

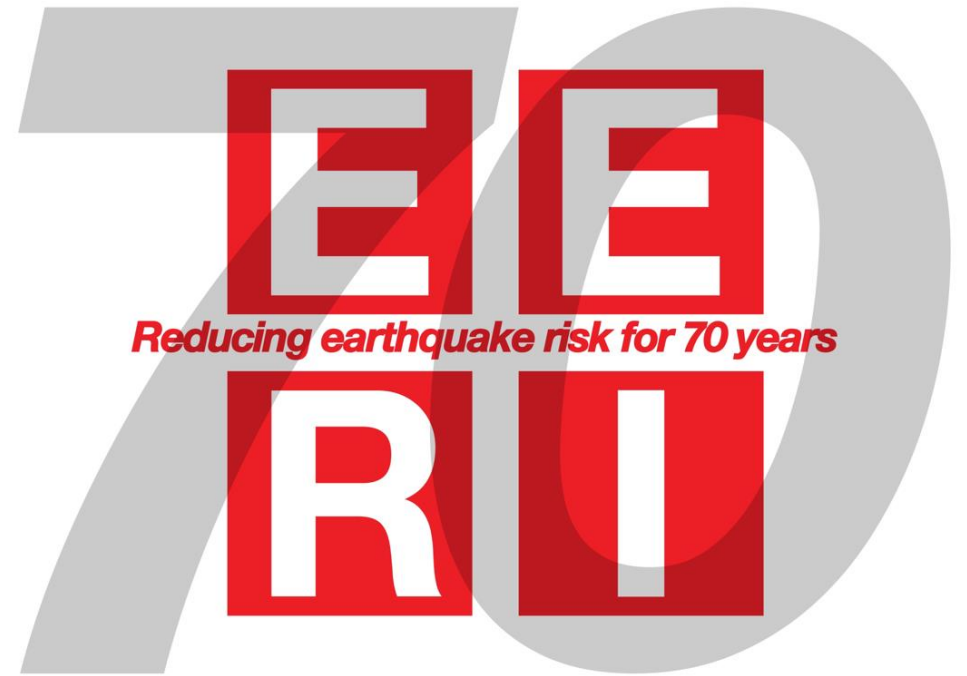
EERI Clearinghouse Operations

Maggie Ortiz-Millan,
Learning from Earthquakes Program Manager



About EERI

- Earthquake Engineering Research Institute
- Global, non-profit, technical membership society with:
 - 3,000 members
 - 14 Regional Chapters
 - 8 Full-time staff
- Dedicated to reducing earthquake risk



Who Are EERI Members?

EERI Members include:

- Geoscientists: Geologists, Seismologists
- Engineers: Structural, Geotechnical, Civil, Transportation, Lifelines
- Architects/Planners
- Social Scientists
- Public Officials
- Emergency Managers
- Tsunami Scientists
- Economists & Risk Analysts

Who work as:

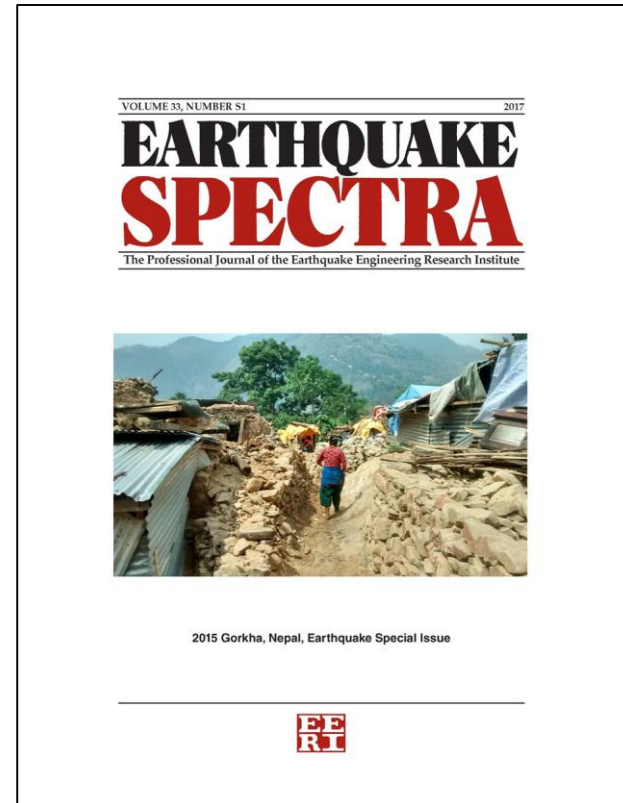
- Researchers
- Scientists
- Practicing professionals
- Professors
- Educators
- Government officials
- Building code regulators

Members are organized into committees, projects, and chapters to support EERI's mission



Activities & Programs

- Concrete Coalition
- Confined Masonry Network
- Earthquake Spectra Journal
- Housner Fellows
- **Learning from Earthquakes**
- School Earthquake Safety Initiative
- Student Leadership Council
- World Housing Encyclopedia



Learning from Earthquakes (LFE)

- Conducting earthquake reconnaissance since 1948
- **Mission:** Accelerate and increase learning from earthquake-induced disasters that affect the natural, built, social and political environments worldwide



What is Post-Earthquake Reconnaissance?

