



INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR –721302

Curriculum Vitae of Prof. Sankar Kumar Nath



1. Name in Full:
(In English and Hindi)

SANKAR KUMAR NATH
शंकर कुमार नाथ

2. Date of birth:

January 03, 1960

3. Address with telephone/Fax/e-mail No. etc:

(a) Official (Present Designation, Department:
& name of Univ./ Inst. etc.)

Professor & Former Head

Department of Geology and Geophysics
Indian Institute of Technology
Kharagpur – 721302, West Bengal,
INDIA.

Telephone: +91-3222-283374 / 220042

Fax: +91-3222-220042/282268/255303

Cell Phone: 09434005953

09734634942

E-mail: nath@gg.iitkgp.ernet.in

(b) Residential

Flat No.# A-102, Block-3, IIT Campus
P.O. Kharagpur Technology-721302
Dist.- Midnapore (West), West Bengal,
INDIA.

Telephone: +91-3222-283375 / 277757

4. Field of specialization:

- Earthquake and Engineering Seismology
- Seismic Hazard Assessment & Microzonation
- Seismic Prospecting
- Geophysical Signal Processing
- Geophysical Tomography
- Computational Geophysics

5. Teaching Interests:

Mathematical Methods in Seismology, Physics of Earthquakes, Computational Seismology, Engineering Seismology, Seismic Methods of Prospecting, Geophysical Signal Processing, Advanced Geophysical Prospecting, Computational Geophysics, Geophysical Tomography, Sequence & Seismic Stratigraphy, Hydrocarbon Exploration, Field Geophysics (Seismics).

6. Academic Qualifications (Bachelor's Degree onwards):

Sl. No.	Degree	Subject	Class Marks, %	Year	University	Additional Particulars
1.	B.Sc. (Hons)	Geological Sciences	Ist Class (76.13%)	1979	Indian Institute of Technology (IIT), Kharagpur	First Rank Silver Medalist
2.	M.Sc.	Exploration Geophysics	85.40%	1981	IIT Kharagpur	First Rank Silver Medalist Best Thesis & General Proficiency Award Receipt
3.	Ph.D.	Seismic Prospecting		1993	IIT Kharagpur	
4.	Post-Doc Research Work (Visiting Scientist)	Earthquake Seismology		1995-96	Geophysical Institute, University of Alaska Fairbanks, USA	Microzonation of Anchorage, Alaska with Prof. Niren. N. Biswas

7. Positions held (in chronological order):

Sl. No.	Period	Place of Employment	Designation	Scale of Pay
1.	July-Dec, 81	IIT Kharagpur	CSIR Junior Research Fellow	Rs. 450/- (gross)
2.	Jan, 82-Aug, 84	Indicos Computer Services (P) Ltd., Bombay	Junior Geophysicist	Rs. 1550/- (Basic) + Perks
3.	Sept, 84-Nov, 85	Oil India Ltd., Duliajan, Assam	Geoscientist	Rs. 1280/- (Basic) + Perks
4.	Nov, 85-Jan, 88	Oil India Ltd., Duliajan, Assam	Senior Geoscientist	Rs. 1680/- (Basic) + Perks
5.	Jan- Aug, 88	Computech Ispat Ltd., Calcutta	Processing Manager (Geophysics)	Rs. 3500/- (Basic) + Perks
6.	Aug, 88-Apr, 93	Indian Institute of Technology Kharagpur	Lecturer	Rs.700-1600/-
7.	Apr, 93-Feb, 98	IIT Kharagpur	Assistant Professor	Rs.3700-5700/-
8.	July, 95- July,96	University of Alaska Fairbanks, GI, USA	Visiting Scientist	US\$ 30,000 (app) per annum
9.	Feb, 98-9 th June, 2003	IIT Kharagpur	Associate Professor	Rs.16,400 – 450 – 20,000/-
10.	9 th June, 2003 - continuing	IIT Kharagpur	Professor	Rs.18,400 – 500 – 22,400/- (Basic Pay: Vth Pay scale Rs.22,400/-) VIth Pay Scale: Pay Band-4 (Rs.37,400-67,000) with AGP of Rs. 10,500/-; Present Basic Pay in the band = Rs.57,340/-; DA:23,744/-

				Transport: 2160/-; Allow:750/- SSB Allowance = Rs. 15,000/- Total: Rs.1,09,494/-
11.	1 st Sept, 2003- 31 st Aug 2006	IIT Kharagpur	Head of the Department	
12.	Higher Grade Pay to AGP: Rs. 12,000/- (for being at service as Professor for last seven years [under the VIth Central Pay Commission clause of completion of at least six years of service on or before 1 st July, 2010 as Professor] : Considered)			

8. Overseas Visits:

Sl. No.	From	To	Institute/ country visited	Purpose of visit
1.	02-03-1988	09-03-1988	GSI, Texas Instruments etc., Singapore	Collaboration regarding setting up of Seismic Data Processing Centre.
2.	13-07-1988	30-07-1988	Seismograph Services Inc. and other Seismic Data Acquisition & Processing Companies in USA	Software demonstration and benchmarking of DMO.
3.	03-07-1995	10-07-1996	Geophysical Institute, University of Alaska Fairbanks, USA	Visiting Scientist on sabbatical tenure.
4.	10-10-2000	12-10-2000	Institute of Geophysics, University of Tehran, Iran	Third Meeting of Asian Seismological Commission & Symposium on "Seismology, Earthquake Hazard Assessment and Earth's Interior related topics"
5.	09-09-2003	20.09.2003	As a part of DST, Government of India Delegation to Moscow, Russia under ILTP of cooperation in Science and Technology with IPE, Moscow	<i>Indo-Russian Cooperation in the Field of Seismic Instrumentation and Disaster Management</i>
6.	05-12-2005	09-12-2005	San Francisco, USA	<i>To participate at the 2005 AGU Fall Meeting and make the oral presentation on the paper :T51F-06 entitled "Crustal Structure Beneath the Bengal Basin From Joint Analysis of Teleseismic Receiver Functions And Rayleigh Wave Dispersion"</i>

9. Honors / Awards / Laurels / Distinctions:

- **“Shanti Swarup Bhatnagar Prize for Science & Technology 2002”** by the Council of Scientific & Industrial Research, Govt. of India in *Earth, Atmosphere, Ocean and Planetary Sciences* for outstanding contributions to ‘Geotomography and its innovative applications’.
- **“National Mineral Award 1999”** by the Government of India, Ministry of Mines and Steel under the National Mineral Award Scheme for significant and outstanding contributions in **Geophysics**.
- **“UGC National Hari Om Ashram Trust Award for 2004: Homi J. Bhabha Award For Applied Sciences”** for 2004 by the University Grants Commission, Govt. of India for outstanding contributions in ‘Developing techniques of geophysical exploration and in the strategies towards better mitigation of disaster in mines as well as earthquake hazards’.
- **“A.S. Arya – IIT Roorkee Disaster Prevention Award”** for the year 2009 for outstanding contributions in the field of ‘Disaster Prevention/Mitigation’.
- **“Fellow”** of The National Academy of Sciences, India (NASI) (2003), (FNASc).
- **“Fellow”** of The Indian National Academy of Engineering (INAE) (2007), (FNAE).
- **Dr. J. Coggin Brown Memorial (Gold) Medal for ‘Geological Sciences’** for 2004-2005 by the Mining, Geological & Metallurgical Institute of India (2005).
- **D. N. Thakur Award for 2005-2006** for outstanding contributions in ‘Earth Sciences’ by the Mining, Geological & Metallurgical Institute of India (2006).
- **“SGAT Award of Excellence – 2004”** by the Society of Geoscientists and Allied Technologists for eminent and outstanding contribution in Tomography, Earthquake Seismology and Hydro-Physics.

10. Membership of Committees:

- ❖ Member Expert of *CSIR Award Advisory Committee for Young Scientist Award in Earth Atmosphere, Ocean & Planetary Sciences*, (2003).
- ❖ Member DST Expert Committee on *“Seismic Microzonation of Guwahati City”* (2002-2007).
- ❖ Member Expert of *CSIR Award Advisory Committees for Shanti Swarup Bhatnagar Prize* (2006).
- ❖ Ph.D. Thesis Adjudicator for Tezpur University (2006).
- ❖ Member Expert of the **Advisory Committee** of the *National Disaster Management Authority (NDMA), Government of India* as AICTE Chairman’s Nominee (2004-2007).
- ❖ Executive Member, **National Committee** on *“Microzonation of Indian Cities”* under **Earthquake Risk Evaluation Centre (EREC)** at India Meteorological Department under the auspices of the Department of Science and Technology, Govt. of India (2007-2009).
- ❖ Member Expert, **National Mineral Award Scrutiny Committee** (2007).
- ❖ Ph.D. Thesis Adjudicator for IIT Bombay (2007).

- ❖ Member Working Group of “Seismic Microzonation of Bangalore City” (2007-2008).
- ❖ Member Expert of the **Programme Advisory Committee** for the *Nationally Coordinatted Programme on Seismicity* under **the Ministry of Earth Sciences, Govt. of India**. (Vide: MoES/P.O.(Seismo)/2(02)/2007 dated 7th January 2008).
- ❖ Member Expert of the **National Steering Committee (NSC)** for Seismic Microzonation of selected cities in India (MoES/P.O.(Seismo)/2(04)/2007 dated 27th March , 2008).
- ❖ Expert Member for **Faculty Selection Committee for the Department of Earth Sciences, IIT Roorkee**, (2008).
- ❖ Member of Director’s contingent for MOU signing between IIT Kharagpur & University of Tokyo (2008).
- ❖ Member Expert of **CSIR Award Advisory Committee for Young Scientist Award in Earth Atmosphere, Ocean & Planetary Sciences**, (2008).
- ❖ Member Expert of **CSIR Award Advisory Committee for Shanti Swarup Bhatnagar Prize in Earth Atmosphere, Ocean & Planetary Sciences**, (2008).
- ❖ Executive Council Member for faculty selection in Geological Sciences at Jadavpur University (2008).
- ❖ UGC Eastern Region Member Expert for College Teachers Minor Research Project evaluation. (2008).
- ❖ Member Expert as Council Nominee for evaluating M.Tech Computational Seismology interim reports (2008) at Tezpur University.
- ❖ Senate Nominated Member of a ‘Three-member Institute Fist Monitoring Committee’.
- ❖ Member Expert of the Research Council of Regional Research Laboratory, Jorhat

11. Statement regarding collaboration with scientists aboard:

1. Collaborated with the Seismologists from the Geophysical Institute, UAF & USC, USA during the tenure as a Visiting Scientist to conduct the following major studies:
 - Spectral analysis of surface waves measured from shear wave velocity profiling in Anchorage, Alaska.
 - Phase velocity inversion and correlation study with borehole data for different shallow depth lithologic units. (One paper published, one under review, two presented)
 - Analysis and simulation of Green Functions in (f,k) and (t,r) domains for the superimposed crustal models for different shallow and intermediate focus earthquakes at a number of epicentral distances.
 - Strong ground motion simulation using these Green Functions and random vibration theory for multiple source mechanisms.
 - Correlation with the observed ground acceleration data.
 - Site amplification factor analysis and preparation of building codes for earthquake prone areas. (One paper under review and one presented).
 - Stacking of Green Functions for weak events and simulation for greater events.

