Are the silicate reference glasses BAM-S005 A and B suitable for *in situ* microanalysis?

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BAM-S005 Type A and B from the Federal Institute for Materials Research and Testing (BAM, Germany) are soda-lime reference glasses certified for bulk analysis. In order to test whether these glasses are also suitable for microanalysis, we have assessed the homogeneity of major and trace elements, including the 22 certified trace elements using LA-ICP-MS, EPMA and SIMS [1]. The results show that all major elements and most trace elements are homogeneously distributed. Possible exceptions are Se and Cl which might be heterogeneously distributed.

Figure 1 shows our LA-ICP-MS results for BAM-S005-A calibrated against the new reference values for NIST 610 [2] following ISO guidelines. All data agree within uncertainty limits with the BAM certified reference values. Figure 1 also shows our LA-ICP-MS data using the 14 years old NIST 610 values [3] for calibration. Under this calibration, significant differences for As, Cd, Mo, Sn, Sb, expecially for Se and Cl, are observed.

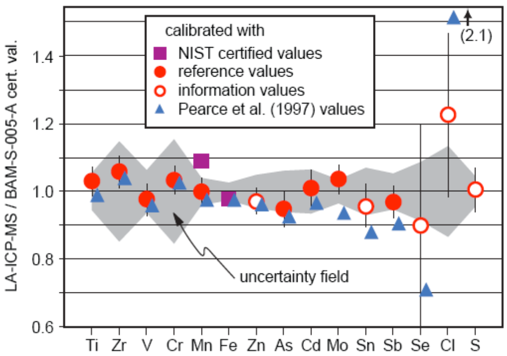

Figure 1: Normalized LA-ICP-MS data for BAM-S005-A using different calibration procedures [2, 3]. Uncertainties include the analytical error of LA-ICP-MS and the uncertainties of the NIST reference values.

[1] Yang *et al*. (2011) *Geophys Res Abs* **13**, EGU2011-7533. [2] Jochum *et al*. (2011) *GGR* (in press). [3] Pearce *et al*. (1997) *Geostandard Newslett* **21**, 115-144.

Geochemical constraints on the sediment source-to-sink process of the Changjiang (Yangtze) River

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As the largest river originated from the Himalayan-Tibetan Plateau, the Changjiang delivers huge amount of terrigenous matter into East Asian marginal seas, which exerts a great control on marine sedimentation and biogeochemical cycle. The sediment source-to-sink (S2S) process of the Changjiang is significantly different from those of well-known MARGINS sites and widely-documented island rivers such as the Kaoping River in Taiwan, because of its complicated provenance geology, weathering regime and rapidly increasing human impacts on the drainage system.

We have systematically investigated the sediment S2S process of the Changjiang river system by using various geochemical proxies including REE and Sr-Nd isotopic compositions and detrital zircon chemistry. Source rock compositions and chemical weathering intensities in the drainage basin account for the compositional variations of the modern Changjiang sediments. The bulk Sr-Nd isotopic compositions and age spectrum of zircon provide good constraints on sediment recycling and evolution of weathered upper continental crust in the Yangtze Craton. Geochemical composition of the sediment into the sea is complicated by hydrodynamic sorting and changing sediment suppliers in relation to variability of monsoon-induced precipitation in the river basin. The Three Gorges Reservoir also complicates the sediment S2S process and changes river geochemistry.

Despite spatial and seasonal variations in geochemical compositions are clearly registered in the modern Changjiang sediments, the proxies for deciphering sediment provenance and chemical weathering intensity can be established for the study of river-sea interaction and paleoenvironmental reconstruction at different temporal scales.

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