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A proposed seismic network for Louisiana public high schools - SeisMEAUXgraph

The Department of Geology & Geophysics at Louisiana State University (LSU) has built a prototype, low-cost (<\$1,000), single-channel, seismic recorder. Together with vertical ground motion sensors (Mark products L-4C 1-Hz), 20 units can be deployed state-wide within public high schools. Students and science teachers would conduct a large-scale scientific experiment that records natural and induced ground shaking to understand the formation, structure and evolution of the Gulf Coast continental lithosphere.

A recorder comprises a personal computer (120-MHz) that controls a 24-bit, 100 samples/second, digitizing board (www.lawsonlabs.com) via a TCP/IP connection. A 1 pulse/per second timing signal (10-25 ms accurate) is fed from a modified (www.psn.net) Global Positioning System unit (Motorola Oncore UT). Data are then downloaded via the internet to LSU for Webcasting.

The network records natural ground shaking created by distant earthquakes and commercial seismic surveys on land and offshore throughout the U.S. Gulf Coast. Critical shot location and times are provided by seismic operators. Analyzed seismic records are used to create 3D images of the continent, analogous to medical CAT scans. Wave oscillations along state coastal waterways induced by large earthquakes similar to the Alaska November 3, 2002 M 7.9 event can also be predicted.

Members of state colleges, universities and private industry will interface with science teachers and students to conduct the experiment, analyze data, and to develop new scientific theories. Responses to this proposal from federal, state, and industry are being sought.