2. Microzonation of Rhine graben with a French Summer intern from Ecole de Physique du Globe, The Universite/ Louis Pasteur, Strasbourg, France
3. Long-term seismological research collaboration with the Bullard Laboratories, University of Cambridge, UK through a memorandum of understanding between Cambridge University and IIT Kharagpur during 2003-2008.

12. Statement regarding Sponsored Projects executed or ongoing:

- *Institute-cum-Principal Investigator and Nodal Coordinator* of the MoES Project titled “**Seismic Hazard Assessment, Microzonation, and Evaluation of Vulnerability & Risk of the Urban Kolkata**” (total sanction amount -- **Rs. 4.327 Crores** for 3 years during April 2010 and 2013) (MoES/P.O. (Seismo)/1(60)/2009 dated 04.03.2010).
- *Principal Investigator* of the MoES Sponsored Project titled "**Seismic Hazard and Risk Assessment of Darjeeling-Sikkim Himalaya**" (total sanction amount = **Rs. 40 Lac** for 3 years during 2009-2012) (MoES/P.O. (Seismo)/1(57)/2009 dated 11.01.2010).
- *Covenor* of the **Third National Steering Committee Meeting on “Seismic Microzonation”** under the aegis of The Ministry of Earth Science, New Delhi held on 6th August 2009 at Salt lake City Extension Center, IIT Kharagpur with the participation of about 25 members. (MoES/P.O. (Seismo)/2(04)/2007 dated 13.07.2009).
- *Covenor* of the **First National Steering Committee Meeting-cum-workshop on “Seismic Microzonation”** under the aegis of The Ministry of Earth Science, New Delhi held on 23rd October at Salt lake City Extension Center, IIT Kharagpur with the participation of about 20 members. (MoES/P.O. (Seismo)/2(04)/2007 dated 12.09.2008).
- *Co-Principal Investigator* of the MoES Project entitled “**First Order Seismic Microzonation of Kolkata Area Based on Deep & Shallow Geotechnical and Geophysical Investigations**” (total sanction amount = **Rs.62.10 Lac** for 3 years during 2009-2012, (MoES/P.O. (Seismo)/23(651)/2007 dated 17.03.2009).
- *Principal Investigator* of the MoES (formerly DST) Sponsored Extension Project entitled "**Global Seismic Monitoring by Broadband Seismological Observatory at IIT Kharagpur**” (total sanction amount = **Rs.18.20 Lac** for 3 years during 2007-2010) DST/23(635)/SU/2006 dated 1st August 2007.
- *Principal Coordinator* of the MoES (formerly DST) Project “**Create Infrastructure Facilities and Additional Provisions needed for sustaining a 24-Month M.Tech. Programme in Computational Seismology**” at IIT Kharagpur (App. Funding: **Rs. 1.93 Crore** for 5 years during 2004-2010).
- *Principal Investigator* of the MoES (formerly DST) Sponsored Extension Project entitled "**Seismic Microzonation of Sikkim Region**" (total sanction amount = **Rs. 42.19 Lac** for 5 years during 2006-2010).
- *Institute Coordinator* of the “**National Programme for Capacity Building of Engineers in Earthquake Risk Management (NPCBEERM)**” initiated and funded by the Ministry of Home Affairs sponsored by MHA vide memo F. No.30-1/2002-TS.1 dated 14.11.2002 (during 2004-2010) (Rs. 33.92 Lac).
- *Principal Investigator* of the DST Sponsored Project “**Broadband Seismological**

Observatory at IIT Kharagpur for Seismotectonic Study of Bengal Basin” vides sanction no. DST/23(312)/SU/2002 dated 01.08.2002 (total sanction amount = **Rs. 64.65 Lac** for 3 years during 2002-2005). A broadband seismological observatory is being commissioned at IIT Kharagpur.

- *Principal Investigator* of the DST Sponsored Project “**Broadband Seismometry in the North-East region with special emphasis to Guwahati for Seismic hazard assessment**” (2003-2004)(DST/23(393)/Guwahati Region/SU/2003 dated 13.10.2003) (Total sanction amount = **Rs. 72 Lac**).
- *Principal Investigator* of the DST Sponsored Project entitled “**Seismic Microzonation of Sikkim Region**” vides sanction no. DST/23(218)/ESS/98 dated 27.12.2000 & 01.08.2002 (total sanction amount = **Rs. 39.028 Lac** for 4 years during 2001-2005).
- *Institute Coordinator* of the **National Programme on Earthquake Engineering Education in India (NPEEE)** sponsored by MHRD vide memo F. No.30-1/2002-TS.1 dated 14.11.2002 (during 2002-2007) (Rs. 83.16 Lac).
- *Co-Principal Investigator* of the DST project “**Seismicity of Sikkim Himalayas**” vides Sanction No. DST/23(97)/ESS/95 dated 20.3.97 (total funding = **Rs. 54 Lac** for 4 years during 1997-2001).
- *Co-Principal Investigator* of the CSIR sponsored project “**Development of a joint seismic refraction and geoelectric sounding inversion algorithm for systematic evaluation of aquifers**” vide Sanction No. 24(0227)/95/EMR-II dated 19.12.94 (total funding = **Rs. 5.18 Lac** for 3 years during 1995-1998).
- *Convener* of the DST sponsored Short-term Course & Training Workshop on “**Site Response and Microzonation Studies from Earthquake Seismology**” (SRMSES’98) during May 18-22, 1998 at the Department of Geology & Geophysics, IIT Kharagpur (total funding: Rs. 4.2 Lac) vide Sanction No: DST/23(136)/ESS/97 dated 01.01.98.
- *Coordinator* of the DST Review Committee Meeting on the Northeastern region seismology projects, at IIT Kharagpur during Feb.19-20, 2002.
- *Course Director* of the DST Short-term Course & Workshop at Manipur University, Imphal during Sept. 19-22, 2002.
- Participated in organizing the Indian Academy of Sciences sponsored Refresher Course in “**Physics of Earthquakes**” at Tezpur University, Tezpur (2-21 Dec., 2002).

13. Supervision of Ph.D., M.Tech. and M.Sc. Dissertations:

Title of the Ph.D. Theses supervised:

- (i) “**Some Studies on Numerical Modeling in Cross-hole Seismic Tomography**” by Shri S.K. Singh, 1997.
- (ii) “**Ground Water Potential Modeling in a Soft Rock Area using GIS based integrated Geophysical Approach**” by Shri S. Shahid, 2001.
- (iii) “**Some studies on seismic transmission tomography and electrical resistivity tomography and their applications in the detection of mining hazards**” by Shri S. Chakraborty, 2001.
- (iv) “**Some Site Response Studies and Seismic Hazard Assessment with Special**

Emphasis to GIS-based Microzonation of Sikkim Himalaya” by Shri P. Sengupta, 2005.

- (v) “*Seismic Hazard Assessment with Special Emphasis to the Microzonation of Talchir, Haldia and Kolkata, India*” by Shri M. Yanger Walling, 2008.
- (vi) “*Seismotectonic and Earthquake Hazard Assessment in parts of East and North-East India*” by Shri I. Pal, 2009 at Vidyasagar University.
- (vii) “*Seismic Hazards in India: A Synoptic Modeling and Probabilistic Analyses*” by Shri, K. K. S. Thinbajam, 2010, Thesis under submission.

Ph.D. Scholars under current supervision: 06 (six: 01 Institute Scholar, 04 Project Fellows, 01 CSIR UGC/NET Fellow)

- Guided **30 M.Tech.** And **about 80 M.Sc.** dissertations. 05 M.Sc. dissertations received best thesis award (Prof. K.L. Chopra Award) amongst the Science Departments of the Institute.
- Summer Internship: 01 French student from Ecole de Physique du Globe, the Universite/ Louis Pasteur,EPGS, 5 rue Rene/ Descartes, 67084 Strasbourg, France worked on the “*Seismic zonation in and around Rhine Graben, France*” during June-August, 1999.

14. Memberships of Academic / Professional Bodies:

- Member (No. 16472): The Seismological Society of America (SSA).
- Life Member (L/141): The Indian Society of Theoretical and Applied Mechanics (ISTAM)
- Life Fellow (No.236): The Geological, Mining and Metallurgical Society of India (GMMSI)
- Life Fellow: The Society of Geoscientists and Allied Technologists (SGAT).
- Member Registration No. 8810: The Mining Geological & Metallurgical Institute of India (MGMI).
- Member (No. 10283967): American Geophysics Union (AGU).

15. Honours/Awards received during Graduation/ Post-Graduation:

- “**The Commonwealth Geophysical Scholarship**” Sponsored by Shell Canada, Alberta, Canada during the 1980-81 Academic Session of the Master Degree Programme (M.Sc.) for best performance in the prefinal year of 5 year Integrated Exploration Geophysics.
- Institute Silver Medals for First Ranks in both B.Sc.(Hons) and M.Sc. courses.
- Best Thesis and General Proficiency Awards for M.Sc. course.

16. Infrastructure Development at the Institute / Department:

- **Broadband Seismological Observatory.**
- **Advanced Computational Seismological Laboratory.**
- **Sikkim Strong Motion Array comprising of sixteen (16) strong Motion Earthquake Observatories housing ETNA Accelerographs.**

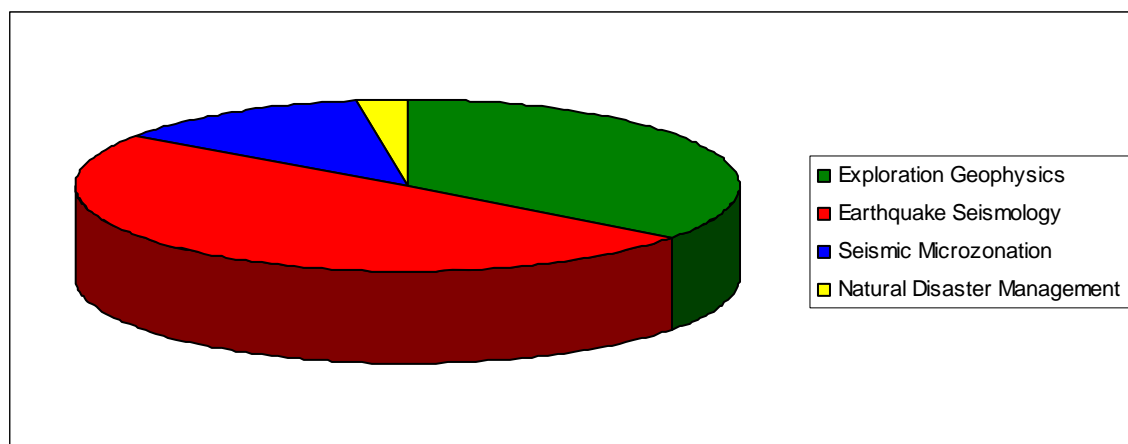
17. Invited lectures in India/abroad and/or chairing of any scientific International Conference Symposium:

