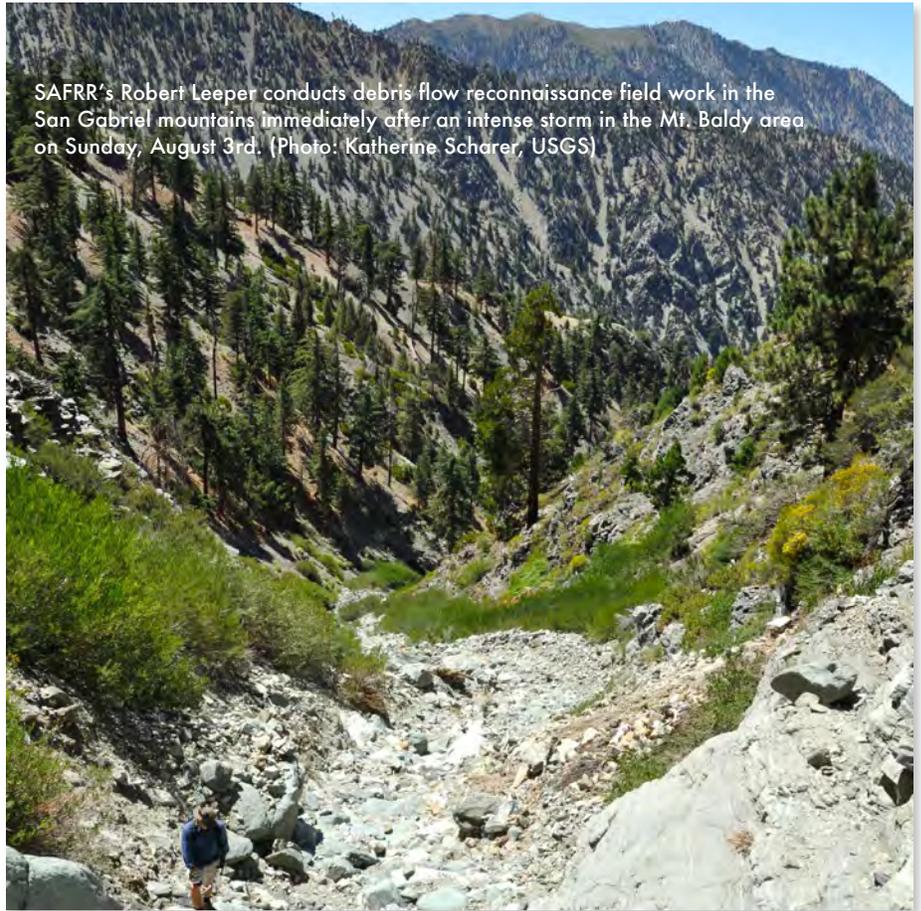




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SCIENCE
APPLICATION
FOR RISK
REDUCTION



SAFRR's Robert Leeper conducts debris flow reconnaissance field work in the San Gabriel mountains immediately after an intense storm in the Mt. Baldy area on Sunday, August 3rd. (Photo: Katherine Scharer, USGS)

Updates on USGS SAFRR team's fall-winter 2014 activities

Since our last newsletter, the USGS SAFRR team has continued engagement in partnerships, field work, scenario development, and opportunities to share science and products with the community.

A few highlights of our activities include the publication of a Fact Sheet on Earthquake Early Warning, outcomes of SAFRR collaboration with the City of LA culminating with release of the mayor's "Resilience by Design" report in early Decem-

ber, and progress made on the HayWired Earthquake Scenario.

SAFRR also welcomes a new member to the team, Donyelle Davis, now serving as public affairs specialist for SAFRR and the Earthquake Science center.

