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Argon laboratory intercomparison efforts for the Earthtime initiative

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The ability for individual geochronology laboratories to obtain analytically identical dates for standards and unknowns at the 0.1% level is critical towards achieving the goals of the EARTHTIME initiative. Since no single laboratory can be solely dedicated or achieve the required capacity for the EARTHTIME effort a community of laboratories conducting time-scale work is necessary and this community needs to operate on a common platform. Twenty-three $^{40}\text{Ar}/^{39}\text{Ar}$ laboratories are presently or have conducted experiments on common fluence monitor standards towards ascertaining the existing range of results obtained for a given standard. The basic experiment is to use the New Mexico Tech Fish Canyon sanidine standard (FC-2) to monitor other standards such as PP20 hornblende (~1075 Ma), GA1550 biotite (~99 Ma), Taylor Creek sanidine (~28.3 Ma), and Alder Creek sanidine (~1.19 Ma). An initial experiment between 10 laboratories with no restrictions on analytical protocol or irradiation facility showed that interlaboratory variability was too high (0.1 to 1.0%) to reach the goals of EARTHTIME. This experiment is presently being followed by one where 20 laboratories have received irradiated Alder Creek and Taylor Creek sanidine from a single irradiation conducted at Texas A&M and distributed by NM Tech. In addition 5 laboratories are intercomparing FC-2 sanidine with the Berkeley Geochronology Center's Fish Canyon sanidine that were also included in the irradiation describe above. The target goal for completion of this experiment is slated for Feb. 1, 2008 and the results of this important, community-wide, effort will be presented at this meeting.