

## INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

### BIOGRAPHY

**Prof. D. Shanker** is presently a **Professor** of Engineering Seismology in the Department of Earthquake Engineering, Indian Institute of Technology Roorkee, India. After serving for more than 10 years in different institutions as Lecturer as well as Research Associate, he joined the University of Roorkee (presently IIT Roorkee) in year 1996 as Lecturer; Assistant Professor (1999), Associate Professor (2018) and Professor (2023). He has so far supervised **Five PhD thesis (+04 supervising)** and **Twenty-four M. Tech thesis**. His research publications numbering more than **187** in International and National Journal of their repute as well as Conferences, have covered various field of earthquake seismology, seismic hazard and risk assessment, earthquake prediction, seismic microzonation and landslide hazard zonation, geophysical and geochemical earthquake precursor search for long term prediction and statistical seismology & earthquake engineering and Tsunami damage investigations and having more than **652 scientific citations**. As an active consultant and researcher, he has made a great contribution in teaching to **PG** and **UG** Science and engineering students. Having, more than two decades of research and teaching experience, he has served as scientific reviewer of dozens of international and national research Journals and editor International Journal "Geosciences" and "Frontiers in Geosciences". He has participated various international and national training program and meetings. He has also completed several research projects and consultancies. Dr. Shanker is a member of several national and international committees and life member of different scientific societies and has travelled (**48-Foreign visits**) widely to deliver invited and technical talks and chair scientific session in international seminars and conferences. He is ex-executive member of Indian Society of Earthquake Technology (ISET) up to 2022. Besides academics, he has been made a excellent contribution in extracurricular activities and administrative skill as well, like Ex-Staff Adviser Rowing Game, IIT Roorkee, Ex-Associate Manager and Ex-Treasurer of the Adarsh Bal Niketan (ABN) Senior Secondary School, IIT Roorkee, Ex-Faculty Search Committee Member Department of Earth Sciences, IIT Roorkee and presently, member of Executive committee Society for Promotion of Soil Dynamics in India. He has visited more than 38 countries and some of them several times (48-visits) on mission to imbibe technological know-how and utilized them in the scientific program in India.



Dr. Daya shanker  
Professor  
Of  
Engineering  
Seismology

Department  
Of  
Earthquake  
Engineering  
IIT Roorkee, India

# CURRICULUM VITAE

**Name:** Prof. DAYA SHANKER

**Nationality:** Indian

**Born:** 29 May 1962

**Profession:** Professor

**Mailing Address:**

**Department of Earthquake Engineering  
Indian Institute of Technology Roorkee**  
(Formerly University of Roorkee),  
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Mobile: +91-09412955795/7906853500

**Education:** **B. Sc. In Physics (Hons) Ist Div** – Banaras Hindu University Varanasi, India; **1982**  
**M.Sc.Tech. In Geophysics - Ist Div** - Department of Geophysics, Banaras Hindu University, Varanasi, **1986**  
**Ph.D. in Geophysics (Seismology)** - Department of Geophysics, Banaras Hindu University, Varanasi, **1991**

**Languages:** English, Hindi

**Former career:** **Junior Research fellow** in Seismology; Council of Scientific & Industrial Research in Department of Geophysics, Banaras Hindu University, Varanasi, (1988–1990)  
**Senior Research fellow** in Seismology; Council of Scientific Industrial & Research in the Department of Geophysics, Banaras Hindu University, Varanasi, (1990–1992)  
**Lecturer (ad-hoc)** in Geophysics, Department of Physics, Guru Nanak Dev University Amritsar, Punjab (Jan. 1992– June 1992)  
**Research Associate** in Seismology (University Grant Commission), Banaras Hindu University, Varanasi, (1993–1996)  
**Senior Lecturer** in Engineering Seismology, Department of Earthquake Engineering, University of Roorkee, Roorkee (1996-1999)  
**Senior Assistant Professor** in Engineering Seismology, Department of Earthquake Engineering, Indian Institute of Technology Roorkee, Roorkee (1999– Dec 21, 2018)  
**Associate Professor** in Engg. Seismology, Department of Earthquake Engineering, Indian Institute of Technology Roorkee, Roorkee (Dec 22, 2018-Oct 09, 2023)

**Present position:** **Professor** in Engg. Seismology, Department of Earthquake Engineering, Indian Institute of Technology Roorkee, Roorkee (**Oct 10, 2023– present**)

**Field experience:** Participation in several field experiments concerning seismotectonic studies and studies of earthquake sequences, Survey of Gravity and Magnetic field data collection, Tsunami damage survey.

**Teaching and Research experience:** About **Twenty-Seven years** of research and teaching experience in the following subject-field:

*Undergraduate Level:*

**Engineering Seismology & Seismotectonics**, to B.Tech Engineering students of IIT Roorkee.

**Solid Mechanics** to B.Tech Engineering students of IIT Roorkee.

**Understanding Earthquake Disaster** to B.Tech Engineering students of IIT Roorkee

*Postgraduate level:*

**General Geophysics**; to postgraduate (M Sc.Tech) student of geophysics, Banaras Hindu University Varanasi;

**Solid earth geophysics** to postgraduate (M Sc) student of geophysics of the Department of Physics, Guru Nanak Dev University Amritsar, Punjab.

**Engineering Application of geophysical techniques**;

**Seismotectonics** and

**Engineering Seismology & Seismotectonics** to postgraduate (M. Tech) students of the Earthquake Engineering, IIT Roorkee.

**Engineering Seismology & Seismotectonics** to Graduate (B.Tech) students of the Earthquake Engineering, IIT Roorkee.

**Administrative Experience:**

- Associated as paper setter, passing board examiner, conducting practical examinations, evaluation of project work, viva-voce and valuation of answer books as an External Examiner for the Ph.D Thesis and M.Sc.Tech. (Geophysics) degree course of Banaras Hindu University, Varanasi. Involved in conduct of Entrance examination for B.Tech and M.Tech and evaluation of answer scripts.
- **Ex-Faculty Search Committee Member** for Earth Science Department, Indian Institute of Technology Roorkee
- **Ex-Staff Advisor- Rowing**, Institute Rowing Team, IIT Roorkee
- **Office Incharge-** Departmental Guest faculty/foreign visitors
- **Office Incharge-** Store, Department of Earthquake Engineering
- **Ex-Associate Manager-** Adarsh Bal Niketan, Senior Secondary School, Central Board of Secondary Education, Indian Institute of Technology Roorkee, India
- **Ex- Treasurer-** Adarsh Bal Niketan, Senior Secondary School, Central Board of Secondary Education, Indian Institute of Technology Roorkee, India

**Member of Professional societies:**

- Individual member (2023-2026) of Asian Seismological Commission (ASC)
- Member of Resolution Committee of IUGG2023, Berlin, Germany
- Executive member committee Society for Promotion of Soil Dynamics in India
- Executive member committee Indian Society of Earthquake Technology (ISET)
- Life Member Indian Society of Earthquake Technology (ISET)
- Life member Indian Society for Rock Machenics & Tunneling Technology
- Life member, Hindi, Vigyan Sahitya Parisad
- Life member Indian Society of Earthquake Science (ISES)
- Fellow Member of Society of Earth Scientists (SES)
- Member International Geo-hazard Research Society Germany (IGRS)
- Ex-Members (and India's representative) of initiative team GEOCHANGE International Committee
- Ex-Member GEOCHANGE International Committee on issues of Global Changes of the Geological Environment, United Kingdom (U.K.)

- Ex-Executive member Indian Society for Rock Mechanics & Tunneling Technology
- Member, Association of Exploration Geophysicists
- Honorary; Member, Geological Association & Research Centre
- Member, Indian Science News Association
- Member Society for Promotion of Soil Dynamics in India (SPSD)
- Ex-Member of IDRC Davos 2016 Scientific and Technical Advisory Group.

