

**92<sup>nd</sup> Annual Meeting of the Eastern Section of the Seismological Society of America**

**2020 Eastern Section of the Seismological Society of America (ES-SSA)  
Annual Meeting Program**

**Important Dates and Times:**

Synchronous (live) presentations: Oct. 14-15 2020 1-3 pm EST

Asynchronous presentations available: Oct. 12-16 2020

Lightning talks for the asynchronous presentations: Oct. 14-15 2020 3:30-4:00 pm

Live Q/A sessions for the asynchronous presentations: Oct. 14-15 2020 4-5:30 pm

Live Jesuit Seismological Association (JSA) Award ceremony: Oct. 14 2020 3:15 pm

Live ES-SSA business meeting: Oct. 15 2020 3:15 pm

**Important Deadlines for Presenters:**

Synchronous (live) 12-min presentation link due: 10/12/2020

Asynchronous 10-min presentation link due: 10/09/2020

1.5 min lightning talk due (in Flipgrid): 10/12/2020

**Important Websites:**

Meeting program/abstracts: <https://www.seismosoc.org/inside-eastern-section/annual-meeting/>

Lightning talks: <https://flipgrid.com/esssa2020>

**Co-Chairs:**

Mike Brudzinski (Miami University)

Zhigang Peng (Georgia Tech)

Contact: [EasternSectionMeeting@seismosoc.org](mailto:EasternSectionMeeting@seismosoc.org)

**Note:**

1. We will use Zoom as the live meeting platform, and Youtube and Flipgrid as the platforms for asynchronous presentations and 1-min lightning talks, respectively. We expect that all the participants follow SSA's Meeting Code of Conduct (<https://www.seismosoc.org/meetings/code-of-conduct/>), and standard etiquette practices to ensure a smooth online meeting experience. Please do not share the meeting link/passcode and presenter's presentation link to others. Instead, please encourage them to use this registration form to obtain related information.
2. To access the synchronous meeting information (including the live Zoom meeting links and passcode) and list of asynchronous presentations, please register at <https://www.seismosoc.org/inside-eastern-section/annual-meeting/>
3. The username to access the updated presentation contents is **esssa2020**. The link is <http://geophysics.eas.gatech.edu/zpeng/ESSSA2020/>. The passwd will be shared during the registration process.
4. Additional guidelines on how to prepare and upload your presentations can be found in page 6 of this document.
5. This meeting is designed to take advantage of existing platforms (Zoom, YouTube, Flipgrid) to explore these as low-cost options for disseminating research. This is in contrast to higher-cost conference-specific software platforms that we found to be less flexible for a meeting of this size. However, with this decision we envision there will be a learning curve for presenters and participants (and chairs!). Please reach out to let us know if you have feedback, especially if you encounter any difficulties.

# 92<sup>nd</sup> Annual Meeting of the Eastern Section of the Seismological Society of America

## 1. Program

# **Invited/Student** presentations are marked. **Moderators' names** are also marked.

# The abstract ID in front of the title can be used to find the corresponding abstract in the following [link](#). You can also directly click the Abstract link below.

