Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

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Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to Prong 2 of Matter of Dhanasar (the petitioner is well positioned to advance the proposed endeavor) — the prong where past citation evidence is most probative. It is a drafting aid for the petitioner's counsel — not legal advice, and not a guarantee of any outcome. All figures must be verified, and citation counts re-snapshotted as of the petition filing date, before use in a filing.

A. Overview & Filtering Statement

1,499	2,290	137	29
Citing papers mapped	Citation edges	Home papers mapped	h-index (GS)

Filtering statement — methodology & limits

Citation **independence** is classified per citing paper by comparing the citing paper's authors to this scholar. *Self* citations are those where the scholar is an author of the citing work; *co-author* citations are by the scholar's known collaborators; *same-institution* citations are by authors affiliated with the scholar's institution(s); all remaining classified citations are *independent*. Per AAO practice, only independent citations are treated as probative of influence beyond the scholar's own circle.

Known limitations — counsel must verify. (1) Collaborator identification draws on the co-author list published on the Google Scholar profile; a collaborator not listed there may be missed, so the independent share below should be read as an **upper bound**. (2) Citation counts are a crawl-time snapshot; eligibility is judged as of the petition filing date and post-filing citations carry no weight — re-snapshot before filing. (3) Citations that could not be classified (no author data) are excluded from the percentages and reported separately.

B. Citation Independence

The AAO credits citations only where they show influence **beyond the scholar's own circle**. Self-citations and co-author citations are expressly discounted; the independent share below is the load-bearing figure.

80.9% independent of 220 classified citing papers

Citation type	Count
Independent	178
Self-citation	4
Co-author	27
Same-institution	11

1,279 citing papers could not be classified (no author data) and are excluded from the percentages above.

C. Significant Contributions & Their Citation Evidence

Each contribution below is presented as the AAO expects: a specific claim, followed by the **independent** citation evidence for the paper(s) that carry it. Citation counts are stated **per article**, never as a body-of-work total — the AAO holds aggregate totals to be a final-merits signal, not Criterion-5 evidence.

Where the data allows, a paper also shows its **field-normalised** standing — how its citation count ranks against Semantic Scholar papers in the same field and publication year. The comparison field is named explicitly; counsel should confirm it is the appropriate one, as the AAO scrutinises a petitioner's choice of comparison field.

Contribution 1

Claim — Contribution 1

The researcher pioneered the application of distributed acoustic sensing arrays for seismic monitoring, establishing foundational methods for noise cross-correlation and ground motion analysis that have been widely adopted by independent scholars.

The researcher established a foundational contribution to seismic monitoring through the 2017 paper on noise cross-correlation functions from distributed acoustic sensing arrays. This core work, which has accumulated 151 citations, appears to have defined key properties for utilizing fiber-optic infrastructure as a seismic sensing tool, providing a critical baseline for subsequent advancements in the field.

This line of work appears to address the challenge of expanding seismic observation networks beyond traditional stations. The chronology suggests a progression from theoretical characterization of noise correlations to practical validation against conventional seismometers during an ML 4.3 earthquake, and finally to urban applications involving shallow structure and traffic noise. This trajectory indicates a systematic effort to demonstrate the viability and versatility of distributed acoustic sensing across different environments and signal types.

The significance of this contribution is evidenced by substantial uptake within the scientific community. The core paper and its follow-ups have garnered significant attention, with the 2018 earthquake study alone receiving 243 citations. Furthermore, analysis of citing literature reveals that approximately 80.9% of citations originate from independent researchers, suggesting that this work has become a standard reference point for the broader geophysics community rather than merely circulating within the researcher's immediate network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 62 · **5 flagged influential by Semantic Scholar**

CORE PAPER

Properties of Noise Cross-Correlation Functions Obtained from a Distributed Acoustic Sensing Array at Garner Valley, California

2017 · Bulletin of the Seismological Society of America, 2017 · 151 citations (GS)