What it is...

- Scientific or engineering investigation aimed at documenting important observations and identifying research topics and lessons for practice.

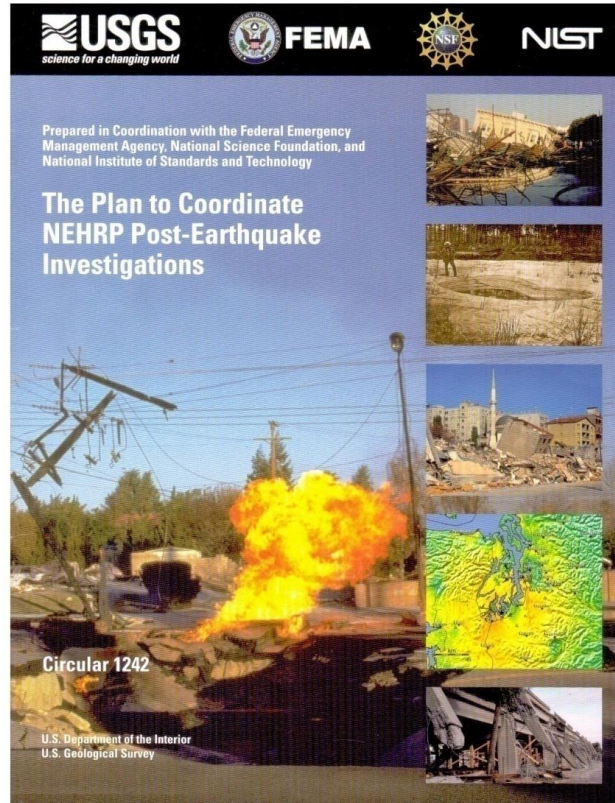


What it is not...

- Emergency response
- Post-earthquake building tagging
- Support for detailed analysis, repairs, or reconstruction.



EERI role in US earthquakes - USGS Circular 1242



- Establish a post-earthquake technical clearinghouse in coordination with the USGS and FEMA
- Identify areas for further study
- Develop 3-month earthquake summary report with USGS

Clearinghouse Functions

- **Facilitate field investigations** by earth scientists, engineers, and social scientists
- Assist researchers in accessing data through **coordination with emergency management**
- Provide a **forum for sharing information** via meetings and through virtual clearinghouse
- **Track fieldwork** progress and minimize duplication of effort
- **Synthesize information** for response agencies
- Clearinghouse **does not direct** or control activities of participants



