

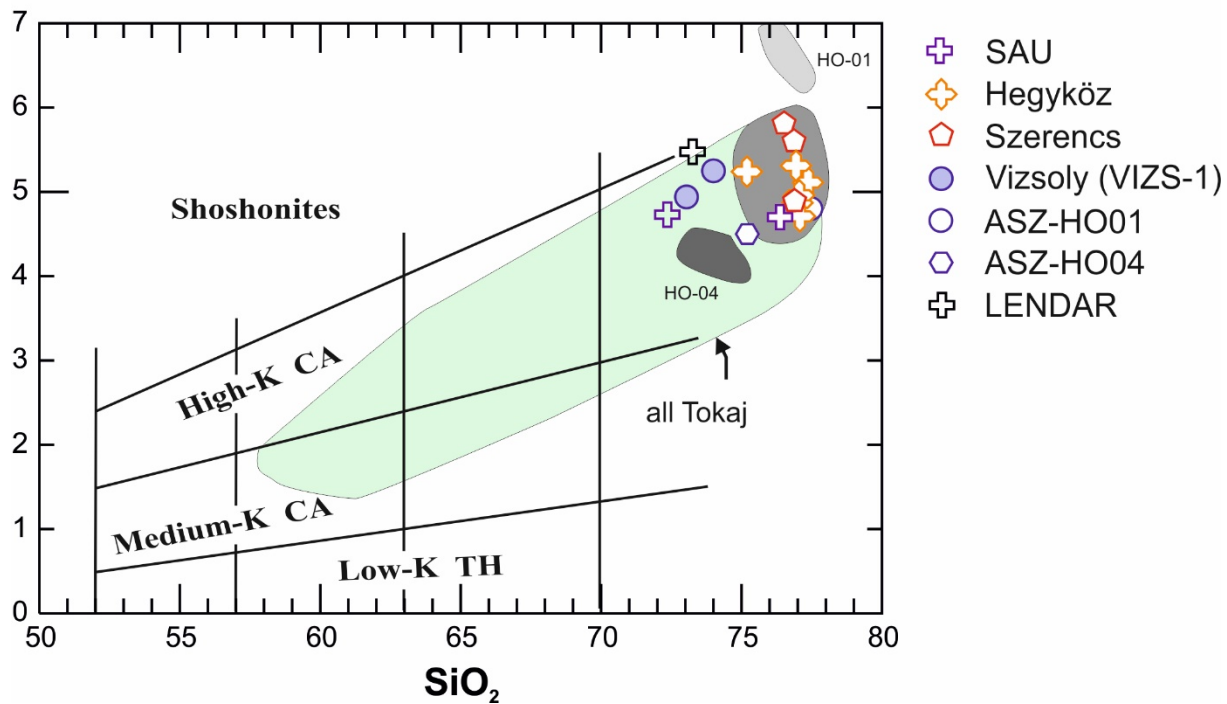
K₂O

Fig. 1. Bulk rock compositional data of the studied samples in the SiO₂ (wt%) vs. K₂O (wt%) classification diagram (Peccerillo and Taylor, 1976) compared with the whole intermediate to silicic compositional spectrum of the Miocene volcanic rocks of Tokaj Mts. (Downes et al. 1995; Kiss et al. 2010 and own unpublished data; green field) and the glass data of the studies samples (grey fields). Note that the glass composition of the ASZ-HO01 and ASZ-HO04 samples differ from those shown by the SAU-LENDAR, Hegyköz, Vizsoly (VIZS-1) and Szerencs samples. In case of the Szerencs and Hegyköz samples, the bulk rock data overlap the glass data, whereas small differences between the bulk rock and glass compositions can be observed in the VIZS-1 and SAU-LENDAR samples. Noteworthy, glass data of the ASZ-HO01 sample differ significantly from the bulk rock composition. Glasses in this sample are enriched in K and Rb, not shown by the bulk rock analysis.