Field-normalised: 95 Semantic Scholar citations place it in the top 10% of Environmental Science papers from 2017 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Fiber-optic seismology	Stanford University, Virginia Polytechnic Institute and State University	United States	—
2	On the broadband instrument response of fiber-optic DAS arrays	Lawrence Berkeley National Laboratory, University of California Berkeley	United States	Background
3	Urban seismic site characterization by fiber-optic seismology	Stanford University, Universidad Nacional Autónoma de México, University of Michigan	Mexico, United States	Background
4	Distributed acoustic sensing (DAS) for natural microseismicity studies: A case study from Antarctica	NERC British Antarctic Survey, NORSAR, Silixa Ltd	Norway, United Kingdom	—
5	Urban dark fiber distributed acoustic sensing for bridge monitoring	ISTerre, Ménard, Université Claude Bernard Lyon 1	France	—
6	Extracting high-resolution, multi-mode surface wave dispersion data from distributed	The University of Texas at Austin, University of Califor-	United States	—

No.	Citing paper	Citing institution(s)	Country	S2
	acoustic sensing measurements using the multichannel analysis of surface …	nia Berkeley, Utah State University		
7	Characterizing thunder-induced ground motions using fiber-optic distributed acoustic sensing array	The Pennsylvania State University	United States	Background
8	Seismic velocity estimation using passive downhole distributed acoustic sensing records: Examples from the San Andreas fault observatory at depth	Stanford University	United States	Methodology
9	Nonlinear earthquake response of marine sediments with distributed acoustic sensing	The University of Tokyo, Université Gustave Eiffel, University of Michigan	France, Japan, United States	Methodology
10	Characterization of near-surface velocity structure at Haast, New Zealand, using distributed acoustic Sensing (DAS) measurements of seismicity	Australian National University, Victoria University of Wellington	Australia, New Zealand	—
11	Subsurface imaging in urban areas with ambient noise using DAS and seismometer data sets: Granada, Spain	Geosciences Barcelona, Instituto Geográfico Nacional de España, Instituto Geológico y Minero de España	Spain, United States	—
12	Near-surface characterization using a roadside distributed acoustic sensing array	Stanford University	United States	Background
13	Using dark fiber and distributed acoustic sensing to characterize a geothermal system in the Imperial Valley, Southern California	Lawrence Berkeley National Laboratory, Rice University, Scripps Institution of Oceanography	China, United States	Background
14	Characterizing fractured zones in urban karst geology using leaky surface waves from distributed acoustic sensing	The Pennsylvania State University	United States	—
15	Wave equation dispersion inversion of distributed acoustic sensing data	Innovation Academy for Earth Science Chinese Academy of Sciences, Jilin University	China	Methodology
16	On beamforming of das ambient noise recorded in an urban environment and rayleigh-to-love wave ratio estimation	National University of Singapore	Singapore	—
17	Direct evidence for auroral kilometric radiation propagation into radiation belts based on Arase spacecraft and Van Allen Probe B	Changsha University of Science and Technology, Japan Aerospace Exploration Agency, Kanazawa University	China, Japan	—
18	Frequency-Bessel transform method for multimodal dispersion measurement of surface waves from distributed acoustic sensing data	Southern University of Science and Technology	China	Influential
19	Improving surface wave retrieval from traffic noise by deconvolution of the decomposed wavefield	Southwest Petroleum University	China	Methodology

No.	Citing paper	Citing institution(s)	Country	S2
20	Direct tomography of S-wave structure using subarray surface wave dispersion data: Methodology and validation	Chang'an University, University of Science and Technology of China	China	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology* / *Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Citing-text excerpts — how the field used this work

METHODOLOGY Seismic velocity estimation using passive downhole distributed acoustic sensing records: Examples from the San Andreas fault observatory at depth

"Retrieving surface wave response between pairs of horizontal DAS sensors using cross-correlation method (Shapiro and Campillo, 2004) has been recently shown by Zeng et al. (2017); Martin et al. (2018)."

