Opening the door to soils-CRN relations:

GOALS OF THIS STUDY

1. Examine the soils and stratigraphy of different-aged terrace surfaces in coordination with sampling for CRNs in order to document changes in soils and understand how soils are changing through time.

2. Observe stratigraphic and soil features in the exposure/profiles that may elucidate depositional variations and/or post-depositional changes that could affect either soil development or CRN analyses.

3. Investigate the sampling strategy and interpretation of CRN data (Secord et al. 2015) to understand how soils are changing through time.

4. Collect samples from horizons in order to collect CRN production rates (of OSL) and accurately calculate bulk density data to account for soil density, as well as physical fraction.

A LITTLE BACKGROUND

Soils form along the Colorado Front Range due to weathering of rocks, and this process begins with the disintegration of rocks by physical and chemical processes. Soils develop through time, and their characteristics evolve as a result of factors such as climate, vegetation, topography, and parent material. In the context of Quaternary geology, soils can provide valuable information about past environmental conditions and changes over time.

SOIL PROFILES AND DESCRIPTIONS

Table 1 summarizes the soil profiles and descriptions of the different terrace surfaces investigated in this study. The soil profiles are characterized by varying thickness of the argillic horizon, the presence of pedogenic carbonates, and distinctive colors that reflect differences in clay content. The data were collected through direct observation and analysis of soil samples from each terrace surface.

DISCUSSION

Currently, we have limited confidence in our data, in part because the previous model for Quaternary soil development was not well understood. However, we are encouraged by the preliminary results and are looking forward to further research on this topic.

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REFERENCES

Bettis III and others, 2003, Surficial geology of the Louisville Quadrangle, Colorado; Geological Survey Bulletin 996-E.

Machette and others, 1976, Surficial geology of the Boulder Quadrangle, Colorado; Geological Survey Bulletin 996-F.


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