

Tons of researches are going on over different parts of the world every year. However, I have no clue on the process of a research and its application; Moreover, I have always felt it as in a sense of boring. During this summer, the research experience provided by Southern California Earthquake Center (SCEC) and Risk Management Solution, Inc (RMS), a prestigious international company analyzing catastrophe risk data and its damage for insurance companies, has changed my mind. As a result, I finally went through the research process, and actually understood its contribution to industrial.

While other fellows worked at different universities, I was assigned to RMS and collaborated with Marleen Nyst, a model development manager, and Wayne Thatcher, a U.S. Geological Survey (USGS) researcher. Therefore, many map data of the project came from USGS, such as the block model coordinates, velocities of moving blocks, fault names, and slip rates.

The first part of the research was to analyze the faults in a way using block model with slip rate. By importing the block model coordinates into ArcGIS, mapping software, we connected coordinates into different segments and named them. Two categories were generated: geological and boundary faults. Then we put in fault names, lengths, slip rates, and orientations into another spread sheet used to obtain earthquake hazard information, which was part of components making a fault file. After that, we used MapInfo to convert the shape file from ArcGIS into MID/MIF file, which was another part of components make a fault file. Finally, we used software made by RMS called Fault Maker to generate a fault file.

After all those converting process we started to compare the original fault file and the one we created in RiskLink, the main software RMS development to analyze the catastrophe risks. Before using RiskLink, we first needed to create two more sub-database for two fault files into the existing database in Microsoft SQL, database software.

The second part of the research is to analyze the result. One of the critical things we looked at the Exceedence Probabilistic (EP) Curve, which illustrated the probability of exceeding certain amount for earthquake risk, which was part of information insurance companies used to ensure that profile was bigger than coverage. As a result, two fault files actually came out with different EP curve. Finally, we examined how these differences varied depending on the output level we analyzed in RiskLink, such as differences varied by zip code, building materials, and so on.

Besides the hard working part of research, I also experienced the relax part of it. During the project, I was glad to be invited to a Greek dining prepared by Marleen's former colleague. Most of the people in the dining were geological experts, and they were happy to share their work and life experience with each other.