Details and updates are outlined in this newsletter and on our SAFRR website:

http://www.usgs.gov/natural_hazards/safrr/

In this issue:

- SAFRR Involvement in Resilience Forums
- HayWired Scenario: Workshops & Ongoing Development
- New Fact Sheet: Earthquake Early Warning
- Up Next: Hawaii Tsunami Scenario
- SAFRR CORE Briefings and Circular
- SAFRR Presentations and Outreach
- Partnership with the City of LA & Release of Mayor's "Resilience by Design" Report
- Debris Flow Field Reconnaissance
- Media Mentions

Fall - Winter



2014

The mission of the USGS SAFRR (Science Application for Risk Reduction) Project is to innovate the application and development of hazards science to protect the safety, security and economic well-being of the Nation. SAFRR is available to work with interested USGS colleagues to enhance applications of their science. SAFRR offers a wide range of experience in user-focused research, targeted messaging, and partnerships with social and behavioral sciences relevant to hazards science.

..... PARTNERSHIPS

Advising the City of Los Angeles on Earthquake Vulnerabilities: Completion of Mayor's Report



Mayor's report, "Resilience by Design": <http://www.lamayor.org/earthquake>

SAFRR entered a technical assistance agreement with the City of Los Angeles in 2014 to help create recommendations for approaches to reduce future losses from earthquakes in Los Angeles.

SAFRR's Lucy Jones spent three-quarters of her time in 2014 working with the city to convene task forces of experts, connect them with the science and vulnerabilities identified in the ShakeOut Scenario, and to work with policy makers needing to understand the science for decision-making. Areas of vulnerability with high social consequences that the task forces focused upon include:

- 1) pre-1975 non-ductile reinforced concrete buildings;
- 2) pre-1997 soft first story buildings;
- 3) the water system infrastructure including its impact on firefighting capability; and
- 4) communications infrastructure.

In each area, the project defined the scope of the problem, engaged stakeholders of Los Angeles to consider approaches to reducing the problem and develop policies, engaged experts as necessary to address technical constraints to the possible approaches, and finally created recommendations for the

Mayor of Los Angeles on what can be done to reduce the impacts of these vulnerabilities.

The resulting report, "Resilience by Design," was released on December 8th and can be found online at:

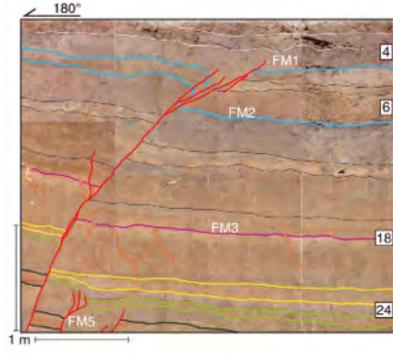
<http://www.lamayor.org/earthquake>

Over the next few months, Lucy Jones will continue to meet with members of the City Council and Representatives of State to explain the science behind the recommendations. Ongoing task forces are being developed to deal with issues beyond the city's control, addressing in particular how to better engineer water and utility lifelines that cross the San Andreas Fault.

Research Supported by SAFRR: Publication on San Andreas Fault Geology

Funding provided by SAFRR and the USGS contributed to research that has been recently published in the article "Paleoearthquakes at Frazier Mountain, California delimit extent and frequency of past San Andreas Fault ruptures along 1857 trace," by Katherine Sharer (USGS, Earthquake Science Center (ESC)) et. al (2014) in the journal *Geophysical Research Letters*.

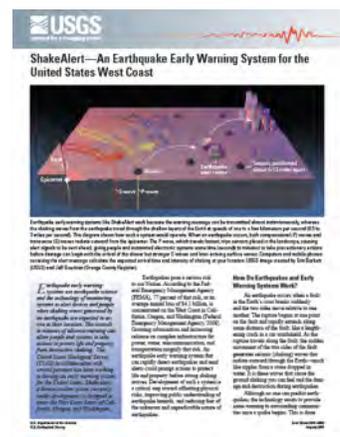
In trying to understand the frequency of large earthquakes occurring on the southern San Andreas Fault, this study investigates whether the last major 330 km long rupture along the southern San



Photomosaic of part of the wall of a trench dug across part of the San Andreas Fault (from article's Fig. 2). Colored lines help identify and outline the layers of earth offset by 4 past earthquake occurrences. This kind of geologic evidence is important for understanding past earthquake activity so as to better estimate possible future recurrences.