### **Research activities**

1. Characteristics of seismicity and seismotectonics of Assam and adjoining region
2. Evaluation of Seismic hazard in Uttarakhand
3. Pseudo-Static Analysis of A Strip Footing Using Constitutive Laws of Soil
4. Interference between two Adjacent Footings Located in Seismic Region
5. Seismic Hazard in National Capital Region (NCR) of Delhi
6. Seismic Hazard in Hindu-Kush-Pamir Himalayas using IMS Networks
7. Long-term earthquake prediction in the Himalayas and its vicinity on the basis of seismicity and probabilistic models.
8. Hydro tremors studies in northern India
9. Studies of seismic sequences
10. Seismicity and Seismotectonics of the Northeast India.
11. Fault plane solutions and stress patterns.
12. Tectonic synthesis of gravity and magnetic field data
13. Time dependent seismicity by the application of the Time Predictable Model.
14. Identification of precursory swarm and earthquake prediction in Himalayan belt
15. Unstable Mantle, Petrologic modeling and earthquake occurrences
16. Prediction of ground motion and Seismic microzonation
17. Identification of radioactive zones using insitu radiation observations
18. Stress evolution by the use of Coulomb Failure Function changes
19. Tsunami Survey and Seismological and Geotechnical damage studies in Andaman & Nicobars
20. Databases on occurrence patterns of Unusual Geological Incidents in Kerala State
21. Site specific shaking hazard
22. Earthquake induced landslide hazard zonation in Himalayan region
23. Induced seismicity and Earthquake control

### **Details of PhD/ME/M. Tech Thesis Supervised**

#### **I- Ph.D Thesis –Supervised on the topic:**

- (i) Seismotectonic Modeling of NW-Himalaya: A Perspective on Future Seismic Hazard (2009)
- (ii) Identification of anomalous seismicity patterns in Northeast India Himalaya and its adjoining regions (2012)
- (iii) Investigations on Site Response in Selected Sites in South Central Kerala Using Ground Shaking Site Response Data (2012)
- (iv) Pseudo-Static Analysis of A Strip Footing Using Constitutive Laws of Soil (2017)
- (v) 3-D Finite element modeling of Indian tectonic plate to investigate the intraplate stress and deformation (2023)

#### **II- Ph.D Thesis –Under supervision on the topic**

- (vi) Tsunami Hazard Study of The Indian Ocean and Strategies For Tsunami Mitigation
- (vii) Characterization and Seismotectonic Zoning of the parts of Lesser Himalaya for Seismic Hazard Assessment
- (viii) Seismically Induced Landslide Hazard Analysis Based on PSHA for North-East India
- (ix) Seismic Zonation and Earthquake Hazard Variability in N-E India and Vicinity

#### **III- M.E/M.Tech. Thesis – Supervised on the topics:**

1. Estimation of Earthquake Hazard in Andaman & Nicobar and its Vicinity (2000)

2. Development of Time- and - Magnitude- Predictable Model for Indian Region (2003)
3. Application of Earthquake Prediction Algorithms (M8 & M.Sc) for Specific Sites (2004)
4. Seismic Hazard Assessment of Koyna Region (2013)
5. Seismic Hazard Assessment of Kangra Region (2013)
6. Landslide hazard zonation of Nainital region in Himalaya (2015)
7. Seismic Hazard Assessment (2016)
8. Seismic Bearing Capacity of Strip Footing on Reinforced soil subjected to eccentric inclined load (2016)
9. Interference between two Adjacent Footings Located in Seismic Region (2017)
10. Estimation of Seismic Hazard Using PSHA for National Capital Region (NCR) of India (2017)
11. Time and Magnitude dependent Earthquake prediction model for Central Himalaya (2017)
12. Study of b-value precursor anomaly for the Northern Himalaya (Uttarakhand) (2017)
13. Scaling relation of seismic waves energy in terms of Magnitude, Distance and Site condition (2018)
14. Seismic Hazard Assessment of Himachal Pradesh & Uttarakhand (2018)
15. Seismic Hazard, Vulnerability and Risk Analysis for the Roorkee City and Its Vicinity (2018)
16. Seismic Hazard Assessment for National Capital Region of Delhi (2018)
17. Seismic Zoning Via Deterministic Uniform Hazard Response Spectral Amplitude (2018)
18. Estimation of Source parameters of Local Earthquakes in the Environs of Tehri Dam Site (2019)
19. Estimation of Seismic Hazard Parameters for Uttarakhand Region (2019)
20. Evaluation of Earthquake Hazard Potential of Andaman region, India (2019)
21. Conditional probabilities of earthquake recurrence along MCT, Central Himalayas using different probabilistic models (2020)
22. Probabilistic Seismic Hazard Assessment in Western Himalaya (2021)
23. Characteristics of Seismicity, Tectonics and Seismic Hazard Assessment of Assam (working)

**Area of current research interest:**

Engineering Seismology and Seismotectonics  
 Seismic hazard and Earthquake prediction  
 Earthquake Disaster Management  
 Prediction of Ground Motion studies  
 Exploration Seismology  
 Applied Geophysics  
 Theoretical seismology  
 Geophysical application in Civil Engineering and tunneling Technology  
 Earthquake Induced Landslide Zonation  
 Induced seismicity and Earthquake Control  
 Marine geophysics/Prediction of Tsunami hazard and Resilience  
 Soil and rock mechanics  
 Geotechnical Earthquake Engineering

**Invited Special Lectures delivered:**

1. Managing Earthquake Hazard and Risk in Himalaya-paradigm to Earthquake control
2. Seismic Cycle and occurrences of Large earthquake
3. Earthquake generation Process and forecast in Himalayas and vicinity
4. Anomalous Radioactive Zones in Southern Tamil Nadu, India and its effect on habitat and environment
5. Occurrence probability and earthquake forecast in Hindukush-Pamir-Himalaya and Vicinity

6. Precursory swarm identification and prediction of earthquake hazard in Hindukush-Pamir Himalaya
7. Petrologic model for generation of medium size earthquake in Deccan Trap, India
8. Application of geophysics in Tunnelling and site survey activities
9. Damage due to devastating earthquake and tsunami of December 26, 2004 in Andaman and Nicobar, India-A perspective
10. Role of insitu stress in rock and implications to earthquake triggering
11. Application of probabilistic model to estimate earthquake hazard in Himalayas
12. Earthquake induced landslide hazard determination and associated construction in Himachayan region.
13. Long-term earthquake hazard prediction in Himalaya
14. Role of Tibetan plateau and tectonic activity along Bengal basin
15. Earthquake instrumentation and monitoring
16. Estimation of seismic risk using Guembel's Extreme value method
17. Seismotectonic of Himalaya-an overview
18. Introduction to Engineering Seismology and Earthquake Engineering

### **Public Lectures delivered:**

1. "Earthquake & its Horror" in Career Counselling Program 06<sup>th</sup> Feb, 2016, Shivalik Ganges Public School, Khanpur Road Bhagwanpur, Haridwar Uttarakhand

### **Award/Scholarship :**

Indian Society for Rock Mechanics & Tunneling Technology (ISRMTT) - Best paper award- 2011

INSA Visiting Scientists, 2001-2002.

Japanese Govt. Scholarship, 1997.

Japanese Govt. Scholarship, 1996.

Turkish Govt. Scholarships, 1994-95.

Research Associateship, from University Grant Commission(UGC), New Delhi, 1993-1996

Senior Research fellowship, Council of Scientific and Industrial Research (CSIR), New Delhi, 1990-93.