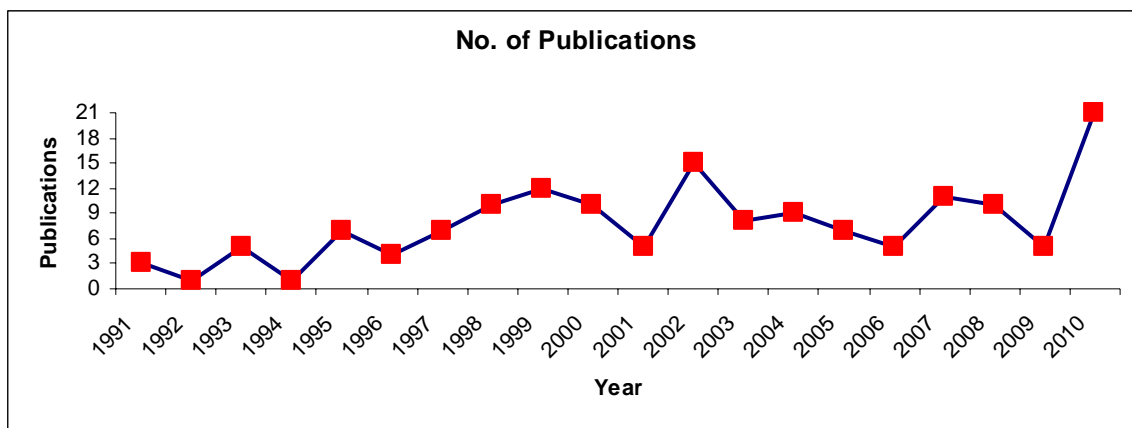
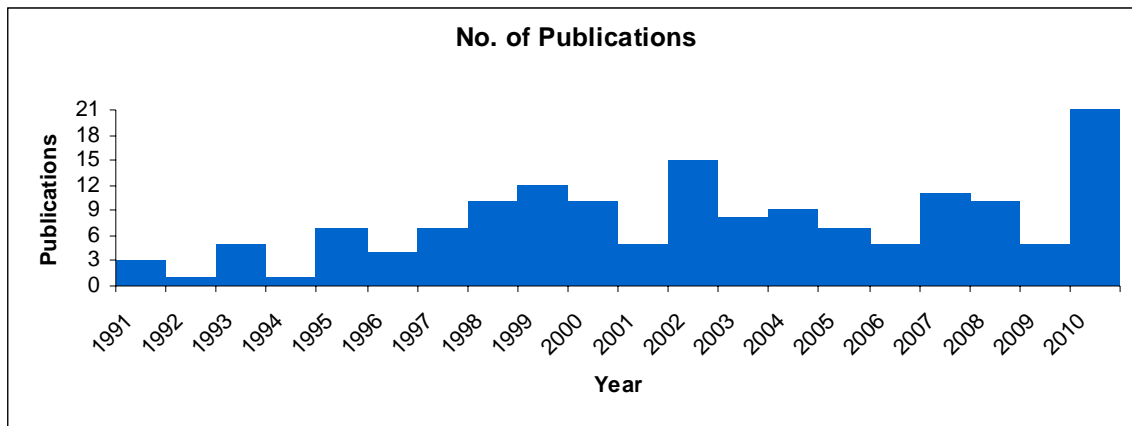
- Delivered two invited lectures on "*Seismic Microzonation*" and "*FEM Simulation of Seismic Responses*" at the Institute for Geophysics, The University of Texas at Austin, USA, during April 04-07, 1996.
- Delivered a special invited lecture on "*Cross-hole Seismic Tomography*" at the **Training Course on "Use of Geophysical Methods in Mine Planning & Safety"**, at ISM Dhanbad, jointly organized by Association of Exploration Geophysicists and Indian School of Mines, Sept 19, 1998.
- Delivered a special lecture on "*Site response and microzonation studies from earthquake seismology*" at the DST sponsored short-term course and workshop on "**Paleoseismicity & Active Tectonics in NE India**" at Manipur University, Imphal, during Nov.15-20, 1999.
- Delivered an invited talk on "*Seismic Microzonation Assessment with special emphasis to site response*" at the **Indo-Italian Workshop on Seismic Risk Evaluation** at NGRI, Hyderabad during March 6-9, 2001.
- "**Bhatnagar Laureate (2002) Symposium**" at Vigyan Bhawan, New Delhi on 12th July 2003 organized by the Human Resource Development Group, Council of Scientific and Industrial Research, Govt. of India, on the day of the SSB 2002 presentation ceremony.
- Delivered an invited talk on "*Site Specific Earthquake Hazard in Urban North-Eastern India*" at the **National Workshop on "Science & Technology for Regional Development"** jointly organized by Tezpur University, IIT Guwahati and CMMACS Bangalore at IIT Guwahati on 3-6 Feb. 2004.
- Delivered an invited talk on "*Seismic Microzonation Framework – Principles & Case Studies*" at the **National Workshop on Science and Technology in Disaster Management (Earthquake, Land Slide & Tsunami)** 02-03 April, 2007 organized by **National Disaster Management Authority, Govt. of India** at Centaur Hotel, New Delhi.
- **Chaired the National Workshop on Science and Technology in Disaster Management (Earthquake, Land Slide & Tsunami) "Session VI – Tsunamis"** on 03 April, 2007 organized by **National Disaster Management Authority, Govt. of India** at Centaur Hotel, New Delhi.
- Delivered an invited talk on "*Seismic Microzonation Framework – Principles & Applications*" at the **Microzonation Workshop** at Indian Institute of Science, Bangalore during June 26-27, 2007. *Also Chaired Technical Session VI – "Summing up, Discussion and Recommendations"*.
- Delivered an invited lecture on "*Earthquake Hazard in the Northeast India – A Computer intensive Seismic Microzonation Approach with Typical Case Studies from Sikkim Himalaya and Guwahati city*" under the aegis of INAE Kolkata Chapter on Feb 12, 2008 at Indian Statistical Institute, Kolkata.
- Delivered an invited lecture on "**Seismic Microzonation of Guwahati, at the First Meeting-cum-Workshop of the National Steering Committee on Seismic Microzonation of Selected Cities in India under the Seismology Division, Ministry of Earth Sciences, Govt. of India**, held on 23rd October 2008 at Salt lake City Extension Center, IIT Kharagpur.

- Delivered an invited lecture on the project proposal “**Seismic Hazard Assessment, Microzonation, and Evaluation of Vulnerability, Risk and Socio-Economic Impacts for the City of Kolkata including Greater Kolkata**”, *at the Third Meeting of the National Steering Committee on Seismic Microzonation of Selected Cities in India under the Seismology Division, Ministry of Earth Sciences, Govt. of India*, convened at IIT Kharagpur Extn Center, Kolkata on 6th August, 2009.
- Delivered an invited talk on “**Seismic Microzonation – Current Trends and Methodologies**” at a special meeting convened on 12th January, 2010 at Mahasagar Bhawan, MoES, GOI, New Delhi to discuss the Methodologies and Practices of Microzonation.
- Delivered the Keynote Address on “**Seismic Hazard in Northeast India with special emphasis to the Seismic Microzonation of Arunachal Pradesh**” at the workshop on “Microzonation of Landslide and Earthquake Hazards in Arunachal Pradesh convened on 29th January, 2010 at State Remote Sensing Application Center, Dept. of IT and Science & Technology, Govt. of Arunachal Pradesh.
- Delivered a technical presentation on “**Seismic Microzonation Practices**” at the workshop on “Microzonation of Landslide and Earthquake Hazards in Arunachal Pradesh convened on 29th January, 2010 at State Remote Sensing Application Center, Dept. of IT and Science & Technology, Govt. of Arunachal Pradesh.

18. Research Achievements during the period: 1991 – 2010

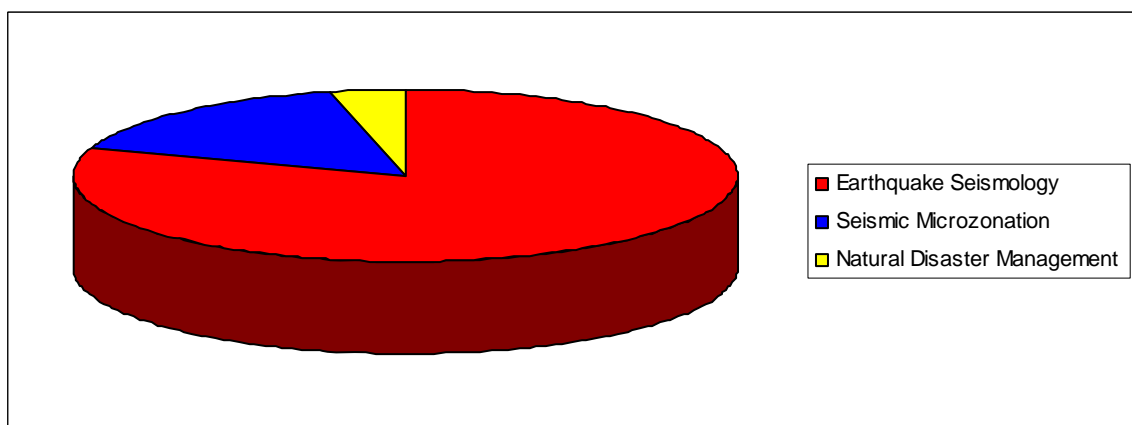
(In terms of Total Publications [156 Nos.] in Peer Reviewed Refereed Journals / Proceedings of Conferences / Symposia / Seminars / Books / Atlas & Monographs)

