Calibration of Terrestrial Cosmic-Ray-Produced Nuclides: CRONUS

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The radionuclides ^{10}Be, ^{14}C, ^{26}Al, and ^{36}Cl, and the least abundant noble gas isotopes, ^{3}He and ^{21}Ne, are used by geoscientists to quantify the chronologies and process rates associated with the continuously changing features of Earth's surface. As the questions probed by these techniques become more sophisticated so too must our knowledge of the factors that govern the production rates of cosmogenic nuclides. The NSF-funded CRONUS project was established to improve our understanding of the various factors that influence *in-situ*-cosmogenic nuclide production rates. Our approach is to utilize both geologic calibration sites and the measurement of production parameters in laboratory experiments to better constrain production rates. In the first year we collected samples from the well-dated Bonneville shorelines in Utah, Tabernacle Hills (^{3}He, ^{14}C, and ^{36}Cl) and Promontory Point (^{3}He, ^{10}Be, ^{14}C, ^{21}Ne, ^{26}Al, and ^{36}Cl), and performed neutron irradiations on specific target materials. Cl-36 has been measured in samples from Tabernacle Hills.