

FINAL TECHNICAL REPORT

Award Number: 02HQAG0007

Title of Award: Collections, compilation and analysis of geologic and geotechnical data for map production translation and transfer of geotechnical data. Achieving earthquake disaster reduction through community based partnership

Principal Investigator: Dr. Norman Hester

Institution: Central US Earthquake Consortium
2630 E. Holmes Road
Memphis, TN 38118
Phone: (901) 544-3570
Fax: (901) 544-0544
Web: www.cusec.org
Email: cusec@cusec.org

Term of Award: 2002 through 2008

Calendar Year 2002

Accomplishments and Activities

- Planned, organized, and moderated the second in a series of workshops on EQ Awareness and Damage Mitigation throughout the central U.S.
- Worked on proposal for a Tri-State Geo-Hazards Assessment Project to be presented at the USGS – EHP 5 year Planning Workshop for the central US.
- Promoted need for Seismic Recording Network for WVSZ with Southwest Indiana Disaster Resistant Community Corporation and Disaster Recovery Business Alliance (Greater Evansville Area)
- Presented the Post Earthquake Technical Information Clearinghouse Plan to various user groups and potential participants at the CUSEC Annual Meeting
- Developed a draft of the Clearinghouse Plan for presentation at the 2003 CUSEC Annual Meeting.
- Worked with Southwest Indiana Disaster Resistant Community Corporation in earthquake mitigation planning and defining the need for a strong motion seismic network for the greater Evansville area.
- Organized meetings with the state and federal DOT's, FHWA, and AASHTO in a continuing effort to promote the need for collecting geotechnical data and developing soils maps as tools that contribute to mitigating the impact of disruption of the transportation infrastructure by damaging earthquakes.
- Continued to promote the Central US Partnership (CUSP) as the most effective means for addressing the earthquake hazard/risk issue; with emphasis on CUSEC and the associated State Emergency Management Agencies relying on the USGS-EHP as the lead organization in addressing this issue.

Specific Activities

A. Presentations

- CUSEC Annual Meeting
Plans for developing a cooperative mapping program that would contribute to EQ hazard assessment for the Central US
- Owensboro, KY Workshop on Disaster Resistance
The EQ Hazard for the Wabash Valley Seismic Zone

B. Products

- Revised Draft of Post EQ Technical Clearinghouse Plan

C. Proposals

- Integration of Multi-Stage Remote Sensing and GIS for Mapping Neotectonic Features in the NMSZ

D. Awards

- J.E. Maher Award of Excellence
For commitment to earthquake hazard awareness and preparedness for the Central US

E. Board and Committee Membership

- CUSEC Board of Directors (ex-officio)
- Southwest Indiana Disaster Resistant Community Corporation Board
- Memphis Seismic Hazard Mapping Project Advisory Board
- ANSS Regional Sub-Committee for site selection – central U.S.
- Post Earthquake Technical Clearinghouse Plan Committee