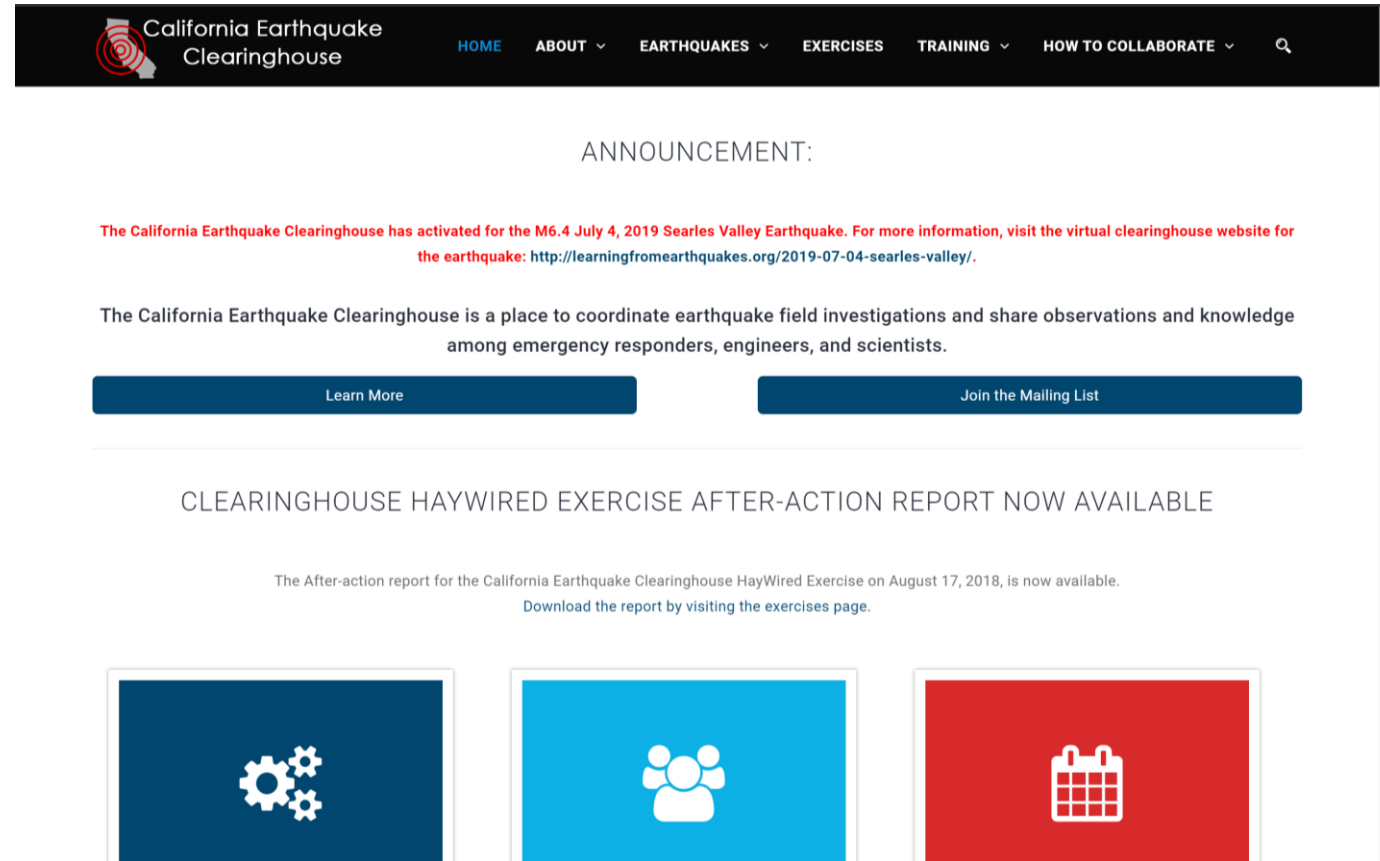
Nisqually, WA Clearinghouse, Feb. 2001

Technical Clearinghouse Components

- Physical Clearinghouse
 - A physical location, near the impacted area, where field investigators can come together to coordinate and share observations
- Virtual Clearinghouse
 - Website where information can be shared with investigators and archived to inform future research, mitigation, and policy

California

- Established 1972
- Managing Partners:
 - California Geological Survey, EERI, California Office of Emergency Services, California Seismic Safety Commission, and USGS
- EERI hosts virtual clearinghouse



The screenshot shows the California Earthquake Clearinghouse website. The header is dark with the logo and navigation links: HOME, ABOUT, EARTHQUAKES, EXERCISES, TRAINING, and HOW TO COLLABORATE. The main content area features an announcement about the M6.4 July 4, 2019 Searles Valley Earthquake, with a link to the virtual clearinghouse website. Below this is a section for the CLEARINGHOUSE HAYWIRED EXERCISE AFTER-ACTION REPORT NOW AVAILABLE, with a link to download the report. At the bottom, there are three colored boxes with icons: a dark blue box with a gear icon, a light blue box with a group of people icon, and a red box with a calendar icon.

California Earthquake Clearinghouse

HOME ABOUT EARTHQUAKES EXERCISES TRAINING HOW TO COLLABORATE

ANNOUNCEMENT:

The California Earthquake Clearinghouse has activated for the M6.4 July 4, 2019 Searles Valley Earthquake. For more information, visit the virtual clearinghouse website for the earthquake: <http://learningfromearthquakes.org/2019-07-04-searles-valley/>.

The California Earthquake Clearinghouse is a place to coordinate earthquake field investigations and share observations and knowledge among emergency responders, engineers, and scientists.