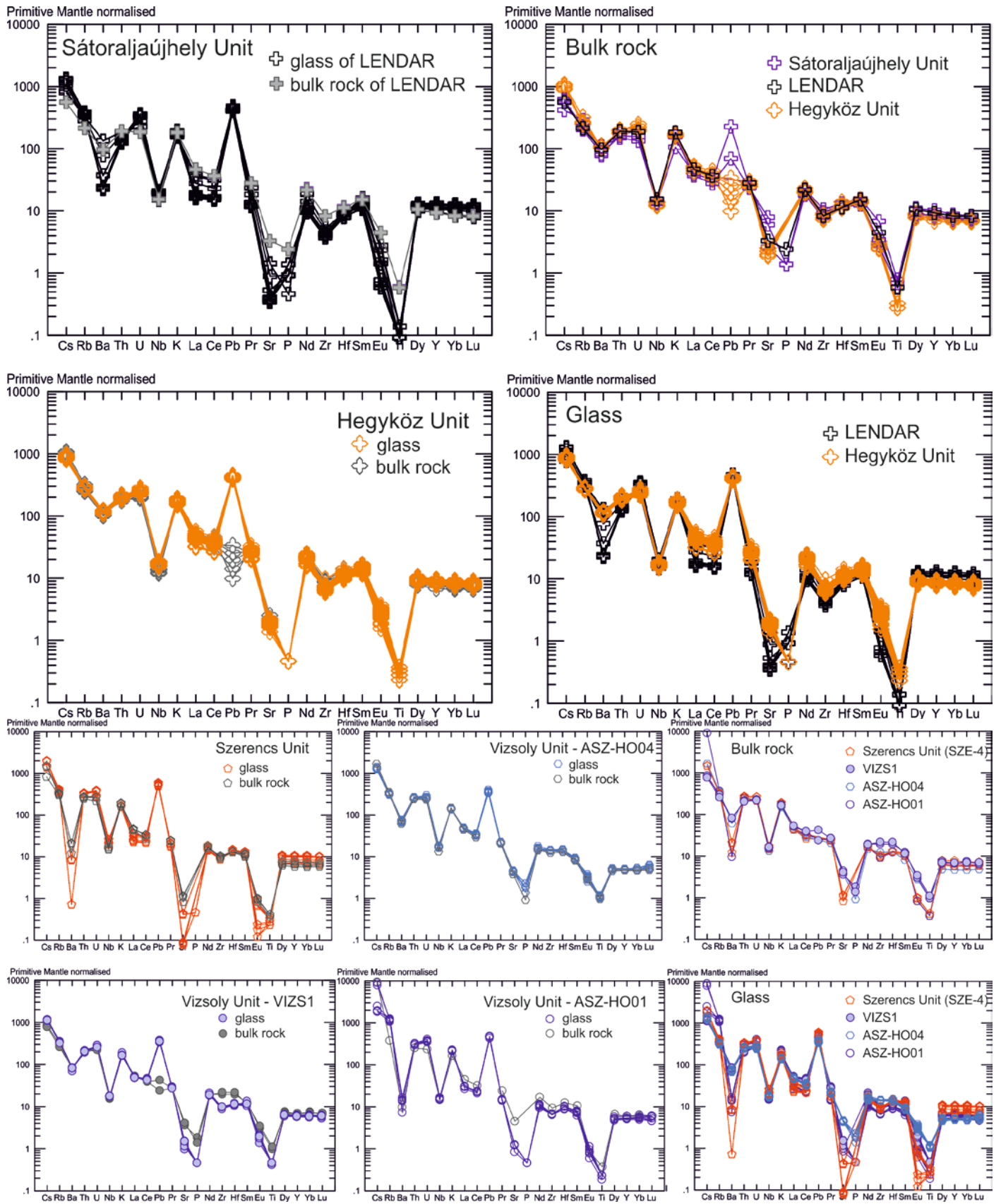


Fig. 2. Comparison of bulk rock and glass trace element compositional data for the studied samples. Primitive Mantle values are from Sun and McDonough (1989)

