**Early warning of an earthquake using and method**

Most of the casualties and destruction during an earthquake happen because of S waves. P waves are faster than S waves and less destructive. Also, P waves carry information about the size of an earthquake and it also reflects on the process of fault plane slipping (kanamori, 2004). The ratio of the maximum P wave amplitude to the associated S wave amplitude for a point double-couple source is 0.2 (Kanamori, 2004). Even though reliable earthquake prediction is not possible nowadays because of all the complexities associated with it, if we can quickly calculate the size of an earthquake from the P wave, we can use that for Earthquake Early Warning System, that can help people evacuate quickly before the more destructive S waves come. Thus, it can save thousands of people from casualties.

In this project, our aim is to implement some methods proposed by Nakamora (1988) and Kanamori et al. (2008) using the and method. will give us an approximate estimation of P wave pulse width. So, we will collect waveform data for different earthquakes around the world from IRIS, process it and then use the calculation method to calculate **.** We would try to relate the value of to the magnitude of the earthquake and see if we can use it for the prediction of a destructive earthquake.

This project will help us read and understand scientific papers and implement their proposed procedures. It will also require us to use different data analysis tools like SAC, matlab, and AWK etc. and programming on Python as well as writing shell script. That way we’ll use almost all the tools that were advocated in the class for Data Analysis and will gain practical experience on dealing with real data.

If the project is completed successfully, we hope to further advance it and to make a mobile app that will calculate the magnitude of an earthquake early from the P wave and will send warnings to people before the arrival of destructive S wave.