Calendar Year 2003

Accomplishments and Activities

- Working through the details of the Post Earthquake Technical Information Clearinghouse (PETIC) Plan with members of the Indiana Emergency Management Agency
- Discussing the PETIC Plan with various organizations including USGS, CUSEC, EERI, Indiana EMA, Kentucky Geological Survey, Indiana Geological Survey, and others.
- Completed Draft VI of the PETIC Plan for final comment in July 2003.
- Working on proposals for NEHRP funding that target the needs for gathering shear wave velocity data and remote imagery for recognizing ground failure.
- Working on a plan for mapping the Quaternary deposits along an Ohio River corridor from Henderson/Evansville to Owensboro, KY
- Promoting the value of ANSS and the USGS-EHP Plan for Greater St. Louis, MO and Greater Evansville, IN.
- Preliminary planning for developing a workshop packet titled "Earthquakes 101".
- Continuing to promote the Central U.S. Partnership (CUSP) as the most effective means for addressing the earthquake hazard/risk issue; with emphasis on CUSEC and the Association of CUSEC State Geologists relying on the USGS-EHP as the lead organization in addressing this issue.
- Continuing to work on improving and publicizing the Post Earthquake Technical Information Clearinghouse Plan for the central U. S.
- Working on the development of an Earthquake 101 syllabus for various work groups.
- Preplanning the activities, primarily quaternary mapping, that would support the USGS-EHP 5 year plan.
- Organizing and moderating a Quaternary mapping conference for the greater Evansville, Indiana area.
- Providing support for Tom Holzer and Tom Noce with their CPT research in the Evansville area.
- Preplanning a proposed research effort to develop an earthquake hazard map for Tunica County, MS through a collaborative effort with USGS (Holzer, Noce), CUSEC-SG's, MS Geological Survey, USGS (Schweig, Gomberg), and others.
- Promoting NCGMP (State Map and Ed Map) as the primary funding mechanism for completing the Quaternary Mapping for the greater Evansville area.

Specific Activities

- A. Presentations
- Geologic Setting and Tectonic Control for the Evansville, IN Earthquake on June 18, 2002.
 - The Iben Browning Earthquake Prediction and the role played by the moon, December 3, 1990.
 - CUSEC Annual Meeting
 - Breakout session moderator
 - Post Earthquake Technical Information Clearinghouse Plan
 - CUSEC Public Information Officers Meeting
 - Presentation on Earthquakes 101 for non-technical audience
 - Geological Mapping Conference for the Evansville Area
 - Moderator and Field Trip Leader
- B. Moderator

- Tri-State Earthquake Conference, Tunica, Mississippi
 1. Panel Discussion - Is there concern for areas outside the New Madrid?

C. Board and Committee Membership

- CUSEC Board of Directors (ex-officio)
- Southwest Indiana Disaster Resistant Community Corporation Board
- ANSS Regional sub-committee for Strong Motion Stations site selection
- Post Earthquake Technical Information Clearinghouse Plan – Committee Chair
- Central U. S. Seismic Advisory Council Board

Calendar Year 2004

Accomplishments and Activities

- For the Evansville and southwest Indiana project:
 - Meeting with staff for CERI, Dr. Mitch Withers: To discuss the Jan. '06 earthquake in SE Illinois and to discuss the locations of two more strong motion stations in Evansville, IN
 - Meeting with Joe Rachel, FEMA Region IV, at CUSEC office in Memphis: To discuss funding for HAZUS level 2 ½-3 for Greater Evansville area by the POLIS Center at IUPUI and to discuss the possibility of piggy backing a working meeting on PETIC Plan issues to the SEHUG meeting in June 2006
 - Meeting with staff of SWIDRCC, Christine Martin, in Evansville: To discuss need for completing proposal to Toyota Co. for financially supporting the installation of strong motion station at Princeton, IN
 - Meeting with KGS staff, David Williams and Ron Counts, in Henderson, KY: To discuss the agenda for upcoming meeting, to review progress on the Earthquake Hazard Assessment project for the Greater Evansville Area.
 - Meeting with DRBA members at Bristol-Myers Co., Dave Stuckey, President, Evansville DRBA, in Evansville: To make formal presentation on the Earthquake Hazard for the Central U.S. and discuss the need for and value of a strong motion network for Greater Evansville.
 - Tom Noce, USGS, in Evansville: To discuss collecting CPT data in support of the earthquake hazard assessment for southwest Indiana, especially the Wabash Valley Area
 - University of Southern Indiana with Joan Gomberg, USGS, and Dave Williams, KGS: To attend and participate in the Tri-State Greater Evansville earthquake Hazard Assessment workshop
 - Evansville, SWIDRCC Board Meetings: To attend board meetings as a board member representing the scientific community
- For earthquake-related activities in Indiana
 - Vincennes, IN, INDOT Office: To meet with Jerry Thompson Chairman, CUSEC State Transportation Task Force and Tom Ellis, consulting engineer to discuss development of a proposal for USDOT-OET.
 - Vincennes, IN, Jerry Thompson, Chair CUSEC STTF: To develop agenda for meeting in Washington, DC with FHWA & USDOT-OET and to plan for IN earthquake hazard assessment
- For earthquake-related activities in Kentucky:
 - Lexington, KY, Kentucky Geological Survey: To meet with Quaternary Mappers working in the Henderson/Owensboro areas