Andreas Fault (the 1857 Fort Tejon earthquake, estimated M7.7-7.9) was typical. Based on comparisons with the latest paleoseismic data for 6-7 earthquakes along the same stretch of the fault, this research concludes that since 1350 A.D., 75% are shorter than the 1857 rupture. This suggests the 1857 quake as unusual, perhaps explaining the longer-than-expected current interval before the anticipated next 'Big One,' and indicating that future M7.3-M7.7 earthquakes may be more frequent than exemplified by the 1857 quake.

..... EEW USGS Fact Sheet on Earthquake Early Warning: Published & Online



USGS Fact Sheet on Earthquake Early Warning and ShakeAlert now available online at: <http://pubs.usgs.gov/fs/2014/3083/>

The USGS Fact Sheet "ShakeAlert: An Earthquake Early Warning System for the United States West Coast" is now published and online. SAFRR's Erin Burkett worked closely with Earthquake Early Warning Coordinator Doug Given (USGS, ESC) and the SAFRR team to create the fact sheet, intended for the general public and stakeholders interested in information on Earthquake Early Warning (EEW) and ShakeAlert (www.shakealert.org), the prototype EEW system in development for the western U.S.. The fact sheet provides fundamentals of the science behind how EEW works and describes the current status, future plans, and potential uses of ShakeAlert for the west coast.

Pre-Storm Season Reconnaissance within the Colby Fire Burn Perimeter

At the request of Jerry Burke, Assistant Director of Public Works for the City of Glendora, CA, Robert Leeper conducted debris flow reconnaissance within the Colby Fire burn perimeter. No new hazards were observed during the August reconnaissance. However, the slopes that burned during the Colby Fire are still denuded of vegetation, and thus susceptible to debris and mud flows if rainfall intensities are high enough this coming storm season.

Debris Flow Reconnaissance

SAFRR's Robert Leeper and Kate Scharer (USGS, ESC) conducted debris flow reconnaissance near the mountain community of Mt. Baldy, CA (San Gabriel Mtns). An intense summer storm (a nearly 500-yr event) formed over the area on Sunday, August 3, 2014, and resulted in debris and mud flows inundating businesses and residences.

A statement posted at the Mt. Baldy fire station (where the nearest rain gauge is located) said 4.7 inches fell in 2.5 hours. One resident told Robert he watched two cells converge over a ridge to the north of where he was and then all hell broke loose. Multiple homes were "red tagged" and residents are still removing debris and mud from their homes. Unfortunately, a hiker leaving the area during the storm died after being swept off the road in his vehicle. Multiple debris and mud flow deposits were observed and photographed during the reconnaissance.



Robert Leeper investigates debris flows in the San Gabriels. (Photo: Kate Scharer, USGS)



Secretary Sally Jewell visited SAFRR's Erin Burkett's poster at the AGU 2014 Fall Meeting. From left: Suzette Kimball, Dale Cox, Erin Burkett, Sally Jewell, Debbie Weiser, Scott Bennett (Photo: Tami Heilemann, USGS)

Merging Hazard Science, Social Science, and Design Elements for Effective Communication

Erin Burkett presented a poster at the American Geophysical Union (AGU) Fall Meeting, summarizing an ongoing SAFRR effort to help with Earthquake Early Warning (EEW) communication. Erin had the opportunity to brief Interior Secretary Jewell on her poster and ongoing projects while at the meeting, fielding the Secretary's insightful and interested questions about the work.

The poster outlines ongoing collaboration with social scientists (Timothy and Deanna Sellnow, U. of Kentucky), including results of a study examining user needs and preferences for a prototype phone app providing EEW. Erin also created a graphic to help illustrate various concepts from the fields of social science and design that can be important considerations when translating science content into effective messages and products. For a downloadable pdf of the poster: <https://agu.confex.com/agu/fm14/meetingapp.cgi#Paper/17958>.

