The central Andes is an ideal location for a study such as this. This hyper-arid and isolated environment offers samples that have remained undisturbed and effectively uneroded in a location that has had little or no water or vegetation cover. In addition, the high altitude of the region insures very high nuclide concentrations. The effectively instantaneous creation of the lava flows aids in correlating the ^{40}Ar/^{39}Ar to the measured ^{36}Cl concentrations, and the long-term development of the volcano by successive flows will provide a moderately wide span of dates for the calibration. As an additional incentive, Tata Sabaya, the specific volcano to be studied, underwent a cone collapse that resulted in an easily identifiable debris flow. This extra "instantaneous" event provides another point on the calibration curve.

When combined with the existing calibration data, which focus on more recent time periods, these new data should provide a broader perspective on long-term variations in the CRF. Analysis will incorporate Monte Carlo neutron transport simulations to account for rock geometry and water content in addition to the standard scaling factors such as geometric shielding, altitude and latitude variations, and erosion effects. With the higher frequency variations from magnetic field fluctuations effectively averaged out after only a few cycles, any long-term variations in the CRF, and hence, the radioisotope production rates, will be identifiable, making the results of the project useful to any method or procedure that relies on cosmogenic nuclides.

PRODUCTION RATE OF *IN-SITU* COSMOGENIC ^{10}Be IN QUARTZ AT HIGH ALTITUDE AND MID LATITUDE

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Several considerations must be made when attempting to empirically calibrate a cosmogenic nuclide time scale to the calendric time scale. The sampled surface should not have been buried or eroded during exposure, the initial cosmogenic concentration of the nuclide must be zero (*i.e.*, no inheritance from prior exposure), there should be no significant shielding or geometry problems, and the lithology must be suitable. The duration of the exposure of the surface must also be accurately known. Finally, the geomagnetic latitude and duration at which calibrations are done should be taken into account because at some latitudes even a small uncertainty in geomagnetic latitude can produce a large uncertainty in the production rate. For calibration sites having <10 kyr exposure, the uncertainty in geomagnetic latitude due to pole position secular variation may be a factor because the dipole axis may not have been geocentric. If the change in production rate due mainly to geomagnetic field intensity variation is the focus, it may be useful to concentrate our measurement of production rates at sites within the latitudinal zone (~15°–45°) where these geomagnetic uncertainties have the most significant effects.

We have sampled 10 boulders from the inner Titcomb Basin moraine in the Wind River Range, Wyoming (3.3 km, 43°N), which has been correlated to the Temple Lakes moraine, dated by Zielinski and Davis (1987) and Davis (1994), at ~11.4 to 11.7 ^{14}C kyr. The site production rate of ^{10}Be in quartz assuming 12.9 cal kyr (Stuiver and Reimer 1993) for the moraine age is 51.7 atoms $\cdot$ g^{-1} yr^{-1}, 53.6 atoms $\cdot$ g^{-1} yr^{-1} if adjustments are made for the effects of snow and one of the ten samples is considered an outlier. The production rate at sea level, high latitude (using Lal 1991) is *ca.* 5.5 atoms $\cdot$ g^{-1}