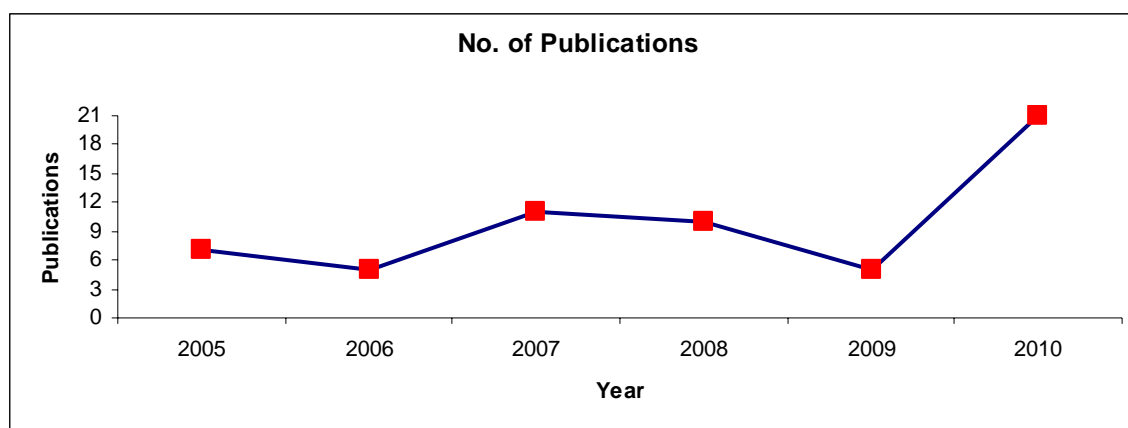
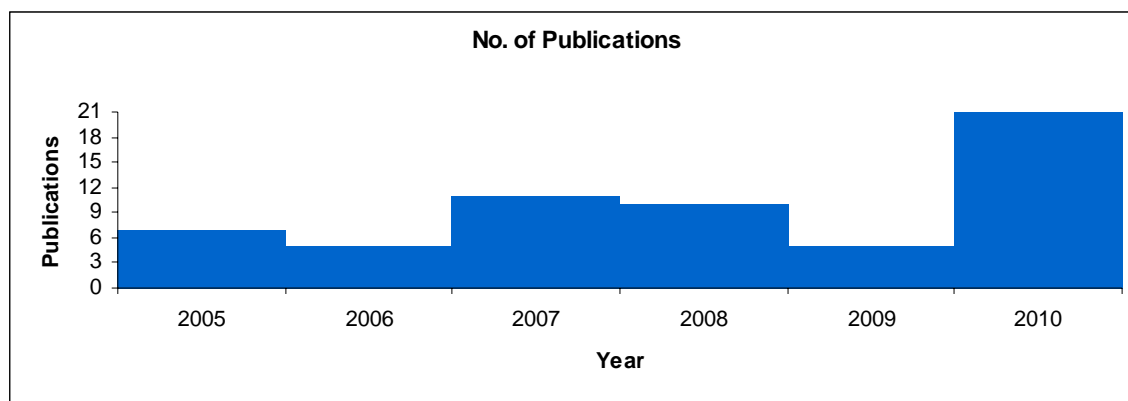




19. Research Achievements during last five years: 2005 – 2010

(In terms of Total Publications [56 nos.] in Peer Reviewed Refereed Journals / Proceedings of Conferences / Symposia / Seminars / Books / Atlas & Monographs)





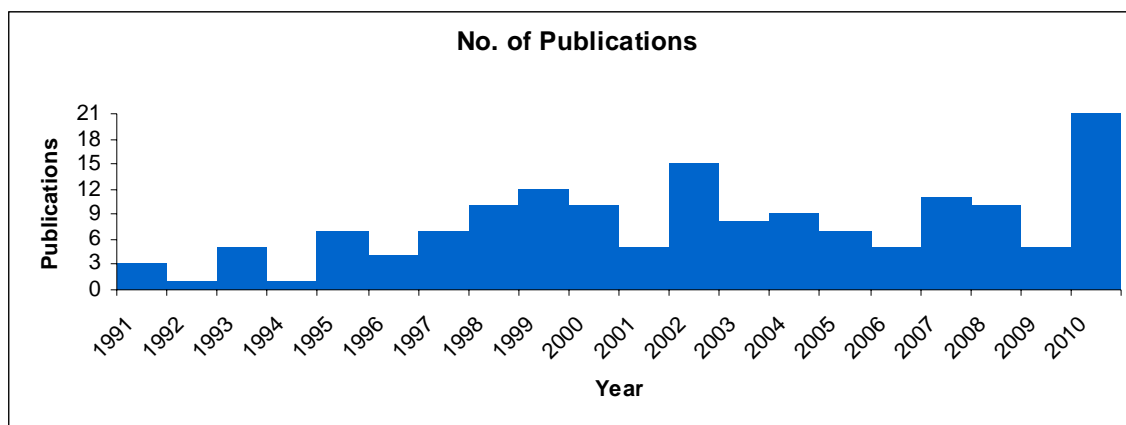
20. List of Publications of Prof. Sankar Kumar Nath

Citation Details:

Period: 1991-2010 (till September, 2010)

- **Number of publications in SCI rated refereed journals: 101**
- **Number of publications in conferences: 49**
- **Number of books/monographs: 06**
- **Number of cited publications: 50**
- **Total citation ~ 327**
- **Average Citation out of total number of publications in SCI rated journals: 3.24**
- **Average Citation out of published cited papers: 6.54**
- **Papers with ≥ 10 citations: 12**
- **Papers with ≥ 15 citations: 09**
- **Maximum citation received by a paper: 31**
- **H-index: 11**

Citation detail of each publication from the search results covering a period from 1991 to 2010 (till September, 2010) is provided in the subsequent pages. The tools employed include Scopus, ISI Web of Knowledge, Google Scholar, and Internet (web).



KEY OBSERAVTIONS:

The citation trends exhibit exponential growth with time.

1. More than 80% of the total citations during the last five years
2. More than 70% of the total citations during the last four years
3. More than 60% of the total citations during the last three years
4. More than 40% of the total citations during the last two years

A. Research papers published in refereed journals:

- [1] Nath, S. K., Majumdar, S. and Sengupta, S., 1991, *Finite element condensation technique in modelling normal incidence synthetic seismograms*, **Indian Journal of Geology**, Vol. 63, No. 1, pp. 06-16.
- [2] Nath, S. K., Majumdar, S. and Sengupta, S., 1991, *Synthetic seismograms by finite element condensation technique for 2D geological structures*, **Journal of AEG (JAEG)**, Vol. XII, No. 1, pp. 45-54.
- [3] Chakraborty, A., Nath, S. K., Roy, J. and Sengupta, S., 1991, *A seismic refraction interpretation package using generalised reciprocal method*, **Journal of AEG (JAEG)**, Vol. XII, No. 2, pp. 113-122.
- [4] Nath, S. K., Majumdar, S. and Sengupta, S., 1992, *Two dimensional seismic modelling by finite element legendre polynomial condensation technique*, **Bollettino Di Geofisica, Teorica ed Applicata** (Bulletin of Geophysics, Pure and Applied), Vol. XXXIV, No. 133, pp. 03-19. [Impact Factor: 0.86]
- [5] Nath, S. K., 1993, *Shallow seismic investigation - A case study*, **Indian Journal of Geology**, Vol. 65, No. 3, pp. 193-205.
- [6] Nath, S. K., Majumdar, S. and Sengupta, S., 1993, *Finite element simulation of two dimensional seismic wave propagation*, **Computers & Structures**, Elsevier Science Ltd., Vol. 49, No. 1, pp. 97-106. [Impact Factor: 1.44]
- [7] Nath, S. K., Majumdar, S. and Sengupta, S., 1993, *Boundary effects in finite element modelling of seismic responses*, **Indian Journal of Petroleum Geology**, Vol. 2, No. 2, pp. 73-88.
- [8] Nath, S. K., Majumdar, S. and Sengupta, S., 1994, *Three dimensional seismic modelling by finite element condensation technique*, **Geophysical Transactions**,

- ELGI, Hungary, Vol. 39, No. 4, pp. 263-288.
- [9] Patra, H. P., Roy, B. and **Nath, S. K.**, 1995, *Transient CFS response over a multi-layer earth*, **Geophysical Transactions**, ELGI, Hungary, Vol. 39, No. 1, pp. 45-59.
- [10] Patra, H. P., Roy, B., **Nath, S. K.** and Shastri, N. L., 1995, *Transient CFS response over a two-layer earth*, **Bollettino Di Geofisica, Teorica ed Applicata** (Bulletin of Geophysics, Pure and Applied), Vol. 37, pp. 207-218. [*Impact Factor: 0.86*]
- [11] **Nath, S. K.**, Singh, S. K., Pani, A. and Sengupta, S., 1995, *Cross-hole Tomographic velocity estimation by ray tracing and back projection methods*, **Indian Journal of Geology**, Vol. 67, No. 4, pp. 263-272.
- [12] Sircar, A., Chouhan, R. K. S. and **Nath, S. K.**, 1996, *Conjugate gradient method - An effective algorithm for Seismic Tomographic Reconstruction*, **Journal of AEG (JAEG)**, Vol. XVII, No. 2, pp. 63-68.
- [13] **Nath, S. K.**, John, R., Singh, S. K., Sengupta, S. and Patra, H. P., 1996, *SEISPACK-An "HP-C" program for seismic refraction interpretation using ray-inversion technique*, **Computers & Geosciences**, Elsevier Science Ltd., Vol. 22, No. 3 (Special Geophysics issue), pp. 305-332. [*Impact Factor: 1.306*]
- [14] **Nath, S. K.**, Singh, S. K., Pani, A. and Sengupta, S., 1997, *Forward Modelling in Cross-hole Seismic Tomography using reciprocity*, **Computers & Structures**, Elsevier Science Ltd., Vol. 63, No. 1, pp. 1-15. [*Impact Factor: 1.44*]
- [15] **Nath, S. K.**, Chatterjee, D., Biswas, N. N., Dravinski, M., Cole, D. A., Papageorgiou, A., Rodriguez, J. A. and Poran, C. J., 1997, *Correlation Study of Shear wave velocity in near surface geologic formations in Anchorage, Alaska*, **Earthquake Spectra**, Earthquake Engineering Research Institute, USA, Vol.13, No. 1, pp. 55-75, Feb, 1997. [*Impact Factor: 2.866*]
- [16] Singh, S. K., **Nath, S. K.**, Ganguly, N., Chakraborty, S. and Sengupta, S., 1997, *Cross-hole Seismic Tomography by Evolutionary Programming*, **Indian Journal of Petroleum Geology**, Vol. 6, No.1, pp.77-86.
- [17] Patra, H. P. and **Nath, S. K.**, 1997, *Goelectric sounding for ground water within hard rocks - A case study*, Wijayananda, N P, Cooray, P G, and Mosley, P (eds.), **Geology in South Asia - II**, Geological Survey & Mines Bureau, Sri Lanka, Professional Paper 7, pp. 423 - 427.
- [18] Shahid, S., **Nath, S. K.** and Patra, H. P., 1998, *Delineation of Well Head Protection Area of a medium range public supply well at Keshpal, Midnapore Dist.*, **Indian Journal of Environmental Protection**, Vol. 18, No. 6, pp. 451-453.
- [19] Chakraborty, S., **Nath, S. K.** and Sengupta, S., 1998, *Seismic Transmission Tomography – A Configurative Approach*, **Acta Geophysica**, Springer, (Formerly *Acta Geophysica Polonica*, Polish Academy of Sciences), Vol. XLVI, No. 4, pp. 389-409. [*Impact Factor: 0.882*]
- [20] **Nath, S. K.**, 1998, *Research Note on The Short term course and Training Workshop on "Site Response and Microzonation Studies from Earthquake Seismology" at the Department of Geology & Geophysics, IIT Kharagpur during May18-22, 1998*, **Journal of The Geological Society of India**, Vol. 52, No. 6, Dec'98, pp. 735-739. [*Impact Factor: 0.424*]

An extract of the report on the proceedings of the workshop is published in the **DST News Letter "Deep Continental Studies in India"** (DCS-DST News), Vol.