Junior Research fellowship, Council of Scientific and Industrial Research (CSIR), New Delhi, 1988-90

Studentship, University Grant Commission, 1986

National Merit Scholarship, 1977 - 82

### **Academic Achievements**

(A) **Editor –Earthquake science and Engineering**

(B) **Editor -Geosciences** (Scientific & Academic Publishing); Website:  
<http://journal.sapub.org/geo>

(C)

(D) **Editor -Frontiers in Geosciences (FG)**

(E) **Ex-Editor e-journal of ISES** (Indian Society of Earthquake Science)

(F) **Ex-Editorial Board Member**

1. Journal ---- Intelligence Information Management

2. Book (Proceedings-Editor) ---- Seismic Hazard Analysis and Microzonation, **2005**,  
**Page**  
**1-465.**

(G) **Organizing Committee Member:**

1. Organizing Committee member: 2<sup>nd</sup> Eurasian Risk conference, 12-19 April, 2020, Tbilisi Georgia.

2. Member of Scientific and Technical Advisory Group IDRC Davos-2014
3. International Scientific Committee Member, IDRC, Davos Switzerland 30 May-03 June, 2010
4. Member of An International Conference —Earthquake forecasting: new technologies and results of their application Ankara, Turkey, fall of 2011
5. Organizing Committee Member International Symposium —Global changes of geological medium: scale of natural cataclysms and possible actions to reduce negative consequences, Fall 2010
6. Member Organizing Committee 14th Symposium on —Earthquake Engineering & Golden Jubilee Celebration, 17-19 December, 2010 IIT Roorkee, India.
7. National Advisory Committee Member-- International Conference on Innovative World of Structural Engineering (ICIWSE-2010), 17-19 September, 2010, Aurangabad, India

**(D) Peer reviewer of many Journals and projects:**

1. Research Paper - Asian Journal of Soil Science and Plant Nutrition
2. Research Paper – Journal of Natural Hazards (2023)
3. Research Paper – Journal of Natural Hazards (2022)
4. Research Paper – Indian Geotechnical Journal (2022)
5. Research Paper – Journal Acta Geodaetica et Geophysica (2022)
6. Research Paper – Journal of Geophysics and Engineering (2021)
7. Research Paper – Journal Results in Geophysical Sciences (2021)
8. Research Paper – Journal Acta Geophysica (2021)
9. Research Paper – Journal of Natural Hazards (2021)
10. Research Paper – Journal of Natural Hazards (2020)
11. Research Paper – Journal of Geoscience Letters (2018)
12. Research Paper – Pure and Applied Geophysics (2018)
13. Research Project-Ministry of Earth Sciences (MOES) (2018)
14. Research Paper – Journal of Geoscience (2018)
15. Research Paper – Journal of Asian Earth Science (2018)
16. Research Paper – Indian Geotechnical Journal (2017)
17. Research Paper – Journal of Geological Society of India (2017)
18. Research Paper – Journal of Geoscience (2017)
19. Research Paper – Journal of Geological Society of India (2017)
20. Research Paper – Journal of Geoscience (2017)
21. Research Paper – Journal of Earth System Sciences (2016)
22. Research Paper – Geosciences"from Scientific & Academic Publishing, USA (2015).
23. Research Paper – Frontiers in Geosciences (FG) 2014
24. Research Paper – Horizon Research Publishing, USA (HRPUB) (2014)
25. Research Paper – Journal of Geoscience (2014)
26. Research Paper – Journal of frontiers in Geoscience (2013)
27. Research Paper – Journal of Geoscience (2013)
28. Research Paper – Journal of frontiers in Geoscience (2013)
29. Research Paper – Journal of Geoscience (2013)
30. Research Paper – Journal of Natural Hazards (2012)
31. Research Paper – Journal of Geological Society of India (2012)
32. Research Paper – Journal of Earth System Science (2012)
33. Research Paper – Indian Journal of Pure & Applied Physics (2012)
34. Research Paper – Journal of Geological Society of India (2011)
35. Research Paper – Journal of Asian Earth Science (2011)
36. Research Paper – Journal of Atmospheric and Solar-Terrestrial Physics (2011)
37. Research Paper – Journal of Natural Hazards and Earth System Sciences (2010)
38. Research Paper – Journal of Natural Hazards and Earth System Sciences (2010)
39. Research Paper – Journal of Natural Hazards and Earth System Sciences (2010)
40. Research Paper – Journal of Natural Hazards and Earth System Sciences (2010)
41. Research Paper – Journal of Hazardous materials (2010)

42. Research Paper (Abstracts)----3rd International Disaster and Risk Conference from 30 May - 3 June, Davos, Switzerland (2010)
43. Research Paper – Journal of Natural Hazards and Earth System Sciences (2009)
44. Research Paper – Journal of Natural Hazards and Earth System Sciences (2009)
45. Research Paper – The Open Civil Engineering Journal (2009)
46. Research Paper – ISET Journal of Earthquake Technology (2009)
47. Research Paper – International Journal of Physical Sciences (2009)
48. Research Paper – Tectonophysics (2009)
49. Research Paper – Current Sciences Journal (2008)
50. Research Paper – Pure and Applied Geophysics (2008)
51. Research Paper – Journal of Applied Geophysics (2008)
52. Research Paper – Journal of Earthquake Engineering (2008)
53. Research Paper – Journal of Earth System Science (2008)
54. Research paper – Journal of hydrological process (2008)
55. Research Paper – Tectonophysics (2008)
56. Research Paper – Current Sciences Journal (2008)
57. Research Paper – Journal of Geoscience (2007)
58. Research Paper – Journal of Natural Hazards and Earth System Sciences (2007)
59. Research Paper – Nonlinear Dynamics(2006)
60. Research Paper --ICFAI Journal Of Earth Sciences (2006)
61. Research Paper – Natural Hazard (2005)
62. Research Paper – Tectonophysics (2004)
63. Research Paper – Tectonophysics (2003)
64. Research Paper – Tectonophysics (2002)
65. Research Paper – Geological Society of Canada, Pergamon (2000)
66. Research Paper - An International Journal Computers and Geosciences (1999),
67. Research Project – Department of science and Technology, New Delhi

**(E) PhD Thesis Examined:**

1. Dr. B.R. Ambedkar University, Agra **(2013)** - Study of charge storage and transport mechanism in ion beam irradiated nanocrystalline organic solids.
2. Dr. B.R. Ambedkar University, Agra **(2012)** – Study of Defects-Induced melting of Solids.
3. Osmania **University**, Hyderabad/**NGRI (2009)** – Study of Isostatic and Geoidal Anomalies over Plateau Region of Western and Central India.
4. Barkatullah **Vishwavidyalaya**, Bhopal **(2006)** – Study of Precursory effects of Earthquakes by monitoring ULF/ELF Waves: Observational Analysis
5. Osmania **University**, Hyderabad /**NGRI (2005)** – Pore fluid pressure changes and triggered earthquakes in the Koyna-Warna region, India.

**(F) Distinctions/Recognitions:**

1. Citation Index-more than 652
2. Research Board of Advisors -1999, Honorary Appoinment by the American Biographical Institute (ABI), U.S.A.
3. Contemporary Who's Who 2002/2003 by ABI, USA.
4. Consulting Editor of the Contemporary Who's Who by ABI, USA
5. Complimentary Certificate of Recognition - Marquis Who's Who in Science and Engineering USA.

