

# MAGNETIC, STRUCTURAL AND MÖSSBAUER STUDY OF SOILS FROM AN ANCIENT MINING AREA IN HUANCVELICA-PERU

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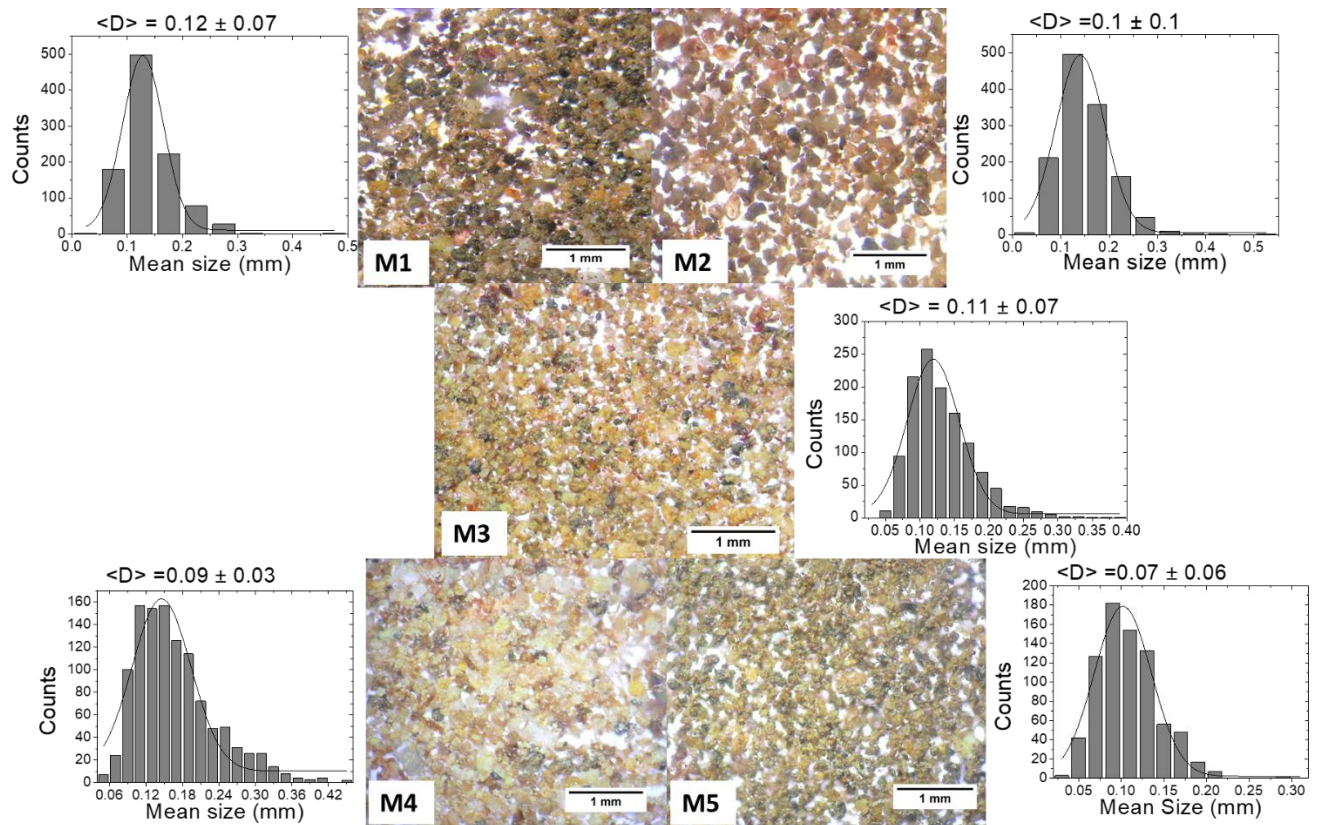
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## (Supplemental Information)

### Morphological Analysis

Figure S1 shows the images obtained through optical microscope and their respective size histograms. The soil particles are fragments or remains coming from Andean rocks that have reached the neighborhoods of the sites collection driven by winds or by the Ichu River. The images show transparent particles suggesting that sand was transported by the water than by wind. The round shape of the samples suggests that the particles have traveled long distance and during their journey they have collided many times each other [S1]. The particles are not totally rounder inferring that they come from the river and stuck buried for many years. The samples are of different colors such as red, brown, white yellow, etc. and different contrasts such as transparent, dark and light, meaning that they are composed of different chemical elements.

Note that for the optical microscopy inspection the samples were sieved to analyze the fine particles since they are older than coarse particles and could provide more information about the interactions of the sands with the environment and possible contaminants. All the sizes are of the same order of magnitude without any difference. However, considering the errors, the particles sizes of M3 and M5 samples are quite similar. This might be related to the near distance between both sites of collection (see map in Fig. 1). Moreover, the sample M4 presents the smallest particles suggesting that it was formed by collision for longer time than the other sands. In fact, the river flows from West to East as mentioned above. Overall, the particles from M1, M2 and M3, are larger than M4 and M5 samples. Thus, M4 and M5 particles probably have collided by the Ichu River for longer time than the other samples. Unlike, the M1, M2 and M3 grains seem more locally and would not traveled longer distances or have remained in the ground for long time.



**Figure S1.** Optical images of soils from an ancient mercury contaminated area, Huancavelica, Peru

- [S1] H. Corbi y J. Martinez. H. Corbi y J. Martinez-Martínez. Interpreting sedimentary environments: sedimentological workshop with sands as a teaching activity in Earth Sciences. 2015 (232). Print ISSN: 1132-9157, EISSN: 2385-3484, pp 242-252, 2015.