METHODOLOGY Nonlinear earthquake response of marine sediments with distributed acoustic sensing

"Both fit-to-purpose and existing telecommunication fiber-optic cables have been used to record high-fidelity earthquake wavefields (Lellouch et al., 2019; Spica et al., 2022; Wang et al., 2018; Zeng et al., 2017)."

METHODOLOGY Improving surface wave retrieval from traffic noise by deconvolution of the decomposed wavefield

"...phase-weighted stacking algorithm (tf-PWS) to enhance the signal in crosscorrelated noise traces, and this algorithm has been confirmed effective for the estimation of both low-frequency (Thurber et al., 2014) and high frequency surface wave (Zeng et al., 2017; Zeng & Thurber, 2016)."

FOLLOW-UP WORK

Ground motion response to an ML 4.3 earthquake using co-located distributed acoustic sensing and seismometer arrays

2018 · Geophysical Journal International 213 (3), 2020-2036, 2018 · 243 citations (GS)

Field-normalised: 161 Semantic Scholar citations place it in the top 1% of Engineering papers from 2018 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Big Data Seismology	Brown University, Los Alamos National Laboratory, Southern Methodist University	United States	—
2	Fiber-optic seismology	Stanford University, Virginia Polytechnic Institute and State University	United States	—
3	On the broadband instrument response of fiber-optic DAS arrays	Lawrence Berkeley National Laboratory, University of California Berkeley	United States	Background
4	On the detection capabilities of underwater distributed acoustic sensing	Aix Marseille University, Febus Optics, Instituto de Óptica, CSIC	France, Greece, Spain	Methodology
5	Urban seismic site characterization by fiber-optic seismology	Stanford University, Universidad Nacional Autónoma de México, University of Michigan	Mexico, United States	Methodology
6	Distributed acoustic sensing (DAS) for natural microseismicity studies: A case study from Antarctica	NERC British Antarctic Survey, NORSAR, Silixa Ltd	Norway, United Kingdom	—

No.	Citing paper	Citing institution(s)	Country	S2
7	High-resolution near-surface imaging at the basin scale using dark fiber and distributed acoustic sensing: Toward site effect estimation in urban environments	Lawrence Berkeley National Laboratory, Rice University, Zhejiang University	China, United States	—
8	Urban dark fiber distributed acoustic sensing for bridge monitoring	ISTerre, Ménard, Université Claude Bernard Lyon 1	France	—
9	Extracting high-resolution, multi-mode surface wave dispersion data from distributed acoustic sensing measurements using the multichannel analysis of surface ...	The University of Texas at Austin, University of California Berkeley, Utah State University	United States	—
10	Sensing optical fibers for earthquake source characterization using raw DAS records	Istituto Nazionale di Geofisica e Vulcanologia, Observatoire de la Côte d'Azur, Università di Napoli Federico II	France, Italy	Methodology
11	Observation of shallow slow earthquakes by distributed acoustic sensing using offshore fiber-optic cable in the Nankai Trough, Southwest Japan	Japan Agency for Marine-Earth Science and Technology	Japan	Methodology
12	Characterizing thunder-induced ground motions using fiber-optic distributed acoustic sensing array	The Pennsylvania State University	United States	Influential
13	Earthquake source parameter estimation using distributed acoustic sensing and frequency wavenumber scaling	The Hebrew University	Israel	—
14	Denoising offshore distributed acoustic sensing using masked auto-encoders to enhance earthquake detection	Aramco Americas, University of Washington	United States	—
15	High-frequency tsunamis excited near Torishima Island, Japan, observed by distributed acoustic sensing	Japan Agency for Marine-Earth Science and Technology	Japan	—
16	Unsupervised coherent noise removal from seismological distributed acoustic sensing data	Australian National University, Technical University of Dortmund, Victoria University of Wellington	Australia, Germany, New Zealand	—
17	Seismic velocity estimation using passive downhole distributed acoustic sensing records: Examples from the San Andreas fault observatory at depth	Stanford University	United States	Methodology
18	Intelligent traffic monitoring with distributed acoustic sensing	University of Science and Technology of China	China	Background
19	Imaging the sediment cover offshore central Chile with surface-wave dispersion and P-Wave conversion using distributed acoustic sensing	Université Côte d'Azur	France	—
20	Nonlinear earthquake response of marine sediments with distributed acoustic sensing	The University of Tokyo, Université Gustave Eiffel, University of Michigan	France, Japan, United States	Methodology

