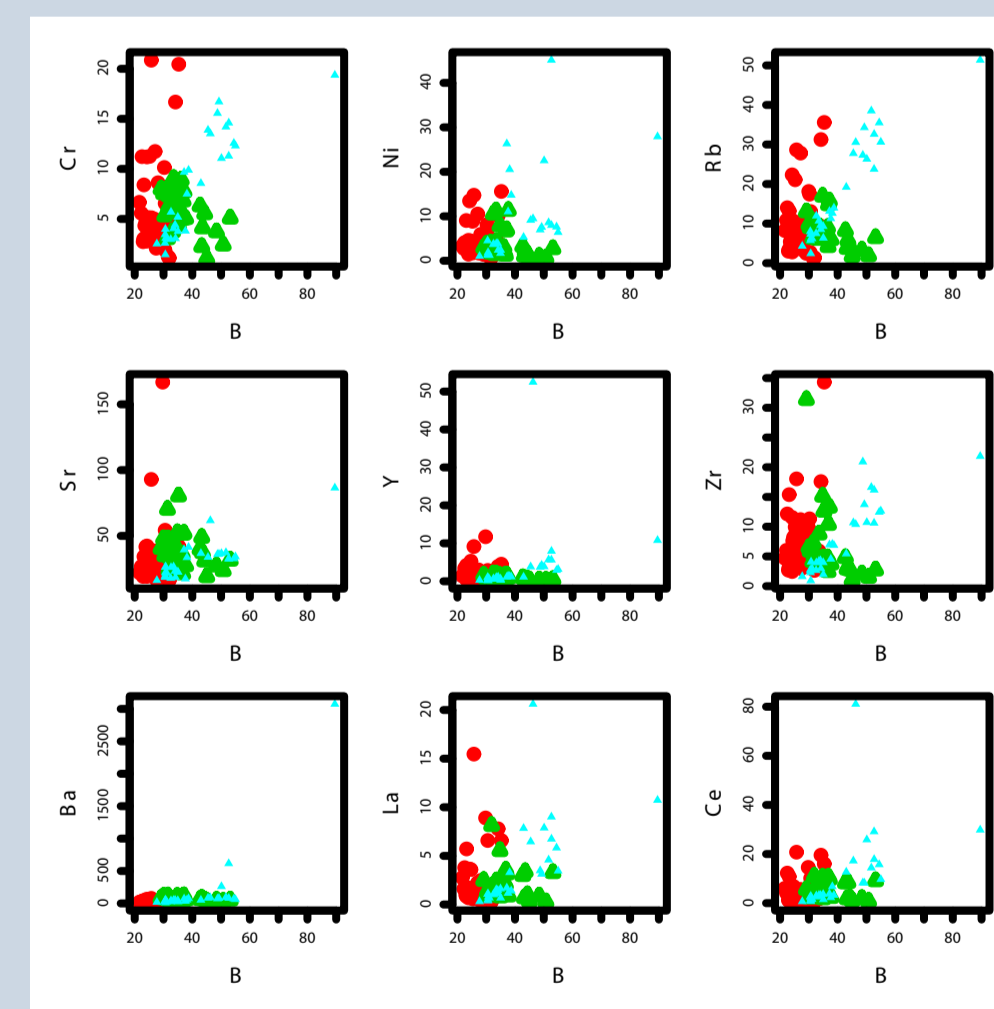
Feuerstein - Mauer – Vlara:

Additional multiple plots have been produced to investigate on the Feuerstein – Vienna Mauer- Vlara Bolešov – cluster. There is evidence of a basic trend, a clear distinction is not possible though. In that case it is necessary to attach more importance to the other analytical methods.