<b>Wednesday 10/14/2020 1-3 pm EST</b>
<b>Session 1: Recent Events, New Tools, New Models (1-2 pm)   Video</b> <ul style="list-style-type: none"><li>● 63 Global anthropogenic seismic noise quieting due to COVID-19 pandemic lockdown measures (Thomas Lecocq, Royal Observatory of Belgium) (<b>Invited</b>) <a href="#">Abstract</a></li><li>● 24 Fiber Optics for Environmental SENSing (FORESEE) array in Eastern US (Tieyuan Zhu, Penn State) <a href="#">Abstract</a></li><li>● 38 Initial Observations of the M=5.1 Sparta, NC Earthquake of August 9, 2020 (Steve Horton, Univ. of Memphis) <a href="#">Abstract</a></li><li>● 66 An updated East Asia Radially Anisotropic Model (EARA2020) of the crust and the upper mantle based on full waveform inversion (Ziyi Xi, Michigan State) (<b>Student</b>) <a href="#">Abstract</a></li></ul>
<b>Session 2: Earth Structures (2-3 pm)</b> <ul style="list-style-type: none"><li>● 60 Structure and dynamics of the Central Appalachian lithosphere: Results from the MAGIC array (Maureen Long, Yale) (<b>Invited</b>) <a href="#">Abstract</a></li><li>● 25 Crustal structure variations of the Eastern North American Margin controlled by its antecedent subduction history (Uri ten Brink, U.S. Geological Survey) <a href="#">Abstract</a></li><li>● 54 Limited and Localized Magmatism in the Central Atlantic Magmatic Province (Rachel Marzen, Lamont) (<b>Invited</b>) (<b>Student</b>) <a href="#">Abstract</a></li><li>● 21 High-resolution airborne magnetic and seismic reflection data image basement faults in the Charleston, South Carolina seismic zone (Anji Shah, U.S. Geological Survey) <a href="#">Abstract</a></li></ul>
<b>Wednesday 10/14/2020 3-3:15 pm EST</b>
Break
<b>Wednesday 10/14/2020 3:15-3:30 pm EST</b>
Jesuit Seismological Association (JSA) Award ceremony
<b>Wednesday 10/14/2020 3:30-5:30 pm EST</b>
Lightning Talks (3:30-4:00 pm) and Live Q/A Sessions for Asynchronous Presentations (4:00-5:30 pm) <b>Session 3: Recent Earthquake Sequences/COVID/Environmental Seismology</b> (Moderators: <b>Jay Pulli, Miao Zhang</b> ) <ul style="list-style-type: none"><li>● 27 High-resolution earthquake locations for the Sparta aftershock sequence (Lindsay Blankenship, UNC Chapel Hill) (<b>Student</b>) <a href="#">Abstract</a></li><li>● 26 Foreshock and aftershocks sequence of the M5.1 Sparta Earthquake in North Carolina (Lindsay Chuang, Georgia Tech) (<b>Student</b>) <a href="#">Abstract</a></li><li>● 45 An Interpretation of Ground Motions, Intensities, and Stress-Drop for the M5.1 Sparta, North Carolina, Earthquake (Chris Cramer, CERI, Univ. of Memphis) <a href="#">Abstract</a></li><li>● 39 Characterization of swarm and aftershock behavior in Puerto Rico (Wilnelly Ventura-Valentin, Miami University) (<b>Student</b>) <a href="#">Abstract</a></li><li>● 30 The May 15, 2020 M 6.5 Monte Cristo Range Earthquake (Taha Sadeghi Chorsi, Univ. South Florida) (<b>Student</b>) <a href="#">Abstract</a></li><li>● 42 Pushing the limit of single station: source characterization for two small earthquakes in Dartmouth, Nova Scotia, Canada (Miao Zhang, Dalhousie Univ.) <a href="#">Abstract</a></li><li>● 28 Disentangling Anthropomorphic Noise Sources During the COVID-19 Virus Lockdowns: Examples from the Washington DC and Boston Areas (Jay Pulli, Raytheon BBN Tech.) <a href="#">Abstract</a></li></ul>

- 40 Tracking anthropogenic seismic noise variations during the COVID-19 pandemic using fiber optic sensors (Junzhu Shen, Penn State) ([Student](#)) [Abstract](#)
- 49 Seismic Observations of Four Thunderstorms Using an Underground Fiber-Optic Array (Samuel Hone, Penn State) ([Student](#)) [Abstract](#)

**Session 4: Earthquake Detection/Machine Learning (Moderators: Jake Walter, Karen Pearson)**

- 55 Exploring the python package, easyQuake, a turnkey machine-learning driven earthquake identifier and locator tool (Jake Walter, University of Oklahoma) [Abstract](#)
- 44 Tuning of automatic picking algorithms for detection of local and regional earthquakes in Canada (Nicholas Ackerley, Canadian Hazards Information Service) [Abstract](#)
- 15 Matched Filter Detection of Seismicity in the Eastern Tennessee Seismic Zone around the Mw 4.4 December 2018 Decatur, Tn Earthquake (Clara Daniels, Georgia Tech) ([Student](#)) [Abstract](#)
- 31 Seismicity Detection at the Slowly Deforming Iberia using Deep Learning (Miguel Neves, Georgia Tech) ([Student](#)) [Abstract](#)
- 61 Toward Understanding Anomalously Low Aftershock Productivity (Karen Pearson, University of Maryland) ([Student](#)) [Abstract](#)
- 71 Detecting the earliest aftershock following moderate-size earthquakes in Eastern US (Zhigang Peng, Georgia Tech) [Abstract](#)