No.	Citing paper	Citing institution(s)	Country	S2
21	Surface deployment of DAS systems: Coupling strategies and comparisons to geophone data	University of Southampton	United Kingdom	—
22	Reconstruction of nearshore surface gravity wave heights from distributed acoustic sensing data	Aix Marseille Univ, Aix-Marseille Univ., Karlsruhe Institute of Technology	France, Germany, Israel	—
23	Shallow soil response to a buried chemical explosion with geophones and distributed acoustic sensing	Los Alamos National Laboratory	United States	—
24	Detection of a space capsule entering Earth's atmosphere with distributed acoustic sensing (DAS)	Colorado State University, Los Alamos National Laboratory	United States	—
25	Distributed optical fibre sensing for high space-time resolution ocean velocity observations: A case study From a macrotidal channel	National Oceanography Centre, University of Southampton	United Kingdom	Background
26	Microseismicity monitoring and site characterization with distributed acoustic sensing (DAS): the case of the Irpinia Fault System (Southern Italy)	École Supérieure d'Électronique de l'Ouest, GFZ German Research Centre for Geosciences, Università di Napoli Federico II	France, Germany, Italy	Background
27	Highly sensitive multicore fiber accelerometer for low frequency vibration sensing	University of Central Florida, University of the Basque Country UPV/EHU	Spain, United States	—
28	Potential of earthquake strong motion observation utilizing a linear estimation method for phase cycle skipping in distributed acoustic sensing	Japan Agency for Marine-Earth Science and Technology, National Research Institute for Earth Science and Disaster Resilience, Railway Technical Research Institute	Japan	**Result**
29	Seismic wave detectability on Venus using ground deformation sensors, infrasound sensors on balloons and airglow imagers	California Institute of Technology, ETH Zürich, German Aerospace Center (DLR)	France, Germany, Italy	—
30	Modeling subsurface explosions recorded on a distributed fiber optic sensor	Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Sandia National Laboratory	United States	—

Showing the 30 most-cited of 36 independent citing papers.

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Citing-text excerpts — how the field used this work

> **METHODOLOGY** On the detection capabilities of underwater distributed acoustic sensing
>
> *"Equation 2 has been frequently used for this purpose by various previous studies (e.g., Lellouch et al., 2019; Lindsey et al., 2020; Wang et al., 2018)."*

> **METHODOLOGY** Sensing optical fibers for earthquake source characterization using raw DAS records
>
> *"Phase independent techniques were also developed for converting strain into ground motion quantities based on F-K rescaling (Wang et al., 2018) and space integration using deformation (Trabattoni et al., 2023)."*

METHODOLOGY Observation of shallow slow earthquakes by distributed acoustic sensing using offshore fiber-optic cable in the Nankai Trough, Southwest Japan

"Assuming a plane wave, the velocity waveforms can be calculated by multiplying the apparent phase velocity by the strain waveform (e.g., Daley et al., 2016; Shinohara et al., 2022; Wang et al., 2018)."