Learn More Join the Mailing List

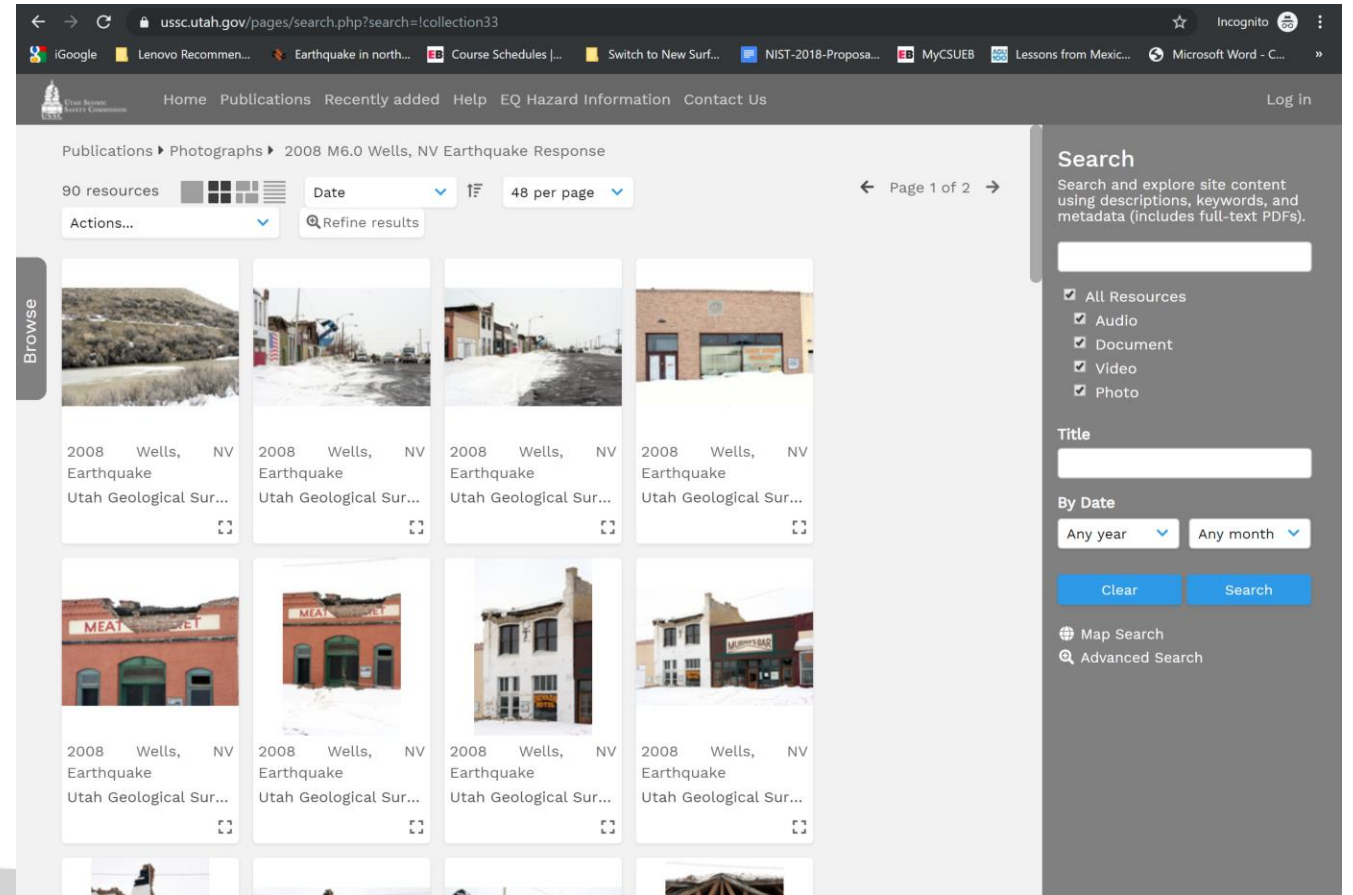
CLEARINGHOUSE HAYWIRED EXERCISE AFTER-ACTION REPORT NOW AVAILABLE

The After-action report for the California Earthquake Clearinghouse HayWired Exercise on August 17, 2018, is now available. Download the report by visiting the exercises page.

Icons: Gears, Group of People, Calendar

Utah

- Virtual Clearinghouse System
- Used for multiple hazards
- Contains data from 2008 Wells, Nevada earthquake