**(G) Organizing Secretary/Convenor/Chaired Session in International Conferences and symposium**



1. Chaired Session -“28th General Assembly of the International Union of Geodesy and Geophysics (IUGG 2023)” at the City Cube Berlin, GERMANY, 11-20 July 2023 on the Session “Recent Devastating earthquakes including Feb 06, 2023 Turkey Sequence.
2. Chaired Session -17th Symposium on Earthquake Engineering, Nov 14-17, 2022, Department of Earthquake Engineering, Indian Institute of Technology Roorkee.
3. Convenor: 36<sup>th</sup> International Geological Congress (IGC2020), 2-8 March, 2021, New Delhi, India
4. Chaired Session-Regional Cooperation in Seismo-geodesy: An Asian Seismological Commission, Chengdu, China, 12-14, May 2018
5. Chaired Session-Assessment and Mitigation of Liquefaction hazards for seismic Microzonation, Nov. 27-28, 2015, IIT Roorkee India
6. Member of Scientific and Technical Advisory Group IDRC Davos-2014
7. Chaired Session “Earthquake Forecast and Prediction” in 7<sup>th</sup> General Assembly & Asian Seismological Commission & SSJ Meeting, **Tsukuba Japan**, 24-28 November **2008**.
8. Co-Organizing Secretary of “Symposium on seismic Hazard Analysis and Microzonation SYSHAM), September 23-24, **2005**, Department of Earthquake Engineering, IIT Roorkee, India
9. Chaired Session “23rd National Convention of Civil Engineers” Jabalpur, India, **2007**
10. Chaired Session “Strong Ground Motion, Earthquake Hazard and Risk” IASPEI-**2006**
11. Co-Convenor in Session “Tsunamis in the European Mediterranean Region and the Sumatra Earthquake and Tsunami in the Indian Ocean” 1st European Conference on Earthquake Engineering and Seismology (ECEES), Geneva, Switzerland September 3-8, **2006**.

**(F) Chapters in Books (International/National Publishers)**

1. **Book Title** *Tunnelling in weak rocks” Elsevier Geoengineering Book series Publication (2006), page 1-489*  
**Chapter** —Application of geophysics in tunneling and site survey activities.
2. **Book Title** *Technology Application for Earthquake Disaster management* Icfai University Publication (2008), *Page 1-201*  
**Chapter** —Spurt of Geosignatures Signifying Possible Precursor to a Major Earthquake in Southwestern Indian Peninsula
3. Bahuguna, A., & Shanker, D. (2022), 3D Finite Element Application of Elastoplastic Constitutive Model for Intact Rock. In: Barla, M., Di Donna, A., Sterpi, D., Insana, A. (eds.) *Challenges and Innovations in Geomechanics. IACMAG 2022. Lecture Notes in Civil Engineering*, vol. 288 pp52-62. Springer, Cham.  
[https://doi.org/10.1007/978-3-031-12851-6\\_7](https://doi.org/10.1007/978-3-031-12851-6_7).
4. Nazeel Sabah and Daya Shanker (2022), Are Strong Aftershocks Always Triggered by a Positive Coulomb Stress Change? : A Case Study of the 2018 Indonesia (Sulawesi) MW 7.5 Tsunamigenic Earthquake, *5th World Congress on Disaster Management: Volume II*, Routledge Vol.2 (E Book ISBN: 9781003341932)

**Academic Visits Abroad**

1. Country visited - **Russia**; University/Institute - **Altai Gorno**; Purpose ----- Conference); Duration-----28 Sept – 30 Sept, 2023

2. Country visited- **Berlin, Germany**; University/Institute - CityCube Berlin; Purpose -----Conference IUGG-23); Duration-----11 July - 20 July, 2023
3. Country visited- **Nara, Japan** ; University/Institute - Nara Kasugano International Forum I-RA-KA; Purpose -----Intrenational Workshop Slow-to-fast eq2022); Duration-----14 - 18 September, 2022.
4. Country visited- **Bucharest, Romania** ; University/Institute - Technical University of Bucharest; Purpose -----Intrenational Conference 3ECEES & 38ESC; Duration-----04 - 09 Sept, 2022.
5. Country visited- **Dhaka, Bangladesh** ; University/Institute - Dhaka University; Purpose -----Intrenational Conference ICEEST2020; Duration-----25 - 30 January, 2020
6. Country visited- **Japan, Sendai** ; University/Institute - Tohoku University; Purpose ---- -Intrenational Workshop SLOWEQ2019); Duration-----21 - 23 September, 2019
7. Country visited- **Japan, Tokyo Hakone**; University/Institute - Institute of Statistical Mathematics Tichikawa Tokyo; Purpose ---- -International workshop StatSei11-2019); Duration-----18 July - 21 August, 2019
8. Country visited- **Canada, Montreal**; University/Institute - Congress CenterMontral; Purpose ---- -Conference IUGG-19); Duration-----8 July - 18 July, 2019
9. Country visited- **Vienna Austria**; University/Institute - Hofburg Palace, Austria; Purpose ---- - Conference CTBTO (SnT2019); Year 24-28 ---- June, 2019.
10. Country visited—**Fukuoka, Japan**, Universicity/Institute- Across Fukuoka. Japan; Purpose-- Workshop on Slow Earthquake 2018; Duration-----20-23 Sept. 2018
11. Country visited –**Almaty, Kazakhstan**; University/Institute – Kazakhstan National Data Center Purpose ---- - Xth Internation Conference Monitoring of Nuclear test and their consequences; Year 06-10 ---- August, 2018
12. Country visited –**Chengdu China**; University/Institute – Sichuan China; Purpose ---- - 4<sup>th</sup> ICCE Conference; Year 12-14 ---- May, 2018
13. Country visited –**Oklahoma, Norman, USA**; University/Institute – University of Oklahoma ; Purpose ---- - DISCO workshop; Year 03-05 ---- May, 2018
14. Country visited –**Vienna Austria**; University/Institute - Hofburg Palace, Austria ; Purpose ---- - Conference CTBTO (SnT2017); Year 26-30 ---- June, 2017
15. Country visited – **New York USA**, Lamont-Doherty Earth Observatory, Columbia University; Purpose ---- -workshop; SEISMS-17; Duration-----29-31 March. 2017
16. Country visited – **Santiago, Chile**; Purpose ---- -Conference; WCEE-17; Duration-----09-13 Jan. 2017.
17. Country visited – **Beijing, China**; University/Institute- Beijing University Purpose ---- - CTBTO S2S Workshop; Duration-----26-28 Oct. 2016
18. Country visited –**Tokyo, Japan**; University/Institute- ERI, Tokyo University Purpose ---- -Workshop on Slow Earthquake 2016; Duration-----13-15 Sept. 2016
19. Country visited –**Nagoya, Japan**; University/Institute- Nagoya University Purpose ---- -Workshop on Slow Earthquake 2015; Duration-----24-26 Sept. 2015
20. Country visited –**Czech Republic, Prague**; University/Institute Czech Congress Center Prague; Purpose ---- -Conference IUGG-15); Duration-----22 June - 02 July, **2015**.
21. Country visited –**Vienna Austria**; University/Institute - *Hofburg Palace, Austria* ; Purpose ---- - Conference **CTBTO (SnT2015)**; Year 22-26 ---- June, **2015**
22. Country visited –**Manila Philippines**; University/Institute: Dusit Thani, Makati ; Purpose ---- - General Assembly & Asian Seismological Commission (ASC-14).; Duration-----01 Week; Year-----17-20 July, 2014
23. Country visited –**Gothenburg Sweden**; University/Institute *Gothenburg Convention Center* ; Purpose ---- -Conference **IASH-IAPSO-IASPEI-2013**.; Duration-----01 Week; Year-----22-26 July, **2013**
24. Country visited –**Vienna Austria**; University/Institute *Hofburg Palace, Austria* ; Purpose ---- -Conference **CTBTO(S&T2013)**; Duration-----01 Week; Year-----17-22 June, **2013**
25. Country visited –**Lisbon, Portugal**; University/Institute Lisboa congress Center; Purpose ---- -Conference (15<sup>th</sup> WECEE-12); Duration-----one week ; Year -----September, **2012**