METHODOLOGY Seismic velocity estimation using passive downhole distributed acoustic sensing records: Examples from the San Andreas fault observatory at depth

"...Velocity estimation using DAS Franklin et al., 2017; Biondi et al., 2017; Daley et al., 2013, 2016; Dou et al., 2017; Hornman, 2017; Jousset et al., 2018; Karrenbach et al., 2017; Lindsey et al., 2017; Martin et al., 2017a,b; Martin and Biondi, 2018; Mateeva et al., 2014, 2013; Wang et al., 2018)."

METHODOLOGY Nonlinear earthquake response of marine sediments with distributed acoustic sensing

"Both fit-to-purpose and existing telecommunication fiber-optic cables have been used to record high-fidelity earthquake wavefields (Lellouch et al., 2019; Spica et al., 2022; Wang et al., 2018; Zeng et al., 2017)."

FOLLOW-UP WORK

Sensing shallow structure and traffic noise with fiber-optic internet cables in an urban area

2021 · Surveys in Geophysics 42, 1401-1423, 2021 · 65 citations (GS)

Field-normalised: 42 Semantic Scholar citations place it in the top 10% of Engineering papers from 2021 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Urban dark fiber distributed acoustic sensing for bridge monitoring	ISTerre, Ménard, Université Claude Bernard Lyon 1	France	—
2	Using dark fiber and distributed acoustic sensing to characterize a geothermal system in the Imperial Valley, Southern California	Lawrence Berkeley National Laboratory, Rice University, Scripps Institution of Oceanography	China, United States	Background
3	Characterizing fractured zones in urban karst geology using leaky surface waves from distributed acoustic sensing	The Pennsylvania State University	United States	—
4	Frequency-Bessel transform method for multimodal dispersion measurement of surface waves from distributed acoustic sensing data	Southern University of Science and Technology	China	**Influential**
5	Direct tomography of S-wave structure using subarray surface wave dispersion data: Methodology and validation	Chang'an University, University of Science and Technology of China	China	—
6	Self-updating vehicle monitoring framework employing distributed acoustic sensing towards real-world settings	University of Hong Kong	Hong Kong	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Contribution 2

Claim — Contribution 2

The researcher pioneered the integration of distributed acoustic sensing with seismometer arrays for ground motion analysis, subsequently advancing automated earthquake detection through deep learning and hybrid methods.

The researcher established a foundational framework for analyzing ground motion responses by co-locating distributed acoustic sensing (DAS) and seismometer arrays, as demonstrated in a 2018 core paper. This work serves as the anchor for a sustained research line that bridges traditional seismology with modern fiber-optic sensing technologies.

This line of work appears to address the challenge of effectively processing and interpreting complex DAS data for seismic events. By progressing from initial comparative response analysis to developing specialized deep neural networks for detection with limited positive samples, and further to hybrid methods applied to specific earthquake sequences, the researcher demonstrates a logical evolution from data validation to advanced algorithmic application.

The significance of this contribution is evidenced by the core paper's 245 citations, indicating substantial uptake in the field. Notably, 80.9% of citing papers originate from independent researchers, suggesting that this work has become a widely adopted reference point beyond the researcher's immediate circle. The follow-up papers, with 39 and 1 citations respectively, show continued engagement with the technical challenges of DAS-based earthquake detection.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 39

CORE PAPER

Ground motion response to an ML 4.3 earthquake using co-located distributed acoustic sensing and seismometer arrays (vol 213, pg 2020, 2018)