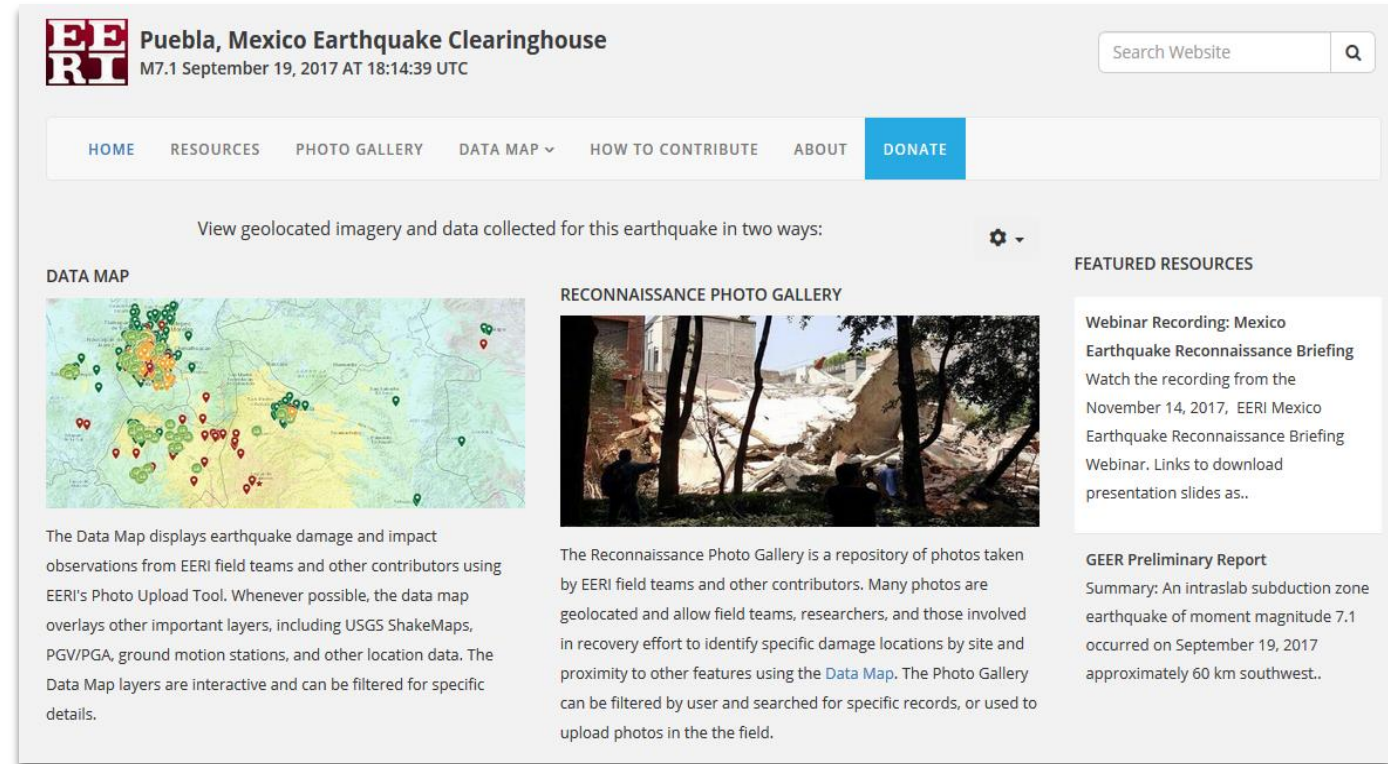
Idaho

- Clearinghouse Operations Plan – Published 2018
- Managing partners:
 - Idaho Geological Survey, Idaho Office of Emergency Management, USGS, and EERI
- EERI to host virtual clearinghouse for Idaho earthquakes
- Virtual clearinghouse launched as part of 2019 Idaho state earthquake exercise

The screenshot displays the EERI LFE Earthquake Clearinghouse website. The header includes the EERI logo, the text "LFE Earthquake Clearinghouse", and a timestamp "M0.0 AUGUST 00, 0000 AT 00:00:00 UTC". A search bar is located in the top right corner. The navigation menu contains links for HOME, RESOURCES, PHOTO GALLERY, DATA MAP, HOW TO CONTRIBUTE, ABOUT, and DONATE. The main content area is titled "Photo Gallery" and includes a description: "Photos in this gallery have been contributed by EERI members and California Earthquake Clearinghouse participants. Photos from this gallery can be used for non-commercial purposes with proper attribution." Below this is a "Search Photos" section with a search input field, a magnifying glass icon, a dropdown for "Advanced Search Options", and a "Clear" button. There are also "Login" and "Download Data" buttons. The "Thumbnails" section shows a grid of 12 photo thumbnails, with "Images 1-12 of 15" and a "Next Page >>" link. A "Download Selected items" button is also present. On the right side, the "Photo Details" section is visible, showing "Site Name: Emmett" and "Observation Category: Ground Deformation-Surface Rupture". It includes a large photo of a yellow car and a map of the location. A "Download" button and a "Search Radius (miles):" input field are at the bottom of the details section.