SAFRR CORE Briefing for the USGS Geologic Hazards Technical Committee

By invitation, SAFRR disaster scientist Sue Perry gave a talk on September 17th to the USGS Geologic Hazards Community of Use Technical Committee, which assists National Map coordinators in the National Geospatial Program. Perry briefed the committee on the SAFRR Cadre of Relevant Experts (CORE) project efforts to broaden the understanding and use of the National Seismic Hazard Maps ("the Maps").

In June, Sue had organized a workshop uniting USGS scientists with leading researchers in risk perception and communication to discuss ways to expand the use and understanding of the Maps. The workshop launched a multi-year collaboration to develop new Maps products that will serve new Maps audiences.

A circular currently in review will summarize workshop findings and provide suggested steps and guidelines for effective use of social science and design in developing successful science products.

HAYWIRED Scenario

HayWired Works to Identify Interdependencies of Lifelines Including Internet

The HayWired Earthquake Scenario team is working to identify physical damages associated with a M7.0 earthquake on the Hayward fault in the San Francisco Bay area. This includes in-depth ongoing meetings with Caltrans, Bay Area Rapid Transit (BART), East Bay Municipal Utility District (EBMUD), and Pacific Gas and Electric (PG&E), in an effort to identify seismic vulnerabilities to lifeline interdependencies. In addition,



the Haywired team is working with Carnegie Mellon University (CMU Silicon Valley) to better understand impacts to the internet, internet economy, and Silicon Valley. On August 21st, Haywired team members Dale Cox (SAFRR), Anne Wein (USGS Western Geographic Science Center - WGSC), Keith Porter (U. Colorado), Lucy Jones (SAFRR), Keith Knutson (USGS Earthquake Science Center - ESC), and Shane Detweiler (ESC) met with data center architect Bill Weihl, presently working with Facebook but formerly with Google and Akamai, to better understand and identify vulnerabilities associated with earthquakes and computer data centers.

Fires and the HayWired Scenario

On October 29th, a workshop was held to discuss "Fires and the Hayward Earthquake," sponsored by USGS, California Seismic Safety Commission, California Governor's Office of Emergency Services (Cal OES), and the Pacific Earthquake Engineering Center, and led



Berkeley Fire Department demonstrates Above-ground Water Supply System as part of the Fires and HayWired workshop. (Photo: Dale Cox, SAFRR)

by Charles Scawthorn (Pacific Earthquake Engineering Center - PEER). The workshop brought together HayWired Scenario experts and fire chiefs from 42 fire agencies to examine fire and water issues arising from a M7.0 Earthquake in the San Francisco Bay Area. More information can be found at: http://www.usgs.gov/natural_hazards/safrr/projects/haywired.asp.

ShakeOut to Be Used For Ardent Sentry Exercise

On Monday, August 11th, SAFRR's Dale Cox and Sue Perry, Sherry Durst (USGS), and Hope Seligson (MMI Engineering) met with U.S. Northern Command (USNORTHCOM) to discuss the use of the ShakeOut Earthquake Scenario as the basis of their 2015 emergency response exercise. The exercise, called Ardent Sentry, is a major military exercise focused on defense support of civil authorities.

SAFRR Initiates First Meetings for the Hawaii Tsunami Scenario

SAFRR's Stephanie Ross (Pacific Coastal Marine Science Center), Dale Cox, Nate Wood (WGSC), Kwok Fai Cheung (University of Hawaii), Kevin Richards (Hawaii State Civil Defense) and Joel Palmer (FEMA Region IX) have initiated meetings to discuss the creation of a new tsunami scenario with a focus on Hawaii, surrounding islands in the Pacific, and the US mainland. Discussions continue as plans move forward to develop this next tsunami scenario.

ARkStorm Scenario Inspires Novel

Ark Storm, a novel by Linda Davies, released on August 18th, is based in part on the SAFRR ARkStorm scenario.