**Session 5: CENA Earth Structure (Moderators: Weisen Shen, Will Levandowski)**

- 33 Seismic and Chemical Signature of the Continental Accretion of the Eastern North American Margin (Weisen Shen, Stony Brook University) [Abstract](#)
- 07 Mantle structure and dynamics at the Eastern North American passive margin inferred from anisotropic S-wave tomography (Brennan Brunsvik, UC Santa Barbara) ([Student](#)) [Abstract](#)
- 16 A local earthquake tomography study using aftershocks of the 2011 Mineral earthquake, Central Virginia Seismic Zone, Virginia, USA (S M Ariful Islam, Univ. of Memphis) ([Student](#)) [Abstract](#)
- 47 Synergy of inherited structures and modern processes in the Eastern Tennessee Seismic Zone (Will Levandowski, Tetra Tech) [Abstract](#)
- 46 Earthquake depth and local velocity estimation using crustal reverberations and phase correlation for Cushing Fault zone (Pranshu Ratre, University of Oklahoma) ([Student](#)) [Abstract](#)
- 52 A Geophysical Technique for Studying the Sedimentary Structure of a Paleoliquefaction Site in the New Madrid Seismic Zone (Can Guven, Auburn University) ([Student](#)) [Abstract](#)

**Session 6: Seismic Imaging/Wave Propagation (Moderators: Jiaqi Li, Oumeng Zhang)**

- 13 Existence of a low-viscosity layer beneath the 660-km discontinuity based on the orphan slabs imaged beneath East Asia (Min Chen, Michigan State) [Abstract](#)
- 67 Fine Structures of the 410-km Discontinuity and the Slab in the Kuril Subduction Zone (Jiaqi Li, Michigan State) [Abstract](#)
- 65 The magma plumbing systems beneath the magma-poor rifts of the East Africa (Yaqi Jie, Michigan State) ([Student](#)) [Abstract](#)
- 37 High resolution P- and S- wave tomography from combined geophone and DAS sensing at the DFDP-2 Borehole, Alpine Fault, New Zealand (Oumeng Zhang, Purdue University) ([Student](#)) [Abstract](#)
- 70 Green's function analysis to study wavefield distribution in ambient vibration recordings (Hema Sharma, Western University) ([Student](#)) [Abstract](#)
- 64 Sedimentary and crustal structure of California and Nevada from joint inversion of multiple passive seismic datasets (Guoliang Li, Michigan State) [Abstract](#)

## 92<sup>nd</sup> Annual Meeting of the Eastern Section of the Seismological Society of America

Thursday 10/15/2020 1-3 pm EST

### Session 7: Seismic Hazard/Site Response (1-2 pm)

- 10 New Site Correction Factors and Design Response Spectrum: Their Applications in the Central United States (Zheming Wang, Kentucky Geological Survey) [Abstract](#)
- 48 Soil amplification in glaciated terrain: using ambient noise, local event and shear wave velocity data to compare surficial geologic units in New England (Marshall Pontrelli, Tufts University) (Student) [Abstract](#)
- 41 Site classification to verify “hard” rock at 25 seismograph stations in Eastern Canada (Sameer Ladak, University of Western Ontario) (Student) [Abstract](#)
- 09 The 2018 Update of the U.S. National Seismic Hazard Model: Ground Motion Models in the Central and Eastern U.S. (Sanaz Rezaeian, U.S. Geological Survey) [Abstract](#)

### Session 8: Induced Earthquakes/Central-Eastern North America Earthquakes (2-3 pm)

- 35 Coulomb Static Stress Transfer during Pohang, Korea Enhanced Geothermal System Injection-Induced Seismicity (Megan Brown, Northern Illinois University) (Invited) [Abstract](#)
- 08 Rapid fluid injection into a low permeability laboratory fault promotes seismic swarms (Sara Cebry, Cornell) (Student) [Abstract](#)
- 62 Relationship between earthquake b-values and differential stress in the Charlevoix and Western Quebec seismic zones, eastern Canada (John Onwuemeka, McGill University) (Student) [Abstract](#)
- 05 A Misplaced 19th Century Earthquake in Oklahoma (Sue Hough, U.S. Geological Survey) [Abstract](#)

