

**Ms KIRTI SRIVASTAVA
CSIR-NGRI, HYDERABAD, INDIA**



NGRI RESEARCH GROUP:

Nonlinear Geophysics

FIELD OF SPECIALIZATION:

Mathematical and Stochastic modeling of Geophysical Processes

EDUCATION:

- 1991 Ph.D. Geophysics, Osmania University, India
- 1984 M.Sc. Applied Statistics, Osmania University, India
- 1982 B.Sc. Maths, Physics and Electronics, Osmania University, India

PROFESSIONAL EXPERIENCE:

- 03/89- **Scientist**, National Geophysical Research Institute, Hyderabad, India
- 1985/89 JRF/SRF, National Geophysical Research Institute, Hyderabad, India

TEACHING EXPERIENCE:

- Course on Statistics being taught to AcSIR students at NGRI Hyderabad.
- A course on Statistical Physics was taught to students of M.Sc (Tech) Computational Geophysics of Osmania University, Hyderabad

SERVICE:

- **Member**, Women Scientist Scheme, Department of Science and Technology, Government of India. (2007- continuing)
- **Board Member - Department of Mathematics, Gokaraju Rangaraju Institute of Engineering and Technology, JNTU, Hyderabad**

Past NGRI Committees:

- Chairperson and member of the Canteen and Guest house Committee
- Member of Farewell Committee

Major events organized as leader / coordinator

- Organized the XVI Conference of Andhra Pradesh Society for Mathematical Sciences on “ Mathematical Modeling in Earth Sciences” during December 8-10, 2007 sponsored by Ministry of Earth.
- Convener of AGU Chapman conference on Complexities and extreme events in Geosciences, during Feb 15-19, 2010
- Member of the Organizing committee of NGRI Golden Jubilee celebrations organized during October 2010-2011

Major Projects handled :

- CSIR Young Scientist Project : A scheme for modelling stochastic geophysical processes (**1996-2004**)
- DST Project : Stochastic modeling of the thermal structure to decipher the uncertainties in the seismogenic depths for seismically active regions of India (**2006-2009**)
- MoES Project : Tsunami modeling and inundation studies for the east and west coast of India due to earthquakes in Sumatra and Makran subduction zones (**2009-2012**)
- Kalpasar Project : Study of Tsunami Waves Impact on Structures and Tsunami Inundation Modelling for the Kalpasar Project (**2010-2013**)

AWARDS AND HONORS:

- National Merit Scholarship in High School
- CSIR Young Scientist Award - 1995

- Post Doctoral Research Fellowship from Temple University, Philadelphia, USA(2004-2005)

Fellowships of professional societies

- Fellow of the A.P Academy of Sciences
- Fellow Indian Geophysical Union
- Life member of Association of Exploration Geophysicists

PH.D. ADVISOR:

Dr V.P.Dimri, Distinguished Scientist, National Geophysical Research Institute, Hyderabad, India

SCIENTISTS WITH WHOM I HAVE COLLABORATED (OUTSIDE NGRI):

Current

- Prof Ioan Nistaor Vice-Dean Graduate Studies and Associate Professor, Faculty of Engineering, University of Ottawa, Canada

Past

- Prof Sergio Serreno, DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING, TEMPLE UNIVERSITY, PHILADELPHIA U.S.A

NGRI Collaborators (present and past):

Dr R.N. Singh, Emeritus Scientist, National Geophysical Research Institute, Hyderabad, India

Dr V.P.Dimri, Distinguished Scientist, National Geophysical Research Institute, Hyderabad, India

Dr S.N.Rai, Scientist, National Geophysical Research Institute, Hyderabad, India

Dr R.K. Chadha, Scientist, National Geophysical Research Institute, Hyderabad, India

Dr Srinagesh, Scientist, National Geophysical Research Institute, Hyderabad, India

PATENT

Patent Number	Title Of Patent	Date Issued
<u>7130758</u>	<u>Method for analytically obtaining closed form expressions for subsurface temperature dept distribution</u> Kirti Srivastava , Rohit Sharma, Bushra Fatima and R.N. Singh	October 31, 2006
<u>7440852</u>	<u>Stochastic analytical solution to quantify the earth's subsurface heat flow</u> Kirti Srivastava and R.N. Singh	October 21, 2008

PUBLICATIONS

Book Chapters:

International Journals

2012

1. Kirti Srivastava, Swaroopa, V., D.Srinagesh and Dimri, V.P., 2011, Inundation studies for Mumbai region on West coast of India due to Tsunamigenic earthquakes in the Makran subduction zone, Natural Hazards (Accepted).

