Earthquake Prediction

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Abstract. Earthquake prediction is one of the most important task in Earth science today because of their devastating impact on economic and humanitarian well being. An earthquake predicting must define 3 elements: the date and time, the location, and the magnitude. It is hard to make deterministic predictions of when and where and how strong earthquakes will happen. For this to be possible, it would be necessary to identify a 'diagnostic precursor' – a characteristic pattern of seismic activity or some other physical, chemical or biological change, which would indicate a high probability of an earthquake happening in a small window of space and time. In this paper we found that it is possible to predict earthquakes with xx significant level, using the seismic signals. We predicted the time remaining before laboratory earthquakes occur from real-time seismic data, provided by Los Alamos National Laboratory.

1 Introduction

Most earthquakes result from the sudden release of stress in the earth's crust, which has built up gradually due to tectonic movement, usually along an existing geological fault. The crust's response to changing stress is not linear (that is, it is not directly proportional, making prediction of behaviour more difficult), and is dependent on the crust's complex and highly variable geology. As a result, it is very difficult to build accurate simulations which predict tectonic events. Laboratory experiments which attempt to reproduce these physical processes can add to our understanding [1].

We used Los Alamos National Laboratory data set to build a model that can show any pattern between seismic signals and the time until the next laboratory earthquake.