The book is described as an eco-thriller that "brings together the worlds of finance, scientific innovation, and terrorism in a fast-paced thrill ride that will leave readers gasping," according to the Amazon book review.

Presenting ARkStorm and HayWired Scenarios

SAFRR Project Manager Dale Cox presented to the Water Education Foundation's Russian River Tour in Santa Rosa, CA on October 10th. Topics covered included the SAFRR ARkStorm and HayWired scenarios with an emphasis on water resource vulnerabilities identified in the creation of the scenarios.

Ongoing efforts to understand impacts of the ARkStorm scenario in the Tahoe region continue as the ARkStorm@Tahoe project. The Tahoe Science Consortium (TSC) and USGS have convened a series of workshops, and the ARkStorm@Tahoe report is now available online at: http://environment.unr.edu/publications/ArkStorm_Final_web.pdf. The scenario report is expected to be the subject of future public meetings in the area.

SAFRR Tsunami Scenario: Sessions and Web Hits

SAFRR Tsunami Scenario team members Stephanie Ross and Keith Porter organized the session "The SAFRR Tsunami Scenario: the use of science in tsunami decision making," presented at the 10th U.S. National Conference on Earthquake Engineering (10NCEE). The meeting was held in Anchorage, Alaska July 21-25 (<http://10ncee.org>). Keith acted as moderator for the Tsunami Scenario session, and speakers included USGS' Anne Wein and Nate Wood, CGS' Rick Wilson, U. Colorado Boulder's Liesel Ritchie, and Laurie Johnson (from Laurie Johnson, Consulting). The tsunami scenario's publication page (<http://pubs.usgs.gov/of/2013/1170/>) has received over one million web hits since the report was released in September, 2013.

MEETINGS & PRESENTATIONS

Disaster Talk at Sony

At a national meeting of emergency managers and contingency planners from all divisions of Sony (including Pictures, Electronics, and Music), SAFRR Disaster Scientist Sue Perry gave a talk about the geologic disasters they might face, ways that such events could impact their business and employees, and on-line available information from USGS and some of its partner agencies. A long and lively Q & A session followed.

Weather Channel Tsunami Show features SAFRR Scientist

SAFRR disaster scientist Sue Perry was one of the featured experts on a tsunami episode of the Weather Channel series, "So You Think You'd Survive?" Sue talked about tsunamis and tsunami safety for one episode of the 8 hour series on hazards. The hazards span geologic and weather events and include earthquakes, tsunamis, avalanches, and hurricanes. Interview topics included tsunami causes and classifications, how to recognize natural warnings, what to do when a tsunami approaches, and common misperceptions about tsunamis. Perry also provided USGS tsunami products as candidate visuals.

Presenting SAFRR Scenarios to the Los Angeles Area COOP Working Group

SAFRR's Erin Burkett presented to the Los Angeles Area COOP (Continuity of Operations Planning) Working Group on August 27th in response to their request for more information on SAFRR Scenarios and USGS resources available to help agencies make plans for natural disasters. Erin provided a summary of available USGS natural hazards resources, focusing on an overview of and materials available for the ShakeOut earthquake scenario, the ARkStorm winter storm scenario, the Tsunami Scenario which was rolled out late last year, and the Haywired earthquake scenario currently underway. The LA COOP Working Group also used the ARkStorm Scenario

as the basis for their Table Top exercise on December 4th, where Erin also gave a kick-off presentation on ARkStorm for their workshop.

SAFRR/USGS Presentations on Earthquake Science and Risk

SAFRR scientist Erin Burkett gave three presentations during Preparedness Week to share earthquake science, monitoring, and risk with Southern Californian audiences. On Monday, September 15th, Erin presented for an audience of teachers at the Mt San Antonio College in Walnut, CA to kick off the beginning of their Emergency Preparedness Week. On Tuesday, September 16th, she was invited to present on earthquake science and risk with an emphasis on technology involved to TUGNET, a senior computer/technology organization in the San Fernando Valley. On Thursday, September 18th she provided background on earthquake science and risk in Southern California and pointed to available USGS resources for the Southern California Earthquake 2014 Business Preparedness Summit in Riverside, CA.

