

ENGINEERING

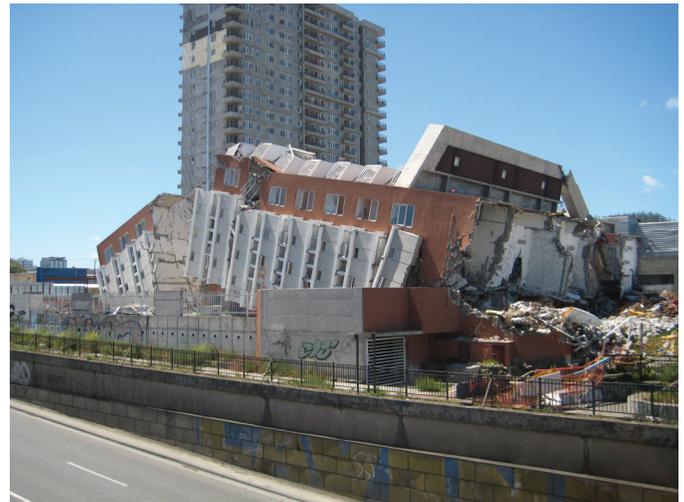
Documenting the 2010 Maule, Chile Earthquake

Student researcher: Yan G. Linwood, Senior

The 2010 earthquake in Maule, Chile, was the sixth largest earthquake ever recorded, having a moment magnitude of 8.8. Chilean and United States building codes are comparable; therefore, several U.S. organizations sent reconnaissance teams to Chile to document information on the performance of building structures. To support research, to understand what took place in Chile, and to improve U.S. building codes, open access to the information obtained in the field is imperative. To that end, a team at Purdue University is working with the National Institute of Standards and Technology (NIST), the Applied Technology Council (ATC), and the Consortium of Universities for Research in Earthquake Engineering (CUREE) to create a data repository for information obtained from the 2010 Chilean earthquake. The data repository is going to be available online at www.nees.org (the website of the George E. Brown, Jr. Network for Earthquake Engineering Simulation). The database includes: (1) approximately 25,000 photographs of structural damage from 273 buildings that are being organized, processed, and annotated with keywords; (2) relevant information such as building inventory records, geotechnical data, and GPS coordinates that are being gathered for the database; and (3) ground motion records obtained at strong-motion stations operating in Chile

during the earthquake. In sum, this project aims to help engineers further understand building performance during earthquakes and provide information that can be used to improve building codes and design practices.

Research advisor Santiago Pujol writes, “The famous structural engineer Hardy Cross said that all designs are based on experience. In this project, undergraduate students at Purdue University helped preserve data from the Chile earthquake of 2010. These data capture and share decades of experience accumulated by Chilean engineers working to reduce damage caused by earthquakes.”



Condominio Alto Rio collapsed due to the Chile earthquake in 2010, one of the worst on record.