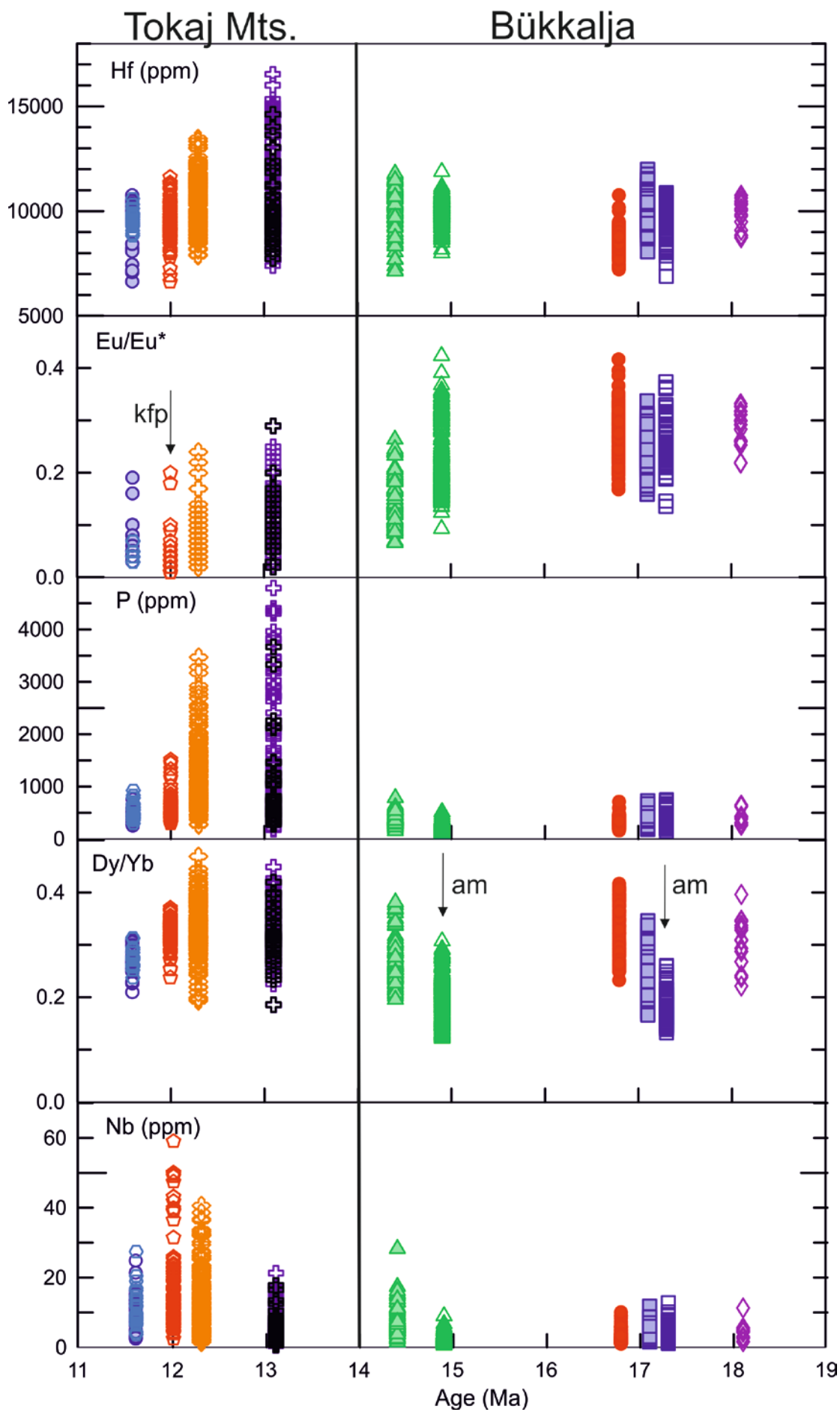


Fig. 3. Minor and trace element data variations of Tokaj Mts. and Bükkalja volcanic field samples. (arrow with kfp and am refers to the direction and effect of K-feldspar and amphibole fractionation)

