Sample Preparation for OSL Dating

2.3 Extract dose rate sediment 15 cm radius from OSL sample

2.4 Acquire sample from light shielded areas of the core. This sample will be physically and chemical cleaning for OSL

3. Extract mono-mineralogic fraction of Quartz

3.1 Removal of organic matter with 25% H_2O_2

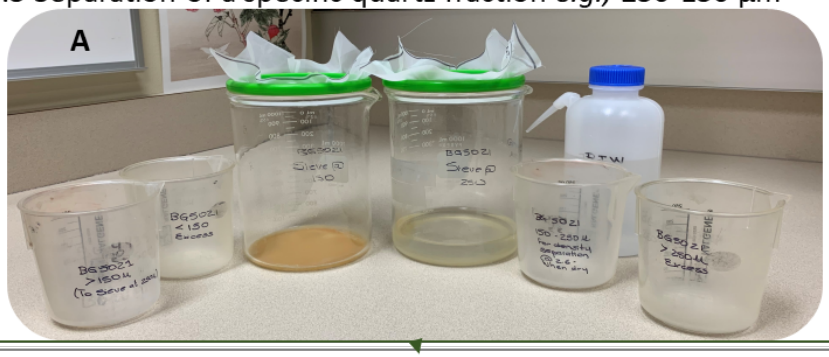
3.3 Removal of Calcium/magnesium Carbonate using 15% HCl

3.4 Removal of magnetic, paramagnetic, and diamagnetic minerals

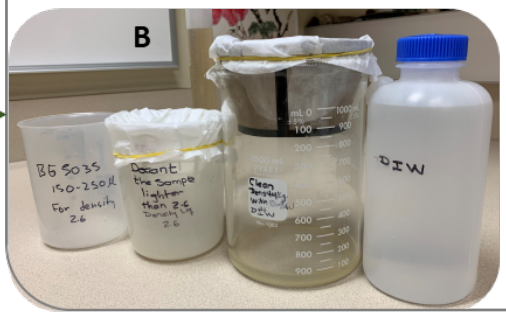
3.4.1 Dry magnetic separation with Neodymium magnets

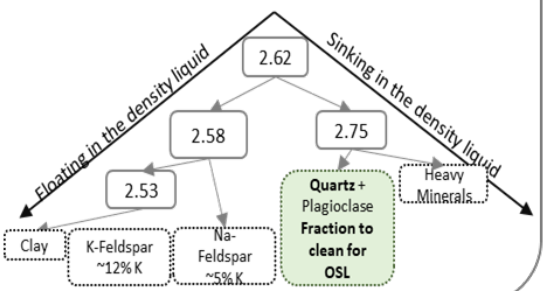
3.4.5 Wet magnetic separation using magnetic rods in sediment dispersed in 0.3% Na-Pyrophosphate solution

3.5 Separation of a specific quartz fraction *e.g.,* 250-150 µm



3.6 Heavy liquid isolation of quartz grains, using non-toxic heavy liquid Sodium Polytungstate (SPT-Na_6 ($H_2W_{12}O_{40}$)_H_2O) .





3.7 Etching of quartz grains with immersion in HF for 80 min.

3.8 Immersion of sediment in HCl to remove fluorite

3.9 Re-sieve through the smallest prior mess size (*e.g.,* 150 µm)

3.10 Label the sample for OSL analysis

3.11 Quantify the purity of the quartz aliquot of the original sediments

3.11.1 Use a 10 to 20X binocular microscope to check the purity of quartz

3.11.2 Use a RAMAN spectroscopy for mineral purity

3.12.2 Check for the IRSL emissions of quartz grains in OSL/TL reader

IRSL>10%

IRSL<10%

Repeat heavy liquids or HF digestions for 20-40 min.

Prepare ~40 aliquots to perform OSL Analysis