Improved 10Be preparation to reduce analytical background for earth surface process studies

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Due to advancement of Accelerator Mass Spectrometry (AMS), in situ produced beryllium-10 (10Be) in quartz has been used for earth surface process studies, such as surface exposure dating (e.g. Yamane et al., 2011), erosion rate estimations (e.g. Shiroya et al., 2012), tectonic processes (Yokoyama et al., 2005) and so forth (e.g. Gosse and Phillips, 2001). In order to expand the applicability of this technique, the sample with low 10Be concentration need to be measured with high precision. This requires reduction of background that is often affected isobars (boron-10). We have conducted several attempts and found that the length of time exposed to the ambient atmosphere during the oxidization process is the most important step to increase 10Be background (Yokoyama et al., submitted). In this presentation, we discussed our experimental results and potential improvement of topics for understanding of earth surface process.

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