Virtual Clearinghouse Websites

- Public-facing Website
- Contains earthquake photos, data, and reports
- Launched for major earthquakes
- Established within 24 hours
- EERI has established 25 virtual clearinghouses



Virtual Clearinghouse Features

Resource Library:

- Search by keyword
- Filter by topic, type
- Reports
- Videos

The screenshot displays the 'Resources' page of the Virtual Clearinghouse. The browser address bar shows the URL: learningfromearthquakes.org/2014-08-24-south-napa/resources. The page features a search bar labeled 'SEARCH CLEARINGHOUSE RESOURCES' and four filter categories: 'Impact Topic/Type Categories', 'Disciplines', 'Vital Community Services & Functions', and 'Resource Type Categories'. Each filter has a dropdown menu with the text 'Type or select some options'. A 'Search' button and a 'CLEAR' button are located to the right of the filters. Below the filters, a 'Show 100 entries' dropdown is visible. The main content is a table with the following columns: Date, Category, Featured, Title, and Description.

Date	Category	Featured	Title	Description
02-01-2018	Emergency response, Geology, Structural Engineering, Geotechnical Engineering, Report	☆	EERI Special Earthquake Report: M 6.0 South Napa Earthquake of August 24, 2014	This 28-page summary report describes the multidisciplinary findings of members of EERI and their colleagues who conducted reconnaissance through the California Earthquake Clearinghouse. The main chapters of the report include Clearinghouse Operations, Geosciences, Geotechnical Engineering, Lifelines, Performance of Structures, Emergency Response and Economic Impact. Download: EERI Special Earthquake Report on the M...
02-01-2018	Ground motions, Buildings, Economic impacts, Lifelines and Utilities (i.e. communications, water, power, sanitation), Report	☆	EERI Reconnaissance Briefing - On the August 24, 2014 - South Napa Earthquake (Monday, September 15, 2014)	On Monday, September 15, 2014 the Earthquake Engineering Research Institute (EERI) and the Pacific Earthquake Engineering Research Center (PEER) cohosted a reconnaissance briefing of preliminary observations from the August 24, 2014 South Napa Earthquake. The recording of the briefing is shown below along with the presentation slides from each of...
02-01-2018	Geotechnical Engineering, Report, Link to external resource	☆	Geotechnical Engineering Reconnaissance of the August 24, 2014 M6 South Napa Earthquake (GEER Report)	Geotechnical Engineering Reconnaissance of the August 24, 2014 M6 South Napa Earthquake GEER Association Report No. GEER-037, in collaboration with the California Geological Survey, Pacific Earthquake Engineering Research Center, and U.S. Geological Survey, with support from NSF.
02-02-2018	Ground motions, Seismology, Structural Engineering	☆	USGS Earthquake Science Center Seminars: Lessons from the South Napa Earthquake	Visit the USGS seminar page to view a recording of the "Lessons from the South Napa Earthquake Seminar" held by the USGS on September 4, 2014.
07-02-2018	Buildings, Structural Engineering, Report	☆	Performance of Buildings and Nonstructural Components in the 2014 South Napa Earthquake	Performance of Buildings and Nonstructural Components in the 2014 South Napa Earthquake prepared by Applied Technology Council, FEMA (February 2015)
07-02-2018	Economic impacts, Business, Economy	☆	Measuring the Resilience of Businesses Following the 2014 South Napa Earthquake in California	16th World Conference on Earthquake Engineering Paper 2359: Measuring the Resilience of Businesses Following the 2014 South Napa Earthquake in California (1MB pdf), by I. Almufti, C. Kroll, M. Mieler, H. Tremayne, A. Wein, Y. Xiao

Virtual Clearinghouse Features

Photo Gallery:

- Geo-Tagged Photos
- Search by keyword
- Filter by over 50 fields
- Geographic area search
- Data download (csv, kml)

The screenshot displays the Nepal Earthquake Clearinghouse (EERI) website. The header includes the EERI logo, the site name, a timestamp (M7.8 April 25, 2015 AT 06:11:26 UTC), and a search bar. A navigation menu contains links for HOME, RESOURCES, PHOTO GALLERY (active), DATA MAP, HOW TO CONTRIBUTE, ABOUT, and DONATE. The main content area is titled 'Photo Gallery' and includes a description of the gallery's purpose. Below this is a 'Search Photos' section with a search input, a search button, and links for 'Advanced Search Options' and 'Clear'. There are also 'Login' and 'Download Data' buttons. The 'Thumbnails' section shows a grid of photo thumbnails, with navigation links for '<< Previous Page', 'Images 48-72 of 6894', and 'Next Page >>'. A 'Download Selected Items' button is also present. On the right side, the 'Photo Details' section for a specific photo is shown, including the site name 'Kalopul', observation category 'Buildings', a large photo of a damaged building, a map showing the location, and a table with photo information.