26. Country visited –**Vienna Austria**; University/Institute -*Vienna International Center, Austria* ; Purpose -----Conference **CTBTO(Intesive Policy workshop)**; Duration-----01 Week; Year-----16-20, July, **2012**
27. Country visited –**Melbourne Australia**; University/Institute *International Exhibition and convension Center, Australia* ; Purpose -----Conference **IUGG-11**); Duration----- --27 June-07 July, **2011** Year-----June-July, **2011**
28. Country visited –**Vienna Austria**; University/Institute *Hofburg Palace, Austria* ; Purpose -----Conference **CTBTO(S&T2011)**; Duration-----01 Week; Year----- -June, **2011**
29. Country visited --- (**Thessaloniki, Greece**) University/Institute ----**University of Thessaloniki**; Purpose--- Research Co-operation and Lectures & short visit Duration--- ----- one week Year – 13 June – 21st June, 2009 **Year**-----June, **2009**.
30. Country visited -----**Vienna, Austria**; Institutes/University – Hofburg Imperial Palace Vienna, Austria Purpose ---- International scientific studies conference (ISS09), Duration –01 Week; **Year**-----June, **2009**.
31. Country visited -----**Tsukuba, Japan**; Institutes/University - Tsukuba International Congress Center; Purpose ---- 7<sup>th</sup> General Assembly & Asian Seismological Commission & SSJ Meeting, Duration –01 Week; **Year**-----November, **2008**.
32. Country visited –**Innsbruck Austria**; University/Institute **Universitätszentrum Obergurgl, Innsbruck Austria** ; Purpose -----Conference (ESF-FWF-LFUI); Duration-- -----01 Week; Year-----October, **2008**.
33. Country visited –**Beijing, China**; University/Institute Beijing International Convention Center; Purpose -----Conference (14<sup>th</sup> WCEE-08); Duration-----one week ; Year ----- -October, **2008**
34. Country visited--- **Wellington, New Zealand** University/Institute—**Victoria University** Purpose -----International Symposium; Duration--- 07- days; Year--- Feb., **2008**
35. Country visited -**Taipei, Taiwan** University/Institute---**National Taiwan University , Dept of Geoscience** ; Purpose -----Conference (9th ICGG-07); Duration-----10 - Days;Year October, **2007**
36. Country visited -----**Kathmandu Nepal** Institutes/University -----Department of Mines and Geology Purpose ---International Workshop, Duration --02 -days; **Year**---November 28-29, **2006**.
37. Country visited -----**Bangkok, Thailand** Institutes/University -----Asian Disaster Preparedness Center & TMD; Purpose ---- Asian Seismological Commission VI General Assembly & Regional Training, Duration --21 -days; **Year**-----22 October-10 November, **2006**.
38. Country visited -----**Santiago, Chile** South America Institutes/University -----**Department of Geophysics, Universoty of Chile** ; Purpose ---- International Association of Seismology and Physics of the Earth's Interior (IASPEI – 05) General Assembly; Duration --08 -days; **Year**-----02-08 October, **2005**.
39. Country visited --- (**Chania Crete, Greece**) University/Institute ----**University of Thessaloniki**; Purpose--- 22nd International Tsunami symposium ( As Invited Speaker) & short visit Duration----- one week Year – 27 June - 9th July, 2005.
40. Country visited---(**Vancouver, Canada**) University/Institute---**Vancouver Convention & Exhibition Centre British Columbia Canada**; Purpose--- 13th World Conference on Earthquake Engineering Duration----- one week Year –1 - 6 August, 2004
41. Country visited -----(**Taipei, Taiwan**) University/Institute----**National Center for Research on Earthquake Engineering (NCREE)**; Purpose--- International Training Program; Duration- one week Year –13 Oct, 2003 ----- 17 Oct., 2003
42. Country visited ---**Russia, Moscow**; University/Institute-----**Russian Academy of sciences, International Institute of Earthquake Predicton Theory and Mathematical Geophysics**; Purpose ----INSA Visiting Scientist Exchange Programme; Duration --1 & ½ months; Year -- 24th Dec.2001-07th Feb. 2002
43. Country visited ---**Nepal** University/Institute ----**International Centre for Integrated Mountain Development (ICIMODE) & National Society for Earthquake Technology (NSET), Kathmandu, Nepal** Purpose ---International Training-cum Workshop Duration-----16 – Days; Year----- November, 2002.

44. Country visited--**Italy**; University/Institute—**Abdus Salam International Centre for Theoretical Physics (ICTP)**; Purpose -----International Training-cum Workshop Duration---- 20 – Days; Year -----October, 2001
45. Country visited -**Vietnam**; Institutes/University ---**Institute of Geophysics, Hanoi, Vietnam**; Purpose -1st IAGA-IASPEI Joint Assembly; Duration --15-days Year----- August. 2001.
46. Country visited ---**Italy**; University/Institute---**Abdus Salam International Centre for Theoretical Physics (ICTP)**; Purpose----International Training-cum Workshop Duration--20 – Days; Year -- October, 1999
47. Country visited -**China**; University/Institute ---**Institute of geophysics State Seismological Bureau, Beijing**; Purpose --International Training Duration---10 -Days; Year - October, 1998
48. Country Visited---**United Kingdom (U.K.)**; University/Institute----**Keele University, London**; Purpose- International Conference (As invited Speaker); Duration----One Week; Year-----April, 1998
49. Country visited -**Greece**; University/Institute **University of Thessaloniki, Aristotle Geophysical Laboratory**; Purpose -----Conference (IASPEI-97); Duration-----10 - Days; Year August, 1997

#### **Research collaboration:**

- (i) Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Provisional Technical Secretariat, International Data Centre (IDC), Vienna, Austria
- (ii) National Research Institute of Astronomy and Geophysics (NRIAG), Cairo, Egypt
- (iii) Department of Computing Science and Engineering, Galgotias University, Greater Noida, India
- (iv) Department of Geophysics, Aristotele University of Thessaloniki, Greece.
- (v) Institute für Geophysik, Bundesstr. 55, Hamburg, Germany.
- (vi) Russian Academy of sciences, International Institute of Earthquake Prediction Theory and Mathematical Geophysics
- (vii) Department of Geology, Tribhuvan University, Nepal
- (viii) National research center for Disaster Prevention, Tennodai, Tsukuba-shi, Japan
- (ix) Department of Geophysics, Banaras Hindu University, Varanasi.
- (x) Center for Earth Science Studies, Trivandrum.
- (xi) Department of Earth Sciences, IIT Roorkee.
- (xii) Geological Survey of India, Central Geophysics Division, Calcutta.
- (xiii) Geological Survey of India Marine Wing Geophysics Division Calcutta.
- (xiv) GE Capital International Services Race Course Road Bangalore.
- (xv) Department of Applied Geophysics, ISM, Dhanbad.

