

Master's Thesis Proposal:

**A Study of Shallow Seismicity in the Anchorage Region**

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**Abstract:**

Patterns of recent seismicity in the Anchorage region (~100km around the city of Anchorage, Alaska) indicate that there could be shallow seismogenic structures that may be related to recognized surface geologic features. Recent geologic studies also show that there is a potential seismic hazard in the region from faults concealed within folds and other structures. I propose to use current earthquake relocation techniques, such as JHD (Joint Hypocenter Determination) and HypoDD (Double-Difference Hypocenter Locations) to relocate shallow (<30 km deep) earthquakes occurring within the region between the years 1988 -2000. These relocation techniques allow for velocity variations within the crust that single event methods cannot. These high-resolution relocations will then be compared to known geologic structures. With the use of this geologic information, and with historical seismicity, conclusions can be made regarding the relationship of recent seismicity to upper crustal structures in the region and the probability for large magnitude earthquakes to occur along these structures.