EERI Nepal Earthquake Clearinghouse
M7.8 April 25, 2015 AT 06:11:26 UTC

Search Website

HOME RESOURCES **PHOTO GALLERY** DATA MAP HOW TO CONTRIBUTE ABOUT **DONATE**

Photo Gallery

Photos in this gallery have been contributed by EERI members and California Earthquake Clearinghouse participants. Photos from this gallery can be used for non-commercial purposes with proper attribution.

Search Photos

Search [Advanced Search Options](#) [Clear](#)

[Login](#) [Download Data](#)

Thumbnails

[Small](#) [Show 24 per page](#) [Download Selected Items](#)

[<< Previous Page](#) [Images 48-72 of 6894](#) [Next Page >>](#)

Photo Details

Click on a thumbnail for more information about that photo

[<< Previous](#) [Next >>](#)

Site Name: Kalopul
Observation Category: Buildings

Download

Search Radius (miles):
[—Select an Option—](#)

Photo Information

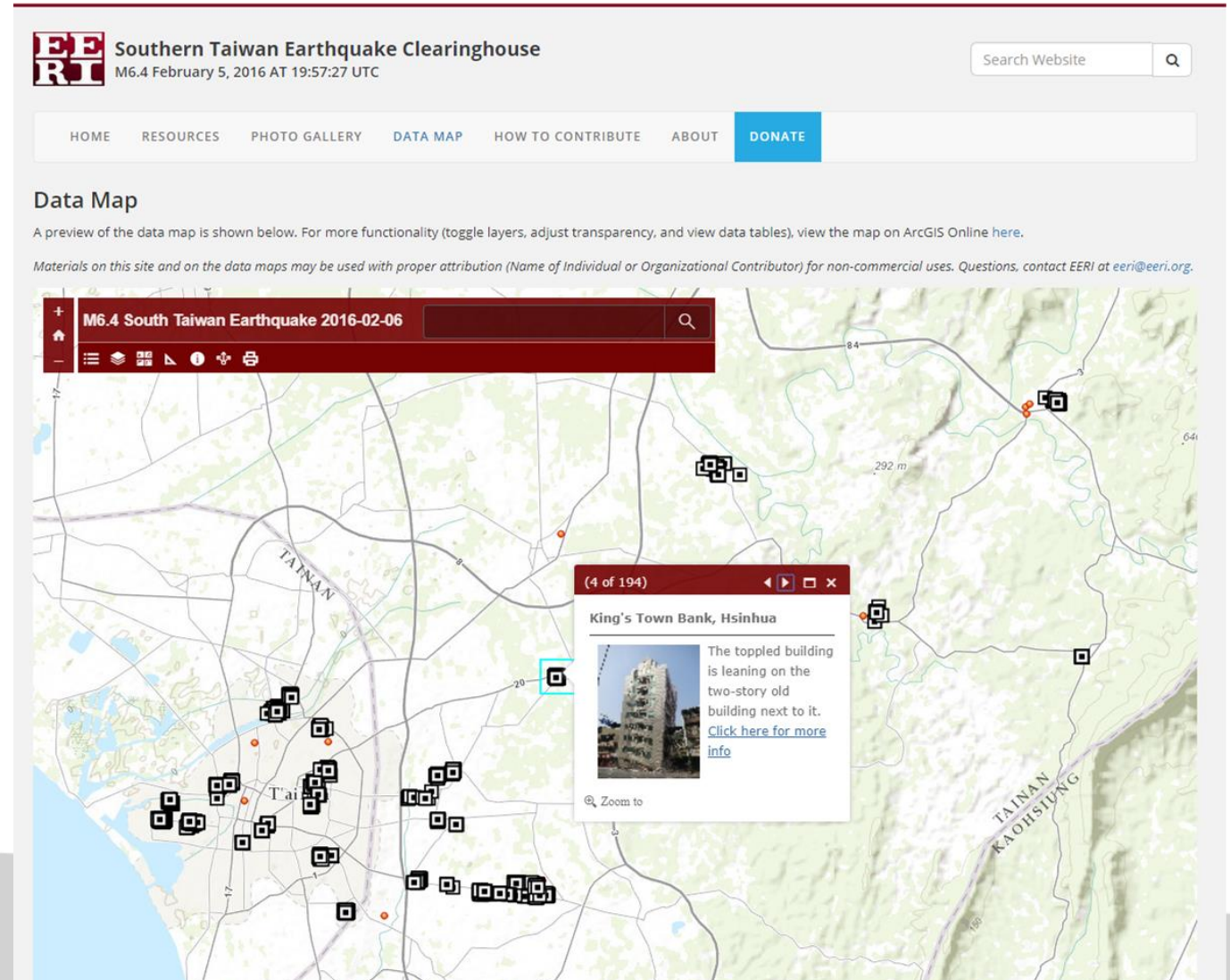
[More Information](#)

Attachment ID	: 63
Caption/Description	: Collapse of 2nd storey in a residential building in Kalopul. Reconstruction work started within 10 days of the event under serious risk.

