March 31, 2020 Stanley, Idaho Earthquake
Virtual Clearinghouse Call #1

Thursday, April 2, 2020
3:30 PM PT/4:30 PM MT/6:30 PM ET

Agenda

● Welcome & Announcements
● Updates and observations from teams/individuals in the field
● Updates from teams/individuals that may deploy
● Updates from NEHRP Partners
● Updates from Others
● Open Discussion
● Follow-up calls

Participants

● Participants: Maggie Ortiz-Millan, Mike Stickney, Mike Mahoney, Silvana Cobos, Simone Nageon de Lestang, Zach Lifton, Matthew Wall, Jason Patton, UW RAPID, Susan Cleverley, John Sandru, Luciana Astiz, Maria Dillard, Greg McDonald, Dave Pearson, Josh Stachnik, Glenn Thackray, Chris Dail, Adam Hiscock, Amanda Siok, Selim Gunay, Sarah McClendon, David Frost, David Rodgers, Claudio Berti, Dylan Mikesell, Andrew Lyda, Lee Liberty

Notes

Welcome & Announcements

● Idaho Clearinghouse (Zach Lifton and Susan Cleverley)
  ○ Idaho has been working on an earthquake clearinghouse plan with assistance from EERI and WSSPC.
    ■ Last year was the first year the plan was exercised
    ■ M6.5 is the threshold for activating the clearinghouse plan
  ○ Goal of the clearinghouse is to help organize the scientific response to each earthquake event.
    ■ Clearinghouse data is uploaded to the Idaho Web Emergency Operations Center (Web EOC) to provide timely information to Emergency Managers across the state.
Response to this earthquake has been challenged due to snow cover and COVID-19 complications
- Did not see ground ruptures
- No major disruptions were seen from aerial surveys
- Physical response is delayed/complicated.
- Clearinghouse activities will focus on the virtual clearinghouse

- Virtual Clearinghouse Website: http://learningfromearthquakes.org/2020-03-31_challisidaho/
  - Share reports, resources, data by contacting zlifton@uidaho.edu or maggie@eeri.org.

- COVID-19 protocols/local conditions
  - Current Idaho Policy
    - Sun Valley area - only way to access Stanley - has high rate of infection per capita
    - Town of Stanley has requested that there are no visitors during the stay-at-home order.
    - If anyone is going to conduct reconnaissance activities, they need to be sensitive to the needs of these communities
  - Please note, EERI currently has canceled all in person activities, including field reconnaissance investigations, through May. To see the current EERI COVID-19 policies please check our website at www.eeri.org

Updates from Teams in the field (areas covered, observations made, data/products to share)

- Emergency Management (Susan Cleverley)
  - Clearinghouse information is being shared to the WebEOC so Emergency Managers across the state may access.
  - IDWR: 4 dams of interest
    - 3 Dams have been inspected:
      - Thomson Creek (abandoned mine) - no damage found
      - Deadwood Dam
      - Mackey Dam
    - Mosquito Flat Dam - not currently accessible due to snow

- Seismology/Earth Science (Zach Lifton, Claudio Berti)
  - Overflight updates
    - Claudio Berti, Director, IGS
    - Flight on ITD fixed-wing aircraft (Kodiak 100)
Flew around epicentral area
Goal to observe effects of earthquake, especially ground rupture or any triggered slides or avalanches
1-2 days prior to earthquake there were up to 27 inches of snowfall near epicenter
- Area has high avalanche hazard
State closed a section of highway before earthquake happened
- Few snow avalanches and boulders in road
- Aftershocks are expected, clean up crews are delayed as there is danger of additional shocks, avalanches
No evidence of ground rupture of fault observed from overflight
Minor rockfall on steep exposed rock slopes, nothing major
Stream gauge on middle fork of salmon river dropped off dramatically after the event
- Potentially caused by a landslide damming the river
- Stream Gauge is reading normally again as blockage has been cleared.
- Snow avalanche and snow debris potentially blocked the river immediately following the event.
In general, pattern showing the effects of earthquake were more prominent north of main shock than to the south (in terms of surficial disturbance)
- May be additional opportunities for in-field investigations once the snow melts in the area. Currently areas are inaccessible.
- Instrumentation deployed (Claudio Berti)
  Lee Liberty Group is installing seismic monitoring stations near the epicenter
  - Currently 6 stations deployed between Stanley and axiom 21
  - 6 More broadband seismometers from IRIS should be put in the field by Idaho Geological Survey to the north of the epicenter
Inspected some of the scarp that are present in some of the LIDAR images but could not see any surface rupture present in those LIDAR images
Data from deployed instruments does not have telemetry so it will need to be collected
Stations at
  - Missoula
  - INL
  - Middle fork of the Salmon is one potential location
Discussion of extending instrumentation southward on Sawtooth Front as the ongoing event may activate the Sawtooth Front.