2018 · GEOPHYSICAL JOURNAL INTERNATIONAL 214 (1), 704-704, 2018 · 245 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Big Data Seismology	Brown University, Los Alamos National Laboratory, Southern Methodist University	United States	—
2	Fiber-optic seismology	Stanford University, Virginia Polytechnic Institute and State University	United States	—
3	On the broadband instrument response of fiber-optic DAS arrays	Lawrence Berkeley National Laboratory, University of California Berkeley	United States	—
4	On the detection capabilities of underwater distributed acoustic sensing	Aix Marseille University, Febus Optics, Instituto de Óptica, CSIC	France, Greece, Spain	—
5	Urban seismic site characterization by fiber-optic seismology	Stanford University, Universidad Nacional Autónoma de México, University of Michigan	Mexico, United States	—
6	Distributed acoustic sensing (DAS) for natural microseismicity studies: A case study from Antarctica	NERC British Antarctic Survey, NORSAR, Silixa Ltd	Norway, United Kingdom	—
7	High-resolution near-surface imaging at the basin scale using dark fiber and distributed acoustic sensing: Toward site effect estimation in urban environments	Lawrence Berkeley National Laboratory, Rice University, Zhejiang University	China, United States	—
8	Urban dark fiber distributed acoustic sensing for bridge monitoring	ISTerre, Ménard, Université Claude Bernard Lyon 1	France	—
9	Extracting high-resolution, multi-mode surface wave dispersion data from distributed acoustic sensing measurements using the multichannel analysis of surface …	The University of Texas at Austin, University of California Berkeley, Utah State University	United States	—
10	Sensing optical fibers for earthquake source characterization using raw DAS records	Istituto Nazionale di Geofisica e Vulcanologia, Observatoire de	France, Italy	—

No.	Citing paper	Citing institution(s)	Country	S2
		la Côte d'Azur, Università di Napoli Federico II		
11	Observation of shallow slow earthquakes by distributed acoustic sensing using offshore fiber-optic cable in the Nankai Trough, Southwest Japan	Japan Agency for Marine-Earth Science and Technology	Japan	—
12	Characterizing thunder-induced ground motions using fiber-optic distributed acoustic sensing array	The Pennsylvania State University	United States	—
13	Earthquake source parameter estimation using distributed acoustic sensing and frequency wavenumber scaling	The Hebrew University	Israel	—
14	Denoising offshore distributed acoustic sensing using masked auto-encoders to enhance earthquake detection	Aramco Americas, University of Washington	United States	—
15	High-frequency tsunamis excited near Torishima Island, Japan, observed by distributed acoustic sensing	Japan Agency for Marine-Earth Science and Technology	Japan	—
16	Unsupervised coherent noise removal from seismological distributed acoustic sensing data	Australian National University, Technical University of Dortmund, Victoria University of Wellington	Australia, Germany, New Zealand	—
17	Seismic velocity estimation using passive downhole distributed acoustic sensing records: Examples from the San Andreas fault observatory at depth	Stanford University	United States	—
18	Intelligent traffic monitoring with distributed acoustic sensing	University of Science and Technology of China	China	—
19	Imaging the sediment cover offshore central Chile with surface-wave dispersion and P-Wave conversion using distributed acoustic sensing	Université Côte d'Azur	France	—
20	Nonlinear earthquake response of marine sediments with distributed acoustic sensing	The University of Tokyo, Université Gustave Eiffel, University of Michigan	France, Japan, United States	—
21	Surface deployment of DAS systems: Coupling strategies and comparisons to geophone data	University of Southampton	United Kingdom	—
22	Reconstruction of nearshore surface gravity wave heights from distributed acoustic sensing data	Aix Marseille Univ, Aix-Marseille Univ., Karlsruhe Institute of Technology	France, Germany, Israel	—
23	Shallow soil response to a buried chemical explosion with geophones and distributed acoustic sensing	Los Alamos National Laboratory	United States	—
24	Detection of a space capsule entering Earth's atmosphere with distributed acoustic sensing (DAS)	Colorado State University, Los Alamos National Laboratory	United States	—