- 8, No. 2, pg. 16, August 1998.
- [21] **Nath, S. K.**, Chakraborty, S., Sengupta, P. and Pandey, V., 1999, *Application of Fractal in the Detection of Coal Mining Hazards through Seismic Tomography*, **Indian Journal of Environmental Protection**, Vol. 19, No. 5, pp. 340-344.
- [22] **Nath, S. K.**, Chakraborty, S., Singh, S. K. and Ganguly, N., 1999, *Velocity Inversion in Cross-hole Seismic Tomography by Counter Propagation Neural Network, Genetic Algorithm and Evolutionary Programming Techniques*, **Geophysical Journal International**, Blackwell Science Ltd., Vol. 138, No. 1, pp. 108-124. [Impact Factor: 2.435]
- [23] Shahid, S., **Nath S. K.**, Sircar, A. and Patra, H. P., 1999, *Estimation of Model Parameters from one dimensional Vertical Electrical Sounding Data using Evolutionary Programming Technique*, **Acta Geophysica**, Springer, (Formerly **Acta Geophysica Polonica**, Polish Academy of Sciences), Vol. XLVII, No. 3, pp. 335-348. [Impact Factor: 0.882]
- [24] Shahid, S., **Nath, S. K.** and Patra, H. P., 1999, *Combined Geophysical and Hydrogeological Approach for Ground Water investigation around Nazarganj near Kasai River bed, Midnapur Dist., West Bengal*, **Journal of Applied Hydrology**, Vol. XII, No.4, pp. 15-21.
- [25] Singh, S. K. and **Nath, S. K.**, 1999, *Numerical studies in cross-hole Seismic Tomography*, **Proceedings of Golden Jubilee Seminar on "Exploration Geophysics in India"**. Special Publication No. 49, **Geological Survey of India**, pp. 341-352.
- [26] **Nath, S. K.** and Shahid, S., 1999, *Joint Application of Seismic Refraction and Vertical Electrical Sounding for the delineation of shallow aquifers*, **Current Science**, Vol. 77, No.12, pp. 1612-1623. [Impact Factor: 0.782]
- [27] **Nath, S. K.**, Shahid, S. and Dewangan, P., 2000, *SEISRES - A Visual C++ Program for the Sequential Inversion of Seismic Refraction and Geoelectric Data*, **Computers & Geosciences**, Elsevier Science Ltd., Vol. 26, No.2, pp. 177-200. [Impact Factor: 1.306]
- [28] Shahid, S., **Nath, S. K.** and Roy, J., 2000, *Ground Water Potential Modeling in a soft rock area using a GIS*, **International Journal of Remote Sensing**, Vol. 21, No. 9, pp. 1919-1924. [Impact Factor: 1.089]
- [29] Shahid, S., **Nath, S. K.** and Patra, H. P., 2000, *Ground water assessment and management within typical laterites around Salboni, District Midnapur (W.B.)*, **Journal of Indian Water Works Association**, Vol. XXXII, No. 2, pp. 101-106.
- [30] Picq, T., **Nath, S. K.** and Sengupta, P., 2000, *Determination of Site Factor in and around Rhine Graben, France in the 1-11Hz Frequency band by Non-reference Network Average Technique*, **Acta Geodaetica et Geophysica Hungarica**, Vol. 35, No. 3, pp. 333-350.
- [31] **Nath, S. K.**, Sengupta, P., Sengupta, S. and Chakrabarti, A., 2000, *Site Response Estimation using Strong Motion Network: A Step towards Microzonation of the Sikkim Himalayas*, Special Section: 'Seismology 2000', **Current Science**, Vol. 79, No. 9, pp.1316 - 1326. [Impact Factor: 0.782]
- [32] Dutta, U., Biswas, N., Martirosyan, A., **Nath, S.**, Dravinski, M., Papageorgiou, A. and Combellick, R., 2000, *Delineation of spatial variation of shear wave velocity with high-frequency Rayleigh waves in Anchorage, Alaska*, **Geophysical Journal**

- International**, Blackwell Science Ltd., Vol. 143, No. 2, pp. 365-375. [*Impact Factor: 2.435*]
- [33] **Nath, S. K.** and Chakraborty, S., 2000, *Transmission Seismic Imaging of the subsurface using Simulated Evolution Techniques*, **Exploration Geophysics**, Australian Society of Exploration Geophysicists, Vol. 31, No. 4, pp. 552-564.
- [34] Sarkar, S., Bandopadhyay, M., Dikshit, A. K., Patra, H. P. and **Nath, S. K.**, 2001, *Analysis of pump test data and design of Radial Collector Well on Damodar River bed near Edilpur, Burdwan district, West Bengal*, **Journal of Applied Hydrology**, Vol. XIV, No. 1, pp. 30-45.
- [35] Sarkar, S., Patra, H. P., **Nath, S. K.**, Bandopadhyay, M. and Dikshit, A. K., 2001, *Groundwater investigations around Damodar River bed near Edilpur, Kathgolaghat, Burdwan district, West Bengal*, **Journal of Water Works Association**, Vol. XXXIII, No. 4, pp. 313-321.
- [36] Kayal, J. R., **Nath, S. K.**, Goswami, T. R., Roy, S., Ram, S. and Srirama, B. V., 2002, *Site Response Study by Shear-wave Spectral analysis using the 1999 Chamoli Earthquake sequence in Garhwal Himalaya*, **Himalayan Geology**, Vol. 23, No. 1&2, pp. 45-50.
- [37] **Nath, S. K.** and Dewangan, P., 2002, *Detection of Seismic Reflections from Seismic Attributes through Fractal Analysis*, **Geophysical Prospecting**, EAGE, Vol. 50, No. 3, pp. 341-360. [*Impact Factor: 1.772*]
- [38] Shahid, S. and **Nath, S. K.**, 2002, *Estimation of Aquifer parameters from surface Geoelectric measurements for the selection of suitable well sites*, **Journal of Applied Hydrology**, Vol. XV, No.1, pp. 41-49.
- [39] **Nath, S. K.**, Sengupta, P. and Kayal, J. R., 2002, *Determination of S-Wave Site Response at Garhwal Himalaya from the aftershock sequence of 1999 Chamoli Earthquake*, **Bulletin of the Seismological Society of America**, Vol. 92, No. 3, pp. 1072-1081. [*Impact Factor: 1.86*]
- [40] **Nath, S. K.**, Biswas, N. N., Dravinski, M. and Papageorgiou, A., 2002, *Determination of S-wave Site Response in Anchorage, Alaska in the 1-9Hz Frequency Band*, **PAGEOPH (Pure and Applied Geophysics)**, Birkhauser Verlag, Switzerland, Vol. 159, No. 11-12, pp. 2673-2698. [*Impact Factor: 0.938*]
- [41] **Nath, S. K.**, 2002, *Microzonation of Sikkim – Making headway*, **DST EQ News**, Vol. 3, No.1, p 9.
- [42] Shahid, S. and **Nath, S.K.**, 2002, *GIS integration of remote sensing and electrical sounding data for hydrogeological exploration*, **Journal of Spatial Hydrology**, Vol. 2, No.1, pp. 1-12.
- [43] Shahid, S., Kamal, A. S. M. M. and **Nath, S. K.**, 2002, *Integration of IRS-1B LISS-II Data using Geographic Information System for Hydrogeological Exploration*, **Bangladesh Geoscience Journal**, Vol. 5, No. 1.
- [44] Sarkar, S. and **Nath, S. K.**, 2002, *Delineating wellhead protection area for a well field in Bardhaman, West Bengal*, **Indian Journal of Environmental Protection**.
- [45] Shahid, S., **Nath, S. K.** and Kamal, A. S. M. M., 2002, *GIS integration of remote sensing and topographic data using fuzzy logic for ground water assessment in Midnapur District, India*, **Geo-carto International**, Vol. 17, No. 3, pp. 69 - 74.

- [46] Shahid, S. and **Nath, S. K.**, 2002, *Hydrogeological Exploration using GIS based Decision Making Tools*, **Bangladesh Academy for Advancement of Science**.
- [47] **Nath, S. K.** and Behura, J., 2003, *A least area approach of Hough Transform for pattern recognition in seismic reflection*, **Acta Geophysica**, Springer, (Formerly **Acta Geophysica Polonica**, Polish Academy of Sciences), Vol. 51, No. 2, pp. 155-164. [*Impact Factor: 0.882*]
- [48] **Nath, S. K.**, Sengupta, P., Srivastav, S. K., Bhattacharya, S. N., Dattatrayam, R. S., Prakash, R. and Gupta, H. V., 2003, *Estimation of S-Wave Site Response in and around Delhi Region From Weak Motion Data*, **Journal of Earth System Science**, Previously Proceedings of The Indian Academy of Sciences - Earth and Planetary Sciences, Vol. 112, No. 3, pp. 441-462. [*Impact Factor: 0.819*]
- [49] **Nath, S. K.**, 2003, *Sikkim Strong Motion Array by Indian Institute of Technology Kharagpur*, **DST Atlas on “Strong Motion Studies in India”**, pp. 17-23.
- [50] **Nath, S. K.**, 2003, *Seismic Microzonation & Hazard Mapping of Sikkim Himalaya through GIS Integration of Geological and Strong Motion Features”*, **DST Atlas on “Strong Motion Studies in India”**, pp. 05-09.
- [51] **Nath, S. K.** and Chakraborty, S., 2004, *Seismic Transmission and Electrical resistivity tomography for the delineation of mine galleries in the Raniganj Coalfield, India*, **First Break**, EAGE, Vol. 22, pp. 35-51.
- [52] **Nath, S. K.**, 2004, *Seismic Hazard Mapping and Microzonation in the Sikkim Himalaya through GIS Integration of Site Effects and Strong Ground Motion Attributes*, Special Issue “**Natural Hazards in South-Asia**” in **Natural Hazards**, Journal of the International Society for the Prevention and Mitigation of Natural Hazards, Vol. 31, No. 2, pp. 319-342. [*Impact Factor: 1.217*]
- [53] **Nath, S. K.**, 2004, *Cross-hole Seismic Tomography – A Geophysical Tool for detecting Mine Galleries*, **National Academy Science Letters**, Vol. 27, No. 3 & 4, pp. 77-94.
- [54] **Nath, S. K.**, Vyas, M., Pal, I. and Sengupta, P., 2005, *A Seismic Hazard Scenario in the Sikkim Himalaya from Seismotectonics, Spectral Amplification, Source Parameterization and Spectral Attenuation Laws using Strong Motion Seismometry*, **Journal of Geophysical Research (Solid Earth)**, AGU, Vol. 110, No. B1, B01301, pp. 1-24 (10.1029/2004JB003199). [*Impact Factor: 3.082*]
- [55] **Nath, S. K.**, Vyas, M., Pal, I., Singh, A. K., Mukherjee, S., and Sengupta, P., 2005, *Spectral Attenuation Models in the Sikkim Himalaya from the Observed and Simulated Strong Motion Events in the Region*, **Current Science**, Vol. 88, No. 2, pp. 295-303. [*Impact Factor: 0.782*]
- [56] Vyas, M., **Nath, S. K.**, Pal, I., Sengupta, P. and Mohanty, W. K., 2005, *GSHAP revisited for the Prediction of Maximum Credible Earthquake in the Sikkim Region, India*, **Acta Geophysica**, Springer, (Formerly **Acta Geophysica Polonica**, Polish Academy of Sciences), Vol. 53, No. 2, pp. 143-152. [*Impact Factor: 0.882*]
- [57] **Nath, S. K.**, Bhattacharya, S. N., Vyas, M., Pal, I., Sengupta, P., Mitra, S., Mohanty, W. K. and Ganguli, S. S., 2005, *The Great Sumatra-Andaman Earthquake of 26 December 2004 as perceived from the broadband seismograms of IIT, Kharagpur Seismological Observatory*, **Current Science**, Vol. 88, No. 9, pp. 1381-1383. [*Impact Factor: 0.782*]