#### **Participation in Scientific Meetings**

1. “28th General Assembly of the International Union of Geodesy and Geophysics (IUGG 2023)” at the City Cube Berlin, GERMANY, 11-20 July 2023.
2. 17<sup>th</sup> Symposium on Earthquake Engineering, Nov 14-17, 2022, Department of Earthquake Engineering, Indian Institute of Technology Roorkee.
3. International workshop on Slow-to-Fast Earthquake 2022. Nara, Japan from 14-18 September, 2022.
4. 3<sup>rd</sup> European Conference on Earthquake Engg. & Seismology & 38ESC, September, 04-09, 2022, Bucharest, Romania.
5. USGS NGA-Sub Workshop July 20, 2022 (Virtually).
6. China and the World Forum | A balancing act: India-China relations amidst a new global order, July 20, 2022 (Virtually)
7. SPMA Food Security Webinar Monday July, 18, 2022

8. Restorative Justice In India: Activating Community Values & Embracing Differences 2: July 16, 2022 (Virtually).
9. Seminar "Recent advances on structural analysis of unreinforced masonry buildings" July 14, 2022 (Virtually).
10. Computational Infrastructure for Geodynamics: Seismic Cycle: Heimisson & Dublanchet, July 08, 2022.
11. Rocky Worlds II Conference, Oxford UK, July 04-08, 2022 (Online)
12. Atlantic Council online event "China's role in Russian energy: what's changed since Feb 24<sup>th</sup>?", July 08, 2022 (Virtually)
13. VCDNP Webinar on Nuclear Technology for Research and Sustainable Development: The Benefits of Accelerator and X-Ray Technologies, July 07, 2022
14. Global Leaders Series event featuring a conversation with the Honorable Kevin Rudd on his newest book *The Avoidable War: The Dangers of a Catastrophic Conflict Between the U.S. and Xi Jinping's China*, July 07, 2022 (Virtually).
15. "Landers Earthquake 30th Anniversary: Lessons, Lore, and Legacies, June 28, 2022
16. Global Center's virtual roundtable on "Applying a transitional justice approach in terrorism-related contexts to ensure sustainable peace", June 28, 2022
17. Brazil's Energy Transition and the Women Leading It, June 28, 2022
18. GPI Quad Forum Invites You to Episode 2 of Quad Café, June 25, 2022
19. IUGG 33rd CMG Online Conference 2022, June 20-24, 2022
20. Virtual Conference on QUAD - Cohesion or Conflict? June, 14, 2022.
21. Earth Treasure Vase Global Healing Meditation, June 14, 2022 (Virtually)
22. Multi-scale Laboratories (MSL) seminar: Magnetic expression of submarine Hydrothermal Sites in Back Arc environments: Insight from marine geophysical investigations in the Southern Tyrrhenian Sea, June 14, 2022 (Virtually)
23. Computational Infrastructure for Geodynamics: Seismic Cycle Webinar 5: June 10, 2022 (Virtually).
24. 37th Meeting of the Board on Science Education, June 09, 2022 (Virtually)
25. UN, EU, and NATO Approaches to the Protection of Civilians: Policies, Implementation, and Comparative Advantages, June 08, 2022 (virtually).
26. 27th Meeting of the NASA Small Bodies Assessment Group, held from June 7-9, 2022.
27. COSMOS Ground-Motion Simulation Working Group Workshop 7-8 June 2022 (Virtually).
28. Egypt-Greece Joint-workshop on the Eastern Mediterranean Sea: Tectonics and Seismicity, May 17, 2022 (Virtually).
29. Online seminars in earth tides and geodynamics: Gravity measurements as a useful tool to model Karst hydrology, May 10, 2022.
30. Computational Infrastructure for Geodynamics: Seismic Cycle Webinar 2: May 13, 2022 (Virtually).
31. Long-Term Impact of COVID-19 on the Future Careers of Women in STEM: A Virtual Workshop March 23 -24, 2022
32. 36th International Geological Congress (Virtual) schedule from 20th- 22nd March 2022 at FICCI Bike Platform.
33. Virtual policy forum on "Triangular Partnerships in UN Peacekeeping Operations: Promoting Innovation and Sustainability." Tuesday, March 22, 2022,
34. pressure seafloor geodesy workshop, University of Rhode Island, March 15, 2022
35. Webinar TPNW: From the Origins to the First Meeting of States Parties, March 15, 2022
36. Climate Adaptation and Urban-Rural Transformations in the Horn of Africa, Feb 17, 2022 Center for Global energy Policy (Virtually).
37. 21st edition of the World Sustainable Development Summit (WSDS), 16-18 February 2022, The Energy and Resources Institute (TERI), New Delhi (Virtually).
38. Northern CA Earthquake Hazards Workshop Jan. 25-27, 2022, USGS, virtual from Menlo Park, California, USA (Virtually).
39. Webinar on "Risk as analysis and risk as emotion" Dr. Lucy Jone Center for Science and Society, Jan 21, 2022 Caltech, USA (Virtually).
40. SCEC workshop on post-earthquake field data collection, January 12 and 14), Southern California Earthquake Center, USA. (Virtually).
41. Multi-scale Laboratories seminar about "La Palma" (volcanism), on Tuesday, 11 January 2022, Newzeeland (Virtually).
42. Delta Resilience and Risk Governance Expert Forum Series – Bangladesh, December 09, 2021

43. 5th World Congress on Disaster Management 2021 IIT Delhi Delhi, India, November 24-27, 2021(Virtually)
44. The Geological Society of America (GSA), 10-13 October, 2021, Portland, Oregon, UAS. Virtually)
45. 17th World Conference on Earthquake Engineering, 17WCEE Sendai, Japan - September 27th to 02 October, 2021 (Virtually)
46. 37th General Assembly (GA) of the European Seismological Commission, 19-24 Sept, 2021 Curfu Athens Greece (Virtually)
47. International Joint Workshop on Slow Earthquakes 14-16 Sept, 2021, Nora, Japan. (Virtually)
48. Southern California Earthquake Center (SCEC) 12-17 Sept. 2021 Annual Meeting, USA (Virtually)
49. International conference IAGA-IASPEI 21-27 August 2021 Hyderabad, India (Virtually)
50. 7th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics (7ICRAGEE), 12-15 July, 2021 (virtual).
51. CTBTO Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization SnT2019 conference in Vienna, Austria, from 28 June to 02 July 2021.
52. International Conference on Earth and Environmental Sciences & Technology for Sustainable Development, University of Dhaka, Bangladesh January 25-30, 2020.
53. Workshop on slow Earthquake 2018. Sendai, Japan from 21-23 September, 2019.
54. 11<sup>th</sup> International workshop on Statistical Seismology (StatSei11-2019) Japan, Tokyo Hakone; Institute of Statistical Mathematics Tichikawa Tokyo 18 July - 21 August, 2019
55. The XXVII IUGG General Assembly of IUGG2019 in Montreal, Canada (8-18 July 2019).
56. CTBTO Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization SnT2019 conference in Vienna, Austria, from 24 to 28 June 2019.
57. 16<sup>th</sup> Symposium on Earthquake Workshop on slow Earthquake 2018. Across Fukuoka, Japan from 20-23 September, 2018
58. Xth International Conference Monitoring of Nuclear test and their consequences, Almaty, Kazakhstan, August 06-10, 2018.
59. Engineering (SEE)-2018. Department of Earthquake Engineering, Indian Institute of Technology Roorkee, Roorkee, India; 20-22 December, 2018.
60. International Conference for the Decade Memory of the Wenchuan Earthquake with the 4th International Conference on Continental Earthquakes", 12-14 May, 2018 in Chengdu, China,
61. Workshop on Drilling Investigation of Seismogenic Crust in Oklahoma (DISCO)" held in Norman, Oklahoma, USA May 3-5. 2018
62. CTBTO Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization SnT2017 conference in Vienna, Austria, from 26 to 30 June 2017.
63. Workshop on "Scientific Exploration of Induced Seismicity and Stress (SEISMS), March 29-31, 2-17 at Lamont-Doherty Earth Observatory, Columbia University, Palisades, NY, USA
64. 16<sup>th</sup> World Conference on Earthquake Engineering, Santiago, Chile, January 9-13, 2017
65. 2<sup>nd</sup> Beijing Scientist to Scientist (S2S) workshop Beijing, China from 26-28 October, 2016.
66. Workshop on slow Earthquake 2016. ERI, Tokyo University, Japan from 13-15 September, 2016
67. Sixth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics August 1 – 6, 2016, IIT Roorkee Extension Centre, 20 Knowledge Park II, Greater Noida, India.
68. Workshop on slow Earthquake 2015. Nagoya, Japan from 22-26 September, 2015.
69. XXVI IUGG 2015 General Assembly, in Czech Republic, Prague, from 22 June - 02 July 2015.
70. CTBTO Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization SnT2015 conference in Vienna, Austria, from 24 to 25 June 2015.
71. 10th General Assembly & Asian Seismological Commission (ASC), Makati Manila, Philippines 17-21 November 2014.
72. IASH-IAPSO-IASPEI-2013 general Assembly, Knowledge for the future, Gothenburg, Sweden, 22-26 July 2013.
73. CTBTO Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization S&T2011 conference in Vienna, Austria, from 17 to 22 June 2013.
74. ISET Golden Jubilee Symposium, Department of Earthquake engineering, IIT Roorkee, India, October 20-21, 2012.
75. 15<sup>th</sup> World Conference of Earthquake Engineering (15<sup>th</sup> WCEE-12), Lisbon, Portugal, 24-28 September, 2012.



