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Preliminary archeomagnetic data from Chihuahua, northern Mexico

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Even though Mexico has a very rich archaeological heritage, the local secular variation curve is still fairly imprecise, and data are especially missing from the northern part of Mexico. In this communication, we will present new directional and paleointensity data from a ceramic producer area, the archeological site of Casas de Fuego, located $\sim$16 km to the SE of Paquime (Chihuahua state). Very unusual square furnaces, made of mud and stone, have been excavated. They measure in average 2*2m with an approximate height of 1m, and both walls and floors were burnt. Previous analysis of the site (Carlos Cruz-Guzman & Silvia Ivet Nava Maldonado, PhD INAH, 2008) reveals that the occupation took place during the Middle period of the Casas Grandes culture (1250-1450 CE). Also, the deformation of the clay and scories suggests an exposure to temperature higher than 1200°C that is particularly favourable for archeomagnetic analysis.
Nine rooms (4 to 8 blocks per oven) were sampled: one in a small site called El Papalote (30.283°N, 107.90°W), located about 7 km from the main Casas de Fuego site (30.205°N, 107.88°W), and eight rooms in two locations of Casas de Fuego. 127 cubic specimens have been used for the analysis (between 8 and 13 specimens per room). Alternating field and thermal demagnetizations were tested for directional analysis. AF demagnetization, giving better results, was preferred for the rest of the analysis. Archaeointensities were determined using the Thellier-Thellier protocol with anisotropy and cooling rate corrections. Well defined mean characteristic directions of magnetization were obtained for each room and some statistically different directions were observed. Preliminary paleointensity results show variations with values ranging from 45 to 60 μT. These differences in direction and intensities underline the fact that the period of use of these ovens was long enough to record secular variation. To better constrain the paleointensity results, rock magnetism is under progress.