TEDxRiverside: To Be Warned or Not Be Warned

SAFRR scientist Erin Burkett presented at the TEDxRiverside Conference "Ovation for Innovation" at the Historic Fox Performing Arts Center in Downtown Riverside. In recognition of the conference being held on October 16th, the day of the Great California ShakeOut, and having been asked to share the latest in earthquake technology and innovation, Dr. Burkett provided an introduction to Earthquake Early Warning and the role that earthquake technology and latest research play in the safety and resilience of our society. Her presentation, titled "To Be Warned or Not Be Warned," is available online at:

<https://www.youtube.com/watch?v=6n-vUc4h4pbM>

More information can be found at <http://www.tedxriver.com>, or the following articles covering the event (<http://www.pe.com/articles/riverside-752127-ted-tedx.html>) and speaker quotes (<http://www.pe.com/articles/vibe-752135-topic-quote.html>).



Erin Burkett presents "To Be Warned or Not Be Warned" as one of the speakers for the TEDxRiverside event on October 16th. Video available at: <https://www.youtube.com/watch?>

MEETINGS & PRESENTATIONS (Continued)

Lucy Jones serves on Panel for CityLab 2014

On September 30th, Dr. Lucy Jones served on a panel for CityLab 2014 "UrbanSolutions to Global Challenges" (<http://www.theatlantic.com/live/events/citylab/2014/>), hosted by *The Atlantic* in partnership with The Aspen Institute and Bloomberg Philanthropies. The event brought together global city leaders including mayors, government officials, urban theorists, scholars, city planners, architects and artists to discuss urban ideas and innovations and explore the big ideas that are shaping the world's cities and metro centers. See the following article for an overview of Dr. Jones' comments from the CityLab summit: <http://www.citylab.com/weather/2014/09/a-most-terrifying-risk-assessment-of-californias-next-big-earthquake/380934/>.

Lucy Jones Presents to Southern California Grantmakers on Whole Community Resilience

Dr. Lucy Jones gave opening remarks to kick off an event "Whole Community Resiliency: Can We Work Together to Create a Resilient Southern California," attended by grantmakers, government officials, business leaders, non-profits, and community leaders and held in downtown Los Angeles on September 17th. Discussions covered disaster preparedness and explored opportunities to demonstrate leadership and make investments to facilitate the region's ability to bounce back after a disaster. For more information see: <https://www.socalgrantmakers.org/events/whole-community-resiliency-how-can-we-work-together-create-resilient-southern-california>.

SAFRR Presents for Disney Global Crisis Management

On September 24th, Lucy Jones gave a presentation as part of a National Preparedness Month webinar series coordinated by the Walt Disney Company Global Crisis Management Team in Burbank, CA, to be broadcast to their em-



US and Chinese scientists met at the State Department as part of the annual Young Scientists Forum to promote the exchange of information, ideas, and contacts between US and China. (Photo courtesy US State Dept.)

ployees across North America. Dr. Jones provided an overview of natural hazard risk in Southern California, including earthquake risk as outlined with the ShakeOut Scenario, as well as the other sometimes under-appreciated risks such as from landslides, wildfire, and flooding (exemplified with the ARKStorm Scenario, California's other possible 'Big One'). She also highlighted the added layers of interdependencies and vulnerabilities unique to modern technology and society in need of attention.