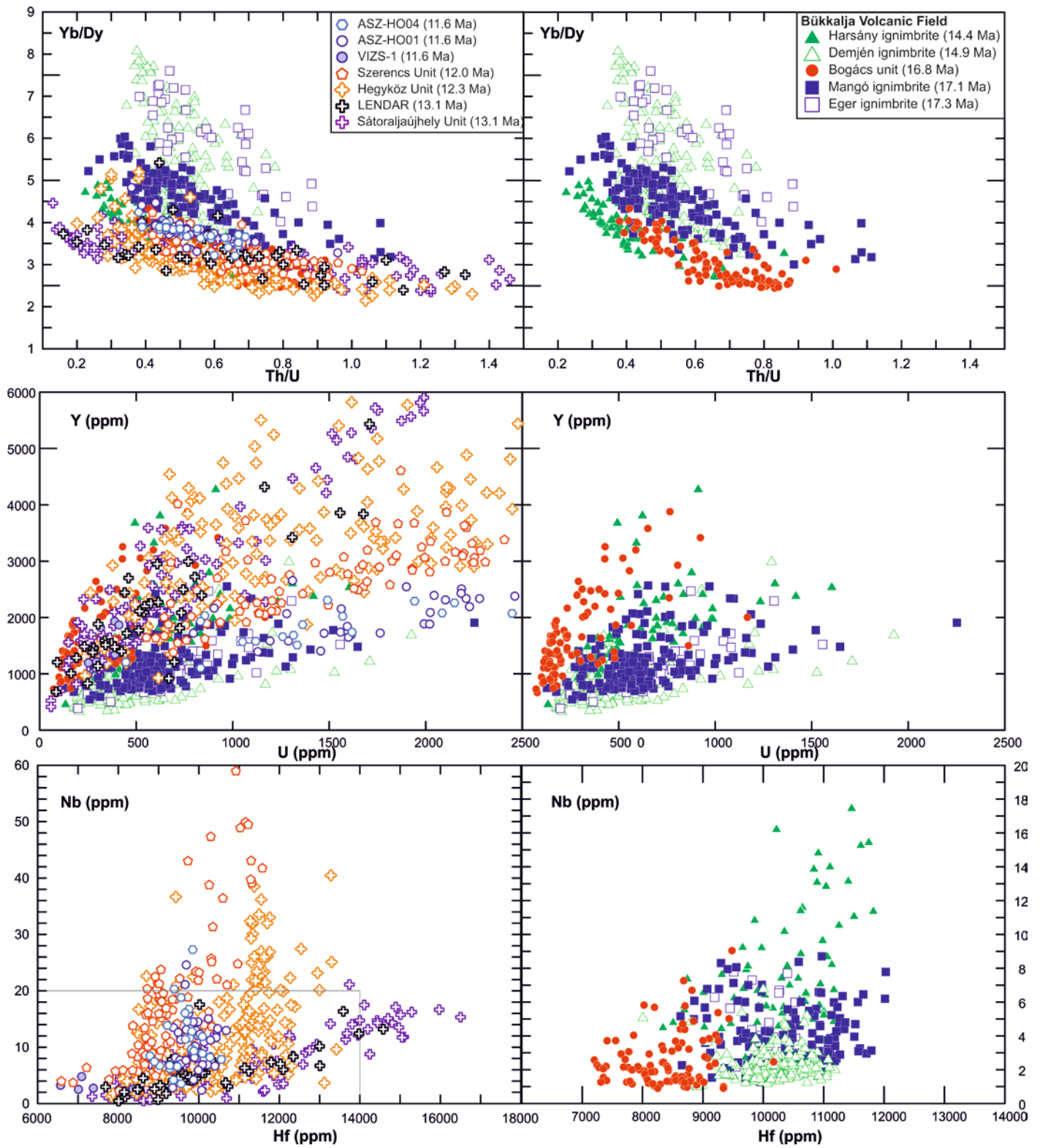


Fig. 4. Comparison of zircon trace element compositional data of the TM samples (left panel) and the Bükkalja samples (right panel; data are from Lukács et al. 2015; 2018; 2021)