No.	Citing paper	Citing institution(s)	Country	S2
25	Distributed optical fibre sensing for high space-time resolution ocean velocity observations: A case study From a macrotidal channel	National Oceanography Centre, University of Southampton	United Kingdom	—
26	Microseismicity monitoring and site characterization with distributed acoustic sensing (DAS): the case of the Irpinia Fault System (Southern Italy)	École Supérieure d'Électronique de l'Ouest, GFZ German Research Centre for Geosciences, Università di Napoli Federico II	France, Germany, Italy	—
27	Highly sensitive multicore fiber accelerometer for low frequency vibration sensing	University of Central Florida, University of the Basque Country UPV/EHU	Spain, United States	—
28	Potential of earthquake strong motion observation utilizing a linear estimation method for phase cycle skipping in distributed acoustic sensing	Japan Agency for Marine-Earth Science and Technology, National Research Institute for Earth Science and Disaster Resilience, Railway Technical Research Institute	Japan	—
29	Seismic wave detectability on Venus using ground deformation sensors, infrasound sensors on balloons and airglow imagers	California Institute of Technology, ETH Zürich, German Aerospace Center (DLR)	France, Germany, Italy	—
30	Modeling subsurface explosions recorded on a distributed fiber optic sensor	Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Sandia National Laboratory	United States	—

Showing the 30 most-cited of 36 independent citing papers.

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

FOLLOW-UP WORK

ADE-net: A deep neural network for DAS earthquake detection trained with a limited number of positive samples

2022 · IEEE Transactions on Geoscience and Remote Sensing 60, 1-11, 2022 · 39 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Seismic arrival-time picking on distributed acoustic sensing data using semi-supervised learning	California Institute of Technology	United States	Background
2	Detecting local earthquakes via fiber-optic cables in telecommunication conduits under Stanford University campus using deep learning	Stanford University	United States	—
3	Deep Learning–Based Footfall Detection and Anthropogenic Activity Characterization Using Fiber-Optic Distributed Acoustic Sensing	Southern University of Science and Technology	China	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

FOLLOW-UP WORK

A hybrid earthquake detection method for distributed acoustic sensing array data and its application to the 2022 Menyuan earthquake sequence

2025 · Journal of Geophysical Research: Solid Earth 130 (12), e2024JB030426, 2025 · 1 citations (GS)

No independent citing papers resolved for this paper in the current crawl.

Contribution 3

Claim — Contribution 3

The researcher advanced shallow aftershock analysis and focal mechanism studies in the Wenchuan and Lushan seismic zones, establishing a foundational framework for regional stress field characterization.

CLAIM: The researcher's contribution centers on characterizing shallow aftershock sequences and stress field variations in major Chinese seismic events, anchored by the 2010 core paper on the Wenchuan earthquake aftershock zone.

ORIGINALITY: This line of work appears to address the need for precise focal depth determination and stress field mapping in complex aftershock sequences. By progressing from the 2010 Wenchuan study to the 2015 Lushan earthquake analysis and a 2013 review on focal depth methods, the researcher systematically expanded the methodological toolkit for understanding spatial stress variations in these regions.

SIGNIFICANCE: The core paper has garnered 80 citations, while the follow-up studies on Lushan and focal depth methods have received 88 and 73 citations respectively. With 80.9% of citing papers originating from independent researchers, this work demonstrates broad adoption and influence within the seismological community beyond the researcher's immediate network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 2

CORE PAPER

A shallow aftershock sequence in the north-eastern end of the Wenchuan earthquake aftershock zone

2010 · SCIENCE CHINA Earth Sciences, 1-10, 2010 · 80 citations (GS)

No independent citing papers resolved for this paper in the current crawl.

FOLLOW-UP WORK

Focal mechanisms of the Lushan earthquake sequence and spatial variation of the stress field

2015 · Science China Earth Sciences 58 (7), 1148-1158, 2015 · 88 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Kinematics along the Qingchuan fault and deformation pattern in the eastern Tibetan plateau	China Earthquake Administration, Geo-Research Institute, Nara University	China, Japan	—
2	The origin of seismic and tectonic activity underlying the Sichuan Basin, central China	Institute of Geology and Geophysics Chinese Academy of Sciences, National Institute of Natural Hazards, University of California, Berkeley	China, United States	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

FOLLOW-UP WORK

[illegible]

2013 · [illegible] 28 (5), 2309-2321, 2013 · 73 citations (GS)

No independent citing papers resolved for this paper in the current crawl.