- [58] **Nath, S. K.**, 2005, *An Initial Model of Seismic Microzonation of Sikkim Himalaya through thematic mapping and GIS Integration of Geological and Strong Motion Features*, **Journal of Asian Earth Sciences**, Elsevier Science Ltd., Vol. 25, pp. 329-343. [Impact Factor: 1.842]
- [59] Acton, C., Mitra, S., Mukul, M., Priestley, K., **Nath, S. K.**, 2005. Crustal Structure beneath the Darjeeling-Sikkim Himalaya from Teleseismic Receiver Functions. **EOS Trans. AGU**, 86 (53).
- [60] **Nath, S. K.**, Sengupta, P., Nath, A. and Bansal, B. K., 2006, *GIS based Seismic Hazard Mapping in the Sikkim Himalaya incorporating Site Conditions*, **Journal of Natural Disaster Science**.
- [61] Mohanty, W. K., Walling, M. Y., **Nath, S. K.**, and Pal, I., 2007, *First Order Seismic Microzonation of Delhi, India using Geographic Information System (GIS)*, **Natural Hazards**, Springer, Vol. 40, pp. 245–260. [Impact Factor: 1.217]
- [62] Mohanty, W. K., Aurobinda Routray, A., and **Nath, S. K.**, 2007, *A New Strategy for Phase Detection in Seismic Signals using an Adaptive Markov Amplitude Model*, **Current Science**, Vol. 93(1), pp. 54–60. [Impact Factor: 0.782]
- [63] **Nath, S. K.**, 2007, *Seismic Microzonation and Earthquake Hazard Assessment*, “**Natural Hazards**” Special Volume by the **Indian Geological Congress**. pp. 213–228.
- [64] Singha Roy, P. N., and **Nath, S. K.**, 2007, *Precursory Correlation Dimensions for three Great Earthquakes*, **Current Science**, Vol. 93(11), pp. 1522–1529. [Impact Factor: 0.782]
- [65] **Nath, S.K.**, Thingbaijam, K.K.S., Raj, A., Shukla, K., Pal, I., Nandy, D. R., Yadav, M.K., Bansal, B.K., Dasgupta, S., Majumdar, K., Kayal, J.R., Shukla, A.K., Deb, S.K., Pathak, J., Hazarika, P.J. and Paul, D.K., 2008, *Seismic Scenario of Guwahati City*, **Earthquake Hazards & Mitigation** (Proceedings volume of the International Workshop on Earthquake Hazards and Mitigations (EHAM-2007) held on Dec 07-08, 2007 at Guwahati, India), Editors R. Ayothiraman & Hemanta Hazarika, pp. 210-218, IK International Publishing House, New Delhi.
- [66] Thingbaijam, K. K. Singh, and **Nath, S. K.**, 2008, *Maximum Credible Earthquake Prediction – A Neural Network Approach*, **Earthquake Hazards & Mitigation** (Proceedings volume of the International Workshop on Earthquake Hazards and Mitigations (EHAM-2007) held on Dec 07-08, 2007 at Guwahati, India), Editors R. Ayothiraman & Hemanta Hazarika, pp. 219-227, IK International Publishing House, New Delhi.
- [67] Thingbaijam, K. K. S., **Nath, S. K.**, Yadav, A., Raj, A., Walling, M. Y. and Mohanty, W. K., 2008, *Recent Seismicity in Northeast India and its Adjoining Region*, **Journal of Seismology**, Vol. 12(1), pp. 107–123. [Impact Factor: 1.097]
- [68] **Nath, S. K.**, Roy, D., and Thingbaijam, K. K. Singh, 2008, *Disaster Mitigation and Management for West Bengal, India – an Appraisal*, **Current Science**, Vol. 94(7), pp. 858–864. [Impact Factor: 0.782]
- [69] Pal, I., **Nath, S. K.**, Shukla, K., Pal, D. K., Raj, A., Thingbaijam, K. K. S. and Bansal, B. K., 2008, *Earthquake Hazard Zonation of Sikkim Himalaya using a GIS Platform*, **Natural Hazards**, Vol. 45, pp. 333-377. [Impact Factor: 1.217]
- [70] Thingbaijam, K. K. S. and **Nath, S. K.**, 2008, *Estimation of Maximum Earthquakes in Northeast Indian*, **PAGEOPH**, Vol. 165, pp. 889-901. [Impact Factor: 0.938]

- [71] **Nath, S. K.**, Raj, A., Sharma, J., Thingbaijam, K.K.S., Kumar, A., Nandy, D. R., Yadav, M. K., Dasgupta, S., Majumdar, K., Kayal, J. R., Shukla, A. K., Deb, S. K., Pathak, J., Hazarika, P. J., Paul, D. K. and Bansal, B. K., 2008, *Site Amplification, Q_s and Source Parameterization in Guwahati Region from Seismic and Geotechnical Analysis*, **Seismological Research Letters (SRL)**, Vol. 79(4), pp. 526-539. [Impact Factor : 1.714]
- [72] Mitra, S., Bhattacharya, S. N. and **Nath, S. K.**, 2008, *Crustal Structure of the Western Bengal Basin from joint analysis of Teleseismic Receiver Functions and Rayleigh wave dispersion*, **Bulletin of the Seismological Society of America**, Vol. 98, No. 6, pp. 2715-2723. [Impact Factor: 1.86]
- [73] Raj, A., **Nath, S. K.**, and Thingbaijam, K. K. S., 2008, *A Note on the Recent Earthquakes in the Bengal Basin*, **Current Science**, Vol. 95(9), pp. 1127–1129. [Impact Factor: 0.782]
- [74] **Nath, S. K.**, Shukla, K., and Vyas, M., 2008, *Seismic Hazard Scenario and Attenuation Model of the Garhwal Himalaya using Near Field Synthesis from Weak Motion Seismometry*, **Journal of Earth System Science**, Vol. 117, S2, pp. 649-670, **Seismic Microzonation Special Volume**. [Impact Factor: 0.819]
- [75] **Nath, S. K.**, Thingbaijam, K. K. S., and Raj, A., 2008, *Earthquake Hazard in the Northeast India - A Seismic Microzonation Approach with Typical Case Studies from Sikkim Himalaya and Guwahati city*, **Journal of Earth System Science**, Vol. 117, S2, pp. 809-831, **Seismic Microzonation Special Volume**. [Impact Factor: 0.819]
- [76] Raj A., **S.K. Nath**, B.K. Bansal, Thingbaijam, K.K.S., Kumar, A., Thiruvengadam, N., Yadav, A., and Arrawatia, M.L., 2009, *Rapid Estimation of Source Parameters using Finite Fault Modeling - Case Studies from the Sikkim and Garhwal Himalaya*, **Seismological Research Letters (SRL)**, Vol. 80(1), pp. 89-96. [Impact Factor: 1.714]
- [77] **Nath, S. K.**, Raj, A., Kumar, A. and Thingbaijam, K. K. S., 2009, *Ground Motion Synthesis and Seismic Scenario in Guwahati City – A Stochastic Approach*, **Seismological Research Letters (SRL)**, Vol. 80(2), pp. 233-242. [Impact Factor: 1.714]
- [78] Thingbaijam, K. K. S., Chingtham, P. and **Nath, S. K.**, 2009, *Seismicity in the Northwest Frontier Province of Indian-Eurasian Plate Convergences*, **Seismological Research Letters (SRL)**, Vol. 80(4), pp. 599-608. [Impact Factor: 1.714]
- [79] Walling, M. Y., Mohanty, W. K., **Nath, S. K.**, Mitra, S. and John, A., 2009, *Microtremor survey in Talchir, India to ascertain its basin Characteristics in terms of predominant frequency by Nakamura's ratio technique*, **Engineering Geology**, Vol.106, pp. 123-132. [Impact Factor: 1.212]
- [80] **Nath, S. K.**, and Thingbaijam, K.K.S., 2009, *Seismic hazard assessment - A holistic microzonation approach*, **Natural Hazards and Earth System Sciences**, Vol. 09(4), pp. 1445-1459. [Impact Factor: 1.357]
- [81] Anbazhagan, P., Thingbaijam, K.K.S., **Nath, S.K.**, Narendara Kumar J.N., and Sitharam, T.G., 2010, *Multi-Criteria Seismic Hazard Evaluation for Bangalore City, India*, **Journal of Asian Earth Sciences**, Vol. 38, pp. 186-198. [Impact Factor: 1.842]

- [82] **Nath S. K.**, Thingbaijam, K.K.S., Vyas, J.C., Prakash Dev, S. M. S., and Sengupta, P., 2010, *Macroseismic-driven Site Effects in the Southern Territory of West Bengal*, **Seismological Research Letters (SRL)**, Vol. 81(3), pp. 480-487. [*Impact Factor : 1.714*]
- [83] Vaccari, F., Walling, M. Y., Mohanty, W. K., **Nath, S. K.**, Verma, A. K., Sengupta, A. and Panza, G. F., 2010, *Site-Specific modeling of SH and P-SV Waves for Microzonation Study of Kolkata Metropolitan City, India*, **PAGEOPH**, Published online: DOI 10.1007/s00024-010-0141-x. [*Impact Factor: 0.938*]
- [84] **Nath, S. K.**, and Thingbaijam, K.K.S., 2010, *Assessment of Seismic Site Condition: a Case Study from Guwahati city, Northeast India*, **PAGEOPH**, (in press). [*Impact Factor: 0.938*]
- [85] **Nath, S. K.** and Thingbaijam, K.K.S., 2010, *Comments on "Estimation of Seismicity Parameters for India" by S.T.G. Raghukanth* (Seismological Research Letters, 2010, 81, 207- 217), **Seismological Research Letters (SRL)**, Vol. 81, Nov.-Dec '10 issue (in press). [*Impact Factor: 1.714*]
- [86] **Nath, S. K.**, Thingbaijam, K.K.S., Sengupta, P., and Mistri, S., 2010, *Fractal analysis of major faults in India on a regional scale*, **Journal of the Geological Society of India**, [*Impact Factor: 0.424*], (Manuscript under review).
- [87] Thingbaijam, K.K.S. and **Nath, S. K.**, 2010, *A Seismogenic Source Framework for Indian subcontinent*, **Bulletin of the Seismological Society of America**, [*Impact Factor: 1.86*], (Manuscript under revision).
- [88] **Nath, S. K.**, Thingbaijam, K.K.S., and Ghosh, S. K., 2010, *Earthquake catalogue of South Asia: A generic MW scale framework*, **Int. J. Appl. Earth Observation & Geoinformation**, [*Impact Factor: 1.776*], (Manuscript under review).
- [89] **Nath, S. K.**, Thingbaijam, K.K.S., Adhikari, M. D., Devraj, N., Nayak, A., Ghosh, S. K., and Mahajan, A. K., 2010, *Seismic Site Classification and Spectral Analyses: A Regional Level Study in India*, **Journal of Earthquake Engineering**, [*Impact Factor: 0.587*], (manuscript under review).
- [90] Nayak, A., **Nath, S. K.**, and Thingbaijam, K.K.S., 2010, *New Insights into Path Attenuation of Ground Motions in NW Himalayas and NE India*, **Bulletin of the Seismological Society of America**, [*Impact Factor: 1.86*], (Manuscript under review).
- [91] Dasadhikari, M., **Nath, S. K.** and Maiti, S. K., 2010, *Landslide Hazard and Risk Analysis in India at a Regional Scale*, **Disaster Advances**, [*Impact Factor: 0.138*] (Manuscript under review).
- [92] **Nath, S. K.** and Thingbaijam, K.K.S., 2010, *Peak Ground Motion Predictions in India: A short review and appraisal for accelerations at rock sites*, **Journal of Seismology**, [*Impact Factor: 1.097*], (Manuscript under review).
- [93] **Nath, S. K.** and Thingbaijam, K.K.S., 2010, *Probabilistic Seismic Hazard Analyses in India*, **Bulletin of the Seismological Society of America**, [*Impact Factor: 1.86*], (Manuscript under review).
- [94] **Nath, S. K.**, Maity, S. K., Bora, S. S., Singh, Y., Yadav, A. K., and Dasadhikari, M., 2010, *Deterministic Seismic Hazard Assessment for Indian Subcontinent*, **Earth Science Reviews**, [*Impact Factor: 6.942*], (Manuscript communicated).
- [95] **Nath, S. K.**, Maity, S. K., Bora, S. S., Yadav, A. K., and Sengupta, P., 2010,