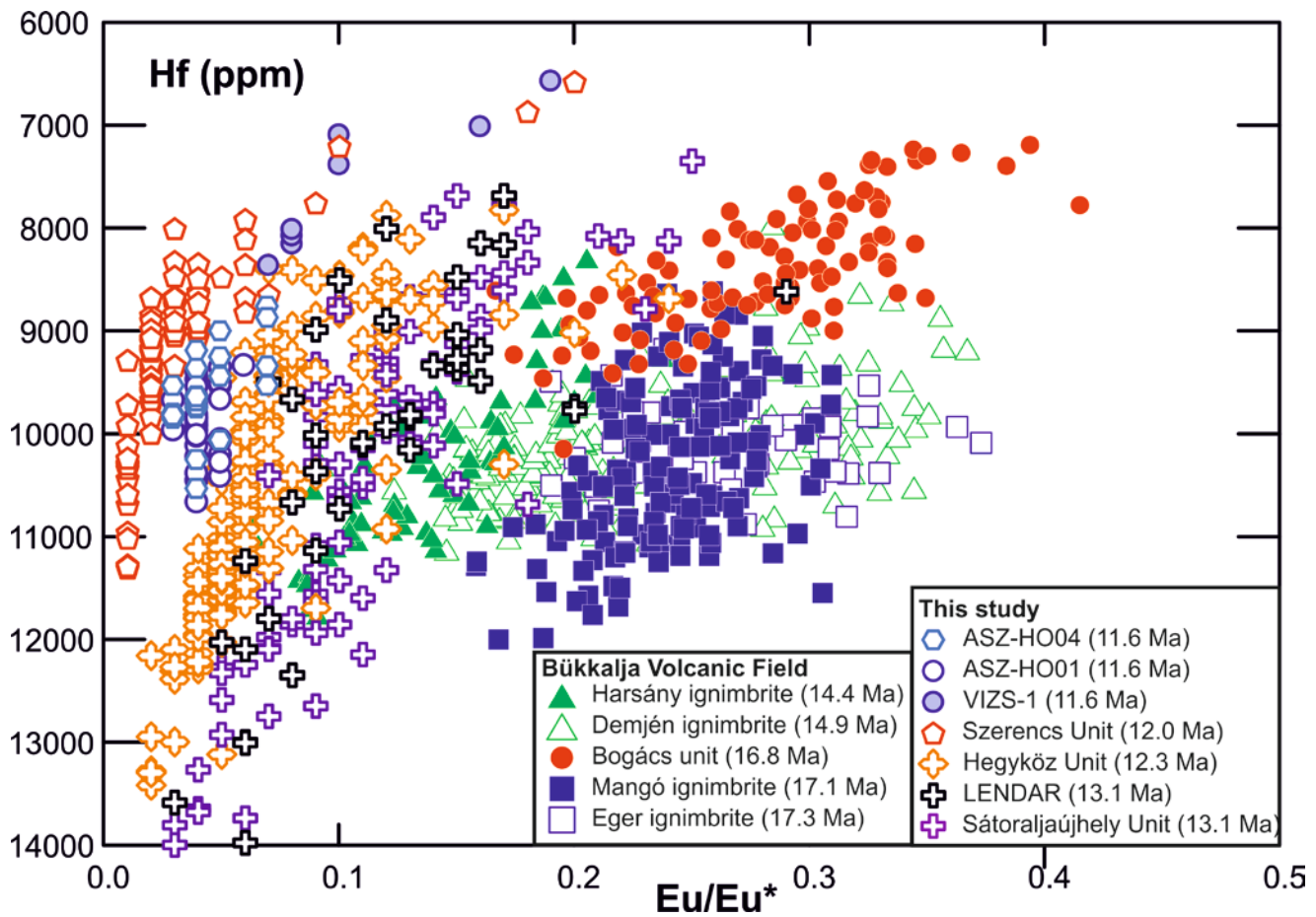


Fig. 5. Eu/Eu^* vs. Hf plot for zircon derived from silicic explosive volcanic rocks of the TM (this study) and the Bükkalja volcanic field (Lukács et al., 2015; 2018; 2021). Note the sharp differences between these two silicic volcanic fields.

