The potential of geophysical anomalies can be tested using detailed geochronologic sampling. The outcome of each result can be used in conjunction with glacial history and glacial flow direction to aid in geoarchaeological interpretation. In this study, the teeth of the Easter Island are sampled in the QUEST area to delineate potential mineralized zones. Analysis consisted of 3 methods: ICP-MS, XRF, and AEM. The majority of the gold is found in the heavy mineral fraction, and mineral concentrations from bulk samples. All three techniques showed the presence of mineralized zones associated with geophysical anomaly.

INTRODUCTION

Knowledge of the glacial history, geology, and ice flow history and dominant transport direction is vital in interpreting geoarchaeological surveys. Significant knowledge gaps exist in the current glacial history of the QUEST area and thus pose a significant hindrance on exploration. Geophysical surveys indicate potential anomalies but the lack of outcrops on the area hinders their interpretation. This project provides information on a more cost-effective way to evaluate the potential of geophysical anomalies. We provide detailed till-based geoarchaeological surveys down-bore of two geophysical anomalies located within the QUEST area of 953.

3. RESULTS

Sampling points are shown with proportional dots, with percentiles of 95, 75, 50, and 25. ICP-MS analytical results are from clay fractions, and ICP re- results are from all soil clay.

4. DISCUSSION

The majority of the gold yellow in the heavy mineral fractions are modified and reworked by the local glacial transport.

Calculated Au concentrations for heavy mineral fractions are greater with respect to both ICP-MS and XRF analytical techniques. Subsequent ICP-MS on the <2mm fraction will be compared to these results.

The majority of the Au in ICP-MS, ICP-AES shows lower concentrations for Au and As, while Cr yields higher concentrations.

The majority of the Sb in the Saxon Lake anomaly delineated a potential mineralized zone. Elements related to mineralization, such as Cu, Au, Ag, tend to have higher concentration on the surface.

Higher concentrations of Th is the southwest of Saxon Lake are most likely coincident with a large granite.

The 200 north anomaly shows most subdued results and is less defined by detailed geochemical sampling. Increases of Cr and Ni are evident on the down slope. However, the 200 north anomaly shows a very strong concentration of Cu, Ni, and Cu with respect to the Saxon Lake anomaly. Significant Th concentrations are less defined up-ice of the 200 Road North anomaly.

Both techniques show good reproducibility, with ICP-MS showing better precision than ICP-AES.

Detailed geochronologic sampling down bore of geophysical anomalies is a cost effective way of identifying mineralized zones in areas where there is very little rock outcrop.

Glacial history including glacial flow direction can help with geologic interpretation of geochemical surveys in glaciated terrains.

Both ICP-MS and ICP-AES are reliable techniques to delineate potential mineralized zones. ICP-MS is more sensitive to Cu, and ICP-MS is more sensitive to Au and As.

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