Lucy Jones presents for Disney Crisis Management Team. (Photo: Erin Burkett, SAFRR)

SAFRR Participates in US-China Young Scientist Forum

On October 15th, staff scientist Kris Ludwig participated in a US-China Young Scientist Forum (YSF) focused on disaster management, resilience, and mitigation at the U.S. Department of State. The YSF

brings together scientific researchers and policymakers from the U.S. and China for informal discussions, this year hosting 10 Chinese scientists and policy makers as part of the U.S. China People-to-People Exchange. The participants, including scientists and disaster risk managers from across China and the DC-metro area, discussed multiple topics in the disaster arena including risk communication, partnerships with companies, nonprofits, community organizations, local and state governments, and products, services, and strategies for resilience. Meeting objectives included attaining a better understanding of the U.S.-China bilateral relationship and science diplomacy efforts and a better understanding of the scientific challenges and opportunities in China. The delegation spent 10 days in the US visiting with experts in hazards, including visits to USGS in Reston, Pasadena, and Menlo Park.

SAFRR Participates in Global Forum on Urban & Regional Resilience

On October 14th, Kris Ludwig spoke on disaster scenarios and the use of strategic science during crisis at a workshop on resilience research at Virginia Tech University's campus in Arlington, VA. The workshop was part of the Global Forum on Urban and Regional Resilience (GFURR) New Perspectives on Regional Resilience Conference and focuses on ecosystems and the built environment.

Meetings (cont...)

SAFRR At the AGU Fall 2014 Meeting

SAFRR team members presented at the American Geophysical Union (AGU) Fall Meeting 2014 (<http://fallmeeting.agu.org/2014/>) during the week of December 15-19 in San Francisco, CA. The following is a listing and links to their presentations (download-able 'e-posters' available for some posters):

Kristin Ludwig

Co-convening session: Wed., Dec. 17, 08:00 AM - 10:00 AM, MS 309

NH31D: Exploring the Roles of Science, Communication, and Education throughout the Disaster Lifecycle I

<https://agu.confex.com/agu/fm14/meetingapp.cgi#Session/2203>

Lucile Jones

Wed., Dec. 17, 09:15 AM - 09:30 AM, MS 309

NH31D-06: Using Comprehensive Science-based Disaster Scenarios to Support Seismic Safety Policy: A Case Study in Los Angeles, California

<https://agu.confex.com/agu/fm14/meetingapp.cgi#Paper/19560>

Erin Burkett

Wed., Dec. 17, 01:40 PM - 06:00 PM, MS Poster Hall

S33C-4547: Earthquake Early Warning: User Education and Designing Effective Messages

<https://agu.confex.com/agu/fm14/meetingapp.cgi#Paper/17958>

Stephanie Ross

Wed., Dec. 17, 01:40 PM - 06:00 PM, MS Poster Hall

NH33B-3913: The SAFRR Tsunami Scenario: from Publication to Implementation

<https://agu.confex.com/agu/fm14/meetingapp.cgi#Paper/20625>

Dale Cox

Wed., Dec. 17, 01:40 PM - 06:00 PM, MS Poster Hall

NH33B-3912: ARkStorm@Tahoe: Science as a foundation for discussing, recognizing and mitigating storm-disaster vulnerabilities in mountain and downstream communities

<https://agu.confex.com/agu/fm14/meetingapp.cgi#Paper/19714>

Robert Leeper

Thurs., Dec. 18, 01:40 PM - 06:00 PM, MS Poster Hall

T43B: Advances in Subaqueous Paleoseismology and New Insights from the Sedimentary Records into Earthquake Recurrence and Deformation throughout the Earthquake Cycle

<https://agu.confex.com/agu/fm14/meetingapp.cgi#Paper/18448>

Debbie Weiser

Fri., Dec. 19, 08:00 AM - 12:20 PM, MS Poster Hall

S51A-4417: Maximum Magnitudes of Earthquakes in Geothermal Fields?

<https://agu.confex.com/agu/fm14/meetingapp.cgi#Paper/27718>

SAFRR WEBSITE:

http://www.usgs.gov/natural_hazards/safrr/

For comments on or problems with the site, new subscribers to our newsletter, or questions about SAFRR, please contact safrr@usgs.gov.

We appreciate your interest!

