The Teams

The GIS/Data Team

The 2013 USEIT GIS/Data Team created models for the use of accurate SCEC-VDO visualizations of Southern California earthquakes to educate the public. Utilizing OpenSHA (Seismic Hazard Analysis earthquake software, a working list of hazard curves was compiled for highly populated regions throughout Southern California. The Uniform California Earthquake Rupture Forecast models aided in the determination of faults that participate in particular rupture events. A comparison and analysis of the data was conducted that provided insight as to which faults in particular regions had a higher hazard potential. The data was implemented into the ShakeMap application of OpenSHA. ShakeMap not only allowed the GIS/Data Team to produce models of the intensity of shaking for a predicted earthquake rupture, but also the probability of a rupture occurring within fifty years. Earthquake scenario data from ShakeMap was then implemented into HAZUS, which allowed the generation of population and building exposure models.

The Development Team

The 2013 USEIT Development Team (DT) added multiple capabilities to SCEC-VDO for the 2013 Grand Challenge. One major task given to the DT was to produce a plugin to display basin depth data based on iso-velocity models from the Unified Community Velocity Model (UCVM). This allowed models to be visualized and compared in an interactive, three-dimensional space. Presently, the Los Angeles Basin and the Salton Trough can be displayed at iso-velocities of either 1.0, 2.5, or 3.0 kilometers per second. Additionally, the DT also implemented a plugin showing site effects of the average shear velocity down to 30 meters in a map representation, which can display both the Will’s Map and the Wald/Allen Global Map. Included among these plugins are GIS HAZUS data depicting estimated losses from potential earthquakes. Lastly, the DT also increased the user functionality of SCEC-VDO by repairing software bugs encountered by the Production and GIS/Data Teams. Future improvements include further optimization in user-friendly capabilities with the ability to display other iso-velocities beyond 1.0, 2.5, and 3.0 kilometers per second as well as other basins in California.

The Production Team

The goals of the Production Team (PT) were to display important components of the new UCERF3, Northridge-size earthquakes, and software improvements in SCEC-VDO. The PT compared UCERF3 data with UCERF2 models and highlighted the contrast between the two. For the 20th Anniversary of the 1994 Northridge Earthquake with the GIS/Data Team in order to update hazard data in Northridge and other parts of Southern California, including population densities, infrastructure, and casualty probabilities. Close collaboration with the Development Team was also necessary so that the ideas and responsibilities of the PT could be performed through SCEC-VDO. The PT created over 40 visualizations that were featured in the “Northridge Near You” section of the Northridge 20 virtual exhibit: http://www.earthquakecountry.org/northridge/ 

The Media Team

The Media Team (MT) was charged with documenting the experiences of the 2013 USEIT interns including how they addressed the Grand Challenge. The MT developed a ten-minute documentary film. provides a multisensory first-hand account of the challenges and successes experienced by student researchers working in a multidisciplinary and collaborative working environment. Through producing this documentary, the MT learned effective approaches to communicate the USEIT program to future interns, the SCEC community and its supporters, funding agencies, and most importantly how program participants are making tangible contributions to earthquake research. In order to share the interns’ summer experience, the MT began by understanding the basics of earthquake science and research as well as the components of the program most essential to SCEC’s mission.

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