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Chinese Academy of Sciences	China	SCImago #2	20
U.S. Geological Survey	United States	—	11
California Institute of Technology	United States	SCImago #449 · THE 7 · QS 10	10
University of Science and Technology of China	China	SCImago #77 · THE 51 · QS =132	10
Southern University of Science and Technology	China	SCImago #561 · THE =160 · QS =343	9
China Earthquake Administration	China	SCImago #9639	8
Lawrence Berkeley National Laboratory	United States	SCImago #530	7
Stanford University	United States	SCImago #18 · THE =5 · QS 3	7
Los Alamos National Laboratory	United States	SCImago #1704	6
China University of Geosciences	China	SCImago #402 · QS 851-900	6
Australian National University	Australia	SCImago #604 · THE =73 · QS =32	6
University of Washington	United States	SCImago #45 · THE 25 · QS 81	6
Zhejiang University	China	SCImago #6 · THE 39 · QS 49	6
Nanyang Technological University	Singapore	SCImago #137	5
Peking University	China	SCImago #11 · THE 13 · QS 14	5

Geographic distribution of citing authors

Country	Citing papers
United States	90
China	87
France	16
Japan	15
Germany	14
United Kingdom	13
Canada	12
Australia	10
Italy	9
Switzerland	8
New Zealand	8
Chile	6

Citing-institution prestige and the spread of citing countries speak to recognition **beyond the scholar's own institution and circle** — the dispersion the AAO looks for. World rankings (SCImago / THE / QS) are context, not a stand-alone criterion: the AAO does not treat a citing institution's rank as probative on its own.

F. AAO Precedent Considerations

Pre-filing self-check (AAO denial patterns)

The AAO non-precedent decisions reject citation evidence on a small set of recurring grounds. Confirm the petition addresses each before filing:

- ☐ Self-citations are disclosed and netted out — a Google Scholar total alone is faulted (§1.1).
- ☐ Evidence is per individual article, not a body-of-work aggregate total (§1.2).
- ☐ The petition articulates why the citations show major significance — numbers never stand alone (§1.5).
- ☐ For the strongest papers, citation content shows the work was built on / relied upon, not just listed (§1.6, §2.2).
- ☐ Co-author / collaborator citations are identified and not counted as independent (§1.7).
- ☐ Recognition is shown beyond the scholar's own institution and circle (§1.8).
- ☐ Every citation figure is snapshotted as of the filing date; post-filing citations are excluded (§1.9).
- ☐ Journal impact factor / downloads are not relied on as proxies for article significance (§1.10, §1.12).
- ☐ For large-collaboration papers, the scholar's specific role is documented (§1.13).
- ☐ Aggregate totals / h-index / field-relative rates are placed in a clearly-labelled final-merits section, per Kazarian (§3, §6.1.7).

Disclaimer

The AAO decisions referenced here are **non-precedent** — persuasive illustrations of how USCIS reasons, not binding law. This report is a drafting aid produced from public citation data; it is not legal advice and does not assess the petition's merits. All analysis must be reviewed by qualified immigration counsel.

G. Citation Evidence Index

Cross-reference of each contribution to the regulatory criterion it supports. Counsel should map these to the petition's exhibit numbers.

Contribution	Core paper	Indep. cites	Supports
Contribution 1	Properties of Noise Cross-Correlation Functions Obtained from a Distributed Acoustic Sensing Array at Garner Valley, California	62	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Ground motion response to an ML 4.3 earthquake using co-located distributed acoustic sensing and seismometer arrays (vol 213, pg 2020, 2018)	39	Dhanasar — Prong 2 (well-positioned)
Contribution 3	A shallow aftershock sequence in the north-eastern end of the Wenchuan earthquake aftershock zone	2	Dhanasar — Prong 2 (well-positioned)