- the SAFRR team

CONTACT US: safrr@usgs.gov

The SAFRR staff are:

Lucy Jones, Science Advisor for Risk Reduction

Dale Cox, Project Manager

Welcome Back!*: *Sue Perry*, Disaster Scientist

Erin Burkett, Staff Scientist

Stephanie Ross, Tsunami Project Manager

Kristin Ludwig, Staff Scientist

Sandra Dedeaux, Program Analyst

New Staff!: *Donyelle Davis*, Public Affairs Specialist

Robert Leeper, M.S. Student Geologist (Cal State University, Fullerton)

Debbie Weiser, Ph.D. Candidate Geologist (University of California, Los Angeles)

***SAFRR Disaster Scientist Sue Perry was out for two months on medical leave and returned to SAFRR (with a revamped hip!) at the end of 2014.**



MEDIA HIGHLIGHTS

Significant press coverage has highlighted the collaboration between SAFRR and the City of LA upon the release of the Mayor's report *Resilience by Design* on December 8th. A representative few of the media mentions are included below, and to obtain a complete list feel free to email safrr@usgs.gov.

LA Mayor Garcetti Calls for Retrofitting of Quake-Vulnerable Buildings

12/8/2014, NBC

<http://www.nbclosangeles.com/news/local/Garcetti-Earthquake-Plan-Los-Angeles--285119211.html>

"Los Angeles would become an "epicenter" of preparedness under a new plan by Mayor Eric Garcetti to prevent the city from being "jarred into action by a devastating earthquake."

Los Angeles Proposes Sweeping Upgrades To Prevent Earthquake Catastrophe

12/8/2014, CBS

<http://sacramento.cbslocal.com/2014/12/08/los-angeles-proposes-sweeping-upgrades-to-prevent-earthquake-catastrophe/>

"We acknowledge that we cannot prevent 100 percent of the losses in an earthquake. What we are trying to do is prevent the catastrophic collapse of our economy by addressing the biggest vulnerabilities," Lucy Jones, a federal seismologist who is advising the city, said in a statement."



LA mayor calls for solar-powered wi-fi, retrofitted buildings in ambitious earthquake plan

12/8/2014, The Washington Post

<http://www.washingtonpost.com/blogs/govbeat/wp/2014/12/08/l-a-mayor-calls-for-solar-powered-wi-fi-retrofitted-buildings-in-ambitious-earthquake-plan/>

"The plan calls for upgrades to the city's telecommunications network "to enable Internet and mobile connectivity after an earthquake," including fortifying cell towers and creating a solar-powered wi-fi network. It also calls for strengthening the city's water supply with an alternative water system for firefighting and increasing local water sources."

LA unveils new earthquake preparedness plan

12/8/2014, KPPC

<http://www.scpr.org/news/2014/12/08/48547/la-unveils-new-earthquake-preparedness-plan/>

"A year in the making, the report was a collaboration among city officials, seismologists at the U.S. Geological Survey, engineers and representatives from private telecommunications companies, among others."

LA Mayor Wants to Equip City with Earthquake Resilient Pipes

12/9/2014, Epoch Times

<http://www.theepochtimes.com/n3/1131061-la-mayor-wants-to-equip-city-with-earthquake-resilient-pipes/?mobile=0>

"Part of the plan is to replace thousands of miles of the city's aging water pipes with flexible ones that can withstand an movement... "Our local water system relies on pipes that can be up to 100 years old, and we import 88 percent of our drinking water," said Garcetti. "All of that imported water, which a lot of people don't realize, crosses the San Andreas Fault before coming out of our taps."



Said at TEDx: Highlights from event

10/16/2014, The Press Enterprise

<http://www.pe.com/articles/vibe-752135-topic-quote.html?page=2>

"When you're out in the mountains, if you're taking a hike or if you're just admiring the view, keep in mind that the earthquakes built those mountains. And if we can accept them as part of our culture, if we can innovate technologies to be able to work together with the earthquakes, then we can have a much healthier and safer society." -Erin Burkett, TEDxRiverside talk "To Be Warned or Not Be Warned"

(Main article: <http://www.pe.com/articles/riverside-752127-ted-tedx.html>)