- Seismic Hazard Assessment for Gujarat, Western India in both Deterministic and Probabilistic Framework*, **Journal of Earth System Science**, [Impact Factor: 0.819] (Manuscript communicated).
- [96] **Nath, S. K.**, Maity, S. K., Singh, Y., Yadav, A. K., and Dasadhikari, M., 2010, *Seismic Hazard Assessment in Koyna-Warna Region in both the Deterministic and Probabilistic Framework*, **Journal of Asian Earth Sciences**, [Impact Factor: 1.842], (Manuscript communicated).
- [97] Maity, S. K., **Nath, S. K.**, Sengupta, P., and Dasadhikari, M., 2010, *Seismic Hazard Assessment in Central India in both the Deterministic and Probabilistic Framework*, **PAGEOPH** [Impact Factor: 0.938], (Manuscript communicated).
- [98] Nayak, A., and Thingbaijam, K.K.S., 2010, *Seismic Scenario in the Northwest Himalaya from historical earthquakes in the territory*, **Journal of Earth System Science**, [Impact Factor: 0.819], (Manuscript communicated).
- [99] **Nath, S. K.**, Chintha, N., and Roy, D., 2010, *Geotechnical Investigation in the Guwahati Region, northeast India for Seismic Hazard Assessment*, **Journal of Earthquake Engineering**, [Impact Factor: 0.587], (Manuscript communicated).
- [100] Yadav, A. and Nath S. K., 2010, *Probabilistic and deterministic Seismic Scenarion in the Sikkim Himalaya*, **Journal of the Geological Society of India**, [Impact Factor: 0.424], (Manuscript communicated).
- [101] Maity, S. K., **Nath, S. K.**, and Dasadhikari, M., 2010, *Seismic Hazard Assessment in Arunachal Pradesh, India in the Deterministic*, **Disaster Advances**, [Impact Factor: 0.138], (Manuscript under review).

B. List of papers published in Conferences / Symposia / Seminars, etc.:

- [1] **Nath, S. K.**, Majumdar, S. and Sengupta, S., 1990, *Simulation of seismic responses by finite element condensation*, 35th Congress of **ISTAM**, Paper No. MC-30.
- [2] **Nath, S. K.**, Majumdar, S. and Sengupta, S., 1993. *Finite element simulation of 3D seismic wave propagation*, 38th Congress of **ISTAM**, Paper No. MC-02, (Abstract published, pp. 53-54).
- [3] Bhattacharjee, T, **Nath, S. K.** and Sengupta, S., 1993, *Finite element simulation of offset synthetic vertical seismic profiles (2D)*, 38th Congress of **ISTAM**, paper No. MC-03 (abstract published, pp. 54-55).
- [4] Patra, H. P. and **Nath, S. K.**, 1995, *Geoelectric sounding for ground water within hard rocks - A case study*, Presented at **GEOSAS-II** (Second South Asian Geological Congress), Colombo, Sri Lanka. Professional Paper No.7.
- [5] Sircar, A., Chouhan, R. K. S. and **Nath, S. K.**, 1995, *Conjugate gradient method - An effective algorithm for Seismic Tomographic Reconstruction*, Paper No. 11, presented at 21st annual convention on Exploration Geophysics, AEG, Feb 6-8, 1995. Abstract Published.
- [6] Singh, S. K. and **Nath, S. K.**, 1995, *Numerical Studies in Cross-hole Seismic Tomography*, **Golden Jubilee Seminar on Exploration Geophysics in India**, Geological Survey of India, and Nov. 1995.
- [7] **Nath, S. K.**, Chatterjee, D., Biswas, N. N. and Dravinski, M., 1996, *Shear Wave Velocity measurement in near surface geological formations in Anchorage, Alaska*,

- SSA-96**, 91st Annual Meeting of **Seismological Society of America** at America's Centre, St. Louis, Missouri, USA, April 01-03, 1996. Abstract published in **Seismological Research Letters**, Vol. 67, No. 2, pg. 48.
- [8] Guha, J., Patra, H. P. and **Nath, S. K.**, 1996, *Studies on Ground water availability on Kasai River bed around Nazarganz, Midnapore district*, Seminar on Aquifer Characteristics and Ground Water Management in Eastern India, Dept. of Geological Sciences, Jadavpur University, March 15-16, 1996, Calcutta. Full paper in the Proceedings volume of the seminar, pp. 85-95. Published in 1999.
- [9] **Nath, S. K.**, Chatterjee, D., Biswas, N. N., Dravinski, M. and Papageorgiou, A., 1997, *Determination of site amplification factor in Anchorage, Alaska in the 1-11 Hz. frequency band*, **SSA-97**, 92nd Annual Meeting of **Seismological Society of America** at Hawaiian Regent Hotel, Honolulu, USA, April 09-11, 1997. Paper No. C12. Abstract published in **Seismological Research Letters**, Vol. 68, No. 2, pg.311.
- [10] Chatterjee, D., **Nath, S. K.**, Biswas, N. N., Dravinski, M. and Papageorgiou, A., 1997, *Shear Wave Velocity distribution in near surface geological formation in Anchorage, Alaska*, **SSA-97**, 92nd Annual Meeting of **Seismological Society of America** at Hawaiian Regent Hotel, Honolulu, USA, April 09-11, 1997. Paper No. C13. Abstract published in **Seismological Research Letters**, Vol. 68, No. 2, pg. 312.
- [11] Shahid, S., **Nath, S. K.**, Sircar, A. and Patra, H. P., 1998, *Integrated Geophysical Approach to Study the Ground Water Potential of Keshpal, Midnapore District, W.B., India*, full paper presented in **International Seminar on Geoscience and Urban Development**, Feb 24-26, 1998, Dhaka, Bangladesh. Abstract Vol., pg. 48.
- [12] **Nath, S. K.**, Biswas, N. and Sengupta, S., 1998, *Earthquake Hazard Studies in Anchorage, Alaska*, full paper presented in **International Seminar on Geoscience and Urban Development**, Feb 24-26, 1998, Dhaka. Abstract Vol., pg. 55.
- [13] Chakraborty, S., **Nath, S. K.** and Sinha, M., 1998, *Numerical Modelling in Seismic Transmission Tomography using Simultaneous Iterative Reconstruction and Evolutionary Programming Approaches*, Presented at **International Conference on Theoretical, Applied, Computational and Experimental Mechanics**, (ICTACEM98) IIT Kharagpur, India during December 1-5, 1998.
- [14] Sengupta, S. and **Nath, S. K.**, 1998, *General Introduction*, **Proceedings volume** of the **DST sponsored short-term course and training workshop (SRMSES'98)** during May18-22, 1998, Dept. of Geology & Geophysics, IIT Kharagpur, pp.1-7.
- [15] **Nath, S. K.**, 1998, *Site amplification in seismic microzonation - a case study from Anchorage, Alaska*, **Proceedings volume** of the **DST sponsored short-term course and training workshop (SRMSES'98)** during May18-22, 1998, Dept. of Geology & Geophysics, IIT Kharagpur, pp.71-88.
- [16] **Nath, S. K.**, Patro, K. S. S., Sengupta, P. and Sengupta, S., 1998, *Strong ground motion simulation from microearthquakes*, **Proceedings volume** of the **DST sponsored short-term course and training workshop (SRMSES'98)** during May18-22, 1998, Dept. of Geology & Geophysics, IIT Kharagpur, pp.99-116.
- [17] **Nath, S. K.**, 1998, *Cross-hole Seismic Tomography*, Special lecture on "Cross-hole Tomography" at the **Training Course on "Use of Geophysical Methods in Mine Planning & Safety"**, at ISM Dhanbad, jointly organized by Association of Exploration Geophysicists and Indian School of Mines, Sept 19, 1998.