- Henderson, KY, , KGS Field Office: To discuss the Tri-State Earthquake Hazard Mapping Project with Dave Williams
- Henderson, KY, , KGS Field Office: To discuss collecting subsurface information from local engineering companies with Dave Williams
- Henderson, KY, , KGS Field Office: To plan meeting with researchers for earthquake hazard assessment for greater Evansville/Tri-State Area with Dave Williams
- KGS Field Office: Attend Governor's Council for Earthquake Risk Reduction, Malcolm Franklin, Chair Director of KyEM To attend and participate in this meeting on behalf of John Kiefer, Associate Director, KGS
- For earthquake-related activities in Mississippi
 - Jackson, Mississippi Emergency Management Agency, Robert Latham, Director: To discuss funding for Tunica County Project
 - Memphis, Jim Wilkinson: To discuss funding for Tunica County Project
 - Gulfport, MS: To meet with chief Bridge Engineer for MS DOT
 - Jim Wilkinson, CUSEC and Tom Noce, USGS: To visit Tunica County field operation
- For earthquake-related activities in Illinois
 - Springfield, IL, Illinois EMA, Keith Chambers and Bob Bauer, ISGS: To attend and participate in a meeting to discuss collaboration between IEMA and ISGS.
 - Springfield, IL, Illinois EMA, Keith Chambers: To meet with staff members from IEMA and the MAE Center to review interests in addressing the earthquake hazard issue
- For earthquake-related activities in Arkansas
 - CUSEC Office, Jim Wilkinson: To attend Arkansas Seismic Advisory Council meeting

Board and Committee Membership

- CUSEC Board of Directors (ex-officio)
- Southwest Indiana Disaster Resistant Community Corporation Board
- ANSS Regional sub-committee for Strong Motion Stations site selection
- Post Earthquake Technical Information Clearinghouse Plan – Committee Chair
- Central U. S. Seismic Advisory Council Board

Calendar Year 2005

Activities and Accomplishments

A.

Presentations:

- Earthquake Hazard for the Central U. S.; Natural Hazard Workshop – June 13, 2005; Gulfport, MS
- Earthquake Hazard for the Central U. S. for the annual meeting of TN, IL, KY, IN Military Assistance Safety Traffic (TIKIMAST); Nashville, TN
- The Central U. S. Earthquake Consortium activities at Earthquake Planning Workshop, August 8, 2005; Boone, NC
- Earthquake Hazard for Central U. S. at National AIPG meeting, October 12, 2005 (guest speaker); Lexington, KY
- Need for and value of Post Earthquake Technical Information Clearinghouses for the CUSEC meeting for EQ Program Managers and Public Information Officers; Tunica, MS

B.

Moderator:

- National Earthquake Program Managers' Meeting – August 17, 2005 Break-out session – Secondary Effects of Earthquakes; Indianapolis, IN
- Meeting of the Mapping Advisory Committee and Public to provide update on the status of the Earthquake Hazard Assessment project for the Greater Evansville Area; Organized and handled dedication of the ANSS Strong Motion Station at New Harmony, IN

C. Interviews with news media

- 10/19/05: Guest interview with Fox 7, Evansville, IN - The setting was Reelfoot Lake to kick off a series of daily bytes for the full month of November, 2005 on the earthquake hazard for the Central U.S.
- 11/3/05: Interviewed by WINN 44 and Fox 7 following the dedication of the Strong Motion Seismic Station at New Harmony, IN