2011

2. V. Swaroopa Rani, Kirti Srivatava, D.Srinagesh and V.P. Dimri, 2011, Spatial and temporal variation of b-value and fractal dimension in the Makran subduction zone, Marine Geodesy,34(1),77-82.
3. V.Swaroopa Rani, Kirti Srivatava, and V.P. Dimri, 2011, Tsunami Propagation and Inundation Due to Tsunamigenic Earthquakes in the Sumatra-Andaman Subduction Zone: Impact at Visakhapatnam, Marine Geodesy, 34(1), 48-58.
4. Kirti Srivastava, Swaroopa, V., Krishna Kumar, Likhita Narain and Dimri, V.P., 2011, Would Makran tsunami skip Mumbai, India? No it would reach 8 minutes later than Ratnagiri, *Indian Journal of Marine Science*, V40(5),620-623.
5. Kirti Srivastava, R.Krishna Kumar, M. Swapna , V. Swaroopa Rani, and V.P.Dimri , 2011, Inundation studies for Nagapattinam region on the east coast of India due to Tsunamigenic earthquakes from the Andaman Region. Natural Hazards , DOI 10.1007/s11069-011-9946-x.

2010

1. Chamoli, A., V. Swaroopa Rani, Kirti Srivastava, D. Srinagesh, and V. P. Dimri, 2010 Wavelet analysis of the seismograms for tsunami warning, *Nonlinear Processes in Geophysics*, 17, 569–574.2009
2. Kirti Srivastava, Likhita Narain , Swaroopa Rani and V.P. Dimri, 2009,Quantification of crustal geotherms along with its error bounds for seismically active regions of India: A Matlab toolbox, *Computers and Geosciences*, 35, 2009, 2095-2099.

2007

1. Srivastava, K. and Serrano, S.E., 2007, Uncertainty analysis of regional groundwater flow in a heterogeneous aquifer , *ASCE J of Hydraulic Engineering*, V 12 No.3, 306-318.
2. Serrano, S.E., Workman, S.R., Kirti Srivastava, Brenda Miller Van Cleave, 2007, A transient stream-aquifer model: Solution to non linear and linearized Boussinesq equation subject to a periodic boundary condition, *J Hydrology*, 336, 199-205.
3. Kirti Srivastava, and Dimri, V.P., 2007, Tsunami propagation of the 2004 Sumatra earthquake and fractal analysis of the aftershock activity, *Indian Journal of Marine Sciences*, 36(2), 128-135.
4. Kirti Srivastava, Swaroopa, V., D.Srinagesh and Dimri, V.P., 2007, Could the 12 Sept, 2007, earthquake of southern Sumatra, Indonesia, have generated a large Tsunami causing damage to the east coast of India? *Current Science*. Vol. 93(9) , 1228-1229.

2006

1. Srivastava, K., Serrano, S.E., and Workman, S.R., 2006, Stochastic modeling of transient stream aquifer interaction with the non linear Boussinesq equation, *J Hydrology*, 328, 538-547.
2. Dimri, V.P. and Kirti Srivastava, 2006, Modeling techniques for understanding the Indian Ocean Tsunami propagation, In *The Indian Ocean Tsunami* Ed Tad Murthy et al., Taylor and Francis Group , 123-130.

2005

1. Srivastava, K., 2005, Modeling the variability of heat flow due to random thermal conductivity of the crust, *Geophy J. Int*, 160 (2) 776-782.
2. Chadha, R.K., Srivastava, K., and Kumpel,H-J., 2005, Earthquake related changes in well water levels and their relation to a static deformation model for a seismically active Koyna-Warna region India, In: *Book on rock mechanics with emphasis on stress*, Oxford & IBH Pub.,135-150.