76. CTBTO Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization Intensive policy course "Multilateral Verification, Collective Security United Nation Conference in Vienna, Austria, from 16-20 July 2012
77. XXV IUGG 2011 General Assembly, in Melbourne, Australia from 28 June - 7 July 2011.
78. CTBTO Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization S&T2011 conference in Vienna, Austria, from 8 to 10 June 2011
79. 14<sup>th</sup> Symposium on Earthquake Engineering (SEE-2010), Department of Earthquake Engineering, Indian Institute of Technology Roorkee, India, 17-19 December, 2010.
80. International Conference Asia Oceania Geoscience society (AOGS10), Hyderabad International Convention Center, India, 5-9 July 2010.
81. National workshop on "computer and Hindi", Indian Institute of Technology Roorkee, 23-24, September 2009.
82. International scientific studies conference (ISS09), Hofburg Imperial Palace Vienna, Austria, 10-12 June 2009.
83. 7<sup>th</sup> General Assembly & Asian Seismological Commission (ASC) & SSJ Meeting, Tsukuba Japan, 24-28 November, 2008.
84. "ESF-FWF-LFUI Conference on "New Challenges in Earthquake Dynamics Observing and Modelling a Multi-Scale System" Obergurgl, near Innsbruck, Austria, 18 - 23 October 2008.
85. 14<sup>th</sup> World Conference of Earthquake Engineering (14<sup>th</sup> WCEE-08), Beijing, China, 12-17 October, 2008.
86. Evison Symposium on Seismogenesis and Earthquake Forecasting, Wellington, New Zealand, 18-22 Feb. 2008.
87. 23<sup>rd</sup> National Convention of Civil Engineers & *National seminar on Design & Strengthening of building Structures*, 27-28 October 2007, Institution of Engineer Jabalpur Local Center.
88. 9<sup>th</sup> International Conference of Gas Geochemistry, Department of Geosciences, National Taiwan University, Taipei Taiwan, 01-08 Oct. 2007.
89. *Workshop on Web of Science Citation Index*, Indian Institute of Technology Roorkee, India, April 03, 2006.
90. *International Workshop on Seismology, Seismotectonics and Seismic Hazard in the Himalayan region, Kathmandu, Nepal*, 28-29 November, 2006.
91. *Regional Course on Earthquake and Tsunami Vulnerability Reduction focusing the use of spatial geodata, Bangkok, Thailand October 22-November 06, 2006.*
92. *Asian Seismological Commission VI General Assembly (ASC-2006)*, Bangkok, Thailand, 07-10 November, 2006.
93. *National Workshop on "IPR Creation and Management in Academic and Research Institutions"* Indian Institute of Technology Roorkee, India, February 24-25, 2006.
94. 22<sup>nd</sup> *International Tsunami Symposium, Chania Crete Greece, June 27-29 2005.*
95. *Symposium on Seismic Hazard Analysis and Microzonation, IIT Roorkee September 23-24, 2005.*
96. 33<sup>rd</sup> *Assembly of the International Association of Seismology and Physics of the Earth's Interior, Santiago, Chile, October, 2-8, 2005.*
97. 13<sup>th</sup> *World Conference on Earthquake Engineering, Vancouver, B.C. Canada, August 1-6, 2004.*
98. *International Training Program for Seismic Design of Structures, NCREC, Taipei, Taiwan, ROC, 13-17 Oct., 2003.*
99. 12<sup>th</sup> *Symposium on Earthquake Engineering, Indian Institute of Technology Roorkee, India, Dec., 16-18, 2002.*
100. *Second International Training Course on "Earthquake vulnerability Reduction for cities (EVRC -2), Kathmandu Nepal, 11-22 November, 2002.*
101. *Symposium on Seismology Earthquake Hazard Assessment and risk management, in Conjunction with 4th Asian Seismological Commission ASC-2002, Kathmandu, Nepal, November, 24-26, 2002.*
102. *IAGA-IASPEI Joint Scientific Assembly, Hanoi, Vietnam, August 19-31, 2001.*
103. *National Workshop on Application of Rock Engineering in Nation's development*, department of Civil Engg. University of Roorkee, Roorkee, April 27-28, 2001.
104. *International Conference On Mathematical Modelling*, Department of Mathematics, University of Roorkee, Roorkee, January 29-31, 2001.
105. *Sixth Workshop on "Non-Linear Dynamics and Earthquake Prediction at International Center for Theoretical Physics (ICTP), Trieste, Italy, October 15 -27, 2001.*

106. *Lesson for Architects & Engineers from recent Indian earthquakes, The Institution of engineers (India) Roorkee Local center, Roorkee, December 2-5, 2000.*
107. *Fifth Work shop on" Non-Linear Dynamics and Earthquake Prediction at International Centre for Theoretical Physics (ICTP), Trieste, Italy, October 14 - 22 October, 1999.*
108. *International conference Geoscience-98 University of Keele, Keele U.K. April 14-18, 1998.*
109. *IUGG/SSB Internal Training course on" Continental Earthquake and seismic Hazard" at Institute of Geophysics, State Seismological Bureau, Beijing, China, October 4 - 14, 1998.*
110. *Eleventh Sym. on Earthquake Engineering, University of Roorkee, Dec. 17-19, 1998.*
111. *29th General Assembly of International Association of Seismology and Physics of the Earth Interior (IASPEI-97), Thessaloniki, Greece, 18-28, August 1997.*
112. *Workshop on "Earthquake Disaster Preparedness; Department of Earthquake Engineering University of Roorkee, Roorkee, Oct. 13-14, 1997.*
113. *World Bank Project on" Strong Motion Building Instrumentation" at Department of Earthquake Engineering University of Roorkee, U.P., India, 1st Dec.-6th Dec. 1997.*
114. *33rd Annual Convention and Modelling on Geophysical Instrumentation, Indian Geophysical Union, Dec. 18-20, 1996.*
115. *Third SERC School on "Seismology and Earthquake Processes" at Indian School of Mines (ISM), Dhanbad, Bihar, India, 23rd Sept-12th Oct, 1996.*
116. *Mathematics and its Application in Engineering and Industry, Department of Mathematics, University of Roorkee, Roorkee, Dec. 16-18, 1996.*
117. *Fourth SERC School on "Electromagnetic induction in the earth Recent Advances (EMII)" under the series on "Geomagnetism and earth's interior, at Department of Geophysics, Banaras Hindu University, Varanasi, India April 17-May 6, 1995,*
118. *Eighteenth Annual Convention of AEG January 24-26, 1993.*
119. *Third SERC Summer School in "Geomagnetism and Earth's interior" at (IIT, Powai, IIG, Colaba and TIFR) Bombay, India, 29th March -17th April, 1993.*
120. *Signal Processing and Modelling of Geosignature for Exploration of Oil Natural Gas" Banaras Hindu University December 14-16, 1992.*
121. *1st SERC Winter School in the series "Seismology and Earthquakes Processes" at National Geophysical Research Institute, Hyderabad, India, Dec. 11 – 31, 1992.*
122. *Platinum Jubilee of Banaras Hindu University, January 28-31, 1991.*
123. *17<sup>th</sup> Annual Convention of AEG "International Seminar on Exploration Geophysics, Hyderabad November 25-30, 1991.*
124. *Sixteenth Annual Convention and Seminar on Exploration Geophysics, Wadia Institute of Himalayan Geology, Dehra, December 7-10, 1990.*
125. *ISER Silver Jubilee National Symposium, February 25-26, 1989, Roorkee*

### **Research Projects completed**

Supervised and successfully completed several research projects and consultancy dealing with microzonation, long-term earthquake prediction, seismic hazard assessment and risk analysis.

