



FROM THE
PRESIDENT
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The Louisiana Coastal Geohazards Atlas is being developed with the intention of having a broad base of applications across coastal Louisiana. I find it a little bit surprising, but very gratifying, that one of the first direct applications of the research behind the Atlas has been in the transportation sector. In January of this year the Transportation Consortium of the South-Central States (Trans-SET) published this report:

Synthesis of Fault Traces in SE Louisiana Relative to Infrastructure

Lead author of the report is Dave Culpepper of Culpepper and Associates LLC, who is also currently the treasurer of the NOGS organization. Dave's co-authors are fellow NOGS members Liz McDade of Chinn-McDade Associates and Dr. Nancye Dawers, Chair of the Tulane School of Earth and Environmental Sciences, along with Dr. Mark Kulp, Director of the UNO Coastal Research Laboratory, and Dr. Rui Zhang, assistant professor at the ULL School of Geosciences. The report reviews "whether fault motion, either by slow creep or more sudden slip, can cause deformation of engineered structures resulting in increased infrastructure maintenance and repair costs."

The research team worked cooperatively with the Louisiana Transportation Research Center and the Louisiana Department of Transportation and Development to combine results from ongoing research at UNO, Tulane and ULL in three study areas where critical infrastructure projects were identified – Golden Meadow, Leeville and Lake Borgne. These same study areas will also eventually contribute to the Coastal Geohazards Atlas, and NOGS has coordinated access to oil and gas industry seismic data for the universities in these three areas to study the impact of faulting at the surface. The Trans-SET report recognizes that "the impact of surface, or near-surface, geologic faulting on critical infrastructure is insufficiently documented in southeastern Louisiana, but the state has a vast amount of energy-sector subsurface data

that to date has been under-utilized for transportation and other near-surface engineering applications."

Tran-SET is a collaborative partnership between eleven institutions including Louisiana State University, the University of New Mexico, Auburn University, Texas A&M, New Mexico State, Oklahoma State, Arkansas State, the University of Texas at San Antonio, Prairie View A&M, the Louisiana Transportation Research Center, Baton Rouge Community College and Navajo Technical. The theme of Tran-SET is "Solving Emerging Transportation Resiliency, Sustainability and Economic Challenges through the Use of Innovative Materials and Construction Methods: From Research to Implementation." The Center's mission is to support all phases of research, technology transfer, workforce development, and outreach activities of emerging technologies that can solve transportation challenges. NOGS is playing a key role in facilitating technology transfer, research and outreach activities through the development of the Coastal Geohazards Atlas.

I think the one of the most valuable aspects of the Trans-SET report is the development of descriptive criteria for reliability of fault locations. These criteria "were developed and are based on resources used in the interpretation and map scale: Level 1 suspected faults – described in the literature and included here from georeferenced maps; Level 2 identified faults – those observed on 2D or 3D seismic and mapped in a geographic reference system; and Level 3 confirmed faults – mapped on seismic and ground truth data with field methods including age-dated stratigraphic intervals and high-resolution seismic. We have compiled data resources in a GIS-based system for simple retrieval and map-based review so that additional work specific to critical infrastructure projects can be prioritized. The intent is to give LTRC and LADOTD personnel information so that they may quickly assess the importance of faulting in any particular project area and as a resource to identify areas that already have energy industry seismic available."

This type of systematic approach to the evaluation of faults and their potential to impact infrastructure will be essential to building and maintaining trust in the science of geology and its applications as the Atlas project is developed. I believe developing this type of trust with the engineering, construction and regulatory communities will be essential to the achieving the goals of a broad-based application of the Atlas.