

# PROGRAM

## SEG | AGU Advances in Distributed Sensing for Geophysics Workshop

8-9 February 2021 | Virtual

### WORKSHOP DESCRIPTION

This workshop seeks to bring together researchers from industry, academia, and the public sector involved in exploiting these recent sensing advances with the broader geoscience community to explore both the underlying technologies as well as new domains for distributed sensor deployment.

### WORKSHOP TIMING:

9:30am-3:30pm (CST)

TIME	AGENDA
<b>MONDAY 8 FEBRUARY 2021</b>	
9:30-9:40	<b>Welcome and Introduction</b> Workshop Chairs
<b>SESSION 1: DISTRIBUTED SENSING &amp; FRACTURED SYSTEMS</b> Session Chair: Philippe Jousset, GFZ Potsdam	
9:40-10:05	<b>Integrated Analysis of DAS Recordings for Unconventional Reservoir Characterization</b> Ariel Lellouch, Stanford University
10:05-10:30	<b>Low-frequency Distributed Acoustic Sensing (DAS) for Monitoring of Hydraulic Fracturing at the EGS Collab Experiment Testbed</b> Veronica Rodriguez Tribaldos, Lawrence Berkeley National Laboratory
10:30-10:50	<b>Elastic Full Waveform Inversion of Guided Waves in Shale Reservoir Recorded by DAS</b> Milad Bader, Stanford University
10:50-11:00	<b>Break</b>
<b>SESSION 2: ADVANCES IN DTS &amp; DSS</b> Session Chair: Scott Tyler, University of Nevada, Reno	
11:00-11:25	<b>A Case Study of Hybrid Fiber Optic Sensing for Distributed Strain and Temperature Measurements during CO2 Injection</b> Ziqiu Xue, Research Institute of Innovative Technology for the Earth (RITE)
11:25-11:50	<b>Opportunities and Limitations of Distributed Temperature Sensing for Lake and Near Shore Applications</b> John Selker, Oregon State University

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11:50–12:15	<b>Detection of Groundwater Inflow for Characterizing Contaminant Transport Using Distributed Temperature Sensing</b> Agatha Podrasky, Silixa LLC
12:15–12:45	<b>Break</b>
<b>SESSION 3: LIGHTNING TALKS 1: COMMUNITY INITIATIVES</b> Session Chair: Jonathan Ajo-Franklin, Rice University	
12:45–12:55	<b>Developing a Research Coordinating Network Around DAS for Geoscience and Engineering</b> Herb Wang, University of Wisconsin, Madison
12:55–1:05	<b>CTEMPs, a National Science Foundation-funded Instrument Facility Supporting Distributed Temperature Sensing (STS) Research Projects Since 2005</b> Scott Tyler, University of Nevada, Reno
1:05–1:15	<b>DAS Related Initiatives at the Incorporated Research Institutions for Seismology</b> Jerry Carter, IRIS
<b>SESSION 4: DAS VSP AND BOREHOLE FIBER-OPTIC SENSING</b> Session Chairs: Alben Mateeva, Shell & Ge Jin, Colorado School of Mines	
1:15–1:40	<b>3D Salt-boundary Imaging with Transmitted Waves in DAS VSP Data Acquired in Salt</b> Yuting Duan, Shell International
1:40–2:05	<b>Optimization of Surface Orbital Vibrators (SOV) for Continuous Offset VSP Monitoring Using Distributed Acoustic Sensing</b> Julia Correa, Lawrence Berkeley National Laboratory
2:05–2:30	<b>DAS and DTS Measurements in the Hot Borehole at the Medipolis Geothermal Field</b> Junzo Kasahara, Engineering Advancement of Japan
2:30–2:55	<b>Novel Wavefront Processing Applied to Distributed Acoustic Vertical Seismic Profile Data Acquired from a Standard Multi-Mode Fiber Wireline Intervention Cable</b> Scott Taylor, Reservoir Imaging Solutions
2:55–3:20	<b>DAS Inversion Using Energy Conservation Principles</b> Vladimir Kazei, Aramco Americas
3:20–3:30	<b>Wrap-up</b>