2004

1. Srivastava, K. and Dimri, V.P., 2004, Stable block Toeplitz matrix for the processing of multichannel seismic data, Indian J of Marine Sciences, 33(3), 215-219.

2002

1. Srivastava, K. Rai, S.N. and Singh, R.N., 2002, Modeling water table fluctuations in a sloping aquifer with random hydraulic conductivity, Envi.Geol.,41, 520-524.

2000

1. Srivastava, K., 2000, A new approach to stochastic modeling of sedimentary basins, Visakha Sci. J., 4(1), 79-84
2. Srivastava, K., 2000, An adaptive scheme for processing multitrace marine seismic data, Ind. J. marine. Sciences, 29, 106-110.

1989-99

1. Dimri, V.P. and Srivastava, K., 1989, Ideal Performance Criteria for deconvolution operators, Geophy. Prosp., 35, 539-547.
2. Dimri, V.P. and Srivastava, K, 1990, Optimum gate length for the time- varying deconvolution operators, Geophy. Prosp., 38, 405-410.
3. Dimri, V.P. and Srivastava, K., 1991, Gated Wiener Deconvolution, J. Geophys., 681- 689.
4. Srivastava, K., Singh, R.N. and Rai, S.N., 1994, Transient random recharge: Effects on water table fluctuations in a sloping aquifer, J. Geophys., 15(3), 123-128.
5. Srivastava, K., Rai, S.N. and Singh, R.N., 1996, Water table fluctuations in a sloping aquifer due to random recharge, Water. Res. Man., 10, 241- 250.
6. Rai, S.N. and Srivastava, K., 1997, Modeling of water table fluctuations in response to ransient random recharge, J. Geophys., 18(2), 125-129.
7. Srivastava, K., and Singh, R.N., 1998, A model for temperature variations in sedimentary basins due to random radiogenic heat sources, Geophys. J. Int., 135, 727-730.

8. Srivastava, K., Rai, S.N. and Singh, R.N., 1998, Analysis of water table fluctuations in a finite aquifer due to transient random recharge from a strip basin, *Hydrol. J.*, 21,63-73.
9. Srivastava, K., and Singh, R.N., 1999, A stochastic model to quantify the steady state crustal geotherms subject to uncertainties in the thermal conductivity, *Geophy. J. Int.*, 138, 895-899.

In non-SCI journals

1. Srivastava, K., and Singh, R.N., 1999, Influence of random thermal conductivity on subsurface temperature fluctuations, *J. Geophys.*, 20(2), 89-92.
2. Srivastava, K., 2001, A study on the subsurface thermal structure using a stochastic approach, *Geothermal Res. Cou. Trans.*, V 25, 439-441.

In Books

1. Srivastava, K., 2001, Stochastic Modeling of the subsurface temperature distribution, In *Dynamics of Fluid System*, AABalkema Publ., 159- 169.
2. Dimri, V.P. and Kirti Srivastava, 2006, Modeling techniques for understanding the Indian Ocean Tsunami propagation, In *The Indian Ocean Tsunami Ed Tad Murthy et al.*, Taylor and Francis Group , 123-130.

Technical Reports

1. Kirti Srivastava, Purnachandra Rao, V. Swaroopa, R. Krishna Kumar and V.P. Dimri, National Round Robin on Tsunami Modeling for Kalpakkam site, Technical Report submitted to Baba Atomic Research Centre, TR No: NGRI-2009-LITHOS-681
2. Kirti Srivastava , R. Krishna Kumar, Swapna M, Farveen Begum and V.P. Dimri, 2011, National Round Robin on Tsunami Modeling for West Coast” Technical Report submitted to Baba Atomic Research Centre.

SUMMARY OF STUDENT ACTIVITIES

CURRENT STUDENTS

Mr R.Krishna Kumar

Mrs Swapna

PAST STUDENTS

Mrs Swaroopa Rani