Thursday 10/15/2020 3-3:15 pm EST

Break

Thursday 10/15/2020 3:15-3:30 pm EST

ES-SSA Business Meeting

Thursday 10/15/2020 3:30-5:30 pm EST

Lightning Talks (3:30-4:00 pm) and Live Q/A Sessions for Asynchronous Presentations (4:00-5:30)

### Session 9: Strong Motion/Seismic Hazard (Moderators: **Chuanbin Zhu, Jeffrey Munsey**)

- 69 An Open-Source Site Database of Strong-Motion Stations in Japan: K-NET and KiK-net (v1.0.0) (Chuanbin Zhu, GFZ German Research Centre for Geosciences) [Abstract](#)
- 19 Uncertainty in seismic hazard in southeastern Canada (Michal Kolaj, Natural Resources Canada) [Abstract](#)
- 34 Evolution of seismic hazard estimates in Eastern Canada (John Adams, Natural Resources Canada) [Abstract](#)
- 53 Towards Quantitative Seismic Hazard Assessment from Interseismic Locking Models (Suli Yao, The Chinese University of Hong Kong) (Student) [Abstract](#)
- 03 Selection of Ground Motion Models for Probabilistic Seismic Hazard Analysis in Iran (Zoya Farajpour, University of Memphis) (Student) [Abstract](#)
- 36 A Surprising Dam Failure Caused by the August 31, 1886, Charleston, South Carolina Earthquake: Why Did Langley Dam Fail? (Jeffrey Munsey, Tennessee Valley Authority) [Abstract](#)

### Session 10: Site Response/Soil Structure (Moderators: **Olga Ktenidou, Zheming Wang**)

- 11 Can Proxies Adequately Approximate Site Resonance? (Seth Carpenter, Kentucky Geological Survey) [Abstract](#)
- 22 Investigation of the correlation between kappa and soil nonlinearity (Chunyang Ji, NC State University) (Student) [Abstract](#)

## 92<sup>nd</sup> Annual Meeting of the Eastern Section of the Seismological Society of America

- 43 Revisiting classical hard-rock kappa values from CENA (Olga Ktenidou, National Observatory of Greece) [Abstract](#)
- 32 Site Response Study in the New York Metropolitan Area with an Investigation of the Magnitude 3.1 New Jersey Earthquake of September 2020 (Jeremy Salerno, Tufts University) (Student) [Abstract](#)
- 48 Soil amplification in glaciated terrain: using ambient noise, local event and shear wave velocity data to compare surficial geologic units in New England (Marshall Pontrelli, Tufts University) (Student) [Abstract](#)
- 50 Coseismic and long-term changes of site response on liquefiable sites: a case study of Onahama Port Array in Japan (Weiwei Zhan, Clemson University) (Student) [Abstract](#)
- 02 Earthquake response analysis on soil-structure interaction of multi-storey R.C building under different soil conditions (Abdul Ahad Faizan, Sakarya University of Applied Sciences) (Student) [Abstract](#)
- 68 Evaluation of a Novel Application of Earthquake HVSR in Site-Specific Amplification Estimation (Chuanbin Zhu, GFZ German Research Centre for Geosciences) [Abstract](#)

### Session 11: Induced Earthquakes/Anthropogenic Seismic Events (Moderators: **Zoya Farajpour, Paul Ogwari**)

- 58 A Review of Hydraulic Fracturing-Induced Seismicity (Mike Brudzinski, Miami University) [Abstract](#)
- 04 Application of Support Vector Machine for Classification of Induced and Tectonic Earthquakes in Central and Eastern United States (Zoya Farajpour, University of Memphis) (Student) [Abstract](#)
- 20 Crustal unloading as a source of induced seismicity in Plainfield, Connecticut in 2015 (Sean Kondas, Boston College) (Student) [Abstract](#)
- 51 Unique Earthquakes in Oklahoma and the Associated Ground Motion Duration (Paul Ogwari, University of Oklahoma) [Abstract](#)
- 59 Analysis of microseismicity during hydraulic fracture: application of spatial temporal magnitude calibration (Raymond Ng, University of Oklahoma) (Student) [Abstract](#)
- 23 Preliminary Seismic Analyses of Quarry Blasts in NW Miami, Florida (Steve McNutt, University of South Florida) [Abstract](#)