D. Field Trips

- Leader of field trip in southwest Indiana for the Greater Evansville Earthquake Hazard Assessment Advisory Committee, November 3, 2005

E. Board and Committee Membership

- CUSEC Board of Directors (ex-officio)
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- Post Earthquake Technical Information Clearinghouse Plan – Committee Chair
- Central U. S. Seismic Advisory Council Board

Calendar Year 2006

Activities and Accomplishments

- Increasing the awareness of the earthquake threat by making numerous presentations about the origin, occurrence and effect of earthquakes in the New Madrid and Wabash Valley Seismic Zones.
- Completed Draft VIII of the PETIC Plan and initiated a post earthquake response plan for the CUSEC State Geological Surveys.
- Working with USGS and State Geological Survey representatives to develop the best possible products as a result of the 5 year earthquake hazard assessment for the Greater Evansville Area.
- Promoting ANSS through the development of partnerships between the USGS and industry representatives in the Greater Evansville, IN area.
- Encouraging the collection and organization of an expanded shear wave velocity data base that will support the development of more reliable soils classification maps that ultimately provide the framework for better earthquake loss estimations.
- Continuing to promote the Central U.S. Partnership (CUSP) as the most effective means for addressing the earthquake hazard risk issue; with emphasis on CUSEC; the Association of CUSEC State Geologists, and the CUSEC State Transportation Task Force relying on the USGS-EHP as the lead organization.

Specific Activities Include:

A. Presentations

- Evansville, IN Disaster Recovery Business Alliance
Bristol-Myers Company

01/27/06

- Lakeview Elementary School 01/30/06
- Princeton, KY Earthquake 101 for ATC-21 Workshop 02/02/06
- Indianapolis, IN Earthquake 101 Workshop for Hoosier Association of Science Teachers' Convention 02/10/06
- Washington, DC USGS Listening Session 05/01/06
- Owensboro, KY KY Emergency Services Conference – Earthquake 101 09/06/06
- Terre Haute, IN FEMA 154 Workshop – Earthquake 101 Rose-Hullman University 09/22/06
- Branson, MO State Geological Surveys Role with SEMAS- Before, During & After a Damaging Earthquake 12/11/06

B. Panel Member

- Evansville, IN Town Hall Meeting
07/24/06 Earthquake Hazard for Central U.S.

C. Proposals

- Partnership for Strong Motion Station
Funding from Toyota Motor Manufacturing, Inc.
- Partnership for Strong Motion Station
Funding from Bristol-Myers Company
- In response to the FY 2007 NEHRP Announcement
“Conference and Field Excursion for the Greater Evansville, Indiana Earthquake Hazard Assessment Project”

D. Board and Committee Memberships

- CUSEC Board of Directors (ex-officio)
- Southwest Indiana Disaster Resistant Community Corporation Board
- ANSS Regional sub-committee for Strong Motion Stations site selection
- Post Earthquake Technical Information Clearinghouse Plan – Committee Chair
- Central U. S. Seismic Advisory Council Board

Calendar Years 2007 and 2008

Activities and Accomplishments

- Organizing presentation and handout for Earthquakes 101 workshop for Kentucky Emergency Management Agency/Department of Homeland Security to be held in Paducah, KY, February 4, 2008
- Reviewing and revising paper for International Conference. “Central US Post Earthquake Technical Information Clearinghouse Efforts” for the 5th International Conference on Information Systems for Crisis Response & Management
- Planning agenda for Association of CUSEC State Geologist’s meeting to be held with the MAE Center and George Washington University staff in Chicago, IL January 24-25, 2008.
- Attending and participating in New Madrid Seismic Zone Catastrophic Planning Workshop, Oxford, MS, January 16-17, 2008.
- Attending and participating in CUSEC State Geologist’s meeting. Chicago, IL January 24-25, 2008.
- Attending Earthquake awareness week events. St. Louis, MO January 31, 2008.