- [1]. A data base in the Himalayas and its Vicinity for Seismic Hazard Assessment" Sponsored by Department of Science And Technology (DST), No.HR/OY/A-04/**1997**.
- [2]. "Estimation of earthquake Probabilities and Seismic Hazard in Andaman Nicobar island Arc and adjoining Burmese and Indonesian Arcs" Sponsored by University of Roorkee seed money project No.UPG/NP-530/Earthq. Engg/106-Deptt-**1999**
- [3]. Seismic Hazard Assessment in Delhi and its vicinity Sponsored by University of Roorkee seed money project No. DRIL/SM/R-8/2859 ; **2000**.
- [4]. A report on the allowable bearing pressure and seismic parameters for Kathilei and Adaka mosques in Massawa area, Eritrea, northeast Africa. Project Sponsored by ARH consultants Riyadh, University of Asmara, Asmara, **2000**.
- [5]. "Microseismic Zonation and Prediction of Earthquake Hazard in Himalayas" Sponsored by All India Council for Technical Education (AICTE) , New Delhi, Project F.No: 8020/RID/R&D-129/**2001-02** .



- [6]. Diagnostic seismicity and identification of potential seismic sources for prediction of earthquake hazard in Peninsular India Ministry of Human Resource Development, Department of Education MHR-192-EQD/ **2005-2008**

### **Participation in Ongoing/Completed Consultancy Projects**

- [1]. Site Specific design Earthquake parameters study for Dibbin HEP (12MW), West Kameng District of Arunachal Pradesh reg updation; EQD-6021/**2013-14**.
- [2]. Site Specific Earthquake parameters for Triveni Madav Hydro Electric Project in Himachal; EQD-6007/12-13
- [3]. Site Specific Earthquake parameters for Miyar HEP-region updation; EQD-6009/**2012-13**.
- [4]. Site Specific design Earthquake parameters for Chango Yangthang HEP, Himachal Pradesh-reg updation; EQD-6011/**2012-13**.
- [5]. Site Specific design Earthquake parameters for Etalin HEP Arunachal Pradesh reg updation; EQD-6020/**2012-13**.
- [6]. Site Specific design Earthquake parameters Study for Chirgaon-Majhgaon Hydro Electric Project (60 MV) Dist. Shimla, Himachal Pradesh; EQD-6049/**2012-13**.
- [7]. Site Specific Design Parameters for Teesta – II HEP, Sikkim-----**Sponsoror**; *Aquagreen Engineering Management Pvt Ltd. Mathura Road, New Delhi, 2009-2010*.
- [8]. Site Specific seismic Study for Talcher TPS Expansion (2x660 MW) --- **Sponsoror**; NTPC Limited, Noida, **2009-2010**.
- [9]. Site Specific Design EQ Parameter Studies for Sissiri H.E. Project in Arunachal Pradesh --- **Sponsoror**; Soma Sissiri Hydro Pvt. Ltd (SPV), New Delhi, **2009-2010**.
- [10]. Study for Site Specific Seismic Design Parameters for Hutong-II Hydro Electric Power Project (1250 MW) in Arunachal Pradesh --- **Sponsoror**; Mountain Fall India Pvt. Ltd (SPV), New Delhi, **2009 -2010**.
- [11]. Study for SiteEarthquake Parameter Study for upper Marsyangdi-2 HE Project, Nepal, --- **Sponsoror**; GMR Energy Ltd. New Delhi, **2009 - 2010**.
- [12]. Study for Site Specific seismic Design Parameters for Shongtong Karcham HEP --- **Sponsoror**; Himachal Pradesh Power Corporation Limited, Sundernagar, **2008-2009**.
- [13]. Site Specific Study for establishing parameters, Kther HEP (260MW) --- **Sponsoror**; JSW Energy Limited, D-9, Phase-1, Sector-1, New Shimla, **2008-2009**.
- [14]. A report on the allowable bearing pressure and seismic parameters for Kathilei and Adaka mosques in Massawa area, Eritrea, northeast Africa. Project Sponsored by ARH consultants Riyadh, University of Asmara, Asmara, June -**1999-2000**.

### **BOOK AUTHORD:**

(**Editor**) Proceeding of Symposium on Seismic Hazard Analysis and Microzonation, 2005

### **Publications:**

#### **In Reputed International & National Journals**

1. Ram Krishna Tiwari, Shiva Chaudhary, Harihar Paudyal and **Daya Shanker (2023)**. Identifying Seismicity Pattern Before Major Earthquakes in Western Himalayas (28.5°N to 31.0°N-78°E to 82.96°E) and Adjoining Region through Fractal Analysis; *Journal of Geodesy* (Submitted).
2. Nazeel, Sabah and **D. Shanker (2023)**. Development of Magnitude Correlation Equations for the Tsunamigenic Zones of the Indian Ocean, *Journal of Seismology*; 27, pp 473–492 <https://doi.org/10.1007/s10950-023-10151-x>
3. Ram Krishna Tiwari, Harihar Paudyal and **D. Shanker (2022)**. Spatio-temporal distribution of earthquake occurrence in Eastern Himalaya and its vicinity based on b-value and fractal dimension” *Applied Geophysics*, 13, pp. 525-533; <https://doi.org/10.1016/j.geog.2022.01.006>.
4. Ram Krishna Tiwari, Harihar Paudyal and **D. Shanker (2022)**. On the Spatio-temporal variation in b-value After 25 April 2015 Gorkha, Nepal earthquake; *Geodesy and Geodynamics* 13, pp 525-533.

5. Ashish Bahuguna and **D. Shanker (2022)**. Simulation of Intra-Plate Stress Distribution of Indian Tectonic Plate using Finite Element Method, *Pure and Applied Geophysics* 179 (1), 125-148.
6. Shubham. **D. Shanker**, Komal Soni (2021). Probabilistic Seismic Hazard in Uttarakhand Himalaya, *Journal of Rock Mechanics & Tunnelling Technology JRMTT* 27 (2), pp 85-102.
7. D. Shanker and Abhishek Pathak (2019). Estimation of Source Parameter of local Earthquake in Tehri Dam Site and Vicinity, *Journal of Rock Mechanics & Tunnelling Technology (JRMTT)*, 25 (2) 89-102.
8. Komal Soni, D. Shanker, Shubham, Nazeel Sabah (2019). Estimation of Seismic Hazard Parameters for Uttarakhand Region, *Journal of Rock Mechanics & Tunnelling Technology (JRMTT)*, 25 (1) 21-32.
9. D. Shanker and Shubham (2018). On the seismic hazard in Himachal Pradesh and Uttarakhand States; *Geosciences* 2018, 8(2), 21-31.
10. Shubham and D. Shanker (2018). Earthquake hazard updates in Central Himalaya, *Geosciences* 2018, 8 (1): 01-06.
11. D. Shanker, Sherif M. Ali, Manisha Singh (2017). Earthquake Hazard and Engineering Determinations for Indonesian Region Using IMS Network Data, *Geosciences* 2017, 7(5): 150-155.
12. Yadav, R. K., Swami Saran, and D. Shanker (2017). Interference between two Adjacent Footings located in Seismic Region, *Geosciences* 2017, 7(4): 129-140.
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