### Session 12: Earthquake Source Properties/Statistical Seismology (Moderators: **Rachel Marzen, John Ebel**)

- 29 Why do continental normal fault earthquakes have smaller maximum magnitudes? (James Neely, Northwestern Univ.) (Student) [Abstract](#)
- 01 Frequency-Difference Back-projection of Earthquakes (Jing Ci Neo, Univ. Michigan) (Student) [Abstract](#)
- 06 Examining Earthquakes and Blasts in Georgia-South Carolina Seismic Zone, 2012-2014 (Rachel Marzen, Lamont-Doherty Earth Observatory) (Student) [Abstract](#)
- 18 Coherence as a Measure of Body-Wave Signal to Noise Ratio in the Northeastern United States and Southeastern Canada (Ian Cooper, Boston College) (Student) [Abstract](#)
- 57 Cellular Seismology Analysis of the Pacific Northwest (Kasey Cannon, Boston College) (Student) [Abstract](#)
- 12 Fractal Dimension Analysis of Southern California from 1989 to 2019 (Hong Cai, Boston College) (Student) [Abstract](#)
- 17 The potential for an Earthquake Early Warning System in eastern Canada (Stephen Crane, Natural Resources Canada) [Abstract](#)
- 14 On the Unphysical Nature of the Brune Source Model (John Ebel, Boston College) [Abstract](#)

## 2. Guideline for Presenters

### A. General Guidelines

- a. We would like all the presentations (both the ‘live’/synchronous presentations and asynchronous presentations) to be pre-recorded and uploaded to youtube.com ahead of the meeting. The deadline for submitting asynchronous presentations is **Friday October 9**, and the deadline for submitting synchronous presentations is **Monday October 12**. If you cannot make this deadline, please let us know at [EasternSectionMeeting@seismosoc.org](mailto:EasternSectionMeeting@seismosoc.org). You can use any software as you like to record your presentation. We recommend that you use Zoom and turn on your camera when you give your presentation. Here is an example video showing how to use Zoom to record your presentation: <https://www.youtube.com/watch?v=xHH5JEsa6B4> (Note: you need to stop recording first, and then stop the meeting with yourself only. Your saved video will be automatically converted into a mp4 format).
- b. To upload your video onto Youtube, you need have an account. If you don't have one, please either create one, or use your Google account to login. Then follow this instruction you upload your video: <https://www.youtube.com/watch?v=KajTSBKUrHk>
- c. During your upload process, please put the ESSSA2020- and the two-digit abstract ID, a short title of your presentation and your name as the Youtube video title (Note: 100 char. limitation). Please copy/paste your abstract in the description. You can find your abstract ID from the Full Program and Abstract Link at: <https://www.seismosoc.org/inside-eastern-section/annual-meeting/>

See below for an example:

Title: ESSSA2020-71 Early aftershock detection in CEUS (Zhigang Peng, Georgia Tech)

Description: This video is presented at the 2020 ES-SSA Annual Meeting. See below for the full abstract:

### Details

Title (required)

ESSSA2020-71 Early aftershock detection in CEUS (Zhigang Peng, Georgia Tech)

Description 

This video is presented at the 2020 ES-SSA Annual Meeting. See below for the full abstract:

71 Detecting the earliest aftershock following moderate-size earthquakes in Eastern US

Z. Peng (Georgia Tech, [zpeng@gatech.edu](mailto:zpeng@gatech.edu)) and J. Zhuang (Institute of Statistical Mathematics)

## 92<sup>nd</sup> Annual Meeting of the Eastern Section of the Seismological Society of America

- d. We would recommend that you use the Unlisted option to key the presentation private to only those who have the link. In the Visibility option, please select “Unlisted Anyone with the video link can watch your video”.

