Alaska is characterized by high seismicity due to the active subduction of the Pacific Plate beneath the North American Plate (~5 to 7 cm/year), and is the most seismically active region in the United States by a large margin (See Figure 1). Nearly the entire state of Alaska is seismically active and thus offers an excellent natural laboratory for the study of earthquake occurrence and a variety of tectonic and volcanic processes.

A strike slip type plate boundary is located in the Southeast. Many of the faults continue into western Canada then through Alaska creating some of the largest faults in the U.S. (Fairweather, Queen Charlotte, Denali, Tintina, etc.) The plate boundary then transitions to a continental collision of the Yakutat block with Alaska, raising the Chugach and St. Elias ranges. This region is better known to seismologists as the region of the Yakataga seismic gap. Tectonically, understanding the effects of the collision of the Yakutat block is the linchpin to understanding the present tectonics of most of southern and western Alaska. Yet we do not know which faults absorb most of this relative motion, or how this collision may drive motion and seismic activity on the Denali fault and faults in western Alaska. The Aleutian arc is an ideal place to study how changes in obliquity of subduction affect subduction processes.
Seismicity rates for Alaska as a whole are large. Alaska is a vast, untapped resource for seismic studies that if properly instrumented will provide a wealth of data. Ten great earthquakes have occurred along the Aleutian trench since 1900. Alaska averages one M8 event every 13 years and one M7 every year. M7 events are a possibility virtually anywhere in Alaska, and M6-7 events occur at a rate of at least 5 per year. With modern instruments installed at high densities, much could be learned about larger earthquakes and their effect. In some areas, transportation and communication costs are slightly higher in Alaska and this increases the cost of operating seismic networks. However, the probability of capturing a significant earthquake is also much greater than in other regions resulting in a greater scientific and engineering payoff which more than offsets any higher installation and maintenance costs. Installing geophysical instrumentation in Alaska is a safe, cost-effective, scientific investment.

**Recent Earthquakes in Anchorage**

On February 06, 2002, two magnitude M_L 5 earthquakes occurred in the Anchorage area. The second shock occurred 45 seconds after the first shock, and both were felt strongly throughout south-central Alaska. Minor damage was reported in Anchorage.

The Alaska Earthquake Information Center (AEIC) located the first event at a depth of 35.4 km and the second event at a depth of 36.1 km. In addition to the data recorded by the AEIC stations, we used recordings from the Anchorage Strong Motion Project to locate the M_L 5 shocks.

Throughout the end of February, the AEIC located 93 aftershocks with the magnitudes ranging from 0.3 to 3.0. The largest aftershock of M_L 3.0 occurred two hours after the M 5 events. Majority of the aftershocks are located between 30 and 45 km depth. Only one event (M 1.9 on Feb. 8) occurred in the overriding plate at 5 km depth above the source region of the M5 events.

The first motion focal mechanism is typical for events in this area and indicates down-dip extension. According to the depth of these events and the aftershock distribution, they occurred inside the subducting Pacific plate