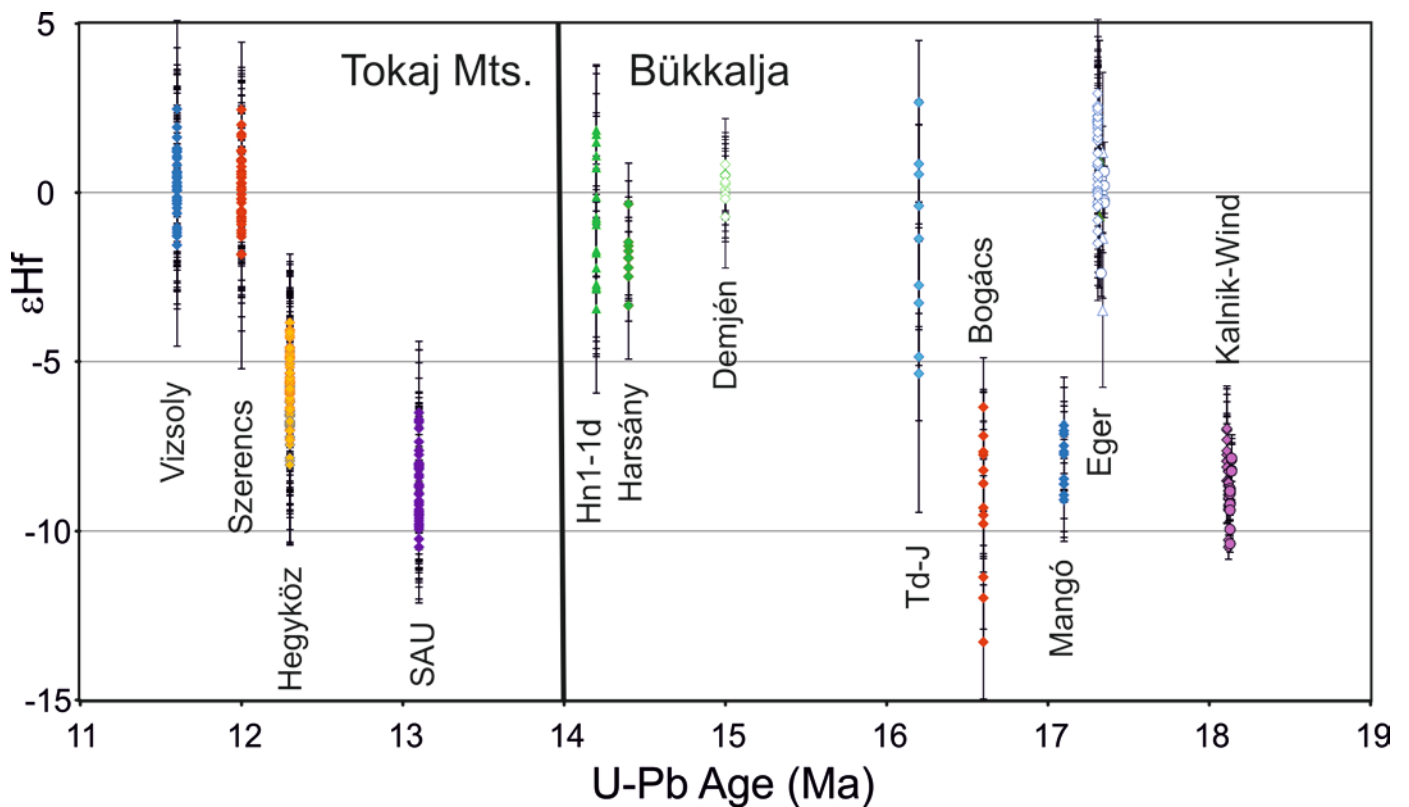


Fig. 6. Epsilon Hf value variations of the Tokaj Mts. and Bükkalja volcanic field units (Lukács et al., 2018; Brlek et al., 2023).