### Visibility

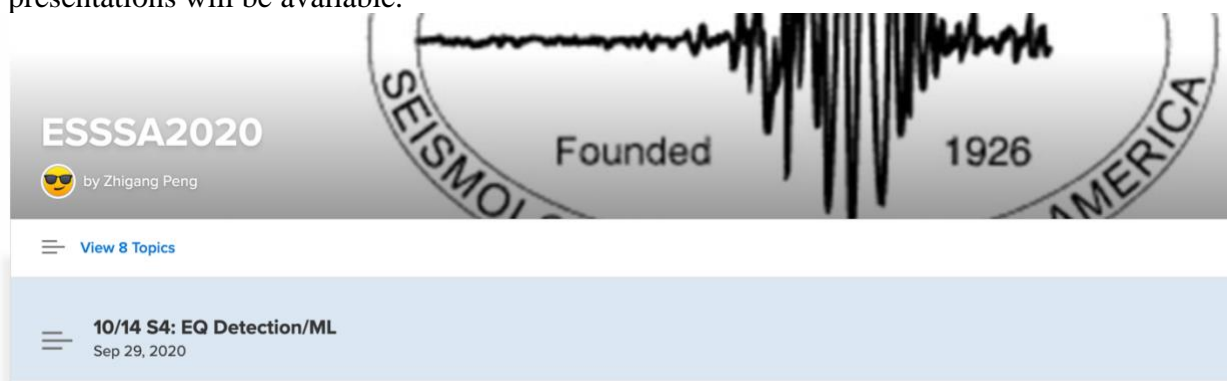
Choose when to publish and who can see your video

**Save or publish**  
Make your video **public, unlisted, or private**

**Private**  
Only you and people you choose can watch your video

**Unlisted**  
Anyone with the video link can watch your video

- e. Once your video is uploaded to Youtube, please submit the link via a Google Form that we sent to you on 10/06/2020. Asynchronous presenters need to submit your link by **Oct. 9**, and synchronous/live presenters need to submit your link **by Oct. 12**.
- f. If you are a student, your presentation will be evaluated by our judges for the “Best Student Presentation Award”. We will make the final announcement within one week following the meeting.
- h. We encourage all presenters to record a very short (no more than 1.5 min) ‘lightning talk’ video at flipgrid to promote your presentation. Please use the code “esssa2020” or directly access the link at <https://flipgrid.com/esssa2020>. Please select the correct topic based on the day of your session, and then upload your video. For example, abstract ID 71 is scheduled in Session 4: Earthquake Detection/Machine Learning on Oct. 14 2020. In this case, “10/14 S4: EQ Detection/ML” will be selected as the topic, and the recorded ‘lightning’ video will be uploaded there together with others in the same session. See below for the example. We will play the ‘lightning talks’ starting at 3:30 pm on Oct. 14-15 to help promote your presentation. Please try to upload your ‘lightning talks’ by Monday Oct. 12 when all the asynchronous presentations will be available.



## B. Guideline for the Synchronous Presentations

## 92<sup>nd</sup> Annual Meeting of the Eastern Section of the Seismological Society of America

- a. Each presenter has a 15-minute time slot during the Zoom meeting between 1 and 3 pm. Please keep your video length to be around 12 minutes, and leave 3 min for live questions/answers.
- b. We will play your pre-recorded video live during the synchronous sessions. Each presenter can answer questions posted in the chat during the presentation.
- c. Please keep your Youtube presentation available for the duration of the meeting (Oct. 12-16) so that other meeting participants can watch it in case they miss the presentation. You are free to remove the presentation from Youtube after Oct. 16.

### C. Guideline for the Asynchronous Presentations

- a. Please keep your video length to be no more than 10 minutes. Please follow the general guideline to record your presentation.
- b. You do not need to make a separate e-poster. However, if you do, please send us the link to access your poster, and we will share it with other participants.
- c. We encourage all asynchronous presenters and participants to join the live Q/A sessions on Oct. 14-15 4-5:30 pm EST. We will create a breakout room for each topical session of the asynchronous presentations and encourage attendees to rotate between different sessions in the Zoom meeting. We will also create additional breakout rooms for those who would like to discuss separately.
- e. Please keep your Youtube presentation available for the duration of the meeting (Oct. 12-16). You are free to remove the presentation from Youtube after Oct. 16.