- Potential Research question
  - Aftershock sequence (Mike Stickney)
    - Described as a “Vigorous” aftershock sequence
    - At least 50 M3s recorded, have recorded hundreds.
      - Currently instrumentation is triggering on most earthquakes greater than M2.5
    - Events have been difficult to record as many are overlapping (i.e. s-waves and p-waves for different events are crossing)
      - Not all aftershocks are making it into the USGS catalog currently being displayed
    - USGS is authoritative source on aftershocks for Idaho
      - All events are being archived into the USGS Catalog.
      - Partner recordings are being added but may not be visible in the catalog.
    - Is there an ability to post-process the data to determine each separate event?
      - Should have a fairly complete record for larger events over M2.5
  - Map of stations (Dylan Mikesell, Lee Liberty)
    - Lee Liberty has a map of installed stations
    - The plan is to
      - Go back out into the field and download each of the stations
      - Plan to Deploy more stations around Idaho SR-21 and surrounding areas
      - Plan to archive data on IRIS.
  - Instrument type:
    - Trillium Meridians Broadband 3 component sensors, 500 hz
    - No telemetry on the instrumentation currently - plan to get data once a week

- Chris Dail
  - River gauges -
    - Flow abruptly decreased on a number of gauges in the area likely when snow slides dammed some of the flow
    - Sample Rate - typically 15 minutes for the river gauges
  - Research questions - May be an interesting approach to look at gauging stations scattered across the state with telemetry to depict snow blockages on the rivers
  - Most of the surface damage are more prominent to the north of the mainshock than to the south.
Disclaimer:
In an effort to share these notes quickly, limited clean-up has been done and some errors may exist. Please write to EERI staff with suggested edits or corrections, or make edits directly in the google doc.

- Luciana Astiz, NSF
  - Earthquake seemed to be relatively deep, 19.5 km
  - Currently, it seems the double couple component is not large. Any comments or further research from the group?
  - University of Utah researchers showed their latest moment tensor solution as
    - 98% double couple
    - Strike-Slip
    - 14km depth
    - Seems to be northwest alignment of aftershocks
  - Should have access to an INSAR image in the next few days.
    - INSAR
      - Fly over on the 30th and next fly over is in the next few days.
      - The 30th fly over was after most of the snow - may be better to use
    - Data quality
      - Decorrelation may be tricky as there were a lot of clouds in the area
      - Currently, INSAR image does not look great but USGS hopes to be able to clean up the image.
    - Sentinel flyover a few hours after main shock
  - Engineering (Sarah McClendon)
    - Haven’t heard much from structural engineers in the area
    - Some wall and concrete foundation cracks observed
    - Southern CA and North Carolina Structural Engineering Association reached out to provide support but determined that it is not needed at this time.

Updates from NEHRP and other partners
- USGS
  - Not present on call
- FEMA (Amanda Siok and Mike Mahoney)
  - Region is activated in support of COVID-19
  - Coordinating with Susan
  - No requests for assistance
  - Monitoring the situation
- NIST (Maria Dillard)
  - Monitoring reports of damage to inform scoring process
  - Not hearing enough to warrant a score at this time. As new information comes online it will be incorporated into scoring
  - Do not plan to study this event more at this time
- NSF (Luciana Astiz)
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- Have not received any requests for RAPID grants/investigations from geoscience community

Other Updates
- David Frost - GEER
  - Monitoring but have not seen anything that warrants deployment for perishable data.
  - Even in the absence of COVID-19, do not see anything that concerns the group or warrants deployment
- Idaho Forest Service analyzed the population density surrounding the epicenter to determine how many people lived near the epicenter
  - 289 people lived with a 30 mile radius

Data and Data Products
- None discussed on the call. Please send any additional data to Zach Lifton or Maggie Ortiz-Milan to add to the virtual clearinghouse website -

Next Scheduled Calls
- As there are few teams or people deployed in the field, the next call will be held on an as needed basis.
- A call sometime next week may be scheduled, in consideration of additional aftershocks. Susan, Zach and Maggie will coordinate to schedule a follow up call.