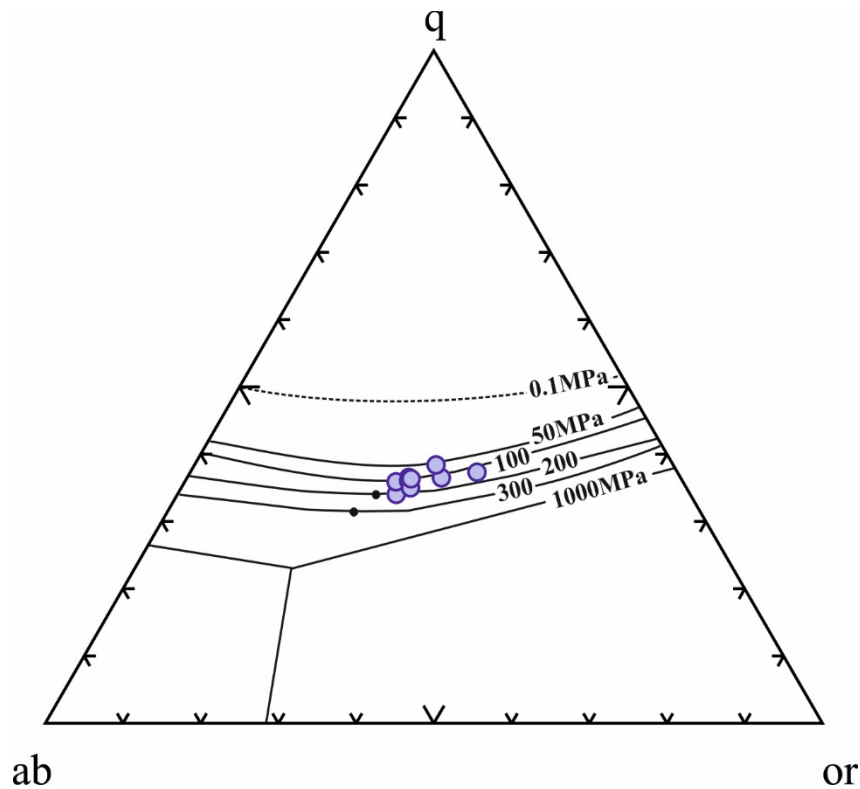


Fig. 7. Glass major element data of Vizsoly (Vizs-1) glasses are plotted onto the ab-q-or haplogranitic diagram. Cotectic and eutectic lines are after Blundy and Cashman (2001). The Vizsoly magma could have been derived from a magma reservoir resided at 100-200 MPa pressure.

References:

- Blundy J, Cashman K (2001). Ascent-driven crystallisation of dacite magmas at Mount St Helens, 1980–1986. *Contribut. Mineral. Petrol.* 140: 631-650. [10.1007/s004100000219](https://doi.org/10.1007/s004100000219)
- Brlek M, Richard Tapster S, Schindlbeck-Belo J, Gaynor SP, Kutterolf S, Hauff F, Georgiev SV, Trinajstić N, Šuica S, Brčić V, Wang K-L, Lee H-Y, Beier C, Abersteiner AB, Mišur I, Peytcheva I, Kukoč D, Németh B, Trajanova M, Balen D, Guillong M, Szymanowski D, Lukács R (2023). Tracing widespread Early Miocene ignimbrite eruptions and petrogenesis at the onset of the Carpathian-Pannonian Region silicic volcanism. *Gondwana Res.* 116: 40-60. <https://doi.org/10.1016/j.gr.2022.12.015>
- Lukács R, Harangi S, Bachmann O, Guillong M, Danišik M, Buret Y, von Quadt A, Dunkl I, Fodor L, Sliwinski J, Soós I, Szepesi J (2015). Zircon geochronology and geochemistry to constrain the youngest eruption events and magma evolution of the Mid-Miocene ignimbrite flare-up in the Pannonian Basin, eastern central Europe. *Contribut. Mineral. Petrol.* 170: 52. [10.1007/s00410-015-1206-8](https://doi.org/10.1007/s00410-015-1206-8)
- Lukács R, Harangi S, Guillong M, Bachmann O, Fodor L, Buret Y, Dunkl I, Sliwinski J, von Quadt A, Peytcheva I, Zimmerer M (2018). Early to Mid-Miocene syn-extensional massive silicic volcanism in the Pannonian Basin (East-Central Europe): Eruption chronology, correlation potential and geodynamic implications. *Earth-Sci. Rev.* 179: 1-19. <https://doi.org/10.1016/j.earscirev.2018.02.005>
- Lukács R, Guillong M, Bachmann O, Fodor L, Harangi S (2021). Tephrostratigraphy and Magma Evolution Based on Combined Zircon Trace Element and U-Pb Age Data: Fingerprinting Miocene Silicic Pyroclastic Rocks in the Pannonian Basin. *Front. Earth. Sci.* 9. [10.3389/feart.2021.615768](https://doi.org/10.3389/feart.2021.615768)
- Peccerillo A, Taylor SR (1976). Geochemistry of eocene calc-alkaline volcanic rocks from the Kastamonu area, Northern Turkey. *Contrib. Mineral. Petrol.* 58, 63-81
- Sun S-S, McDonough WF (1989). Chemical and isotopic systematics of oceanic basalts: implications for mantle composition and processes. *Geol. Soc., London, Spec. Pub.* 42: 313-345. [doi:10.1144/GSL.SP.1989.042.01.19](https://doi.org/10.1144/GSL.SP.1989.042.01.19)