Virtual Clearinghouse Features

Data Map:

- ArcGIS Online Map (FEMA GeoPlatform)
- Toggle layers
- Search/filter Data
- KML export



Recent Clearinghouse Activations



Ridgecrest Earthquake Sequence Physical Clearinghouse July 2019

Photo: Maria Luisa Jiminian, EERI

- 2019 Ridgecrest Earthquake Sequence Clearinghouse
 - Co-led by EERI & CGS
- 2018 Anchorage, Alaska Earthquake
 - Led by EERI in coordination with USGS & FEMA
- 2014 South Napa Earthquake
 - Co-led by EERI & CGS

2014 South Napa Earthquake Activation Timeline

- August 24, 2014
 - 3:20 AM: Earthquake
 - 4:11 AM: Clearinghouse Management notified of EQ
 - 5:00 AM: Conference call scheduled for 7:00 am
 - 7:00 AM: Clearinghouse activated during call
 - 10:00 AM: Physical Clearinghouse location secured
 - 2:00 PM: EERI Virtual Clearinghouse website live
 - 3:00 PM: Physical clearinghouse location operational
- August 26, 2014
 - 8:00 PM: Physical clearinghouse location deactivated

2018 Anchorage, Alaska Earthquake Activation Timeline

- November 30, 2018
 - 8:29 AM: Earthquake
 - 2:00 PM: EERI Virtual Clearinghouse website live
 - 2:30 PM: Activation discussion between EERI, USGS, and FEMA
- November 31, 2018
 - 4:00 PM: First Clearinghouse briefing call (virtual and in-person)
- December 3, 2018
 - Joint EERI, USGS, FEMA decision not to activate physical location
- January 7, 2019
 - 5:30 PM: 10th and final clearinghouse briefing call
- February 14, 2019
 - Anchorage, Alaska Earthquake Webinar

2019 Ridgecrest Earthquake Sequence Activation Timeline

- July 4, 2019
 - 10:33 AM: M6.4 Earthquake
 - 11:07 AM: Clearinghouse Management notified of EQ
 - 5:00 PM: Clearinghouse Activated
- July 5, 2019
 - 11:00 AM: Physical clearinghouse location operational
 - 12:00 PM: Virtual Clearinghouse website live
 - 6:00 PM: First Clearinghouse Briefing Call
 - 6:19 PM: M7.1 Earthquake
- July 11, 2019
 - 8:00 PM: Physical clearinghouse location deactivated
- August 12, 2019
 - 9th and final Clearinghouse Briefing call
- August 14, 2019
 - Ridgecrest Earthquake Sequence Webinar

Clearinghouse outcomes

- Data and information collected through a clearinghouse:
 - Documents perishable data
 - Informs future research
 - Identifies future areas for mitigation
 - Informs emergency operations
 - Can identify concerns for public safety

Clearinghouse outcomes

- South Napa Earthquake
 - Clearinghouse participants identified public safety concerns related to barricading around damaged buildings
 - Communicated concerns related to after-slip near infrastructure



Clearinghouse outcomes

- Alaska Earthquake
 - Highlighted differences in the performance of structures in areas where building codes are and aren't enforced



Photo: Samantha Walker

Clearinghouse outcomes

- Ridgecrest Earthquake Sequence
 - Identified untagged structures with severe damage
 - Uncovered gaps in local knowledge of state Safety Assessment Program for post-earthquake building tagging



Links

- Learning from Earthquakes website:
<http://learningfromearthquakes.org/>
- Ridgecrest Virtual Clearinghouse:
<http://learningfromearthquakes.org/2019-07-04-searles-valley/>
- Alaska Virtual Clearinghouse:
<http://www.learningfromearthquakes.org/2018-11-30-anchorage-alaska/>
- South Napa Virtual Clearinghouse:
<http://learningfromearthquakes.org/2014-08-24-south-napa/>
- California Earthquake Clearinghouse:
<http://californiaeqclearinghouse.org/>

Thank You

Maggie Ortiz-Millan

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