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<b>TUESDAY, 9 FEBRUARY 2021</b>	
<b>SESSION 5: ACQUISITION ADVANCES FOR DISTRIBUTED SENSING</b> Session Chair: Bjorn Olofsson, ExxonMobil	
9:30–9:35	<b>Welcome</b> Workshop Chairs
9:35–10:00	<b>Distributed Fiber-optic Sensing Based Production Logging Investigation: Flowloop Experiments</b> Ge Jin, Colorado School of Mines
10:00–10:25	<b>Fiber Optic Test Well for Controlled Experiments on DAS Acquisition</b> Harold Merry, Aramco Services Company
10:25–10:50	<b>Resolution in Distributed Sensing Measurements- Strain and Seismic Considerations</b> Andres Chavarria, OptaSense
10:50–11:00	<b>Break</b>
<b>SESSION 6: UNDERSTANDING DAS USING MODELING APPROACHES</b> Session Chair: Biondo Biondi, Stanford University	
11:00–11:25	<b>Understanding and Modeling the Response of Fiber Optic Distributed Seismic Sensors</b> Robert Mellors, University of California, San Diego
11:25–11:50	<b>Development of DAS Geophysics by Simulating DAS Data Using Geophone Data</b> Takashi Mizuno, Schlumberger
11:50–12:15	<b>Anisotropic Ray Theory Simulation of DAS Data</b> Scott Leaney
<b>SESSION 7: LIGHTNING TALKS 2 : NEW APPROACHES IN DAS</b> Session Chair: Jonathan Ajo-Franklin, Rice University	
12:15–12:25	<b>Passive Seismic DAS Recorded in an Open Hole Horizontal Production Well</b> Patrick Timlick & David Lumley University of Texas at Dallas
12:25–12:35	<b>Near-field Strain in DAS-based Microseismic Observation</b> Bin Luo, Colorado School of Mines
12:35–12:45	<b>Mixed-component Ambient Noise Cross-correlations Using Distributed Acoustic Sensing Arrays and Single Point Inertial Seismic Sensors</b> Avinash Nayak, Lawrence Berkeley National Laboratory
12:45–1:00	<b>Break</b>

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<b>SESSION 8: DATA PROCESSING CHALLENGES IN DISTRIBUTED SENSING: THE EDGE, COMPRESSION, AND ML</b> Session Chair: Mark Willis, Halliburton	
1:00–1:25	<b>Exploring the Edge: An Edge-Based Solution for Geoscience Applications</b> Frank Sepulveda, Baylor University
1:25–1:50	<b>Deep Learning Exploration with Distributed Acoustic Sensing Data</b> Vincent Dumont, Lawrence Berkeley Laboratory
1:50–2:15	<b>Analyzing Massive, Passive DAS Data in Wavelet-compressed Form</b> Eileen Martin, Virginia Tech University
<b>SESSION 9: ADVANCES IN DARK FIBER</b> Session Chair: Veronica Rodriguez Tribaldos, Lawrence Berkeley Laboratory	
2:15–2:40	<b>Exploiting Ambient Noise Recorded on Ocean Bottom Fiber Optic Cables: Towards Fault Zone Characterization Using Direct and Scattered Surface Waves</b> Feng Cheng, Rice University
2:40–3:05	<b>Fiber Optic Seismic Monitoring Experiment at Pennsylvania State University</b> Tieyuan Zhu, Penn State University
3:05–3:30	<b>Advances in Distributed Acoustic Sensing for Long Range Measurements</b> Thomas Coleman, Silixa LLC
3:30–3:35	<b>Conclusion</b> Workshop Chairs

## ORGANIZING COMMITTEE

Jonathan Ajo-Franklin, Co-chair, Rice University

Christopher Sherman, Co-chair, Lawrence Livermore National Laboratory

Verónica Rodríguez Tribaldos, Lawrence Berkeley National Laboratory

Ge Jin, Colorado School of Mines

Biondo Biondi, Stanford University

Scott Tyler, University of Nevada, Reno

Albena Mateeva, Shell

Mark Willis, Halliburton

Bjorn Olofsson, ExxonMobil

Philippe Jousset, GFZ Potsdam