- [18] Kayal, J. R., **Nath, S. K.**, Goswami, T. R., Ram, Sagina, Srirama, B. V. and Shanker, Ravi, 1999, *Site response study by shear-wave spectral analysis using the 1999 Chamoli Earthquake sequence in Garhwal Himalaya*, DST sponsored Workshop on “**Chamoli Earthquake and Its Impact**” at WIHG during Oct.22-23, 1999.
- [19] **Nath, S. K.**, 1999, *Site response and microzonation studies from earthquake seismology*, Special lecture at the DST sponsored short-term course and workshop on “**Paleoseismicity & Active Tectonics in NE India**” at Manipur University, Imphal, during Nov.15-20, 1999.
- [20] **Nath, S. K.**, 1999, *Seismicity of Sikkim Himalayas*, Presentation at DST PAMC Meeting at IIT Mumbai, during Dec.09-10, 1999.
- [21] **Nath, S. K.**, 1999, *Site response and microzonation*, Lecture at the AICTE sponsored short-term course on “**Random Vibration and Applications to Earthquake Engineering**” during Dec.21-31, 1999 at the Department of Civil Engineering, IIT Kharagpur.
- [22] **Nath, S. K.**, Sengupta, P. and Sengupta, S., 2000, *Microzonation of Sikkim Himalayas through Site Response Estimation in the 1-11 Hz Frequency band*, **Third Meeting of Asian Seismological Commission & Symposium on “Seismology, Earthquake Hazard Assessment and Earth’s Interior related topics”** at Institute of Geophysics, University of Tehran, Iran during October 10-12, 2000. Paper No. S211. Abstract in the proceedings volume, pp. 35-36.
- [23] **Nath, S. K.**, Sengupta, P. and Kayal, J. R., 2000, *Estimation of Site Response by Shear Wave Spectral Analysis at Garhwal Himalaya from the after shock sequence of 1999 Chamoli Earthquake*, **Third Meeting of Asian Seismological Commission & Symposium on “Seismology, Earthquake Hazard Assessment and Earth’s Interior related topics”** at Institute of Geophysics, University of Tehran, Iran during October 10-12, 2000. Paper No. S244. Abstract in the proceedings volume, pp. 49-50.
- [24] **Nath, S. K.**, 2001, *Seismic Microzonation Assessment with special emphasis to Site Response*, Invited Talk at Indo-Italian Workshop on “**Seismic Risk Analysis**” sponsored by DST and External Affairs Ministry of Italy during March 06-09, 2001 at National Geophysical Research Institute, Hyderabad.
- [25] **Nath, S. K.**, 2001, *Seismic Microzonation and Earthquake Hazards*, Seminar on “**Earthquake Preparedness**” by Breakthrough Science Society, IIT Kharagpur on 2nd April, 2001.
- [26] **Nath, S. K.**, Sengupta, P., Srivastav, S. K., Bhattacharya, S. N., Dattatrayam, R. S. and Prakash, R., 2001, *Estimation of S-wave site response in and around Delhi region from weak motion data*, **International Conference on Seismic Hazard with particular reference to Bhuj Earthquake of January 26, 2001**, Oct. 3-5, 2001, New Delhi.
- [27] **Nath, S. K.**, 2002, *Microzonation of Sikkim Region*, **DST Review Meeting**, Feb. 19-20, 2002, IIT Kharagpur.
- [28] **Nath, S. K.**, 2002, *Microzonation of Sikkim*, **17th HKT Workshop**, March 25-27, 2002, Gangtok, Sikkim, Abstract pp.15-16.
- [29] **Nath, S. K.**, 2002, *Seismic Microzonation and Hazard Mapping of Sikkim Himalaya through GIS Integration of Geological and Strong Motion Features*, **DST Expert**

- Group Meeting** on ‘Strong Motion Studies in the Himalayas’ at IIT Roorkee, June 24-25, 2002.
- [30] **Nath, S. K.**, 2002, *GIS based Seismic Hazard mapping in the Sikkim Himalaya*, **12th Symposium on Earthquake Engineering** at IIT Roorkee during Dec. 16-18, 2002.
- [31] **Nath, S. K.**, 2003, *Status of Earthquake Engineering Education at IIT Kharagpur*, **National Workshop on NPEEE** at New Delhi on April 05, 2003.
- [32] **Nath, S. K.**, Sengupta, P., Pal, I. and Mohanty, W. K., 2003, *Seismotectonic and Hazard model of Sikkim Himalaya*, International Symposium on Natural Hazards **INTROMET – 2003**, Hyderabad during July 23-26, 2003.
- [33] **Nath, S. K.**, Sengupta, P., Pal, I. and Roy, D., 2003, *GIS based Seismic Hazard Zonation in the Sikkim Himalaya*, **IUGG 2003, Abstract No.: 017407-1**.
- [34] **Nath, S. K.** and Roy, D., 2003, *Influence of Topography on Site Response in Sikkim Himalayas*, **13th World Conference on Earthquake Engineering**, August 1 - 6, 2004, Vancouver, B.C., Canada.
- [35] **Nath, S. K.**, 2004, *Application of Fractal, Hough and Hilbert-Huang Transform in Seismic Reflection Prospecting*, Invited talk at the 5th Conference & Exposition on Petroleum Geophysics organized by the Society of Petroleum Geophysicists during 15-17 January, 2004 at Hotel Taj Krishna, Hyderabad. Abstract in the Proceedings volume II of SPG.
- [36] **Nath, S. K.**, 2004, *Site Specific Earthquake Hazard in Urban Northeastern India*, Invited talk at the National Workshop at IIT Guwahati, Feb 03-06, 2004. Abstract in the Proceedings volume.
- [37] **Nath, S. K.**, 2004, *Seismic Refraction and Reflection Profiling*, Invited Lecture at the NPEEE (MHRD) Short-term course and workshop on “**Soil Dynamics And Earthquake Engineering**” at Civil Engineering Dept., IIT Kharagpur during July 06-11, 2004, papers in the proceedings volume.
- [38] **Nath, S. K.**, 2004, *Geotomography*, Invited Lecture at the NPEEE (MHRD) Short-term course and workshop on “**Soil Dynamics And Earthquake Engineering**” at Civil Engineering Dept., IIT Kharagpur during July 06-11, 2004, papers in the proceedings volume.
- [39] **Nath, S. K.**, 2004, *Microzonation Techniques and their Implementation on the GIS platform*, Invited Lecture at the NPEEE (MHRD) Short-term course and workshop on “**Soil Dynamics And Earthquake Engineering**” at Civil Engineering Dept., IIT Kharagpur during July 06-11, 2004, papers in the proceedings volume.
- [40] **Nath, S. K.**, Mitra, S., and Bhattacharya, S. N., 2005, *Crustal structure beneath the Bengal Basin from joint analysis of Teleseismic Receiver Functions and Rayleigh wave dispersion*, **Abstract T51F-06 for 2005 AGU Fall Meeting to be held during Dec 5-9, 2005 at San Francisco, USA.**
- [41] Acton, C., Mitra, S., Mukul, M., Priestley, K. and **Nath, S. K.**, 2005, *Crustal Structure beneath the Darjeeling-Sikkim Himalaya from Teleseismic Receiver Functions*, **Abstract T43A-1377 for 2005 AGU Fall Meeting to be held during Dec 5-9, 2005 at San Francisco, USA.**
- [42] **Nath, S. K.**, 2006, *Seismic Hazard Assessment and Microzonation*, “**Training Handbook for the Faculty of State Resource Institutions**” under the National Programme for Capacity Building of Engineers in Earthquake Risk Management

- (NPCBEERM), Ministry of Home Affairs (DM) Govt of India, Chapter 6, pp 41-72.
- [43] **Nath, S. K.**, 2006, *Kinematics of Seismic Wave Propagation*, “**Training Handbook for the Faculty of State Resource Institutions**” under the National Programme for Capacity Building of Engineers in Earthquake Risk Management (NPCBEERM), Ministry of Home Affairs (DM) Govt of India, Chapter 8, pp 79 -114.
- [44] **Nath, S. K.**, 2006, *Digital Signal Processing*, “**Training Handbook for the Faculty of State Resource Institutions**” under the National Programme for Capacity Building of Engineers in Earthquake Risk Management (NPCBEERM), Ministry of Home Affairs (DM) Govt of India, Chapter 14, pp 165 - 181.
- [45] **Nath, S. K.**, 2007, *Seismic Hazard Scenario in the Sikkim Himalaya*, “**Geophysical Investigations in Northeast India Region**”, Special Publication of the Department of Science & Technology, GOI, pp 21 – 31.
- [46] **Nath, S. K.**, 2007, *Seismic Microzonation Framework – Principles & Applications*, at the **Microzonation Workshop** at Indian Institute of Science, Bangalore during June 26-27, 2007. Published in the Proceedings volume, pp. 07 – 35.
- [47] **Nath, S. K.**, 2007, *Seismological Philosophy towards Earthquake Engineering*, at the **INAE Annual Convention 2007** at Research Centre Imarat, Hyderabad during Dec 07-08, 2007.
- [48] **Nath, S.K.**, Thingbaijam, K.K.S., Raj, A., Shukla, K., Pal, I., Nandy, D. R., Yadav, M.K., Bansal, B.K., Dasgupta, S., Majumdar, K., Kayal, J.R., Shukla, A.K., Deb, S.K., Pathak, J., Hazarika, P.J., Paul, D.K. and, 2007, *Seismic Scenario of Guwahati City, Presented at the “International Workshop on Earthquake Hazards and Mitigations (EHAM-2007)” on Dec 07-08, 2007 at Guwahati, India and published in the Proceedings volume.*
- [49] Thingbaijam, K. K. Singh, and **Nath, S. K.**, 2007, *Maximum Credible Earthquake Prediction – A Neural Network Approach, Presented at the “International Workshop on Earthquake Hazards and Mitigations (EHAM-2007)” on Dec 07-08, 2007 at Guwahati, India and published in the Proceedings volume.*

C. Books and Monographs:

- [1] The *chapter* entitled “**Ground Water Exploration and Modelling**” for **Encyclopedia of Life Support Systems (Water, energy, environment and food and agriculture)** by **International Foundation for Water Science and Technology**, P.O. Box. 25862, Abu Dhabi, U.A.E.
- [2] The *book* entitled “**Schlumberger Geoelectric Sounding in Ground Water (Principles, Interpretation and Application) [H. P. Patra & S. K. Nath]**” published by M/s A. A. Balkema, Rotterdam, Netherlands [ISBN 90 5410 789 8] (Indian Edition by OXFORD & IBH Publishing Co. Pvt. Ltd., New Delhi [ISBN 81-204-1294-X]). © 1999 Copyright. 153p.
- [3] The *book* entitled “**Geophysical Prospecting for Ground Water [S. K. Nath, H. P. Patra & S. Shahid]**” published by M/s A. A. Balkema, Rotterdam, Netherlands [ISBN 90 5410 215 1] (Indian Edition by OXFORD & IBH Publishing Co. Pvt. Ltd., New Delhi [ISBN 81-204-1398-9]). © 2000 Copyright. 256p.
- [4] The *Atlas* entitled “**Seismic Hazard & Microzonation Atlas of the Sikkim Himalaya**” published by the Seismology Division, Department of Science and Technology, Government of India, New Delhi, (2006).

- [5] Joint Editor of the “**Training Handbook for the Faculty of State Resource Institutions**” under the National Programme for Capacity Building of Engineers in Earthquake Risk Management (NPCBEERM), Ministry of Home Affairs (National Disaster Management Division), Government of India, (2006).
- [6] The *Atlas* entitled “**Seismic Microzonation Atlas of Guwahati Region**” published by the Seismology Division, Department of Science and Technology, Government of India, New Delhi, (2008).

21. Research Thrusts and Significant Contributions made by Prof. Sankar Kumar Nath

● Earthquake Seismology

- **Ground motion Analysis & Synthesis**
- **Seismicity Analysis & Maximum Earthquake Prognosis**
- **Fault Fractal Analysis**
- **Strong Ground Motion Prediction**

● Seismic Microzonation

- **Multi-disciplinary Framework**
- **Probabilistic and Deterministic Seismic Hazard Assessment**
- **Seismic Vulnerability & Risk Estimation**

● Exploration Geophysics

- **Geo-tomography/cross-hole seismic tomography**
- **Ground water Exploration**
- **Seismic Modeling**
- **Seismic Pattern recognition**